Wayne P. Allen
Principal Manager
Regulatory Support Services

Electronically Filed

February 23, 2024

Debbie-Anne A. Reese
Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

Subject: **Lundy Hydroelectric Project, FERC Project No. 1390**
Notification of Intent to File an Application for New License and Pre-Application Document

Dear Acting Secretary Reese:

Pursuant to section 15(b)(1) of the Federal Power Act, 16 U.S.C. § 808(b)(1), and section 5.5 of the regulations of the Federal Energy Regulatory Commission (Commission or FERC), 18 C.F.R. § 5.5, Southern California Edison Company (SCE) hereby files its Notification of Intent (NOI) to File an Application for New License for the Lundy Hydroelectric Project (Lundy Project), FERC Project No. 1390. Pursuant to section 5.6 of the Commission's regulations, 18 C.F.R. § 5.6, SCE is filing the Pre-Application Document (PAD) with this NOI.

The Lundy Project is a 3 MW facility located on the eastern slope of the Sierra Nevada along Mill Creek, approximately 7.6 miles northwest of Lee Vining, in Mono County, California. The Lundy Project occupies approximately 122.9 acres of federal land within Inyo National Forest administered by the U.S. Forest Service, and approximately 0.9 acres of federal land administered by the U.S. Bureau of Land Management. The current license for the Lundy Project expires on February 28, 2029. SCE plans to pursue the relicensing of the Lundy Project using FERC's Integrated Licensing Process pursuant to 18 C.F.R. Part 5.

Public and Non-Public Versions of the PAD

The PAD includes appendices that contain all the information required by 18 C.F.R. §5.6(c) and 5.6(d), except that the public version excludes certain appendices as follows:

- Appendix C contains one-line diagrams that constitute Critical Energy Infrastructure Information (CEII). Accordingly, Appendix C is being electronically filed in the FERC eLibrary as CEII, labelled as "CUI//CEII," and marked with the language "Contains CEII – Do Not Release." SCE requests that the Commission, pursuant to 18 C.F.R. § 388.113, place Appendix C in its non-public files as CEII.

- Appendix F (privileged information) contains information that provides details on the location(s) of sensitive cultural resources. Disclosure of this information could be harmful to these resources. For this reason, pursuant to 18 C.F.R. § 385.112, SCE requests confidential treatment of this information. Appendix F is being electronically filed in the FERC eLibrary as privileged, labelled as “CUI//PRIV,” and marked with the language "Contains Privileged Information - Do Not Release."

Request for Designation as the Commission’s Non-Federal Representative

In accordance with 18 CFR § 5.5(c), SCE is providing a copy of the attached NOI and PAD to the appropriate federal and state resource agencies, Native American Tribes, local governments, and members of the public likely to be interested in the proceeding, as set forth in the attached distribution list. Members of the distribution list will receive the documents electronically when possible. The public portions of this filing will also be placed on SCE's Lundy Relicensing Website (https://www.sce.com/lundy) where they are available for download. The public portions of this filing will also be available for review by appointment at the Bishop Creek Hydro Headquarters Office: 4000 E. Bishop Creek Road, Bishop, California, 93514.

At this time, in accordance with 18 C.F.R. §§ 5.5(e) and 5.8(b)(2), and 36 C.F.R. § 800.2(c)(4), SCE requests that FERC designate SCE as its non-federal representative for purposes of consultation under Section 106 of the National Historic Preservation Act, and to authorize the initiation of Section 106 consultation for the relicensing of the Lundy Project.

SCE understands that pursuant to 36 CFR § 800.2(c)(4), the Commission remains responsible for carrying out government-to-government consultation with Indian tribes. Pursuant to the delegated authority requested herein to serve as the Commission’s non-federal representative, SCE will initiate contact with Indian tribes to identify values and resource issues of interest to the tribes.

In addition, pursuant to 18 C.F.R. §§ 5.5(e) and 5.8(b)(2), and 50 C.F.R. § 402.08, SCE requests that the Commission initiate informal consultation under Section 7 of the Endangered Species Act (ESA), and to designate SCE as its non-federal representative for purposes of Section 7 informal consultation.

Conclusion

SCE looks forward to working with Commission staff, federal and state resource agencies, Native American Tribes, and other interested parties on the Lundy Project relicensing. Should there be any questions or concerns regarding this filing, please contact Matthew Woodhall, Senior Regulatory Advisor, by phone at (626) 302-9596 or via e-mail at matthew.woodhall@sce.com.

Sincerely,

DocuSigned by:
Wayne Allen
106CF18A73D445F...
Wayne Allen
Principal Manager
Regulatory Support Services

Attachments:

- Distribution List
- Notification of Intent
- Pre-Application Document for the Lundy Hydroelectric Project (FERC Project No. 1390)

Wayne P. Allen
Principal Manager
Regulatory Support Services

Distribution List

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead℠

Wayne P. Allen
Principal Manager
Regulatory Support Services

FERC Service List

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Mary Schickling, Senior Specialist Southern California Edison Company 1 Pebbly Beach Rd Avalon, CA 90704 mary.schickling@sce.com	Christy Fanous, Managing Director Southern California Edison Company P.O. Box NA Rosemead, CA 91770 christine.fanous@sce.com
Mono Lake Committee Morrison & Foerster LLP F. Bruce Dodge 319 Goodhill Rd Kentfield, CA 94904 fbdodge@gmail.com	California Trout Mark Drew P.O. Box 3442 Mammoth Lakes, CA 93546-3442 mdrew@caltrout.org

People for Mono Basin Preservation P.O. Box 217 532 E. Mono Lake Drive Lee Vining, CA 93541 Kathleen Maloney Bellomo hydroesq@schat.net	American Rivers National Heritage Institute 2140 Shattuck Avenue, Ste. 801 Berkeley, CA 94704-1229 Richard Roos-Collins Director, Legal Services rrcollins@waterpowerlaw.com
Mono Lake Committee Geoffrey McQuilkin P.O. Box 29 Lee Vining, CA 93541-0029 geoff@monolake.org	

Federal Government/Representatives

Advisory Council on Historic Preservation 401 F Street NW, Suite 308 Washington, DC 20001-2637 Executive Director	Bureau of Indian Affairs 2800 Cottage Way Sacramento, CA 95825 Regional Director
Bureau of Indian Affairs 1849 C Street NW MS 2624 MIB Washington, DC 20240 Director	Federal Energy Regulatory Commission 901 Market Street, Suite 350 San Francisco, CA 94103 Regional Engineer
National Park Service Stephen Bowes 333 Bush Street, San Francisco, CA 94104 stephen_bowes@nps.gov	U.S. Bureau of Land Management, Bishop Field Office 351 Pacu Lane, Suite 200 Bishop, CA 93514 Jeff Satrosta, Supervisor Natural Resource Specialist jstarost@blm.gov
U.S. Bureau of Land Management, Bishop Field Office 351 Pacu Lane, Suite 200 Bishop, CA 93514 Dale Johnson dfjohnso@blm.gov	U.S. Bureau of Land Management, Bishop Field Office 351 Pacu Lane, Suite 200 Bishop, CA 93514 Larry Primosch lprimosc@blm.gov
U.S. Bureau of Land Management Bishop Field Office 351 Pacu Lane, Suite 200 Bishop, CA 93514 Greg Haverstock ghaverst@blm.gov	U.S. Department of Agriculture - Forest Service Michael Wiese, Hydrologist michael.wiese@usda.gov
U.S. Department of Agriculture - Forest Service 1980 Old Mission Drive Solvang, CA 93463 Monique Sanchez, Hydropower Coordinator monique.sanchez@usda.gov	U.S. Department of Agriculture - Forest Service Nathan Sill nathan.sill@usda.gov

U.S. Department of Agriculture - Forest Service Richard McNeill, Botanist Richard.McNeill@usda.gov	U.S. Department of Agriculture - Forest Service Wilfred Nabahe, Tribal Relations Program Manager, Inyo National Forest Wilfred.Nabahe@usda.gov
U.S. Department of Agriculture - Forest Service Stephanie Heller, Mono Lake District Ranger stephanie.heller@usda.gov	U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Ashley Blythe Haverstock ashley.blythehaverstock@usda.gov
U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Jacqueline Beidl jacqueline.beidl@usda.gov	U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Blake M. Engelhardt blake.engelhardt@usda.gov
U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Dan Yarborough daniel.yarborough@usda.gov	U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Sheila Irons sheila.irons@usda.gov
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U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 LeeAnn Murphy leeann.murphy@usda.gov	U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Jameisha Washington, Mono Lake Recreation Officer Jameisha.Washington@usda.gov

U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Adam Barnett, Public Services Staff Officer adam.barnett@usda.gov	U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Kary Schlick kschlick@usda.gov
U.S. Department of Agriculture - Forest Service, Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 93514 Dawn Alvarez dawn.alvarez@usda.gov	U.S. Fish and Wildlife Service Reno Fish and Wildlife Office 1340 Financial Blvd. Reno, NV 89502 Stephen Fettig stephen_fettig@fws.gov
U.S. Department of Agriculture - Forest Service, Pacific Southwest Region 1323 Club Drive Vallejo, CA 94592 Tristan Leong tristan.leong@usda.gov	U.S. Fish and Wildlife Service Reno Fish and Wildlife Office 1340 Financial Blvd. Reno, NV 89502 Shawna Theisen shawna_theisen@fws.gov
U.S. Fish and Wildlife Service Reno Fish and Wildlife Office 1340 Financial Blvd. Reno, NV 89502 Justin Barrett justin_barrett@fws.gov	U.S. Fish and Wildlife Service Chad Mellison chad_mellison@fws.gov

State Government/Representatives

California Dept. of Fish and Wildlife, Bishop Field Office 787 North Main Street, Suite 220 Bishop, CA 93514 Nick Buckmaster nick.buckmaster@wildlife.ca.gov	California Dept. of Fish and Wildlife Inland Deserts Region 78078 Country Club Drive, Suite 109 Bermuda Dunes, CA 92203 Scott Wilson scott.wilson@wildlife.ca.gov
California Dept. of Fish and Wildlife, Bishop Field Office 787 North Main Street, Suite 220, Bishop, CA 93514 Patricia Moyer, Supervisor patricia.moyer@wildlife.ca.gov	California Dept. of Fish and Wildlife Graham Meese, Senior Environmental Scientist for FERC and Water Rights graham.meese@wildlife.ca.gov
California Dept. of Fish and Wildlife, Bishop Field Office 787 North Main Street, Suite 220, Bishop, CA 93514 Rose Banks rose.banks@wildlife.ca.gov	California Dept. of Fish and Wildlife Alyssa Hockaday, Region 6 South Water Rights Regional Coordinator alyssa.hockaday@Wildlife.ca.gov
California Dept. of Fish and Wildlife James Erdman james.erdman@wildlife.ca.gov	California Regional Water Quality Control Board Adam Cohen adam.cohen@waterboards.ca.gov
California Dept. of Fish and Wildlife Beth Lawson beth.lawson@wildlife.ca.gov	California Dept. of Fish and Wildlife Michael Tovar michael.tovar@wildlife.ca.gov
California Regional Water Quality Control Board Bryan Muro bryan.muro@waterboards.ca.gov	California Regional Water Quality Control Board Rajaa Hassan rajaa.hassan@waterboards.ca.gov
Lahontan Regional Water Quality Control Board 2501 Lake Tahoe Blvd. South Lake Tahoe, CA 96150 Jennifer Watts, Environmental Scientist Jennifer.watts@waterboards.ca.gov	

Local Government/Public Agency

Inyo-Mono Regional Water Management Program Holly Alpert, Ph.D., Program Manager holly@inyo-monowater.org	Los Angeles Department of Water and Power Adam Perez Adam.Perez@ladwp.com
Los Angeles Department of Water and Power Saeed Jorat saeed.jorat@ladwp.com	Mono County Fish and Wildlife Commission Jim King, Vice Chair jkrclr@gmail.com
Los Angeles Department of Water and Power 300 Mandich Street, Bishop, CA 93514 Eric Tillemans eric.tillemans@ladwp.com	Los Angeles Department of Water and Power 300 Mandich Street, Bishop, CA 93514 Lori Gillem, Watershed Resources Supervisor Lori.gillem@ladwp.com
Mono Basin Historical Society 129 Mattly Ave. Lee Vining, CA 93541 John Warneke, Curator curator@monobasinhistory.org	Mono County Planning Commission P.O. Box 347 Mammoth Lakes, CA 93546 Wendy Sugimura wsugimura@mono.ca.gov
Mono County Fish and Wildlife Commission Gaye Mueller, Chair easternsierraartist@gmail.com	Mono County Planning Commission 437 Old Mammoth Road Mammoth Lakes, CA 93546 comdev@mono.ca.gov

Non-Government Organizations

Access Fund 408 Home Street Bishop, CA 93514 Katie Goodwin, CA Regional Director katie@accessfund.org	California Native Plant Society Bristlecone Chapter P.O. Box 364 Bishop, CA 93515 Katie Quinlan kquinlan16@gmail.com, president@bristleconecnps.org
Friends of the Inyo 621 W. Line St., Suite 201 Bishop, CA 93514 Wendy Schneider, Executive Director wendy@friendsoftheinyo.org	Friends of the River 1418 20th St., Suite 100 Sacramento, CA 95811 Eric Wesselman, Executive Director eric@friendsoftheriver.org
American Whitewater P.O. Box 455 5981 New River Road Coloma, CA 95613 info@americanwhitewater.com	Friends of Mono Lake Reserve P.O. Box 278 Bridgeport, CA 93517 fomlr@bodiefoundation.org
Sierra Club Mark Bagley 2101 Webster St, Suite 1300 Oakland, CA 94612 markbagley02@gmail.com	Sierra Nevada Conservancy, Mammoth Lakes P.O. Box 9245 126 Old Mammoth Road, Suite 107 Mammoth Lakes, CA 93546 Matt Driscoll matt.driscoll@sierranevada.ca.gov
Trout Unlimited P.O. Box 7399 Mammoth Lakes, CA 93546 J. Strickland jstrickland@tu.org	Sierra Club, Toiyabe Chapter 2101 Webster St., Suite 1300 Oakland, CA 94612 chair@toiyabe.sierraclub.org
Mammoth Museum/Southern Mono Historical Society 5489 Sherwin Creek Road Mammoth Lakes, CA 93546 events@mammothmuseum.org	Rainbow Packers P.O. Box 392 Bishop, CA 93151 Ruby Allen rainbowpackers@aol.com

Lundy Lake Resort P.O. Box 789 Lee Vining, CA 93541 Haley Wragg, President lundylakeresort@gmail.com	

Native American Tribes

American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Sandra Chapman, Chairperson ssmiwuknation@gmail.com	American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Clay River, Managing Director, Miwumati Family Healing Center claymiwumati@gmail.com
American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Tara Fouch-Moore, Council Secretary secretary@southernsierramiwuknation.org	American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Nancy Dondero, Administrative Receptionist ndondero21@gmail.com
American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Acacia Coats, Director-at-Large director@southernsierramiwuknation.org	American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Waylon Coats, Vice Chairperson vicechair@southernsierramiwuknation.org
American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 mariposamiwuk@sti.net	American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Jazzmyn Gegere (Brochini), Cultural Resource Preservation Department Manager preservation@southernsierramiwuknation.org
Antelope Valley Indian Community, Coville Paiute Tribe P.O. Box 47 Coleville, CA 96107 Chairperson or Tribal Administrator	Antelope Valley Indian Community, Coville Paiute Tribe 1023 Mountain Park Drive Carson City, NV 89706 Georgia Grace “Gracie” Dick-Cluette numugrace@gmail.com

Big Pine Paiute Tribe of Owens Valley P.O. Box 700 Big Pine, CA 93513 Cheyenne Stone, Chairperson cheyenne.stone@bigpinepaiute.org	Big Pine Paiute Tribe of Owens Valley P.O. Box 700 Big Pine, CA 93513 Jacqueline “Danelle” Gutierrez, Tribal Historic Preservation Officer d.gutierrez@bigpinepaiute.org
Big Pine Paiute Tribe of Owens Valley P.O. Box 700 Big Pine, CA 93513 Sally Manning, Environmental Director s.manning@bigpinepaiute.org	Bishop Paiute Tribe 50 Tu Su Lane Bishop, CA 93514 Darren Delgado, Tribal Historic Preservation Officer darren.delgado@bishoppaiute.org
Bishop Paiute Tribe 50 Tu Su Lane Bishop, CA 93514 Meryl Picard, Chairperson meryl.picard@bishoppaiute.org	Bridgeport Indian Colony P.O. Box 37 Bridgeport, CA 93517 Jeanette, Tribal Administrator admin@bridgeportindiancolony.com
Bishop Paiute Tribe P.O. Box 591 Bishop, CA 93515 Raymond Andrews, Member kutzanuumu@yahoo.com	Bridgeport Indian Colony P.O. Box 37 Bridgeport, CA 93517 Herbert Glazier, Chairperson chair@bridgeportindiancolony.com
Bridgeport Indian Colony P.O. Box 37 Bridgeport, CA 93517 Debbie Lundy-Painter, Cultural Coordinator culture@bridgeportindiancolony.com	Fort Independence Indian Community of Paiute Indians P.O. Box 67 Independence, CA 93526 Carl Dahlberg, Chairperson carl@fortindependence.com
Fort Independence Indian Community of Paiute Indians Sean Scruggs, Tribal Historic Preservation Officer falconkeeper22@gmail.com	Lone Pine Paiute-Shoshone Tribe P.O. Box 747 Lone Pine, CA 93545 Mary Wuester, Chairperson chair@lppsr.org
Lone Pine Paiute-Shoshone Tribe P.O. Box 747 Lone Pine, CA 93545 Katherine Bancroft, Tribal Historic Preservation Officer patsiata@yahoo.com	Mono Lake Kutzadikaa Tribe P.O. Box 177 Big Pine, CA 93513 Charlotte Lange, Chairperson char54lange@gmail.com

Mono Lake Kutzadikaa Indian Community Cultural Preservation Association P.O. Box 237 Lee Vining, CA 93541 Jocelyn Sheltraw, President jsheltraw@monolaketribe.us	Mono Lake Kutzadikaa Indian Community Cultural Preservation Association P.O. Box 237 Lee Vining, CA 93541 Dean Tonenna, Vice President dtonenna@gmail.com
North Fork Rancheria of Mono Indians of California P.O. Box 929 North Fork, CA 93643 Christina McDonald, Secretary cmcdonald@nfr-nsn.gov	North Fork Rancheria of Mono Indians of California P.O. Box 929 North Fork, CA 93643 Fred Beihn, Chairperson fbeihn@nfr-nsn.gov
North Fork Rancheria of Mono Indians of California P.O. Box 929 North Fork, CA 93643 Natori Naylor, Vice Chairperson n.naylor@nfr-nsn.gov	North Fork Rancheria of Mono Indians of California P.O. Box 929 North Fork, CA 93643 Elaine Bethel-Fink, Tribal Member efink@nfr-nsn.gov
North Fork Mono Tribe of California 13396 Tollhouse Road Clovis, CA 93619 Ron Goode, Chairman rwgoode911@hotmail.com	Timbisha Shoshone Tribe 621 West Line St., Suite 109 Bishop, CA 93514 Sookaaki (Charlie) Charley, Tribal Administrator administrator@timbisha.com
Timbisha Shoshone Tribe 621 West Line St., Suite 109 Bishop, CA 93514 Margaret Cortez, Chairperson one_mug@yahoo.com	Timbisha Shoshone Tribe 621 West Line St., Suite 109 Bishop, CA 93514 Mandi Campbell, Tribal Historic Preservation Officer THPO@timbisha.com
Timbisha Shoshone Tribe 621 West Line St., Suite 109 Bishop, CA 93514 Thomas Romero, Environmental Department environmental@timbisha.com	Tuolumne Band of Me-Wuk Indians P.O. Box 669 Tuolumne, CA 95379 Jon Otterson, Tribal Administrator jon@mewuk.com

Tuolumne Band of Me-Wuk Indians P.O. Box 669 Tuolumne, CA 95379 Reba Fuller, Government Affairs Specialist rfuller@mewuk.com	Utu Utu Gwaitu Paiute Tribe of the Benton Paiute Reservation 25669 Highway 6 PMBI Benton, CA 93512 Shane Saulque, Chairman s.saulque@bentontribe.org
Tuolumne Band of Me-Wuk Indians P.O. Box 669 Tuolumne, CA 95379 Andrea Reich, Chairperson andrea@mewuk.com	Walker River Paiute Tribe P.O. Box 220 Schurz, NV 89427 Linzey Scott, Tribal Historic Preservation Officer lscott@wrpt.org
Walker River Paiute Tribe P.O. Box 220 Schurz, NV 89427 Sarah Twiss, Tribal Administrator stwiss@wrpt.org	Washoe Tribe of Nevada and California Patrick Burtt, Tribal Historic Preservation Officer 919 U.S. Hwy 395 N Gardnerville, NV 89410 THPO@WashoeTribe.us
Washoe Tribe of Nevada and California Serrell Smokey, Chairperson 919 U.S. Hwy 395 N Gardnerville, NV 89410 serrell.smokey@washoetribe.us	Yosemite-Mono Lake Paiute Indian Community David Andrews 711 19th St. Sparks, NV 89431 nayanake@comcast.net
Yerington Paiute Tribe of the Yerington Colony and Campbell Ranch Elwood Emm, Chairman 171 Campbell Lane Yerington, NV 89447	Yosemite-Mono Lake Paiute Indian Community Melvin Brewster, Representative 6245 Longford Drive, Apt 1 Citrus Heights, CA 95621 nativearchdoc@yahoo.com
Yosemite-Mono Lake Paiute Indian Community Lucy Parker P.O. Box 157 Lee Vining, CA 93541 lucy_basket4@yahoo.com	

Other Organizations & Businesses

Kleinschmidt Associates Finlay Anderson, Principal Consultant 1500 NE Irving St Ste 550 Portland, OR 97232 finlay.anderson@kleinschmidtgroup.com	E Read Associates, Inc. Edith Read, President 368 South Grand St. Orange, CA 92866 marshmistress@msn.com
Kleinschmidt Associates Angela Whelpley 141 Main Street Pittsfield, ME 04967 angela.whelpley@kleinschmidtgroup.com	Farwestern Jay King, President 2727 Del Rio Place, Suite A Davis, CA 95618 jay@farwestern.com
Vince White Southern California Edison Company 2244 Walnut Grove Ave Rosemead, CA 91770 Vince.white@sce.com	Daniel Keverline Southern California Edison Company 2244 Walnut Grove Ave Rosemead, CA 91770 Daniel.keverline@sce.com
Matthew Woodhall, Project Lead Southern California Edison Company 2244 Walnut Grove Ave Rosemead, CA 91770 matthew.woodhall@sce.com	Mono Lake Committee Robert Di Paolo P.O. Box 29 Lee Vining, CA 93541-0029 robbie@monolake.org
Audry Williams, Senior Advisor, Archaeology Program Southern California Edison Company 2244 Walnut Grove Ave Rosemead, CA 91770 Audry.williams@sce.com	Mono Lake Committee Bartshe Miller P.O. Box 29 Lee Vining, CA 93541-0029 bartshe@monolake.org
Stillwater Sciences Heather Neff, Senior Aquatic Ecologist 279 Cousteau Place #400 Davis, CA 95618 heather@stillwatersci.com	Psomas Brad Blood, Senior Biologist 5 Hutton Centre Drive, Suite 300 Santa Ana, CA 92707 bblood@psomas.com
TEAM Engineering & Management, Inc. 459 W. Line St., Suite A Bishop, CA 93514 Naomi Jensen, President/CEO naomi@teamenvironmental.com	Psomas Allison Rudalevige, Senior Biologist 5 Hutton Centre Drive, Suite 300 Santa Ana, CA 92707 allison.rudalevige@psomas.com

Wayne P. Allen
Principal Manager
Regulatory Support Services

Notice of Intent

Wayne P. Allen
Principal Manager
Regulatory Support Services

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Southern California Edison Company	**)** **)**	**Project No. 1390**

NOTIFICATION OF INTENT TO FILE APPLICATION FOR NEW LICENSE

Pursuant to 18 Code of Federal Regulation (CFR) § 5.5, Southern California Edison Company (SCE) notifies the Federal Energy Regulatory Commission (FERC) of its unequivocal intent to file an Application for a New License for the Lundy Hydroelectric Project (Lundy Project), Project No. 1390.

The following information is provided consistent with the requirements of 18 CFR § 5.5and 16.6(b):

1. **The Existing Licensee's Name and Address:**

   Southern California Edison Company
   P.O. Box 800
   Rosemead, CA 91770

   SCE requests that all correspondence and service of documents related to this notification and subsequent proceedings be addressed to:

   Matthew Woodhall
   Project Lead
   Southern California Edison Company
   2244 Walnut Grove Avenue
   Rosemead, CA 91770
   Phone: 626-302-9596
   Email: matthew.woodhall@sce.com

   Wayne P. Allen
   Principal Manager, Hydro Licensing and Implementation
   Southern California Edison Company
   2244 Walnut Grove Avenue
   Rosemead, CA 91770
   Phone: 626-302-9741
   Email: wayne.allen@sce.com

2. **Project Number:**
   FERC Project No. 1390

3. License Expiration Date:

February 28, 2029

4. Unequivocal Statement of Intent:

SCE hereby unequivocally declares its intent to file an application for a new license for the Lundy Project, FERC Project No. 1390, by February 28, 2027m two years prior to the license expiration date. SCE will be utilizing the Commission's Integrated Licensing Process in support of this relicensing.

5. Principal Project Works:

The Lundy Project consists of Lundy Lake, Lundy Dam, intake, a flowline, a penstock, a powerhouse, and a water distribution system by which flows are directed to meet the water rights of water rights holders.

6. Location of the Lundy Project:

State or Territory:	California
County:	Mono
Stream:	Mill Creek
Township or nearby town:	Lundy
Coordinates of Dam:	38° 02' 07.18" N 119°13'09.10" W

7. Installed Plant Capacity:

The authorized installed capacity of the Lundy Project is 3,000 kilowatts (kW).

8. The Names and Mailing Addresses of:

(i) Every county in which any part of the project is located, and in which any Federal facility that is used or to be used by the project is located:

Mono County 1290 Tavern Road Mammoth Lakes, CA 93546 1-866-745-9719 https://monocounty.ca.gov/contact	Inyo National Forest 351 Pacu Lane, Suite 200 Bishop, CA 913514 760-873-2400 https://www.fs.usda.gov/inyo

There are no federal facilities used by the Lundy Project.

(ii) Every city, town, or similar political subdivision:

A. *In which any part of the project is or is to be located and any Federal facility that is or is to be used or to be used by the project is located:*

The Lundy Project is not located within any city, town, or similar political subdivision.

There are no federal facilities used by the Lundy Project.

B. *That has a population of 5,000 or more people and is located within 15 miles of the existing or proposed project dam:*

There are no cities or towns within 15 miles of the existing Lundy Project dam with a population of 5,000 or more people.

(iii) *Every irrigation district, drainage district, or similar special purpose political subdivision:*

A. *In which any part of the project is or is proposed to be located and any Federal facility that is or is proposed to be used by the project is located:*

The Project is not located within any irrigation district, drainage district, or similar special purpose political subdivision.

There are no federal facilities used by the Project.

B. *That owns, operates, maintains, or uses any project facility or any Federal facility that is or is proposed to be used by the Project:*

Los Angeles Department of Water and Power 300 Mandich Street Bishop, CA 93514

There are no federal facilities used by the Project.

(iv) *Every other political subdivision in the general area of the project or proposed project that there is reason to believe would likely be interested in, or affected by, the notification:*

There are no political subdivisions that SCE reasonably believes would be interested in or affected by this Lundy Project notification.

(v) Affected Indian Tribes:

American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation) P.O. Box 186 Mariposa, CA 95338 Sandra Chapman, Chairperson ssmiwuknation@gmail.com Tara Fouch-Moore, Council Secretary secretary@southernsierramiwuknation.org	Big Pine Paiute Tribe of Owens Valley P.O. Box 700 Big Pine, CA 93513 Cheyenne Stone, Chairperson cheyenne.stone@bigpinepaiute.org Jacqueline "Danelle" Gutierrez, Tribal Historic Preservation Officer d.gutierrez@bigpinepaiute.org
Bishop Paiute Tribe 50 Tu Su Lane Bishop, CA 93514 Meryl Picard, Chairperson meryl.picard@bishoppaiute.org Darren Delgado, Tribal Historic Preservation Officer darren.delgado@bishoppaiute.org	Bridgeport Indian Colony P.O. Box 37 Bridgeport, CA 93517 Herbert Glazier, Chairperson chair@bridgeportindiancolony.com Debbie Lundy-Painter, Cultural Coordinator culture@bridgeportindiancolony.com Jeanette, Tribal Administrator admin@bridgeportindiancolony.com
Mono Lake Kutzadikaa Tribe P.O. Box 177 Big Pine, CA 93513 Charlotte Lange, Chairperson char54lange@gmail.com Jocelyn Sheltraw, President jsheltraw@monolaketribe.us	North Fork Rancheria of Mono Indians of California P.O. Box 929 North Fork, CA 93643 Fred Beihn, Chairperson fbeihn@nfr-nsn.gov Christina McDonald, Secretary cmcdonald@nfr-nsn.gov
North Fork Mono Tribe of California 13396 Tollhouse Road Clovis, CA 93619 Ron Goode, Chairman rwgoode911@hotmail.com	Tuolumne Band of Me-Wuk Indians P.O. Box 669 Tuolumne, CA 95379 Andrea Reich, Chairperson andrea@mewuk.com Jon Otterson, Tribal Administrator jon@mewuk.com
Walker River Paiute Tribe P.O. Box 220 Schurz, NV 89427 Linzey Scott, Tribal Historic Preservation Officer lscott@wrpt.org Sarah Twiss, Tribal Administrator stwiss@wrpt.org	Washoe Tribe of Nevada and California 919 U.S. Hwy 395 N Gardnerville, NV 89410 Serrell Smokey, Chairperson serrell.smokey@washoetribe.us Patrick Burtt, Tribal Historic Preservation Officer THPO@WashoeTribe.us

9. Whether the Application Will Be for a Power or Non-Power License:

The Lundy Project license application will be for a power license.

10. Distribution

In accordance with 18 C.F.R. § 5.5(c), SCE is distributing this Notification of Intent and accompanying Pre-Application Document to appropriate federal, state, and interstate resource agencies, Native American Tribes, and local governments, as well as members of the public likely to be interested in the proceeding. The Distribution List includes a complete listing of the notified agencies, Native American Tribes, local governments, non-governmental organizations, and other potentially interested parties.

In accordance with 18 C.F.R. § 5.6(e), the following information is provided:

11. Public Utilities Regulatory Policies Act Benefits:

SCE is not seeking benefits under section 210 of the Public Utilities Regulatory Policies Act of 1978 for the Lundy Project.

SOUTHERN CALIFORNIA EDISON

LUNDY HYDROELECTRIC PROJECT

(FERC Project No. 1390)

PRE-APPLICATION DOCUMENT

February 2024

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Southern California Edison

Lundy Hydroelectric Project
(FERC Project No. 1390)

Pre-Application Document

Southern California Edison
2244 Walnut Grove Ave
Rosemead, CA 91770

February 2024

Support from:

Kleinschmidt

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	microgram per liter

A

ACS	American Community Survey
AICMC	American Indian Council of Mariposa County
amsl	above mean sea level
APE	area of potential effects
AVM	acoustic velocity meter

B

BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMI	benthic macroinvertebrate
BMP	best management practice
BP	Before Present

C

CAL FIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings
CCH	Consortium of California Herbaria
CEDEN	California Environmental Data Exchange Network
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	census-designated place
CDPR	California Department of Parks and Recreation

CEDD	California Employment Development Department
CEII	Critical Energy Infrastructure Information
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
cfu	colony forming units
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CSCI	California Stream Condition Index
CWA	Clean Water Act

D

DPS	Distinct Population Segment
DSSMP	Dam Safety Surveillance and Monitoring Plan

E

EA	Environmental Assessment
EAP	Emergency Action Plan
EIC	Eastern Information Center
EJ	environmental justice
ESA	Endangered Species Act

F

FERC	Federal Energy Regulatory Commission
FLA	Final License Application
FOIA	Freedom of Information Act
FPA	Federal Power Act
ft	foot or feet

G

GIS	geographic information system

H

HAPP	Historic and Archaeological Preservation Plan
HPMP	Historic Properties Management Plan
HRMP	Heritage Resource Management Plan

I

ILP	Integrated Licensing Process
Inyo NF	Inyo National Forest
IPaC	Information for Planning and Consultation

K

ka	thousand years ago
KOP	key observation point
kV	kilovolt

L

L	liter
LADWP	Los Angeles Department of Water and Power
lb	pound
Licensee	Southern California Edison
LiDAR	Light Detection and Ranging
LMP	Land Management Plan
LOP	Limited Operating Period
LRWQCB	Lahontan Region Water Quality Control Board

M

ma	million years ago
MCAPT	Mill Creek Accounting and Planning Tool
MCL	Maximum Contaminant Level
MCRD	Mill Creek Return Ditch

mg/L	milligram per liter
MRLC	Multi-Resolution Land Characteristics
msl	mean sea level
MW	megawatt

N

NAHC	Native American Heritage Commission
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
NF	National Forest
NGO	non-governmental organization
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NOI	Notification of Intent
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NVUM	National Visitor Use Monitoring Program
NWI	National Wetlands Inventory
NWS	National Weather Service

O

O&M	Operation and Maintenance

P

PAD	Preliminary Application Document
PCB	polychlorinated biphenyl
PHS	Priority Habitats and Species
PME	Protection, Mitigation, and Enhancement
Project	Lundy Hydroelectric Project No. 1390
PSP	Public Safety Plan
PST	Pacific Standard Time

R

RTE	rare, threatened, or endangered
RUN	Recreation Use and Needs
RWQCB	Regional Water Quality Control Board

S

SCC	Species of Conservation Concern
SCE	Southern California Edison
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Office
SMCL	Secondary Maximum Contaminant Level
SSC	Species of Special Concern
SSMN	Southern Sierra Miwuk Nation
Study Plan	Technical Study Plan
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board

T

TAA	Terrestrial Assessment Area
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
TL	total length
TLP	Traditional Licensing Process
TMDL	Total Maximum Daily Loads
TWG	Technical Working Group

U

U.S.	United States
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency

USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

W

WQC	Water Quality Certificate
WRIA	Water Resources Inventory Area
WUA	weighted usable area

Y

YOY	young-of-year

1.0 INTRODUCTION

1.1 BACKGROUND

Southern California Edison (SCE) Company is the licensee, owner, and operator of the Lundy Hydroelectric Project (Lundy Project), licensed under the Federal Energy Regulatory Commission (FERC) Project Number 1390. The Lundy Project is located on the eastern slope of the Sierra Nevada along Mill Creek, approximately 7.6 miles northwest of Lee Vining off Lundy Road, in Mono County, California (Figure 1.1-1). A more detailed map set of the Lundy Project is included as Appendix A. The 3-megawatt (MW) Lundy Project is partly within the Inyo National Forest (Inyo NF), managed by the U.S. Department of Agriculture (USDA) Forest Service (USFS), and partly on federal land administered by the U.S. Department of the Interior Bureau of Land Management (BLM), Bishop Field Office. The remaining Lundy Project lands are owned by SCE except for a small parcel of land near the powerhouse owned by Mono County.

The Lundy Project facilities include Lundy Lake, Lundy Dam, intake, a flowline, a penstock, a powerhouse, and a water distribution system by which flows are directed to meet the water rights of water rights holders. The flowline and penstock convey water from Lundy Lake to the powerhouse. SCE currently operates the Lundy Project under a 30-year license issued by FERC in February 1999. The license will expire February 28, 2029. SCE is seeking a license renewal to continue operation and maintenance (O&M) of the Lundy Project.

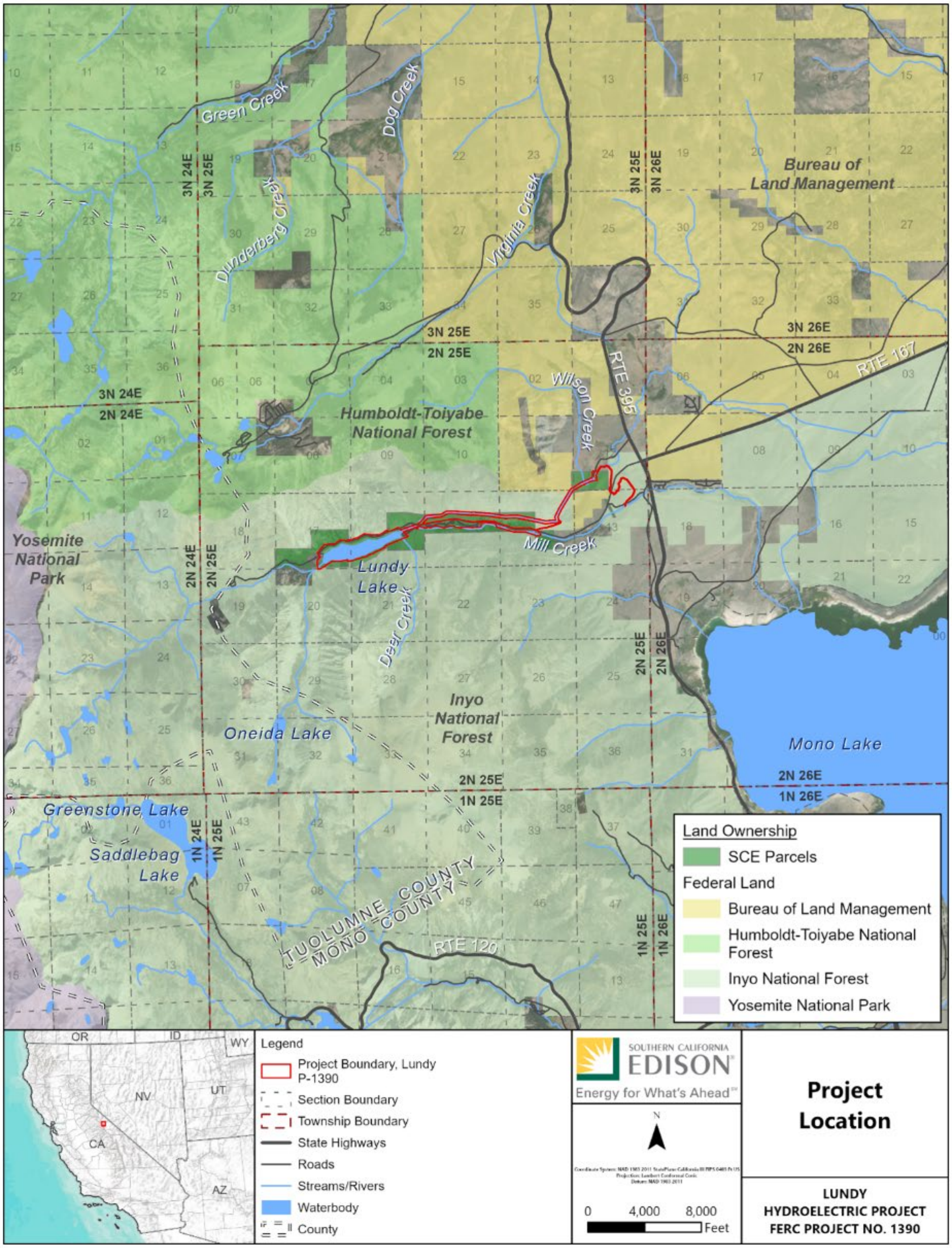

Figure 1.1-1. Project Location Map.

1.2 Document Purpose

This Pre-Application Document (PAD) has been prepared in compliance with Title 18 Code of Federal Regulations (CFR) Part 5, which defines the form and content requirements of the document. The purpose of the PAD is to provide FERC, federal and state agencies, and other interested stakeholders with background information related to Lundy Project facilities, as well as operational, economic, and environmental aspects of the Lundy Project. The PAD defines pertinent Project issues and potential study needs. In accordance with the regulations, the PAD and associated Notification of Intent (NOI) have been filed with FERC and distributed to potentially interested stakeholders, including federal and state resource agencies, local governments, relevant Native American Tribes, members of the public, non-governmental organizations (NGOs), and others likely to be interested in the relicensing proceeding.

1.3 Pre-Application Document Content

The information contained in this document was assembled based on the requirements set forth in 18 CFR § 5.6 (c) and (d). This PAD is organized as follows:

- Front Matter: Cover pages, Table of Contents; List of Figures; List of Tables; List of Photos, List of Appendices; List of Acronyms and Abbreviations
- Section 1: Introduction
- Section 2: Process Plan and Schedule, per 18 CFR § 5.6(d)(1)
- Section 3: General Description of the River Basin, per 18 CFR § 5.6(d)(3)(xiii)
- Section 4: Project Location, Facilities, and Operations, per 18 CFR § 5.6(d)(2)
- Section 5: Description of the Existing Environment (by resource area), per 18 CFR § 5.6(d)(3)(ii)–(xii)
- Section 6: Preliminary Issues and Studies, per 18 CFR § 5.6(d)(4)
- Section 7: Literature and Sources Cited
- Appendix A: Exhibit G Map of the Project
- Appendix B: Consultation Record
- Appendix C: Single-Line Diagram (CEII)
- Appendix D: FERC License Conditions Summary Table
- Appendix E: Flow Duration Curves
- Appendix F: Cultural Resources (Privileged)

1.4 Applicant's Agents

The following individuals are authorized to act as agents of the applicant, pursuant to 18 CFR 5.6(d)(2)(i):

Wayne P. Allen
Principal Manager, Regulatory Support Services

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2.0 PLANS, SCHEDULES, AND PROTOCOLS

2.1. PROCESS PLAN AND SCHEDULE THROUGH FILING OF LICENSE APPLICATION

The Process Plan and Schedule, outlined in Table 2.1-1, lists actions that must be taken by FERC, SCE, and/or other participants in the Integrated Licensing Process (ILP) through the filing of the Final License Application (FLA) for the Lundy Project. SCE developed the Process Plan and Schedule using timeframes set forth in Title 18 CFR Part 5, *Integrated License Application Process*.

The Lundy Project Process Plan and Schedule is based upon an NOI and PAD filing date of approximately February 23, 2024, ahead of the statutory deadline of February 28, 2024. All subsequent dates in the Process Plan and Schedule are based on the anticipated filing dates of the NOI and PAD. The deadlines presented in the schedule identify the specific date that each activity must be completed to comply with federal regulations; however, ILP regulations provide some flexibility regarding the timing for completion of some relicensing activities. Regardless, the FLA must be filed no later than February 28, 2027— 2 years before license expiration of February 28, 2029. Over the course of the relicensing process, and as necessary, FERC will revise the Process Plan and Schedule for the Lundy Project.

The shaded milestones in the Process Plan and Schedule (Table 2.1-1) identify the steps in the study dispute process that would be unnecessary if no disputes arise.

Table 2.1-1. Lundy Project Relicensing Process Plan and Schedule

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Timeframe[a]	Dates[b]
Initiation of Relicensing Process				
5.5 5.5(d)	Filing of Notification of Intent (NOI)	SCE	5 to 5.5 years prior to the existing license expiration Filed concurrently with PAD	February 23, 2024
5.6 5.6(a)	Filing of PAD	SCE	5 to 5.5 years prior to the existing license expiration Filed concurrently with NOI	February 23, 2024
FERC Scoping				
5.7	Initial Tribal Consultation Meeting	FERC	Within 30 days following the filing of NOI/PAD	March 24, 2024
5.8 5.8(a)	Notice of Commencement of Proceeding and Scoping Document	FERC	Within 60 days of filing NOI/PAD	April 23, 2024
5.8(a)(b) 5.8(b)(iv)	Notice of NOI/PAD and request for comments	FERC	Included in the Notice of Commencement of Proceeding	April 23, 2024
5.8(c)	Issue Scoping Document 1 (SD1)	FERC	Concurrent with Notice of Commencement of Proceeding.	April 23, 2024
5.8(b)(3)(viii)	Conduct Public Scoping Meeting and Site Visit	FERC	Within 30 days of the Notice of Commencement of Proceeding	May 23, 2024
5.9(a)	File comments on PAD and SD1 and provide study requests	Participants	Within 60 days following the Notice of Commencement of Proceeding	June 22, 2024
5.10	Issue Scoping Document 2 (if necessary)	FERC	Within 45 days following the deadline for comments on SD1	August 5, 2024
Study Plan Development				
5.11	**Proposed Study Plan and Study Requests**			
5.11(a)	File Proposed Study Plan	SCE	Within 45 days of the deadline for comments on SD1	August 6, 2024

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Timeframe[a]	Dates[b]
5.11(e)	Conduct Initial Study Plan Meeting	SCE	No later than 30 days after the deadline for filing the Proposed Study Plan	September 5, 2024
5.12	File comments on Proposed Study Plan or submit revised study requests	Participants	Within 90 days after the Proposed Study Plan is filed	November 4, 2024
5.13	**Revised Study Plan and Study Plan Determination**			
5.13(a)	File Revised Study Plan	SCE	Within 30 days after the deadline for comments on the Proposed Study Plan	December 4, 2024
5.13(b)	File final comments on the Revised Study Plan	Participants	Within 15 days following the filing of the Revised Study Plan	December 19, 2024
5.13(c)	Issue Study Plan Determination	FERC	15 days following the deadline for filing comments on the Revised Study Plan	January 3, 2025
Formal Study Dispute Resolution Process				
5.13(d) 5.14(a)	File Notice of Study Dispute	Mandatory Conditioning Agencies	Within 20 days of the Study Plan Determination	January 23, 2025
5.14(d)	Convene Dispute Resolution Panel, if a Notice of Study Plan dispute is filed	FERC	Within 20 days of the Notice of Study Plan Dispute	February 12, 2025
5.14(i)	File with FERC and serve upon panel members' comments and information regarding dispute	SCE	No later than 25 days following the Notice of Study Plan Dispute	February 17, 2025
5.14(k)	Issue findings and recommendations regarding the Study Plan dispute to the Director of the Office of Energy Projects	Dispute Resolution Panel	No later than 50 days following the Notice of Study Plan Dispute	March 14, 2025
5.14(l)	Issue Written Determination on Study Plan Dispute	FERC	No later than 70 days from the date of filing of the Notice of Study Plan Dispute	April 3, 2025
Conduct Studies				
5.15(a)	Conduct First Year Studies (for study plans not under dispute)	SCE	January 2025 through January 2026	January 2025-January 2026

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Timeframe[a]	Dates[b]
5.15(b) 5.15(c)(1)	File progress report and Initial Study Report	SCE	Within one year after FERC approval of the Study Plan	January 3, 2026
5.15(c)(2)	Conduct Initial Study Report Meeting	SCE	Within 15 days of filing the Initial Study Report	January 18, 2026
5.15(c)(3)	File Initial Study Report Meeting Summary, including any study modifications or new studies proposed by the applicant	SCE	Within 15 days following the Initial Study Report Meeting	February 2, 2026
5.15(c)(7)	If no disagreements are filed, the Initial Study Report Meeting Summary and any proposed Study Plan amendments are approved	FERC	Within 30 days following the filing of the Initial Study Report Meeting Summary	March 4, 2026
5.15(c)(4)	File disagreement concerning Initial Study Report Meeting Summary	FERC and Participants	Within 30 days following the filing of the Initial Study Report Meeting Summary	March 4, 2026
5.15(c)(5)	If disagreements are filed, file responses to disagreement with the Initial Study Report Meeting Summary	SCE	Within 30 days of the filing of a disagreement with the Initial Study Report Meeting Summary	April 3, 2026
5.15(c)(6)	Resolve disagreement and amend the approved Study Plan	FERC	Within 30 days following the due date for responses to disagreement	May 3, 2026
5.15(f)	Conduct Second Year Studies	SCE	January 2026 through January 2027	January 2027
5.15(f)	File progress report and Updated Study Report	SCE	Within 2 years after FERC approval of the Study Plan	January 3, 2027
5.15(f) 5.15(c)(2)	Conduct Updated Study Report Meeting	SCE	Within 15 days of filing the Updated Study Report	January 18, 2027
5.15(f) 5.15(c)(3)	File Updated Study Report Meeting Summary, including any study modifications or new studies proposed by the applicant	SCE	Within 15 days following the Updated Study Report Meeting	February 2, 2027
5.15(f) 5.15(c)(7)	If no disagreements are filed, the Updated Study Report Meeting Summary and any proposed Study Plan Amendments are approved.	FERC	30 days following the filing of the Updated Study Report Meeting Summary	March 4, 2027

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Timeframe[a]	Dates[b]
5.15(f) 5.15(c)(4)	File disagreement concerning Updated Study Report Meeting Summary	FERC and Participants	Within 30 days following the filing of the Updated Study Report Meeting Summary	March 4, 2027
5.15(f) 5.15(c)(5)	If disagreements are filed, file responses to disagreement with the Updated Study Report Meeting Summary.	SCE	Within 30 days of the filing of a disagreement with the Updated Study Report Meeting Summary	April 3, 2027
5.15(f) 5.15(c)(6)	Resolve disagreements and amend the approved Study Plan	FERC	Within 30 days following the due date for responses to disagreements	3May 3, 2027
5.15(f)	Promptly proceed with any remaining undisputed studies or amended studies	SCE		
Filing of License Application				
5.16(a)	File Preliminary Licensing Proposal or Draft Application	SCE	No later than 150 days prior to the deadline for filing a new license application.	10/1/2026
5.16(e)	File comments on Preliminary Licensing Proposal or Draft License Application.	FERC and Participants	Within 90 days of the filing date of the Preliminary Licensing Proposal or Draft Application	12/30/2026
5.17(a)	File License Application	SCE	No later than 24 months before the existing license expires	2/28/2027

Notes:
[a] Time periods begin the day after a filing/issuance date.
[b] If a deadline falls on a weekend or holiday, the deadline is moved to the following business day.
** Items in blue represent contingent processes in the event of a study dispute.

2.2. EARLY RELICENSING ACTIVITIES

SCE initiated early outreach activities for relicensing the Lundy Project in 2023. Early outreach activities involved meeting with state and federal resource agencies; conducting meetings with stakeholders, including members of the public, NGOs, resource agencies, and Tribes; and establishing a publicly available website (Section 2.3.2). These early outreach activities are intended to identify potential stakeholders and understand their resource interests, explain the relicensing process, describe Lundy Project facilities and operations, and solicit existing resource information.

SCE broadly distributed a postcard with a brief explanation of the Lundy Project and a website link to fill out a comprehensive questionnaire designed to identify existing, relevant, and reasonably available information related to the Lundy Project. Appendix B provides a summary of contacts made by SCE in preparing this PAD as part of early relicensing activities.

2.3. PROPOSED COMMUNICATION PROTOCOLS

SCE's goal is to maintain open communication during the relicensing process and to provide public access to relevant Lundy Project relicensing information. SCE anticipates that the primary means of communication will be a publicly accessible website (Section 2.3.2), meetings (virtual or in person), documents filed on FERC's eLibrary system, email, and telephone. The proposed communication protocols outlined in Sections 2.3.1 through 2.3.6 below will provide guidelines for participation in the relicensing process by SCE and interested parties, including governmental agencies, NGOs, Tribes, and members of the public. SCE will maintain documentation of all electronic correspondence as part of formal agency consultation proceedings.

2.3.1. DOCUMENT MANAGEMENT

FERC regulations identify several documents required for the ILP, some of which are the responsibility of FERC and some of which are the responsibility of the licensee. SCE anticipates that there will also be other informal documents generated during the course of the relicensing proceeding.

For documents issued by FERC, SCE anticipates that FERC will distribute these documents in accordance with its protocols and will use the FERC Project No. 1390 Mailing List for document distributions. SCE anticipates that all documents issued or received by FERC will be posted and available to the public through FERC's eLibrary. The eLibrary can be accessed through FERC's homepage at http://www.ferc.gov or https://elibrary.ferc.gov/eLibrary/search. Individuals can register to receive a notice each time FERC posts a document regarding the Lundy Project P-1390 by going to FERC's website http://www.ferc.gov, clicking on "FERC Online," and then clicking on "eSubscription." The FERC website provides further instructions.

SCE will use electronic filing whenever possible for documents filed with FERC and will use email (FERC Project No. 1390 Distribution List) to distribute such documents or to inform participants of their availability. SCE will also use email to distribute informal documents and update participants on their availability. SCE will post all relevant public documents it sends or receives regarding the relicensing on the Lundy Project website.

2.3.1.1. Restricted Documents

Certain Lundy Project-related documents, known as Critical Energy Infrastructure Information (CEII), must be filed with FERC as non-public documents, restricted from public viewing FERC's eLibrary system, in accordance with FERC regulation 18 CFR 388.113. CEII documents related to the design and safety of dams and the appurtenant facilities, as well as information necessary to protect national security and public safety, are restricted. Anyone seeking CEII information from FERC must file a CEII request with FERC. FERC's website at https://www.ferc.gov/ceii contains additional details related to CEII.

Information related to protecting sensitive archaeological or other culturally important information is also restricted from public disclosure under the National Historic Preservation Act (NHPA). These documents are filed with FERC as Privileged, pursuant to 18 CFR 388.112. In addition, information related to the location of threatened and endangered species is protected from public disclosure under the Endangered Species Act (ESA). Anyone seeking this information from FERC must file a Freedom of Information Act (FOIA) request. Instructions for FOIA are available on FERC's website at https://www.ferc.gov/enforcement-legal/foia.

2.3.2. Public Relicensing Website

In July 2023, SCE established and will maintain a publicly accessible website to make publicly available relicensing information readily available to all relicensing participants. The NOI and PAD, including the Process Plan and Schedule, will be available through the website.

In addition, SCE will post meeting notices/agendas, public documents and reference materials, relevant FERC filings associated with the relicensing process, and other relevant information on the website.

The Lundy Project No. 1390 relicensing website can be accessed at www.sce.com/lundy.

2.3.3. List of Interested Parties

To facilitate communication with stakeholders during the ILP, FERC and SCE will continue to develop and maintain a list of individuals interested in the relicensing and parties who formally intervene in the relicensing proceeding[1]. Cumulatively, these three lists make up the "FERC Project No. 1390 Distribution List":

- FERC Project No. 1390 Mailing List: A mailing list of interested parties prepared and maintained by FERC throughout the Lundy Project relicensing proceeding.

[1] Instructions on how to intervene are provided on FERCs website: https://www.ferc.gov/how-intervene

- FERC Project No. 1390 Official Service List: A list of parties that have formally intervened in the relicensing proceeding, to be prepared and maintained by FERC after it issues public notice of SCE's filing of the FLA and invites formal intervention in FERC's proceeding by licensing participants.

- SCE's Project No. 1390 Relicensing Stakeholder List: A list of interested parties compiled by SCE and the Relicensing Team in anticipation of the Lundy Project's relicensing proceeding. The list also includes individuals and local businesses that have requested to be included on the distribution list via the "Contact Registration Form" available on the Lundy Project relicensing website. SCE will update and maintain the list throughout the relicensing process.

- A list of Tribes with a potential interest in the Lundy Project Area was also developed. The process used and Tribes identified are discussed in Section 5.12.4, *Identification of Tribes*, in this PAD.

2.3.4. Meetings

FERC regulations (18 CFR Part 5) require specific meetings as part of the ILP process as identified in the Process Plan and Schedule above.

SCE will provide public notice for FERC-required meetings in accordance with FERC regulations, which may include distribution to mailing lists, publishing in local papers, and posting on the Lundy Project website.

For public meetings conducted by SCE that are not specifically required by FERC regulations, SCE will provide notice principally via email using the FERC Lundy Project No. 1390 Distribution List and via the Lundy Project's relicensing website. SCE will typically lead these meetings but may also utilize an independent facilitator at its discretion.

For specific meetings conducted by FERC (e.g., the scoping meeting), FERC will provide prior public notice in accordance with its protocols and will lead such meetings. SCE also anticipates supporting FERC during these meetings by providing meeting notice information on the Lundy Project's website.

SCE will work with all interested parties to develop meeting schedules that include practical locations (or virtual options) and times to accommodate as many participants as possible. In general, SCE will schedule meetings between 8:00 a.m. and 5:00 p.m. Pacific Standard Time (PST). Some meetings specifically designed for public involvement will also have an evening time scheduled. Accommodations will be made to enable meeting participation virtually through teleconferencing. When conducting meetings in person, meetings will be located near the Lundy Project in Lee Vining or Bishop, California. SCE anticipates that SCE or its designee will lead such meetings but may also use an independent facilitator as needed.

Whenever possible, SCE will make a good faith effort to notify all interested parties at least two weeks prior to the next planned public meeting. SCE will provide a meeting agenda via the Lundy Project website at that time. SCE's preferred method of contact with interested parties will be via email. SCE will also post on its website or distribute, as requested, any documents or other information that will be the subject of meeting discussions.

2.3.5. Email

SCE anticipates that communication among interested parties will be facilitated through email using the FERC Lundy Project No. 1390 Relicensing Stakeholder List. Such communication may include, but would not be limited to, meeting coordination, document distribution, schedule updates, and general correspondence.

2.3.6. Telephone

SCE will document oral communications for significant consultation activities (i.e., teleconferences) and formal information requests. Oral communications about significant consultation activities will be documented in a telephone record and saved to the Lundy Project files.

2.4. Proposed Location and Date for Public Scoping Meeting and Site Visit

As set forth in the ILP regulations, FERC will issue Scoping Document 1 (SD1) within 60 days of the NOI and PAD filing date. In addition, pursuant to 18 CFR § 5.8(b)(3)(viii), FERC will schedule a public scoping meeting and a site visit to be held within 30 days of issuing SD1. FERC will provide notice of the Scoping Meetings' dates, times, and locations and publish that information in local papers after the NOI and PAD are filed.

3.0 GENERAL DESCRIPTION OF THE RIVER BASIN

This section provides a general description of the river basin containing SCE's Lundy Project located on Mill Creek in Mono County, California. The FERC requirements for this section are specified in 18 CFR § 5.6(d)(3)(xiii). The following information is included: descriptions of the river subbasins and watersheds containing the Project facilities, including lengths of major stream reaches and tributary rivers and streams; affected streams; non-Project dams and diversion structures; and major land and water uses surrounding the Project.

This overview discusses the hydrologic region for the Project, drainage basins within the hydrologic region, and watersheds associated with each drainage basin. Hydrologic basin, subbasin, watershed, and subwatershed, as used below, refer to the geographic area drained by a river or stream in descending geographical scale.

3.1. INFORMATION SOURCES

This section was prepared utilizing the following primary information sources:

- Inyo National Forest Land Management Plan (LMP) (USFS, 2019)
- Los Angeles Department of Water and Power's (LADWP) Mono Basin Geology and Hydrology Report (LADWP, 1987)
- Mono Lake Committee's description of Mono Basin (MLC, 2020)
- North Mono Basin Watershed/Landscape Analysis (USFS, 2001)

3.2. MONO LAKE SUBBASIN

The Lundy Hydroelectric Project facilities are located within the "Northern Mojave-Mono Lake Subregion" (Hydrologic Unit Code [HUC] 1809) of the eastern Sierra Nevada in the County of Mono, California. The Northern Mojave-Mono Lake Subregion is further subdivided into the basin "Mono-Owens Lake" (HUC 180901) and then the subbasin "Mono Lake" (HUC 18090101).

The HUC10 classification for the Lundy Project is the "Lee Vining Creek-Frontal Mono Lake" Watershed (HUC 1809010104) (Figure 3.2-1), which encompasses 135.1 square miles. The watershed is then further divided into HUC12 subwatersheds. 24.2 square miles of the Lundy Project are located in the "Mill Creek" subwatershed (HUC 180901010402), and 18.8 square miles are located in the "Wilson Creek" subwatershed (HUC 180901010403) (Figure 3.2-2).

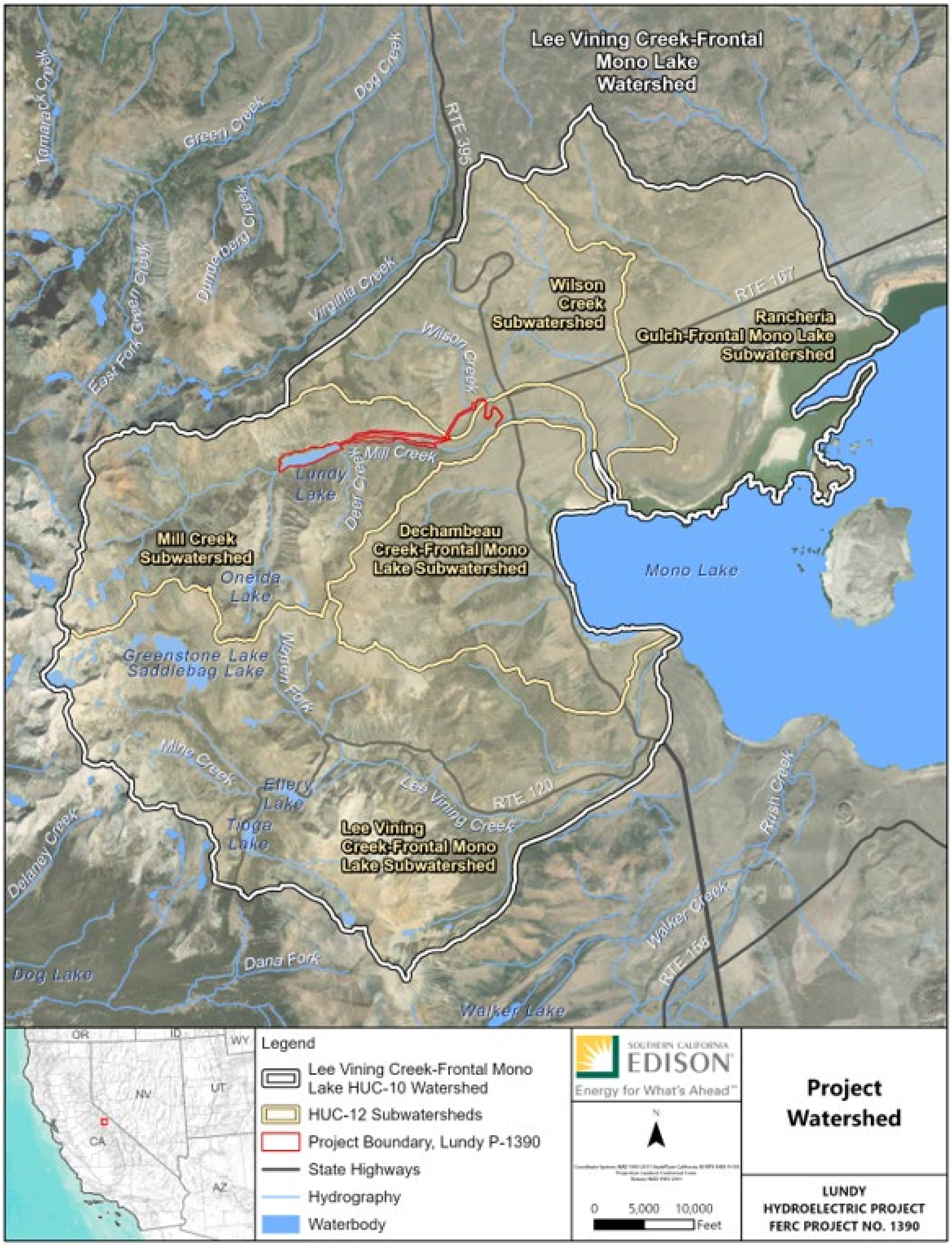


Figure 3.2-1. Lee Vining Creek-Frontal Mono Lake (HUC 1809010104) Watershed.

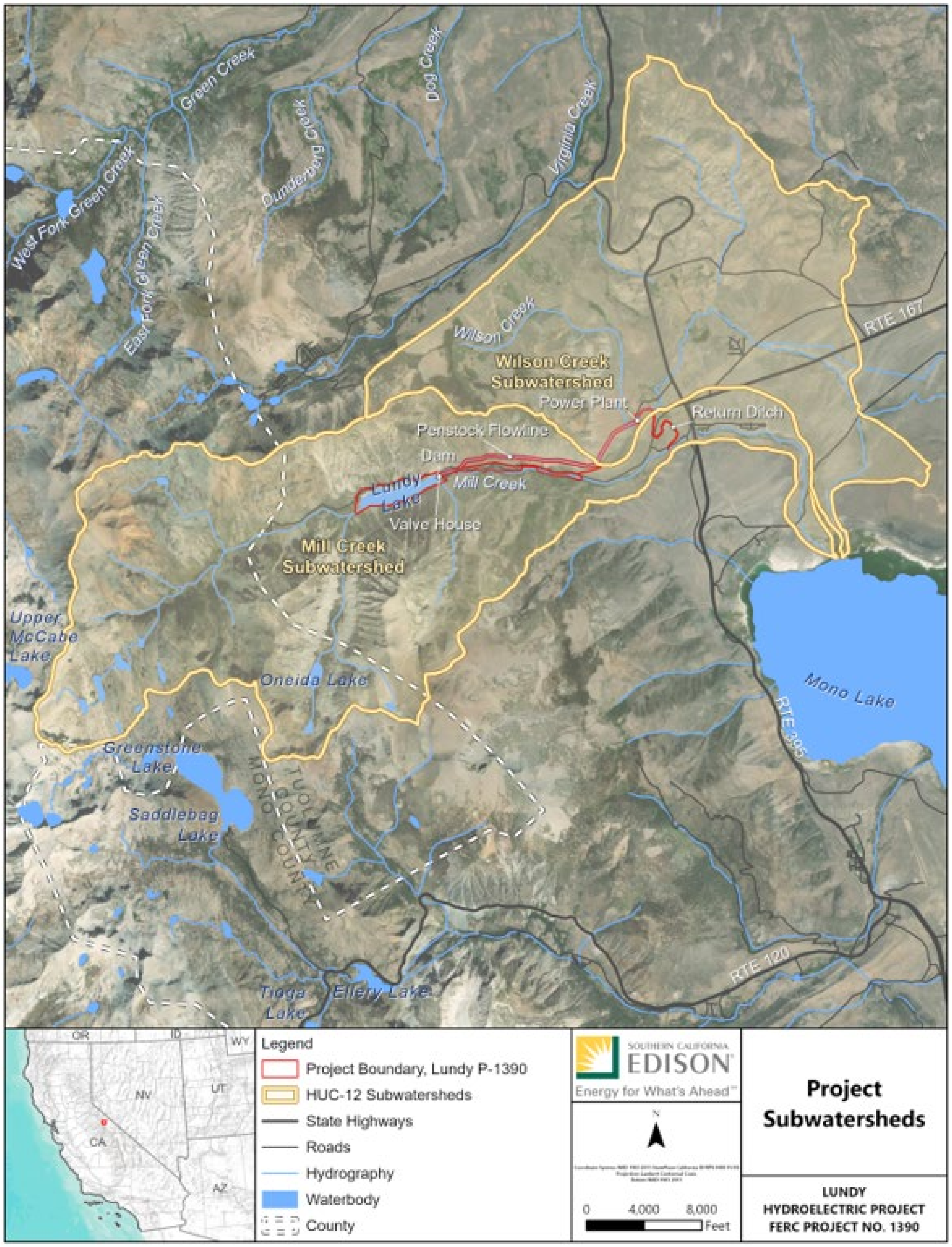


Figure 3.2-2. Mill Creek Subwatershed (HUC 180901010402) and Wilson Creek Subwatershed (HUC 180901010403).

Mill Creek is within the Mono Lake subbasin and flows into Mono Lake. The Mono Lake watershed has a total drainage area of approximately 750 square miles (LADWP, 1987). Roughly half of the Mono Lake watershed is hills and mountains (365 square miles), and the other half is valley fill areas and Mono Lake itself (385 square miles) (LADWP, 1987). Elevations in the watershed range from 6,400 feet amsl to over 13,000 feet amsl (LADWP, 1987).

The surface of Mono Lake is approximately 70 square miles (MLC, 2020). During the Pleistocene (Ice Age), Mono Lake was more than 315 square miles (LADWP, 1987). Fifty percent of the Mono Basin is covered by a complex of sagebrush, bitterbrush, and rabbitbrush; and stream channel riparian vegetation includes Jeffery pines, black cottonwoods and willows (USFS, 2001).

The Mono Lake Committee describes the watershed as:

> Embracing 14 different ecological zones, over 1,000 plant species, and roughly 400 recorded vertebrate species within its watershed, Mono Lake and its surrounding basin encompass one of California's richest natural areas. (MLC, 2020)

3.3. MILL CREEK

The Lundy Project (Figure 3.3-1) creates Lundy Lake by impounding and temporarily retaining flows on Mill Creek. The Lundy Powerhouse receives flow of up to approximately 70 cubic feet per second (cfs) through a flowline originating at Lundy Dam on Mill Creek. Water diverted from Mill Creek at the dam is transported through a 12,000-foot-long pipeline and a 3,000-foot-long penstock to the Lundy Project powerhouse. Water discharged from the powerhouse tailrace may serve water rights on the existing, constructed ditch, referred to as the Wilson System or the Upper Conway System. Tailrace water can also be put back in Mill Creek (at a point 4 miles upstream of Mono Lake) through the Mill Creek Return Ditch (MCRD). Flows are directed to either the Wilson System or Mill Creek as necessary to satisfy senior water rights.

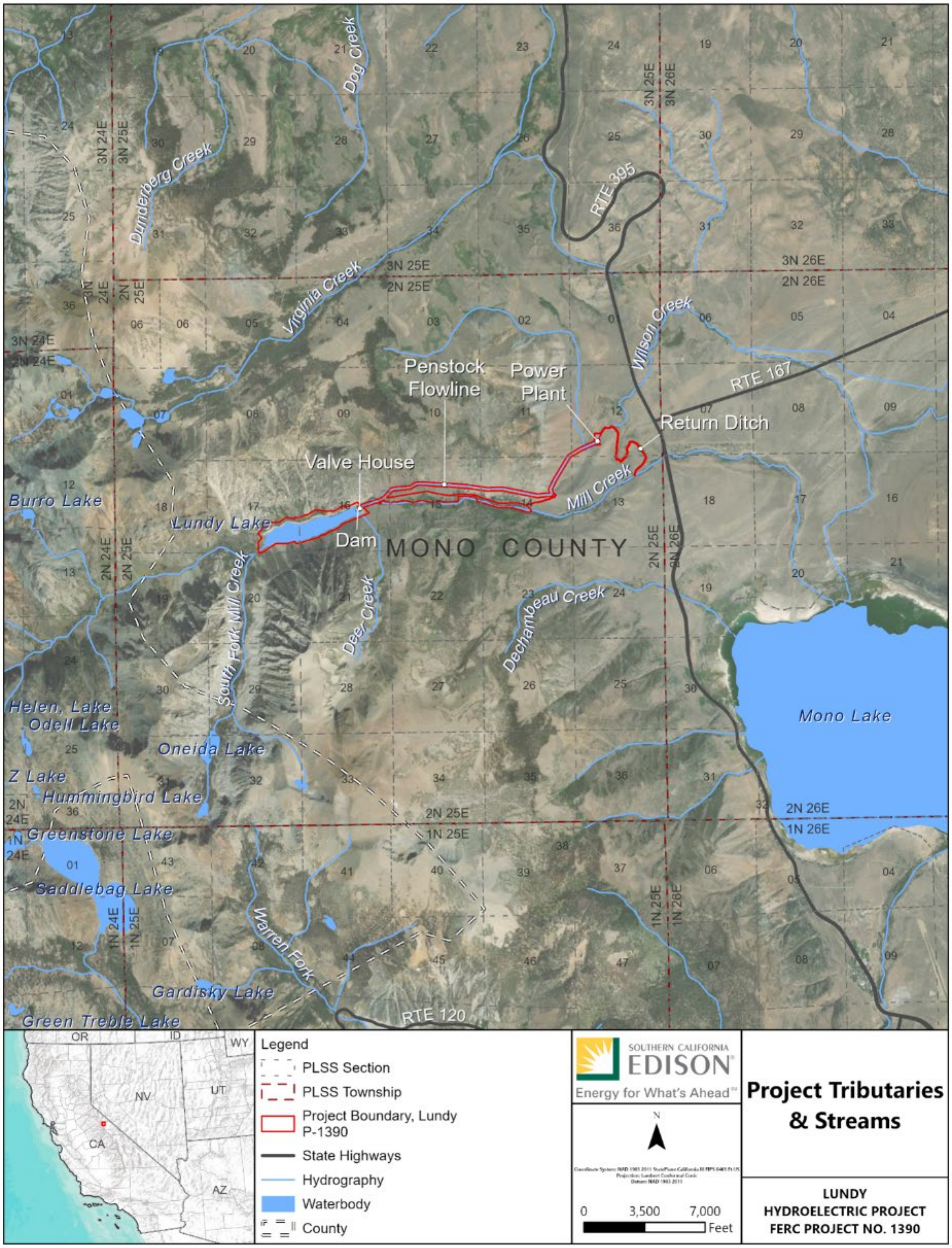


Figure 3.3-1. Lundy Project Tributaries and Streams.

3.4. Non-Project Dams and Diversions

There are no impoundments on Mill Creek upstream of the Lundy Project. Downstream of the dam on Mill Creek, some irrigation diversions are unused except as necessary to move water to the Wilson System when the powerhouse is offline. The LADWP has typically requested that SCE maintain its water in Mill Creek.

3.5. Major Land Uses in the Project Vicinity

A more detailed discussion of land use can be found in PAD Section 5.9, *Land Use*.

The Lundy Hydroelectric Project is located partly within the Inyo NF, under supervision of the USFS, and partly on private lands. Land along much of the creek is managed by the USFS. The nearest community is the rural town of Mono City, approximately 5 miles east of the Lundy Project. Small parcels of land under the management of BLM are found along the MCRD, and there is also a small parcel of land owned by Mono County.

Other than Mono City, the surrounding area has almost no development. Based on Multi-resolution Land Characteristics (MRLC) Consortium's 2021 National Land Cover Database (NLCD), the predominant land cover types in the Lee Vining Creek-Frontal Mono Lake subwatershed are evergreen forest, shrub/scrub, barren, grassland/herbaceous, open water, perennial ice/snow, emergent herbaceous wetlands, and woody wetlands (MRLC Consortium, 2021) (see Figure 5.9-2 and Table 5.9-2 in Section 5.9).

Under the Inyo NF Land Management Plan (LMP), the USFS manages the forest for a variety of land uses, including recreation, wilderness use, maintenance and improvement of habitat, rangeland, timber production, and the exploration and development of mineral resources, particularly energy resources (USFS, 2019). Land use in the immediate area otherwise consists of recreational uses such as hiking, camping, fishing, and sightseeing. Mono Lake is a popular destination for sightseeing and on-water recreation. The Lake is a popular recreation destination due to the lake's unique history, geology, and salinity.

The LMP identifies the Lundy Project Area as being included in the plan's Conservation Watershed management area, specifically under the Mono Lake Headwaters designation. Conservation Watershed management areas are a network of watersheds that: (1) have been determined by the USFS to have a functioning or functioning-at-risk rating based on the Watershed Condition Framework; (2) provide for connectivity of species of conservation concern (SCC); and (3) provide high quality water for beneficial uses downstream. The management emphasis for conservation watersheds is to maintain or improve, where possible, the functional rating of these systems for the long-term and to provide for the persistence of SCC by maintaining connectivity and refugia for these species.

Mono County, the BLM, and the USFS manage some lands outside the Project Boundary that are supported by the Wilson System, principally the former Conway and DeChambeau ranches. Mono County and the BLM own the former Conway Ranch lands, with the exception of a private residential development and the associated Mill Creek water rights. The USFS owns the former DeChambeau ranch lands, their associated water rights, and manages these and adjacent lands for waterfowl habitat and irrigation (FERC, 2007).

3.6. Major Water Uses in the Project Vicinity

Within the Mono Lake watershed, water is used for irrigation, power generation, and recreation activities, including fishing, hiking, camping, and skiing. The primary uses of water within Mill Creek are irrigation of pastureland for livestock and power generation, and the Wilson System has historically been used for ephemeral drainage (USFS, 2001). Several ditches leading from the Wilson System enable Mono County, BLM, and the USFS to divert water from the system for their uses, as mentioned above (FERC, 2007).

Water resources are discussed in Section 5.2; recreation is discussed in Section 5.8.

3.7. Climate

On average, the Mono Lake watershed received 30 to 40 inches of annual precipitation, mainly through snow (USFS, 2001). There are arctic-like winters in the high mountains and dry, warm summer conditions in the Mono Basin (LADWP, 1987), with temperatures ranging from -10 degrees Fahrenheit (°F) and 90°F, respectively (USFS, 2001).

The nearby town of Lee Vining has an average annual high temperature of 61°F, an average annual low temperature of 35°F, and receives an average of 15.7 inches of precipitation annually (U.S. Climate Data, 2020).

4.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS

4.1. INTRODUCTION

With this PAD, SCE is formally initiating the FERC relicensing process for the 3.0 MW Lundy Hydroelectric Project (Lundy Project) (FERC No. 1390). The Lundy Project consists of Lundy Lake, Lundy Dam, intake, a flowline, a penstock, the Lundy Powerhouse, and the MCRD, as well as the other lands and waters necessary to operate the Lundy Project, all located on Mill Creek in Mono County, California.

4.2. AUTHORIZED AGENT

The exact name, business address, and telephone number of each person authorized to act as an agent for the applicant is identified below.

Wayne P. Allen
Principal Manager, Regulatory Support Services
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770
Phone: 626-302-9741
Email: wayne.allen@sce.com

4.3. PROJECT LOCATION

The Lundy Project is located on the eastern slope of the Sierra Nevada along Mill Creek, approximately 5 miles west of Mono City off Lundy Road in Mono County, California. The Lundy Project is situated on Mill Creek, partly within the Inyo NF, managed by the USFS, and partly on federal lands administered by the BLM. The remaining Lundy Project lands are privately owned by SCE. The Lundy Project location overview is shown in Figure 1.1-1.

4.4. PROJECT HISTORY AND OVERVIEW

In April 1910, an entity by the name of Hydro-Electric began construction on a hydroelectric power plant near the former mining town of Jordan on Mill Creek, northwest of Mono Lake and downstream from Lundy Lake, naming it the Jordan Powerhouse, with a transmission line running northeast towards the mining town of Bodie and then to Nevada. The completed powerhouse was operated for just a few months until it was destroyed by an avalanche. Additionally, the avalanche destroyed nearby attendants' cottages and an older copper smelter building. The powerhouse was rebuilt in 1911 at its current location and named Mill Creek. The rebuilt Project was sold in 1917 to the Nevada-California Power Company (controlled by Nevada-California Electric Corporation, or N-CE Corp). By the early 1920s, N-CE Corp had subsidiaries and a controlling interest in several smaller companies and their electrical generation facilities, including the Southern Sierras Power Company and the Cain Irrigation Company. The system stayed in operation from its completion in late 1911 through the legal battles and corporate reorganizations of its early owners and then through its subsequent ownerships, including Nevada-California Power Company (1917-1936), N-CE Corp (1936-1941) and California Electric Power Company, aka Calectric (1941-1964), before SCE acquired the system as part of its acquisition of Calectric in 1964. SCE already had a Mill Creek Hydroelectric System in San Bernardino County, so the facility in Mono County became known as the Lundy Hydroelectric System (Fowler, 1923; Theodoratus et al., 1988; and White, 1985). Additional details on the Lundy Project history can be found in Section 5.11 of this PAD.

Today, the key Lundy Project facilities include Lundy Dam, Lundy Lake, a flowline consisting of pipeline and penstock, Lundy Powerhouse, and the MCRD. The lake has historically been drawn down in the winter to provide storage capacity for spring runoff. The flowline and penstock convey water from Lundy Lake to the powerhouse. Minimum flows are provided into Mill Creek below the dam through 1) an instream acoustic velocity meter (AVM) release structure (up to 1.25 cfs); 2) a “rock-drop” valve in the same area that provides additional flows up to 12 cfs; or 3) a “farmer’s gate” in the dam that can only operate above an invert of 7,779 feet. The farmer’s gate is typically used in wet water years for flows exceeding the required daily water rights.

4.5. Existing Project Facilities

The key Lundy Project facilities include Lundy Dam, a flowline consisting of pipeline and penstock, and Lundy Powerhouse. Lundy Dam, which impounds the 132-acre Lundy Lake, is located on Mill Creek, 7 miles upstream of where the creek enters Mono Lake. Water diverted from Mill Creek at the dam is transported through a pipeline and penstock to the Lundy Project powerhouse. Water discharged from the powerhouse tailrace can be directed via a splitter box to either a water delivery system referred to as the Wilson System which empties into Mono Lake; or be returned to Mill Creek through what is known as the MCRD. The allocation of water to either the Wilson System or Mill Creek is managed in accordance to adjudicated water rights, as described in Section 4.6.2. All Lundy Project feature elevations presented in this PAD are accurate to SCE’s knowledge and are reported in the NGVD29 datum.

4.5.1. Lundy Lake and Dam

Lundy Lake is located on Mill Creek in Mono County, California, about 8 miles northwest of Lee Vining, California. The drainage area is approximately 20 square miles. Lundy Lake is generally drawn down in the winter to allow storage capacity for spring runoff.

Lundy Dam is a dumped gravel and rockfill dam with a concrete core wall. The dam measures about 690 feet long, with a structural height of 48 feet from the base of the core wall to the top of the wall at an elevation of 7,815.5 feet. The usable storage capacity at elevation 7,807.81, crest of spillway to invert of outlet, is 4,029 acre-feet. The normal maximum water surface area is approximately 110 acres at elevation 7,805.4. The dam has a spillway elevation of 7807.8. The spillway is a 150-foot-long by 7.7-foot-deep notch in the concrete core wall. The Lundy Lake and Dam facilities are shown in Figure 4.5-1.

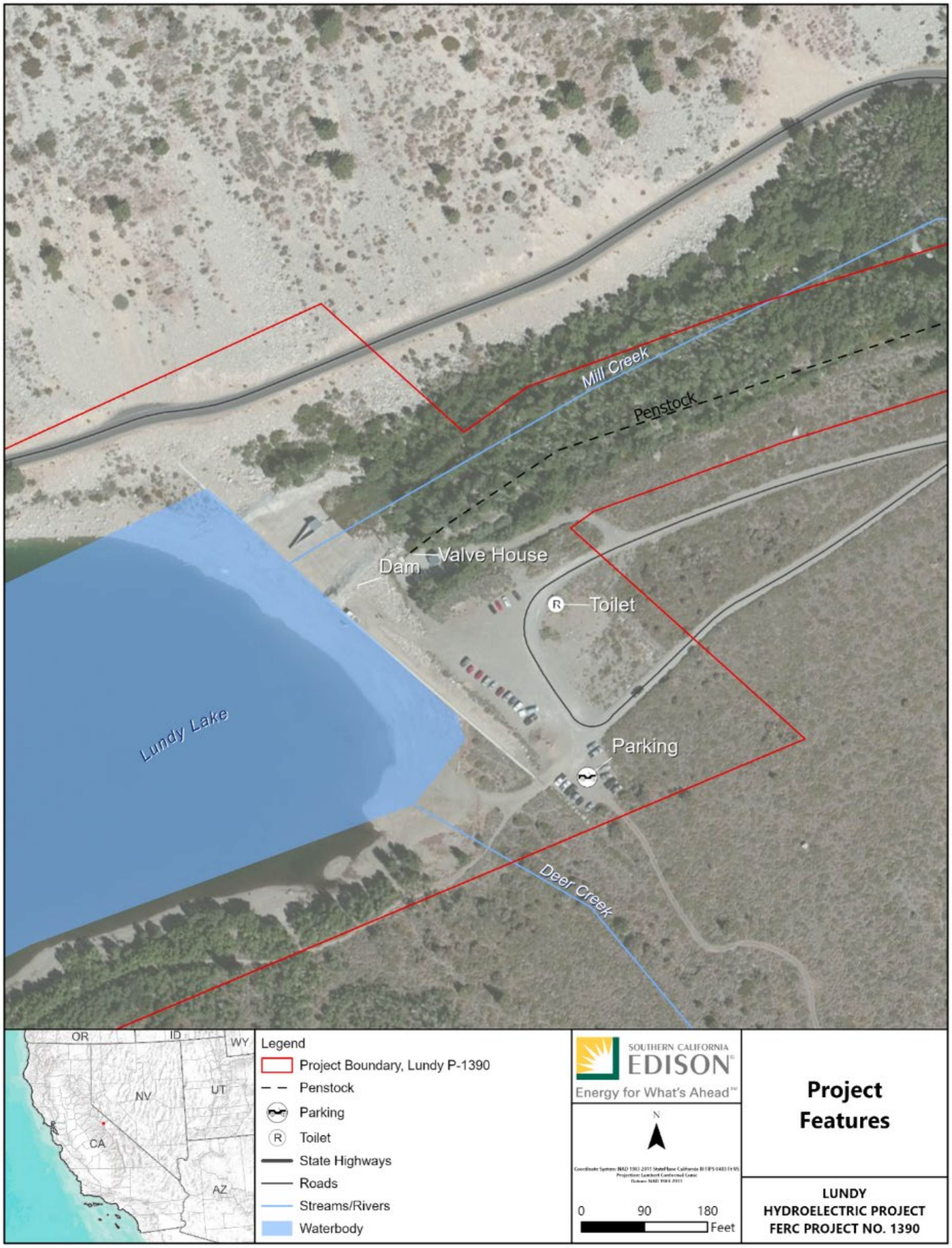


Figure 4.5-1. Lundy Lake and Dam Facilities Intake and Water Conveyance System.

The dam outlet works consist of a reinforced concrete structure equipped with trash racks and a 54-inch diameter steel pipe about 140 feet long, which transitions to a 50-inch diameter steel pipe approximately 130 feet long. These pipes are encased in concrete at the dam foundation level. A 50-inch manually operated gate valve is located in this pipe about 164 feet downstream of the intake.

The flowline consists of a 48-inch-diameter welded steel pipe, approximately 12,053 feet long, connected to the end of the 50-inch-diameter outlet works pipe. The water conduit is designed to carry approximately 70 cfs under optimum conditions.

The penstock is a riveted steel pipe approximately 3,500 feet long, varying in diameter from 36 to 30 inches and increasing to 40 inches for the last 700 feet approaching the powerhouse. The penstock bifurcates into two 22-inch-diameter pipes, one to each turbine, at the entrance to the powerhouse.

Water from the turbines discharges into the Wilson System, although some water can be directed at the splitter box to the MCRD extending from the tailrace to Mill Creek to meet water rights obligations. The splitter box redirects flow to the Wilson System through a Langemann gate, and two motor-operated valves control releases to the MCRD.

4.5.2. Powerhouse and Switchyard

The Lundy Powerhouse is a reinforced concrete building constructed in 1911 (Photo 4.5-1). The powerhouse is located on Wilson Creek east (downstream) of Lundy Lake. The building is 71 feet, 10 inches long by 33 feet, 10 inches wide, with a bay that measures 17 feet long by 8 feet deep at its back to contain the gates at the lower end of the penstock. The powerhouse contains two Canyon Pelton-type turbines, each directly connected to an Allis Chalmers generator rated at 1,500 kW. The Lundy Powerhouse facilities are shown in Figure 4.5-1.

Photo 4.5.1. Lundy Powerhouse

The switchyard (non-Project) is located adjacent to the powerhouse. A wood pole switchrack supports the 55 kV bus. Fuse disconnect switches, grounding switches, single-phase lightning arrestors, potential devices, and other Project-related equipment are also located in the switchyard.

4.5.3. Gaging Stations and Measurements

4.5.3.1. Stream Gaging

Gage locations in the Lundy Project vicinity are shown in Figure 4.5-1 and listed in Table 4.5-1. There are three gages that have been actively collecting data in compliance with the Stream Gaging Plan approved by FERC in 2008. These gages are published by the USGS but are owned by SCE; the USGS maintains a contract with SCE to review streamflow records at these gages to comply with the requirements of Article 404 (minimum instream flows) and other FERC orders (e.g., FERC's November 15, 2007 Order Amending License, 121 FERC ¶ 61,154). Accordingly, SCE has been monitoring and measuring (1) the minimum flow release to Mill Creek below Lundy Dam, (2) the total flow in Mill Creek below Lundy Dam, and (3) Lundy Lake elevations. In order to enable a better accounting of releases from Lundy Dam to meet FERC license bypass flow requirements and to monitor and document deliveries to comply with state water rights requirements, SCE agreed to augment its gaging approach (Article 412 of the license). By order dated August 30, 2023 (Order Approving Revised Streamflow Gaging Plan Pursuant to Article 412, 184 FERC ¶ 62,117), FERC approved a revised plan and accompanying infrastructure to measure and record the rate of water flow at the (4) Lundy Powerhouse Tailrace; (5) Upper Conway Ditch; (6) splitter box releases to the Wilson

System; and (7) MCRD flows near the confluence with Mill Creek. These additional gages are now active.

Table 4.5-1. SCE Gaging Stations

SCE Gage No.	USGS Gage No.	Location
362	10287060	Lundy Lake Reservoir
N/A	N/A	Mill Creek Below Lundy Dam Instream Flow Release
355	10287069	Mill Creek Below Lundy Lake
366	10287145	Upper Conway Ditch
365	10287195	Lundy Powerhouse Tailrace[a]
N/A	N/A	Splitter box release to the Wilson System[b]
N/A	N/A	Mill Creek Return Ditch below Splitter Box[c]
N/A	N/A	Mill Creek Return Ditch near the confluence with Mill Creek

Notes:
[a] Flows are reported at two locations: within the tailrace below the powerhouse (flow to the splitter box) and in the Upper Conway ditch. The combined quantities at these two locations equal total Lundy Powerhouse flow.
[b:] Flow releases from the splitter box to the Wilson System are provided using a Langemann gate that is installed at the concrete control structure; the Langemann gate has the capability to measure and provide an accurate flow rate to downstream users, as required.
[c:] This gage has been added since the Gaging Plan has been amended and will be added to the plan as part of the new license application.

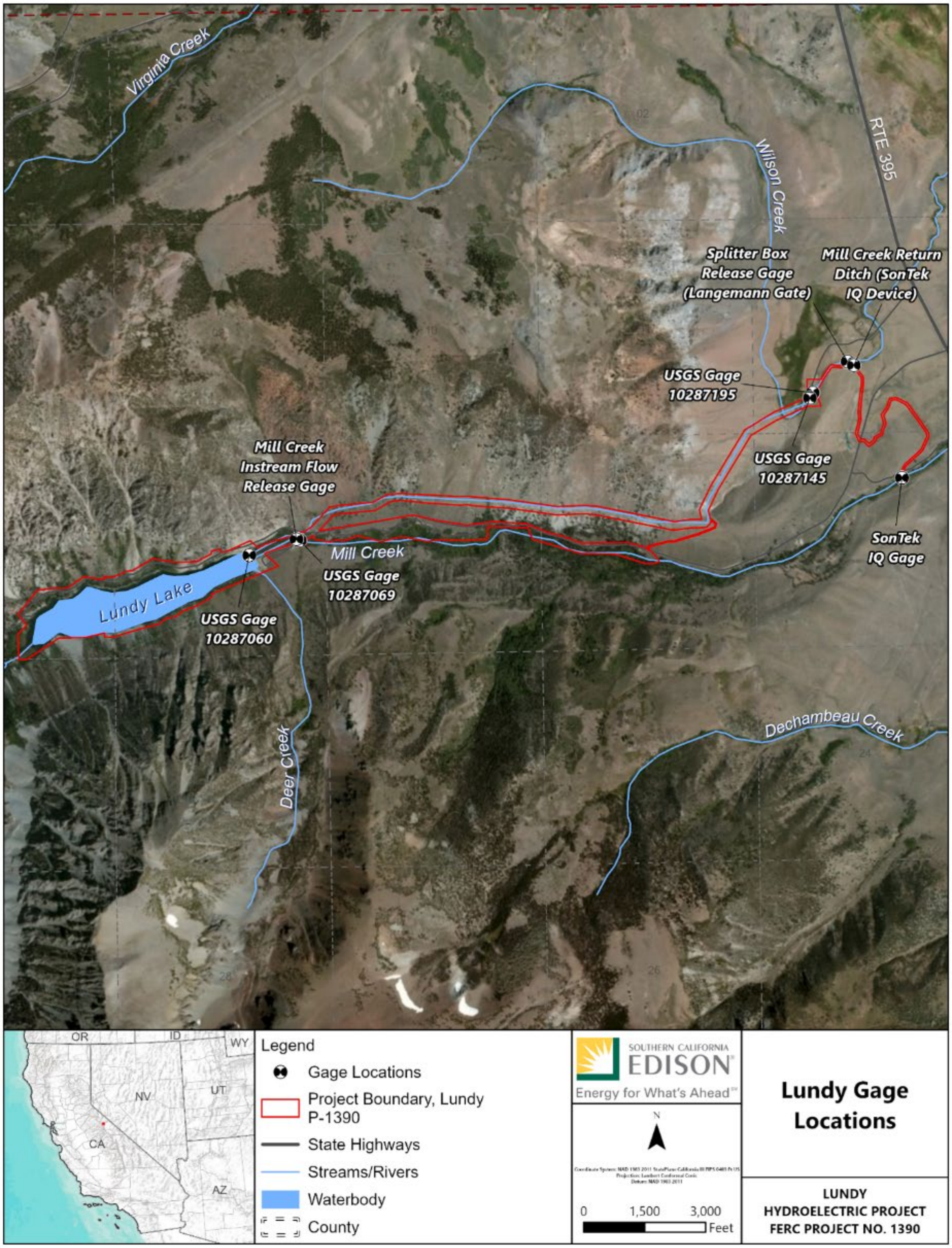


Figure 4.5-2. SCE Gage Locations in the Lundy Project Vicinity.

4.5.4. Access Roads and Trails

The current Lundy Project license includes the access road to the flowline from Lundy Lake Road as part of the Lundy Project Boundary. SCE uses portions of certain public roads (e.g., Lundy Lake Road, Lundy Dam Road, and Mill Creek Powerhouse Road) for access to Lundy Project facilities. Portions of these roads are also used by the public to access recreation sites not included as part of the Lundy Project. Other minor access roads and foot trails within the current Lundy Project Boundary are used by SCE staff to access Lundy Project-related facilities.

4.5.5. Lundy Project Transmission Facilities

The primary transmission line is a 15-foot-long 2.4kV transmission line that extends from the Lundy Powerhouse to the No. 1 transformer located in the non-Project switchyard, where it joins the transmission and distribution system.

As required by 18 CFR § 5.69(d), a single-line diagram showing the transfer of electricity from the Lundy Project to the transmission grid is included as Appendix C of this filing. SCE considers this information CEII and has therefore restricted its availability.

4.6. Project Operations

The Lundy Project is operated in compliance with existing regulatory requirements, water rights, and agreements to generate power. The following subsections describe operational constraints (regulatory requirements and operating agreements) associated with the Lundy Project, followed by a description of water rights associated with the Lundy Project.

4.6.1. Water Management

To understand how water is managed around the Lundy Project, it is first necessary to discuss existing water rights and how they are delivered to water rights holders. The subsequent sections describe the water rights, the management tools to implement them, and how these rights interact with the facilities.

4.6.2. Water Rights

Mill Creek Water Rights were adjudicated in Mono County Superior Court on November 30, 1914. SCE has a non-consumptive water right (pass-through) for hydropower generation on Mill Creek. SCE's operations must comply with adjudicated water rights (Table 4.6-1). SCE's operations rely on an Annual Operations Plan that utilizes the Mill Creek Accounting and Planning Tool (MCAPT) and forecast methodology that has been developed with the water rights holders and memorialized in a Settlement Agreement (SCE et al., 2004) and Amended Settlement Agreement (SCE et al., 2022). The MCAPT integrates forecasted and observed run off quantities with the water rights priorities to develop a schedule for Mill Creek water diversions and deliveries. SCE communicates anticipated water changes to all water rights holders and settlement parties, and performance standards govern how the system (including the MCRD) will meet water right obligations along with the commitments of the Amended Settlement Agreement.

Table 4.6-1. Summary of Present-Day Mill Creek Adjudicated Water Rights

Priority Right	Right Holder[2]	Quantity of Right (cfs)[3]	Cumulative LADWP	Cumulative Conway (Mono Co.)	Cumulative Total
1st	LADWP	1	1	0	1
2nd	Mono Co.*	2	1	2	3
3rd	BLM*	2	1	2	5
4th	Mono Co.*	8	1	10	13
5th	LADWP	9.2	10.2	10	22.2
6th	Simis	1.8	10.2	10	24
7th	LADWP	14	24.2	10	38
8th	Mono Co.*	5	24.2	15	43
9th	USFS*	12.6	24.2	15	55.6
10th	LADWP	18	42.2	15	73.6
11th	Mono Co.*	1	42.2	16	74.6

Source: Adapted from North Mono Basin Watershed Analysis (2001)

Notes:
An asterisk (*) indicates exercise of Mill Creek rights in the Wilson System when called on.
The Rights Holders identified are the present-day successors in interest to the parties identified in the Mill Creek Adjudication.

4.6.2.1. Lundy Dam

Section 4.6.2 describes water rights that dictate how the Project is operated. When available for release, 74.6 cfs are accounted for daily to the water rights holders in order of priority. Inflows to Lundy Lake over 74.6 cfs may be stored in Lundy Lake for power generation, but not indefinitely. Under the terms of its 1933 sales agreement with LADWP, the reservoir is drawn down to 11 percent of its capacity annually by April 1.

A 30-day maximum impedance of the daily inflow up to 74.6 cfs is utilized in order to ensure that record-keeping and inflow measurements are checked and calibrated. These calculations and subsequent operating rules are implemented via the aforementioned

[2] Rights Holders are identified as follows:
LADWP: City of Los Angeles, Department of Water and Power
BLM: United States Department of the Interior, Bureau of Land Management
Simis: J.O. Simis, private landowner
USFS: United States Forest Service

[3] Quantity of right is measured in cubic feet per second (cfs)

Annual Operations Plan and MCAPT tools. SCE provides water rights users with access to the MCAPT to facilitate delivery decisions or modifications to allocations.

4.6.2.2. Lundy Powerhouse

Aside from water-rights-driven releases directly below the dam of 1 cfs, subsequent water rights are directed through the Lundy Powerhouse and tailrace. At the end of the tailrace, a “splitter box” directs water to either the Wilson System (extending generally north and northwest) or back to Mill Creek via the MCRD[4]. The powerhouse’s hydraulic capacity is sized to handle 70 cfs of the adjudicated 74.6 cfs water right; however, SCE does not utilize this full capacity except during wet water years. SCE limits power generation to the Wilson System allocation (how much water has been called for by water rights holders) plus a 25 cfs maximum release through the MCRD. This is because of perceived losses in water through the MCRD. Higher quantities up to the full capacity of the MCRD of 44 cfs may be allowed as necessary. The revised Stream Gaging Plan will help quantify the efficiency of this system relative to a performance specification, and future flows may be increased with the concurrence of the Mill Creek water rights holders.

4.6.3. Regulatory Requirements

4.6.3.1. FERC License

FERC issued a 30-year license to SCE in March 1999, which expires on February 28, 2029.[5] SCE must obtain a new operating license from FERC. This process requires SCE to complete a multi-year application process and file a license application with FERC by February 28, 2027. The relicensing process formally commences with the filing of this PAD and accompanying NOI.

Over the course of the current license term, FERC has issued various administrative orders approving management and monitoring plans and design drawings required for the current license. Appendix D provides a summary of the status of each license article and reference to subsequent FERC orders. FERC has subsequently amended the license at various times to include revisions to license articles and deletions of license articles. Where applicable, Appendix D indicates where a license article has been modified or deleted.

The Lundy Project is also subject to rules set forth in Form L-1 (October 1975), Terms and Conditions of License for Constructed Major Project Affecting the Lands of the United States (54 F.P.C. 1792, 1799).

[4] An additional conveyance of the Wilson System water rights is available through the Upper Conway Ditch. A radial gate at upstream end of the tailrace diverts water when called for into this system.

[5] 86 FERC ¶ 61,230 (1999).

4.6.3.2. Existing Environmental Programs and Measures

Pursuant to its existing license, SCE maintains several environmental Lundy Project-specific programs, plans, and measures. Where applicable, the license article and condition number are provided for reference.

- Pipeline Monitoring Plan (License Article 401)
- Erosion Control and Revegetation Plan (License Article 402)
- Minimum Flow Plan (License Article 403)
- Rare Plant Protection Plan (License Article 405)
- Riparian Disturbance Plan (License Article 406)
- Cultural Resource Management Plan (License Article 408)
- Recreation Plan (License Article 410)
- Stream Gaging Plan (License Article 412)
- Sediment Transport Plan (License Article 413)
- Riparian Vegetation Monitoring Plan (License Article 415)
- Plan for Annual Consultation on Water Monitoring and Summer Operation and Maintenance (License Article 417)
- Hazardous Substance Plan (Forest Service 4(e) Condition No. 7)
- Erosion Control Plan (Forest Service 4(e) Condition No. 8)
- Spoil Disposal Plan (Forest Service 4(e) Condition No. 9)
- Visual Resources Plan (Forest Service 4(e) Condition No. 10)
- Sensitive and T&E Species Protection Plan (Forest Service 4(e) Condition No. 11)

Routine Lundy Project O&M includes numerous activities to ensure the safe operation of the Lundy Project. Below is a list of the routine activities performed at the Lundy Project.

- Material Removal: When required, SCE removes material that obstructs the water diversions and operations of hydroelectric generation.
- Vegetation Control: SCE controls vegetation growth at or adjacent to its facilities to prevent overgrowth of vegetation that interferes with the flow of water and the measurement of flow through the gaging stations. Methods proposed for vegetation control include selective thinning, selective removal, or mowing.

- Facilities Repair: When required, SCE routinely repairs structures and facilities and conducts maintenance to retain the functional and structural integrity of facilities. These include:
    - Measuring Stations and Flumes—SCE uses measuring stations and flumes to measure water in the waterways. Maintenance work related to measuring stations and flumes include mowing vegetation to provide access along channel banks and removing stream deposit within an area of measuring stations to allow for unobstructed water flow and the accurate reading of water flow in waterways.
    - Intake and Diversion Structures—SCE uses intake and diversion structures to divert water from a stream, canal, or intermittent manufactured waterway into a canal or intermittent manufactured waterway. Stream deposits are removed above and/or below intake structures.
    - Gate Inspection and Maintenance—These routine operations are mandated by the California Department of Safety of Dams and do not result in the draining of any ponds, which minimizes impacts to the stream. SCE is required to inspect penstocks, which involves lowering the ponds to expose the entry point to the penstock.
- Stream Deposit Management: Because of the nature of the facilities, stream deposits may accumulate behind diversions and other structures, and these deposits may require regular removal or control. Should SCE determine that water releases are necessary to remove stream deposits for a facility, the water releases will be performed in the spring to mimic naturally occurring heavy flows. Included in these protection measures are as-needed nesting bird surveys, raptor surveys, other sensitive species surveys, fish protection, restoration for impacts, implementation of best management practices (BMPs) for work in and around streams and lakes, and monitoring and reporting to SCE, CDFW, USFS, and other resource agencies, as appropriate.

In the Final Environmental Assessment for the Lundy Project, prior to issuance of the 1999 license, FERC did not include a water quality reference and stated the SWRCB waived Section 401 water quality certification in December 1983 (FERC, 1992). Additionally, FERC did not require water quality monitoring in the Order Amending License and Dismissing Requests for Rehearing issued on November 15, 2007 (FERC, 2007). A water quality certification was later issued by SWRCB in 2017 to address ongoing O&M of the Lundy Project, which identified 1- to 2-day increases in turbidity as a potential source of water quality impairment and thus requires turbidity monitoring during O&M activities (SWRCB, 2017).

SCE resource specialists are consulted during the preparation of non-routine projects that potentially expand or modify the Lundy Project from the original licensed configuration. In these instances, SCE utilizes an internal environmental screening form through its EHSync database to initiate the appropriate environmental or cultural review. In the event of a potential impact on a cultural resource, the Lundy Project's SCE Environmental Affairs Division's cultural resource specialist will implement procedures and measures identified in the Historic Properties Management Plan, including consultation with the USFS, as appropriate.

4.6.4. Project Facility Maintenance

This section describes routine inspection and maintenance activities conducted at the Lundy Project. A description of each activity related is provided in Table 4.6-2 and includes detailed information on the location and frequency of these activities. Maintenance and inspections are carried out by SCE staff except at Lundy Project recreation facilities, which are managed and maintained by Mono County under a license agreement with SCE. This agreement is described in more detail in Section 5.8, *Recreation Resources*.

Table 4.6-2. Routine Lundy Project Inspection and Maintenance Activities

Maintenance Activity	Relevant Project Area	Frequency	Description
Maintenance of dirt/native roads and parking areas, including ditch and culvert maintenance	• All native Project roads and parking areas (e.g., Flowline Access Road off from Lundy Lake Road) • *Recreation Access at Dam** • *Parking areas at boater put-in/take-outs*	• Annually, and as needed	Minor Project road maintenance: • Grading approximately within the road prism • Debris removal and basic repairs, including filing of pothole • Maintenance of erosion control features such as drains, ditches, and water bars • Repair, replacement, or installation of access control structures such as posts, cables, and barrier rock • Cleaning and clearing debris and sediment from culverts with a backhoe or hand shovel • Repair and replacement of signage • Vegetation management may be conducted concurrently with road maintenance on an as-needed basis Major Project road maintenance: • Placement or replacement of culverts and other drainage features
Vegetation trimming and removal/clearing	• All Project roads • Project facilities: powerhouse, dams, water conveyance system, penstock, and stream gage sites • *Project Recreation Facilities, including camping and day use*	• Every other year • *Mono County as needed*	• Brush mow along the roadway to maintain the road as necessary for a safe line of sight and passage • Trimming performed both manually and with tools/equipment (i.e., weed whacker or chainsaw) • Maintain access and horizontal clearances
Hazard tree inspection and removal	• All Project roads • Project facilities: powerhouse, dams, water conveyance system, penstock, and stream gage sites • Recreation sites and day-use areas	• Weekly and monthly inspections • Removal as needed	• Remove hazardous brush and trees threatening roads, vehicles, and Project infrastructure. • Removal performed both manually and with tools/equipment

Maintenance Activity	Relevant Project Area	Frequency	Description
Slide debris removal	• All Project roads	• As needed, typically following winter rains	• Remove slide debris with grader, loader, and dump truck • Spread material on road near debris slide as road base
Herbicide spraying	• *Recreation and day-use facilities*	• Annually	• Pre-emergent herbicide spraying followed by post-emergent, as necessary, on private land only • If necessary, weed-whack within flat areas prior to spraying, on private land only
Structural inspection and maintenance	• Powerhouse • Lundy Dam • Penstock • Water conveyance system	• Weekly and monthly inspections • Daily during spring/summer in peak runoff conditions • Maintenance work as needed	• Rake trash rack grids to ensure they are clean and free of debris • Fix minor concrete repairs/spalling • MCRD repairs including but not limited to; ○ Concrete repairs ○ Excavations ○ Recompacting soil
Material/slash burning	• Varies, depending upon source material location	• Annually, or as needed	• Obtain permit from USFS when needed • Burn brush, slash, or other vegetation accumulated from various Project operations
Manage access gates and security fencing	• Vicinity of powerhouse • Selected locations around access points at open flumes	• Inspect weekly and monthly during other facility inspections	• Repair as needed
Sediment management (physical removal)	• Intake areas • Splitter box and other ditches necessary for water deliveries	• As needed	• Hand shovels or backhoe used to remove sediment, if needed
Facility painting	• Powerhouse, handrails, maintenance buildings • Penstock	• Annually maintain, as needed (facilities on a rotation of every 10–20 years)	• Follow general aesthetic guidelines (e.g., painting in earth tones, landscaping with vegetation similar to surrounding areas)

*Italicized text indicates activities that were implemented by Mono County under its license agreement with SCE.

Routine inspections are conducted at Lundy Project facilities to verify the structural and/or functional integrity of the facilities and to identify conditions that might disrupt operation or threaten public safety. Routine inspections are conducted by an operator 4 to 5 days a week. Monthly Spill Prevention, Control, and Countermeasure and switchyard inspections also occur.

Routine maintenance activities are conducted to maintain Lundy Project facilities in operational conditions. An annual generator outage takes place to support minor maintenance and repair any wear and tear. Other normal maintenance includes snow removal and emergency repairs to the generator and associated equipment, as needed.

Hydrographers perform weekly dam inspections of Lundy Dam in the summer months. Monthly inspections occur at Lundy Dam year-round; however, there is limited visibility in winter months.

Specific repair and modification items are listed above in Table 4.6-2.

4.7. OTHER LUNDY PROJECT INFORMATION

4.7.1. LUNDY PROJECT COMPLIANCE HISTORY

The current license requirements and their status can be found in Appendix E, FERC License Conditions Summary Table.

4.7.1.1. FERC Inspections

The FERC Regional Office conducts an annual dam safety inspection and an environmental and public use inspection approximately every 5 years. The most recent inspections that occurred at the Lundy Project are as follows:

- FERC dam safety inspections from July 11 to 14, 2022
- FERC environmental inspections from August 20 to 22, 2018
- FERC public use inspections from August 20 to 22, 2018[6]

Additionally, FERC's Part 12D inspections—either a periodic or comprehensive inspection—are conducted every 5 years; the most recent of these inspections occurred in 2018. The Lundy Project's twelfth Part 12D Independent Consultant's Safety Inspection Report was submitted on December 22, 2023.

SCE has completed all necessary corrective actions to address comments and recommendations arising from FERC inspections.

[6] A public use inspection was included in the 2018 environmental inspection.

4.7.1.2. FERC License Deviations

SCE has reviewed the Lundy Project compliance history and found no instances of reoccurring non-compliance. Over the current license term, the Lundy Project has had deviations from Article 404 regarding flow releases and reservoir levels. A summary of these deviations is provided in Table 4.7-1. Additionally, Appendix D to this PAD contains more information on compliance with license conditions.

Table 4.7-1. SCE Deviations over the Current License Term

Date of Report of Deviation	Relevant License Article	Description
May 7, 2020	Article 404	Between April 24 and 25, 2020, the minimum instream flow average daily flow release from Lundy Dam to Mill Creek decreased to less than the required 0.75 cubic foot per second (cfs) due to a malfunction of the Lundy No. 1 upper penstock valve. On April 24th and 25th, the average daily flow release decreased to 0.08 cfs and 0.73 cfs, respectively. FERC has not responded with a determination.
April 16, 2021	Article 404	Between March 19 and 20, 2021, the minimum instream flow release from Lundy Dam to Mill Creek decreased to less than the required average daily flow of 0.75 cfs due to low lake levels while preparing to work on the Lundy No. 1 upper penstock valve. On March 20th, the average daily flow release decreased to 0.04 cfs. FERC review of the incident indicated that the deviation resulted from an external change in Project inflow and was thus not considered a violation as reported on February 16, 2022.

4.7.2. Current Net Investment

The current net investment of the Lundy Project as of December 2023, represented by the net book value, is $9,065,973

4.7.3. Lundy Project Generation and Outflow Records

Outflow data and average monthly energy production for current operations of the Lundy Project (2013-2022) are summarized in Table 4.7-2. During this period, annual generation ranged from 4,116 megawatt-hours (MWh) to 16,799 MWh (SCE, 2022).

Per FERC requirements, a summary of Lundy Project generation and outflow records for operations (annually and quarterly) for the 5 years preceding filing the PAD (2018-2022) is included in Table 4.7-3.

4.7.4. Average Annual Energy and Dependable Capacity

SCE defines Maximum Dependable Capacity to be the maximum load-carrying capacity of each generating unit, based upon single unit load tests during unrestricted conditions of maximum reservoir and/or forebay head and maximum manufacturer-rated capabilities of the turbines, generators, and other power plant components. Based on this approach, the Lundy Project has a Dependable Capacity of 3.0 MW.

Table 4.7-2. Average Annual and Monthly MWh Generation (2013–2022)

Year	Jan	Feb	Mar	April	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Total
2013	363	325	315	176	414	573	875	496	417	397	279	209	4,839
2014	198	188	326	381	440	475	495	491	444	435	251	198	4,322
2015	189	170	186	172	197	344	418	729	1,088	336	225	232	4,286
2016	234	222	215	1,278	754	1,397	1,321	935	499	315	270	283	7,723
2017	570	964	1,824	1,268	2,222	2,196	2,187	2,183	1,579	639	579	588	16,799
2018	577	531	868	610	547	1,407	1,238	1,115	694	489	473	486	9,035
2019	472	437	600	933	1,882	2,022	2,080	2,101	1,345	755	312	273	13,212
2020	255	211	201	248	886	761	607	300	322	183	329	230	4,533
2021	159	143	268	223	466	1,333	682	52	12	139	361	278	4,116
2022	315	283	312	309	936	1,157	1,162	545	264	42	179	211	5,715
Average	508	347	512	560	874	1,167	1,107	895	666	373	326	124	7,458

Source: SCE Hydro Net Generation Records, 2022

Table 4.7-3. Summary of Project Generation and Outflows (2018–2022)

Year	Quarter	Average Flow (cfs)	Generation (MWh)
2018	1	20	1,976
	2	48	2,564
	3	36	3,047
	4	15	1,448
2018 Annual Total		30	9,035
2019	1	16	1,509
	2	55	4,837
	3	72	5,526
	4	15	1,340
2019 Annual Total		40	13,212
2020	1	9	667
	2	29	1,895
	3	14	1,229
	4	10	742
2020 Annual Total		15	4,533
2021	1	7	570
	2	22	2,022
	3	13	746
	4	10	778
2021 Annual Total		13	4,116
2022	1	11	910
	2	28	2,402
	3	24	1,971
	4	8	432
2022 Annual Total		18	5,715

Source: SCE Hydro Net Generation Records, 2022

5.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

5.1. GEOLOGY AND SOILS

5.1.1. INTRODUCTION

This section describes the geology, Quaternary history (from 2.6 million years ago [ma] to the present), landforms, sediments, physiography, and geomorphology in the vicinity of the Lundy Project. The main Lundy Project features discussed in this section include Lundy Lake, Mill Creek (from Lundy Lake to Mono Lake) and its major tributaries, Deer Creek, the Lundy Powerhouse Tailrace, and the MCRD. FERC's requirements for this section are specified in CFR § 5.6(d)(3)(ii). As stated in 18 CFR §§ 5.6(d)(3)(ii)(A), (B), and (C), the following information is provided based on readily available information:

- A description of the geologic features, including bedrock lithology, stratigraphy, structural and glacial features, unconsolidated deposits, and mineral resources at the Project site.
- A description of the soils, including the types, occurrence, physical and chemical characteristics, erodibility, and potential for mass soil movement.
- A description of any associated reservoir shorelines and streambanks, including steepness, composition (bedrock and unconsolidated deposits), and vegetative cover; and existing erosion, mass soil movement, slumping, or other forms of instability—including identification of Lundy Project facilities or operations that are known to or may cause these conditions.

5.1.2. INFORMATION SOURCES

The following information sources were reviewed for the development of this section:

- Final Environmental Assessment for Hydropower License (FERC, 1992)
- Mono Basin Geology and Hydrology (Huber et al., 1989; LADWP, 1987; Wahrhaftig et al., 2019)
- Birth of the Sierra Nevada Magmatic Arc (Barth et al., 2011)
- Fault and Thrust Information Summaries (Sawyer, 1995; Sawyer and Bryant, 1995, 2002)
- Quaternary History of Mono Lake and Mill Creek (Bursik and Sieh, 1989; Reheis et al., 2002; Stine, 1990)
- Mill Creek Geomorphology (CDFG, 1996; Read, 2021; Stine, 1995)

5.1.3. Geologic Setting

The Lundy Project is located within the northwestern portion of the Mono Basin between the Sierra Nevada and Mono Lake. The Mono Basin has been shaped by faulting, intrusion of granitic rocks, metasedimentary “roof pendants” atop the granitic intrusions, glacial erosion of the granitic and metasedimentary rocks, Tahoe-age Pleistocene glacial deposits (downstream of Lundy Lake), Pleistocene and Quaternary deposits (in Mono Lake and its predecessor, glacial Lake Russell), and Quaternary alluvial deposits. The Mono Basin and the Mill Creek watershed include the crest of the Sierra Nevada, with maximum elevations extending up to 12,431 feet to approximately 6,400 feet at the shoreline of Mono Lake (Millar and Woolfenden, 1999). The Mono Basin includes both the Cascade-Sierra Mountains physiographic province and the Basin and Range physiographic province. The boundary between the two physiographic provinces is reported near Mono City (Freeman and Johnson, 1946) (Figure 5.1-1), but subsequent mapping places the boundary between the provinces about 1.5 miles (mi) west near the Mono Lake Fault (Bursik and Sieh, 1989).

The Lundy Project originates in Lundy Canyon, which is drained by Mill Creek. Glaciers originally sculpted the vicinity of the Lundy Project, and it is currently characterized by rounded granitic outcrops, U-shaped glacial valleys, glacial lakes, and talus slopes (FERC, 1992). The geologic map units of the Lundy Project vicinity are shown in Figure 5.1-2. Lundy Lake lies within a glacially carved U-shaped valley, bound by Mount Olsen (11,086 feet elevation) to the north and Gilcrest Peak (11,575 feet elevation) to the south. The valley is narrow (1,120 feet wide), and the lakeshore mainly comprises weathered bedrock, glacial till, and talus (FERC, 1992). Lundy Dam is a dumped gravel and rockfill dam with a concrete core wall (FERC, 1992) and was constructed to raise the elevation of a natural lake.

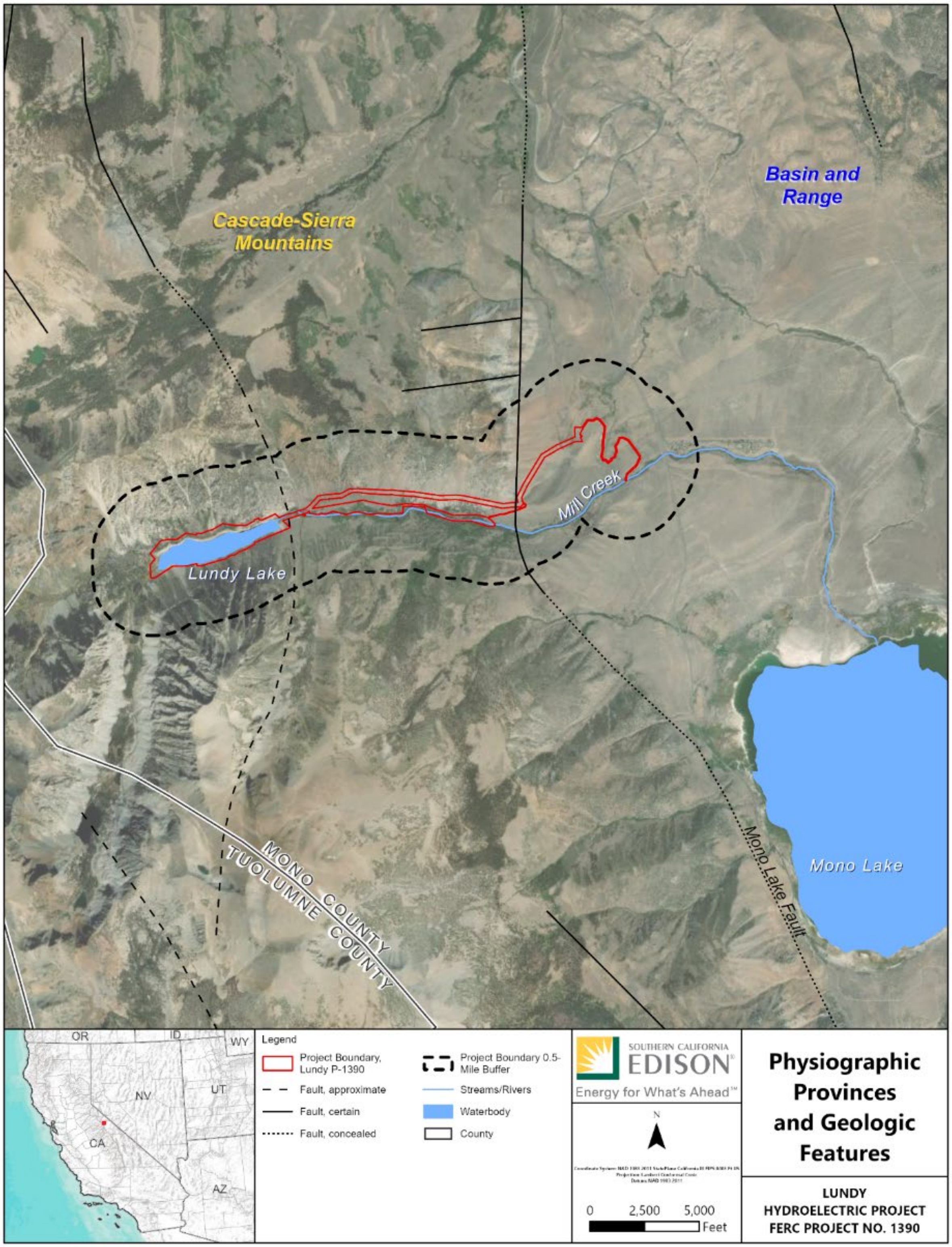


Figure 5.1-1. Physiographic Provinces and Local Faults in the Mono Basin.

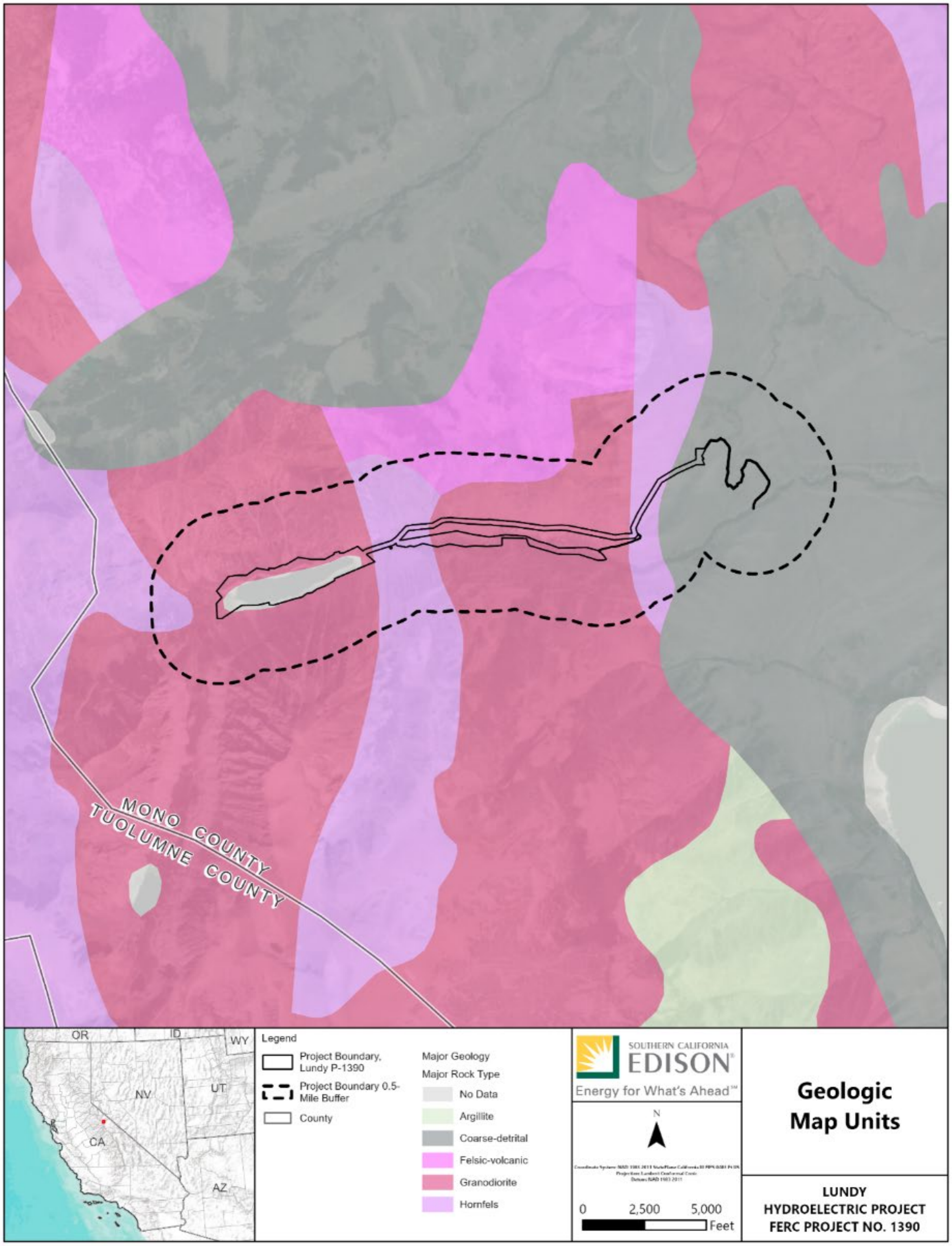


Figure 5.1-2. Geologic Map Units in the Vicinity of the Lundy Project.

5.1.3.1. Bedrock Lithology and Stratigraphy

The bedrock lithology in the Lundy Project vicinity forms the basis of the physical systems and their resilience to change. These physical systems (hydrology, drainage density, soil characteristics, water quality, sediment supply, and channel slope) influence ecosystems near the Lundy Project.

The Sierra Nevada is a northwest-trending crustal block bounded by the Great Valley fault system to the west and the eastern California shear zone to the east. The Sierra Nevada batholith[7] forms the core of the Sierra Nevada. When these Mesozoic--era plutons intruded Paleozoic-era sedimentary and volcanic rocks, contact metamorphism transformed the rocks into metasedimentary rocks (i.e., slate, schist, gneiss) commonly referred to as roof pendants.

Lundy Canyon is bound by granodiorite of the Triassic Scheelite Intrusive Suite to the north and the Cretaceous Tuolumne Intrusive Suite to the south (Barth et al., 2011). The Scheelite Intrusive Suite[8] is one of the largest and oldest plutons in the Sierra Nevada and includes the porphyritic granodiorite of Mount Olsen. The Tuolumne Intrusive Suite is compositionally similar to the Scheelite Intrusive Suite and makes up the granitic rock of Gilcrest Peak. The Saddlebag Lake roof pendant on the north and south walls of Lundy Canyon includes all rocks that stratigraphically overlie the Scheelite Intrusive Suite. These metasedimentary rocks include the Sonoma and Antler orogenic belts from west--central Nevada, dating to the Paleozoic Era (Schweickert and Lahren, 1987). Rocks of the Sonoma orogenic belt typically include metagabbro and other ultramafic rocks, chert-argillite breccia, siltstone, sandstone, and conglomerate (Lahren, 1989). Rocks within the Antler orogenic belt typically include chert, shale, siltstone, and argillite with minor lenses of quartzite, calcarenite, and basalt.

5.1.3.2. Tectonic History

The Sierra Nevada frontal fault zone extends approximately 373 miles (along the eastern escarpment of the Sierra Nevada) from near the Garlock Fault to the Oregon Cascade Range. It defines the western boundary of both the eastern California shear zone and the Basin and Range physiographic province. In the vicinity of the Lundy Project, the Sierra Nevada frontal fault zone occurs near Highway 395 and Mill Creek (approximately 2.4 miles downstream of Lundy Lake). The Sierra Nevada frontal fault zone has remained tectonically active throughout the Quaternary. This fault zone contains a series of left-stepping, north-northwest striking, and east-facing escarpments formed in Quaternary alluvial deposits (including alluvial fans and glacial deposits) and rockslides (Le et al., 2007). Since 1978, earthquakes have been concentrated in a portion of the eastern California shear zone referred to as the Walker Lane Belt. The Walker Lane Belt trends northwest, parallel to the Sierra Nevada frontal fault zone, and extends from Pyramid

[7] A batholith is a large amount of intrusive igneous rock (greater than 40 square miles).

[8] An intrusive suite is group of plutons related in time and space (i.e., emplaced by the same magma-producing event).

Lake to Death Valley. The Lundy Project is located within the vicinity of the Central Walker Lane Belt.

5.1.3.3. Volcanism

The emplacement of the Sierran batholith led to widespread volcanism, including events about 250 ma during the Permian Period and again about 130 to 230 ma during the Triassic and Jurassic periods (LADWP, 1987). Additionally, about 2 to 12 ma during the late Pliocene Period, there was widespread volcanic activity in Mono Basin, which is thought to have occurred after the major faulting that shaped the basin (LADWP, 1987). In the Quaternary, there were two major volcanic events in the vicinity of the Lundy Project, including the eruption of the rhyolites of Glass Mountain (0.9 to 1.9 ma, east of Mono Lake) and a major eruption in Long Valley (about 700 thousand years ago [ka]). The eruption in Long Valley collapsed the Long Valley caldera and created the Bishop Tuff and local ashfall deposits.

Pleistocene and Holocene eruptions in the vicinity of the Lundy Project, including the Mono Craters (southeast of the Lundy Project), started erupting about 40 ka, with the most recent volcanic activity occurring on the islands in Mono Lake sometime after 290 years ago (Stine, 1984 as cited in LADWP, 1987). The Holocene alluvial and lake sediments in the vicinity include ash fall sediments from nearby volcanic eruptions, the most recent of which were associated with Paoha Island eruptions about 400 years ago (Stine, 1990).

5.1.3.4. Quaternary History, Landforms, and Sediments

Most sedimentary rocks in Mono Basin are Quaternary (LADWP, 1987). During the Last Glacial Maximum (21 to 18 ka), the Sierra Nevada in California was covered by a 20,000-square-kilometer glacier or ice cap complex (Phillips, 2017). The Quaternary glacial record on the eastern side of the Sierra Nevada range cited by Wahrhaftig et al. (2019) is provided in Table 5.1-1.

Table 5.1-1. Glacial History of the Sierra Nevada

Glaciation	Age Range (ka)
McGee	2,600–1,500
Sherwin	900–790
Mono Basin	160–60
Tahoe	145–130
Tioga	27–15
Recess Peak	14–12.5
Matthes (Little Ice Age)	0.6–0.15

Source: Wahrhaftig et al., 2019

ka = thousand years ago

Additionally, there is evidence of several other (unnamed) advances and retreats on the eastern side of the Sierra Nevada range (Gillespie and Clark, 2011). The melting of these glaciations resulted in the accumulation of glacial debris that formed moraines (i.e., the mass of rocks and sediment deposited from a glacier), ridges, and coarse-grained alluvial deposits of glacial till that covered a broad piedmont slope at the base of the Sierra Nevada. Additionally, these glaciations sculpted depressions that are now the high alpine lakes of the Sierra Nevada. Soil creep, aeolian transport, rockfalls, debris flows, and slides continued to shape the slopes of the moraines. The Mono Basin moraines are typically covered with grus[9] (Bursik, 1991).

During the early to middle Pleistocene, glacial Lake Russell (the Pleistocene antecedent to Mono Lake) was much larger than present-day Mono Lake. Shoreline deposits and paleochannels suggest the lake was between 7,230 and 7,480 feet during this period (Reheis et al., 2002). This is approximately 830–1,080 feet higher than the 1,950 Mono Lake level. Lake Russell periodically spilled into the Owens Valley and the East Walker River during the highest lake (Reheis et al., 2002).

Within the Lundy Project vicinity, Tahoe-age till occurs along Mill Creek from downstream of Lundy Lake to approximately 0.5 miles east of Highway 395 (Huber et al., 1989). This till was supplied by the glaciers that made up the Mill Creek watershed, with erosion occurring upstream of the glacial deposits. This deposit forms sharp, slightly eroded lateral moraines with free-standing crests, including granitic, volcanic, and metamorphic rocks (Chesterman and Gray, 1975). Tioga glaciations were also mapped within Lundy Canyon (e.g., Wahrhaftig et al., 2019), but the Tioga was less extensive than the Tahoe glaciations.

5.1.3.5. Structural Features

Post-glacial faulting is observed at the mouth of Lundy Canyon through displaced moraines. Additionally, fissures near the top of Black Point and the scarps and folds in uplifted lake sediments on Paoha Island provide further evidence of post-glacial faulting (Putnam, 1949, as cited in LADWP, 1987). The Mono Lake Fault extends about 14 miles from Mono Craters to Conway Summit and passes through the vicinity of the Lundy Project. This normal fault has been active in the Holocene (Sawyer and Bryant, 2002) and crosses Mill Creek approximately 2 miles east (i.e., downstream) of Lundy Lake. Additional faults and thrusts near the Lundy Project include:

- Quaternary Silver Lake Fault (also known as the Park Lake Fault) is 12.7 miles long, a high-angle, down--to--east normal fault comprised of two sub-parallel fault traces along the prominent eastern front of the central Sierra Nevada, approximately 2 miles southwest of Lundy Lake (Sawyer and Bryant, 2002).

- Tinemaha Fault (also known as the Birch Creek Fault) is part of the Southern Sierra Nevada fault zone, a zone of high-angle normal faults that bound the eastern front of

[9] Grus is angular and coarse-grained fragments of crystalline rock.

the southern Sierra Nevada (Sawyer, 1995). This fault crosses the eastern side of Mono Lake, approximately 15 miles east of Lundy Lake.

5.1.3.6. Soils

Soils within the vicinity of the Lundy Project are generally thin and commonly sitting on top, sometimes steep, bedrock or colluvium slopes; the development of soils at high elevations has been historically limited by recent glaciations (Vorster, 1985). The soils within the vicinity of the Lundy Project can generally be classified into two categories based on the sources of the material:

- Soils derived from weathered granitic material tend to be coarse-grained, shallow to moderately deep, excessively to well-drained, and located in areas of steep slopes.
- Soils formed in alluvium from erosion of sedimentary and metasedimentary rocks are fine-grained, very deep, well-drained, and located on alluvial fans and terraces with gentle slopes.

The most common soil units in the vicinity of the Lundy Project are detailed in Table 5.1-2 and shown in Figure 5.1-3 and follow the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Soil Survey data units (USDA--NRCS, 2023).

Table 5.1-2. Overview of Soils in the Vicinity of the Lundy Project

Soil Complex/ Association	General Characteristics	Location
Rock Outcrop Rubble land Complex	It comprises 60% rock outcrop and 20% rubble land and is classified as unweathered bedrock with widespread boulders.	This unit occurs on the north- and south-facing canyon walls along the perimeter of Lundy Lake.
Stecum Guiser Families Rock Outcrop Complex	Comprises 40% Stecum family, 20% Guiser family, 15% granitic rock outcrop, and 25% minor components. This unit is somewhat excessively drained and composed of very cobbly, loamy sand and weathered bedrock.	This unit occurs along the southern hillslope bounding Mill Creek, downstream of Lundy Lake.
Rock Outcrop Typic Cryothents Complex	Comprises 70% rock outcrop, 25% lithic cryothents and similar soils, and 5% minor components. This unit is characterized by unweathered bedrock, colluvium derived from granitic rock and/or till.	This unit occurs along the northern hillslope bounding Mill Creek, downstream of Lundy Lake.

Source: USDA-NRCS, 2023

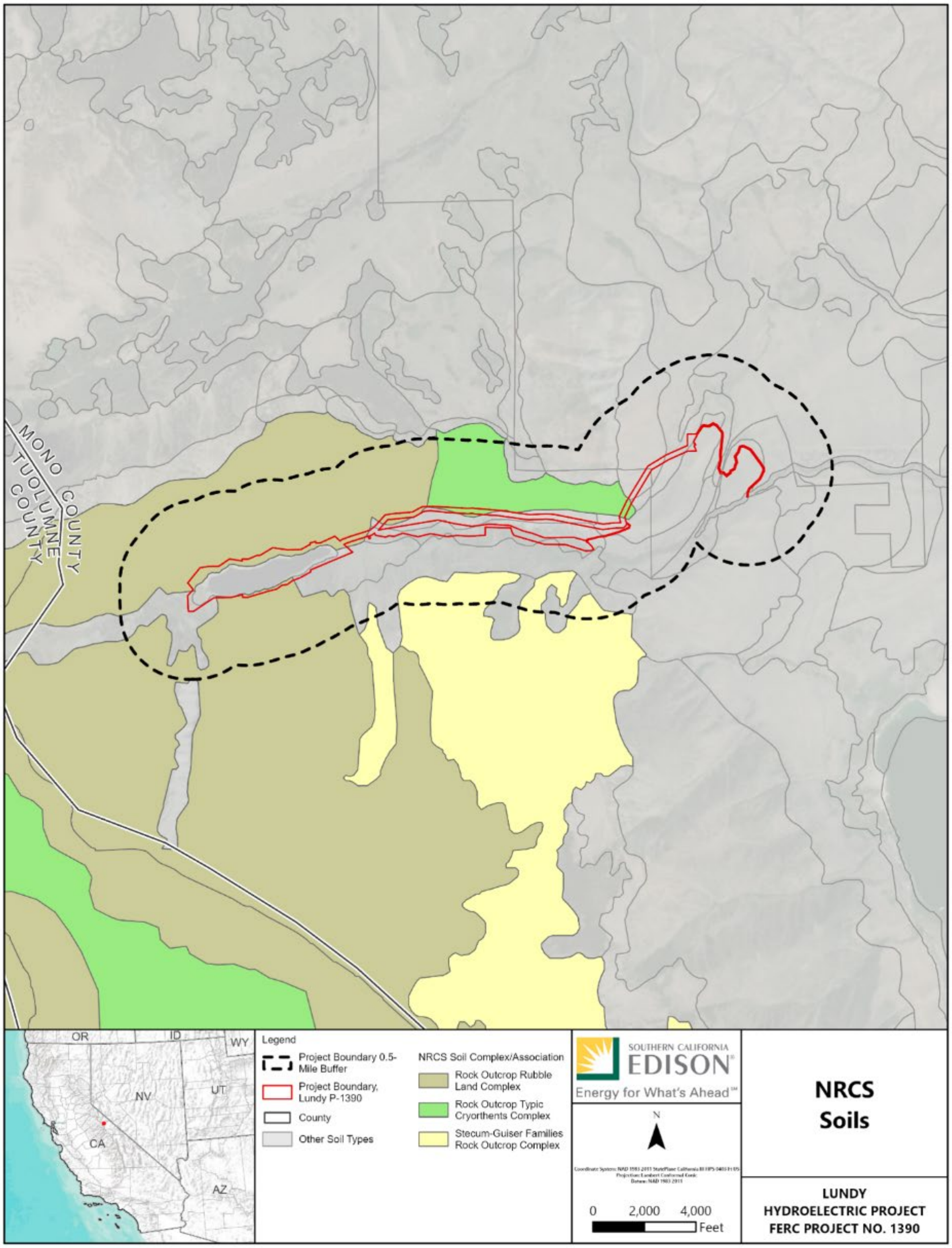


Figure 5.1-3. USDA National Resource Conservation Service Soil Classifications in Lundy Project Vicinity.

5.1.4. Physiography and Geomorphology

Mill Creek, the third largest stream in the Mono Basin, drains over glaciated terrain and surfaces historically inundated by glacial Lake Russell. Downstream of Lundy Lake, Mill Creek flows between Tahoe-age lateral moraines for about 3 miles (to the Highway 395 culvert) and then flows into an incised channel bound by moraines and Quaternary lake sediments until reaching Mono Lake. The bed of Mill Creek between Lundy Dam and Mono Lake primarily consists of boulders, cobbles, and sands.

Deer Creek is the largest tributary to Mill Creek downstream of Lundy Lake and is a significant sediment source to Mill Creek (Stine, 1995). Deer Creek is a perennial stream that flows along a normal fault south of Lundy Lake and enters Mill Creek just downstream of Lundy Dam. Smaller unnamed tributaries also deliver sediment to Mill Creek downstream of Lundy Lake (CDFG, 1996).

A series of diversions and ditches along the tailrace and MCRD (downstream of the Lundy Powerhouse) divert flow to water rights holders before it is returned to Mill Creek (see Section 4.6.2). The MCRD delivers flow to Mill Creek, which was originally diverted at Lundy Dam. The other ditches have been historically used for diversion. Non-Project diversion points include the Upper Conway and the Lower Conway ditches that drain to the north, the Upper Thompson and the Main Thompson ditches that drain to the south, and the MCRD.

The capacity of the MCRD is 25 cubic feet per second (cfs). There has been little description of the morphology and dynamics of the MCRD in published reports.

5.1.4.1. Hillslope Processes

Hillslope erosion downstream of Lundy Lake includes soil creep of the lateral moraines and lake or alluvial terraces along the channel. Ravel and surface slides of scree slopes transport sediment down steep surfaces, particularly on the moraines. Evidence of debris flows (particularly levee deposits) in the headwaters of Deer Creek is visible in aerial photographs.

5.1.4.2. Sediment Supply, Erosion, and Transport

Lundy Dam captures all bedload sediment (sand and coarser) supplied from higher (i.e., upstream) in the watershed. The degree to which Lundy Dam traps suspended sediment is not known, but some washload is likely transported past the dam.

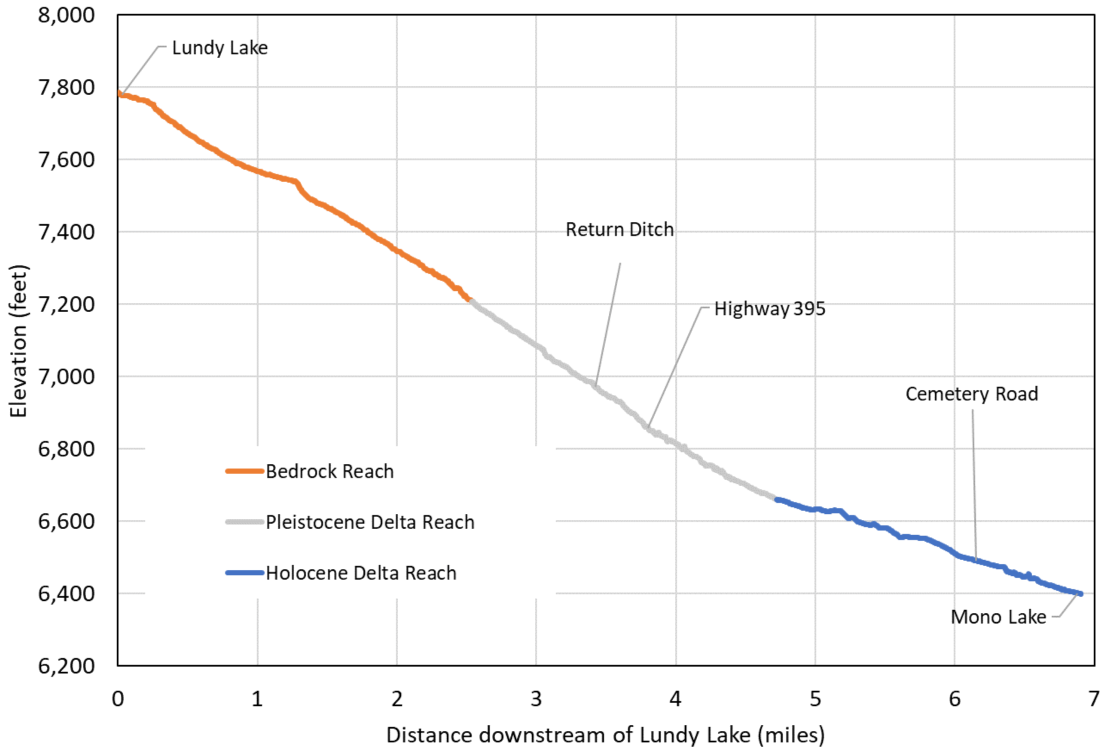
Sediment in Mill Creek is mainly supplied by Deer Creek and smaller tributaries that enter the channel. Additional sediment sources in Mill Creek come from soil creep and localized erosion of lateral moraines and alluvial/lake terraces that border Mill Creek. Deer Creek originally discharged into Lundy Lake but shifted downstream to discharge into Mill Creek between 1958 and 1968 (Stine, 1995). CDFG (1996) calculated sediment transport thresholds for D50 and D84 (the particle sizes at which 50 percent and 84 percent of the bed are finer, respectively) at 13 cross sections on Mill Creek between Upper Thompson Ditch and Mono Lake. Modern sediment transport models recognize that particle interactions are important for calculating sediment mobility; for instance, D84 thresholds underestimate the discharge at which they move (Parker, 1991a; 1991b; Wilcock and Crowe, 2003). Nevertheless, the critical discharge for D50 is a reasonable first approximation for bed mobility. CDFG (1996) found that the critical discharge for sediment transport of the bed material varied widely and ranged from 4.8 to 295 cfs in their study reach. Repeated measurements of bed sediment along Mill Creek (halfway between Lundy Dam and Highway 395) showed that sand and gravel were flushed downstream between 2015 and 2020, presumably during the 2017 wet water year (Read, 2021). The boulders in the reach are unlikely to mobilize at most flows.

5.1.4.3. Fluvial Geomorphology

The fluvial geomorphology of Mill Creek is a function of sediment supply and flows from upstream and the history of lake level fluctuations, tectonics, and flow diversions. Lundy Lake was originally a natural impoundment, and the construction of Lundy Dam in 1911 increased storage capacity and allowed the regulation of lake levels and outflows (FERC, 1992). Prior to the construction of Lundy Dam, the naturally occurring lake trapped bedload supply.

Upstream of Lundy Lake, Mill Creek flows about 6 miles through a steep, bedrock channel through glaciated granitic rocks and metasediments before discharging into Lundy Lake.

To evaluate channel morphology and riparian habitat, Stine (1995) divided Mill Creek into three reaches: (1) the Bedrock Reach, which extends through Lundy Lake and downstream to the 7,200 feet contour (near the eastern boundary of Inyo NF); (2) the Pleistocene Delta Reach which extends downstream for 3.45 miles to near Mono City and is underlain by gravels and palustrine silts; and (3) the Holocene Delta Reach which extends the remaining 2.45 miles downstream where it flows into Mono Lake which is underlain by gravels and cobbles (Figure 5.1-4). CDFG (1996) subsequently divided the Holocene Delta Reach into two sub-reaches, one upstream and one downstream of Cemetery Road. However, the underlying geology and hydrology of the sub-reaches in the Holocene Delta are similar.



Source: CDFG, 1996

Figure 5.1-4. Longitudinal Profile of Mill Creek below Lundy Dam - Derived from 2020 LiDAR.

The Bedrock Reach has a width of approximately 15 feet with a bed of boulders, cobbles, and extensive large wood (CDFG, 1996). The boulders are derived from the moraines and are likely not mobile (CDFG, 1996). CDFG (1996) noted that there was no evidence of lateral migration, but there was evidence of local bank erosion. The channel in this reach is densely vegetated, causing frequent log jams. More recent surveys conducted by Read (2021) (in a 300-foot length of Mill Creek about halfway between Lundy Dam and Highway 395) noted that the channel slope was about 4 percent, wood and boulders were frequent, and channel bed material was a mix of gravel, cobbles, and boulders with some sand. Bankfull widths were not reported in this reach.

The Pleistocene Delta Reach includes the confluence with the MCRD (located about 4,700 feet downstream of the Bedrock Reach), the Highway 395 crossing, and flows along the edge of Mono City. Downstream of the MCRD, Mill Creek has a slope of approximately 5 percent (CDFG, 1996). The bed in this reach is very coarse with boulders, cobbles, and some interstitial gravels. The width-to-depth ratio in this reach ranges from 5–7 (CDFG, 1996), below the threshold of 8–10, where alternate bar development typically begins (Parker, 1976). The bed is mainly composed of cobbles. D50 and D84 of the channel bed were 75 millimeters (mm) and 162 mm, respectively (CDFG, 1996).

The sub-reach of the Holocene Delta Reach upstream of Cemetery Road formerly supported multiple channel threads and has generally been simplified to a single channel as the channel incised and locally derived sediment blocked the secondary channels (Stine, 1995). The channel has incised into lake and alluvial deposits throughout the reach, and the active channel floor is much wider than upstream reaches. The channel is braided in places, with most sediment sourced from the terraces that bound the channel (CDFG, 1996). The slope declines significantly in this reach to 2 percent (CDFG, 1996). The width-to-depth ratio between Mono City and Cemetery Road ranged from 13–32 (CDFG, 1996), the D50 of the channel bed ranged from 57–60 mm (coarse gravel), and D84 ranged from 101–131 mm (cobble) (CDFG, 1996).

Flow paths in the sub-reach of the Holocene Delta Reach downstream of Cemetery Road are controlled by the Cemetery Road culvert, which limits channel migration and avulsion. The Cemetery Road culvert failed during the winter runoff of 1983, causing the road to wash out and eroding a second channel, which was subsequently isolated when the culvert was replaced (USDA, 2001). The width-to-depth ratio for the active channels in the reach downstream of Cemetery Road was 17–18 (CDFG, 1996). D50 was 36 mm (gravel) and D84 was 64 mm (gravel/cobble) (CDFG, 1996). The Holocene Delta downstream of Cemetery Road has also been simplified, with the western branch of the channel only reconnecting during high flows.

The downstream-most section of Mill Creek is affected by varying lake levels of Mono Lake. Over the past 3,800 years, the lake level fluctuated between 6,499 and 6,268 feet, with lake level changes associated with varying climatic conditions (Stine, 1990). Starting in the 1940s, declining Mono Lake levels occurred due to water diversions from the lake’s tributaries (Stine, 1995). The minimum twentieth-century lake elevation was 6,372 feet in 1982, approximately 45 feet below the 1940s’ elevation (Stine, 1995). Subsequently, Mono Lake’s surface elevation has stabilized at higher water elevations. Monthly lake level data from January 1995 to June 1, 2023, fluctuated between 6,374.5 feet and 6,385.1 feet (Mono Lake Committee, 2023).

5.1.4.4. Erosion and Sedimentation Associated with Lundy Project Facilities

A wooden stave penstock rupture in 1962 caused extensive erosion in the glacial till upstream of the Lundy Powerhouse (FERC, 1992). After the rupture, the wooden stave was replaced with a steel pipe, and Penstock Monitoring and Erosion Control plans were created and implemented to address potential penstock failure and gullying (SCE, 1999a). The Penstock Monitoring Plan requires quarterly inspection of the penstock pipe or following any unexpected surges, flow events, or seismic events throughout the duration of the License. The Erosion Monitoring Plan states that the gully channel is stable with no evidence of water flow in the channel, rill erosion on side slopes[10], or recent transport of sediments to the fan site (SCE, 1999b). Erosion along the penstock access road is visible through satellite imagery, but the degree to which this

[10] A rill is a shallow channel cut by overland flow.

sediment reaches Mill Creek is not known. No significant erosion associated with Project operations has been documented since the penstock replacement.

Mill Creek from downstream of Lundy Lake to Highway 395 has been stabilized due to the increase of riparian vegetation following the removal of grazing livestock in the area (USDA, 2001). No bank erosion has been identified in Mill Creek between Lundy Lake and the Thompson Main Ditch (USDA, 2001). No erosion or areas of instability have been identified around Lundy Lake (FERC, 1992).

5.1.4.5. Reservoir Shorelines and Streambanks

The shoreline of Lundy Lake is rocky, consisting of weathered bedrock, glacial till, and talus (FERC, 1992). The banks of Mill Creek, from downstream of Lundy Lake to approximately 1 mile upstream of Highway 395, are composed of glacial till. Downstream of the till deposits, Mill Creek flows through Quaternary lacustrine sediments and alluvium until flowing into Mono Lake, as described above.

5.1.5. Mineral Resources

The California Department of Conservation's Division of Mine Reclamation compiles data on the mines and the commodities produced (including current statuses), while the California Geological Survey (CGS) produces Mineral Land Classification studies. No Mineral Land Classification studies have been completed for the vicinity of the Lundy Project (CGS, 2015).

The primary mineral resources in Mono County include gold, silver, lead, copper, and tungsten. Mono County has 11.4 thousand mining claims and 331 records of mines. In the vicinity of the Lundy Project, there are approximately 40 claims, including gold, tungsten, and copper (Diggings, 2023). In 1879, the May Lundy Mine was established upstream of Lundy Lake, along South Fork Mill Creek. This mine was mainly active from 1879–1915, with periodic activity in the 1930s and 1970s (USGS, 2008).

The most recent mining records in Mono County date from the 1960s and include calcium, gemstones, precious metals, and tungsten (CGS, 2022). The USGS Mineral Resources Data System does not provide detailed information about the current status of these historical mines (USGS, 2018).

5.2. WATER RESOURCES

5.2.1. INTRODUCTION

This section describes water resources in the vicinity of SCE's Lundy Project (FERC Project No. 1390).

5.2.2. WATER USE AND HYDROLOGY

There are seven gages at the Lundy Project actively collecting data and owned by SCE. Four of the gages are published by the USGS. The USGS maintains a contract with SCE to review streamflow records at these gages to comply with the requirements of Article 404 (minimum instream flows) and other FERC orders (e.g., November 15, 2007). SCE monitors and measures: (1) the minimum flow release to Mill Creek below Lundy Dam; (2) the total flow in Mill Creek below Lundy Dam; and (3) Lundy Lake elevations. The Amended Agreement specifies that SCE will also measure and record the rate of water flow at the (4) Lundy Powerhouse Tailrace; (5) Upper Conway Ditch; (6) splitter box release to the Wilson System; and (7) MCRD near the confluence with Mill Creek. The amended Gaging Plan was approved by FERC on August 30, 2023. The seven gages at the Lundy Project are shown in Table 5.2-1.

Table 5.2-1. SCE Gaging Stations

SCE Gage No.	USGS Gage No.	Location
362	10287060	Lundy Lake Reservoir
N/A	N/A	Mill Creek Below Lundy Dam Instream Flow Release
355	10287069	Mill Creek Below Lundy Lake
366	10287145	Upper Conway Ditch
365	10287195	Lundy Powerhouse Tailrace[a]
N/A	N/A	Splitter box release to the Wilson System[b]
N/A	N/A	Mill Creek Return Ditch below Splitter Box[c]
N/A	N/A	Mill Creek Return Ditch near the confluence with Mill Creek

Notes:

[a] Flows are reported at two locations: within the tailrace below the powerhouse (flow to the splitter box) and in the Upper Conway ditch. The combined quantities at these two locations equal total Lundy Powerhouse flow.

[b:] Flow releases from the splitter box to the Wilson System are provided using a Langemann gate that is installed at the concrete control structure; the Langemann gate has the capability to measure and provide an accurate flow rate to downstream users, as required.

[c:] This gage has been added since the Gaging Plan has been amended and will be added to the plan as part of the new license application.

5.2.2.1. Lundy Dam and Inflows

Mill Creek originates on the eastern slopes of the Sierra Nevada and is free-flowing in an easterly direction. Mill Creek drains approximately 14 square miles of rugged mountains west of Mono Lake above the lake and has a mean annual flow of just under 30 cfs. Along Mill Creek, the Lundy Dam impounds Lundy Lake, the only reservoir on Mill Creek, which has a surface area of approximately 132 acres and a net storage capacity of 4,113 acre-feet.

There is an existing USGS-approved lake-level gage (USGS Gage No. 10287060) located on the crest of Lundy Dam at the south end of the spillway. This gage monitors and records the level of water in Lundy Lake. The stage elevation reading is transmitted continuously but only updates every minute and is recorded once an hour and reported as daily midnight storage.

5.2.2.2. Mill Creek Below Lundy Dam Instream Flow Release

The minimum instream flow release from Lundy Dam is provided from the Lundy Project flowline immediately upstream from the sand trap (also known as the rock drop valve), approximately 1,000 feet downstream of the dam. This location is equipped with an AVM, which measures and records the instream flow every 15 minutes. Measurements from the AVM help determine the flow release from the farmer's gate at Lundy Dam. Flow releases from the Lundy Project flowline through the 1) instream AVM release structure, 2) rock-drop valve; and 3) and the farmer's gate are measured at the flume gaging station (described in 4.5.3 above). Fifteen-minute average flow measurements are recorded at the AVM and the flume and are used to monitor releases from the farmer's gate (when in use). The 15-minute data is used to compile data for USGS publication. The Mill Creek Below Lundy Dam Stream Gaging Station (described in 5.2.2.3 below) reports the official instream flow release from Lundy Dam.

5.2.2.3. Mill Creek Below Lundy Dam Stream Gaging Station

The existing USGS-approved Mill Creek Gage (USGS Gage No. 10287069) consists of a flume, measurement device, and a data logger. This gage measures and records the total flow below the sand trap, including releases from the Project flowline (minimum instream flow & rock-drop valve), farmer's gate, spillway flows, and accretion flows between the dam and gaging station. This gage is 1,200 feet downstream from Lundy Dam (and immediately downstream of the sand trap) and 20 feet upstream from the Deer Creek confluence with Mill Creek. A stage reading is transmitted continuously (but only updates every minute and records every 15 minutes). The 15-minute average data is used to compute the USGS record.

In addition to the measuring locations described above, SCE measures and records the rate of water flow at four additional locations: (1) Lundy Powerhouse Tailrace; (2) Upper Conway Ditch; (3) splitter box release to the Wilson System; and (4) MCRD near the confluence with Mill Creek. The measuring devices at these locations are described below. Figure 1 in Attachment A provides a map depicting the stream and reservoir level gaging locations.

5.2.2.4. Lundy Powerhouse Tailrace and Upper Conway Ditch

Flow released from Lundy Powerhouse is reported at two locations: (1) within the tailrace below the powerhouse (flow to the splitter box); and (2) in the Upper Conway ditch. The combined quantities at these two locations equal the total Lundy Powerhouse flow. Tailrace flows are measured using a Design Analysis H-500XL data logger attached to a Design Analysis float-driven H-3311 shaft encoder. Stage reading is transmitted continuously but only updates every 5 minutes. Stage is logged once every 15 minutes, and these values are used to compute the USGS record (Gage No. 10287195).

A power curve is used to calculate total discharge from Lundy Powerhouse (SCE is in the process of installing and testing a penstock AVM to replace this power curve calculation). The Lundy Tailrace gage (Gage No. 10287195) is subtracted from the power curve computation to give the discharge into Upper Conway. A Design Analysis H-500XL attached to a H-3311 shaft encoder is used as a backup gage. Stage is logged once every 15 minutes, and these values are used to compute the USGS record (Gage No. 10287145).

5.2.2.5. Splitter Box Release to the Wilson System

Flow releases from the splitter box to the Wilson System are provided using a Langemann gate that is installed at the concrete control structure (historically, flash boards/stop logs have been used to control flow releases into the Wilson System when the MCRD is being used). The Langemann gate has the capability to measure and provide an accurate flow rate to downstream users, as required. Flow information from the Langemann gate is transmitted every 15 minutes from a telemetry station located on the channel bank adjacent to the splitter box. The flow data is telemetered to SCE Control Station that is staffed by operators 24 hours a day.

5.2.2.6. Top of Mill Creek Return Ditch

The gage consists of a SonTek IQ device that uses acoustic doppler technology to measure flow through a stable stream channel (SCE has added this gage since the Gaging Plan has been amended. It will be added to the plan as part of the new license application). The flow gage is installed immediately south of the Langemann Gate within the MCRD. The SonTek device is installed in the center of the channel to measure flow within the MCRD. Flow information from the SonTek is transmitted every 15 minutes from a telemetry station located on the channel bank at the gage location. The flow data is telemetered via a 3rd-party public site to an SCE Control Station that is staffed by operators 24 hours a day.

5.2.2.7. Mill Creek Return Ditch Near the Confluence with Mill Creek

The gage consists of a SonTek IQ device that uses acoustic doppler technology to measure flow through a stable stream channel. The flow gage is installed in a 20-foot-long section of the MCRD that has been graded and lined with a concrete composite mat to stabilize the channel. The SonTek device is installed in the center of the channel on the pad to measure flow within the MCRD. Flow information from the SonTek is transmitted every 15 minutes from a telemetry station located on the channel bank at the gage location. The flow data is telemetered via a 3rd party public site to SCE Control Station that is staffed by operators 24 hours a day.

5.2.2.8. Drainage Area

Lundy Dam provides storage for the Lundy Project generation and has a contributing drainage area of 16.3 square miles (USGS Gage No. 10287060). The drainage area downstream of the Lundy Powerhouse includes the Wilson System and Mill Creek; the latter is provided water through the MCRD.

5.2.2.9. Flow Statistics

The total Lundy Project daily releases were summed based on USGS Gage Nos. 10287069 (Mill Creek Below Lundy Lake), 10287195 (Lundy Powerhouse Tailrace), and 10287145 (Upper Conway Ditch). Mean, minimum, and maximum values for these daily averages are tabulated based on the sum of those records (Table 5.2-2).

Table 5.2-2. Monthly Mean, Minimum, and Maximum Flows as Summed by Gages 10287069, 10287195, and 10287145

Water Year	Monthly Mean Flow as summed by gages 1027069, 10287195, and 10287145 (cfs)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	12	14	17	19	37	61	94	36	20	13	11	11
Minimum	5	5	5	5	6	7	9	7	3	3	5	5
Maximum	73	46	52	66	113	257	234	149	76	35	27	20

cfs = cubic feet per second; N/A = data not available

5.2.2.10. Flow Duration Curves

Flow duration curves were developed using the sum of USGS Gage daily records described in section 5.2.2.2, which represent total Lundy Project releases. Annual and monthly flow duration curves are provided in Appendix F.

5.2.2.11. Existing and Proposed Water Uses

SCE has no existing or proposed consumptive uses of water at the Lundy Project other than minor domestic use at the powerhouse. Although water is stored by SCE in Lundy Lake for power generation at Lundy Powerhouse, SCE causes no long-term net water loss to downstream areas. There are consumptive uses of water downstream of the Lundy Project.

Some of the consumptive uses include irrigation and domestic use. Although the exact amount of water used is not known, an average of more than 12,200 acre-feet is released below Lundy Powerhouse each year.

5.2.2.12. Instream Uses of Water

FERC's Order Issuing the License, dated March 3, 1999, provided for a minimum instream flow of 4 cfs as measured at the Mill Creek Gage (USGS Gage No. 10287069), just upstream of Deer Creek. This requirement was the subject of the Original 2005 Settlement Agreement with water rights holders, and a subsequent license amendment modified the flow to be consistent with the water rights.

Since the 2007 Order Amending License and Dismissing Requests for Rehearing, SCE's minimum flow requirement is (a) 1.0 cfs on an average monthly basis, but not less than 0.75 cfs on an average daily basis, or (b) the inflow to the Lundy Project reservoir, whichever is less, as measured at either the existing Mill Creek Gage located just upstream of the mouth of Deer Creek (USGS Gage No. 10287069) and/or the release point on the Lundy Project flowline.

Additionally, SCE's minimum flow requirements below Lundy Dam were reduced to the extent that the seepage and accretion flow is greater than 3 cfs. If seepage and accretion flows are above 3 cfs, SCE must only release the water necessary to achieve a 4 cfs flow at the gage noted above.

The minimum flow release may be intentionally, temporarily modified, if required for safety reasons, by operating emergencies beyond the licensee's control, or upon agreement between the licensee, USFS, and CDFG, for short periods. If the flow is so modified or discontinued, the licensee shall notify FERC as soon as feasible but no later than 10 days after the licensee discovers each such intentional or unintentional incident.

5.2.2.13. Water Rights

Water management and water rights through the Lake and Powerhouse are described in Sections 4.6.1 and 4.6.2, respectively, of this PAD.

5.2.2.14. Morphometric Data for Existing Impoundment

Morphometric data for Lundy Lake is noted on Exhibit G-1 of the existing license; the normal maximum pool storage capacity at 7,805.40 feet is 4,113 acre-feet. The reservoir surface area at maximum pool is about 110 acres.

5.2.2.15. Gradient of Mill Creek

Mill Creek below Lundy Dam has three distinct reaches that are described in Section 5.1.4.3 of this PAD and summarized in Table 5.2-3 below.

Table 5.2-3. Approximate Stream Lengths and Gradients for Mill Creek.

Reach	Reach Length		Reach Elevation			Stream Gradient	
	(feet)	(miles)	Top of Reach (feet NAVD88)	Bottom of Reach (feet NAVD88)	Elevation Change (feet)	(feet/mile)	(%)
Bedrock Reach	12739.33	2.41	7805.00	7224.64	580.36	240.81	1.89
Pleistocene Reach	11769.49	2.23	7224.64	6667.41	557.23	249.88	2.12
Holocene Reach	12047.91	2.28	6667.41	6381.88	285.53	125.23	1.04

5.2.3. Water Quality

This section describes water quality in the vicinity of the Lundy Project, including the following waterbodies:

- Lundy Project reservoir (Lundy Lake)
- Lundy Project affected stream reaches including:
    - Mill Creek (downstream of Lundy Lake)
    - Lundy Powerhouse Tailrace and MCRD

5.2.3.1. Information Sources

The primary data sources referenced in this section include:

- Water Quality Control Plan for the Lahontan Region (LRWQCB, 2021, as amended)
- California Environmental Data Exchange Network (CEDEN, 2023)

5.2.3.2. Water Quality Objectives from the Lahontan Region Water Quality Control Plan

Federal water quality standards required by the Clean Water Act are implemented under the authority of the State of California Water Resources Control Board (SWRCB) and the California Regional Water Quality Control Board, Lahontan Region (LRWQCB). The Lahontan Region Water Quality Control Plan (Basin Plan) was revised in 2021, and although no site-specific water quality standards are set forth for Mill Creek or Lundy Lake, the Basin Plan contains standards for the region (LRWQCB, 2021).

Basin Plan water quality standards are composed of existing and potential beneficial uses and water quality objectives. Beneficial uses established by the Basin Plan for the Lundy Project waters relevant to water quality include municipal and domestic supply (MUN);

water contact recreation (REC-1); hydropower generation (POW); navigation (NAV); water non-contact recreation (REC-2); cold freshwater habitat (COLD); commercial sportfishing (COMM); wildlife habitat (WILD); and spawning, reproduction and/or early development (SPWN). Additional beneficial uses listed in the Basin Plan include agricultural supply (AGR), groundwater recharge (GWR), and freshwater replenishment (FRSH). The Basin Plan includes narrative and numeric surface water quality objectives to support the beneficial uses listed above in Table 5.2-4.

Table 5.2-4. Lahontan Region Water Quality Basin Plan Objectives

Objective (or Constituent)	Criteria with applicable threshold values
Ammonia	One-hour and 4-day unionized ammonia criteria are temperature- and pH-dependent.
Coliform bacteria	Fecal coliform shall not exceed a log mean of 20/100 mL in a 30-day mean, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 mL.
Biostimulatory substances	Shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.
Chemical constituents	Waters designated as MUN shall not contain concentrations of chemical constituents in excess of MCL or SMCL based upon the California Code of Regulations, Title 22; and shall not contain concentrations of chemical constituents in amounts that adversely affect beneficial uses.
Chlorine	Shall not exceed either a median of 0.002 mg/L or maximum of 0.003 mg/L.
Color	Shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.
Dissolved oxygen	Concentration as percent saturation shall not be depressed by more than 10 percent, nor shall the minimum DO concentration be less than 80 percent of saturation; DO concentrations in waters with the beneficial uses COLD and SPWN shall not be less than 9.5 mg/L over a 7-day mean, nor less than 8.0 mg/L in 1 day.
Floating materials	For natural high quality waters, concentrations of floating material shall not be altered to the extent that such alterations are discernable at the 10% significance level.
Oil and grease	For natural high quality waters, the concentration of oils, greases, or other film- or coat-generating substances shall not be altered.
Non-degradation of aquatic communities and populations	All wetlands shall be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants, or that lead to the presence of undesirable or nuisance aquatic life.
pH	In freshwaters with designated beneficial uses of COLD or WARM, changes in normal ambient pH levels shall not exceed 0.5 pH units.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated as MUN shall not contain

Objective (or Constituent)	Criteria with applicable threshold values
	concentrations of radionuclides in excess of the limits specified in Table 4 of the California Code of Regulations, Title 22, Section 64443 (Radioactivity).
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.
Settleable materials	For natural high quality waters, the concentration of settleable materials shall not be raised by more than 0.1 mL per liter.
Suspended materials	For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10% significance level.
Taste and odor	For naturally high quality waters, the taste and odor shall not be altered.
Temperature	For waters designated COLD, the temperature shall not be altered.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. The California Toxics Rule, codified in 40 CFR Section 131.38, establishes numeric criteria for toxic priority pollutants for California's inland surface waters, enclosed bays, and estuaries.
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10%.

Source: LRWQCB, 2021

COLD = cold freshwater habitat; DO = dissolved oxygen; MCL = Maximum Contaminant Level; mg/L = milligrams per liter; mL = milliliter; MUN = municipal and domestic supply; pH = indicates acidity or alkalinity of a solution; SMCL = Secondary Maximum Contaminant Level; SPWN = spawning, reproduction, and/or early development; WARM = warm freshwater habitat

Additionally, under the state of California Antidegradation Policy, whenever the existing water quality is better than the objectives established in the Basin Plan (both narrative and numerical), such existing quality must be maintained (unless appropriate findings are made under the policy). Some increase in pollutant levels may be allowable if (1) a reduction in water quality would not seriously harm any species found in the water; (2) lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located, and existing beneficial uses are protected; and (3) long-term or permanent water quality in Outstanding Natural Resource Waters (including Mono Lake) is not reduced.

5.2.3.3. Existing Water Quality Data

Existing water quality information within the vicinity of the Lundy Project is limited, but alpine Sierra-region-lake water quality is typically excellent due to their primarily granitic basins (Melack et al., 1985) and snowpack runoff (Williams and Melack, 1991). In 2001, the USFS Region 5 characterized water quality for Mill Creek as "excellent, similar to what it would have occurred if reference conditions still remained" while also noting that "turbidity is periodically high with extreme runoff events" (USDA, 2001). Additionally, historical sampling conducted in several Mono Basin streams (including Mill Creek) found that the waters were of the calcium bicarbonate type and had total dissolved solids ranging from 31 to 81 parts per million (ppm) (Lee, 1969, as cited in USDA, 2021).

Within Mill Creek, limited data were available regarding constituents relating to Basin Plan objectives (Table 5.2-5, Table 5.2-6, and Table 5.2-7). In 1990 and 1991, CDFG conducted a stream evaluation of Mill Creek that included water quality sampling and development of a water temperature model as part of an instream flow and habitat development investigation primarily focused on brown trout habitat (CDFG, 1996). Water quality sampling was coordinated with LRWQCB and was conducted April through October 1991 in Mill Creek just downstream of the Highway 395 crossing (Table 5.2-6). Results were compliant with EPA (1986) standards and were evaluated to be not limiting to the brown trout population. Historical water quality information for Mill Creek generally meets Basin Plan objectives but only reflects a small number of older samples. Lundy Lake and Mill Creek do not appear on the state of California's list of impaired and threatened waters (SWRCB, 2023a, 2023b).

Table 5.2-5. Mill Creek Water Quality Information Available from the California Environmental Data Exchange Network

CEDEN Source	Sample Location	Date	Constituent/Parameter	Unit	Result
USGS	Mill Creek upstream of Lundy Lake	9/14/2012	Acidity (H+)	mg/L	0.00025
			pH	std units	6.6
			Water temperature	ºC	7.6
			Specific conductance	µS/cm at 25 ºC	79
			Chloride	mg/L	0.64
601PS0077	Mill Creek ~2.2 miles downstream of Lundy Lake	8/7/2012	Total ammonia, as Na[a]	mg/L	0.0238 0.0241
			Nitrate + nitrite, as Na[a]	mg/L	0.0107 0.0115
			Total nitrogen[a]	mg/L	0.0843 0.0889
			Total phosphorus as P[a]	mg/L	0.0213 0.0249
			Total suspended solids[a]	mg/L	2.1 2.1
			Suspended sediment concentration[a]	mg/L	2.4 13.5
			Chloride[a]	mg/L	0.29 0.31
			Sulfate[a]	mg/L	9.93 9.92

Source: California Environmental Data Exchange Network (CEDEN), 2023

ºC = degrees Celsius; µS/cm = micro-Siemens per centimeter; mg/L = milligram per liter,

Notes:

[a] duplicate samples

Table 5.2-6. Seasonal Mill Creek Water Quality Information from CDFG (1996)

Constituent/ Parameter	Unit	1991 Results						
		4/5	5/30	7/26	8/31	9/24	10/21	Average
Hardness	mg/L	26	69	57	31	31	47	42
Kjeldahl-Nitrogen	mg/L	0.23	0.17	0.15	0.20	0.24	0.06	0.18
Total Reactive Phosphorus	mg/L	--	<0.02	0.11	0.02	<0.02	0.04	<0.04
pH	standard units	7.2	7.4	7.2	7.4	7.4	7.3	7.3
Sulfate	mg/L	21.0	9.1	8.2	11.2	13.2	11.4	12.4

Chloride	mg/L	<1.0	0.32	0.26	0.36	<0.5	<0.5	<0.49
Nitrate-N	mg/L	--	0.02	0.014	<0.01	0.01	<0.01	<0.013
Zinc	mg/L	<0.01	--	0.01	--	<0.01	--	<0.01
Other metals[a]	mg/L	ND	--	ND	--	ND	--	ND
Total Dissolved Solids	mg/L	110	64	58	58	68	58	69
Conductivity	μΩ/cm	70	--	40	60	60	50	56
Total Suspended solids	mg/L	14	<7	<10	<10	<10	<10	<10

Source: CDFG, 1996

-- = not measured, ND = not detected, mg/L = milligram per Liter, μΩ/cm = microohms per centimeter

Notes:
[a] Arsenic, cadmium, chromium, copper, lead, mercury, selenium, and silver

Table 5.2-7. Historical Bacterial Indicator Sampling in Mill Creek

CEDEN Source	Sample Location	Date	Escherichia coli	Fecal Coliform
			(cfu/100mL)	
MIL.40	Mill Creek upstream of Lundy Lake	9/24/2012	2	3
		5/31/2013	1	1
		7/30/2013	16	17
MIL.60	Mill Creek ~3.6 miles downstream of Lundy Lake (at Highway 395)	9/24/2012	5	5
		4/24/2013	6	6
		5/31/2013	1	1
		7/7/2013	18	21
		7/30/2013	4	4
		9/17/2013	1	1
		10/17/2013	2	2
MIL.80	Mill Creek ~6.2 miles downstream of Lundy Lake (at Cemetery Road)	9/24/2012	13	13
		4/24/2013	1	1
		5/31/2013	2	2
		7/7/2013	27	31
		7/30/2013	23	32
		9/17/2013	18	20
		10/17/2013	3	3

Source: California Environmental Data Exchange Network (CEDEN), 2023

cfu/100mL = colony forming unit per 100 milliliters

As part of developing a Stream Network Temperature Model (SNTEMP), CDFG collected daily water temperature data from three sites in Mill Creek during June through September in 1990 and 1991 (Table 5.2-8). Both 1990 and 1991 were noted as dry water year types. The model was used to simulate water temperatures in Mill Creek under varying release flow scenarios from 0–15 cfs. Results demonstrated that water temperatures at all locations in Mill Creek were predicted to remain under 20°C (68°F) for all flow release conditions, with a general conclusion that water temperature is not likely limiting to the brown trout population. Individual historical water temperature recordings in Mill Creek on December 11, 1967, and August 22, 1985, indicate seasonal conditions can range from 8.5–25.2 degrees Celsius (LADWP, 1987).

Table 5.2-8. Mill Creek Water Temperature Information from CDFG (1996)

Location	Year	Water Temperature Range (°C)
Mill Creek ~ 2.5 miles downstream of Lundy Dam (near Upper Thompson Ditch)	1990	8.3–14.4
	1991	8.9–13.3
Mill Creek ~ 3.5 miles downstream of Lundy Dam (near Mill Creek Return Ditch	1990	10–15.5
	1991	9.4–13.9
Mill Creek ~ 5.0 miles below Lundy Dam (near Mono City)	1990	10.5–17.8

Source: CDFG, 1996

ºC = degrees Celsius

Although there is a history of mining in the Mill Creek watershed (see Section 5.1.3.4, *Mineral Resources*), no historical information regarding trace metals or other mining--related water quality issues were identified (USDA, 2001). A monitoring report by LRWQCB summarizes a 20-year period (2000–2021) of the Surface Water Ambient Monitoring Program, including regional results showing water quality trends and exceedances at stations north of the Lundy Project in the Walker River drainage (Lowe et al., 2023). Although sampling in the surrounding eastern Sierra (North) subregion showed some exceedances of site-specific objectives for total phosphorus, no direct sampling of Lundy Lake or Mill Creek was included.

5.3. Fish and Aquatic Resources

5.3.1. Introduction

This section describes the aquatic habitat, fish, and aquatic resources that occur or have the potential to occur in the vicinity of the Lundy Project (FERC Project No. 1390), including Lundy Lake and Mill Creek downstream of Lundy Lake to the confluence with Mono Lake.

5.3.2. Information Sources

The following information sources were reviewed to identify fish and aquatic species known to occur or to potentially occur in Mill Creek downstream of Lundy Dam:

- California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW, 2023) for the following USGS 7.5-minute topographic quadrangles in which the Lundy Project is located (Lundy) and the surrounding quadrangles (Tioga Pass, Mount Dana, Lee Vining, Dunderberg Peak, Negit Island, Twin Lakes, Big Alkali, and Bodie)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) webtool (USFWS, 2023)
- Final Environmental Assessment for Lundy Hydropower License (FERC, 1992)
- Instream Flow and Fisheries Studies for the Mill Creek Hydroelectric Project (EA, 1986)
- East Side Sierra Hydroelectric Relicensing Studies: Fish Populations in the Mill Creek Hydroelectric Project (EA, 1988)
- Fish Population Monitoring During 1991 and 1992 in Bishop, McGee, and Mill Creeks, Inyo and Mono Counties, California (Sada, 1993)
- Instream Flow and Habitat Development Investigations for Mill Creek, Mono County (CDFG, 1996)
- Aquatic Habitat Characteristics and Trout Demography in Selected Sections of Five Eastern Sierra Streams (Sada, 2000)

5.3.3. Fish Resources

Historically, Mill Creek and other tributaries to Mono Lake were fishless (FERC, 1992; Moyle, 2002). Rainbow (*Oncorhynchus mykiss)*, Lahontan cutthroat (*O. clarkii henshawi*), brown (*Salmo trutta)*, and brook trout (*Salvelinus fontinalis)* were all introduced to the Mono Basin as early as the 1880s and, with the exception of Lahontan cutthroat trout, their populations have since become established throughout. Mountain whitefish (*Prosopium williamsoni*) and Lahontan mountain sucker (*Catostomus lahontan*) have been observed in nearby watersheds; thus, they have the potential to occur in Mill Creek downstream of Lundy Dam. However, they have not been documented in the Mill Creek watershed. Fish species potentially occurring in Mill Creek downstream of Lundy Dam and their listing statuses are included in Table 5.3-1.

Table 5.3-1. Fish Species Potentially Occurring in Mill Creek Downstream of Lundy Dam

Common Name	Scientific Name	Status
Rainbow trout [a]	*Oncorhynchus mykiss*	N/A (Introduced)
Brown trout	*Salmo trutta*	N/A (Introduced)
Brook trout	*Salvelinus fontinalis*	N/A (Introduced)
Mountain whitefish	*Prosopium williamsoni*	SSC
Lahontan mountain sucker	*Catostomus lahontan*	SSC
Tiger trout [b]	*Salmo trutta* × *Salvelinus fontinalis*	N/A (Introduced)

Sources: CDFW, 2023; EA, 1986; EA,1988; Sada, 1993; CDFG, 1996; Sada, 2000

NA = no status; SSC = Species of Special Concern

Notes:
[a] Rainbow trout found in the vicinity of the Project are sterile, hatchery-reared trout planted for recreation. Although they occur in Project reservoirs, they are non-migratory (FERC, 1992).
[b] Tiger trout are a hybrid between brown and brook trout.

The fish community in Mill Creek was sampled periodically between 1986 and 1996 (EA, 1986, 1988; Sada, 1993; CDFG, 1996; Sada, 2000). Sampling generally occurred in two stream reaches, hereafter referred to as “Reach 1” and “Reach 2” (Figure 5.3-1). Reach 1 extends from USGS Gage 10287069 to the point where the stream transitions from a well-defined channel to a low-gradient, marshy meadow section with multiple braided channels (approximately 3,751 feet downstream). Reach 2 is located downstream of the braided channel section and extends from approximately 1.9 miles (3.0 km) downstream of Lundy Lake to Upper Thompson Ditch. Sampling conducted in Reach 1 and Reach 2 by EA in the 1980s occurred in the fall, whereas sampling conducted by Sada in the 1990s occurred in spring, summer, and fall. During the 1990s, Reach 1 was frequently dry in the fall and could not be consistently sampled (Sada, 1993).

In the summer of 1990, CDFG (now CDFW) sampled an “Upper Reach” (herein referred to as Reach 3) which extended from Upper Thompson Ditch downstream to the Thompson Main Ditch and a “Lower Reach” (herein referred to as Reach 4) which extended from the Thompson Main Ditch downstream to Cemetery Road (CDFG, 1996; Figure 5.3-1).

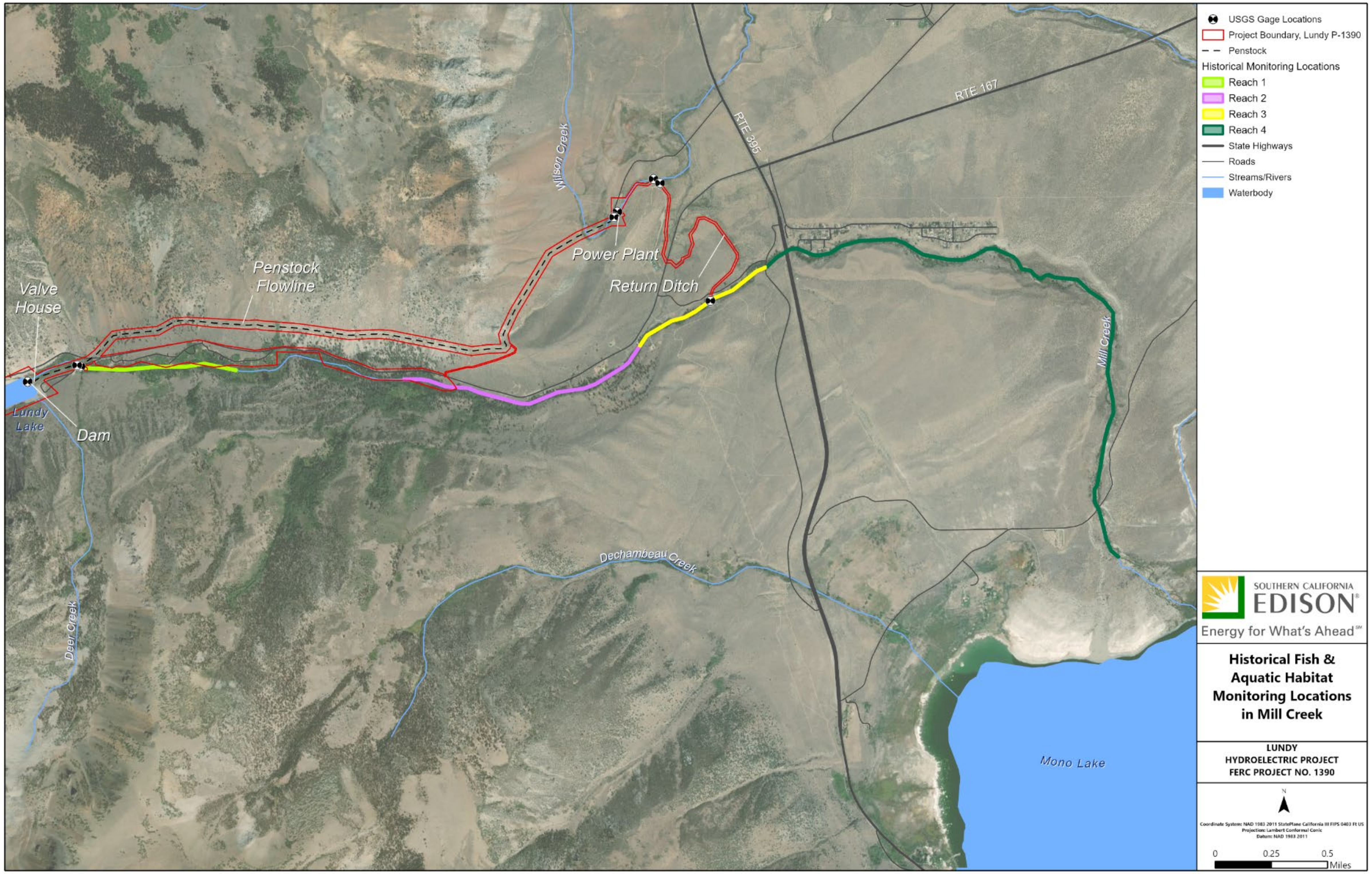


Figure 5.3-1. Historical Fish and Aquatic Habitat Monitoring Locations in Mill Creek Downstream of Lundy Dam.

Between 1986 and 1996 the fish community in Mill Creek was numerically dominated by non-native brown trout. Other species captured throughout the sampling efforts included three brook trout, a single rainbow trout, and a single "tiger trout" (*Salmo trutta* × *Salvelinus fontinalis*; a hybrid offspring of a brown trout and brook trout) (EA, 1988; Sada, 1993; CDFG, 1996; Sada, 2000). While it is not clear precisely when brown trout were introduced to Mill Creek, the consistent presence of young-of-year (YOY[11]) brown trout—representing between 9 percent and 60 percent of total captures (Table 5.3-2)—suggests that the population was self-sustaining by at least 1985 (EA, 1988; CDFG, 1996). The few brook and rainbow trout reportedly captured during historical sampling efforts are not included in the table below, but generally represented less than 1 percent of the total catch. Fish condition[12] (k) was generally high relative to other eastern Sierra streams (EA, 1988), ranging from 0.70–2.67, with an average consistently near or above 1.00 (Table 5.3-2).

Table 5.3-2. Brown Trout Maximum Size, Average Condition Factor, and Percent Young-of-Year in Mill Creek During Historical Fish Sampling Efforts

Year (season)	Reach	Total Catch (No. of Trout)	Brown Trout		
			% YOY [a]	Maximum FL (mm)	Condition Factor (k)
1985 (fall)	Reach 1	265	16%	260	1.15
	Reach 2	87	34%	280[b]	1.12
1986 (fall)	Reach 1	182	12%	270[b]	1.11
	Reach 2	92	12%	330[b]	1.13
1987 (fall)	Reach 1	301	59%	260[b]	1.18
	Reach 2	174	60%	240[b]	1.22
1990 (Summer)	Reach 3	199	15%[c,d]	300[b,c,d]	0.99
1990 (Summer)	Reach 4	195	27%[c,d]	280[b,c,d]	1.03
1991 (fall)	Reach 2	80	23%	230	NA
1992 (spring)	Reach 2	111	9%	225	NA
1992 (summer)	Reach 2	241	33%	222	NA
1992 (fall)	Reach 2	211	36%	228	NA
1993 (spring)	Reach 2	151	19%	210[b]	NA
1993 (summer)	Reach 2	209	32%	230[b]	NA

[11] Young-of-year are defined in this report as individuals less than 100 millimeters in fork length.

[12] Condition factors in western Sierra Nevada streams typically range from 0.8 to 2.0, with a mean condition factor generally 1.2 or below (Beak, 1991; Ebasco Environmental, 1993; Wilcox, 1994; Hanson Environmental, 2005), while Rabe (1967) reported the condition factor to be between 0.9 and 1.1 for rainbow trout in Alpine lakes. Arismendi et al. (2011) cites broader ranges (0.5 to 2.0); however, condition is dependent on the sampling season, species, strain of trout, state of sexual maturity, and the way fish length is defined (i.e., fork length, total length, or standard length), which is not often documented with the results.

Year (season)	Reach	Total Catch (No. of Trout)	Brown Trout		
			% YOY [a]	Maximum FL (mm)	Condition Factor (k)
1993 (fall)	Reach 2	244	36%	220[b]	NA
1994 (summer)	Reach 2	238	38%	230[b]	NA
1996 (summer)	Reach 2	279	58%	210[b]	NA

Sources: EA, 1986; EA,1988; Sada, 1993; CDFG, 1996; Sada, 2000

FL = fork length; mm = millimeter; NA = no data; YOY = young-of-year

Notes:
[a] YOY defined as an individual less than 100 millimeters in FL.
[b] Comprehensive length data were not provided; maximum length reported herein represents the lower bound of the largest 10 mm size bin reported in the source.
[c] Value was converted from inches.
[d] Results were reported in total length.

Estimates of brown trout abundance, density, and biomass in Mill Creek during the period of record (detailed in Table 5.3-3) were relatively high compared to other eastern Sierra streams (e.g., Lee Vining Creek, Bishop Creek; EA 1988). CDFG (1996) conducted an analysis of growth annuli in scales collected from a suspected age-1 and age-2 subsample of brown trout (scales from suspected YOY or age-3+ fish were not collected). The results from the summer sampling period indicate that brown trout YOY ranged from approximately 1.5–3.5 inches (38–90 millimeter [mm]) total length (TL), age-1 fish ranged from approximately 4.7–6.1 inches (119–155 mm) TL, and age 2 fish ranged from approximately 7.2–10.2 inches (193–259 mm) TL. Based on these age-length relationships and a visual analysis of distinct modes in length-frequency histograms, there appeared to be at least four age classes (Age-0 to Age-3+) present in Mill Creek during most sampling efforts.

Table 5.3-3. Average Brown Trout Abundance, Density, and Biomass Estimates in Mill Creek During Historical Fish Sampling Efforts

Year (season)	Survey Reach	Abundance (trout/mile)	Density (trout/acre)	Biomass (lb/acre)
1985 (fall)	Reach 1	4,798	3,211	285
1985 (fall)	Reach 2	2,142	1,131	111
1986 (fall)	Reach 1	3,076	2,114	241
1986 (fall)	Reach 2	2,435	1,255	186
1987 (fall)	Reach 1	5,231	3,596	226
1987 (fall)	Reach 2	4,508	2,324	180
1990 (summer)	Reach 3	N/A	1,292	116
1990 (summer)	Reach 4	N/A	1,125	106
1991–1992	Reach 2	1,311–3,406	N/A	N/A
1993 (spring)	Reach 2	N/A	1,457[a]	89[a]
1993 (summer)	Reach 2	N/A	1,659[a]	98[a]
1993 (fall)	Reach 2	N/A	2,104[a]	120[a]
1994 (summer)	Reach 2	N/A	2,145[a]	152[a]
1995 (summer)	Reach 2	N/A	1,659[a]	134[a]
1996 (summer)	Reach 2	N/A	2,226[a]	98[a]

Sources: EA, 1986; EA,1988; Sada, 1993; CDFG, 1996; Sada, 2000

lb = pounds; NA = no data

Notes:
a Data were not reported in tabular format; graphical plots were digitized and outputs rounded to the nearest appropriate decimal.

In years when both Reaches 1 and 2 were sampled (fall of 1985, 1986, and 1987), brown trout abundance, density, and biomass tended to be higher in Reach 1 than in Reach 2 (Table 5.3-3). Brown trout abundance, density, and biomass in Reach 3 and Reach 4 during the summer of 1990 were comparable to equivalent population metrics for Reaches 1 and 2 throughout the period of record. The density of brown trout fluctuated over the period of record and is likely a function of varied climatic conditions (e.g., drought) (CDFG, 1996). While biomass estimates decreased over the period of record, they were comparable to or greater than reported estimates for communities of mixed trout species, including brown and rainbow trout, from other Sierra Nevada streams (CDFG, 1996). Gerstung (1973) reports a mean biomass of 37.03 pounds per acre (lb/acre) (4.15 rams per square meter [g/m^2]) for 65 southern Sierra Nevada streams, which is less than the 153 lb/acre (16.30 g/m^2) average biomass approximated from in Mill Creek historical sampling (Table 5.3-3). Brown trout recruitment (inferred from the proportion of YOY in the total population) remained relatively consistent throughout the period of record.

Reservoir fish surveys conducted in Lundy Lake in 1986 documented brook, brown, and rainbow trout (EA, 1988). Trout in the MCRD have been periodically observed by SCE personnel; fish salvage is conducted when the MCRD is dewatered.

5.3.3.1. Fish Species Life History Information

Fish assemblages throughout Lundy Lake and Mill Creek downstream of Lundy Dam are dominated by non-native introduced trout species. No native fish species, such as mountain whitefish (*Prosopium williamsoni*) or Lahontan mountain sucker (*Catostomus lahontan*), have been reported in Lundy Lake or Mill Creek downstream of Lundy Dam, therefore, these species are not likely to occur. The timing of major life history events for fish species likely to occur within Lundy Lake and Mill Creek downstream of Lundy Dam is included in Table 5.3-4 based on data reported by Moyle (2002) and CalFish (2023).

Table 5.3-4. Life History Periodicity of Fish Species Likely to Occur in Lundy Lake and Mill Creek downstream of Lundy Dam

Life Stage	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Brown Trout												
Spawning	Potential Use	Peak period	Peak period	Potential Use								
Egg Incubation	Potential Use	Peak period	Peak period	Peak period	Peak period	Potential Use						
Fry/YOY	Peak period			Potential Use	Potential Use	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Juvenile	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Adult	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Brook Trout												
Spawning	Peak period	Peak period	Peak period / Potential Use	Potential Use								– / Potential Use
Egg Incubation	Potential Use	Peak period	Peak period	Peak period	Peak period	Potential Use						– / Potential Use
Fry/YOY	Peak period		Potential Use	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Juvenile	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Adult	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Rainbow Trout												
Spawning					Potential Use / Peak period	Peak period	Peak period	Peak period	Peak period	Potential Use / –		
Egg Incubation					Potential Use	Peak period	Peak period	Peak period	Peak period	Peak period	Potential Use / –	
Fry/YOY	Peak period	Peak period	Peak period			Potential Use	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Juvenile	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period
Adult	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period	Peak period

Peak period | Potential Use

Source: Moyle, 2002; CalFish, 2023

YOY = young-of-year

BROWN TROUT

Brown trout are native to Europe, North Africa, and western Asia and were introduced to North America in the late 19th century. Since their introduction, they have been reared in hatcheries and planted throughout the state of California (Moyle, 2002).

Optimal habitats for brown trout are medium to large, slightly alkaline, clear streams with riffles and large, deep pools. Adults tend to occupy the bottom of pools while younger trout can be found in pools and riffles (Moyle, 2002). Brown trout prefer water temperatures from 12–20 Celsius (°C), and optimal growth occurs at 17–18 degrees °C. Brown trout fry, juveniles, and adults have been observed in streams with winter water temperatures as low as 0.1–1.5°C and can survive brief periods of time at temperatures up to 28–30°C (Calkins, 1989). Brown trout have a variable diet that changes with body length and season; smaller trout prey upon drift organisms, while larger trout selectively feed on benthic aquatic invertebrates. Brown trout between 9.8 and 15.7 inches (25 and 40 centimeters [cm]) TL pursue large prey, such as fish, crayfish, and dragonfly larvae. Brown trout over 15.7 inches (40 cm) TL almost exclusively feed on fish. Feeding is most intense at dawn and dusk; however, active feeding can occur at any time (Moyle, 2002). If the waterbody freezes during the winter, ice cover provides shelter from terrestrial predators and reduces the amount of light reaching the water, which has been found to reduce stress responses and increase swimming activity in brown trout (Watz et al., 2015).

Brown trout reach sexual maturity in their second to third year. Spawning takes place in the fall and winter, most commonly in November and December in California (Moyle, 2002). Streams containing riffles with gravel size between 0.4 and 1.6 inches (1–4 cm) in diameter are preferred for spawning, and the most suitable spawning locations within a stream are pool tails with deeper water, less turbulent current, and nearby cover. Spawning sites are selected by the female once water temperatures drop to 6 to 10°C (Moyle, 2002). Eggs are fertilized and buried in redds to incubate through the winter months and typically hatch within 7 to 8 weeks, depending on water temperatures (Moyle, 2002). Egg survival has been observed at redd temperatures of 0–8°C, and mortality occurs if redds become dewatered or frozen (Calkins, 1989). Fry emergence typically occurs from March through April.

BROOK TROUT

Brook trout are native to the northeastern United States, from Minnesota and northeastern Iowa to eastern Canada. They were first introduced to California in 1871, and by 1872 they were being distributed throughout the state by the California Fish Commission (Moyle, 2002). Within the West Coast states, they have become established in mountain streams and lakes ranging from the San Bernardino Mountains in the south to the Oregon border in the north but are most abundant in the Sierra Nevada.

Brook trout in California are primarily found in isolated mountain lakes and headwater streams. Preferred temperatures range from 14–19°C; however, brook trout can survive at temperatures as low as 1°C and can acclimate to temperatures as high as 26°C (Moyle, 2002). Brook trout tend to feed on whichever organisms are most abundant, and prey items typically include terrestrial insects, aquatic insect larvae, zooplankton, and occasionally benthic organisms or other fish. Feeding is most intensive in the evening and early morning; however, feeding will occur whenever there is sufficient light to see prey.

Maturity occurs at an early age. Some brook trout males spawn as soon as the end of their first summer and females at the end of their second summer; however, it is more common for males to mature in their second or third year and females in their third or fourth year (Moyle, 2002). Brook trout are adapted to spawn in both stream and lake habitats. Spawning occurs in the fall but the timing is dependent on water temperature (4–11°C). Spawning sites are selected by females, with site characteristics including water depths greater than 400 mm, water temperatures colder than the surrounding waters associated with groundwater upwelling, gravel size between 0.4 and 1.6 inches (1–4 cm) diameter, and nearby cover (Moyle, 2002). Eggs are fertilized and buried in redds to incubate through the winter months. Fry emerge in the early spring. This ability to spawn in lakes has allowed brook trout to maintain populations in mountain lakes without accessible inlets or outlets, a requirement for most other salmonids (Moyle, 2002).

RAINBOW TROUT

Rainbow trout typically occupy coldwater habitats, including lakes, reservoirs, streams, and rivers. Optimal growth occurs in water temperatures of 15–18°C with near-saturation levels of dissolved oxygen (Moyle, 2002). Stream-resident rainbow trout typically remain within a few hundred meters of stream throughout their entire lives, although some individuals will disperse further due to food availability, competition, and habitat quality (Moyle, 2002). For their first few years, naturally produced (i.e., not hatchery produced) rainbow trout occupy cool, clear, permanent streams of fast-flowing waters with ample riffle habitat, cover provided by undercut banks and riparian vegetation, and abundant invertebrate resources. Older trout (natural or hatchery produced) occupy a variety of deeper habitats including pockets behind rocks, runs, and pools, and stay near areas such as pool inlets where fast water delivers drifting prey (Moyle, 2002). They are highly successful competitors and aggressively defend feeding territories from both other species and conspecifics. Prey items include drifting aquatic organisms, terrestrial insects, benthic invertebrates, and on occasion small fish (Moyle, 2002). During high instream flows, juvenile stream-resident rainbow trout utilize log jams, upturned roots, and debris piles as important sources of cover, whereas adults seek out boulder habitat. Rainbow trout adults are less active in the winter and may remain in one place during this period (Calkins, 1989).

Resident rainbow trout typically mature in their second or third year, reaching sizes greater than 5 inches (13 cm). Spawning occurs from February to June; however, low temperatures may extend spawning into July or August. During spawning, females dig redds in coarse gravel at the tail of a pool or in a riffle and deposit between 200–12,000 eggs, with females less than 11.8 inches (30 cm) TL typically depositing less than 1,000 (Moyle, 2002). Spawning may occur on an annual or biennial interval. During the winter, eggs have remained viable at temperatures as low as 0.3 to 2.0°C (Calkins, 1989).

5.3.3.2. Fishery Management

The initial introduction of trout to the Mill Creek watershed (simultaneous with introductions to Rush Creek, a nearby watershed) is unknown, but may have occurred around 1880 (Vestal, 1954). Lahontan cutthroat and rainbow trout were among the first trout species stocked in the Mono Basin, with populations becoming established in nearby watersheds by the early 1900s (Vestal, 1954). Eastern brook trout were introduced into the Mono Basin in 1931, and brown trout were introduced to the basin in 1919. Annual plantings of brown and rainbow trout ranging from approximately 50–100 mm TL were made to support recreational fishing opportunities (Vestal, 1954).

Catchable rainbow and brown trout have been planted in Lundy Lake and Mill Creek to support a put-and-take fishery (CDFG, 1996). From 1980–1985, up to 60,000 catchable-sized (i.e., greater than 152 mm TL [6 in TL]) rainbow trout were planted in Lundy Lake (CDFW, data files 1980–1985, as cited in FERC, 1992). Prior to 1996, Lundy Lake was stocked with 30,000–40,000 catchable rainbow trout and 3,500–5,000 sub-catchable (i.e., fingerlings less than 0.5 pounds (lbs.)) brown trout annually, and Mill Creek was stocked with approximately 2,000 catchable rainbow trout annually (CDFG, 1996).

Stocking records from 1996–2016 are limited. From 2017–2020, CDFW Fish Springs Hatchery released rainbow trout in Lundy Lake and Mill Creek downstream of Lundy Dam up to 14 times a year (CDFW, unpublished data). From 2017 to 2020, Mill Creek was stocked with 100–1,400 rainbow trout annually, and Lundy Lake was stocked with 1,700–15,785 rainbow trout annually (Table 5.3-5). The average weight of fish stocked from 2017–2020 was 2 pounds, with some fish weighing up to 3 pounds (Table 5.3-5). Stocking information for 2017 through 2020 is detailed below in Table 5.3-5.

Table 5.3-5. Rainbow Trout Stocking Information for Mill Creek and Lundy Lake

Year	Waterbody	Number	Total Pounds	Average Fish Weight (pounds)
2017	Lundy Lake	15,785	8,105	1.95
	Mill Creek	1,400	700	2.00
2018	Lundy Lake	7,650	7,650	2.07
	Mill Creek	1,235	600	2.06
2019	Lundy Lake	9,400	4,700	2.00
	Mill Creek	1,400	700	2.00
2020	Lundy Lake	1,700	850	2.00
	Mill Creek	100	50	2.00

Source: CDFW, unpublished data

5.3.4. Aquatic Habitat

The Lundy Project regulates stream flows downstream of Lundy Lake in Mill Creek. Water stored in Lundy Lake is diverted to the Lundy Powerhouse (through the penstock), discharged to a water conveyance system (that routes some water into the Wilson System), then released back into Mill Creek through the MCRD. The MCRD enters Mill Creek approximately 3.5 miles (5.6 kilometers) downstream of Lundy Dam. From the MCRD, Mill Creek flows for approximately another 3 miles (4.8 kilometers) before entering Mono Lake (Figure 5.3-1).

Mill Creek downstream of Lundy Dam has three distinct sections based on hydrology, channel condition, and aquatic habitat. The upstream section extends from Lundy Dam to the Upper Thompson Ditch, ending approximately 1.6 miles (2.6 kilometers) downstream of Lundy Dam. Immediately below Lundy Dam, Mill Creek is typically dry due to evaporation and infiltration, gaining flow from the Deer Creek tributary and groundwater seepage between Deer Creek and Upper Thompson Ditch (approximately 0.25 miles downstream) contributing 3 to 10 cubic feet per second of instream flow (cfs; CDFG, 1996). Flows in this section of Mill Creek are maintained at a minimum of 4 cfs at the USGS Gage 10287069 location in accordance with the 2007 Settlement Agreement based on accretion and releases made by SCE (FERC, 2007). Historical flows from 1968–1991 ranged from 0 to 224 cfs, with an average of 4.5 cfs (CDFG, 1996). This section is a high gradient, narrow canyon with well-developed, aspen-dominated riparian structure (EA, 1986; CDFG, 1996). Sediment composition for this section is described in Section 5.1.2.3, Fluvial Geomorphology.

The middle section of Mill Creek extends for approximately 1.25 miles (2 kilometers) from Upper Thompson Ditch downstream to the Thompson Main Ditch. This section is characterized by high gradient, is dominated by boulder and cobble substrates, and has highly confined channel and dense canopy of riparian and coniferous vegetation (CDFG, 1996). Stream flow in this reach is influenced by water diversions at the Upper Thompson Ditch (not associated with the Lundy Project) at the upstream end and flow returns from the MCRD near the downstream end (CDFG, 1996). Stream flow data for this section is limited but results from the instream study indicate flows just downstream of the Upper Thompson Ditch and just downstream of the Thompson Main Ditch were commonly near 0 cfs (CDFG, 1996). Instream flow studies were conducted in the 1980s and 1990s in Mill Creek between USGS Gage 10287069 and the Upper Thompson Ditch (EA, 1986) and between the Upper Thompson Ditch and Mono Lake (CDFW, 1996), respectively.

The lower section of Mill Creek extends from the Thompson Main Ditch downstream to Mono Lake. This section is characterized by a low-gradient, more open channel with less riparian canopy cover, and cobble and gravel-dominated substrates. Recorded surface flows in this section ranged from 0.5 to 6 cfs in 1990 through 1992, with a portion of flows being lost to groundwater infiltration (up to 3 cfs per mile), causing flows to often diminish before the confluence with Mono Lake (CDFG, 1996).

Results from the instream flow studies conducted in Mill Creek identified weighted usable area (WUA) for brown trout which peak for adults and juveniles at higher flows and decrease at lower flows, while WUA for fry peaks at lower flows and decreases at higher flows. Additionally, the relationship between WUA and flow for brown trout spawning varies by stream section (Table 5.3-6). WUA is maximized for juvenile and adult brown trout at lower flows in the upper section of Mill Creek with increasing flows required to maximize WUA in downstream sections of Mill Creek.

Table 5.3-6. Percent of Weighted Usable Area for Brown Trout and Corresponding Flows by Stream Section for the Lundy Project Area

Brown Trout Life Stage	Stream Flow (cfs) for Three WUA (ft^2) Levels		
	Maximum (Max) WUA	90% of Max WUA	80% of Max WUA
Lundy Dam to Upper Thompson Ditch[a]			
Adult	12	6	4
Juvenile	8	4	2
Upper Thompson Ditch to Thompson Main Ditch[b]			
Adult	24	20	16
Juvenile	22	13	9
Spawning	22	15	13–14
Fry	2	1–2	3–4
Thompson Main Ditch to Mono Lake[b]			
Adult	24	16	10
Juvenile	24	10	5-6
Spawning	14	9–10 and 19	7 and 23
Fry	2	1–2 and 5–6	1–2 and 12

Source: CDFG, 1996; FERC, 1992

cfs = cubic feet per second; ft^2 = square feet; WUA = weighted usable area

Notes:
[a] Data were compiled and sourced from FERC (1992)
[b] Data were compiled and sourced from CDFG (1996)

5.3.4.1. Spawning Gravel

Spawning habitat in Mill Creek increases in suitability and availability from upstream to downstream. Spawning habitat may be limited in the upper sections of Mill Creek. Previous surveys indicate limited spawning habitat is available for brown trout and rainbow trout between Lundy Lake and the Upper Thompson Ditch at any flow (EA, 1986). While the rational used to conclude that spawning habitat is limited between Lundy Lake and the Upper Thompson Ditch is not specified in the EA (1986) report, it is likely that suitable size gravel is limiting spawning habitat because the study assessed habitat conditions over a range of stream flows and did not account for other factors such as water quality conditions. The most abundant spawning habitat is found between the Thompson Main Ditch and Mono Lake. Surveys conducted for the CDFW estimated 2,873 square feet of potential brown trout spawning area between the Upper Thompson Ditch and the Thompson Main Ditch and 11,445 square feet in the section of Mill Creek between the Thompson Main Ditch and Mono Lake (CDFG, 1996).

5.3.4.2. Fish Passage Barriers

In the 1996 CDFG Instream Flow Study report, a total of eight fish migration barriers were identified for adult brown trout in Mill Creek below Lundy Dam to Mono Lake including (1) the Upper Thompson Ditch diversion dam that is 3.5 feet tall; (2) a 3.5 foot beaver dam 0.3 miles downstream of the Upper Thompson Ditch; (3) a culvert beneath a dirt road 0.7 miles downstream of Upper Thompson Ditch; (4) a natural 2 foot bedrock fall approximately 0.9 miles downstream of Upper Thompson Ditch; (5) the Thompson Main Ditch Diversion Dam with a 3-foot height, (6) a natural bedrock outcropping 0.15 miles downstream of Thompson Main Ditch with a 5.5-foot fall; (7) a culvert under the Highway 395 road crossing with a high water velocity barrier at all flows (flows sufficient to provide suitable depths result in velocities greater than 6 feet per second which exceed maximum passable velocities based on criteria from Bovee (1982) as cited in CDFG (1996); and (8) a culvert under the Cemetery Road crossing with a high water velocity barrier (flows sufficient to provide suitable depths result in velocities greater than 4.6 feet per second which exceed the maximum passable velocity calculated for this culvert based on its length and gradient [criteria from Bovee, 1982 and Belford and Gould, 1989 as cited in CDFG, 1996).

5.3.5. Large Woody Debris

Log jams are reported to be prevalent in Mill Creek between Lundy Dam and the Upper Thompson Ditch (CDFG, 1996). Information about large woody debris in other sections of Mill Creek was not found.

5.3.6. Entrainment

The intake structure at Lundy Lake is unscreened and has the potential to entrain fish from Lundy Lake into the diversion ditch and ultimately into the Lundy Powerhouse. Fish entrainment at the intake was studied during the last relicensing effort for the Lundy Project and results suggested the average rate of entrainment is about 0.5 fish per month for brown trout and 1.6 fish per month for rainbow trout (EA, 1988, as cited in FERC, 1992). Voluntary entrainment of fish at the intake structure was not reported but was expected to be minor (FERC, 1992).

5.3.7. Benthic Macroinvertebrates

Historical benthic macroinvertebrate (BMI) data are available at one site in Mill Creek between Lundy Dam and the MCRD (Table 5.3-7). Data at this location were collected by the CDFW Aquatic Bioassessment Lab under the Perennial Streams Assessment Program using the Surface Water Ambient Monitoring Program (SWAMP) reach-wide benthic sampling methods (Ode et. al., 2016). The BMI sample in Mill Creek was characterized using the California Stream Condition Index (CSCI); a composite score indicative of stream condition that is derived using a statewide reference database to integrate observed-to-expected ratios of BMI taxonomic completeness and multi-metric indices (Rehn et al., 2015). The CSCI score for the sample collected from Mill Creek was 1.15, which falls within the highest condition category of the index (Rehn et al., 2015;

SWRCB, 2023a). This suggests that stream condition and quality of aquatic habitat between Lundy Dam and the MCRD is generally suitable for BMIs. Taxa identified in the Mill Creek sample are available from CEDEN (SWRCB, 2023b).

Table 5.3-7. Benthic Macroinvertebrate Sample Sites in Mill Creek below Lundy Dam

Waterbody Name	Site Location Description	Coordinates[a]		Sampling Date	Collection Agency or Institution
		Latitude	Longitude		
Mill Creek	Approximately 2.2 miles downstream of Lundy Lake (SWRCB Station Code 601PS0077)	38.0306	-119.184	8/7/2012	Aquatic Bioassessment Lab - CDFW

Source: SWRCB, 2023a, 2023b

CDFW = California Department of Fish and Wildlife

Notes:
[a] Coordinates were collected using North American Datum of 1983 (NAD83).

Additional historical data from samples collected in waterways not affected by Lundy Project operations are available through the Perennial Streams Assessment Program (SWRCB, 2023a), including one site approximately 2 miles north of the Project on Virginia Creek (CSCI=1.01; SWRCB Station Code 630PS0005), and three sites in the Lee Vining Creek watershed approximately 5 miles south of the Project (Warren Fork [CSCI=1.13; SWRCB Station Code 601WRN001], Lee Vining Creek downstream of Warren Fork [CSCI=1.17; SWRCB Station Code 601PS0065], and Lee Vining Creek at Moraine Campground [CSCI = 1.09; SWRCB Station Code 601LVC001]).

Other sources of historical BMI data are also available in the Lundy Project affected reach (CDFG, 1996) and in the Lundy Project vicinity (SCE, 2021). These samples were collected and analyzed using varying methodologies. While taxonomic data of subsampled BMI and descriptive metrics are available (e.g., functional feeding groups), the multi-metric CSCI score cannot accurately be derived from these datasets to inform stream condition.

5.4. BOTANICAL RESOURCES

5.4.1. INTRODUCTION

This section describes the terrestrial botanical resources, including vegetation communities and common plants, non-native invasive plants, and special-status plants on and in the vicinity of the Lundy Project. Aquatic botanicals, wildlife, and associated resources are discussed in Section 5.3 of this document, *Fish and Aquatic Resources*. Plant species listed under the federal and state Endangered Species Acts are discussed in detail in Section 5.7, *Rare, Threatened, and Endangered Species*.

5.4.2. INFORMATION SOURCES

A literature review identified common and special-status plant species and vegetation communities known to occur (or that historically occurred) in the vicinity of the Project.

Vegetation alliances described herein are based on the following sources:

- Direct observation from previously conducted field surveys and license-required monitoring studies
- Information on vegetation communities' data provided by the USFS (USFS, 2020a)
- Keys and descriptions from the USFS using the Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) classification system (This is the preferred key by the Inyo NF and is used in this document for consistency with the *Inyo National Forest Plan* [USFS, 2019]. In this system, differences between vegetation alliance types [also referred to as communities] are based on canopy cover as determined from aerial photography and satellite imagery. The Project occurs at the boundary between the Great Basin and South Sierran mapping zones; descriptions include information from both.)

The following information sources were reviewed to identify botanical resources in the vicinity of the Project:

- Biological Determination of No Effect on Listed Species for Lundy Dam Penstock Repair (Psomas, 2006)
- Lundy Hydroelectric Generation Facility, Mono County Return Ditch (Wilson Creek to Mill Creek) Enhancement Plant Community Impact Analysis (Psomas, 2009)
- Biological Resources Evaluation of the Lundy Penstock and Standpipe Replacement and Road Maintenance Project (Psomas, 2008a)
- Lundy Dam Repeater Antenna and Solar Panel Upgrade Project, Mono County, California: Results of Rare Plant Survey. Memorandum. (Psomas, 2008c)

- Results of Pre-Construction Survey for Nesting Birds and Special-status Plants and Wildlife Species for the Lundy Return Ditch Project, Lundy Lake, Mono County. California. Memorandum (Psomas, 2017)
- Biological Resources Evaluation of the Lundy Dam Pipeline Slip Lining and Intake Structure Reconstruction Project. (Psomas, 2008b)
- Summary and Progress in Riparian Monitoring for 2020 Compared to Previous Years (Read, 2021)

A list of special-status plant species was compiled from several sources by searching the following USGS 7.5-minute topographic quadrangles: Tioga Pass, Mount Dana, Lee Vining, Falls Ridge, Lundy, Dunderberg Peak, Vogelsang Peak, Koip Peak, and Negit Island. The sources queried included:

- California Natural Diversity Database (CNDDB) (CDFW, 2023)
- California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2023)
- Persistence Analysis for Species of Conservation Concern Inyo National Forest (Inyo NF, 2019) (species known to be present in the Mono Ranger District are included)
- USFS records of botany at-risk species (NRM – TESP/IS, 2018)
- Whitebark pine range geospatial data (USFS, 2020b)

Information on non-native invasive plants potentially occurring in the TAA was obtained from the following sources:

- California Invasive Plant Inventory (Cal-IPC, 2023)
- USFS invasive species inventory database (NRM – TESP/IS, 2018)

5.4.3. Vegetation Communities

This section is based on keys and descriptions from the USFS using the CALVEG classification system. In this system, differences between community types (also referred to as alliances) are based on canopy cover as determined from aerial photography and satellite imagery. For analysis purposes, map limits are 50 feet around Lundy Project facilities, creeks, and Lundy Lake.

Table 5.4-1 lists the mapped vegetation communities and areas they represent within the vicinity of the Project, both in acres and as percentages of the mapped area as shown in Figure 5.4-1. The plant community alliances are displayed in additional detail in five separate maps, Figure 5.4-2 through Figure 5.4-6.

Table 5.4-1. Vegetation Alliances and Other Areas

Vegetation Community	Acreage	Percent Cover
Herbs		
Annual grasses and forbs	3.97	0.93
Scrub		
Big sagebrush	138.49	32.47
Curlleaf mountain mahogany	0.03	0.01
Great basin – mixed chaparral transition	6.20	1.45
Great basin – mixed scrub	35.97	8.43
Shrub willow	4.94	1.16
Upper montane mixed chaparral	6.06	1.42
Forest		
Lodgepole pine	8.97	2.10
Eastside pine	26.12	6.12
Quaking aspen	51.38	12.04
Singleleaf pine	0.20	0.05
Other		
Barren	5.13	1.20
Intermittent or seasonal lake or pond	139.09	32.61

Source: USFS, 2009

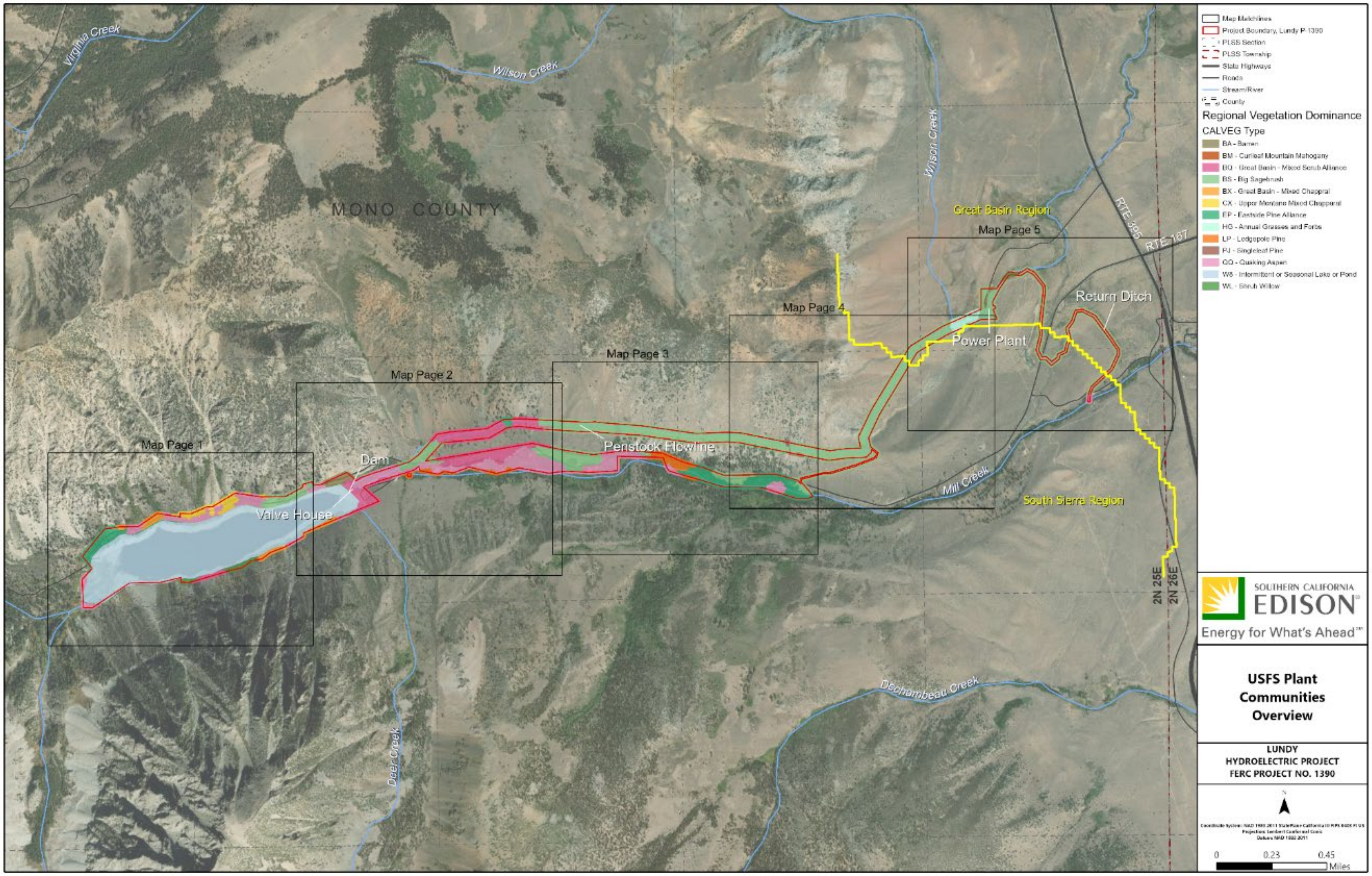


Figure 5.4-1.   USFS Plant Communities Overview.

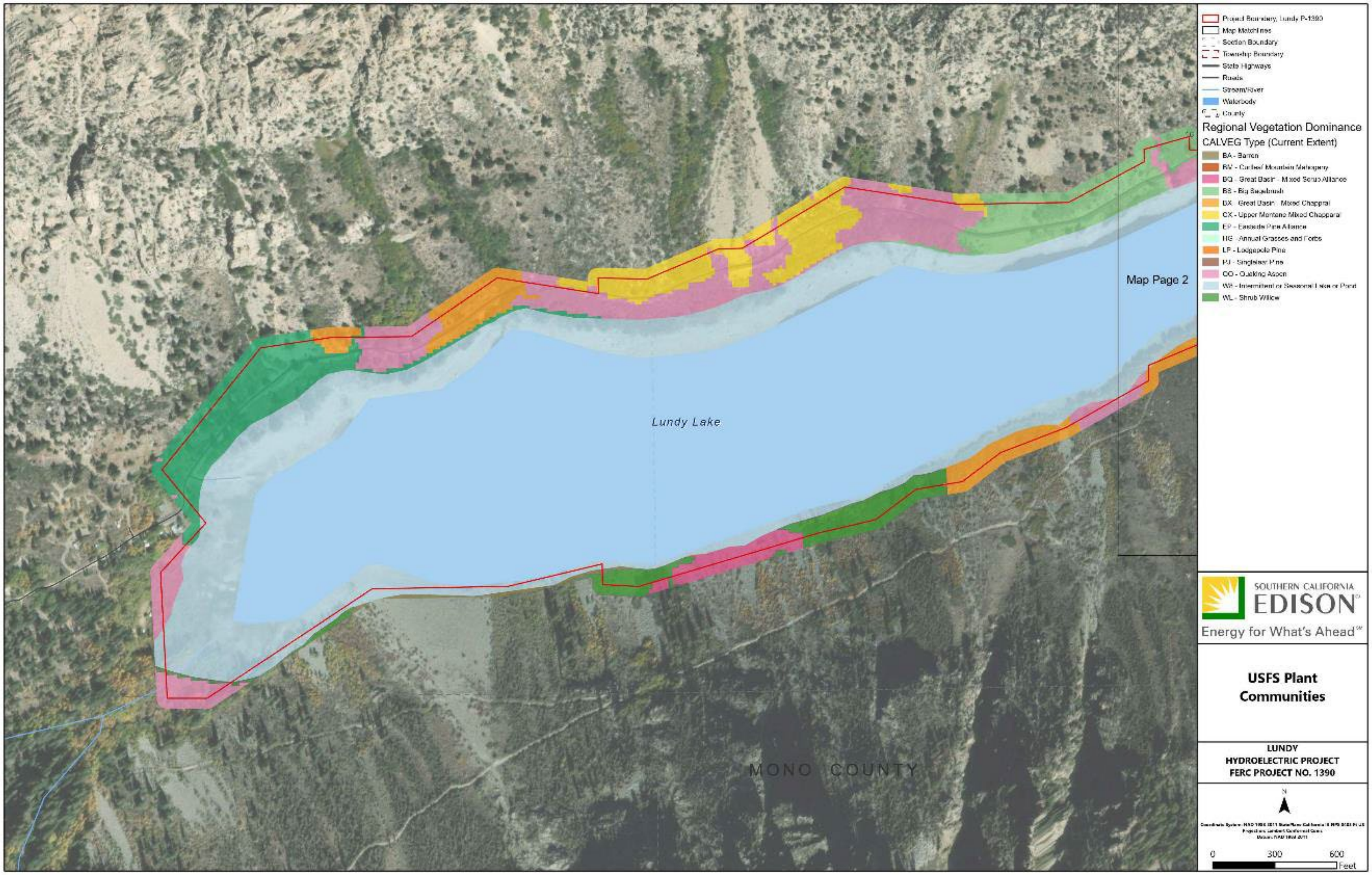


Figure 5.4-2. USFS Plant Communities Detail – Map Page 1.

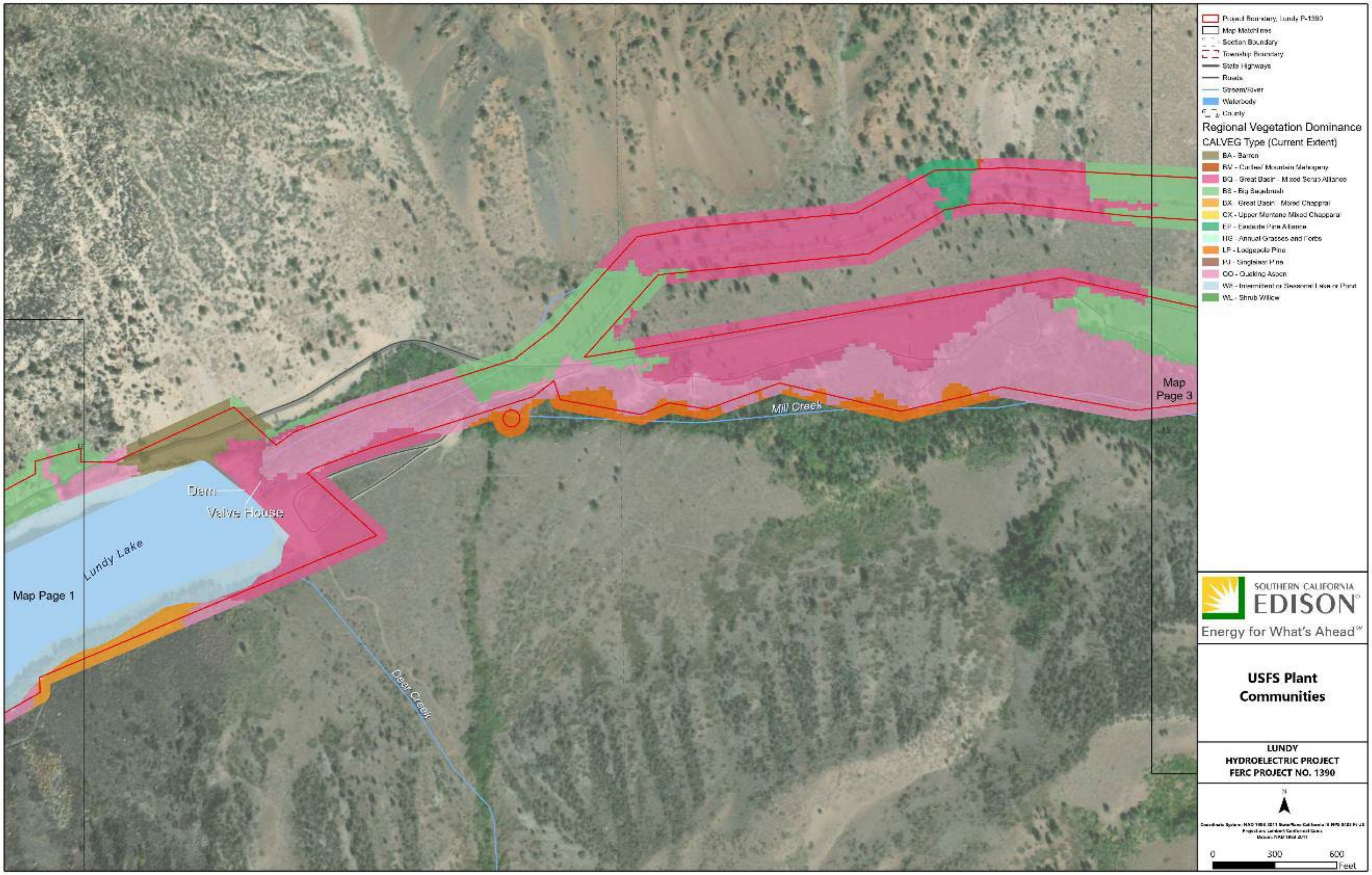


Figure 5.4-3. USFS Plant Communities Detail – Map Page 2.

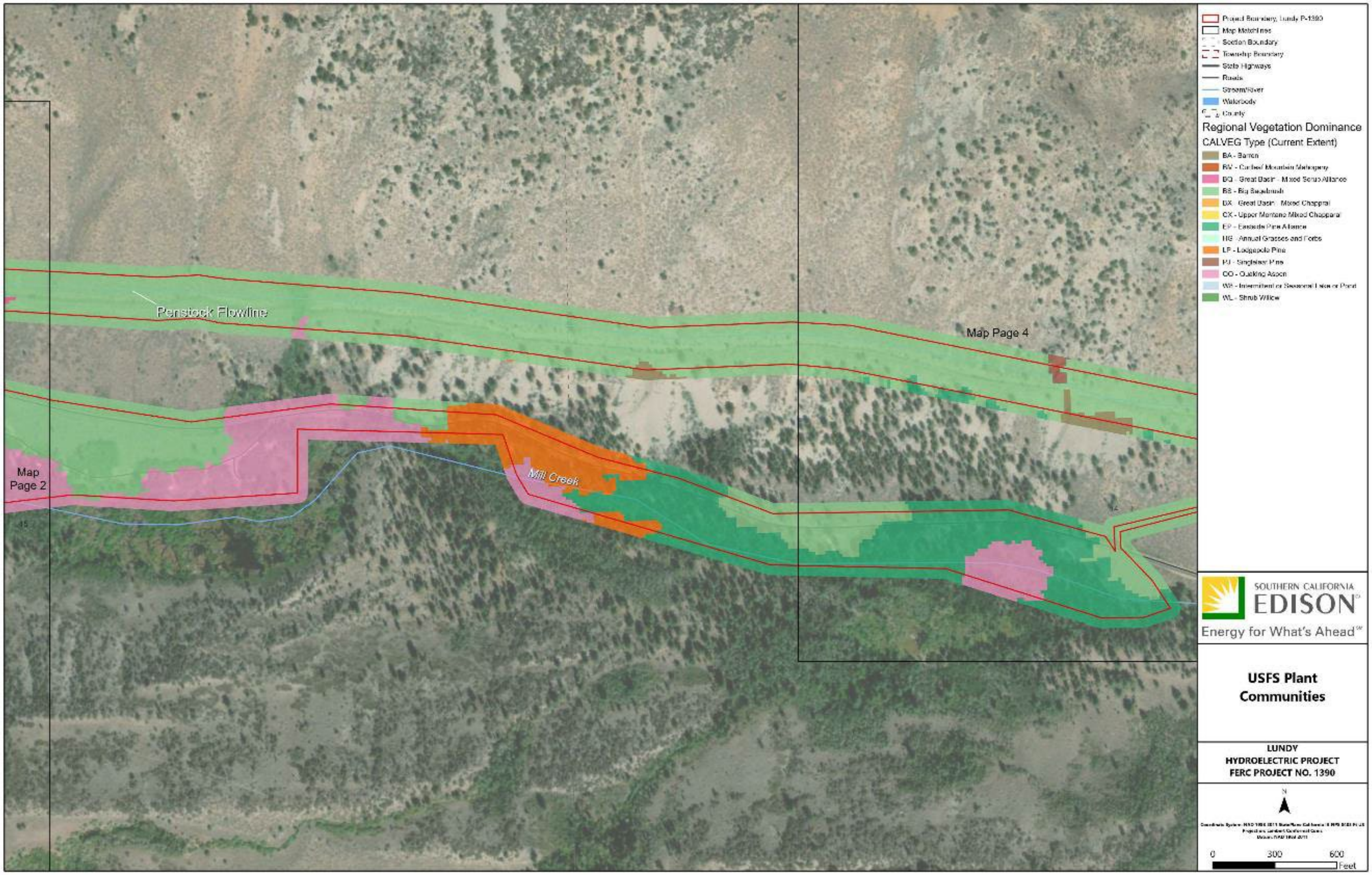


Figure 5.4-4. USFS Plant Communities Detail – Map Page 3.

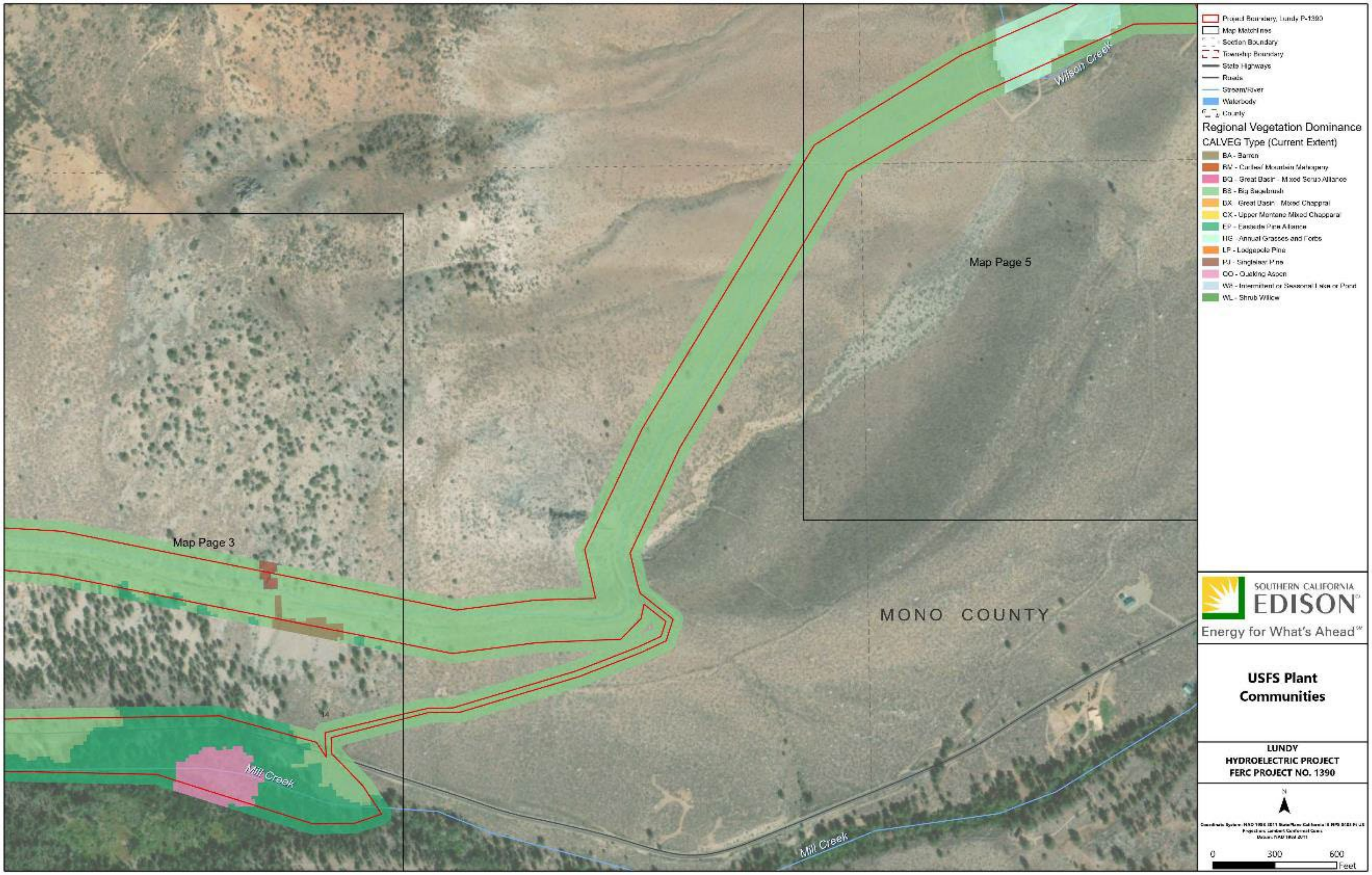


Figure 5.4-5. USFS Plant Communities Detail – Map Page 4.

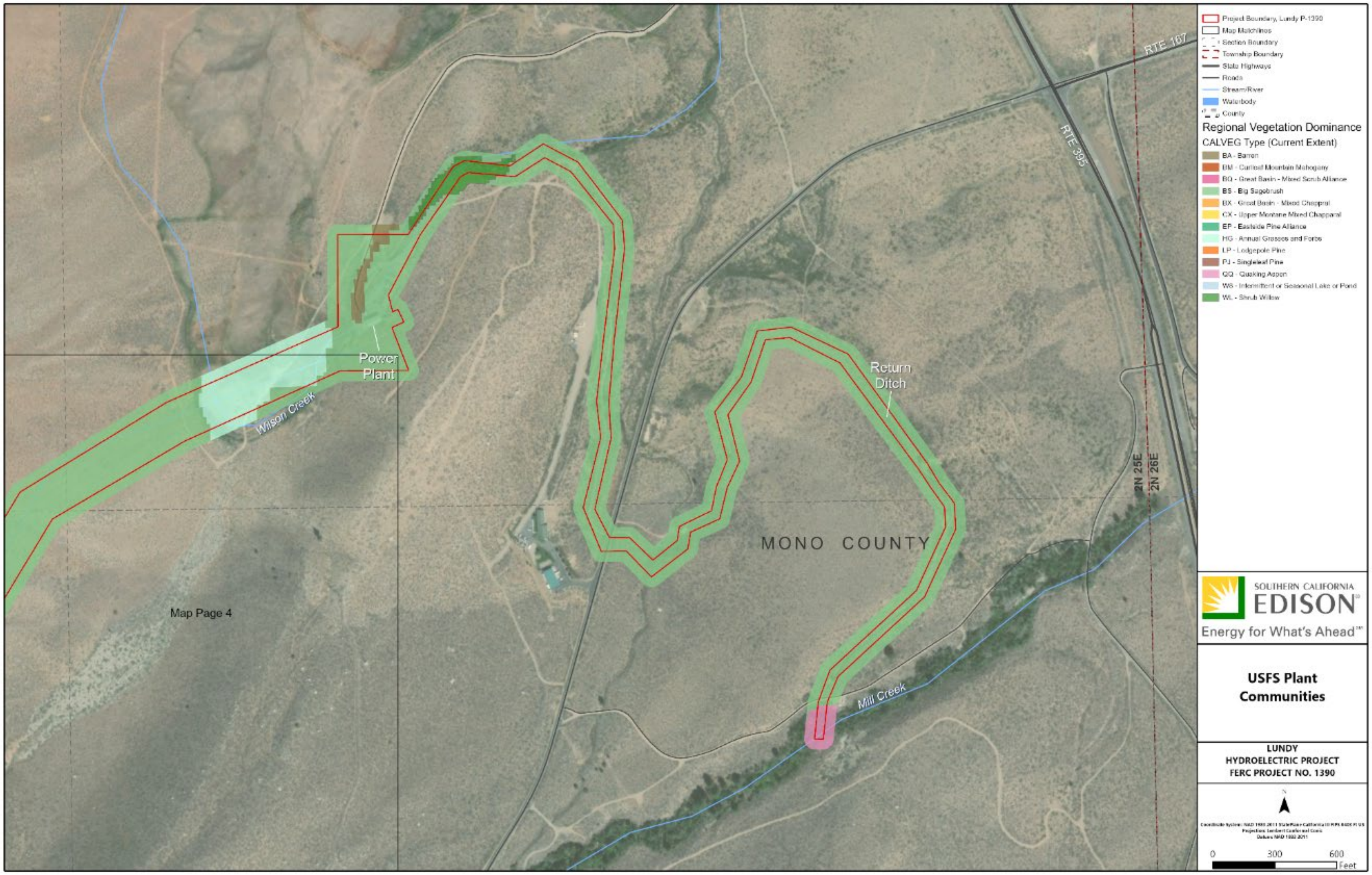


Figure 5.4-6. USFS Plant Communities Detail – Map Page 5.

5.4.3.1. Annual Grasses and Forbs

The annual grasses and forbs vegetation community is mapped along the Wilson System in the Great Basin CALVEG mapping zone. This alliance is found predominantly on flat and generally non-alkaline alluvial areas at elevations between approximately 4,000 and 10,800 feet. It is identified by annual grasses such as bromes (*Bromus* spp.), many of which are not native to California, native annual grasses such as Mexican love grass (*Eragrostis mexicana*), witchgrass (*Panicum capillare*) and sixweeks grass (*Festuca octoflora*), and non-native grasses such as wall barley (*Hordeum murinum*), rattail sixweeks grass (*Festuca myuros*), and oats (*Avena* spp.). Non-native annual forbs such as storksbill (*Erodium* spp.), tumbleweed (*Amaranthus albus*), tumble mustard (*Sisymbrium altissimum*), Russian thistle (*Salsola tragus*), cheeseweed (*Malva parviflora*), prickly lettuce (*Lactuca serriola*), tansy mustard (*Descurainia sophia*), and lesser swine cress (*Lepidium didymum*) may displace native forbs such as short-flowered owl's clover (*Orthocarpus cuspidatus* ssp. *cryptanthus*) and freckled milk-vetch (*Astragalus lentiginosus*). On some sites, this alliance may include species characteristic of alkaline conditions.

5.4.3.2. Barren

Landscapes generally devoid of vegetation, as seen from a high-altitude image source such as aerial photography, are labeled as barren. This category includes areas in which surface lithology is dominant, such as exposed bedrock, cliffs, and granitic or volcanic outcroppings. It does not include areas considered modified or developed, like urban areas.

5.4.3.3. Big Sagebrush

The big sagebrush vegetation community is mapped throughout the TAA in both the Great Basin and Southern Sierran CALVEG mapping zones. It is dominated by big sagebrush (*Artemisia tridentata* ssp. *tridentata*) but sometimes mapped together with mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*). It is the most extensively mapped shrub type in the Great Basin CALVEG mapping zone. Developing on a wide range of substrates, this alliance has been mapped within the elevation range of about 1,098 – 3,355 m. In both CALVEG zones, it occurs in association with other shrubs, such as bitterbrush (*Purshia tridentata*) and curlleaf mountain mahogany (*Cercocarpus ledifolius*). In the Great Basin zone. It is also associated with black sagebrush (*Artemisia nova*), and in the Southern Sierran zone, it is associated with rabbitbrush (*Chrysothamnus* spp.). It occurs in the vicinity of various trees, including Jeffrey pine (*Pinus jeffreyi*), singleleaf pinyon pine (*Pinus monophylla*), and Utah juniper (*Juniperus osteosperma*) at lower elevations as well as bristlecone pine (*Pinus longaeva*), limber pine (*Pinus flexilis*), and lodgepole pine (*Pinus contorta* ssp. *murrayana*) on higher-elevation sites.

5.4.3.4. Curlleaf Mountain Mahogany - BM

Curlleaf mountain mahogany - BM is recognized as both a small tree and a shrub lifeform in the CALVEG classification system. It is mapped in patches in the TAA in the Southern

Sierran CALVEG mapping zone. The shrub form of curlleaf mountain mahogany occurs on gently to steeply sloping mountain uplands and ridgetops, usually in association with rocky outcrops. These stands were mostly mapped at elevations above about 5,400 feet. On more xeric sites in the Great Basin zone, curlleaf mountain mahogany occurs as the dominant species in association with Idaho fescue (*Festuca idahoensis*), squirreltail (*Elymus elymoides*), and a few other grasses and forbs. Trees such as singleleaf pinyon pine and quaking aspen are found adjacent to this alliance in both CALVEG zones. In the Great Basin zone, it is also found near limber pine and bristlecone pine; in the Southern Sierran zone, it is also found near Jeffrey pine and lodgepole pine.

5.4.3.5. Curlleaf Mountain Mahogany - FM

Curlleaf mountain mahogany - FM is recognized as both a small tree and a shrub lifeform in the CALVEG classification system. It is mapped in patches in the TAA in the Southern Sierran CALVEG mapping zone. The tree form occurs as a dominant hardwood on gently to steeply sloping mountain uplands and ridge tops, usually in association with rocky outcrops. It occurs primarily at elevations above 7,000 feet. On xeric sites, it occurs as the dominant woody species associated with grasses, such as Idaho fescue and squirreltail. On more mesic sites, it is associated with quaking aspen, Jeffrey pine, singleleaf pinyon pine, and white fir. The shrub form of curlleaf mountain mahogany and other Great Basin shrubs are often found in close proximity to the woodland form.

5.4.3.6. Eastside Pine

The eastside pine vegetation community is mapped along Mill Creek, near the penstock flowline, and at the western end of Lundy Lake in the TAA in the Southern Sierran CALVEG mapping zone. Jeffrey pine, alone or in combination with ponderosa pine (*Pinus ponderosa*), is a dominant conifer in association with Great Basin understory conifers, trees, and shrubs in this alliance. Common shrubs in or adjacent to this alliance include mountain sagebrush, big sagebrush, curlleaf mountain mahogany, rabbitbrush, bitterbrush, snowberry (*Symphoricarpos* spp.), and oceanspray (*Holodiscus* spp.). Tree associates include singleleaf pinyon pine, Utah juniper, white fir (*Abies concolor*), lodgepole pine, and quaking aspen. This alliance generally occurs at moderate to upper montane elevations, especially between 5,400 and 10,000 feet.

5.4.3.7. Great Basin - Mixed Chaparral Transition

The Great Basin – mixed chaparral transition vegetation community is mapped around Lundy Lake in the Southern Sierran CALVEG mapping zone. This alliance is a transition type that includes shrub species associated with the Great Basin such as mountain sagebrush, big sagebrush, low sagebrush (*Artemisia arbuscula*), bitterbrush, rabbitbrush, and curlleaf mountain mahogany combined with upper montane hard chaparral species such as snowbrush (*Ceanothus velutinus*), mountain whitethorn (*Ceanothus cordulatus*), thimbleberry (*Rubus parviflorus*), and snowberry. Bladderpod (*Peritoma arborea*) and California buckwheat (*Eriogonum fasciculatum*) may also be present. At higher elevations (7,400 – 9,600 feet), it may be associated with quaking aspen, singleleaf pinyon pine, and lodgepole pine.

5.4.3.8. Great Basin – Mixed Scrub

The Great Basin – mixed scrub vegetation community is mapped throughout the Project vicinity in the Southern Sierran CALVEG mapping zone. This alliance is a mixture of common Great Basin shrubs. Species include big sagebrush, mountain sagebrush, low sagebrush, bitterbrush, curlleaf mountain mahogany, gooseberry, snowberry, and/or interior rose (Rosa woodsia). Trees often found in the vicinity include quaking aspen, Jeffrey pine, whitebark pine (*Pinus albicaulis*), and lodgepole pine. Elevation ranges are generally between 5,000 and 11,000 feet.

5.4.3.9. Lodgepole Pine

The lodgepole pine vegetation community is mapped along Mill Creek in the Southern Sierran CALVEG mapping zone. Lodgepole pine dominates this vegetation community, growing in open or closed stands on poorly drained soils or adjacent to meadows. This pine usually indicates shallow soils formed by glacial scouring or areas with shallow water tables. It occurs from 5,800 to 11,200 feet. This species becomes established following fire or disturbance. Associated species include western white pine (*Pinus monticola*), foxtail pine (*Pinus balfouriana*), and whitebark pine. Higher-elevation Great Basin shrubs such as mountain sagebrush, Rothrock sagebrush (*Artemisia rothrockii*), and low sagebrush may be found in close proximity.

5.4.3.10. Mixed Conifer-Fir

The mixed conifer-fir vegetation community is mapped at the western end of Lundy Lake in the Southern Sierran CALVEG mapping zone. It is the higher-elevation counterpart of the mixed conifer-pine alliance and the second most prevalent conifer type in the Southern Sierran zone. It is mostly found at elevations between 5,000 and 10,500 feet on frigid soils in the southern Sierras. The dominant species include red fir (*Abies magnifica*), western white pine, and lodgepole pine at upper elevations, and Jeffrey and ponderosa pines and white fir at lower elevations. Shrub associates include greenleaf manzanita (*Arctostaphylos patula*), huckleberry oak (*Quercus vaccinifolia*), and mountain whitethorn.

5.4.3.11. Quaking Aspen

Quaking aspen is mapped around the perimeter of Lundy Lake (in the South Sierran CALVEG mapping zone) and along Mill Creek (in the Great Basin CALVEG mapping zone). It is an indicator of moist conditions in high-elevation meadows and other moist areas. It is generally dominant on more productive sites, often forming dense, long-lived clonal patches. It has been mapped chiefly at elevations above 4,600 feet on a variety of geologic substrates. At high elevations in the Southern Sierran zone, quaking aspen has been identified as an indicator of moist conditions with California red fir, Jeffrey pine, lodgepole pine, and whitebark pine. On eastern slopes, it is associated with big sagebrush (*Artemisia tridentata*), curlleaf mountain mahogany, and low sagebrush. In the Great Basin zone, it is a principal hardwood understory in bristlecone pine, Jeffrey pine, lodgepole pine, and limber pine stands. With curlleaf mountain mahogany, it forms the hardwood associate of singleleaf pinyon pine stands. Shrubs associated with this vegetation type include interior rose, gooseberries, silver sagebrush (*Artemisia cana*), and big sagebrush and bitterbrush on drier sites.

5.4.3.12. Shrub Willow

Shrub forms of willow (*Salix* spp.) are mapped adjacent to Lundy Lake (in the South Sierran CALVEG mapping zone) and along the Wilson System(in the Great Basin CALVEG mapping zone). Willow vegetation occurs along streams, springs, seeps, or meadows. The elevation range of this alliance is extremely broad, extending up to approximately 12,000 feet. The dominant willow species varies by elevation but may include Geyer's willow (*S. Geyeriana*), narrow-leaved willow (*S. Exigua*), Lemmon's willow (*S. Lemmonii*), shining willow (*S. Lasiandra*), yellow willow (*S. Lutea*), and gray-leafed Sierra willow (*S. Orestera*). At both lower and higher elevations, the willow (shrub) alliance may be associated with or adjacent to quaking aspen (*Populus tremuloides*), blue elderberry (*Sambucus mexicana*), sagebrush (*Artemisia* spp.), and gooseberries (*Ribes* spp.). At higher elevations, willows may be found adjacent to subalpine and upper montane trees such as lodgepole pine (*Pinus contorta* ssp. *Murrayana*), western white pine, California red fir, whitebark pine, and mountain hemlock (*Tsuga mertensiana*). At low elevations in the Great Basin zone, grasses and grasslike plants such as water sedge (*Carex aquatilis*), northern barley (*Hordeum brachyantherum*), Nebraska sedge (*C. nebrascensis*), and woolly sedge (*C. pellita*) may co-occur.

5.4.3.13. Singleleaf Pine

The singleleaf pine vegetation community is mapped along the penstock flowline in the South Sierran CALVEG mapping zone. It is dominated by singleleaf pinyon pine in open woodlands on dry, east slopes. Associated species include Sierra juniper (*Juniperus grandis*), Jeffrey pine, and Utah juniper; occasional hardwoods such as canyon live oak (*Quercus chrysolepis*), interior live oak (*Q. wislizenii*), California black oak (*Q. kelloggii*), and curlleaf mountain mahogany. Understory shrubs include California juniper (*Juniperus californica*), big sagebrush, bitterbrush, cliffrose (*Purshia stansburyana*), prickly-pear (*Opuntia* spp.), and rabbitbrush.

5.4.3.14. Upper Montane Mixed Chaparral

The upper montane mixed chaparral vegetation community is mapped on slopes on the north side of Lundy Lake in the Southern Sierran CALVEG mapping zone. It is a mid- to upper-elevation shrub type in which no single species is dominant. Commonly found species in this zone include greenleaf manzanita, mountain whitethorn, mountain misery (*Chamaebatia foliolosa*), deer brush (*Ceanothus integerrimus*), huckleberry oak, bush chinquapin (*Chrysolepis sempervirens*), and bitter cherry (*Prunus emarginata*). Site differences, autecological factors, and fire history account for variability in the species composition.

5.4.3.15. Water

Areas mapped as water occur at Lundy Lake and include intermittent or seasonal lakes or ponds (the shallower portion around the lake edge) and perennial lakes and ponds (the deeper portion of the lake). These areas comprise surface water at a scale large enough to be mapped separately and have minimal vegetation, except along the edges, which may be mapped as another vegetation type associated with mesic conditions. Mill Creek and the Wilson System, while containing surface water, are mapped according to their predominant vegetation.

5.4.4. Special-status Plant Species

As a result of the database review, the following special-status plants have been reported within the Lundy Project vicinity. Table 5.4-2 lists those species and their potential to occur.

Table 5.4-2. Potential for Special-status Plant Species to Occur

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
Listed Plant Species					
Astragalus monoensis	Mono milk-vetch	SCC	SR, CRPR: 1B.2	Perennial herb found in Great Basin scrub and upper montane coniferous forest, sometimes in gravelly or sandy soil; 6,925–11,010 feet. Blooms: Jun–Aug.	May occur. Suitable habitat is present. Most populations are located over 20 miles to the south; however, the nearest known occurrence is located approximately 3 miles north of the FERC boundary along Virginia Lakes Road (CNDDB occurrence 33).
Pinus albicaulis	Whitebark pine	Threatened	N/A	Tree found in subalpine forest; 10,000–12,100 feet	May Occur. Suitable habitat present.
Other Special-Status Plant Species					
Known to Occur					
Lupinus duranii	Mono Lake lupine	SCC	CRPR: 1B.2	Perennial herb found in volcanic pumice, gravelly soil in Great Basin scrub, subalpine coniferous forest, and upper montane coniferous forest; 6,560–9,845 feet. Blooms: May–Aug.	Known to Occur. Suitable habitat is present. Species historically reported just south of FERC boundary (CNDDB Occurrence 20; 1938 record). Per the Final Rare Plant Protection Plan Southern California Edison Company's Lundy Hydroelectric Project (FERC 1390) Compliance with New License Article 405, this record may be a misidentification.

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
Ranunculus hydrocharoides	Frog's-bit buttercup	SCC	CRPR: 2B.1	Perennial herb (aquatic) found in freshwater marshes and swamps; 3,610–8,860 feet. Blooms: Jul–Aug.	Known to occur. Suitable habitat is present. Reported from FERC boundary downstream of Lundy Canyon Campground (CNDDB occurrence 4)
Streptanthus oliganthus	Masonic Mountain jewelflower	SCC	CRPR: 1B.2	Perennial herb found in granitic, rocky, volcanic soil of pinyon and juniper woodland; 6,495–10,005 feet. Blooms Jun–Jul.	Known to occur. Suitable habitat present. Reported less than 1 mile from penstock flowline (CNDDB occurrence 14).
May Occur					
Allium atrorubens var. atrorubens	Great Basin onion	SCC	CRPR: 2B.3	Perennial bulbiferous herb found in Great Basin scrub and pinyon and juniper woodland, sometimes in rocky or sandy soil; 3,935–7,595 feet. Blooms: May–Jun.	May occur. Suitable habitat is present. Species reported approximately 5 miles north of the FERC boundary along Highway 395 (CNDDB occurrence 11).
Boechera bodiensis	Bodie Hills rockcress	SCC	CRPR: 1B.3	Perennial herb found in alpine boulder and rock fields, Great Basin scrub, pinyon and juniper woodland, and subalpine coniferous forest; 6,840–11,580 feet. Blooms: Jun–Jul (Aug).	May occur. Suitable habitat is present. Species reported approximately 5.5 miles southeast of the FERC boundary (CNDDB occurrence 28).
Boechera cobrensis	Masonic rockcress	N/A	CRPR: 2B.3	Perennial herb found in sandy soil in Great Basin scrub and pinyon and juniper woodland; 4,510–10,190 feet. Blooms: Jun–Jul.	May occur. Suitable habitat is present. Species reported approximately 2.3 miles north of the FERC boundary (CNDDB occurrence 19).
Boechera tularensis	Tulare rockcress	SCC	CRPR: 1B.3	Perennial herb found in rocky slopes in subalpine	May occur. Suitable habitat is present. Species

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				coniferous forest and upper montane coniferous forest, sometimes on roadsides; 5,990–10,990 feet. Blooms: (May) Jun–Jul (Aug).	historically reported just west of FERC boundary (CNDDB occurrence 26; 1942 record).
Botrychium ascendens	Upswept moonwort	SCC	CRPR: 2B.3	Perennial rhizomatous herb found in mesic soil in lower montane coniferous forest and meadows and seeps; 3,660–9,990 feet. Blooms: (Jun) Jul–Aug.	May occur. Suitable habitat is present. Species reported approximately 2.5 miles northwest of the FERC boundary (CNDDB occurrence 15).
Botrychium crenulatum	Scalloped moonwort	SCC	CRPR: 2B.2	Perennial rhizomatous herb found in bogs and fens, lower montane coniferous forest, freshwater marshes and swamps, meadows and seeps, and upper montane coniferous forest; 4,160–10,760 feet. Blooms: Jun–Sep.	May occur. Suitable habitat is present. Species reported approximately 6.5 miles south of the FERC boundary (CCH record UCR123116).
Botrychium lineare	Slender moonwort	SCC	CRPR: 1B.1	Perennial herb found in meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest, often in disturbed areas; 8,400–8,530 feet. Blooming period unknown.	May occur. Suitable habitat is present. Species reported approximately 2.5 miles northwest of the FERC boundary (CNDDB occurrence 4); however, identification was not confirmed, and the FERC boundary lies outside this species' current known elevation range.
Botrychium lunaria f	Common moonwort	N/A	CRPR: 2B.3	Perennial rhizomatous herb found in mesic areas of meadows and seeps; 6,495–11,205 feet. Blooms: June-Sep.	May occur. Suitable habitat is present. Species reported approximately 5.5 miles south of the FERC

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
					boundary (CNDDB occurrence 8).
Botrychium minganense	Mingan moonwort	SCC	CRPR: 2B.2	Perennial rhizomatous herb found in mesic soil in bogs and fens, lower montane coniferous forest, meadows and seeps (edges), and upper montane coniferous forest; 3,905–10,795 feet. Blooms: Jul–Sep (Oct).	May occur. Suitable habitat is present. Species reported approximately 6.5 miles northwest of the FERC boundary (CCH record UC1965916).
Botrychium paradoxum	Paradox moonwort	N/A	CRPR: 2B. 1	Perennial rhizomatous herb found in alpine boulder and rock fields (limestone and marble) and upper montane coniferous forest (moist); 5,710–13,780 feet. Blooms: Aug.	May occur. Suitable habitat is present. Species reported approximately 5.5 miles northwest of the FERC boundary (CNDDB occurrence 2).
Carex praticola	Northern meadow sedge	SCC	CRPR: 2B.2	Perennial herb found in mesic meadows and seeps; 0–10,500 feet. Blooms: May–Jul.	May occur. Suitable habitat is present. Species reported approximately 7.5 miles northwest of the FERC boundary (CNDDB occurrence 15).
Carex vallicola	Western valley sedge	SCC	CRPR: 2B.3	Perennial rhizomatous herb found in mesic soil in Great Basin scrub and meadows and seeps; 5,005–9,205 feet. Blooms: Jul–Aug.	May occur. A limited amount of suitable habitat is present. Species reported approximately 6.5 miles south of the FERC boundary (CNDDB occurrence 8).
Cusickiella quadricostata	Bodie Hills cusickiella	N/A	CRPR: 1B.2	Perennial herb found in Great Basin scrub and pinyon and juniper woodland, sometimes in clay	May occur. Suitable habitat is present. Species reported approximately 3.5 miles northeast of the

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				or rocky soil; 6,560–9,185 feet. Blooms: May–Jul.	FERC boundary (CNDDB occurrence 24).
Dermatocarpon meiophyllizum	Silverskin lichen	N/A	CRPR: 2B.3	Aquatic foliose lichen found in rocky lake margins and streambanks in the coastal prairie, lower montane coniferous forest, North Coast coniferous forest, subalpine coniferous forest, and upper montane coniferous forest; 970–11,465 feet.	May occur. Suitable habitat is present. Species reported approximately 5.5 miles northwest of the FERC boundary (CNDDB occurrence 6).
Eremothera boothii ssp. boothii	Booth's evening-primrose	N/A	CRPR: 2B.3	Annual herb found in Joshua tree woodland and pinyon and juniper woodland; 2,675–7,875 feet. Blooms: Apr–Sep.	May occur. Suitable habitat is present. Species reported approximately 3 miles southeast of the FERC boundary (CNDDB occurrence 22).
Kobresia myosuroides	Seep kobresia	SCC	CRPR: 2B.2	Perennial rhizomatous herb found in alpine boulder and rock fields (mesic), meadows and seeps (carbonate), and subalpine coniferous forest; 4,890–10,645 feet. Blooms: (Jun) Aug.	May occur. Suitable habitat is present. Species reported approximately 2.5 miles northwest of the FERC boundary (CNDDB occurrence 4).
Lupinus pusillus var. intermontanus	Intermontane lupine	N/A	CRPR: 2B.3	Annual herb found in sandy Great Basin scrub; 4,005–6,760 feet. Blooms: May–Jun.	May occur. Suitable habitat is present. Species reported approximately 9 miles northeast of the FERC boundary (CNDDB occurrence 8).
Meesia longiseta	Long seta hump moss	N/A	CRPR: 2B.3	Moss found in carbonate soil in bogs and fens, meadows and seeps, and upper	May occur. Suitable habitat is present. Species reported approximately 5.5 miles northwest of the

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				montane coniferous forest; 5,740–9,990 feet.	FERC boundary (CNDDB Occurrence 3).
Mentzelia torreyi	Torrey's blazing star	SCC	CRPR: 2B.2	Perennial herb found in Great Basin scrub, Mojavean desert scrub, and pinyon and juniper woodland, usually in volcanic soil but also alkaline, rocky, and sandy soil; 3,840–9,300 feet. Bloom: Jul–Aug.	May occur. Suitable habitat is present. Species reported approximately 2.6 miles east of the FERC boundary (CNDDB Occurrence 6).
Phacelia monoensis	Mono County phacelia	SCC	CRPR: 1B.1	Annual herb found in Great Basin scrub and pinyon-juniper woodland, in clay soil and often along roadsides; 6,235–9,515 feet. Blooms: May–Jul.	May occur. Suitable habitat is present. Species reported approximately 8 miles north of the FERC boundary (CNDDB occurrence 14).
Potamogeton praelongus	White-stemmed pondweed	N/A	CRPR: 2B.3	Perennial rhizomatous herb (aquatic) found in marshes and swamps (deep water, lakes); 5,905–9,842 feet. Blooms: Jul–Aug.	May occur. Suitable habitat is present. Species historically reported approximately 1.8 miles northwest of the FERC boundary (CNDDB occurrence 7; 1934 record)
Sabulina stricta	Bog sandwort	N/A	CRPR: 2B.3	Perennial herb (aquatic) found in alpine boulder and rock fields, alpine dwarf scrub, and meadows and seeps; 8,005–12,995 feet. Blooms: Jul–Sep.	May occur. Suitable habitat is present. Species reported approximately 3.3 miles northwest of the FERC boundary (CNDDB occurrence 15).
Silene oregana	Oregon campion	N/A	CRPR: 2B.2	Perennial herb found in Great Basin scrub and subalpine coniferous forest; 4,920–8,205 feet. Blooms: Jul–Sept.	May occur. Suitable habitat is present. Species reported approximately 4.2 miles south of the FERC

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
					boundary (CNDDB occurrence 1).
Tetradymia tetrameres	Dune horsebrush	SCC	CRPR: 2B.2	Perennial shrub found in sandy soil in Great Basin scrub; 3,935–7,005 feet. Blooms: (Jul) Aug.	May occur. Suitable habitat. Species historically reported approximately 2.7 miles east of the FERC boundary (CNDDB occurrence 3; 1937 record).
Thelypodium integrifolium ssp. complanatum	Foxtail thelypodium	SCC	CRPR: 2B.2	Annual/perennial herb found in mesic areas of Great Basin scrub and meadows and seeps, sometimes in alkaline soils; 3,610–8,205 feet. Blooms: Jun–Oct.	May occur. Suitable habitat. Species historically reported approximately 1.2 miles southeast of the FERC boundary (CNDDB occurrence 8; 1937 record).
Thelypodium milleflorum	Many-flowered thelypodium	SCC	CRPR: 2B.2	Perennial herb found in chenopod scrub and Great Basin scrub (sandy); 4,005–8,205 feet. Blooms: Apr–Jun.	May occur. Suitable habitat. Species reported approximately 9 miles northeast of FERC boundary (CNDDB occurrence 30).
Triglochin palustris	Marsh arrow-grass	N/A	CRPR: 2B.3	Perennial rhizomatous herb found in mesic areas of meadows and seeps, freshwater marshes and swamps, and subalpine coniferous forest; 7,495–12,140 feet. Blooms: Jul–Aug.	May occur. Suitable habitat. Species reported approximately 10.3 miles south of the FERC boundary (CCH record UC1949575).
Viola purpurea ssp. aurea	Golden violet	SCC	CRPR: 2B.2	Perennial herb found in sandy soil in Great Basin scrub and pinyon and juniper woodland; 3,280–8,205 feet. Blooms: Apr–Jun.	May occur. Suitable habitat present. Reported less than 1 mile from Powerplant (CNDDB occurrence 24; 1965 record).

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
Unlikely to Occur					
Agrostis humilis	Mountain bent grass	SCC	CRPR: 2B.3	Perennial herb found in alpine boulder and rock fields, meadows and seeps, and subalpine coniferous forest, sometimes in carbonate soil; 8,760–10,500 feet. Blooms: Jul–Sep.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Astragalus oophorus var. *lavinii*	Lavin's milk-vetch	N/A	CRPR: 1B.2	Perennial herb found in Great Basin scrub and pinyon and juniper woodland; 8,040–10,005 feet. Blooms: Jun.	Unlikely to occur. The FERC boundary lies outside this species' current known geographic range.
Boechera tiehmii	Tiehm's rockcress	SCC	CRPR: 1B.3	Perennial herb found in alpine boulder and rock fields (granitic); 9,745–11,780 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Botrychium yaaxudakeit	Giant moonwort	N/A	CRPR: 2B.1	Perennial rhizomatous herb found in alpine boulder and rock fields (meadows); 10,500 feet. Blooms: Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range and geographic range; it is only known from a single occurrence over 6.5 miles northwest of the FERC boundary (CCH Record UC1965917).
Calochortus excavatus	Inyo County star-tulip	SCC	CRPR: 1B1	Perennial bulbiferous herb found in alkaline, mesic soil in chenopod scrub and meadows and seeps; 3,772–6,560 feet. Blooms: Apr–Jul.	Unlikely to occur. Suitable habitat is present. The species historically reported approximately 15 miles north of FERC boundary (CNDDB occurrence 71; 1949 record). However, the

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
					FERC boundary lies outside this species' current known geographic range.
Carex davyi	Davy's sedge	SCC	CRPR: 1B.3	Perennial herb found in subalpine coniferous forest and upper montane coniferous forest; 4,920–10,500 feet. Blooms: May–Aug.	Unlikely to occur. Suitable habitat is present. The species historically reported approximately 12 miles southwest of the FERC boundary (CNDDB occurrence 2; 1944 record). However, the FERC boundary lies outside this species' current known geographic range.
Carex scirpoidea ssp. pseudoscirpoidea	Western single-spiked sedge	SCC	CRPR: 2B.2	Perennial rhizomatous herb found in mesic, often carbonate soil in alpine boulder and rock fields, meadows and seeps, and subalpine coniferous forest (rocky); 9,810–12,140 feet. Blooms: Jul–Sep.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Carex tiogana	Tioga Pass sedge	SCC	CRPR: 1B.3	Perennial herb found in meadows and seeps (mesic, lake margins); 10,170–10,825 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Chaetadelpha wheeleri	Wheeler's dune-broom	SCC	CRPR: 2B.2	Perennial rhizomatous herb found in sandy soil in desert dunes, Great Basin scrub, and Mojavean desert scrub; 2,610–6,235 feet. Blooms: Apr–Sep.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Claytonia megarhiza	Fell-fields claytonia	SCC	CRPR: 2B.3	Perennial herb found in alpine boulder and rock fields and subalpine	Unlikely to occur. The FERC boundary lies

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				coniferous forest (rocky or gravelly); 8,530–11,590 feet. Blooms: Jul–Sep.	outside this species' current known elevation range.
Crepis runcinata	Fiddleleaf hawksbeard	SCC (C.r. ssp. *hallii*)	CRPR: 2B.2	Perennial herb found in alkaline and mesic soil in Mojavean desert scrub and pinyon and juniper woodland; 4,100–6,480 feet. Blooms: May–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Draba asterophora var. asterophora	Tahoe draba	N/A	CRPR: 1B.2	Perennial herb found in alpine boulder and rock fields and subalpine coniferous forest; 8,205–11,500 feet. Blooms: Jul–Aug (Sep).	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range and geographic range.
Draba cana	Canescent draba	N/A	CRPR: 2B.3	Perennial herb found in carbonate soil in alpine boulder and rock fields, meadows and seeps, and subalpine coniferous forest; 9,845–11,500 feet. Blooms: Jul.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Draba praealta	Tall draba	N/A	CRPR: 2B.3	Perennial herb found in mesic soil in meadows and seeps; 8,205–11,205 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Eriogonum alexanderae	Alexander's buckwheat	SCC	CRPR: 1B.1	Perennial herb found in Great Basin scrub and pinyon and juniper woodland, sometimes in gravelly or shale soil; 9,500 feet. Blooms May–Jul.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Festuca minutiflora	Small-flowered fescue	N/A	CRPR: 2B.3	Perennial herb found in alpine boulder and rock	Unlikely to occur. The FERC boundary lies

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				fields; 10,500–13,290 feet. Blooms: Jul.	outside this species' current known elevation range.
Glyceria grandis	American manna grass	N/A	CRPR: 2B.3	Perennial rhizomatous herb found in bogs and fens, meadows and seeps, and marshes and swamps around lake margins and streambanks; 50–6,495 feet. Blooms Jun–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Lupinus gracilentus	Slender lupine	N/A	CRPR: 1B.3	Perennial herb found in subalpine coniferous forest; 8,205–11,485 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Myurella julacea	Small mousetail moss	N/A	CRPR: 2B.3	Moss found in damp rock and soil in alpine boulder and rock fields and subalpine coniferous forest; 8,860–9,845 feet.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Pohlia tundrae	Tundra thread moss	SCC	CRPR: 2B.3	Moss found in gravelly, damp soil in alpine boulder and rock fields; 8,860–9,845 feet.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Salix brachycarpa var. brachycarpa	Short-fruited willow	N/A	CRPR 2B.3	Perennial herb found in carbonate soil in alpine dwarf scrub, meadows and seeps, and subalpine coniferous forest; 9,845–11,485 feet. Blooms: Jun–Jul.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Salix nivalis	Snow willow	N/A	CRPR: 2B.3	Perennial deciduous shrub found in alpine dwarf scrub; 10,170–11,485 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.
Suaeda occidentalis	Western seablite	N/A	CRPR: 2B.3	Annual herb found in alkaline and mesic areas of	Unlikely to occur. The FERC boundary lies

Scientific Name[a]	Common Name	Federal Status[b]	State Status[c]	General Habitat Description/Distribution[d]	Potential to Occur[e]
				Great Basin scrub; 3,935–4,920 feet. Blooms Jul–Sep.	outside this species' current known elevation range.
Townsendia condensata	Cushion townsendia	N/A	CRPR: 2B.3	Perennial herb found in alpine boulder and rock fields and gravelly subalpine coniferous forest; 9,400–12,060 feet. Blooms: Jul–Aug.	Unlikely to occur. The FERC boundary lies outside this species' current known elevation range.

CRPR = California Rare Plant Rank; FERC = Federal Energy Regulatory Commission; CNDDB = California Natural Diversity Database; CCH = Consortium of California Herbaria; N/A = not applicable

Federal Status
SCC = Species of Conservation Concern

State Status
SR = State Rare

CRPR
1B = Plants rare, threatened, or endangered in California and elsewhere
2B = Plants rare, threatened, or endangered in California but common elsewhere

CRPR Threat Ranks
1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
2 = Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
3 = Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat)
[a] The following USGS 7.5-minute topographic quadrangles were queried for special-status plant species: Big Alkali, Bodie, Dunderberg Peak, Lee Vining, Lundy, Mount Dana, Negit Island, Tioga Pass, and Twin Lakes.
[b] The source of the Inyo National Forest status is the Persistence Analysis for Species of Conservation Concern Inyo National Forest (Inyo NF, 2019). Species indicated to be present in the Mono Ranger District are included.
[c] The source for the State Status is the Endangered, Threatened, and Rare Plants List (CDFW, 2023c). The source for the CRPR is the Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2023b).
[d] The source for information on species habitat is the California Native Plant Society Rare Plant Inventory (CNPS, 2023). For the blooming period, months included in parentheses are uncommon.
[e] Location information is provided by the CNDDB (CDFW, 2023a) or the CCH (CCH, 2023). [e] Location information is provided by the CNDDB (CDFW, 2023a) or the CCH (CCH, 2023).
[f] Taxa referred to as *Botrychium neolunaria* by CNPS (2023).

5.4.5. Noxious Weeds/Non-Native Invasive Plants

The Cal-IPC query combined with the list of non-native invasive plants known to occur in the Inyo NF yielded a total of 98 species that have the potential to occur in the vicinity of the Project, as shown in Table 5.4-3.

Table 5.4-3. Non-native Invasive Plants Potentially Occurring in the Terrestrial Assessment Area

Scientific Name	Common Name	USFS Treatment Strategy	Cal-IPC Rank
Agrostis stolonifera	Creeping bent	N/A	Limited
Ailanthus altissima	Tree of heaven	1 – Eradicate	Moderate
Alhagi maurorum	Camel thorn	N/A	Moderate
Arundo donax	Giant reed	N/A	High
Asparagus asparagoides	Bridal creeper	N/A	Moderate
Avena barbata	Slender wild oat	N/A	Moderate
Avena fatua	Wild oat	N/A	Moderate
Bassia hyssopifolia	Five-hook bassia	3 – Contain	Limited
Bassia scoparia	Broom bassia	N/A	Limited
Brassica nigra	Black mustard	N/A	Moderate
Brassica rapa	Field mustard	N/A	Limited
Brassica tournefortii	Sahara mustard	N/A	High
Bromus diandrus	Ripgut grass	N/A	Moderate
Bromus hordeaceus	Soft chess	4 – Limited or None	Limited
Bromus japonicus	Japanese brome	4 – Limited or None	Limited
Bromus rubens	Red brome	3 – Contain	High
Bromus tectorum	Cheat grass	3 – Contain	High
Centaurea diffusa	Diffuse knapweed	1 – Eradicate	Moderate
Centaurea melitensis	Tocalote	N/A	Moderate
Centaurea solstitialis	Yellow star-thistle	1 – Eradicate	High
Centaurea stoebe ssp. *micranthos*	Spotted knapweed	1 – Eradicate	High
Chorizpora tenella	Crossflower	4 – Limited or None	
Cirsium arvense	Canada thistle	1 – Eradicate	Moderate
Cirsium vulgare	Bull thistle	3 – Contain	Moderate
Conium maculatum	Poison-hemlock	N/A	Moderate
Convolvulus arvensis	Bindweed	3 – Contain	

Scientific Name	Common Name	USFS Treatment Strategy	Cal-IPC Rank
Cortaderia selloana	Pampas grass	N/A	High
Cynodon dactylon	Bermuda grass	N/A	Moderate
Dactylis glomerata	Orchard grass	N/A	Limited
Descurainia sophia	Tansy mustard	4 – Limited or None	Limited
Dipsacus fullonum	Wild teasel	2 - Control	Moderate
Dipsacus sativus	Fuller’s teasel	N/A	Moderate
Elaeagnus angustifolia	Russian olive	2 - Control	Moderate
Elymus caput-medusae	Medusa head	N/A	High
Erodium cicutarium	Redstem filaree	4 – Limited or None	Limited
Fallopia sachalinensis	Giant knotweed	N/A	Moderate
Festuca arundinacea	Tall fescue	N/A	Moderate
Festuca myuros	Rattail sixweeks grass	4 – Limited or None	Moderate
Festuca perennis	Rye grass	N/A	Moderate
Foeniculum vulgare	Fennel	N/A	Moderate
Geranium purpureum	Little robin	N/A	Limited
Grindelia squarrosa var. serrulate	Curlycup gumweed	4 – Limited or None	
Halogeton glomeratus	Saltlover	2 - Control	Moderate
Helminthotheca echioides	Bristly ox-tongue	N/A	Limited
Hirschfeldia incana	Short-pod mustard	3 – Contain	Moderate
Holcus lanatus	Common velvet grass	3 – Contain	Moderate
Hordeum marinum	Mediterranean barley	4 – Limited or None	Moderate
Hordeum murinum	Wall barley	N/A	Moderate
Lactuca serriola	Prickly lettuce	4 – Limited or None	
Lathyrus latifolius	Perennial sweet pea	N/A	Watch
Lepidium appelianum	White-top	1 – Eradicate	Limited
Lepidium chalepense	Lens-podded hoary cress	1 – Eradicate	Moderate
Lepidium draba	Heart-podded hoary cress	1 – Eradicate	Moderate
Lepidium latifolium	Perennial pepperweed	1 – Eradicate	High
Leucanthemum vulgare	Ox-eye daisy	N/A	Moderate
Linaria dalmatica ssp. *dalmatica*	Dalmatian toadflax	1 – Eradicate	Moderate
Linaria vulgaris	Butter-and-eggs	1 – Eradicate	Moderate

Scientific Name	Common Name	USFS Treatment Strategy	Cal-IPC Rank
Lotus corniculatus	Bird's-foot trefoil	3 – Contain	
Malva neglecta	Common mallow	4 – Limited or None	
Marrubium vulgare	Horehound	3 – Contain	Limited
Medicago polymorpha	Burclover	N/A	Limited
Melilotus spp.	Sweet clover	3 – Contain	
Myoporum laetum	Myoporum	N/A	Moderate
Onopordum acanthium ssp. acanthium	Scotch thistle	N/A	High
Penstemon subglaber	Smooth penstemon	3 – Contain	
Plantago lanceolata	English plantain	N/A	Limited
Poa bulbosa	Bulbous bluegrass	4 – Limited or None	
Poa pratensis ssp. pratensis	Kentucky bluegrass	N/A	Limited
Polygonum aviculare	Knotweed	4 – Limited or None	
Polygonum aviculare ssp. depressum	Oval-leaf knotweed	4 – Limited or None	
Polypogon monspeliensis	Rabbitsfoot grass	4 – Limited or None	Limited
Ranunculus testiculata	Curveseed butterwort	4 – Limited or None	
Rhaponticum repens	Russian knapweed	1 – Eradicate	Moderate
Ricinus communis	Castor bean	N/A	Limited
Robinia pseudoacacia	Black locust	3 – Contain	Limited
Rubus armeniacus	Himalayan blackberry	2 - Control	High
Rumex acetosella	Sheep sorrel	N/A	Moderate
Rumex crispus	Curly dock	4 – Limited or None	Limited
Salsola paulsenii	Barbwire Russian thistle	N/A	Limited
Salsola tragus	Russian thistle	3 – Contain	Limited
Saponaria officinalis	Bouncing-bet	2 - Control	Limited
Schismus arabicus	Arabian schismus	4 – Limited or None	Limited
Schismus barbatus	Barbed Mediterranean grass	N/A	Limited
Sisymbrium altissimum	Tumble mustard	4 – Limited or None	
Sisymbrium irio	London rocket	N/A	Limited
Sonchus oleraceus	Common sow thistle	3 – Contain	
Spartium junceum	Spanish broom	1 – Eradicate	High
Spergularia rubra	Red sand-spurry	4 – Limited or None	

Scientific Name	Common Name	USFS Treatment Strategy	Cal-IPC Rank
Tamarix aphylla	Athel	N/A	Limited
Tamarix parviflora	Smallflower tamarisk	N/A	High
Tamarix ramosissima	Saltcedar	2 - Control	High
Tanacetum vulgare	Common tansy	N/A	Moderate
Taraxacum officinale	Common dandelion	4 – Limited or None	
Tragopogon dubius	Yellow salsify	4 – Limited or None	
Tribulus terrestris	Puncturevine	2 - Control	Limited
Trifolium repens	White clover	4 – Limited or None	
Ulmus pumila	Siberian elm	2 - Control	
Verbascum thapsus	Woolly mullein	4 – Limited or None	Limited

Source: Cal-IPC, 2020; NRM – TESP/IS, 2018

N/A = Not applicable

5.5. WILDLIFE RESOURCES

5.5.1. INTRODUCTION

This section describes terrestrial wildlife and the associated resources on and in the vicinity of the Project. Aquatic wildlife and associated resources are discussed in Section 5.3, *Fish and Aquatic Resources*. Terrestrial wildlife species listed under the federal or California ESAs are discussed in detail in Section 5.7, *Rare, Threatened, and Endangered Species*.

5.5.2. INFORMATION SOURCES

A literature review was performed to identify common and special-status wildlife[13] known to occur (or that historically occurred) in equivalent habitat in the greater vicinity of the Project. The literature review included:

- A search of the CDFW CNDDB (CDFW, 2023a) for USGS' 7.5-minute quadrangles for Tioga Pass, Mount Dana, Lee Vining, Falls Ridge, Lundy, Dunderberg Peak, Vogelsang Peak, Koip Peak, and Negit Island
- Results from USFWS' *IPaC System* (USFWS, 2023)
- The unpublished *At-risk Aquatic and Terrestrial Species on Inyo National Forest* (Inyo NF, 2020), which further expanded the list of special-status species with the potential to occur in the greater vicinity of the Project
- Common terrestrial wildlife species anticipated to occur in the Project vicinity were compiled following a review of previous survey reporting by SCE and their consulting biologists (FERC 1992; Psomas 1999, 2006, 2008a, 2008b, 2008c, 2009, 2017).

Additional resources identifying common species include:

- *Guide to the Terrestrial Mammals of Southern California and the Eastern and Southern Sierra Nevada* (Blood, 2018)
- California Herps (CaliforniaHerps.com, 2023a, 2023b)
- iNaturalist for the Lundy Lake and Lundy Canyon area (iNaturalist, 2023)

The habitats identified as occurring within the Project vicinity are derived from the vegetation discussion in Section 5.4, *Botanical Resources*.

The plant community alliances found in the Project vicinity are listed in Table 5.5-1. These alliances were taken from the Botanical Resources Section and descriptions of these

[13] Special Status Wildlife consists of species listed as Endangered, Threatened, or Candidate as such by either the USFWS or CDFW; species designated as Species of Special Concern by CDFW; species designated as At-risk Species or Species of Conservation Concern by the Inyo National Forest; or species listed as sensitive species by the U.S. Bureau of Land Management.

alliances can be found in Section 5.4, *Botanical Resources*. Together, these alliances form a mosaic of communities and habitats that support the wildlife in the vicinity of the Project.

Table 5.5-1. Vegetation Alliances and Habitats

Herbs
Annual grasses and forbs
Scrub
Big sagebrush
Curlleaf mountain mahogany
Great Basin - mixed chaparral
Upper montane mixed chaparral
Willow scrub
Forest
Lodgepole pine
Eastside pine
Mixed conifer-fir
Quaking aspen
Other
Barren
Water

Source: USFS, 2009

5.5.3. Wildlife Habitats and Associated Common Species

The plant communities listed above support a wide variety of common wildlife. These habitats interdigitate with the surrounding upland plant communities and provide habitat for numerous wildlife species. Some common wildlife known or anticipated to occur in these habitats include Sierra treefrog (*Pseudacris sierra*), western toad *(Anaxyrus boreas*), western terrestrial garter snakes (*Thamnophis elegans*), Great Basin fence lizard (*Sceloporus occidentalis*), Sierra alligator lizard (*Elgaria coerulea*), mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), Wilson's warbler (*Wilsonia pusilla*), western wood-peewee (*Contopus sordidulus*), white-crowned sparrow (*Zonotrichia leucophrys*), mountain bluebird (*Sialia currucoides*), house wren (*Troglodytes aedon*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), yellow-pine chipmunk (*Neotamias amoenus*), Sierra Nevada mountain beaver (*Aplodontia rufa*), Belding's ground squirrel (*Urocitellus beldingi*), northern pocket gopher (*Thomomys talpoides*), North American deermouse (*Peromyscus maniculatus*), mule deer (*Odocoileus hemionus*), and Yuma myotis (*Myotis yumanensis*).

This section includes tables of special-status species and the habitat elements the species are known to occupy. The sources used to determine these habitats are primarily derived from three sources: species accounts in the California Wildlife Habitat Relationship System (CDFW, 2023b), species accounts in CNDDB (CDFW, 2023a), and species accounts in the *Persistence Analysis for Species of Conservation Concern* (Inyo NF, 2019). The species' habitat information is further supplemented by scientific literature or other resource agency information where referenced.

5.5.4. Special-status Wildlife

This section addresses special-status biological resources reported as occurring in the greater vicinity of the Project. These resources include wildlife species that have been afforded special status and/or are recognized by federal and state resource agencies and the USFS. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss. This list includes species listed under the federal ESA or the California ESA, species designated as California Species of Special Concern (SSC) or Fully Protected by the CDFW, and species identified as SCC by the USFS.

5.5.4.1. Federal Special-status

Special-status species include species listed as Endangered, Threatened, or Candidate under the federal ESA. It also includes the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), which are protected under the federal Bald and Golden Eagle Protection Act (BGEPA). Details and definitions associated with the federal ESA and BGEPA are discussed in Section 5.7, *Rare, Threatened, and Endangered Species*.

Under the 2012 Planning Rule (36 CFR § 219.7(c)(3)), the regional forester determined the terrestrial wildlife, aquatic wildlife, and plant species that meet the criteria for SCC for the Inyo NF's LMP. The definition of SCC is found at 36 CFR 219.9(c), and the criteria for identifying them are outlined in the Forest Service Handbook FSH 1909.12 Chapter 10, Section 12.52c. An SCC is a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the Project vicinity and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the vicinity of the Project (36 CFR 219.9) (USFS, 2019).

The 1988 amendment to the Fish and Wildlife Conservation Act, United States Code, Title 16, Sections 2901-2911 (16 USC § 2901-2911), mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973." The overall goal of the Birds of Conservation Concern (BCC) is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent our highest conservation priorities. Bird species considered for inclusion as a BCC include nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska; and federal ESA candidate, proposed endangered or threatened, and recently delisted species (USFWS, 2021). BCC are shown in Table 5.5-2.

Table 5.5-2. USFWS Birds of Conservation Concern

Scientific Name	Common Name
Aechmophorus clarkii	Clark's grebe
Aechmophorus occidentalis	Western grebe
Asio otus	Long-eared owl
Carpodacus cassinii	Cassin's finch
Chlidonias niger	Black tern
Coccothraustes vespertinus	Evening grosbeak
Contopus cooperi	Olive-sided flycatcher
Gymnorhinus cyanocephalus	Pinyon jay
Larus californicus	California gull
Leucophaeus pipixcan	Franklin's gull
Limosa fedoa	Marbled godwit
Tringa avipes	Lesser yellowlegs
Melanerpes lewis	Lewis's woodpecker
Oreoscoptes montanus	Sage thrasher
Pelecanus erythrorhynchos	American white pelican
Selasphorus rufus	Rufous hummingbird
Tringa semipalmata	Willet
Vermivora virginiae	Virginia's warbler

Source: USFWS, 2015

5.5.4.2. State of California Special-status

Special-status species include species listed as Endangered, Threatened, or Candidate under the California ESA. It also includes species listed as Fully Protected by state legislation. Details and definitions associated with the California ESA and Fully Protected species are discussed in Section 5.7, *Rare, Threatened, and Endangered Species*.

The California SSC is a designation used by the CDFW for some wildlife species with declining populations that are not state candidates for listing under the California ESA. This designation does not provide the level of protection that the California ESA provides but signifies that these species require analysis of potential impacts from projects.

5.5.5. Special-status Wildlife Species Potential

A list of special-status wildlife species known to occur in the greater vicinity of the Project was compiled, and each species was assessed for its potential to occur at the Project. The potential for a special-status species to occur is categorized as follows:

- Known to occur: The species was recorded as occurring in the Project vicinity, as determined by SCE reports or as shown in CNDDB records, from within the last 30 years.
- May occur: The species has the potential to occur within the Project vicinity because the species' habitat is present, the Project is within the elevation range appropriate for the species, and the species has been previously recorded in the greater vicinity.
- Unlikely to occur: The species is unlikely to occur because the Project is outside the known species range, or the Project does not support any habitat suitable for the species.

Table 5.5-3 lists the special-status terrestrial wildlife species identified during the literature search for the Project and provides an evaluation of their potential to occur at the Project. The table also includes the status of each species and a summary of pertinent habitat information.

Table 5.5-3. Potential for Special-status Terrestrial Wildlife Species to Occur

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
Listed Wildlife Species					
Known to Occur					
Haliaeetus leucocephalus	Bald eagle	BGEPA, FSCC, BLMS	SE; FP	Nesting and wintering habitat include ocean shores, lakes and river margins. Nests usually within one mile of water. Nests in large old-growth trees, especially tall snags. Requires large bodies of water, or free-flowing rivers with abundant fish. Roosts communally in winter in dense, sheltered, and remote conifer stands. Forested stands with large, old dominant or co-dominant trees in the vicinity of lakes, reservoirs, rivers, or large streams that support an adequate food supply (USFS, 2001).	Known to occur. Reported in iNaturalist sighting from 2022. Lundy Lake provides foraging habitat. Also observed at Mono Lake in the Mono Basin.
May Occur					
Bombus crotchii	Crotch's bumblebee	none	SCT	Little is known concerning the habitat requirements for this species. Crotch's bumblebee inhabits grassland and scrub areas, requiring a hotter and drier environment than other bumblebee species. Crotch's bumblebee nests underground, often in abandoned rodent dens (IUCN, 2015).	May occur. Nearest location reported is vicinity of Dechambeau Creek on the west side of Highway 395, just west of Mono Lake. This location is near the northern extent of this species range in the eastern Sierra Nevada (CDFW, 2019)
Aquila chrysaetos	Golden eagle	BGEPA, BLMS	FP	Golden eagles occur locally in open country such as open coniferous forest, sage-juniper flats, desert and barren areas, especially in rolling foothills and mountainous regions.	May occur. Area surrounding TAA supports suitable nesting and foraging habitat.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				Within southern California, the species favors grasslands, brushlands, deserts, oak savannas, open coniferous forests and montane valleys. Nesting is primarily restricted to rugged, mountainous country. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	
Empidonax traillii	Willow flycatcher	FSCC	SE (nesting)	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats. They require dense willow thickets for nesting and roosting. Willow flycatchers are common throughout the state in migration, especially in fall migration from mid-August to early September. Spring migration peaks mid-May.	May occur. Nearest observation in CNDDB is along Lee Vining Creek in 2003 approximately 8 miles south of Lundy Lake.
Vulpes necator	Sierra Nevada red fox	FE	ST	Habitat is forests interspersed with meadows or alpine fell-fields, such as red fir and lodgepole pine forests in the subalpine zone and alpine meadows of the Sierra Nevada, northern California Cascades Ranges eastward to the northern Sierra Nevada, and then south along the Sierran crest from Siskiyou County to Tulare County. Uses dense vegetation and rocky areas for cover and den sites. Found in a variety of habitats, including alpine, alpine dwarf scrub, broad-leaved upland forest, meadow and seep, riparian scrub, subalpine coniferous forest, upper	May occur. Recent observations of Sierra Nevada red fox from Yosemite National Park. (https://www.nps.gov/yose/learn/nature/redfox.htm).

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				montane coniferous forest, and wetland; at elevations above 2,500 feet. Forested areas (red fir and lodgepole pine) and subalpine and alpine habitats in proximity to meadows, riparian areas, and brush fields above 5,000 feet elevation (USFS, 2001). Limited occurrence information on Mammoth Ranger District. Known to occur on Stanislaus & H-T National Forests.	
Pekania pennanti pacifica	Fisher - West Coast DPS	FE, FSCC, BLMS	ST	Fishers prefer heavy stands of mixed species of mature timber, but they range widely in forested regions. In California, fishers primarily inhabit mixed-conifer forests composed of Douglas fir and associated conifers. Uncommon permanent resident of the Sierra Nevada, Cascades, and Klamath Mountains.	May occur. Nearest observation (1970s) at upper end of Lyell Canyon, several miles away.
Ovis canadensis sierrae	Sierra Nevada bighorn sheep	FE	SE FP	Alpine and subalpine zones, with open slopes where the land is rocky, sparsely vegetated and characterized by steep slopes and canyons (USFS, 2001). 4,000 to 12,000 feet (Sierra Mountain). Available water and steep, open terrain free of competition from other grazing ungulates within alpine, alpine dwarf scrub, chaparral, chenopod scrub, Great Basin scrub, Mojavean desert scrub, montane dwarf scrub, pinon and juniper woodlands, riparian woodland, and Sonoran Desert scrub habitats, from 5,000 to 9,000	May occur. Species prefer steep slopes such as those surrounding TAA. Bighorn sheep are part of the Mt. Warren Herd.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				feet during the winter and 10,000 to 13,600 feet during summer. Optimal bighorn sheep habitat is visually open and contains steep, generally rocky, slopes. Forests and thick brush usually are avoided to the extent possible. Bighorn sheep in the Sierra Nevada utilize a wide range of elevations, from alpine peaks in excess of 13,000 feet. to winter ranges at the base of the eastern escarpment as low as 4,700 feet.	
Gulo gulo	California wolverine	FC	ST; FP	Needs water source. Uses caves, logs, burrows for cover and den area. Hunts in more open areas. Can travel long distances. Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high-elevation habitats, including alpine, meadow and seep, north coast coniferous forest, riparian forest, subalpine coniferous forest, and upper montane coniferous forest.	May occur. One individual has recently been observed in Mono County (https://wildlife.ca.gov/News/Archive/rare-sighting-of-wolverine-confirmed-in-multiple-california-counties#gsc.tab=0).
Unlikely to Occur					
Anaxyrus canorus	Yosemite toad	FT	SSC	A high-elevation endemic found in high montane and subalpine associations in meadows surrounded by forests. Overwintering sites are rodent burrows. The Yosemite toad is restricted to the vicinities of wet meadows in the central high Sierra	Unlikely to occur. Study Area does not support suitable wet meadow habitat.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				at elevations of about 6,400 feet to 11,300 feet.	
Anaxyrus exsul	Black toad	FSCC	ST; FP	Extremely limited range in Deep Springs Valley area (Inyo NF, 2020). Associated with springs and adjacent riparian vegetation.	Unlikely to occur. Outside of known range.
Rana sierrae	Sierra Nevada yellow-legged frog	FE	ST	Found in streams, lakes, and ponds in montane riparian and a variety of other habitats from 4,500 feet to 11,970 feet. Ranges throughout the northern Sierra Nevada mountains in high elevation, deep lakes (Sierra Mountains between north end of Mt Whitney Ranger District to north end of Mono Lake Ranger District [Inyo NF 2020]). Always encountered within a few feet of water. Tadpoles may require 2 to 4 years to complete their aquatic development.	Unlikely to occur. Project is outside of this species' known range for extant populations in the eastern Sierra Nevada.
Buteo swainsoni	Swainson's hawk	none	ST (nesting)	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations. Nesting is confined to the Central Valley, Klamath Basin and parts of the Great Basin Several pairs have nested in southern Mono County and the Owens Valley in Inyo County. Typically nests below 15,000 feet.	Unlikely to occur. Project is above normal nesting elevation; However, may use area for foraging.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
Strix nebulosa	Great gray owl	FSCC	SE	Mixed coniferous forest where such forests occur in combination with large meadows or other vegetated openings. Elevation ranges from 2,400 feet to 7,500 feet in elevation. With migration outside of breeding season can occur at elevations up to 9,000 feet.	Unlikely to occur. May occur as migrant, outside of breeding elevation.
Empidonax traillii extimus	Southwestern willow flycatcher	FE	SE	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats. They require dense willow thickets for nesting and roosting.	Unlikely to occur. Project is outside of known range for nesting. Populations only known from riparian areas along the Owens River.
Sensitive Wildlife Species					
Known to Occur					
No sensitive wildlife species have been documented as occurring with the Project Study Area.					
May Occur					
Speyeria nokomis apacheana	Apache silverspot butterfly [Apache fritillary]	FSCC	None	A subspecies of western *Speyeria nokomis* limited mainly to spring-fed meadows in Nevada and California. Found on the east slope of the Sierra Nevada in Alpine, Inyo, and Mono Counties where it occurs in marshes and wet meadows near springs, seeps, and riparian areas. (Inyo NF, 2020)	May occur: Known from the northwest shore of Mono Lake (Inyo NF, 2020).
Colias behrii	Sierra sulphur butterfly	FSCC	None	It occurs mainly in meadows over 29,000 feet where *Vaccinium cespitosum* occurs. For the Inyo NF, there appears to be a congregation near Mono Lake and	May occur: Limited distribution information. Known from the northside of Saddlebag Lake approximately 5 miles south

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				one to the south in Inyo and Tulare Counties. (Inyo NF, 2020)	and west of Lundy Lake (Inyo NF, 2020).
Accipiter gentiles	Northern goshawk	BLMS	SSC (nesting)	They typically nest in moderately dense montane forests that are broken by lakes, streams, meadows, or openings. Goshawks selected foraging sites that have high canopy closure and tree density. They are found in the Sierra Nevada south at least as far as Tulare County.	May occur. Nearest CNDDB occurrence is near the town of Lee Vining approximately 6 miles to the south of Lundy Lake.
Circus hudsonicus	Northern harrier	None	SSC (nesting)	Occurs in coastal salt and freshwater marshes. Nests and forages in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. Breeding from sea level to 9,000 feet. Also occurs from annual grassland up to lodgepole pine and alpine meadow habitats. Frequents open fresh and saltwater wetlands, grasslands, pastures, upland prairies, dry uplands, croplands, shrub-steppe, meadows, desert sinks.	May occur. Foraging habitat present at Lundy Lake. Nearest CNDDB occurrence is near the shore of Mono Lake near the town of Lee Vining, approximately 8 miles from Lundy Lake. No nesting habitat within Lundy Project limits of disturbance.
Centrocercus urophasianus	Greater sage grouse	BLMS	SSC	Occurs in large, interconnected expanses of sagebrush, with a native grass and forb understory (Innes, 2016). Occurs in elevations between 3,500 feet to 12,000 feet. Found in greatest abundance in a combination of sagebrush, perennial	May occur. Suitable habitat is present in the vicinity of the Project Area.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				grassland or wet meadow, and water. Northern Inyo County. Lassen and Mono Counties have the most stable populations.	
Setophaga petechia	Yellow warbler	none	SSC (nesting)	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders. Breeds and forages in montane chaparral, open ponderosa pine and mixed-conifer habitats with substantial amounts of brush. It is scarce at elevations above 7,700 feet. Known to breed along the western slope of Sierra Nevada south to Kern County.	May occur. CNDDB records known occurrences from Lundy Lake area.
Euderma maculatum	Spotted bat	BLMS	SSC	Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting within wide variety of habitats from arid deserts and grasslands through mixed-conifer forests from mostly up 2,700 feet but up to 9,700 feet.	May occur; Recorded from Mono Lake County Park.
Eumops perotis californicus	Western mastiff bat	BLMS	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.	May occur. Recorded in CNDDB from near Mono Lake.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				Roosts in crevices in cliff faces, high buildings, trees and tunnels.	
Lepus townsendii townsendii	Western white-tailed jackrabbit	none	SSC	Open areas with scattered shrubs and exposed flat-topped hills with open stands of trees, brush and herbaceous understory within sagebrush, subalpine conifer, juniper, alpine dwarf shrub and perennial grassland habitats up to 12,000 feet.	May occur. Suitable open habitat is present in the vicinity of the Project.
Aplodontia rufa californica	Sierra Nevada mountain beaver	none	SSC	Mountain beavers occur in dense riparian-deciduous and open, brushy stages of most forest types. Typical habitat in the Sierra Nevada is montane riparian. Frequent open and intermediate-canopy coverage with a dense understory near water. Distribution often is scattered; populations local and uncommon in the Sierra Nevada and other interior areas.	May occur. According to CNDDB, the nearest reported observation (1990) was off Hwy 395 near Mono Lake. Approx. 5 miles east of Project site.
Martes americana sierrae	Sierra marten	FSCC	none	Needs variety of different-aged stands, particularly old-growth conifers and snags which provide cavities for dens/nests, within mixed evergreen forests with more than 40% crown closure along Sierra Nevada and Cascade mountains, from 5,500 feet to 10,300 feet. Optimal habitats are various mixed evergreen forests with more than 40% crown closure with large trees and snags. Important habitats include red fir, lodgepole pine, subalpine conifer, mixed-conifer,	May occur. No suitable denning habitat within the Project. The nearest location is at Mormon Meadow, approximately 10 NW of Mono Lake.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
				Jeffrey pine, and eastside pine. Secretive and rarely seen.	
Taxidea taxus	American badger	none	SSC	Badgers occur from alpine meadows to elevations as low as Death Valley. The badger is an animal of open places occupying a diversity of habitats. Grasslands, savannas, openings in desert scrub, and grassy mountain meadows near timberline are preferred. In California, Badgers ranged throughout the state except for the humid coastal forests of northwestern up to over 12,000 feet.	May occur. CNDDB reports occurrence 11 miles south of Bridgeport. Approx. 6 miles north of Project.
Not Likely to Occur					
Margaritifera falcata	Western pearlshell	FSCC	none	Within the South Fork Kern River on the Kern Plateau. Key ecological conditions include cold creeks and rivers with clean water and where sea-run salmon or native trout persist (Inyo NF, 2020).	Unlikely to occur. Project is outside this species known range.
Euphydryas editha monoensis	Mono Lake checkerspot butterfly	FSCC	none	Found in wet meadows and pine forests on the east slope of the Sierra Nevada in Alpine and Mono Counties, may have been extirpated from Mono Lake Ranger District. They occur in scattered colonies on the east side of the Sierra Nevada in Great Basin Scrub habitat, from east below Sonora Pass to Big Pine Creek Canyon and the food plants are *Penstemon rydbergii*, *Collinsia parviflora*, possibly some *Castilleja* species (Inyo NF, 2020).	Unlikely to occur. Most likely extinct in this portion of the Inyo NF (Inyo NF, 2020).

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
Euphilotes battoides mazourka	Square dotted blue butterfly	FSCC	none	The species is known only from the Inyo Mountains from 8,000 feet to 12,800 feet in elevation. Caterpillar plant host may be various wild buckwheats (*Eriogonum* spp.) including coastal buckwheat and sulphur-flower. (Inyo NF, 2020)	Unlikely to occur. Project is likely out of range of this species that has a limited distribution (Inyo NF 2020).
Plebulina emigdionis	San Emigdio blue butterfly	FSCC	none	This butterfly is a rare and localized species ranging from 3,000 feet to 5,000 feet elevation in washes and alluvial fans. Only known locations occur in the southern portion of the Inyo NF in the desert scrub habitats that include desert saltbush species (*Atriplex* spp.) and associated scale insects and ants.	Unlikely to occur. Project is outside this species known range.
Plebejus icarioides inyo	Boisduval's blue butterfly	FSCC	none	The Inyo Mountains are the only known location for this subspecies. Widespread in the Inyo Mountains, using several *Lupinus* species for larval food plant (Inyo NF, 2020).	Unlikely to occur. Project is outside this species known range.
Tuberochernes aalbui	Cave obligate pseudoscorpion	FSCC	none	The only known location is on the White Mountain Ranger District of the Inyo NF (Inyo NF, 2020).	Unlikely to occur. Project is outside this species known range.
Pyrgulopsis owensensis	Owens Valley springsnail	FSCC	none	Occurs within unaltered spring habitat with cool, clean water along the Sierra Nevada and White Mountains escarpment (Inyo NF, 2020).	Unlikely to occur. Distribution limited to Walker Basin and Owens River (Hershler and Pratt 1990).
Pyrgulopsis wongi	Wong's springsnail	FSCC	none	Occurs within unaltered spring habitat with cool, clean water along the Sierra Nevada and White Mountains escarpment.	Unlikely to occur. No suitable habitat at Project.

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
Batrachoseps campi	Inyo Mountains salamander	FSS	SSC	Endemic to the Inyo Mountains but also found in the White Mountains.	Unlikely to occur. Project is outside this species known range.
Batrachoseps robustus	Kern Plateau salamander	FSS	none	Species abundant on the Kern Plateau especially in mesic areas and are found in nearly every drainage in the eastern Sierra Nevada from Walker Creek (east of Olancha) to Nine Mile Creek (AmphibiaWeb, 2023).	Unlikely to occur. Project is outside this species known range.
Xanthocephalus xanthocephalus	yellow-headed blackbird	none	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Unlikely to occur. Project is outside this species known breeding range.
Coturnicops noveboracensis	yellow rail	none	SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands. Breeds between 4,200 feet to 5,000 feet in elevation.	Unlikely to occur. Project is outside this species known breeding range.
Strix occidentalis	California spotted owl	FSCC; BCC	SSC	Found in five vegetation types in the Sierra Nevada: foothill riparian/hardwood, ponderosa pine/hardwood, mixed-conifer forest, red fire forest, and the east side pine forest. Stands have at least 40% canopy cover and higher than average downed woody material and snags. Occurs at elevations of 7,700 feet to 10,000 feet.	Unlikely to occur. Project outside of breeding range, no records in Mono County (USFWS, 2017)

Scientific Name	Common Name	Federal Status	State Status	General Habitat Description/Distribution	Potential to Occur
Dendragapus fuliginosus howardi	Mount Pinos sooty grouse	FSCC	SSC	On the east slope of the Sierra Nevada, in Inyo County, the subspecies is “common” north of the town of Bishop but is generally restricted to isolated canyons farther south. In spring, grouse congregate near traditional hooting sites in high-elevation conifer forest. Hooting habitat usually consists of open, mature *Abies/Pinus* forest on or near a ridge between 6,000 feet and 10,000 feet in elevation, in an area where the snowpack melts early (Shuford and Gardali, 2008).	Unlikely to occur. Project is outside this species known range.
Brachylagus idahoensis	Pygmy rabbit	BLMS	SSC	Sagebrush, bitterbrush, and pinyon-juniper habitats in Modoc, Lassen, and Mono Counties. Tall, dense, large-shrub stages of sagebrush, greasewood and rabbitbrush. May avoid heavily grazed areas.	Unlikely to occur. Project is outside of this species known range. Nearest locations are in the Mono Basin approximately 12 miles east of the TAA on the north side of Mono Lake.
Sorex lyelli	Mount Lyell shrew	none	SSC	High-elevation riparian areas in the southern Sierra Nevada. Requires moist soil, lives in grass or under willows. Uses logs, stumps, etc. for cover. The Mount Lyell shrew favors montane forests and willow stands within grassy areas. Requires moist soil and found in grass or under stream-side willows. Found in high-elevation riparian areas in the central Sierra Nevada in Mono and Tuolumne Counties. It has been found in only a few locations in the vicinity of Mount Lyell, within or near Yosemite National Park at elevations above 6,500 feet.	Unlikely to occur. This species is known from a very restricted area outside of the Project. The nearest CNDDB location is nearly 6 miles to the west, near Sheep Peak.

Sources: AmphibiaWeb, 2023; CDFW, 2019; Hershler and Pratt 1990; Inyo NF, 2020; IUCN, 2015; Shuford and Gardali, 2008; USDA Forest Service, 2001, USFWS, 2017

BGEPA = Federal Bald and Golden Eagle Protection Act
BLMS = United States Bureau of Land Management Sensitive Species
CNDDB = California Natural Diversity Database
DPS = distinct population segment
FC = Federal Candidate for Listing
FE = Federally Endangered
FSCC = United States Department of Agriculture Forest Service Species of Conservation Concern (Inyo NF)
FT = Federally Threatened
Fully Protected = Fish and Game Code. Species may not be taken or possessed at any time and no license or permits may be issued for their take except for scientific collecting and relocation of birds for livestock protection.
SE = California State Endangered
SSC = California Species of Special Concern
ST = California State Threatened
SR = State Rare
TAA = Terrestrial Assessment Area

Wildlife species listed as threatened or endangered are analyzed in more detail in Section 5.7, *Rare, Threatened, and Endangered Species*. Figure 5.5-1 depicts the CNDDB records of all wildlife species documented in the greater vicinity of the Project.

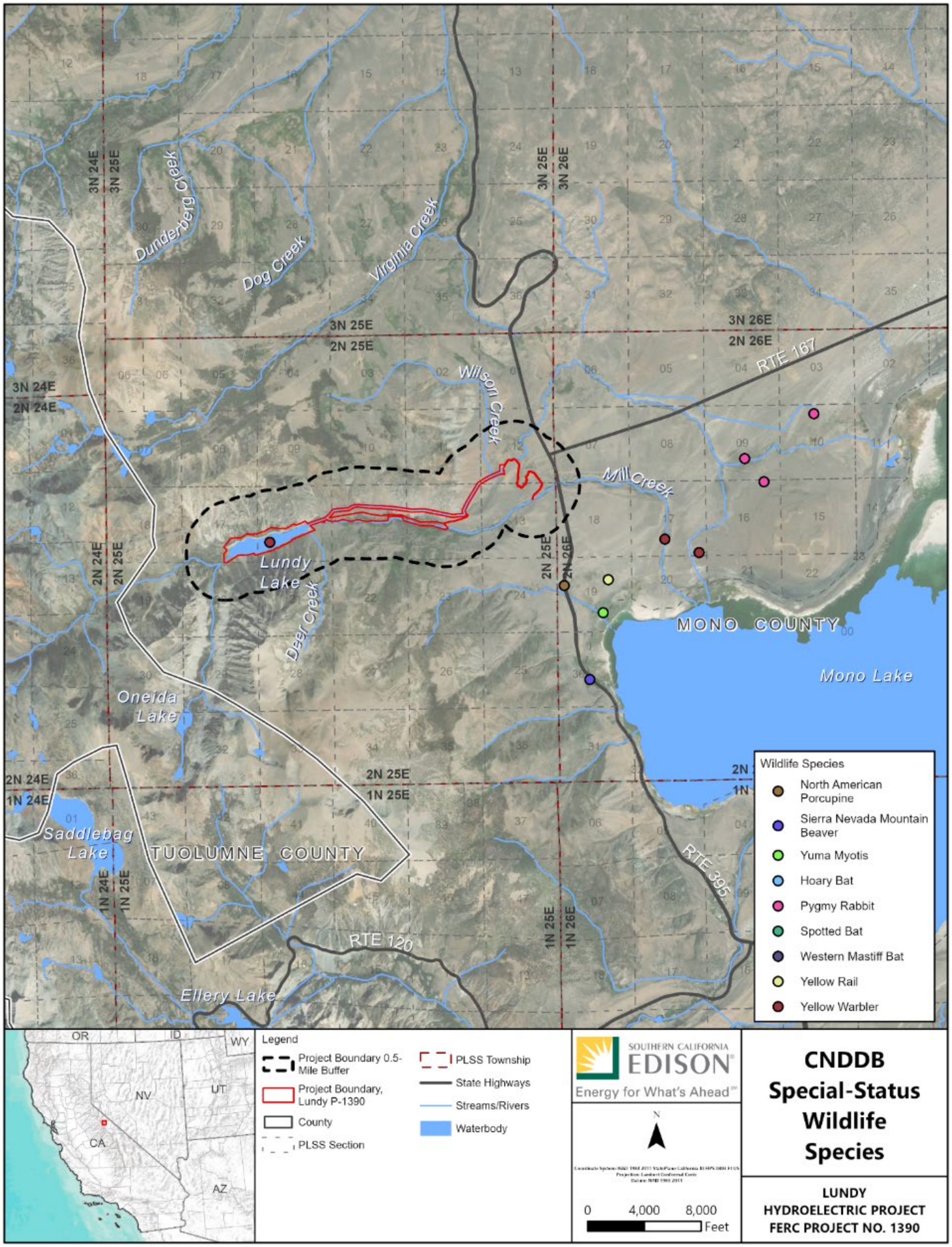


Figure 5.5-1. CNDDB Records for Special-status Wildlife in the Project Vicinity.

5.5.6. Game Species

Game species are animals hunted for sport or pleasure. Information on game species potentially present in the Project vicinity is provided in this section because of their commercial and recreational value. Game species are regulated by CDFW and are defined under the California Fish and Game Code as follows:

- Resident and migratory game birds are defined in California Fish and Game Code §3500. Examples of upland resident game birds listed include blue grouse, wild turkey, mountain quail, and California quail. Upland migratory game birds include (but are not limited to) Wilson’s snipe, band-tailed pigeon, and mourning dove.

- Game mammals are defined in California Fish and Game Code §3950(a) to include (but are not limited to) deer, elk, wild pig, black bear, rabbits and hares, and tree squirrels, as small game mammals. Note that mountain lions are included in §3950 but are explicitly excluded as a game mammal in §3950.1.

A brief summary of some of the game species in the Project vicinity, including resident game birds, migratory game birds, and game mammals, is provided below.

5.5.6.1. Resident and Migratory Game Birds

Upland birds occurring in the Project vicinity that meet the definition of resident game birds (California Fish and Game Code §3500) include (but are not limited to) mountain quail and California quail. Both species of quail are known to occur in dense, shrubby areas (Billerman et al. 2022). Birds that meet the definition of migratory game birds (California Fish and Game Code §3500) include mourning dove (CDFW, 2018). Mourning dove are known to occur in open areas, areas with scattered trees and woodland edges, as well as developed areas with a lot of human activity (Billerman et al. 2022).

5.5.6.2. Game Mammals

<u>Mule Deer</u>

Mule deer are among the most visible and widespread wildlife species in California. Deer hunting is regulated by California state law through CDFW. A hunting license and a hunting tag are required to take mule deer, and only bucks with antlers with demonstrable forks (or greater) may be taken, except during special hunts. Antlers must be forked on one side in the upper two-thirds section of the antler (CDFW, 2020d). The Project is found in Deer Hunting Zone X9a bordering on Zone X12. The general deer hunting season runs from September 16 to October 9. Mule deer have large territories that extend through a wide variety of habitats, from open grasslands to forested areas (Anderson and Wallmo, 1984).

<u>Other Game Mammals</u>

Other game mammals occurring in the Project vicinity include, but are not limited to, jackrabbit, black bear, and bobcat (CDFW, 2020c). Black bear and bobcat have large territories that extend through a wide variety of habitats (Lariviere, 2001; Young, 1958). Jackrabbits have much more limited ranges with black-tailed jackrabbit occurring in open shrubby areas (Best, 1996).

5.6. WETLAND, RIPARIAN, AND LITTORAL HABITAT

5.6.1. INTRODUCTION

This section describes wetland, riparian, and littoral habitats in the vicinity of the Project.

Wetland, riparian, and littoral habitats occur throughout the vicinity of the Project bordering the creeks, lakes, and impoundments. Habitat types change gradually with elevation and distance from water sources, but the vegetation communities interdigitate at all elevations. For example, riparian habitat is present throughout the Project Boundary at all elevations and mixes with the various upland vegetation communities at all elevations—either as an understory or as a canopy with an upland understory. Wetland, riparian, and littoral vegetation communities, including common plant species, are summarized here and described in detail in Section 5.4, *Botanical Resources*. These areas provide habitat for various wildlife species, including many amphibian species dependent upon moisture and water. Wildlife utilizing these areas is described in detail in Section 5.5, *Wildlife Resources*.

Additionally, the 2019 LMP (USFS, 2019) defines Riparian Conservation Areas as one of the applicable management areas for the Inyo NF. Riparian Conservation Areas are defined by type, including: (i) perennial streams; (ii) seasonally flowing streams; (iii) streams in inner gorge; (iv) those with special aquatic features (including lakes, wet meadows, bogs, fens, wetlands, vernal pools, and springs); and (v) other hydrologic or topographic depressions without a defined channel. All Project waters are within a designated Riparian Conservation Area.

This section also describes the wildlife, plant, and invasive species within the Project vicinity that may occur in the floodplain, wetland, and riparian habitats.

5.6.2. INFORMATION SOURCES

A literature review was performed to identify wetland, riparian, and littoral habitats in the Project vicinity. These habitats have been mapped by the USFWS and compiled in the National Wetland Inventory's (NWI) Wetland Mapper available from the Wetlands Spatial Data Layer of the National Spatial Data Infrastructure (USFWS, 2020). The NWI provides the classification of known wetlands following the Classification of Wetlands and Deepwater Habitats of the United States (FGDC, 2013). This classification system is arranged in a hierarchy of (1) Systems, which share the influence of similar hydrologic, geomorphologic, chemical, or biological factors (i.e., Marine Estuarine, Riverine, Lacustrine, and Palustrine); (2) Subsystems (i.e., Subtidal and Intertidal; Tidal, Lower Perennial, Upper Perennial, and Intermittent; or Littoral and Limnetic); (3) Classes, which are based on substrate material and flooding regime or on vegetative life forms; (4) Subclasses; and (5) Dominance Types, which are named for the dominant plant or wildlife forms. In addition, there are modifying terms applied to Classes or Subclasses.

The *North Mono Basin Watershed Analysis* provides descriptions of the two principal drainages in the Project vicinity, Mill Creek and the Wilson System (USFS, 2001).

A description of wetland and riparian vegetation communities was obtained from the USFS using the CALVEG classification system (USFS, 2009). This is the key preferred by the USFS and is used in this document for consistency with the *Inyo National Forest Plan* (USFS, 2019). The Lundy Project vicinity overlaps both the South Sierran and Great Basin CALVEG mapping zones.

Information on wildlife resources is based on past biological studies (Psomas 2008a, 2008b, 2010, 2017) and observations reported on iNaturalist for the Lundy Lake-Lundy Canyon area (iNaturalist 2023). In addition, *Environmental Assessment, Lundy Project* (FERC, 1992) was reviewed. Information on invasive species is provided by the USFS (NRM 2018).

5.6.3. Wetland Habitat Types

A variety of wetland, riparian, and littoral resources are mapped by the NWI in the Project vicinity. Figure 5.6-1 shows wetland features at a broad scale, though this mapping is not meant to replace an onsite analysis. Table 5.6-1 lists the wetland, riparian, and littoral habitats that are identified in the NWI. Eight Cowardin classification codes are identified by the NWI: PEM1Cx, PSS1C, PFO1C, PSS1F, L1UBHh, L2UBFh, R5UBF, and R4SBCx. Each code is a combination of various acronyms that are described in detail in the subsections below.

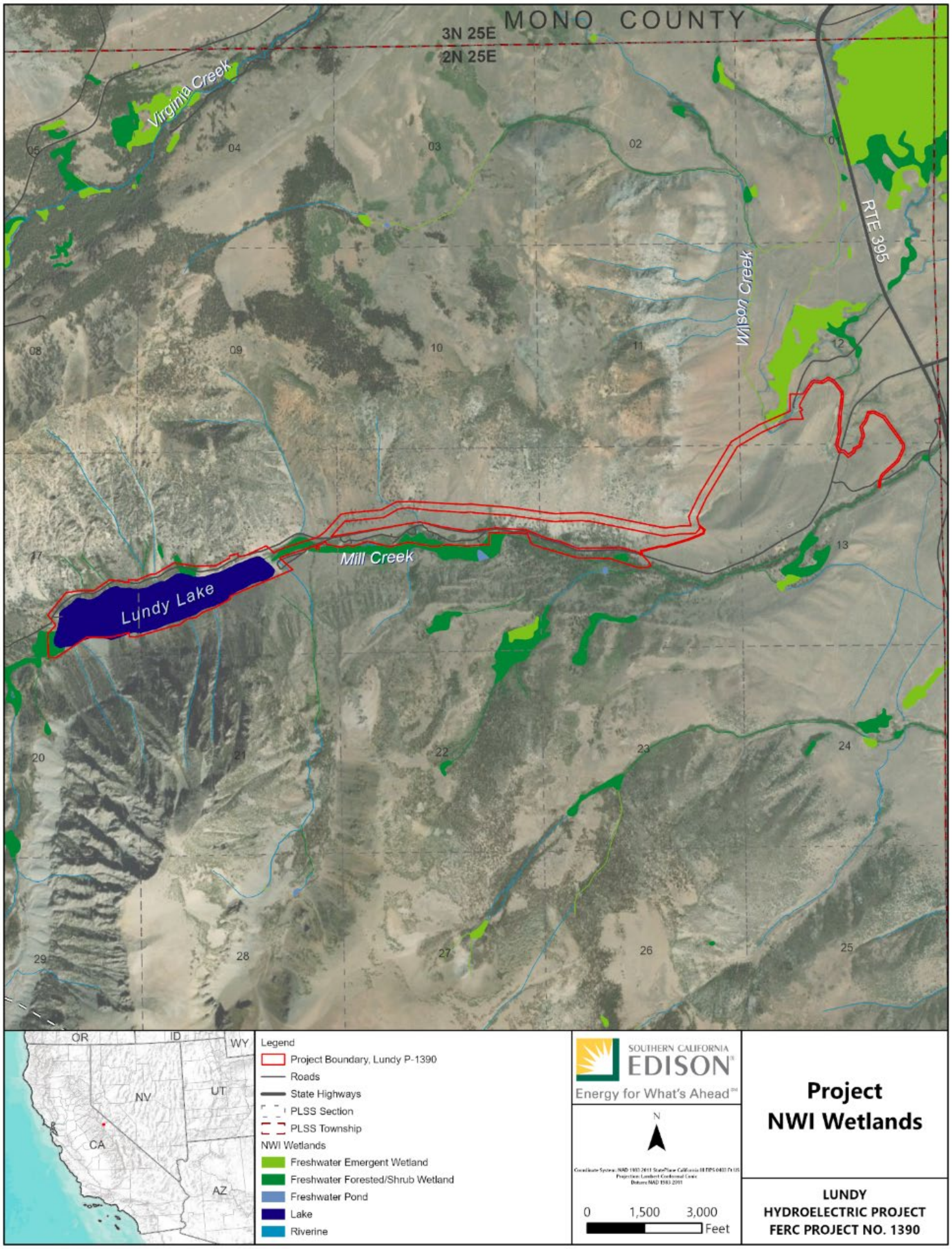


Figure 5.6-1. National Wetlands Inventory Features in the Lundy Project Area.

Table 5.6-1. Summary of Wetland, Riparian, and Littoral Resource Types as Cowardin Class and Acreages

Wetland Resource Type	Cowardin Code	Number of Polygons	Acres	Percent Coverage
Freshwater Emergent Wetlands	PEM1Cx	1	4.38	1.77
Freshwater Forested/Shrub Wetland: Type 1	PSS1C	9	77.35	31.26
Freshwater Forested/Shrub Wetland: Type 2	PFO1C	1	7.85	3.17
Freshwater Forested/Shrub Wetland: Type 3	PSS1F	1	13.21	5.34
Lake	L1UBHh	1	128.02	51.75
Lake Habitat	L2UBFh	1	4.19	1.69
Riverine: Type 1	R5UBF	4	3.26	1.32
Riverine: Type 2	R4SBCx	3	9.15	3.70
Total		**21**	**247.4**	**100**

Source: USFS, 2021

5.6.3.1. Palustrine System

Palustrine (P) wetlands are found in the following wetland resource types: Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland: Type 1, Freshwater Forested/Shrub Wetland: Type 2, and Freshwater Forested/Shrub Wetland: Type 3. They include Emergent (EM), Scrub-Shrub (SS), and Forested (FO) classes; Persistent (1 for EM class) or Broad-leaved Deciduous (1 for SS and FO classes) subclasses; seasonally flooded (C) water regime; and excavated (x) special modifier. Descriptions of these codes are included below:

System Palustrine (P): the Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 parts per thousand (ppt). It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 hectares (ha; 20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 8.2 feet at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt. There are three classes mapped within the TAA:

- Class Emergent (EM): characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
  - Subclass Persistent (1): dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.

- Class Scrub-Shrub (SS): includes areas dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
- Class Forested (FO): Characterized by woody vegetation that is 20 feet tall or taller.
- Subclass Broad-Leaved Deciduous (1): woody angiosperms (trees or shrubs) with relatively wide, flat leaves that are shed during the cold or dry season; e.g., black ash (*Fraxinus nigra*).
    - Water Regime Seasonally Flooded (C): surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.
    - Water Regime Semipermanently Flooded (F): surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.
- Special Modifier Excavated (x): this modifier is used to identify wetland basins or channels that were excavated by humans.

5.6.3.2. Lacustrine System

Lacustrine wetlands are found in the following wetland resource types: Lake and Lake Habitat. They include Limnetic (1) and Littoral (2) subsystems; Unconsolidated Bottom (UB) class; Permanently Flooded (H) and Semipermanently Flooded (F) water regimes; and Diked/Impounded (h) special modifier. Descriptions of these codes are included below:

System Lacustrine (L): The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, and emergent mosses or lichens with 30 percent or greater areal coverage; and (3) total area of at least 8 ha (20 acres). Similar wetlands and deepwater habitats totaling less than 8 ha are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin equals or exceeds 8.2 feet at low water. Lacustrine waters may be tidal or nontidal, but ocean-derived salinity is always less than 0.5 ppt.

- Subsystem Limnetic (1): This subsystem includes all deepwater habitats (i.e., areas > 8.2 feet deep below low water) in the Lacustrine System. Many small Lacustrine Systems have no Limnetic Subsystem.
- Subsystem Littoral (2): This subsystem includes all wetland habitats in the Lacustrine System. It extends from the shoreward boundary of the System to a depth of 8.2 feet

below low water, or to the maximum extent of nonpersistent emergents if these grow at depths greater than 8.2 feet.

- Class Unconsolidated Bottom (UB): Includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones (less than 6-7 cm in diameter), and a vegetative cover less than 30 percent.
- Water Regime Permanently Flooded (H): Water covers the substrate throughout the year in all years.
- Water Regime Semipermanently Flooded (F): Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.
  - Special Modifier Diked/Impounded (h): These wetlands have been created or modified by a man-made barrier or dam that obstructs the inflow or outflow of water.

5.6.3.3. Riverine System

Riverine wetlands are found in the following wetland resource types: Riverine: Type 1 and Riverine: Type 2. They include Intermittent (4) and Unknown Perennial (5) subsystems; Unconsolidated Bottom (UB) and Streambed (SB) classes; Semipermanently Flooded (F) and Seasonally Flooded (C) water regimes; and Excavated (x) special modifier. Descriptions of these codes are included below:

System Riverine (R): The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.

- Subsystem Intermittent (4): This subsystem includes channels that contain flowing water only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.
  - Class Streambed (SB): Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.
  - Water Regime Seasonally Flooded (C): Surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

        - Special Modifier Excavated (x): This modifier is used to identify wetland basins or channels that were excavated by humans.

- Subsystem Unknown Perennial (5): This subsystem designation was created specifically for use when the distinction between lower perennial, upper perennial, and tidal cannot be made from aerial photography and no data is available.
    - Class Unconsolidated Bottom (UB): Includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30 percent.
        - Water Regime Semipermanently Flooded (F): Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.

5.6.4. North Mono Basin Watershed Analysis

The two principal drainages associated with the Lundy Project are Mill Creek and the Wilson System. These two drainages are part of the North Mono Basin watershed. The North Mono Basin watershed area is located on the eastern slope of the Sierra Nevada in the northwest corner of the Inyo NF in California. The western boundary of the North Mono Basin watershed is the crest of the Sierra Nevada Mountain range with peak elevations in excess of 11,975 feet. This Sierra Nevada geologic province is characterized by steep, rugged mountains and stream or glacier-cut canyons. The province is separated from Mono Basin by two major faults, and at least three periods of glaciation have created a transition between otherwise distinct rock types of the Sierra and Mono Basin zones (USDA, 2001).

5.6.4.1. Mill Creek

Mill Creek begins at Cascade Lake in the Sierra Nevada at an elevation of just over 10,000 feet. It is a 14.5-mile (23.3-km) perennial stream that flows east from the Sierra Nevada into Mono Lake. Prior to entering Mono Lake, it passes through Lundy Canyon and Lundy Lake. The stream environment of Mill Creek reflects prolonged periods of erosion and deposition, which were prompted by extensive faulting, glacial activity, and fluctuations of Mono Lake over the past 20,000 years (USDA, 2001). Under natural conditions, streamflow in Mill Creek would typically reach a maximum between late May and early July and then decline to base flow levels, which persist through the winter until the following snowmelt season. Due to diversion from Lundy Lake to the powerhouse, there is reduced flow in Mill Creek immediately from Lundy Dam to Mono Lake. Water initially diverted from Lundy Lake for power generation is returned to Mill Creek on occasion via the MCRD to provide seasonal irrigation and flow into the Wilson System.

5.6.4.2. Wilson System

The modern-day Wilson System is a very recent (in the last 60 to 120 years), human-induced erosional feature (USDA, 2001). Although essentially an artificially maintained diversion, the Wilson System has acquired properties of a natural stream and is paralleled by riparian vegetation. The Wilson System begins at the MCRD diversion, below the Lundy Powerhouse at an elevation of 7,218 feet and extends a distance of approximately 8.5 miles (13.6 km) to Mono Lake. Flows into the Wilson System from the diversion are restricted to those necessary to meet the water rights needs of end-users as described in Section 4.6.2 above.

5.6.5. Vegetation Communities

This section is based on keys and descriptions from the USFS using the CALVEG classification system. In this system, differences between community types (also referred to as alliances) are based on canopy cover as determined from aerial photography and satellite imagery. Maps are provided in Appendix E.

Table 5.6-2 lists the mapped wetland and riparian vegetation communities and areas they represent, both in acres and as percentages of the total mapped area. A full description of all plant communities present in the Project vicinity can be found in Section 5.4, *Botanical Resources*.

Table 5.6-2. Wetland and Riparian Vegetation Communities and Other Areas

Vegetation Community	Acreage	Percent Cover
Scrub		
Willow (Shrub)	4.94	1.17
Forest		
Quaking Aspen	51.38	12.19
Water		
Intermittent or Seasonal Lake or Pond	139.09	32.99
Perennial Lakes and Ponds	0	0

Source: USFS, 2009.

5.6.5.1. Scrub - Willow (Shrub)

Shrub forms of willow (*Salix* spp.) are mapped adjacent to Lundy Lake (in the South Sierran CALVEG mapping zone) and along the Wilson System (in the Great Basin CALVEG mapping zone). Willow vegetation occurs along streams, springs, seeps, or meadows. The elevation range of this alliance is extremely broad, extending up to approximately 3,600 m. The dominant willow species varies by elevation but may include Geyer's willow (*S. geyeriana*), narrow-leaved willow (*S. exigua*), Lemmon's willow (*S. lemmonii*), shining willow (*S. lasiandra*), yellow willow (*S. lutea*), and gray-leafed Sierra willow (*S. orestera*). These willows are classified as facultative wetland or obligate wetland (in the case of yellow willow) species. Facultative wetland species depend on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats while obligate wetland species require standing water or seasonally saturated soils near the surface to assure adequate growth (Lichvar and Gillrich, 2011).

At both lower and higher elevations, the willow (shrub) alliance may be associated with or adjacent to quaking aspen (*Populus tremuloides*), blue elderberry (*Sambucus mexicana*), sagebrush (*Artemisia* spp.), and gooseberries (*Ribes* spp.). At higher elevations, willows may be found adjacent to subalpine and upper montane trees such as lodgepole pine (*Pinus contorta* ssp. *murrayana*), western white pine (*P. monticola*), California red fir (*Abies magnifica*), whitebark pine (*P. albicaulis*; a federally listed threatened species), and mountain hemlock (*Tsuga mertensiana*). At low elevations in the Great Basin zone, grasses and grasslike plants such as water sedge (*Carex aquatilis*), northern barley (*Hordeum brachyantherum*), Nebraska sedge (*C. nebrascensis*), and woolly sedge (*C. pellita*) may co-occur.

5.6.5.2. Forest - Quaking Aspen

Quaking aspen is mapped around the perimeter of Lundy Lake and along Mill Creek. It is an indicator of moist conditions in high elevation meadows and other moist areas, though it is a facultative upland species that is not wetland dependent (Lichvar and Gillrich, 2011). It is generally dominant on more productive sites, often forming dense, long-lived clonal patches on the landscape. It has been mapped chiefly at elevations above 4,917 feet on a variety of geologic substrates.

At high elevations in the Southern Sierran zone, quaking aspen has been identified as an indicator of moist conditions with California red fir, Jeffrey pine (*P. jeffreyi*), lodgepole pine, and whitebark pine. On eastern slopes, it is associated with big sagebrush (*A. tridentata*), curlleaf mountain mahogany (*Cercocarpus ledifolius*) and low sagebrush (*A. arbuscula*). In the Great Basin zone, it is a principal hardwood understory in bristlecone pine (*P. longaeva*), Jeffrey pine, lodgepole pine, and limber pine (*P. flexilis*). With curlleaf mountain mahogany, it forms the hardwood associate of singleleaf pinyon pine (*P. monophylla*) stands. Shrubs associated with this vegetation type include interior rose (*Rose woodsii*), gooseberries, silver sagebrush (*A. cana*), and on drier sites big sagebrush and bitterbrush (*Purshia tridentata*).

5.6.5.3. Water

The NWI includes areas of open water that do not include vegetation. Lundy Lake is characterized as open water. Other areas characterized by the NWI as water include intermittent or seasonal lakes or ponds (the shallower portion around the lake edge) and perennial lakes and ponds (the deeper portion of the lake). These areas are comprised of surface water at a scale large enough to be mapped separately. These areas have a minimum of vegetation components, except along the edges, which may be mapped as another vegetation type associated with mesic conditions. Wilson and Mill creeks, while containing surface water, are mapped according to their predominant vegetation.

5.6.6. Wildlife and Invasive Species

Wetland, riparian, and littoral areas provide habitat for various wildlife species, including many amphibian species dependent upon moisture and water. Wildlife species known or are anticipated to occur in these habitats include Sierra tree frog (*Pseudacris sierra*), western terrestrial garter snakes (*Thamnophis elegans*), mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), Wilson's warbler (*Wilsonia pusilla*), western wood-peewee (*Contopus sordidulus*), red-winged black bird (*Agelaius phoeniceus*), white-crowned sparrow (*Zonotrichia leucophrys*), willow flycatcher (*Empidonax traillii*), mountain bluebird (*Sialia currucoides*), house wren (*Troglodytes aedon*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern goshawk (*Accipiter gentilis*), white-tailed jack rabbit (*Lepus townsendii*), Sierra Nevada mountain beaver (*Aplodontia rufa*) Belding's ground squirrel (*Urocitellus beldingi*), northern pocket gopher (*Thomomys talpoides*), and mule deer (*Odocoileus hemionus*).

Three species of invasive wildlife have been identified by the USFS as potential invasive species in the Inyo NF (USFS, 2013): quagga mussel (*Dreissena bugensis*), and New Zealand mudsnail (*Potamopyrgus antipodarum*). The New Zealand mudsnail is known to occur in the Owens River at the mouth of and below McLaughlin Creek, approximately 64 km north of the Project (USFS, 2013). The presence of the other two species at the Project is unknown.

Quagga and zebra mussels are freshwater bivalves native to Eastern Europe and Western Asia that made their way into the Great Lakes in the late 1980s. They have been highly successful invaders, reproducing and adapting quickly to hundreds of freshwater lakes and waterways in the midwestern and eastern United States. Scattered populations have been detected in southern California (SCE, 2017). The mussels have significant adverse impacts to aquatic ecosystems and water delivery systems. The spread of these mussels is believed to be through infected watercraft.

SCE personnel have not reported any sightings or indications of quagga or zebra mussels, but the extensive network of waterways, reservoirs, multiple public access launch ramps and popular recreational sites, present a risk of these mussels being introduced to SCE’s managed water bodies. Therefore, SCE developed a Quagga and Zebra Mussel Prevention Plan which assesses the vulnerability of invasion to SCE lakes, The plan analyzed all SCE land determined that the SCE eastern Sierra Lakes, including Lundy Lake are at low risk because their water chemistry is incompatible with the mineral and water chemistry needs of the musses to survive and reproduce.

5.7. RARE, THREATENED, AND ENDANGERED SPECIES

5.7.1. INTRODUCTION

This section describes species listed as rare, threatened, or endangered (RTE) with potential to occur in the vicinity of the Project. The terms “Rare,” “Threatened,” and “Endangered” are specific to species listed or formally proposed to be listed under the California ESA and the federal ESA. The term “Rare” is specific to the designation associated with the California ESA and species listed in CDFW’s *State and Federally Listed Endangered, Threatened, and Rare Plants of California,* January 2, 2020 update (CDFW, 2020a). This section also describes species listed in the federal BGEPA and species listed as Fully Protected under the California Fish and Game Code. The species discussed in this section are referred to as RTE species.

5.7.2. INFORMATION SOURCES

A literature review was performed to identify common and special-status wildlife known to occur (or that historically occurred) in equivalent habitats in the greater vicinity of the Project. The literature review included:

- A search of the CDFW CNDDB (CDFW, 2023a) for USGS’ 7.5-minute quadrangles for Tioga Pass, Mount Dana, Lee Vining, Falls Ridge, Lundy, Dunderberg Peak, Vogelsang Peak, Koip Peak, and Negit Island
- Results from the USFWS IPaC System (USFWS, 2023)
- The unpublished *At-Risk Aquatic and Terrestrial Species in Inyo NF* (Inyo NF, 2020) further expanded the list of special-status species with the potential to occur in the greater vicinity of the Project.
- Common terrestrial wildlife species anticipated to occur in the Project vicinity were compiled following a review of previous survey reporting by SCE and their consulting biologists (FERC 1992; Psomas 1999, 2006, 2008a, 2008b, 2008c, 2009, 2017).

The habitats identified are derived from the vegetation discussion in Section 5.4, *Botanical Resources*, and Section 5.6, *Wetland, Riparian, and Littoral Habitat*. The sources used to determine these habitats are primarily derived from three sources:

- Species accounts in the CNDDB (CDFW, 2023a)
- California Wildlife Habitat Relationship System (CDFW, 2023b)
- Species accounts in the Persistence Analysis for Species of Conservation Concern (Inyo NF, 2019).

The species’ habitat information is further supplemented by scientific literature or other resource agency information where referenced. Tables of RTE species and the habitat elements the species are known to occupy are included further below.

5.7.3. Regulatory Background

5.7.3.1. Federal Law

Federal Endangered Species Act, 16 USC § 1531-1544

A federally endangered species is defined as facing extinction throughout all or a significant portion of its geographic range. A federally threatened species is one likely to become endangered in the foreseeable future throughout all or a significant portion of its range. The presence of any federally endangered or threatened species in a Project impact area generally imposes severe constraints on development, particularly if an action would result in “take” of the species or its habitat. Section 9 of the federal ESA defines the term “take” as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm, in this sense, can include any disturbance of habitats used by the species during any portion of its life history.

Candidate and proposed species are not protected by the take prohibitions of section 9 of the ESA until the rule to list is finalized. Under section 7(a)(4) of the ESA, Federal agencies must confer with USFWS if their action will jeopardize the continued existence of a proposed species. (ESA, 1973).

Bald and Golden Eagle Protection Act, 16 USC § 668

The BGEPA provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos)* by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds.

California Endangered Species Act, California Fish & Game Code § 2050

The state of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is present in such small numbers throughout its range that it is likely to become endangered in the near future in the absence of special protection or management. A rare species is present in such small numbers throughout its range that it may become endangered if its environment worsens (under the California ESA, “rare” applies only to plants and not wildlife). Under the California ESA, “take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The presence of any state-listed threatened or endangered species generally imposes constraints on proposed actions, particularly if the action would result in “take” of the species or its habitat.

In California, “Fully Protected” species are those protected by special legislation for various reasons, such as the mountain lion (*Puma concolor*) and the white-tailed kite (*Elanus leucurus*)[14]. Fully protected species may not be taken or possessed at any time.

[14] For a complete list of “Fully Protected” species, see: https://wildlife.ca.gov/Conservation/Fully-Protected.

5.7.4. Special-status Species

5.7.4.1. Aquatic and Terrestrial Wildlife Species

A list of RTE terrestrial and aquatic wildlife species known to occur in the greater vicinity of the Lundy Project was compiled, and each species was assessed for its potential to occur. The potential for a special-status species to occur is categorized as follows:

- Known to Occur: The species was recorded as occurring in the Project vicinity, as determined by SCE reporting or as shown in CNDDB records, from within the last 30 years.
- May Occur: The species has the potential to occur within the Project vicinity because the species' habitat is present, the Project is within the elevation range appropriate for the species, and the species has been previously recorded in the greater vicinity.
- Unlikely to Occur: The species is unlikely to occur because the Project is outside the known species range, or the Project does not support any habitat suitable for the species.

In summary, only one RTE wildlife species, the bald eagle, is known to occur within the Project vicinity. Five wildlife species may occur, while seven wildlife species identified in the literature search were determined not likely to occur. Table 5.7-1 lists the RTE aquatic and terrestrial wildlife species identified during the literature search for the Lundy Project and evaluates their potential to occur in the TAA. The table also includes the status of each species and a summary of pertinent habitat information. Figure 5.7-1 shows the CNDDB locations of the nearest RTE species to the Lundy Project, and it also shows the location of designated critical habitat relative to the Lundy Project.

5.7.4.2. Plant Species

Only one RTE plant species, the Mono milk-vetch (*Astragalus monoensis*) may occur in the Project vicinity. See Table 5.7-1 for the habitat association description.

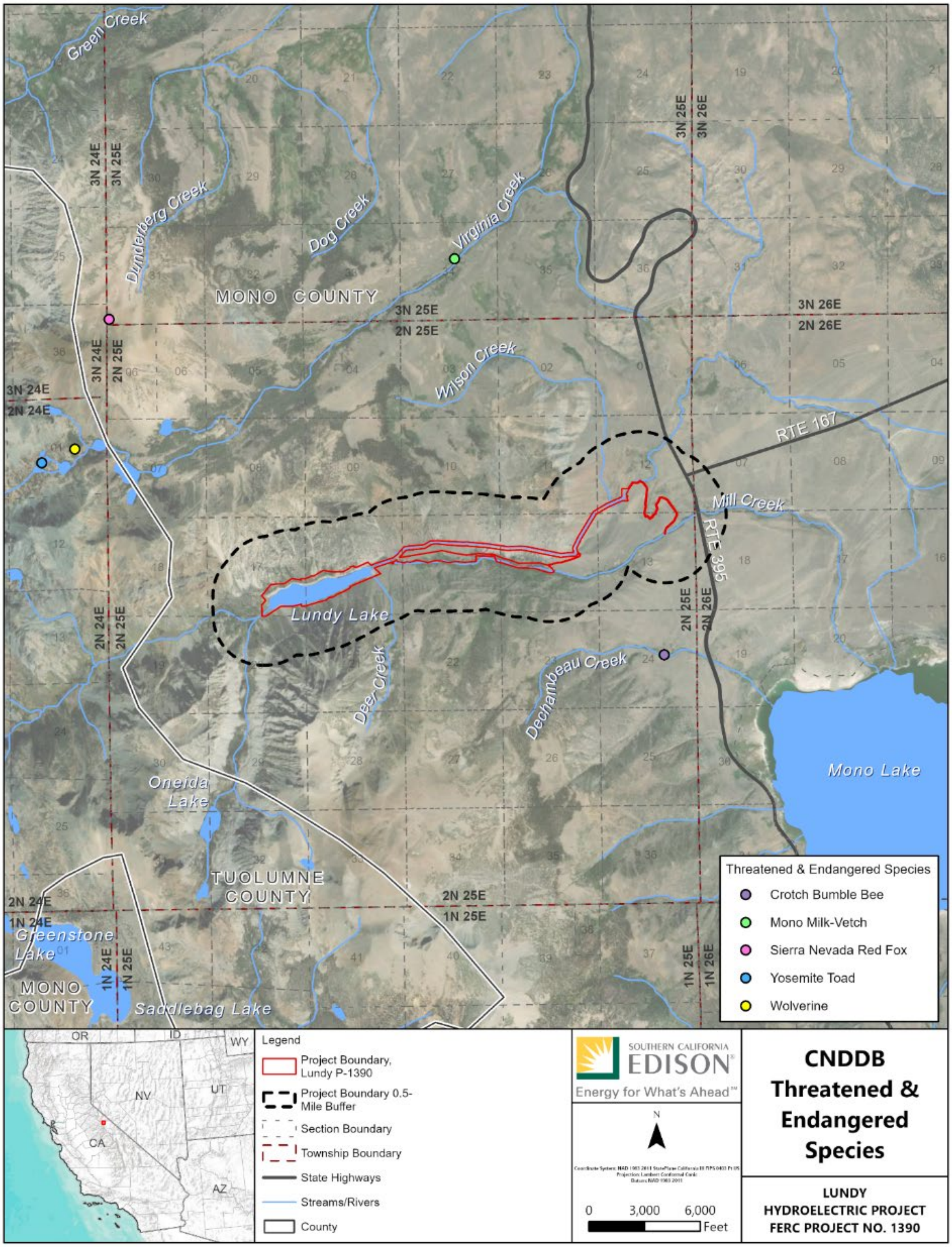


Figure 5.7-1. CNDDB Threatened and Endangered Species.

Table 5.7-1. Rare, Threatened, or Endangered Plants and Wildlife Species Potential to Occur

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential To Occur/Notes
Plants					
May occur					
Astragalus monoensis	Mono milk-vetch	SCC	SR, CRPR: 1B.2	Perennial herb found in Great Basin scrub and upper montane coniferous forest, sometimes in gravelly or sandy soil; 7,000 to 11,000 feet. Blooms: Jun–Aug.	May occur. Suitable habitat is present. Most populations are located over 20 miles to the south; however, the nearest known occurrence is located approximately 3 miles north of the Lundy Project along Virginia Lakes Road (CNDDB occurrence 33).
Wildlife					
Known to occur					
Haliaeetus leucocephalus	Bald eagle	BGEA, FSCC, BLMS	SE; FP	Nesting and wintering habitat include ocean shores, lakes, and river margins. Nests are usually within one mile of water. Not found in the high Sierra Nevada mountains. Nests in large old-growth trees, especially tall snags. Requires large bodies of water or free-flowing rivers with abundant fish. Roosts communally in winter in dense, sheltered, and remote conifer stands. Forested stands with large, old dominant or co-dominant trees in the vicinity of lakes, reservoirs, rivers, or large streams that support an adequate food supply (USFS, 2001).	Known to Occur. Reported in iNaturalist from 2022.
May Occur					
Aquila chrysaetos	Golden eagle	BGEA, BLMS	FP	Golden eagles occur locally in open country such as open coniferous forest, sage-juniper flats, desert, and barren areas, especially in	May occur. The area surrounding the Project supports suitable nesting and

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential To Occur/Notes
				rolling foothills and mountainous regions. Within southern California, the species favors grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nesting is primarily restricted to rugged, mountainous country. Cliff-walled canyons provide nesting habitat in most parts of their range; also, large trees in open areas.	foraging habitat. The nearest CNDDB record is south of the Lundy Project near Bishop, CA.
Bombus crotchii	Crotch's bumblebee		SCT	Little is known concerning the habitat requirements for this species. Crotch's bumblebee inhabits grassland and scrub areas, requiring a hotter and drier environment than other bumblebee species. Crotch's bumblebee nests underground, often in abandoned rodent dens (IUCN, 2015).	May occur. The nearest location reported is in the vicinity of Dechambeau Creek on the west side of Hwy 395, just west of Mono Lake. This location is near the northern extent of this species range in the eastern Sierra Nevada (CDFW, 2019).
Empidonax traillii	Willow flycatcher	FSS	SE (nesting)	A rare to locally uncommon summer resident in wet meadow and montane riparian habitats. They require dense willow thickets for nesting and roosting. Willow flycatchers are common throughout the state in migration, especially in fall migration from mid-August to early September. Spring migration peaks in mid-May.	May occur. The nearest observation in CNDDB is near the Mono Lake Visitor Center, approximately 8 miles to the southeast.
Ovis canadensis sierrae	Sierra Nevada bighorn sheep	FE, FSS	SE FP	Alpine and subalpine zones, with open slopes where the land is rocky, sparsely vegetated, and characterized by steep slopes and canyons (USFS, 2001). 4,000 to 12,000 feet (Sierra Mtn). Available water and steep, open terrain free of competition from other grazing ungulates within alpine, alpine dwarf scrub, chaparral, chenopod scrub, Great Basin scrub, Mojavean desert	May occur. Species prefer steep slopes such as those surrounding the Project. The Lundy Project Area occupies approximately 197 acres of designated critical habitat for this species.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential To Occur/Notes
				scrub, montane dwarf scrub, pinon and juniper woodlands, riparian woodland, and Sonoran Desert scrub habitats, from 1,520 to 8,990 feet during the winter and 10,000 to 14,000 feet during summer. Optimal bighorn sheep habitat is visually open and has steep, generally rocky slopes. Forests and thick brush usually are avoided to the extent possible. Bighorn sheep in the Sierra Nevada utilize a wide range of elevations, from alpine peaks over 13,100 feet to winter ranges at the base of the eastern escarpment as low as 4,700 feet.	Lundy Project Area is within designated critical habitat.
Vulpes vulpes necator	Sierra Nevada red fox	FE, FSS	ST	Habitat is forests interspersed with meadows or alpine fell-fields, such as red fir and lodgepole pine forests in the subalpine zone and alpine meadows of the Sierra Nevada. Northern California Cascades Ranges eastward to the northern Sierra Nevada and then south along the Sierran crest from Siskiyou County to Tulare County. Uses dense vegetation and rocky areas for cover and den sites. Found in a variety of habitats, including alpine, alpine dwarf scrub, broad-leaved upland forest, meadow and seep, riparian scrub, subalpine coniferous forest, upper montane coniferous forest, and wetland; at elevations above 2,500 feet. Forested areas (red fir and lodgepole pine) and subalpine and alpine habitats near meadows, riparian areas, and brush fields above 5,000 feet elevation (USFS, 2001). Limited occurrence information on Mammoth Ranger District.	May occur. Recent sighting reported by CDFW near the Project between Taboose Pass in the south and Sonora Pass to the north (CDFW 2023c).

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential To Occur/Notes
				Known to occur on Stanislaus & H-T National Forests).	
Gulo gulo	California wolverine	FPT, FSS	ST; FP	Needs a water source. Uses caves, logs, and burrows for cover and den area. Hunts in more open areas. Can travel long distances. Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high-elevation habitats, including alpine, meadow and seep, north coast coniferous forest, riparian forest, subalpine coniferous forest, and upper montane coniferous forest.	May to occur. Previously determined to be extirpated. Recent sighting by CDFW in eastern Sierras in Yosemite National Park and Near the town of Mammoth.
Unlikely to Occur					
Anaxyrus canorus	Yosemite toad	FT, FSS	SSC	A high-elevation endemic is found in high montane and subalpine associations in meadows surrounded by forests. Overwintering sites are rodent burrows. The Yosemite toad is restricted to the vicinities of wet meadows in the central high Sierra at about 6,400 to 11,320 feet.	Unlikely to occur. Suitable wet meadow habitat does not occur at the Project.
Buteo swainsoni	Swainson's hawk	FSS	ST (nesting)	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations. Nesting is confined to the Central Valley, Klamath Basin, and parts of the Great Basin. Several pairs have nested in southern Mono County and the Owens Valley in Inyo County. Typically nests below 5,000 feet.	Unlikely to occur. The Project is above normal nesting elevation; however, it may use the area for foraging.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential To Occur/Notes
Empidonax traillii extimus	Southwestern willow flycatcher	FE, FSS	SE	A rare to locally uncommon summer resident in wet meadow and montane riparian habitats. They require dense willow thickets for nesting and roosting.	Unlikely to occur. The Project is outside of the known range for nesting.
Pekania pennanti pacifica	Fisher - West Coast DPS	FE, FSS, BLMS	ST	Fishers prefer heavy stands of mixed species of mature timber, but they range widely in forested regions. In California, Fishers primarily inhabit mixed conifer forests composed of Douglas Fir and associated conifers. An uncommon, permanent resident of the Sierra Nevada, Cascades, and Klamath Mountains.	Unlikely to occur. No suitable habitat at the Project.
Rana sierrae	Sierra Nevada yellow-legged frog	FE	ST	Always encountered within a few feet of water. Tadpoles may require 2 to 4 years to complete their aquatic development. Found in streams, lakes, and ponds in montane riparian and various other habitats from 4,500 to 12,000 feet. Ranges throughout the northern Sierra Nevada mountains in high elevation, deep lakes (Sierra Mountains between the north end of Mt. Whitney Ranger District to the north end of Mono Lake Ranger District [Inyo NF 2020]).	Unlikely to occur. Known only from high-elevation Sierra Nevada lakes.
Strix nebulosa	Great gray owl	FSS	SE	Mixed coniferous forest where such forests occur in combination with large meadows or other vegetated openings.2,395 to 7,500 feet in elevation. With migration outside of breeding elevation up to 9,000 feet.	Unlikely to occur. It may occur as a migrant outside of breeding elevation.

Notes:
°C = degrees Celsius; amsl = above mean sea level; CDFW = California Department of Fish and Wildlife Service; DPS = distinct population segment; ESA = Endangered Species Act; TAA = Terrestrial Assessment Area; USFWS = U.S. Fish and Wildlife Service

Federal Status
BCC= The species is listed as a Bird of Conservation Concern by USFWS.

BGEPA= The species is listed under the federal Bald and Golden Eagle Act.
FE= Endangered: The species is formally listed as Endangered under the federal ESA.
FPT= Proposed Threatened: The species is in the process of being reviewed by the USFWS for listing as Threatened under the federal ESA.
FT= Threatened: The species is formally listed as Threatened under the federal ESA.
SCC= The species is listed as a Species of Conservation Concern by the Inyo National Forest.

State Status
FP= The species is listed as a California Fully Protected Species under California Fish and Game Code.
SCE= Candidate Endangered: The species is in the process of being reviewed by the CDFW for listing as Endangered under the California ESA.
SCT= Candidate Threatened: The species is in the process of being reviewed by the CDFW for listing as Threatened under the California ESA.
SE= Endangered: The species is formally listed as Endangered under the California ESA.
SSC= The species is listed as a California Species of Special Concern by CDFW (CDFW, 2019).
ST= Threatened: the species is formally listed as Threatened under the California ESA.

5.7.5. Critical Habitat

As described in Table 5.7-1, the Lundy Project location overlaps with critical habitat for the Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*). Figure 5.7-2 illustrates the Project overlap with critical habitat.

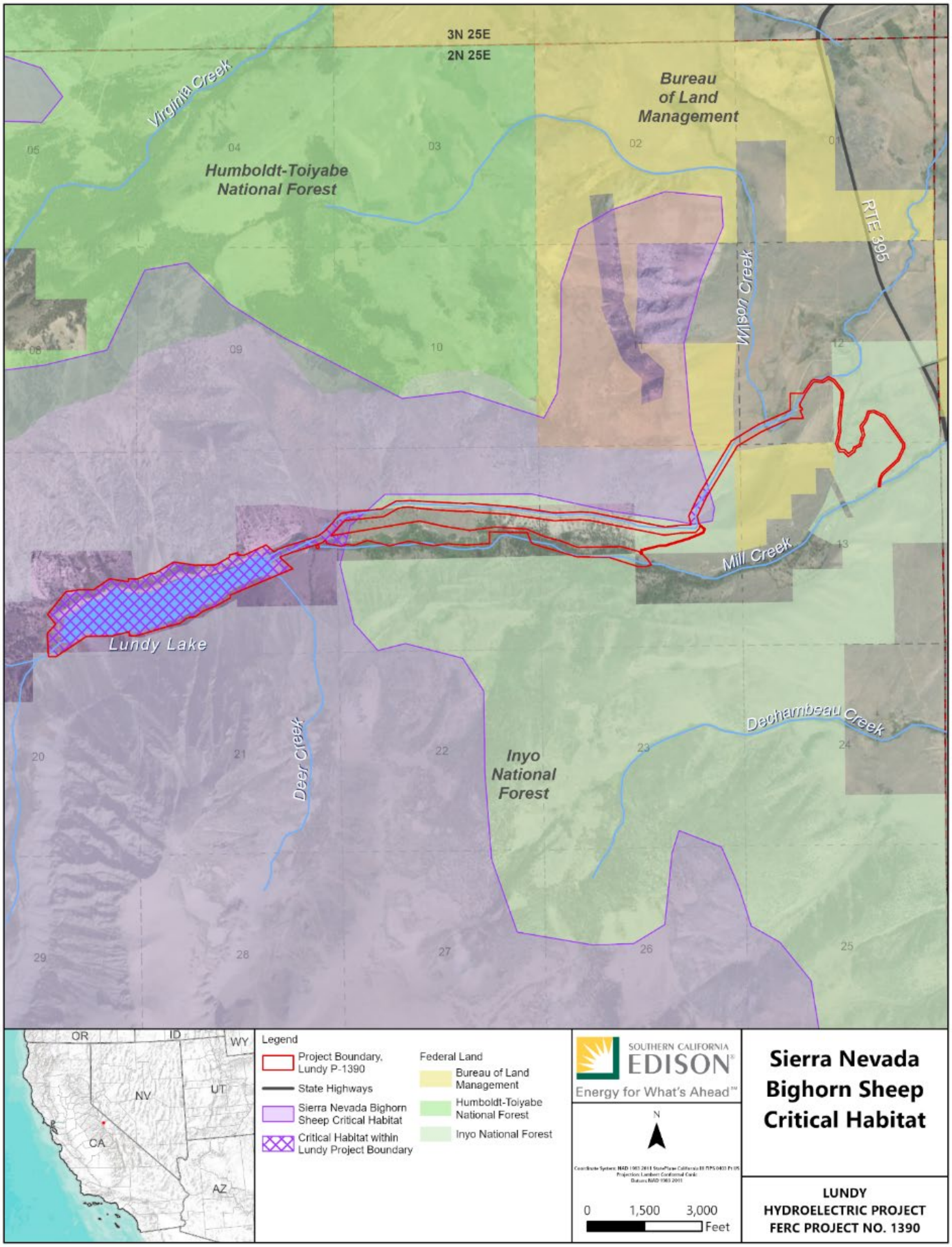


Figure 5.7-2. Critical Habitat - Sierra Nevada Bighorn Sheep.

5.8. RECREATION RESOURCES

5.8.1. INTRODUCTION

This section describes recreational use within and in the vicinity of SCE's Lundy Project (FERC Project No. 1390). FERC content requirements for recreation are specified in 18 CFR § 5.6(d)(3)(viii).

5.8.2. INFORMATION SOURCES

This section was prepared utilizing the following primary information sources:

- California Department of Fish and Wildlife (CDFW, 2023a, 2023b)
- Mono County (Mono County, 2023a, 2023b)
- Mountain Project (Mountain Project, 2023)
- National Park Service (NPS, 2023)
- United States Forest Service (USFS 2018, 2019, 2020, 2023a, 2023b, 2023c)

5.8.3. SETTING

The Lundy Project is partially located within the Inyo NF, approximately 6 miles north of the community of Lee Vining and 4 miles west of U.S. Highway 395. The Inyo NF stretches 165 miles north to south along the eastern Sierra Nevada, featuring over 2 million acres of pristine lakes, winding streams, rugged peaks, and arid Great Basin Mountains (USFS, 2023a). The Inyo NF features some of the world's oldest trees in the Ancient Bristlecone Pine Forest in the White Mountains that mark the eastern boundary of Owens Valley, glaciers along the Sierra Nevada crest, and an elevation range from the tallest peak in the lower 48 states (Mount Whitney at elevation 14,494 feet) to semi-arid deserts and valleys at elevation 3,900 feet (USFS, 2019).

Although the Lundy Project does not occupy any Congressional designated wilderness area, nine wilderness areas are in the vicinity of the Project: Hoover, Ansel Adams, John Muir, Golden Trout, Inyo Mountains, Boundary Peak, South Sierra, White Mountains, and Owens River Headwaters (USFS, 2019). In addition, Devils Postpile National Monument, administered by the National Park Service, is outside the Lundy Project but within the Inyo NF in the Reds Meadow area, west of Mammoth Lakes. Additional information on wilderness areas near the Lundy Project is described in Section 5.8.12.

5.8.4. EXISTING PROJECT RECREATION FACILITIES

The Lundy Project offers four FERC-approved recreation facilities, including Lundy Lake boat launch, Lundy Campground, Lundy day-use areas along Mill Creek, and the Lundy Dam day-use area providing a toilet and parking area (Figure 5.8-1).

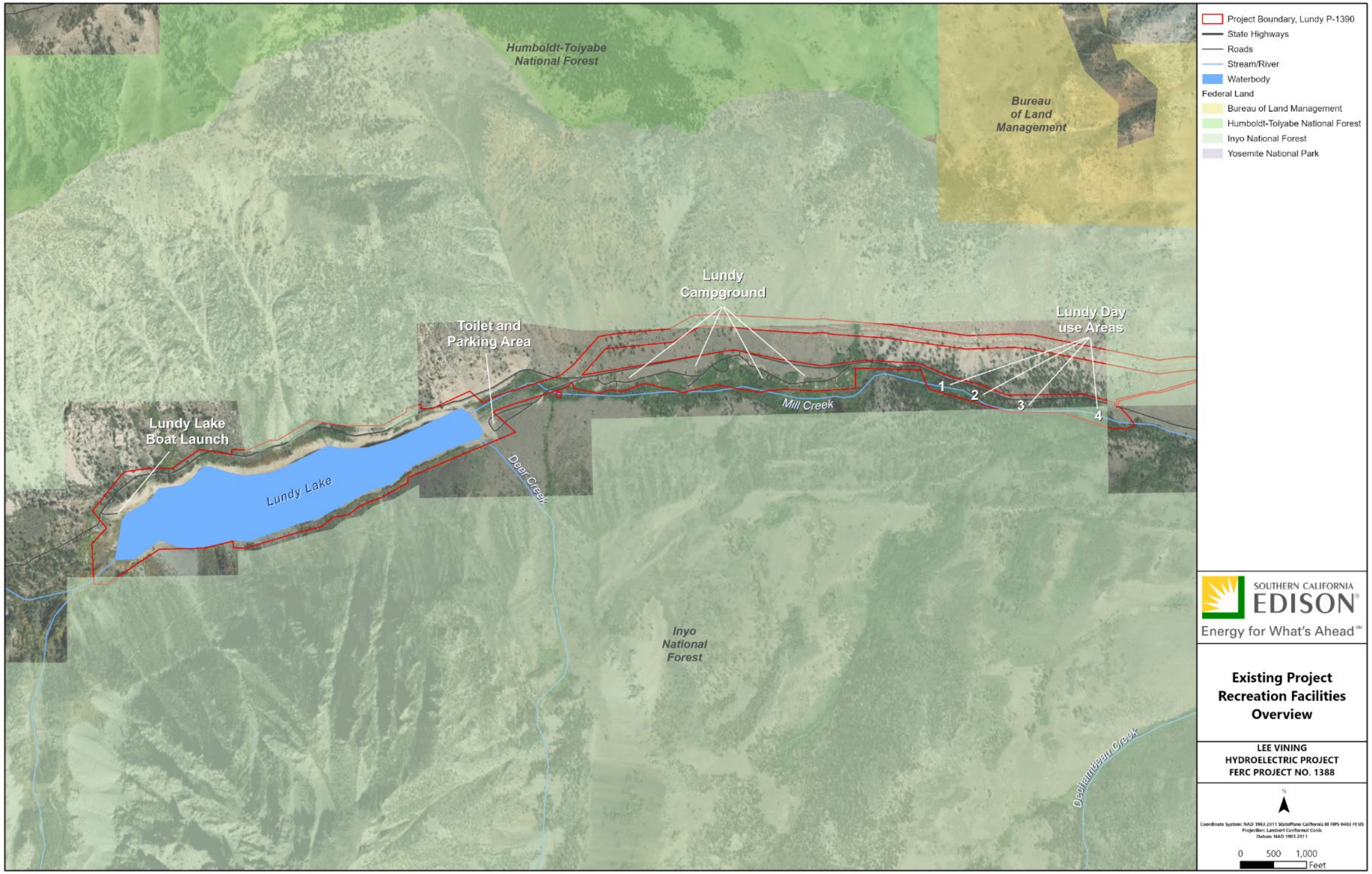


Figure 5.8-1. Existing Project Recreation Facilities.

The Lundy Lake boat launch is located on the westerly side of Lundy Lake. The boat launch is single-lane and can accommodate trailered and car-top boats. The site has parking for approximately five vehicles with trailers.

Lundy Campground is located approximately 1 mile northeast of the Lundy Lake Dam. The campground offers 37 sites for recreationists, of which nine are tent sites, and 28 can fit a 35-foot recreational vehicle. Sites offer a cleared area for camping, a picnic table, a parking area, and several sites offer a bear-proof box for storage. The campground has a camp host to collect fees. The campground is open from approximately April through mid-November, depending upon the snow conditions (Mono County, 2023b).

The Lundy day-use area is made up of four day-use sites located between Lundy Lake Road and Mill Creek. Day-Use Area 1 offers a portable restroom and one picnic table. Day-Use Area 2 offers three picnic tables. Day-Use Area 3 offers a portable restroom and one picnic table. Day-Use Area 4 offers two picnic tables.

The Lundy Dam day-use area is located adjacent to Lundy Dam. The site offers a gravel parking area for approximately 10 vehicles and a restroom with two vault toilets.

5.8.5. Recreational Opportunities in the Project Vicinity

In addition to the Lundy Project recreation facilities, the broader region offers the public a broad range of recreational opportunities year-round (Figure 5.8-2). Primary recreational opportunities include fishing, hiking, camping, boating, rock climbing, ice climbing, sightseeing, and picnicking. This section identifies non-Project recreational opportunities both within the Project Boundary, as well as within its general vicinity.

The Lundy Canyon Trail and Lakes Canyon Trail are in the Upper Lundy Canyon and are maintained by the Inyo NF (USFS, 2023b, 2023d). The Lundy Canyon Trail is 3 miles long, beginning at the end of Lundy Lake Road (outside of the Project Boundary), and provides access to Helen Lake, Shamrock Lake, Steelhead Lake, and Saddlebag Lake Trail (USFS, 2023b). The Lakes Canyon Trail is also around 3 miles long and begins at the east end of Lundy Lake where Lundy Dam Road crosses Deer Creek and provides access to Twenty Lakes Basin. Many of these trails provide access to lake, pond, or river fishing or access that leads to backpacking opportunities in the Hoover Wilderness. Overnight wilderness permits are available for overnight backpacking originating from the Inyo NF’s Lundy Canyon and Lakes Canyon Trailheads, which provide access to the Hoover Wilderness. Inyo NF maintains records by entry date, entry trailhead, and number of hikers (often capped by quota per day).

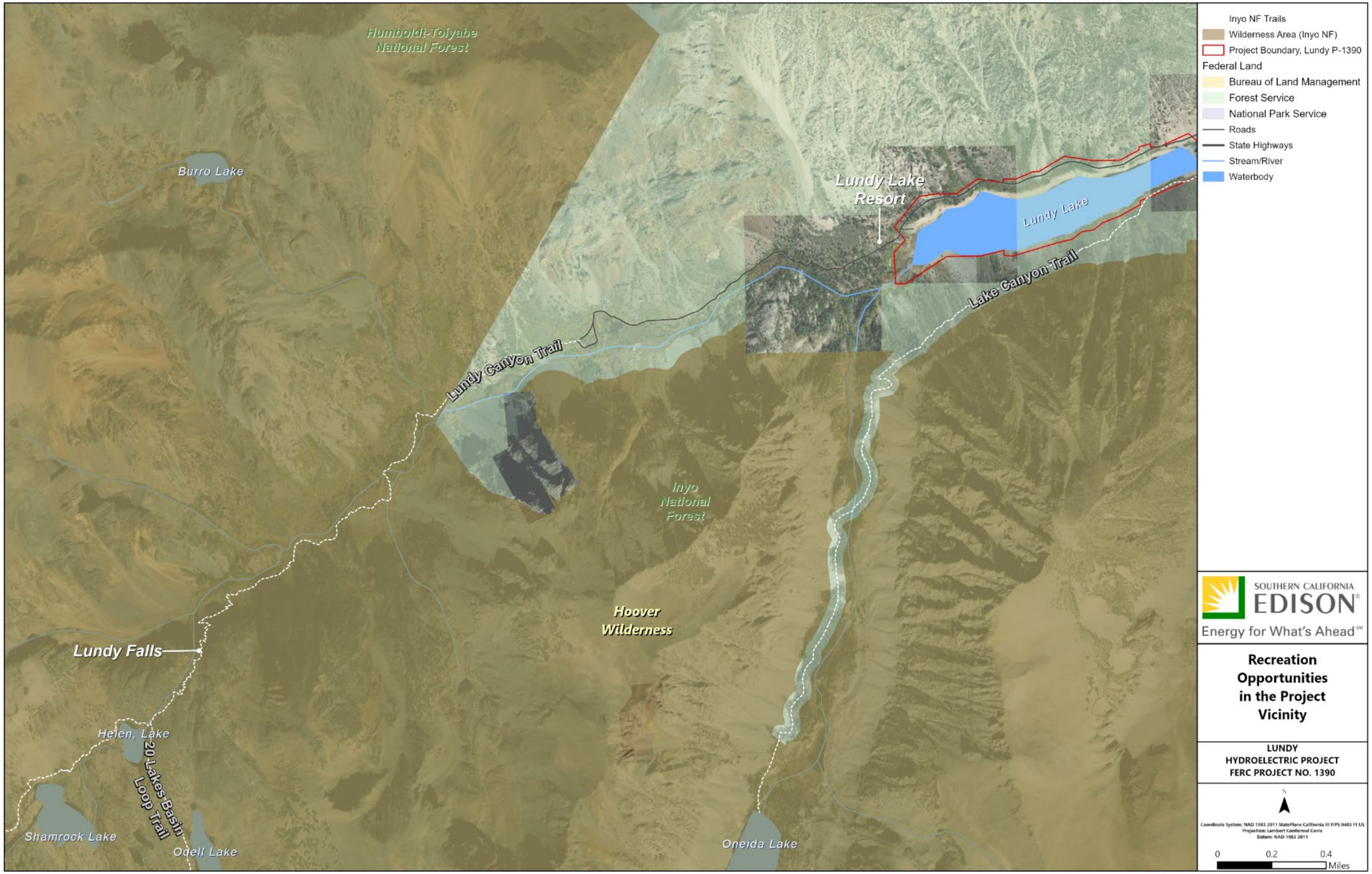


Figure 5.8-2. Recreation Opportunities in the Lundy Project Vicinity.

Lundy Lake provides opportunities for recreational fishing for rainbow and brown trout. Mill Creek offers fishing opportunities for wild trout and runs from below Lundy Lake down Lundy Canyon to Mono Lake. CDFW stocks Lundy Lake and Mill Creek with trout for recreational fishing. Both Lundy Lake and Mill Creek were stocked with trout prior to Labor Day weekend in 2023 (CDFW, 2023). Lundy Lake and Mill Creek support a regionally important recreational fishery (Mono County, 2023b).

The Lundy Lake Resort is a public recreation facility outside the Lundy Project Boundary. Lundy Lake Resort consists of 21 campsites, five full recreational vehicle hook-ups, eight cabins, three huts, and a boat launch providing Lundy Lake access. There is also a general store with tackle, bait, and groceries (Mono County, 2023b) Lundy Lake Resort is owned and operated by Haley Wragg.

At an elevation of 8,122 feet, Lundy Canyon hosts ice climbing opportunities and at least one multi-pitch rock climb outside the Lundy Project Boundary. Lundy Falls, the primary ice climbing destination, drains into Lake Helen and can be accessed by the Lundy Canyon Trail. In winter, climbers may have to walk 2.75 miles from the closed gate on Lundy Lake Road to the Lundy Canyon Trailhead (Mountain Project, 2023).

5.8.6. Existing Available Project Recreation Use Information

5.8.6.1. FERC Form 80 Reports

The most recent recreational use information for the Lundy Project is provided in the *Licensed Hydropower Development Recreation Report*, FERC Form No. 80 (Form 80), filed in 2015. Until recently, licensees were required to file Form 80 reports for each project development every 6 years, unless the licensee obtained an exemption from FERC. The information provided by the licensee is used to document the overall recreational use of Project lands and waters at each development, as well as recreation use at all publicly available recreation amenities within the Project Boundary, whether required by a project license or not. In 2014, SCE collected recreational use data at recreation facilities within the Lundy Project Boundary to estimate annual use, peak season use, peak weekend use, and capacity utilization of each amenity within the Lundy Project Boundary. SCE filed its most recent Form 80 report on March 26, 2015, reporting recreational use data for the 2014 calendar year at the Lundy Project (SCE, 2015).

In its 2015 Form 80 Report, SCE identified five publicly available recreation amenities within the Lundy Project Boundary: Lundy Lake boat launch (FERC-approved), the day-use area below the campground (FERC-approved), a parking area near the dam (FERC-approved), roadside parking between the marina (private) and the campground (non-FERC-approved), and the Lundy Campground (FERC-approved). Form 80 defines boat launch areas as improved areas having one or more boat launch lanes…[that] are usually marked with signs, have hardened surfaces, and typically have adjacent parking (SCE, 2015).

SCE's 2015 Form 80 Report estimated that, in 2014, total annual recreation use at the five amenities was 10,335 recreation days[15] (RDs). Most of the use occurred at the parking area near the dam, followed by the roadside parking between the marina (private) and the Lundy Campground. It was determined that all five facilities were well within facility capacity during non-peak periods, with the highest capacity usage occurring at Lundy Lake boat launch. Table 5.8-1 provides a summary of each amenity surveyed in the report.

Table 5.8-1. Summary of Each Public Amenity Surveyed

Facility	Average Peak Weekend Use (RDs)	Total Peak Season Use (RDs)	Facility Capacity	Total Annual Use (RDs)
Lundy Lake Boat Ramp	63		44%	
Day-Use Area Below Campground	22		1%	
Parking Area Near Dam	132	10,335	No Data[16]	13,436
Roadside Parking between Marina and Campground	198		No Data[2]	
Lundy Campground	243		35%	

Source: SCE, 2015
RDs = recreation days

5.8.6.2. Inyo National Forest National Visitor Use Monitoring Report (Fiscal Year 2016 Data)

The National Visitor Use Monitoring (NVUM) Program provides information about recreation visitors to National Forest System managed lands at national, regional, and forest level (USFS, 2018) The NVUM Program has two goals: (1) to produce estimates of the volume of recreational visitation to national forests and grasslands, and (2) to produce descriptive information about that visitation, including activity participation, demographics, visit duration, measures of satisfaction, and trip spending connected to the visit (USFS, 2018). The most recent visitor use report for the Inyo NF was updated on January 21, 2018, and summarizes data collected during fiscal year 2016. The following is a summary of that report.

[15] A recreation day is defined as a visit by a person to a development for recreational purposes during any portion of a 24-hour period.
[16] The dispersed roadside parking areas located between the marina and dam and the area near the dam were not included in the calculation of facility capacity.

Total visits to the Inyo NF[17] in fiscal year 2016 were estimated at 2,309,000 individuals. Many people frequent more than one site during their visit, so estimates are further broken down by site visits, totaling 4,624,000 visits.[18] The most commonly frequented site or area associated with the Inyo NF is Day-Use Developed (2,608,000 visits), followed by Overnight-Use Developed (876,000 visits), General Forest Area (850,000 visits), and Designated Wilderness (290,000 visits). Site visits are further broken down by each activity in which the individual participated during that visit. The most common activities selected by survey participants were viewing natural features, hiking/walking, relaxing, downhill skiing, viewing wildlife, and driving for pleasure. Survey participants' most commonly chosen main activity was downhill skiing, followed by hiking/walking, viewing natural features, and bicycling. A complete list of activity participation results is found in Table 5.8-2.

Demographic results estimate that 89.3 percent of visitors are White, followed by Hispanic/Latino (9.5 percent), Asian (9.1 percent), Black/African American (2.6 percent), American Indian/Alaska Native (2.5 percent), and Hawaiian/Pacific Islander (1.7 percent). Age distribution estimates that 17 percent of visitors are children under 16, and 23 percent are over 60. Most visitors, an estimated 74.4 percent, live more than 200 miles from Inyo NF, and only 18 percent live within 50 miles.

Table 5.8-2. Activity Participation Results

Activity	Participation %	Main Activity %
Viewing Natural Features	45.3	8.5
Hiking/Walking	44.2	16.3
Relaxing	34.8	4.6
Downhill Skiing	34.1	32.3
Viewing Wildlife	30.3	0.6
Driving for Pleasure	23.6	1.8
Bicycling	11.9	8.2
Visiting Historic Sites	11.7	0.6
Developed Camping	11.6	3.6
Nature Center Activities	11.2	0.7
Fishing	11	5.8
Picnicking	8.6	0.4

[17] The 2018 NVUM Report (USFS, 2018a) defines a national forest visit as the entry of one person upon a national forest to participate in recreational activities for an unspecified period of time. A national forest visit can be composed of multiple site visits. The visit ends when the person leaves the national forest to spend the night somewhere else.

[18] The 2018 NVUM Report (USFS, 2018a) defines a site visit as the entry of one person onto a national forest site or area to participate in recreational activities for an unspecified period of time. The site visit ends when the person leaves the site or area for the last time on that day.

Activity	Participation %	Main Activity %
Nature Study	7.8	0.3
Resort Use	7.8	0
Cross-country Skiing	6.8	5.5
Some Other Activity	6.6	4.9
Backpacking	4.9	2.2
Other Non-motorized	3.8	0.3
Off-Highway Vehicle Use	2.9	0.4
Primitive Camping	2.9	0.2
Motorized Trail Activity	2.7	0.4
Non-motorized Water	2.1	0.5
Gathering Forest Products	1.7	0
Other Motorized Activity	1	0.8
Hunting	0.6	0.5
Horseback Riding	0.6	0.2
Motorized Water Activities	0.4	0.1
No Activity Reported	0.3	0.6
Snowmobiling	0.3	0

Source: USFS, 2018

5.8.7. Current and Future Recreation Needs and Management

5.8.7.1. 2021-2025 California Statewide Comprehensive Outdoor Recreation Plan

According to the California Department of Parks and Recreation, the California Statewide Comprehensive Outdoor Recreation Plan (SCORP) “improves upon the previous [SCORP] and summarizes key findings from focus groups and continues the vision of local assistance grant programs:” (CDPR, 2021). While the 2021 California Plan does not offer specific data regarding current and future recreation needs, the following two reports are essential elements used in the Plan’s development that provide information relevant to the Lundy area:

- California’s Vision for Park Equity, 2000-2020: Transforming Park Access with Data and Technology (CDPR, 2023a)
- Designing Parks Using Community-Based Planning (CDPR, 2023b)

Through a robust community-based planning approach, seven advisory council focus groups along with 30 public focus groups from around the state of California, found five key areas that need to be addressed:

1. New Park Access
    a. Create or expand parks in communities that lack sufficient park space. Create new parks within a half mile of underserved communities or expand existing parks to increase the ratio of park acreage per resident in underserved areas. This may include innovative solutions such as acquiring private land from willing sellers such as vacant lots and blighted buildings, converting streets to create or expand parks, or converting closed schools.
    b. Acquire private land from willing sellers in natural areas to expand regional parks or create new open space areas for outdoor recreation while preserving nature
2. Multi-Use Parks Designed for All Age Groups in New or Existing Parks
    a. Construct recreation features designed to bring families together by supporting art and music, sports, and multi-generational activities.
    b. Construct recreation features for all age groups to support active and passive recreation interests.
    c. Incorporate project design ideas from all age groups.
3. Health Design Goals for New or Existing Parks
    a. Include recreation features resulting from asking community members for their park design ideas for public health.
4. Safety and Beautification of New or Existing Parks
    a. Construct lighting for night-time use, restrooms, landscaping, signs, or other enhancements to make the park appear welcoming and support longer hours of use.
5. Preservation
    a. Through the Land and Water Conservation Fund, place outdoor open space land under new 6(f)(3) protection for public recreation (CDPR, 2021):

Based upon its research, the CDPR (2021) identified that 3 percent of residents in Mono County live further than a half mile from a park as compared to the state of California where 21 percent of residents live further than a half mile from a park. Additionally, CDPR noted that 0 percent of Mono County residents live in areas with less than 3 acres of parks or open space per thousand residents as compared to the state of California where 61 percent of residents live in areas with less than 3 acres of parks or open space per thousand residents (CDPR, 2021). Based on this information, Mono County residents have sufficient access to parks and open space.

5.8.7.2. Mono County General Plan

Mono County provides a General Plan to "establish policies to guide decisions on future growth, development, and conservation of natural resources in the unincorporated area of the county (Mono County, 2021)." The General Plan provides land-use designations for all parcels within the county to assist with managing the private lands in the unincorporated area of the county. A detailed discussion of the Mono County General Plan's land-use designations can be found in Section 5.9 of this PAD.

5.8.8. Shoreline Management Plan and Buffer Zones

Shoreline management plans and buffer zones are discussed in detail in Section 5.9, *Land Use,* of this PAD.

5.8.9. National Wild and Scenic River System

No rivers in the Lundy Canyon, including all waterways within the Lundy Project Boundary, are included in the National Wild and Scenic Rivers System. The nearest designated river to the Lundy Project is the Tuolumne Wild and Scenic River, the headwaters of which are located approximately 10 miles south of Lundy Lake on the western slopes of the Sierra Nevada in Yosemite National Park (IWSRCC, 2020).

However, the 2019 LMP (USFS, 2019) has recently identified over 75 river miles in the Mono Basin as eligible for inclusion in the National Wild and Scenic Rivers System, including all of Mill Creek. The eligibility study conducted as part of the 2019 LMP development determined whether rivers are free-flowing and possess one or more outstandingly remarkable values (e.g., scenery, recreation, geology, fish and wildlife populations and habitat, prehistory, history). If so, they were found to be eligible. As such, the 2019 LMP lists the following desired condition and standard for river reaches identified as eligible:

- Desired Condition (MA-EWSR-DC)
    - 01. Eligible or recommended wild and scenic rivers retain their free-flowing condition, water quality, and specific outstandingly remarkable values. Recommended preliminary classifications remain intact until further study is conducted or until designation by Congress.

- Standard (MA-EWSR-STD)
    - 01. For interim management of USFS-identified eligible or recommended suitable rivers, use interim protection measures identified in the Forest Service Handbook 1909.12, Section 84.3.

Once determined by the USFS to be eligible, a preliminary classification of “wild,” “scenic,” or “recreational” was also applied to each eligible river or river segment according to the following general guidelines:

- Wild: Free of impoundments. Generally inaccessible except by trail. Shorelines are essentially primitive, with little or no evidence of human activity. Meets or exceeds water quality criteria.
- Scenic: Free of impoundments. Accessible in places by roads. Shorelines are largely primitive and undeveloped, with no substantial evidence of human activities.
- Recreational: May have some impoundment or diversion, provided the waterway remains generally natural and riverine in appearance. Readily accessible by road or railroad. Shorelines may have some development and substantial evidence of human activity. No water quality criteria.

Table 5.8-3 and Figure 5.8-3 below depict all river segments within the Lundy Project vicinity that Inyo NF has determined to be eligible for inclusion in the National Wild and Scenic River System.

Table 5.8-3. River Segments Eligible for Inclusion in the National Wild and Scenic River System

River Name	Eligible Section (miles)	Eligibility Designation
Mill Creek (above Lundy Lake)	6.2	Wild, Scenic, Recreation
Mill Creek (below Lundy Lake)	7.0	Recreation
South Fork Mill Creek (southwest of Lundy Lake)	2.9	Wild

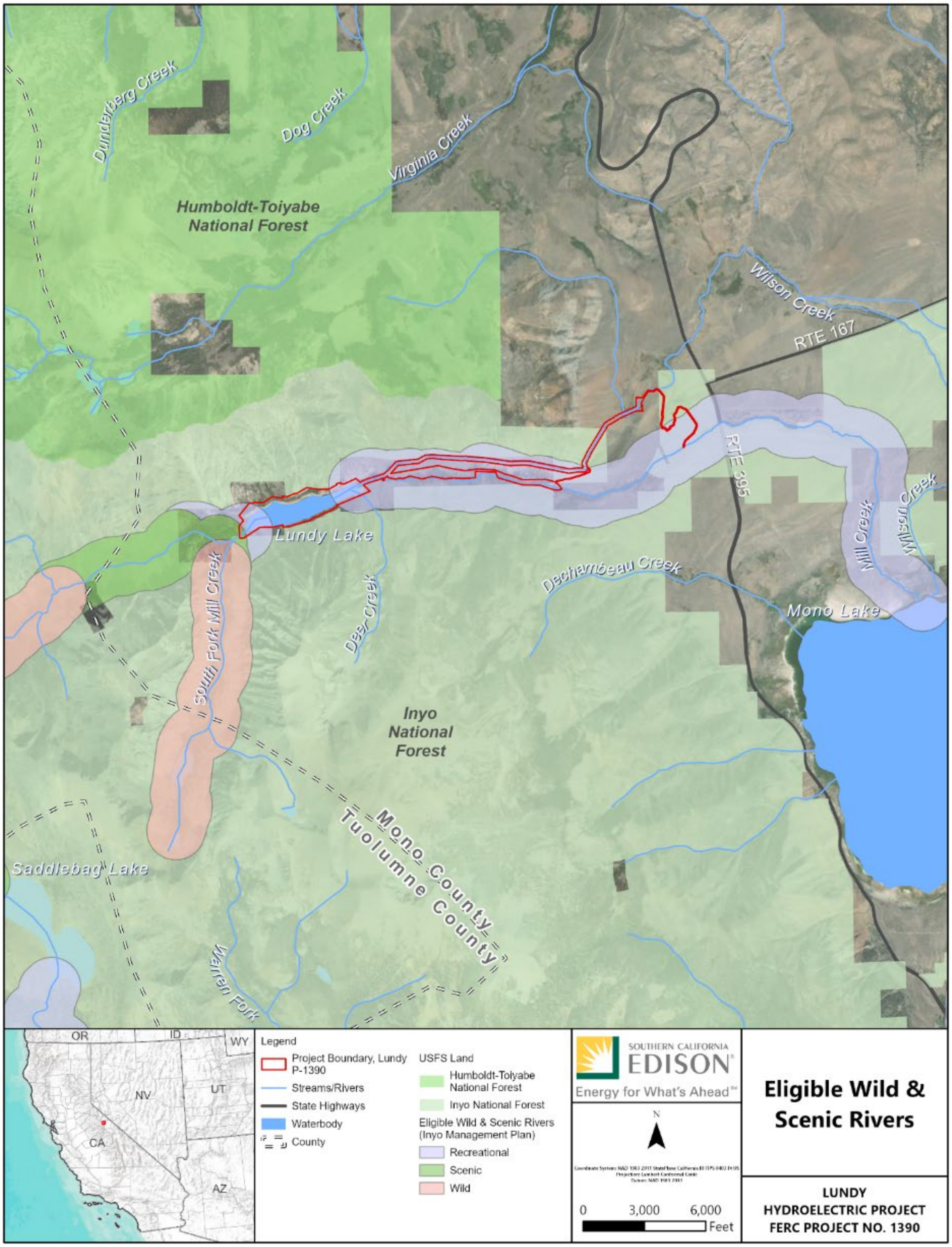


Figure 5.8-3. River Segments Eligible for National Wild and Scenic River System.

5.8.10. State-Protected River Segments

No rivers in the Lundy Project watershed are within the California Wild and Scenic River System (CDWR, 2022). The nearest state-protected river segment is approximately 20 miles northwest of the Lundy Powerhouse (CDWR, 2022).

5.8.11. National Trail System

The National Trails System is composed of more than 1,200 scenic, historic, and recreational trails that traverse wilderness, rural, suburban, and urban areas in all 50 states (USFS, 2023). The nearest national trail to the Lundy Project is the Pacific Crest National Scenic Trail, which traverses along the western side of the Sierra Nevada crest through Yosemite National Park, approximately 7.5 miles southwest of the Lundy Project. The Pacific Crest National Scenic Trail extends approximately 2,650 miles, from southern California at the Mexican border through California, Oregon, and Washington until reaching the Canadian border.

5.8.12. Wilderness Areas

No portion of the Lundy Project Boundary is within a designated wilderness area. The Lundy Project is closely surrounded by the Hoover Wilderness to the south and west. The Hoover Wilderness was designated a wilderness area by Congress as part of the 1964 Wilderness Act and is managed jointly by the Inyo and Humboldt/Toiyabe National Forests. It encompasses approximately 128,000 acres and has become a popular hiking destination featuring spectacular scenery from the Great Basin to the crest of the Sierra Nevada (USFS, 2023c).

5.8.13. Inyo National Forest Land Management Plan

Effective November 24, 2019, the 2019 LMP has been approved and is now the guiding direction for the Inyo NF, replacing the 1988 LMP and its amendments. The 2019 LMP is intended to identify long-term or overall desired conditions and provide general direction for achieving those desired conditions (USFS, 2019). Other relevant management and designated areas identified in the 2019 LMP are covered elsewhere in this document. The following sections will focus on Sustainable Recreation Management Areas and Recreation Opportunity Spectrums identified for the Lundy Project to provide management direction for future recreational experiences and activities (USFS, 2019).

5.8.13.1. Sustainable Recreation Management Areas

As shown in Figure 5.8-4, the 2019 LMP has designated all Inyo NF lands within the Lundy Project as a General Recreation Area. General Recreation Areas are defined as “less developed, with fewer facilities, amenities, and services than Destination Recreation Areas” (USFS, 2019). Table 5.8-4 summarizes forest-wide desired conditions and potential management approaches related to General Recreation Areas in the Inyo NF.

The 2019 LMP also provides the following potential management approaches for General Recreation Areas in the Inyo NF:

- Priority will be given to design new infrastructure and development to manage user conflict, as needed.
- Consider accommodating recreation special use authorizations to the extent that the natural and cultural resource can sustain the activity.

Table 5.8-4. Desired Conditions and Management Approaches for General Recreation Areas

Code	No.	Desired Condition
MA-GRA-DC	**01**	In this management area there are limited amenities, few signs, and minor development.
MA-GRA-DC	**02**	Scenic integrity is generally moderate to high. Where developed facilities are present, they are aesthetically incorporated into the landscape. Scenic integrity is maintained at or enhanced from current conditions
MA-GRA-DC	**03**	Places for people seeking natural scenery and solitude are available in some areas. In other areas, motorized and non-motorized recreation opportunities are easily accessed by roads, and visitors can expect encounters with others.
MA-GRA-DC	**04**	Developed recreation sites provide opportunities on the more roaded natural, semi-primitive motorized, and semi-primitive non-motorized opportunity spectrum with moderately modified natural settings
MA-GRA-DC	**05**	A mosaic of vegetation conditions is often present, with some areas showing the effects of past management activities, and other areas appearing predominantly natural.
MA-GRA-DC	**06**	This area offers opportunities for expansion of recreational opportunities.
MA-GRA-DC	**07**	Conflicts between different uses are infrequent.
MA-GRA-DC	**08**	As new forms of recreation activities emerge, recreation settings retain their natural character.

DC = Desired Condition; GRA = General Recreation Area

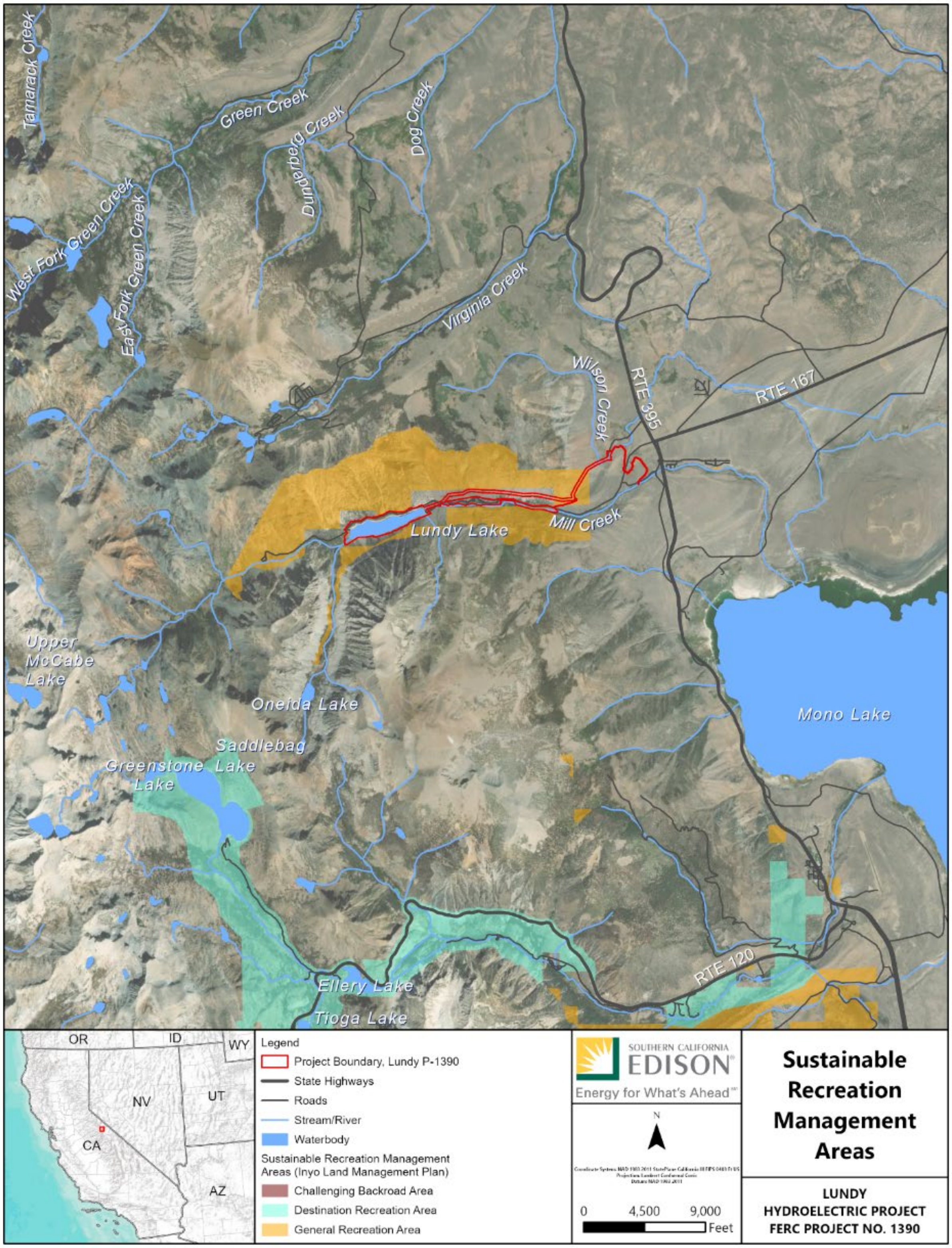


Figure 5.8-4. Sustainable Recreation Management Areas.

5.8.13.2. Recreation Opportunity Spectrums

Recreation Opportunity Spectrums are designed to establish expectations and inform the management of settings when making decisions on facility and infrastructure design and development (USFS, 2019). As shown in Table 5.8-5 and on Figure 5.8-5, the 2019 LMP identifies Inyo NF lands within the Lundy Project to be classified as either Roaded Modified or Semi-Primitive Non-Motorized. Table 5.8-5 explains the physical, managerial, and social settings across each of these Recreation Opportunity Spectrums.

Table 5.8-5. Physical, Managerial, and Social Settings Across Recreation Opportunity Spectrums

Recreation Opportunity Spectrum	Physical Setting	Managerial Setting	Social Setting
Roaded Modified	**Theme:** Natural appearance with nodes and corridors of development such as campgrounds, trailheads, boat launches, and rustic, small-scale resorts **Infrastructure:** • Access–Classified road system for highway vehicle use • Fishing sites–Rivers, lakes, reservoirs with some facilities. • Camp/picnic sites–Identified dispersed and developed sites • Sanitation–Developed outhouses that blend with the setting • Water supply–Often developed • Signing–Rustic with natural materials to more refined using a variety of materials such as fiberglass, metal, etc. • Interpretation–Simple roadside signs, some interpretive displays • Water crossing–Bridges constructed of natural materials	Opportunity to be with other users in developed sites; some obvious signs (information and regulation) and low to moderate likelihood of meeting Forest Service rangers	Moderate evidence of human sights and sounds; moderate concentration of users at campsites; little challenge or risk
Semi-Primitive Non-Motorized	**Theme:** Predominately natural/natural appearing; rustic improvements to protect resources **Infrastructure:** • Access–Non-motorized trails are present. Closed and temporary roads may be present but are not dominant on the landscape • Fishing sites–Rivers, lakes, and reservoirs • Camp/picnic sites–Not developed, leave no trace • Sanitation–No facilities, leave no trace • Water supply–Undeveloped natural	Minimum or subtle signing and regulations, some encounters with rangers	High probability of solitude, closeness to nature, and self-reliance high to moderate challenge and risk; some evidence of others

Recreation Opportunity Spectrum	Physical Setting	Managerial Setting	Social Setting
	• Signing–Rustic constructed of natural materials • Interpretation–Through self-discovery and at trailheads • Water crossing–Rustic structures or bridges made of natural materials		

Source: USFS, 2019

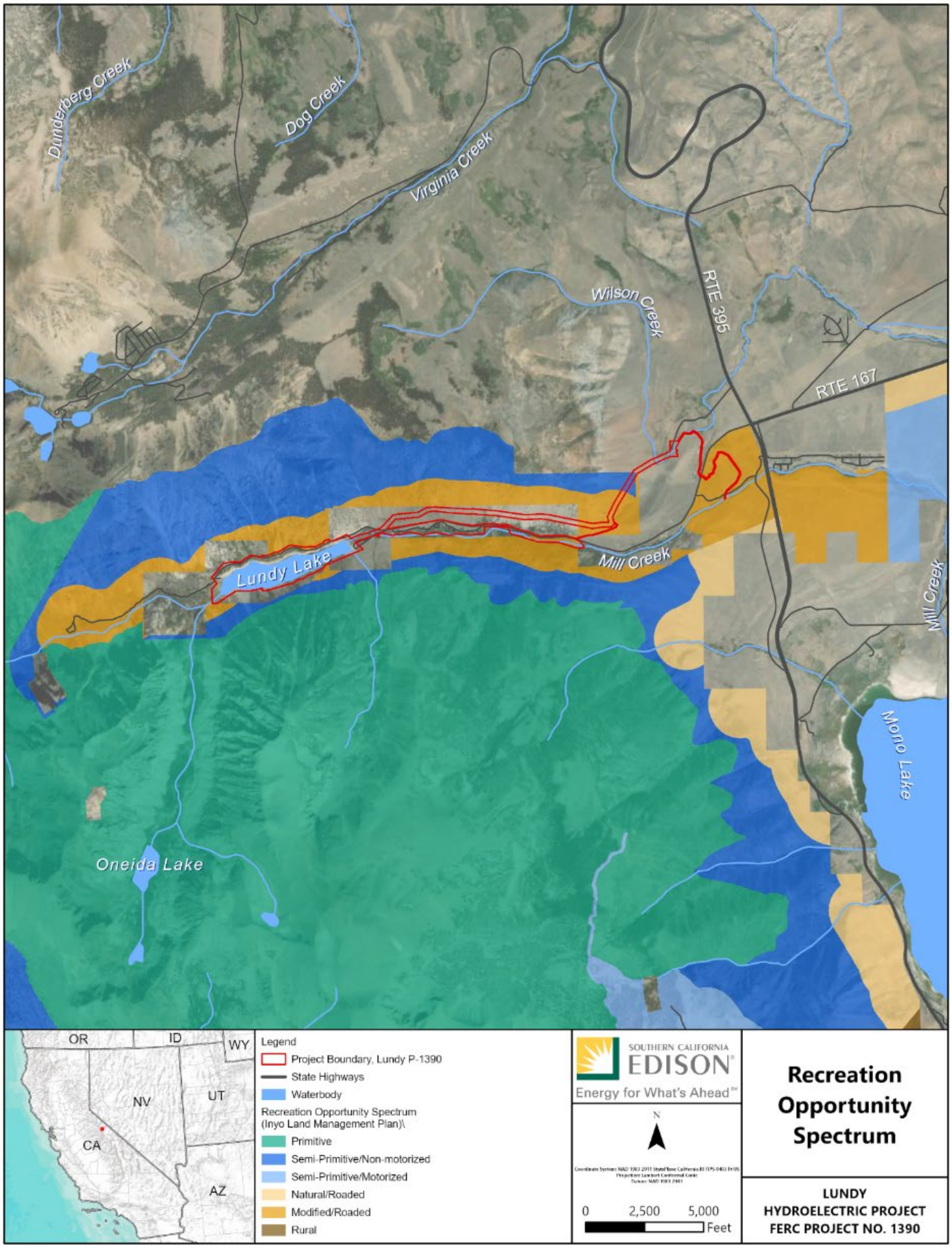


Figure 5.8-5. Recreation Opportunity Spectrum.

5.8.14. Regionally or Nationally Important Recreation Areas

5.8.14.1. Yosemite National Park

Approximately 3 miles west of the Lundy Project is Yosemite National Park, one of the most popular outdoor destinations in the world, boasting over 4 million annual park visitors and 4,586,463 visitors in 2019 (NPS, 2023). It is most famous for the glacially carved granite walls and waterfalls of Yosemite Valley, but its approximately 759,620 acres of land extend well beyond the valley and feature meadows such as Tuolumne Meadows, giant sequoias, and vast wilderness areas (approximately 94 percent of the park) (NPS, 2020b), much of which is accessed along State Route 120 to the park's eastern entrance, where a large portion of those 4 million annual visitors make their way through the Inyo NF (NPS, 2023).

5.8.14.2. Mono Basin National Forest Scenic Area

The Mono Basin National Forest Scenic Area is approximately 6 miles south and 6 miles east of the Lundy Project. Mill Creek, which flows down Lundy Canyon, empties into Mono Lake, one of the oldest lakes in North America at over 700,000 years old. In 1984, Mono Basin was the first area to receive Congressional protection as a National Forest Scenic Area for its unique geologic, ecologic, and scenic resources (USFS, 2023b).

5.9. LAND USE

5.9.1. INTRODUCTION

This section describes land use and management at and adjacent to the Lundy Project. FERC content requirements for land use are specified in 18 CFR § 5.6(d)(3)(viii). A description of recreation resources is provided in Section 5.8, *Recreation*.

5.9.2. INFORMATION SOURCES

This section was prepared utilizing the following primary information sources:

- Inyo National Forest Land Management Plan (USFS, 2019)
- Mono County (Mono County 2012, 2021)
- Multi-Resolution Land Characteristics Consortium (MRLC Consortium, 2021)

The Lundy Project is located on Lundy Lake in the glacially carved Upper Lundy Canyon, approximately 6.1 miles upstream of Mono Lake and the town of Mono City, California, and wholly within Mono County, California. Land ownership both within the Lundy Project Boundary and within a 0.5-mile buffer is comprised of federal lands administered by the USFS, portions of lands owned by SCE, and a small portion crossing lands administered by the BLM at the east end of the Lundy Project Boundary. Accordingly, the current Lundy Project Boundary represents that approximately 37.3 percent (122.9 acres) of Lundy Project lands are federal lands, with 0.3 percent (0.9 acres) administered by the BLM and 37.0 percent (122 acres) administered by the USFS. 62.7 percent (206.5 acres) of Lundy Project lands are non-federal lands, with 62.3 percent (205.3 acres) owned by SCE and 0.4 percent (1.2 acres) owned and managed by Mono County (Table 5.9-1 and Figure 5.9-1).

Table 5.9-1. Land Ownership/Administration within the Lundy Project Boundary

Ownership/Administration Agency		Acreage	Percentage of Total
Federal Land		45.7	13.9%
	BLM	1.0	0.3%
	USFS	44.7	13.6%
Non-Federal Land		283.7	86.1%
	SCE	282.5	85.7%
	Mono County	1.20	0.4%
Total Project Acreage		329.4	100%

Source: USFS, 2022; BLM, 2022; Baker, 2021

BLM = United States Bureau of Land Management; SCE = Southern California Edison; USFS = United States Forest Service, Inyo National Forest

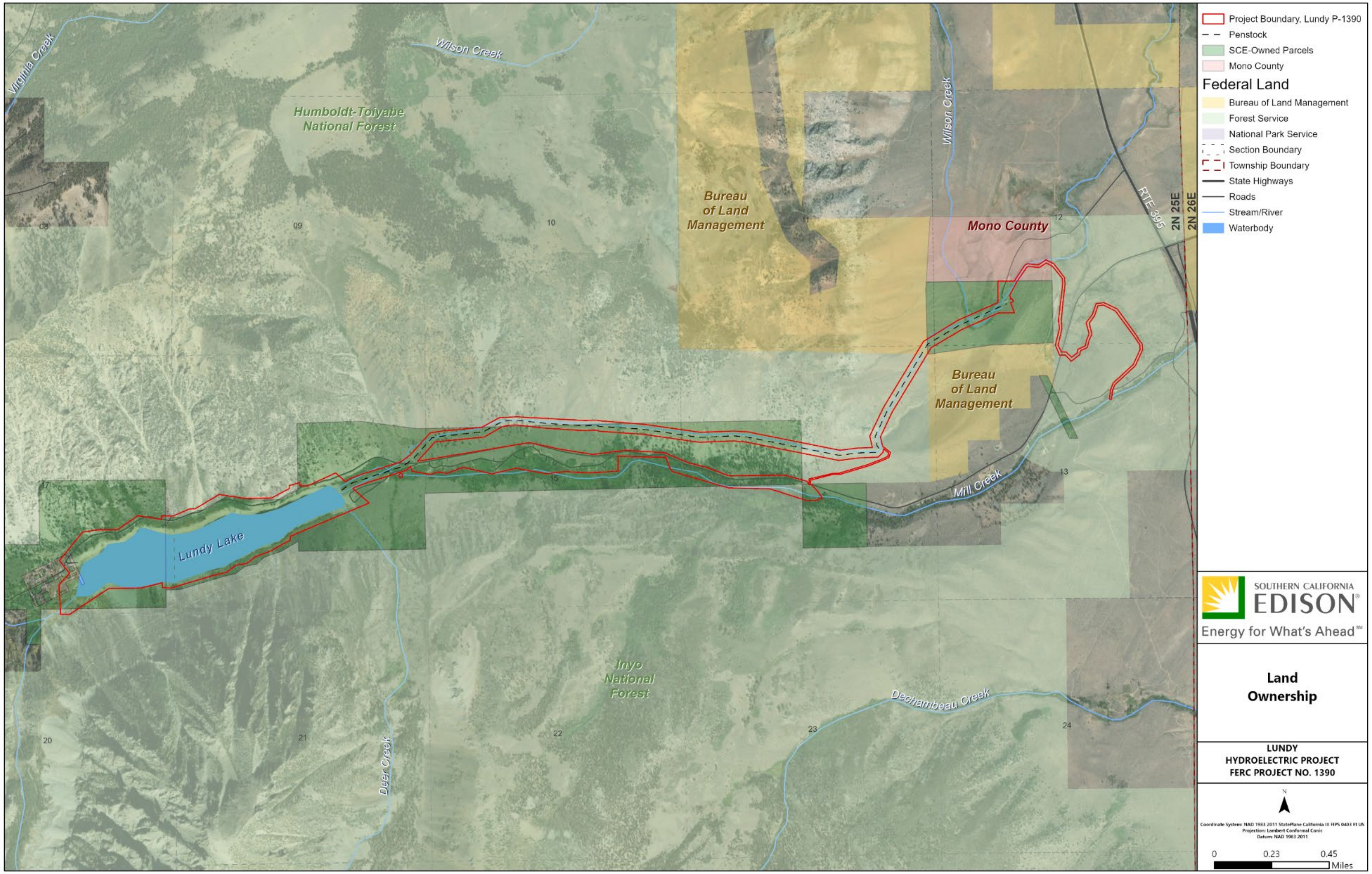


Figure 5.9-1. Project Land Ownership.

Land use and cover within the Lundy Project Boundary and within a 0.5-mile buffer were estimated by analyzing the MRLC Consortium's 2021 NLCD, which provides land use information by generalizing land cover within the area (MRLC Consortium, 2021) and is depicted in Figure 5.9-2. As summarized in Table 5.9-2, land cover within the Lundy Project Boundary is predominantly classified as open water (26.7 percent) due largely to the narrowly drawn Lundy Project Boundary around Lundy Project waters – Lundy Lake and Mill Creek. The remainder of Lundy Project lands is largely dominated by shrub/scrub (31.3 percent), developed/open space (10.5 percent), and both evergreen forest and emergent herbaceous wetlands (8.1 percent). To gain a better understanding of land use and cover in the broader Lundy Project Area, NLCD data was also analyzed within a 0.5-mile buffer of the current Lundy Project Boundary. As is typical of the Upper Lundy Canyon, cover is predominantly shrub/scrub (67.2 percent), evergreen forest (15.6 percent), and herbaceous/grassland (5.2 percent).

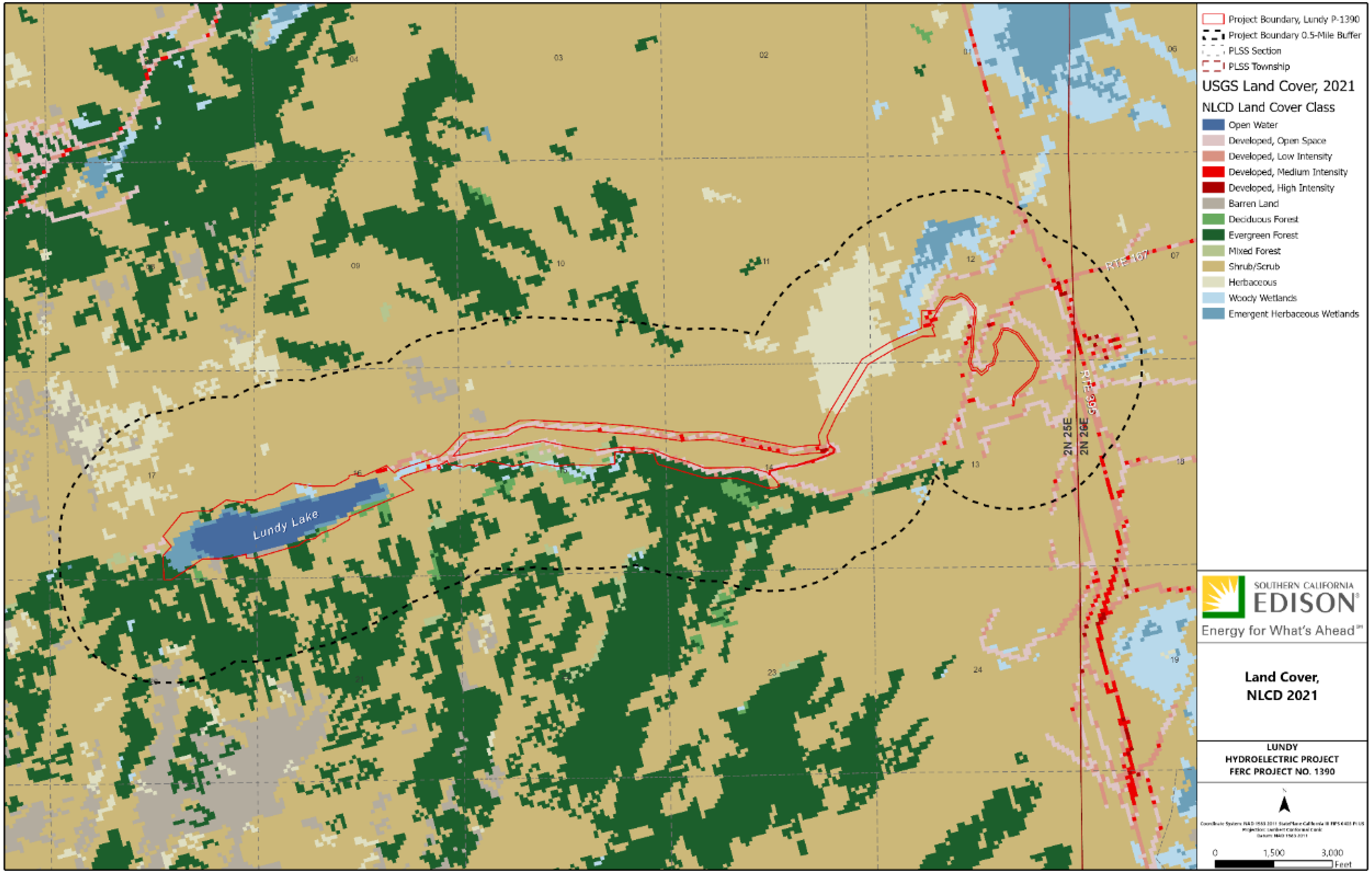


Figure 5.9-2. Land Use Classifications within 0.5 miles of the Lundy Project.

Table 5.9-2. National Land Cover Database Classifications within the Lundy Project Boundary as Compared to the Project Boundary with a 0.5-mile Buffer

NLCD Classification	Description of Classification	Lundy Project Boundary with 0.5-mile Buffer		Lundy Project Boundary	
		Acres	Percentage	Acres	Percentage
Shrub/scrub	Areas dominated by shrubs; less than 15 feet tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.	2857.9	67.2%	103.1	31.3%
Evergreen forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.	663.7	15.6%	26.8	8.1%
Barren land (rock/sand/clay)	Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	32.9	0.8%	2.0	0.6%
Open water	All areas of open water, generally with less than 25% cover of vegetation or soil.	88.3	2.1%	88.0	26.7%
Developed, open space	Includes areas with a mixture of some constructed materials but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large lot single-family housing units.	125.4	2.9%	34.6	10.5%
Herbaceous/ grassland	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling but can be utilized for grazing.	222.9	5.2%	11.0	3.3%

NLCD Classification	Description of Classification	Lundy Project Boundary with 0.5-mile Buffer		Lundy Project Boundary	
		Acres	Percentage	Acres	Percentage
Emergent herbaceous wetlands	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	53.4	1.3%	26.7	8.1%
Woody wetlands	Areas where forest or shrub land vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	63.7	1.5%	9.4	2.9%
Developed, Low-intensity	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20–49% of total cover. These areas most commonly include single-family housing units.	75.3	1.8%	13.0	4.0%
Developed, Medium-intensity	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50–79% of the total cover. These areas most commonly include single-family housing units.	15.6	0.4%	3.6	1.1%
Deciduous forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.	27.4	0.6%	4.2	1.3%
Developed, High Intensity	Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/ industrial. Impervious surfaces account for 80–100% of the total cover.	3.3	0.1%	0.2	0.1%

Source: MRLC Consortium, 2021

NLCD = National Land Cover Database

5.9.2.1. Shoreline Management Plan and Buffer Zones

There are no shoreline management plans or designated buffer zones associated with the Lundy Project reservoir. It is SCE’s general land use policy to provide an effective shoreline buffer that protects and enhances the Lundy Project’s scenic, recreational, and other environmental values, while ensuring continued safe and reliable production of hydroelectric power. The Lundy Project Boundary at this impoundment encompasses only the lands necessary for Lundy Project operations up to the reservoir elevation associated with the maximum operating capacity of the development. Generally, this boundary has been drawn through metes and bounds to encompass reservoir elevations with a slight buffer due to the accuracy of the metes and bounds survey.

Article 416 of the Lundy Project license provides SCE the means to authorize specific uses and occupancies of Lundy Project shorelines that are not on federally administered lands nor related to hydroelectric power or other Lundy Project purposes. These uses are typically referred to as non-Project uses. Currently, all non-Project use within the Lundy Project Boundary is associated with recreational facilities managed by Mono County. SCE will continue to work with Mono County and the USFS on any activity associated with Lundy Project shorelines.

5.9.2.2. Mono County General Plan

California Government Code §65300 requires each county to “adopt a comprehensive long-term general plan for the physical development of the county.” Further, California Government Code § 65302(a) specifically requires that a land use element be included in each general plan. The land use element is generally considered to be the most representative section of the general plan. Its primary purpose is to “correlate all land use issues into a set of coherent development policies for the private lands in the unincorporated area of the county” (Mono County, 2021).

Mono County most recently updated the land use element of its *Mono County General Plan* in 2021. According to the plan, lands within the current Lundy Project Boundary and within 0.5 mile of that boundary have been given the following land use classifications:

- Agriculture
    - Intended to preserve and encourage agricultural uses, to protect agricultural uses from encroachment from urban uses, and to provide for the orderly growth of activities related to agriculture.
- Commercial
    - Intended for a mix of uses and services, including retail, business, and professional services, as well as commercial lodging and denser housing, all of which must complement the retail and service functions of the community areas.

- Open Space
    - Intended to protect and retain open space for future generations. These lands may be valuable for resource preservation (e.g., visual open space, botanical habitat, stream environment zones, etc.), low-intensity recreational uses, mineral resources, or other reasons.
- Resource Management
    - Intended to recognize and maintain a wide variety of values in the lands outside existing communities. The Resource Management designation indicates the land may be valuable for uses including but not limited to recreation, surface water conservation, groundwater conservation and recharge, wetlands conservation, habitat protection for special-status species, wildlife habitat, visual resources, cultural resources, geothermal or mineral resources. The land may also need special management consideration due to the presence of natural hazards in the area; e.g., avalanche prone areas earthquake faults, flood hazards, or landslide or rockfall hazards.

The Lundy Project falls within the Mono Basin community area, for which the *Mono Basin Community Plan* outlines certain issues, opportunities, and constraints. Items specific to the Lundy Project are listed in Table 5.9-3 and specific goals and objectives are listed in Table 5.9-4.

Table 5.9-3. Issues, Opportunities, and Constraints in the Mono Basin Community Area

No.	Issue/Opportunity/Constraint
1	Residents express conflicting sentiments about additional growth. The concept of a sustainable, successful economy is supported, but the fear is that communities will need to become too big or “citified” to achieve this, sacrificing the rural characteristics and healthy natural environment valued by residents. The challenge is to appropriately balance economic development goals with the desired rural community characteristics and protection of the natural, scenic, historical, and recreational values of the area. Growth does not necessarily mean becoming bigger; it could also mean improving what already exists within the current development footprint.
3	Residents of Mono City are concerned about the expansion of their community beyond the current limits of the subdivision. They are concerned about possible impacts to visual quality and to the deer herd in the area. The impacts from increased traffic levels are also a concern.
4	Workforce housing opportunities, both to rent and buy, are needed to sustain the existing community and enable people to live where they work.
7	Federal resource management agencies and LADWP own and manage much of the land in the Mono Basin. Residents expressed conflicting sentiments about protecting the natural environment and sensitive habitats versus the ability to use, access, and enjoy the land without overly restrictive regulations and/or fees. The challenge is to work with other agencies and within regulations to ensure the ability to use and enjoy the land while protecting its health.

No.	Issue/Opportunity/Constraint
8	Agriculture and grazing, including cows and sheep, was common in the Mono Basin at one time and is greatly reduced or does not exist now. The pastoral nature of agriculture and grazing, sheep grazing in particular, was part of the character of the Basin, a basis for an historical way of life, and is highly valued by some. Possibilities exist to adapt sheep grazing practices to be compatible with resource protection and even to be used to enhance management of the natural landscape.
11	Residents are concerned about the lack of jobs that enable people to live in the community. An increase in employment opportunities and diversity, along with a sustainable and diversified economy, is generally supported.
12	Residents are deeply concerned about bringing the community together in order to overcome prejudice, support equal opportunity, reach across cultural barriers, and build social capacity. Residents would like to increase the social capacity and vitality of their communities by encouraging citizens to contribute to community life. A concern is that increasing second-home ownership results in residents who do not participate in the community.
13	Residents are interested in Conway Ranch operations, and generally support sheep grazing, aquaculture and other historic agricultural uses and infrastructure. Water availability is a concern, with apparent support for Conway Ranch to receive its full allotment of water. Opportunities for expanding the agricultural operations are also of interest.
14	Residents are interested in upland water management in the north. Identified issues include general water distribution and flows, the de-watering of historically green ranches and meadows, riparian habitat and stream health, maximizing water delivery to Mono Lake, and water for Conway Ranch operations.

Source: Mono County, 2012

LADWP = Los Angeles Department of Water and Power; USFS = U.S. Forest Service

Table 5.9-4. Goals and Objectives in the Mono Basin Community Area

Goal	Description of Goal	Objectives
10	Maintain the spectacular natural values of the Mono Basin and rural, small-town character of communities by managing growth, ensuring high quality aesthetics, and providing for community development needs to enhance the quality of life for residents.	*Objective 10.C.* Encourage building types and architectural design compatible with the scenic and natural attributes of the Mono Basin. *Objective 10.D.* Maintain, protect, and enhance the natural, historical, and recreational attributes of the Mono Basin. *Objective 10.E.* Promote well-planned and functional community uses that retain small-town character and increase quality of life. *Objective 10.F.* Provide appropriate public infrastructure and service capability expansion to support development, public safety, and quality of life.

Goal	Description of Goal	Objectives
11	Grow a sustainable local economy with diverse job opportunities that offers year-round employment and wages that reflect the cost of living in the area.	*Objective 11.A.* Plan for a diversified, sustainable economy. *Objective 11.B.* Enhance and support the existing tourism-related economy *Objective 11.C.* Diversify the existing economic base and employment opportunities to achieve a more sustainable economy.
12	Build a safe, friendly community where people feel connected, work together to resolve community issues, and are involved in community activities and events.	*Objective 12.A.* Build healthy social connections and interactions that contribute to a sense of community. *Objective 12.B.* Encourage and support local events and programs that provide community and youth activities, capitalize on the tourist economy, and bring the community together. *Objective 12.C.* Encourage people to volunteer in the community and participate in events.

Source: Mono County, 2021

Notes:
Objectives 10 through 12 pertain to the Mono Basin Community Area, in which the Lundy Project is located.
Refer to the Land Use Element portion of the Mono County General Plan for further definition of policies and actions for each proposed objective.

5.9.2.3. Inyo National Forest Land Management Plan

Effective November 24, 2019, the 2019 LMP was approved and is now the guiding direction for the Inyo NF, replacing the 1988 Land Management Plan and its amendments. The 2019 LMP is intended to identify long-term or overall desired conditions and provide general direction for achieving those desired conditions (USFS, 2019). As it relates to land use, special uses of National Forest System lands are managed in a way that protects natural resources, public health, and safety. Table 5.9-5 provides a summary of forest-wide desired conditions related to land use in the Inyo NF. Further details regarding guidelines and potential management approaches for each desired condition may be found in the 2019 LMP.

Table 5.9-5. Inyo NF Forest-wide Desired Conditions Related to Land Use at the Lundy Project

Code	No.	Forest-wide Desired Land Use Conditions
LAND-FW-DC	01	Land ownership and access management support authorized activities and uses on National Forest System lands. Land exchanges promote improved management of National Forest System lands.
LAND-FW-DC	02	Coordination of land and resource planning efforts with other Federal, State, Tribal, county, and local governments, and adjacent private landowners, promotes compatible relationships between activities and uses on National Forest System lands and adjacent lands of other ownership.

Code	No.	Forest-wide Desired Land Use Conditions
INFR-FW-DC	01	A minimum and efficient national forest transportation system, administrative sites, and other infrastructure and facilities are in place and maintained at least to the minimum standards appropriate for planned uses and the protection of resources.
INFR-FW-DC	02	Management operations on the Inyo NF are energy and water efficient.
INFR-FW-DC	03	Roads allow for safe and healthy wildlife movement in areas of human development. Vehicular collisions with animals are rare.
REC-FW-DC	01	The diverse landscapes of the Inyo NF offer a variety of recreation settings for a broad range of year-round, nature-based recreation opportunities. Management focuses on settings that enhance the national forest recreation program niche.
REC-FW-DC	02	The condition, function, and accessibility of recreation facilities accommodate diverse cultures with appropriate activities available to the public.
REC-FW-DC	03	Recreation opportunities provide a high level of visitor satisfaction. The range of recreation activities contribute to social and economic sustainability of local communities.
REC-FW-DC	04	Areas of the national forest provide for a variety of activities with minimal impact on sensitive environments and resources.
REC-FW-DC	05	Visitors can connect with nature, culture, and history through a range of sustainable outdoor recreation opportunities.
REC-FW-DC	06	The management and operation of facilities are place based, integrated, and responsive to changes that may limit or alter access.
REC-FW-DC	07	New developed recreation infrastructure is located in ecologically resilient landscapes, while being financially sustainable, and responsive to public needs.
REC-FW-DC	08	Summer dispersed recreation occurs in areas outside of high visitation, developed facilities, or communities, and does not adversely impact natural or cultural resources.
REC-FW-DC	09	Permitted recreation uses, such as recreation special events or guided activities, are consistent with recreation settings, protect natural and cultural resources, and contribute to the economic sustainability of local communities.
REC-FW-DC	10	Forest recreation information is current, connecting people to the national forest through contemporary means including social media and available technology. Diverse communities are aware of recreation opportunities on the Inyo NF.
REC-FW-DC	11	The Inyo NF provides a range of year-round developed and dispersed recreation settings that offer a variety of motorized and non-motorized opportunities and recreation experiences.
REC-FW-DC	12	Trails used in summer provide access to destinations, provide for opportunities that connect to a larger trail system, provide linkages from local communities to the national forest, and are compatible with other resources.
REC-FW-DC	13	Trails meet trail management objectives based on trail-class and designed use.
SCEN-FW-DC	01	The Inyo NF provides a variety of ecologically sound, resilient, and visually appealing forest landscapes that sustain scenic character, supporting the national forest recreation program niche in ways that contribute to visitors' sense of place and connection with nature.

Code	No.	Forest-wide Desired Land Use Conditions
SCEN-FW-DC	02	Scenic character is maintained and/or adapted to changing conditions to support ecological, social, and economic sustainability on the Inyo NF and in surrounding communities.
SCEN-FW-DC	03	Scenic integrity is maintained in places people visit for high quality viewing experiences.
SCEN-FW-DC	04	The Inyo NF's scenic resources complement the recreation settings and experiences, as described by the range of scenery integrity objectives, while reflecting healthy and sustainable ecosystem conditions.
SCEN-FW-DC	05	The built environment meets or exceeds scenic integrity objectives and contributes to scenic stability.

Source: USFS, 2019

The 2019 LMP defines the following seven management areas for the Inyo NF: fire management zones, conservation watersheds, Riparian Conservation Areas, sustainable recreation, recommended wilderness, eligible wild and scenic rivers, and the Pacific Crest Trail corridor. The Lundy Project Boundary and its 0.5 mile buffer fall within two of the seven management areas, as listed in Table 5.9-6.

Table 5.9-6. Inyo NF Management Areas Relevant to the Lundy Project

Management Area	Discussion of Relevance to the Project
Sustainable Recreation	Discussed in detail in Section 5.8.13.1., *Sustainable Recreation Management Areas*
Eligible Wild & Scenic Rivers	Discussed in detail in Section 5.8.9., *National Wild and Scenic River System*

Source: USFS, 2019

The 2019 LMP also defines the following 10 designated areas for the Inyo NF: Wilderness, Mono Basin National Forest Scenic Area, Wild and Scenic Rivers, Ancient Bristlecone Pine Forest National Protection Area (National Protection Area), Pacific Crest National Scenic Trail, Inventoried Roadless Areas, National Recreation Trails, Research Natural Areas, Scenic Byways, and Wild Horse and Burro Territories. While not within the Lundy Project Boundary or its 0.5-mile buffer, the following designated areas are found near the Lundy Project:

- Inventoried Roadless Areas within the Upper Lundy Canyon
- Mono Basin National Forest Scenic Area, approximately 6 miles downstream of the Lundy Project and surrounding Mono Lake

While no Congressionally designated wild and scenic rivers are found in the Upper Lundy Canyon, the entirety of Mill Creek within the Lundy Project Boundary has been determined to be eligible for listing by the USFS in the 2019 LMP. Eligibility for Mill Creek was determined based on recreational values. (Section 5.8.9, *National Wild and Scenic River System*).

5.10. AESTHETIC RESOURCES

5.10.1. INTRODUCTION

This section describes the aesthetic resources at and in the vicinity of the Project. Aesthetic resources include the visual characteristics of the lands and waters affected by the Project including a description of the dam, natural water features, and other scenic attractions of the Project and surrounding vicinity.

5.10.2. INFORMATION SOURCES AND VISUAL RESOURCES MANAGEMENT PLANS

This section was prepared utilizing the following primary information sources:

- USDA Forest Service, Inyo National Forest main website (USFS, 2020)
- Inyo National Forest Land Management Plan (USFS, 2019)
- National Forest Foundation data on the Inyo National Forest (NFF, 2020)

5.10.3. LUNDY PROJECT FACILITIES

5.10.3.1. Lundy Project Lands and Waters

The Lundy Project is located just outside of Mono City on Lundy Lake in the glacially carved mountain region of California, 1 mile north of the eastern entrance to Yosemite National Park. The Lundy Canyon has a peak elevation of 7,660 feet and is set amongst aspen groves (Mono County, 2023). Land ownership both within the Lundy Project Boundary and within a 0.5-mile buffer is comprised predominantly of federal lands administered by the USFS, with a small portion of lands owned by SCE and a small portion crossing lands administered by the BLM at the east end of the Lundy Project Boundary (Table 5.10-1). See Section 5.9, *Land Use*, for additional details.

Table 5.10-1. Land Ownership/Administration within the Lundy Project Boundary

Ownership/Administration Agency	Acreage	Percentage of Total
Federal Land – BLM	1.0	0.3%
Federal Land – USFS	44.7	13.6%
Non- Federal Land – SCE	282.5	85.7%
Non- Federal Land – Mono County	1.2	0.4%
Total Project Acreage	**329.4**	**100%**

Source: USFS, 2022, BLM, 2022, Baker, 2021
BLM = United States Bureau of Land Management; SCE = Southern California Edison; USFS = United States Forest Service, Inyo National Forest

5.10.3.2. Visual Character of the Lundy Project

The Lundy Project resides in primarily undeveloped area and the Lundy Project facilities are primarily surrounded by shrub/scrub vegetation, with limited evergreen forest and deciduous forest. The key visual features associated with the Lundy Project are Lundy Lake, Lundy Dam, a flowline, a penstock, a powerhouse, and the MCRD. The Lundy Project facilities are visible from Lundy Lake Road, Lundy Dam Road, and Mill Creek Powerhouse Road. The scenic character of Lundy Lake and Mill Creek are predominantly undeveloped shorelines with occasional recreation facilities and structures. Vegetated areas are followed by barren rock, exposed rock boulders, and distant views of hills and mountains beyond. The lowland and surrounding mountain areas are covered in dispersed snow in winter.

Photo 5.10-1 shows a representative view of Lundy Lake. Photo 5.10.2 shows the boat launch and Photo 5.10.3 provides a view of the bypass. Photo 5.10-4 and Photo 5.10-5 provide representative views of the tailrace within the Lundy Project Boundary.

5.10.4. Visual Character of the Project Vicinity

Photo 5.10.1. View of Lundy Reservoir Facing Southwest.

Photo 5.10.2. View of Lundy Reservoir Boat Launch.

Photo 5.10.3. View of Lundy Bypass.

Photo 5.10.4. Lundy Powerhouse Tailrace.

Photo 5.10.5. Lundy Powerhouse Tailrace Facing Northeast.

5.10.5. EXISTING AESTHETIC RESOURCES ENHANCEMENT AND MANAGEMENT MEASURES

The existing Lundy Project license includes aesthetic enhancement and management measures, as listed below.

- The Lundy Project Erosion Control Plan (Section 4(e) Condition 8) provides general measures to control erosion, stream sedimentation, soil mass movement, and dust occurring as the result of planned small-scale construction associated with normal operation of the facilities (see Section 5.1, *Geology and Soils,* for additional information).
- The Lundy Project Visual Resource Plan (Section 4(e) Condition 10) includes measures for Lundy Project-related activities or maintenance to consider building materials, color, conservation of vegetation, and landscaping to preserve the aesthetics of the Project Area.

5.10.5.1. Nearby Scenic Attractions

Recreation opportunities at the national forest include camping, hiking, biking, hunting, water activities, nature viewing, climbing, fishing, and snow sports. The nearest national trail to the Project is the Pacific Crest National Scenic Trail, which traverses along the western side of the Sierra Nevada crest through Yosemite National Park (see Section 5.8, Recreation Resources, for more information). One of the United States' most popular parks, Yosemite National Park, is located approximately 3 miles west of the Lundy Project and had approximately 4.5 million visitors in 2019 (NPS, 2020). The Lundy Project is also surrounded by other federally designated national parks and national forests including, Tahoe (approximately 170 miles), Stanislaus (approximately 90 miles), Humboldt-Toiyabe (approximately 81 miles), Sierra (approximately 105 miles) and Sequoia (approximately 210 miles) National Forests, and the Kings Canyon (approximately 215 miles) and Sequoia (approximately 240 miles) National Parks.

5.10.5.2. Inyo National Forest Land Management Plan

The following aesthetics identification and map (Figure 5.10-1) applies to 37.0 percent of the Lundy Project lands associated with forested land (Table 5.10-1). The 2019 LMP (USFS, 2019) provides a planning framework for the management of uses and resources associated with the Inyo NF (see Section 5.8, *Recreation Resources*, and Section 5.9, *Land Use*, for more information). The Forest Service Land Management Planning Handbook (USFS, 2015) identifies scenic character as the combination of the physical, biological, and cultural images that give an area its scenic identity and contribute to its sense of place. Scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity. The Inyo NF LMP identifies desired conditions for scenic character (see Section 5.9, *Land Use*, Table 5.9-5) and scenic integrity objectives (desired conditions) for the management and preservation of scenic character within the Inyo NF.

As described in the Inyo NF LMP (USFS, 2019), scenic integrity objectives describe the minimum thresholds for the management of the scenery resource, ranging from very high to low scenic integrity objectives. Scenic integrity objectives describe the degree to which desired attributes of the scenic character are to remain and reflect changes in public perceptions and the importance of viewing scenery as well as integrating scenery resources with the overall management of the landscape.

The USFS measures scenic integrity in five levels (USFS, 2019):

Very High: landscapes where the valued scenic character “is” intact with only minute, if any, deviations. The existing scenic character and sense of place is expressed at the highest possible level.

High: landscapes where the valued scenic character appears unaltered. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the scenic character so completely and at such scale that they are not evident.

Medium: landscapes where the valued scenic character appears slightly altered. Noticeable deviations must remain visually subordinate to the scenic character being viewed.

Low: landscapes where the valued scenic character appears moderately altered. Deviations begin to dominate the valued scenic character being viewed but they borrow valued attributes such as size, shape, edge effect, pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed, but compatible or complementary to the character within.

Very Low: landscapes where the valued scenic character appears heavily altered. Deviations may strongly dominate the valued scenic character. They may not borrow from valued attributes such as size, shape, edge effect, pattern of natural openings, vegetative type changes, or architectural styles within or outside the landscape being viewed. However, deviations must be shaped and blended with the natural terrain so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

For land within the Lundy Project Boundary, the USFS predominantly identifies scenic integrity objectives as High (87.5 percent), with a small amount of land identified Medium (12.5 percent) (see Figure 5.10-1). For land within a half-mile buffer of the Lundy Project Boundary, the USFS predominantly identifies scenic integrity objectives as High (80.25 percent) and Very High (18.3 percent), with a miniscule amount of land identified Medium (1.4 percent) (see Figure 5.10-1). The Inyo NF LMP also identifies potential management approaches relative to vegetation management and consideration of scenic character, such as minimizing visible lines in landscape areas where vegetation is removed and cleared areas include edges reflect the visual character of naturally occurring vegetation openings.

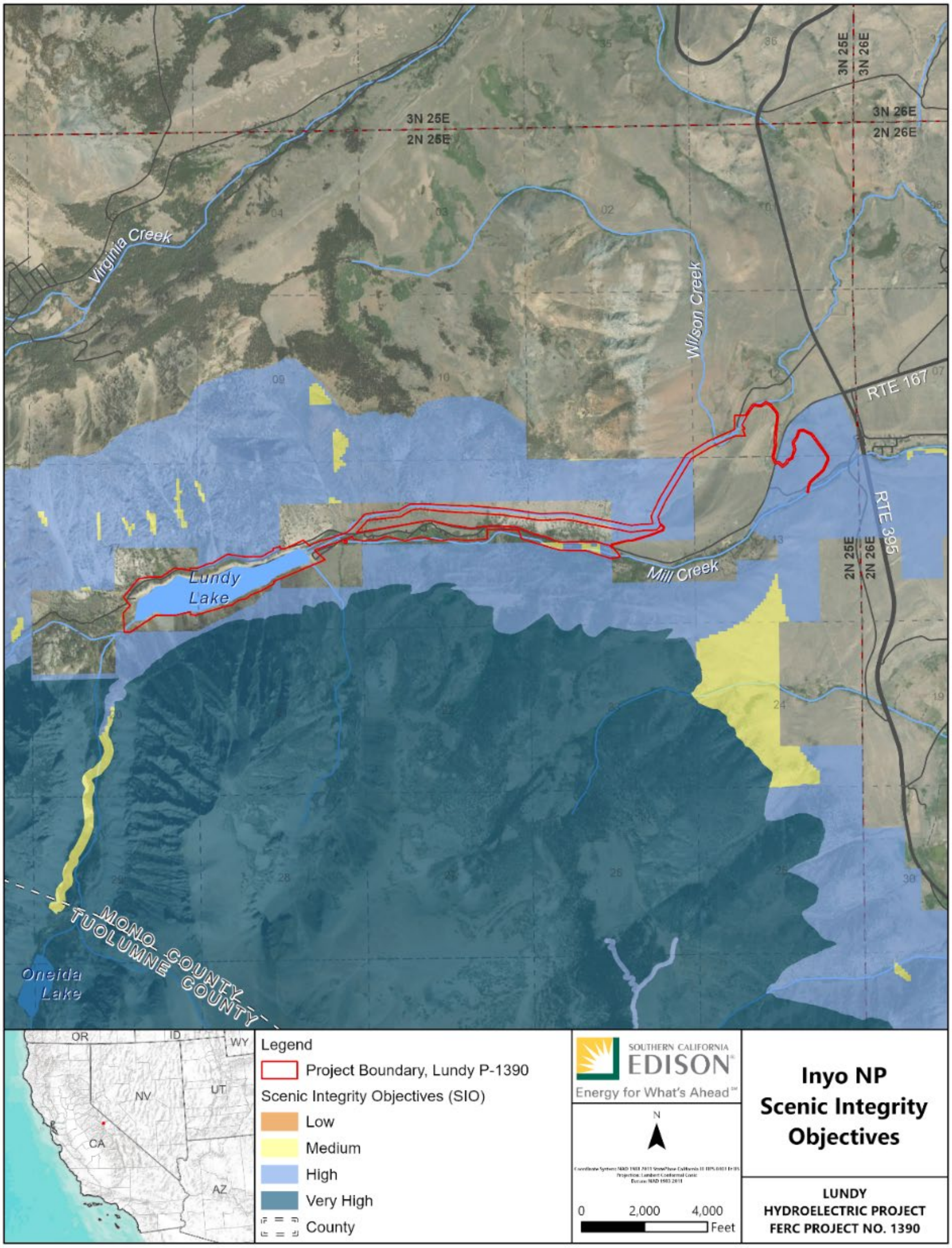


Figure 5.10-1. Inyo National Forest Land Management Plan Scenic Integrity Classifications for the Project Vicinity.

5.10.6. Wild and Scenic Rivers and Scenic Highways/Byways

No rivers associated with the Project are included in the National Wild and Scenic Rivers System; however, the 2019 Inyo NF LMP (USFS, 2019) has recently identified over 75 miles of river in the Mono Basin as eligible for inclusion in the National Wild and Scenic Rivers System, including all of Mill Creek (see Section 5.8, *Recreation Resources*, for more information).

Approximately 3 miles west of the Lundy Project is Yosemite National Park, much of which is accessed along State Route 120 to the park's eastern entrance, where a large portion of those 4 million annual visitors make their way through the Inyo NF (NPS, 2023). The Mono Basin National Forest Scenic Area is approximately 6 miles south and 6 miles east of the Lundy Project. Mill Creek, which flows down Lundy Canyon, empties into Mono Lake, one of the oldest lakes in North America at over 700,000 years old.

The Lundy Project is located along Lundy Lake Road, which runs west to east across the northern part of Lundy Lake connecting Highway 395 and Highway 167, outside of the Lundy Project Boundary. Lundy Lake Road is partially closed in winter due to Mono County snow removal priorities.

The Lundy Project is within the Mill Creek basin with two creeks within the Lundy Project Boundary, including Deer Creek that runs north/south connecting to the east side of Lundy Lake, and Mill Creek, running east/west and connecting Lundy to Mono Lake.

5.11. CULTURAL RESOURCES

5.11.1. INTRODUCTION

This section presents information about cultural resources in the vicinity of SCE's Lundy Project (FERC Project No. 1390). It provides (1) a definition of the proposed Area of Potential Effects (APE); (2) a broad overview of the pre-contact Native American ethnographic and historical settings for contextual purposes; (3) a description of the known cultural resources (archaeological and built environment) within the proposed APE and Study Area, including identification of properties that are listed or eligible for listing in the National Register of Historic Places (NRHP); and (4) a discussion of ethnic or social groups that may attach significance to cultural resources within the proposed APE and vicinity. The resource information presented in this section is based primarily on research and surveys previously conducted by SCE. Tribal resources are discussed separately in Section 5.12.

5.11.2. AREA OF POTENTIAL EFFECTS AND STUDY AREA

A Project's APE is defined in 36 CFR § 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." SCE proposes that the APE for the Project include all lands within the FERC Project Boundary and a 50-foot radius around FERC ancillary facilities such as gages located outside of the FERC boundary. The proposed cultural resource Study Area is a 0.5-mile radius around the proposed APE that was used to capture cultural resource information and facilitate knowledge about past settlement-subsistence practices, and past land use (Figure 5.11-1).

5.11.3. INFORMATION SOURCES

The background research includes the proposed Study Area to facilitate knowledge about past settlements, subsistence practices, and land use. The cultural resources section of this PAD was developed using information obtained from the SCE archives and online GIS systems, which in turn contain data provided by USFS and the California Historical Resources Information System (CHRIS) Eastern Information Center (EIC) at the University of California, Riverside. An updated records search was obtained from EIC in April 2023.

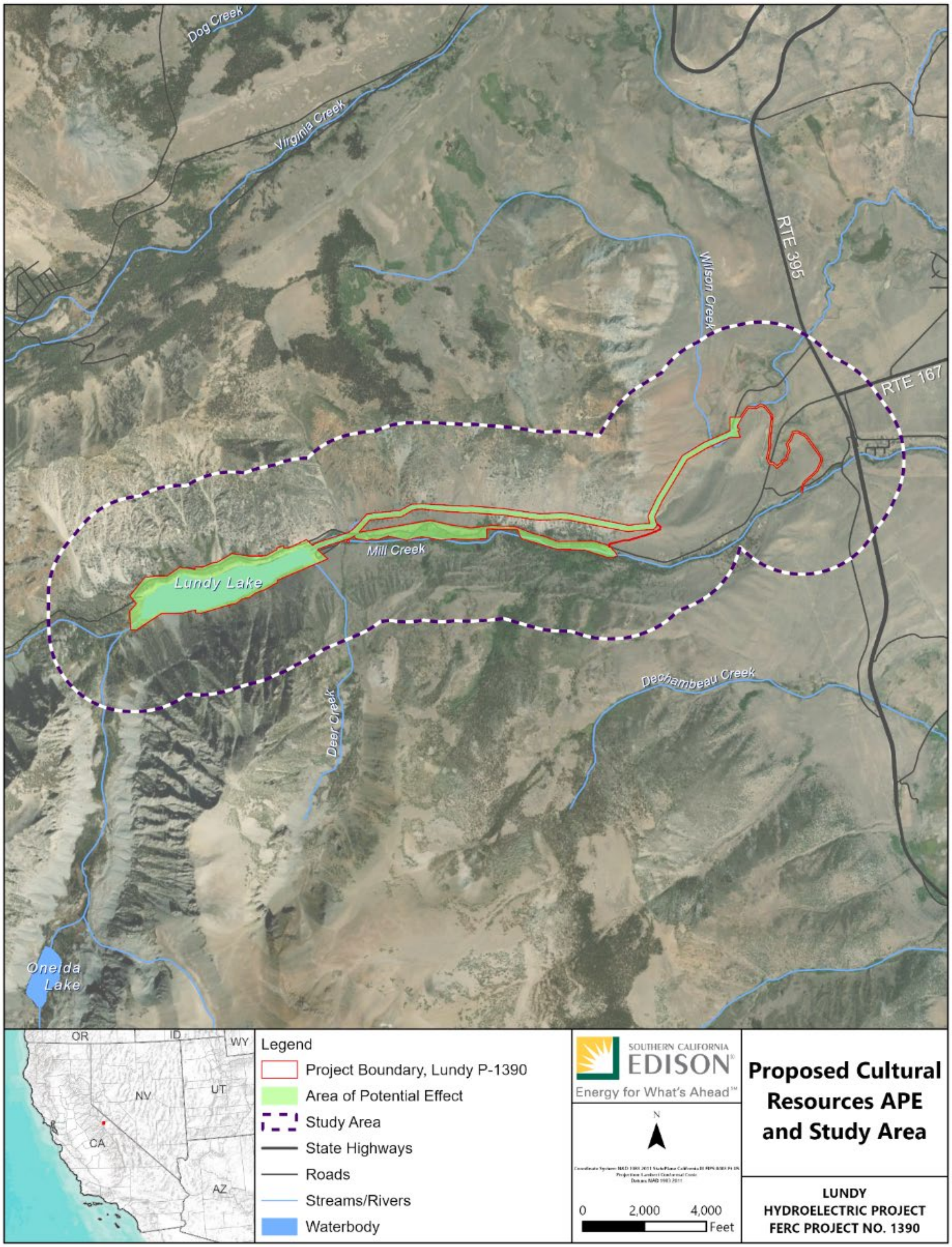


Figure 5.11-1. Proposed APE and Study Area.

5.11.4. Environmental Setting

5.11.4.1. Physical Environment and Climate

The Sierra Nevada forms an abrupt orographic boundary focusing significant precipitation on its mountainous western slopes. The crest blocks precipitation from reaching the enclosed basins beyond the eastern escarpment, producing an abrupt moisture dichotomy between the generally mesic, subalpine habitats of the tarn lakes and floodplain meadows of Mill Creek drainage net through Lundy Canyon and the xeric sagebrush steppe and local riparian corridors of the Great Basin immediately to the east. Up to 125 cm of precipitation (water content) can fall along the crest annually, enlarging the winter snowpack at 20 Lakes Basin and Lundy Pass, while the Mono Basin, only a few miles east, receives about 13 cm per year (Hodelka et al., 2020; Montague, 2010). At Tuolumne Meadows (Montague, 2010), just west of the Project Area and a proxy for the alpine settings above Lundy Lake, the maximum temperature in summer averages 21.7°C (71°F), with a minimum winter average of 2.6°C (37°F). The average winter maximum reaches 5.2°C (41°F), with chilling low averages of -13.0°C (8.6°F) annually. The high-altitude cold and significant winter precipitation support a deep snowpack whose moisture is released slowly, supporting meadows and riparian habitats on both sides of the crest well into the summer.

The orographic effect also influenced past climate along the crest. The Project Area was fully glaciated during the Late Pleistocene with deep, scouring glaciers extending from the stepped cirques below North Peak and Excelsior Mountain, burying and ultimately shaping the landforms of the Project Area. With glacial retreat culminating between 18,000 and 16,000 years ago, pluvial Lake Russell reached its highstand (Ali, 2018; Hodelka et al., 2020). The lake record shows several high-amplitude fluctuations on either side of the Pleistocene–Holocene transition about 12,600 years ago, suggesting shifts in wet storms systems, pulses of glacial expansion locking up moisture, and glacial retreat providing surface water to the streams and basin lake.

The Early Holocene was drier and colder than today; sagebrush and grass pollen appear in the Early Holocene (earliest) section of a pollen core at Tioga Pass Lake (Spaulding, 1999). Cooler and wetter conditions, with brief forest expansions, arrive in the high country by about 6,000 calendar years (cal) Before Present (BP). The current woodland pattern of subalpine forest was established about 2,500 years ago with expansions and contractions due to drought and climate punctuating the Late Holocene. Extreme drought is evident during the Medieval Climate Anomaly, 1100-700 cal BP (Mensing et al., 2008; Stine, 1994). Although the mountain received winter moisture, it was not enough to support tarn lakes, and flashy stream and groundwater discharge depleted earlier in each season. Downed trees in Tenaya Lake (Stine, 1994), downstream to the west of the Sierran crest, record the diminished surface water during the Medieval Climate Anomaly. The drought was long enough for woodlands to occupy the lake basins unless other changes (e.g., tectonics, landslides) altered the drainage and pool levels. About 600 years ago, the Little Ice Age may have resulted in reactivated glaciers due to increased orographic winter precipitation. The Little Ice Age glacial advance was confined to cirques (Gillespie and Zehfuss, 2004), and although the Project Area remained free of glaciers, it seems likely that snow depths were significant and may have been year-round. This may have affected recent patterns of resource productivity and access to the passes and corridors of the Sierran crest just prior to European contact and the resulting dramatic changes in the ethnohistoric land use of Lundy Canyon.

5.11.4.2. Geomorphological Context

Formed beneath the deep glaciers that engulfed the cirque-line crest of the Sierra Nevada, the landscape of the Lundy Canyon is a product of the Late Pleistocene glaciation. Glaciers extending along the crest formed a coalesced glacial mass that pushed into and scoured canyons along the eastern front. Near Lundy Pass, the glacials worked basinward from escarpments of Excelsior Mountain (12,445 feet amsl) and North Peak (12,242 feet amsl), where the scouring glacial mass formed the 20 Lakes Basin before dropping into Lundy Canyon. The Mill Creek glacier carved the steep-sided Lundy Canyon, forming a series of steps at structural resistance. Lundy Lake, at the western extent of the Project Area, occupies the trough of Lundy Canyon, just below the confluence of Mill and South Fork creeks at Lake Canyon, itself formed by a glacier tributary to that of Mill Creek.

While the gravity of the western slope and the Grand Canyon of the Tuolumne pulled the Dana glacier westward, the Lee Vining glacier dropped eastward into the Great Basin, carving a dramatic canyon of its own as it extended toward the basin of Mono Lake and pluvial Lake Russell. The bedrock of Lundy Canyon is a mix of granodiorite and plutonic rocks – components of the Tuolumne Intrusive Suite (Coleman et al., 2004) – that intrude remnants of metasedimentary and metavolcanic rocks (Hodelka et al., 2020). The Pleistocene glaciers scoured the bedrock exposing patchy rock surfaces surrounded by rubble of canyon colluvium, irregular ground moraines, and well-formed end and lateral moraines. With the retreat of glaciers in the Terminal Pleistocene and Early Holocene, extreme surface flow continued scouring the once-glaciated terrain. Pluvial Lake Russell in the basin of Mono Lake reached its highstand during the period of glacial retreat (Ali, 2018) and high meltwater drainage into Lundy Canyon. Eventually, floodplain and linear riparian habitats formed as drainages sought equilibrium in the scoured landscape.

Tarn lakes, formed in minor cirques and in-ground moraine catchments, are a common feature of the eponymous 20 Lakes Basin in the upper reaches of Lundy Canyon. Today, local drainages are generally steep, relatively straight channels with pools and riffles leading to dropping falls. However, Lee Vining Creek's upper reach has evolved into a meandering channel with a broad wetland floodplain between steep confining slopes. The floodplain shows distributary meanders and oxbows along a channel subject to high seasonal fluctuations due to local runoff. Geologic structures create pools and wetlands along mid-canyon reaches of Mill Creek, and well-preserved end moraines create natural restrictions impounding relatively broad floodplains. Where there is evidence of long-term floodplain stability, shown by moderately developed soils and an absence of recent channeling, the floodplain deposits have potential for preserving an intact, buried archaeological record.

Below Lundy Lake, the Project Area is generally confined to sections of the Mill Creek floodplain and the foot of colluvial slopes of the south-facing (north side or left bank) canyon margin. Soils are generally poorly developed and immature (A-Bw-C or A-C horizons) on the young active landforms. Soils forming on the formerly glaciated landscape or fan inset below the Pleistocene stands of pluvial Lake Russell are, of course, Holocene-age profiles. These immature profiles are A-C horizons on young landforms of moraines, floodplains, and minor alluvial fans. The profiles are generally thin and shallow on local plutonic (i.e., granitic) bedrock, till, or small, inset floodplains. In general, soils and sedimentary parent material throughout the Project Area form a shallow veneer on local bedrock with the deepest profiles in floodplain meadows. Beyond the canyon, in the alluvial systems surrounding the prominent lateral moraine that protrudes in the Mono Basin – the end of the sedimentary conveyor belt of the Mill Creek glacier – sedimentary profiles may be very deep. While archaeological resources are likely to manifest as surface assemblages on the moraines, the margins of the moraines and the smaller inset fans below the mountain have the potential to bury and preserve sites that might otherwise reveal limited surface expression. These locally confined areas include the small inset reaches of the Wilson System in the vicinity of the Powerhouse and areas of the outwash floodplain near the eastern terminus of the Project Area, areas generally mapped as the DeChambeau soil series (NRCS, 2023).

5.11.4.3. Flora and Fauna

This section has been adapted from Davis-King and Snyder (2010), Montague (2010), and Stevens and Lenzi (2015). The Project Area lies at the western margin of the Basin and Range Province, a region defined as semidesert due to the rain shadow effect of the adjacent Sierra Nevada. However, semidesert conditions are ameliorated by significant winter precipitation and spring runoff in high elevations connected to the Project Area. Subalpine habitat and lodgepole pine (*Pinus contorta*) community flourishes adjacent to seasonally flooded riparian meadows. The subalpine areas, dominant throughout much of the Project Area, transition eastward to stream-side riparian habitats along Mill Creek in Lundy Canyon. Subalpine communities are dominated by lodgepole pine (*Pinus contorta*), as mentioned, but also feature Jeffrey pine (*Pinus jeffreyi*) and white fir (*Abies concolor*). Occasional limber pine (*Pinus flexilis*) and whitebark pine (*Pinus albicaulis*) occur between approximately 8,000 and 9,500 feet, approaching the Project Area at its western extent. These may have colonized lower elevations briefly following glacial retreat at the close of the Pleistocene. Wet meadows in subalpine habitats – a common Project Area setting – harbor root plants, especially various wild onion (*Allium* sp.) varieties, lupine (*Lupinus latifolius*), grasses, and sedges. Willows (*Salix* sp.) and cottonwood/aspen (*Populus* sp.) communities, along with the occasional pinyon pine (*Pinus monophylla*), occupy the rock-bounded linear corridor of Lundy Canyon. The variety of useful plants available seasonally in well-watered areas of subalpine habitats is significant for Native peoples.

Fauna within these communities consists primarily of various mammals and migratory birds. Common summer residents of the subalpine zone include the mountain bluebird (*Sialia currucoides*), Clark’s nutcracker (*Nucifraga columbiana*), gray-crowned rosy finch (*Leucosticte tephrocotis*), and white-crowned sparrow (*Zonotrichia leucophrys*). A variety of mammals are found within these communities at times throughout the year; these include the yellow-bellied marmot (*Marmota flaviventris*), Nuttall's cottontail (*Sylvilagus nuttallii*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), badger (*Taxidea taxus*), black bear (*Ursus americanus*), and possibly grizzly bear (*Ursus arctos horribilis*) (Montague, 2010). Historically, bighorn sheep (*Ovis canadensis*) would have also been present in the higher elevations. Rodents are particularly prevalent at higher elevations and important to Native American subsistence.

5.11.5. Cultural Setting of the Project and Vicinity

5.11.5.1. Pre-contact Setting of the Project Vicinity

This section describes the pre-contact chronology and general archaeological patterns (i.e., the setting) characterizing the Mono Basin region. References primarily include Montague's synthesis (2010) of the archaeology of the Tuolumne River watershed, Stevens et al.'s testing results (2015) at the nearby Mountain Warfare Training Center, Rosenthal's synthesis (2012) of the archaeology of Crane Flat, and work by Clay and King (2020, 2021) in the Bodie Hills. The text contains excerpts from Clay and King (2020, 2021) and McGuire et al. (2015), which provide context to the pre-contact archaeology aboard the Naval Air Weapons Station in China Lake.

According to these researchers and others who have worked extensively in this part of Mono County (e.g., Basgall, 1998; Bettinger, 1981; Bieling, 1992; Fredrickson, 1991, 1998; Giambastiani, 1998; Halford, 1998, 2008; Noble, 1992; Overly, 2002, 2004), the Lundy Canyon pre-contact setting is broadly divided into three temporal intervals: Early Holocene (pre-8200 cal BP), Middle Holocene (8200–3400 cal BP), and Late Holocene (3400–600 cal BP), with the Late Holocene era subdivided into the Newberry (3400–1300 cal BP), Haiwee (1300–600 cal BP), and Marana (600–150 cal BP) archaeological periods. These divisions reflect broad adaptive shifts, referencing hundreds of radiocarbon and obsidian hydration assays and observations of technological shifts based on a regional research base spanning decades.

<u>Early Holocene (pre-8200 cal BP)</u>

Evidence for the Early Holocene occupation of the Mono Basin is sparse, represented by just a few widely dispersed sites (Basgall, 1987, 1988; Hall, 1990), some of which are in the nearby Rush Creek project area (York, 1990). The presence of Great Basin or Western Stemmed (e.g., Lake Mohave, Silver Lake, etc.) or fluted/concave-based (i.e., Clovis, Western Fluted, etc.) spear or dart points, along with formalized flaked stone tools in archaeological assemblages mark these occupations. Associated archaeology suggests a high degree of residential mobility, with most debitage composed of local obsidian, particularly the Casa Diablo or Bodie Hills sources (Halford, 2001, 2008), but most formal tools made from a variety of more distantly available toolstones (Basgall 1989, 1991; Delacorte 1999). The use of seed resources appears minimal, given the near absence of associated milling gear. Instead, hunter-gatherer diets seemed to have focused on large and small game animals, the latter of which are prevalent in arid settings (Elston et al., 2014; Hall, 1990).

Brady's (2011) study supports suppositions regarding regional Early Holocene hunter-gatherer mobility patterns. Specifically, he found through sourcing and hydration analyses of obsidian artifacts collected during a probabilistic survey of the wetland settings around Mono Lake that the earliest Holocene use of the basin focused on brackish environments tracking lake level recession to the north and south of the catchment, where sampled obsidian reflected toolstone acquired from farther sources than Mono Craters, implying wider hunter-gatherer mobility tied to fluctuations in lake levels.

MIDDLE HOLOCENE (8200–3400 CAL BP)

The Middle Holocene (aka, the Little Lake Period; Bettinger and Taylor, 1974) is marked by Pinto or Gatecliff dart points (Basgall and McGuire, 1988; Delacorte et al., 1995; Gilreath, 1995; Hall, 1980; Jackson, 1985; Jenkins and Warren, 1984; Peak, 1975), overlapping the Early Martis period (5000–3000 cal BP) of the Sierra chronology. Gilreath and Hildebrandt (1997) also found that thicker, more robust Elko projectile points, typically a Newberry Period marker, tended to be older than thinner versions based on obsidian hydration data, a pattern confirmed by Norton (2008). Larson (2009) also documented unusually old Elko points among assemblages along the Owens River.

Beyond insecure archaeological markers, this period remains enigmatic as land-use patterns appear to have been severely affected by a prolonged regional warm-dry climate cycle (the mid-Holocene Xerithermic Period). Arid conditions generally persisted between 8500 and 3800 cal BP, with the severest conditions occurring prior to 6300 cal BP (Mensing et al., 2004; Wigand and Rhode, 2002). Post-6300 cal BP, drought conditions may have slightly ameliorated, but its severity was punctuated. As throughout the Great Basin, a noticeable gap in components dating to this interval is present in the Inyo-Mono record (Basgall, 2009), although evidence points to continued acquisition of Bodie Hills obsidian (Halford, 2001, 2008). Likewise, the marginal fringes of the Great Basin, perhaps including the eastern Sierra, may have sustained human occupation during this time or even served as refugia for populations in drier hinterlands (McGuire, 2007:170–172; Milliken and Hildebrandt, 1997).

Overall, patterns of toolstone acquisition and use, mobility, and hunting among regional Middle Holocene assemblages resemble those of the Early Holocene. They differ by showing an increase in the frequency of milling gear, a shift probably reflecting a broadening diet breadth incorporating seed resources in response to climatic conditions and associated reduced environmental productivity (Antevs, 1948; Warren and Crabtree, 1986).

LATE HOLOCENE (3400–600 CAL BP)

Newberry Period (3400–1300 cal BP)

Regionally marked by Elko-series dart points and Humboldt Basal-notched bifaces in archaeological assemblages, alongside a variety of *Olivella* shell beads (i.e., F2, G2, G3, and L series), the Newberry Period reflects an era where hunter-gatherers remained highly mobile, but occupied smaller ranges and engaged in more directed and regular seasonal movements, as well documented in the Owens and Deep Springs Valleys (Basgall and McGuire, 1988; Bettinger, 1989, 1999a; Bettinger et al., 1984; Delacorte, 1990). Local hunter-gatherers probably inhabited and re-occupied longer-term lowland settlements supported by task-specific, logistical acquisition of upland resources like pinyon, bighorn sheep, and marmots, as implied throughout the region (Bettinger, 1991; Delacorte, 1990; McGuire, 1981; Montague, 2010; Stevens, 2005; Wickstrom, 1993; Wallace, 1958).

Trans-Sierran obsidian transport and exchange appear to have reached its peak during this period (Rosenthal, 2012), as suggested by an overall increase in quarry production and biface manufacture at several regional sources, including Bodie Hills, Mono Lake, and Casa Diablo. Obsidian sourcing among sites in the western Sierra also suggests that people conveyed material in an east-west direction, confined by watershed boundaries that would have made north-south travel difficult (Davis-King and Snyder, 2010; Montague, 1996; Rosenthal, 2012).

More regularized settlement patterns that emerged during this interval, which in turn fostered more predictable interaction among neighboring populations, probably explain this obsidian conveyance pattern (Basgall, 1983; Ericson, 1982; Gilreath and Hildebrandt, 1997, 2011; Goldberg et al., 1990; Hall, 1983; King et al., 2011). The clustering of sites along east-west travel corridors leading from the Summit/Virginia, as well as Tioga, Mono, Parker, and Donohue passes supports this idea of regular trans-Sierran travel. The Mono Trail, passing through Bloody Canyon, Mono Pass, and Tuolumne Meadows, was probably the most convenient route between Yosemite Valley and Mono Lake (Montague, 2010).

Haiwee Period (1300–600 cal BP)

The regional adoption of the bow and arrow, suggested by the archaeological presence of Rose Spring and similar arrow-sized points (e.g., Eastgate and Saratoga Springs forms), characterizes the Haiwee Period. *Olivella* shell beads of the D and M series are also markers, and Humboldt Basal-notched bifaces likewise persist among contemporaneous resources. Lowland archaeological assemblages containing residential and bedrock milling features, extensive flaked and ground stone accumulations, and rich suites of floral and faunal material emphasize a restructuring of local subsistence-settlement systems accompanying this major technological change, highlighting a shift toward the establishment of permanent or semi-permanent villages. Temporary upland pinyon camps and centralized seed production stations in the valley bottoms probably supported these residential bases (Basgall and McGuire, 1988; Bettinger, 1989), which served in part to defend stored commodities, such as acorns (Bettinger, 2015; Whelan et al., 2013).

Contemporaneous higher-elevation archaeological assemblages are also more likely to contain bedrock milling and other features, portable ground stone, and midden deposits, suggesting more intensive use of higher-elevation settings (Montague, 2010). Notable decreases in toolstone richness, increased evenness between tool and debitage material preferences, and higher frequencies of expedient, non-curated milling gear further imply that the scale of seasonal elevational movements diminished, resulting in overuse of marginal resources within progressively smaller foraging areas. (Basgall, 1989; Basgall and Giambastiani, 1995; Basgall and McGuire, 1988; Bettinger, 1989, 1999a, 1999b; Bettinger and Baumhoff, 1982; Delacorte, 1990; Delacorte and McGuire, 1993). A collapse of interregional obsidian conveyance networks seems to accompany this shift in settlement patterning (Bettinger, 1977, 1982; Bettinger and King, 1971; Gilreath and Hildebrandt, 1997), a supposition supported by obsidian hydration data from western Sierra sites and distant quarries (Rosenthal, 2012).

While variable, increased territoriality and arrow technology probably best explain this collapse. Regarding the former, demand for obsidian appears higher prior to the Haiwee Period, and acquisition constraints limited (Gilreath and Hildebrandt, 1997). Over time, however, the widescale conveyance of obsidian and other commodities became inhibited as residential mobility decreased and population density and territoriality increased, restricting free movement across the landscape. From a technological perspective, the reduced need for toolstone with small arrow points made on smaller flakes instead of prepared bifaces or larger flake blanks tandemly reduced the overall importance of obsidian in regional economies (Basgall and Giambastiani, 1995; Gilreath and Hildebrandt, 1997; Goldberg et al., 1990).

Marana Period (600–150 cal BP)

Cottonwood and Desert Side-notched arrow points are key archaeological markers of the Marana period in the eastern Sierra. Owens Valley Brownware; E, J, and K series *Olivella* shell beads; steatite and talcic schist disk beads; and schist millingstones (cf. Hanrahan, 2022) also variably mark contemporaneous archaeological assemblages. Many of the trends characterizing Haiwee Period settlement-subsistence patterns continued, including the more intensive use of local environments, particularly increased use of riparian and lacustrine settings (to obtain flies, shrimp, shellfish, waterfowl, and tule seeds), pine nuts in the intermediate zones, and a variety of root crops and small mammals in the subalpine zones of the Sierra Nevada (Basgall and McGuire, 1988; Delacorte, 1999). This intensification is likely attributed to large, dense populations, as evidenced by well-developed midden deposits dating to this period in Sierran sites (Moratto, 1999). The introduction of ceramic vessels, perhaps coeval with the advent of bow and arrow technology at the onset of the Haiwee Period, also represented a crucial technological advancement that transformed cooking efficiency and nutritional processing of small seeds (Eerkens, 2001, 2003, 2004, 2005).

In the Sierra Nevada, high elevation settings record a proliferation of small, late-dating assemblages incorporating midden smears, portable ground stone, milling features, ceramics, and the occasional rock ring, distinguishing them from the flaked stone-dominated camps characteristic of earlier sites (Stevens, 2002, 2005; Wickstrom, 1993). Referred to as the Late Residential Pattern (McGuire et al., 2012:135), such resources reflect a late period phenomenon, although the precise timeframe of this settlement transformation remains unclear.

5.11.5.2. Archaeological Investigations

The following discussions summarize key archaeological investigations that have enhanced understanding of the regional pre-contact archaeological record, in general chronological order.

White (1985) completed an extensive series of archaeological inventories in 1984 in support of the preparation of a Historic and Archaeological Preservation Plan (HAPP) for the Lundy and other local hydroelectric projects. This work identified 26 previously unrecorded archaeological sites, of which 13 incorporated pre-contact components. Most of these resources (62 percent) consisted of fewer than five obsidian flakes and reflected ephemeral use areas or undifferentiated temporary camps; all the pre-contact resources in the Lundy Project Area were of this ilk. White (1985) identified two sites in the Lee Vining project area as pinyon camps, two more as hunting camps, and characterized another Lee Vining site as a seed camp. York (1990) subsequently test excavated most of these sites to aid in assessing their NRHP eligibilities.

Shortly after White's (1985) surveys, Brooke Arkush conducted a focused investigation of the CA-MNO-2122 multi-era site complex on the eastern shore of Mono Lake in 1986 and 1987 (Arkush, 1995). Among documented constituents in this massive, 300-hectare resource were the remains of three pronghorn drive traps suggesting the use of such features beginning in the Haiwee Period, a post-contact era wild mustang trap, and 31 archaeological loci, among which a majority 68 percent reflect Paiute camps dating between 150 and 100 cal BP, recording the tumultuous timeframe of Euro-American contact (McGuire, 1996).

York (1990) conducted test excavations of 17 archaeological sites with pre-contact components in the canyons of the eastern Sierra scarp in support of prior relicensing of the Lee Vining, Rush Creek, and Lundy Hydroelectric projects; only two of these were in the Lundy Project Area. Generally characterizing most of these sites as temporary camps, per Bettinger (1977), York's (1990) work suggested that most spoke to lithic reduction/production and hunting activities; associated milling gear proved rare. Diagnostic projectile points and obsidian hydration assays implied hunter-gatherer occupations ranging from the Early Holocene through Marana periods, with the points highlighting Haiwee (33 percent of sites with diagnostic projectile points) and Marana (50 percent) period hunting, and assayed obsidian emphasizing Newberry (79 percent of sites with tested obsidian) and Haiwee (57 percent) period reduction. At least one of the tested Rush Creek sites (CA-MNO-2179) solidly pre-dated the Newberry Period, with several Pinto and Western Stemmed projectile points in the assemblage and most obsidian estimated to reflect pre-Newberry manufacture. Geochemical sourcing revealed the use of a wide variety of eastern Sierra obsidian sources (e.g., Casa Diablo, Mono Craters, Mono Glass Mountain, Mount Hicks, Queen [aka Truman-Queen], Bodie Hills, and Fish Springs), dominated by Casa Diablo (76 percent) and Mono Glass Mountain (65 percent).

Wickstrom et al. (1993) and McGuire (1994) also tested sites for the Rush Creek Four-Lane Project, extending several miles south of Lee Vining Canyon; two of these were later subject to data recovery (Carpenter, 2001). Typical of the region, excavated pre-contact sites incorporated few constituents and preserved only shallow deposits in temporary camps or task-specific areas. Also emblematic were rich obsidian profiles dominated by local Mono sources (i.e., Glass Mountain and Mono Craters), primarily pointing to Haiwee and Marana period use. Site CA-MNO-891, a multi-locus residential occupation on the western rim of the Mono Basin, proved contextually exceptional, containing a Newberry Period component dominated by Casa Diablo obsidian, speaking to the regional Haiwee Period collapse of obsidian conveyance networks.

Archaeological survey projects completed over the past 20 years north of the northern rim of the Mono Basin (e.g., Clay and King, 2020, 2021; Darcangelo et al., 2005; King and Clay, 2018) have further enriched the local record. The more than 400 sites with pre-contact components newly documented or otherwise updated from these studies point to a range of inferred hunter-gatherer activities in and around the Bodie Hills, emphasizing lithic reduction/production (74 percent of total sites), green cone pinyon harvesting and caching (52 percent), milling (42 percent), and hunting (16 percent), with temporally diagnostic projectile point finds highlighting Late Holocene (i.e., Newberry-to-Marana period) land-use timeframes, but also including a handful of Early and Middle Holocene markers.

5.11.5.3. Ethnographic Context of the Project Vicinity

The Lundy Project Area is in the traditional homeland of the Kutzadika’a (Kootzaduka’a), who have inhabited the Mono Lake area since time immemorial and live there to the present day. The Kutzadika’a is the southernmost band of the group referred to by anthropologists as the Northern Paiute and speaks the local dialect of Numu Yadooana. The name Kutzadika’a, or Kutsavi (kootzabe) Eaters, derives from kutsavi, the pupae of the alkali fly (*Ephydra hians)*, found in the waters of Mono Lake. The Kutzadika’a prizes this important source of highly nutritious and easily digestible protein.

The Northern Paiute, or Numa, are a widespread linguistic group whose homeland extends from an area just south of Mono Lake north into Oregon and Idaho, and east to the Little Humboldt and Reese rivers. Although connected by language, the Indigenous Peoples inhabiting this geographic area are somewhat diverse culturally, in part due to the environmental variability of this vast region.

The terrain of the Kutzadika’a homeland spans from 6,378 feet (1,944 meters) amsl at Mono Lake to the high peaks of the Sierra Nevada, including Mount Dana at 13,061 feet (3,981 meters) amsl. Abundant water is supplied by the perennial Rush, Lee Vining, Mill Creeks, their tributaries, freshwater lakes, and springs. Winters are typically cold and wet, and summers are hot and dry. This unique landscape has been and is still nurtured by the Kutzadika’a and is bountiful in return, despite the challenges mentioned below and discussed in more detail in Section 5.12., *Tribal Resources*.

While the traditional Kutzadika’a homeland is centered on the Mono Lake Basin of the western Basin and Range Province, the People followed a subsistence and residence pattern that took them from Walker Lake to the east, up into the Sierra Nevada to the west, and north and south along the eastern Sierra Nevada piedmont. This pattern of seasonal transhumance provided access to two vast ecoregions, the Great Basin and the Sierra Nevada. Both ecoregions comprise numerous biotic communities containing diverse subsistence resources, including plants for food, medicine, basketry materials, shelters, and other uses. In addition to kutsavi (kootzabe), faunal resources such as bighorn sheep, antelope, mule deer, jackrabbits and cottontails, migratory birds, and piagi (Pandora moth larvae; cf. peagu) are also available within the Kutzadika'a homeland. Kutsavi is harvested during the summer and prepared in various ways for immediate consumption, but importantly is also dried, pulverized into a powder, and stored for winter use and trade. Pinyon pine nuts, black oak acorns, seeds from various plants, dried berries, and meat also provide sustenance during winter.

Although Stephen Powers conducted some early anthropological investigations in Northern Paiute territory in the mid-1870s and John Wesley Powell in 1880, C. Hart Merriam appears to be the first anthropologist to take a keen interest in the people of the Project Area and environment. However, much of his work remains unpublished. Frederick S. Hulse, whose work is also unpublished, compiled interviews with people residing at Mono Lake and nearby communities in the 1930s. The first ethnographic overview covering the Project vicinity was published by Emma Lou Davis in 1965. See Section 5.12, *Tribal Resources,* for additional background and citations.

John Muir and others made early non-anthropological observations of Indigenous Peoples, including the Kutzadika'a traveling on well-established trails to the western Sierra to collect or trade for black oak acorn. Merriam and Davis also report the Kutzadika'a moved back and forth between the Great Basin and the Sierra Nevada, especially into what eventually became Yosemite National Park. People lived in small familial groups during much of the year, although communal hunting for animals such as pronghorn or rabbits was common. Seasonal transhumance was the normal way of life for the Kutzadika'a, who often wintered at Walker Lake due to the milder winters. Because of this pattern of frequent and wide-ranging mobility, transportation corridors radiating in all directions are important tribal resources. In addition to trails, small camps, often with one or two residences or brush shelters, along with pine nut camps, medicine gathering areas, water modification features, Pandora moth larvae collecting basins, and game drives are some of the site types found in the Mono Basin. Emma Lou Davis (1965) observed the Kutzadika'a used "almost every square mile of open country [which] was visited and now shows a telltale flake or two of obsidian. These can be called use areas. There are other places, perennially favored as camps, where chipping waste lies thick. These can be referred to as occupancy areas."

Material culture largely reflects subsistence and residence patterns, with milling slabs and less frequent rock mortars indicative of seed and nut processing. Stone tools made of local materials such as obsidian from the Bodie Hills source, which is in the Kutzadika'a homeland, as well as from toolstone obtained from other sources via direct procurement or trade, found use for hunting, scraping, cutting, and smoothing tasks. Basketry includes both twined and coiled varieties of several important functional types and dimensions.

The Northern Paiute may have encountered outsiders by the early 1800s and had likely experienced some changes to their environment and lifeways by this time. For example, horses were quickly adopted after being introduced into the Great Plains region in the 1700s, allowing people to become more nomadic. On his journey from California to the Great Salt Lake in 1827, Jedediah Smith encountered 20 to 30 Indigenous men on horseback at Walker Lake; these men may have been Kutzadika'a or their relations. As explorers, fur trappers, and settlers of many ethnic affiliations moved west, they encroached on Northern Paiute territory. Stories of these strange outsiders and their atrocities against Indigenous people likely reached the Kutzadika'a even before the physical incursion began.

By 1850, seekers of mineral wealth rushing to California and western Nevada had profoundly impacted Indigenous lifeways in many areas. Seed plants were eaten and trampled by the emigrant's livestock, water sources were fouled, and game was hunted or frightened away, depleting the traditional resources the People depended on for survival. After entering Yosemite Valley in 1851, the Mariposa Battalion, a unit of the California State Militia, burned the Indigenous People's villages and food stores, massacred many People, and forcibly removed others, bringing the act of genocide even closer to home (Madley, 2016).

The ranching and lumber industries that were soon established in the Mono Lake area, including Lundy Canyon, caused such destruction of important subsistence resources that the Kutzadika'a were forced to incorporate wage labor into their traditional subsistence strategy to avoid starvation. Non-native manufactured items such as metal, glass, and ceramics became a part of the People's material culture, and non-native foods and clothing were adopted. In the early twentieth century, decorative baskets made specifically for sale became an important source of income for women. Kutzadika'a weavers such as Lucy Telles, Carrie Bethel, and sisters Nellie and Tina Charlie elevated this art form and have become among the most revered basket makers worldwide.

By this time, the federal government had assumed oversight of the Indigenous Peoples, resulting in removal to reservations for some and for the Kutzadika'a and others, a period of neglect. However, the Kutzadika'a have suffered the same attempts at cultural genocide because of the forced removal of their children to government- or church-run boarding schools as did other Indigenous Peoples in the eastern Sierra region and elsewhere. Although the Kutzadika'a's traditional way of life has been altered because of a multitude of factors resulting from outside influences, they have preserved much of their culture and history due to their resilience and perseverance.

5.11.5.4. Historic Period Context of the Lundy Project Vicinity

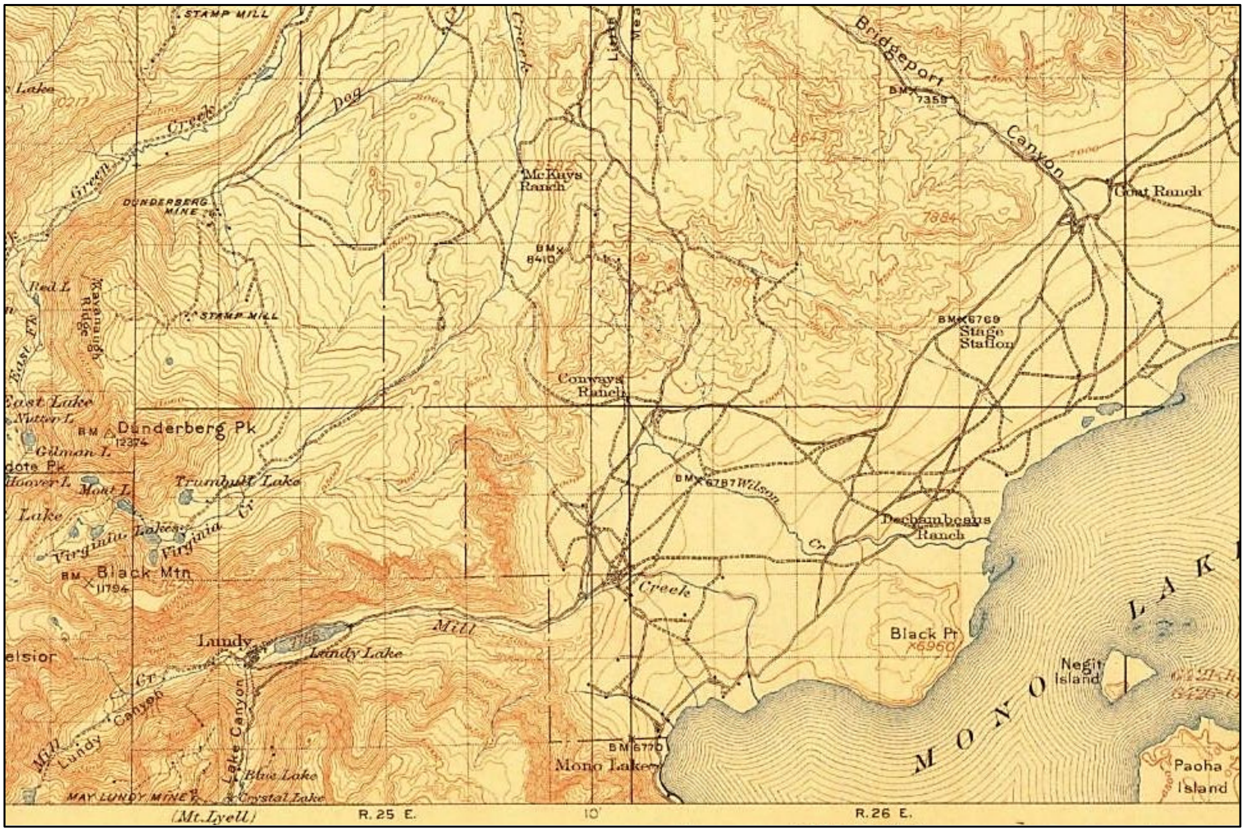
This section sets up the historical contexts within which the Project was developed and within which some of these resources will be evaluated. Thus, the history of the proposed APE and the surrounding area has been divided into the following main themes: early exploration and mining; logging; agriculture and ranching; transportation; hydroelectric development; and recreation.

EARLY EXPLORATION AND MINING

Non-native people began exploring the region that would become Mono County in the early nineteenth century. Trappers such as Jedediah Strong Smith, Robert Evans, and Silas Goble may have crossed Sonora Pass, north of the Study Area, on their journey to the Great Salt Lake in 1827. Joseph Reddeford Walker led an expedition of 40 soldiers along the East Walker River through Mono County on their way westward to the San Joaquin Valley in 1834. Other explorers and early emigrant parties also passed through the region before California statehood in 1850, including Lt. John C. Fremont and the Bartleson-Bidwell Party, all without creating permanent built resources in the Study Area (Chappell, 1947:234-236; Hamilton and Dale, 2011:66-69).

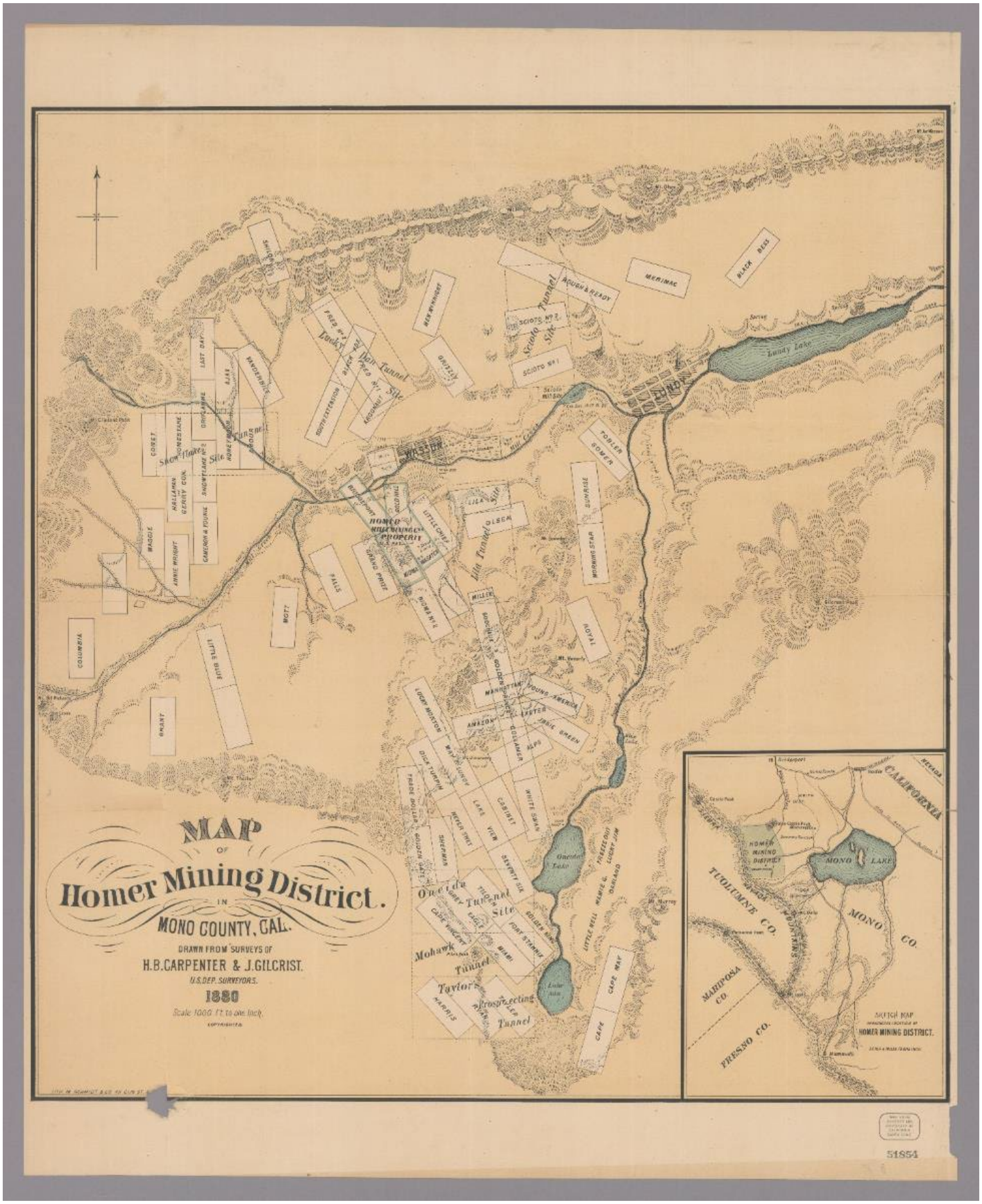
Mining activities initially drove the late nineteenth and early twentieth-century non-native settlement of Mono County and the eastern slope of the Sierra Nevada. The miners and settlers who accompanied them created built environment resources in and near the Project Area. The western Nevada and Comstock silver discoveries near Carson City inspired these prospectors to look eastward in the Sierra Nevada as the original Mother Lode rush in the western foothills started to abate in the 1850s. Gold and silver strikes at Dogtown and Monoville in Mono County in the late 1850s, and larger-scale mining in Aurora, Nevada, in the 1860s and then Bodie, California, in the 1870s all drew more prospectors to the region. This influx prompted the California Legislature to create Mono County from parts of Calaveras, Fresno, and Mariposa Counties in April 1861. A state boundary survey conducted 2 years later determined that the original choice for the county seat, the town of Aurora, was actually in Nevada, so Bridgeport was selected instead. The mining activity continued to fuel Mono County's development in the late nineteenth century as roads were built to facilitate the transportation of goods and materials to and from the mining towns and camps, and the early farms, ranches, and small towns that supported them. Many of the communities within these mining districts thrived for a few years, but the boom-and-bust cycle of mining led to inevitable declines with only sporadic resurgences through much of the twentieth century (California State Mining Bureau, 1917:131-132, 163-169; Chappell, 1947:238-242; Hamilton and Dale, 2011:72-80; Hoover, 1990:209-213; Whitney and Hoffman, 1873).

The Bodie mines in the 1870s triggered a local rush and miners fanned out into central Mono County, prospecting for rich quartz veins. The search proved fruitful as gold was located in the mountains north and west of Mono Lake, where several notable quartz mines were developed during the next 20 years. W. J. Lundy built a lumber mill on upper Mill Creek in the 1860s to supply Bodie, and he located a rich quartz lode near the mill in 1878 that he named the *May Lundy*, after his daughter (Figure 5.11-2). Shortly thereafter, I. L. Homer found another highly productive quartz vein nearby. The development of other mines followed, and this particularly rich mining area came to be called the Homer District. The focal point of activity in the Homer District was the town of Lundy, platted in 1880 at the west end of Lundy Lake. At its height, Lundy had a population of about 500 people, several commercial buildings, and a newspaper. Other smaller, short-lived mining settlements, such as Wasson and Geneva, also emerged in the greater Lundy area (Figure 5.11-2 and Figure 5.11-3).



Source: USGS, Washington D.C., 1911 Edition

Figure 5.11-2. May Lundy Mine, the Town of Lundy, and Lundy Lake are on the Lower Left. Mill and Wilson Creeks, and Conway and DeChambeau Ranches are also Depicted. The Map was Surveyed in 1905-1909.



Source: Stanford University

Figure 5.11-3. Homer Mining District, Showing Towns of Lundy, Wasson, and Several Mining Claims. The Map was Surveyed in 1880.

Although the Homer District peaked in the 1880s, prospecting and mining northwest of Mono Lake continued into the early twentieth century. Adjacent to the east of the Homer District, the Jordan District, developed in the 1890s, centered around mines in the mountains north of Mill Creek, such as the Goleta Mine, Golden Eagle Mine, and Golconda Mine, and ultimately led to the demand for electricity and the hydroelectric power development of Mill Creek (California State Mining Bureau, 1894:177-184, 1917:145-146, 163-169; McIntosh, 1908:89-90; Mono County Assessor, 1896a, 1896b). Mining continued in fits and starts into the early decades of the twentieth century, reflecting fluctuating gold prices and other economic factors. World War II effectively put an end to large-scale mining in the region as the U.S. government ordered the closure of all gold mines during the war, and much of the industry remained shuttered after WWII because of low gold prices (California Division of Mines, 1927:374-377, 385-386; Carle and Banta, 2008:7, 8, 30-32, 52-57, 63, 68, 87-90; Clark, 1970:6-8, 97; Hamilton and Dale, 2011:79-80).

LOGGING

The mines and mining towns needed timber for construction, and by 1863 there were four sawmills in the area, including W. J. Lundy's mill on upper Mill Creek and Lee Vining's mill to the south. Pine was harvested for construction lumber, and while it was sometimes used for shoring mine shafts and cordwood, pinyon and juniper were typically harvested for those uses (Chappell, 1947:233-234; Maule, 1938:48). By the end of the 1870s, most locally harvested and milled lumber was hauled by wagon to Bodie for building construction and use in the mines. The Bodie Railway and Lumber Company was organized and built within a few more years, meaning lumber could be sent by rail from Mono Mills. After construction was completed in 1882, 5 million linear feet of lumber and 27,000 cords of wood were shipped from Mono Mills to Bodie (Cain, 1961:71-81).

By the turn of the twentieth century, the federal government had begun implementing programs and policies to help control natural resources harvesting and extraction on public lands, including logging. The executive branch established the first national forest reserves and then national forests in the 1890s and early 1900s, during the formative years of the U.S. Department of Agriculture (USDA) and establishment of the U.S. Forest Service (USFS), to manage the harvesting of timber and other uses of natural resources on forested federal land. President Theodore Roosevelt established the Inyo NF in 1907 to safeguard valuable watershed lands along the Owens River from private water claims and other land entries and to ensure water resource availability as the city of Los Angeles began construction on its massive aqueduct. The following year, Roosevelt issued an Executive Order creating the Mono NF in the Mono Basin from parts of the Inyo, Sierra, Stanislaus, and Tahoe national forests. Some of the lands within the present-day boundaries of both the Inyo NF and the former Mono NF had originally been part of the Sierra NF – founded in 1893 as part of the six-million-acre Sierra Forest Reserve. The national forests of the eastern Sierra Nevada and western Nevada continued to go through administrative reorganizations throughout the years, and the USFS discontinued the Mono NF in 1945, dividing its lands between the Inyo and the Humboldt-Toiyabe NF (Davis, 1983; Hamilton and Dale, 2011:116-119; USGS, 1909, 1911, 1920).

Regardless of which national forest had jurisdiction, USFS supervisors were charged with overseeing timber and grazing management, watershed protection, and fire suppression in the forest lands of the Mono Basin. These duties remained priorities, with an increasing emphasis on recreational uses of the forests during the mid to late twentieth century as timber harvesting in central Mono County generally decreased (Rose, 1994:1-2; Stark, 2020:131-132). Inyo NF currently encompasses about 165 square miles of the southern Sierra Nevada (about 2 million acres) and spans portions of Mono and Inyo Counties in California, as well as Esmeralda County in Nevada. The Study Area falls partly within the northernmost Inyo NF administrative district, namely the Mono Lake Ranger District, administered from its office in Lee Vining. Timber and grazing are still among the Inyo NF management goals and responsibilities, although it is also known as a forest that prioritizes the non-timber mandates of the USFS, such as habitat restoration and natural resources conservation (Selters, 2012; USFS, 2021a, 2021b, 2023a, 2023b).

AGRICULTURE AND RANCHING

The arrival of miners in the greater Mono Basin led to the establishment of the first farms and ranches in central Mono County because mining areas like Bodie, Lundy, and Jordan districts were in rugged, mountainous areas not conducive to agriculture. The lowlands of the Mono Basin, specifically along its western shores, offered the nearest suitable agricultural land. This relatively level landscape was watered by streams flowing east out of the Sierra Nevada from which farmers and ranchers could irrigate grazing and cropland. The first farmers and ranchers settled in the Mono Basin in the late 1870s, coinciding with the mining booms at Bodie and Lundy; those mining districts were the primary market for their produce and ranch products (Carle and Banta, 2008:7, 8, 33-48; McIntosh, 1908:82-88).

The first non-Native farmers acquired land from the public domain via homestead, cash entry, or desert land patents. From the time of their initial settlement, landowners made improvements, including irrigation and stock watering systems. They raised diverse livestock and crops, including milk cows, beef cattle, pigs, chickens, goats, potatoes, cabbage, onions, wheat, barley, corn, and alfalfa. Among the early ranchers and farmers was Albert Sylvester, who had 50 acres in the lower Mill Creek watershed and grew hay, apples, potatoes, and other vegetables. Joseph and Maria Scanavino also had a large vegetable produce farm in the northwest Mono Basin. Near the Scanavino's property was the DeChambeau ranch of about 160 acres. The lands that would become known as the Conway Ranch were also used to grow crops and graze livestock, and the Mattly family did the same on their properties located between Lee Vining and the northern county line. These farms and ranches were typical of those in the northwestern Mono Basin from the late 1870s through the 1930s. After that time, large-scale acquisition of land and water by the LADWP, and the end of mining after World War II, led to the end of most farming operations in the Mono Basin. Most of the remaining ranches in the basin transitioned to sheep raising, but during recent years this endeavor has declined as well (BLM, 1857, 1880, 1902, n.d.; Carle and Banta, 2008:33, 34, 37, 42, 46; Eastern Sierra Land Trust, 2014:4; McIntosh, 1908:45-48, 86-88; Mono County Assessor, 1896a, 1896b, 1940a, 1940b; USGS, 1909, 1911).

Some of the former farm, dairy, and ranch land adjacent to the Lundy Project is now owned by Mono County under the "Conway and Mattly Ranches Conservation Easement." John Conway was from Canada and had immigrated to Bodie by the time he acquired the property now known as the main Conway Ranch in the northwestern Mono Basin, largely north and east of the lower reaches of the Lundy Project. The founder of the nearby Mattly ranching operation was Fred Mattly, who acquired 160 acres at some point after it was homesteaded in 1894. The parcel is north of the Lundy Powerhouse in the western half of Section 12, T2N, R25E, MDBM. Years later, members of the Conway family acquired the Mattly parcel and combined it with their holdings. The Conway Ranch (including the Mattly parcel) was largely a stock-raising operation into the 2010s. The Mattly Ranch conservation parcel no longer contains any standing buildings or structures. However, there is a concrete foundation located near the east side and a dirt road runs north-south through it to the small cemetery for victims of the 1911 avalanche located north of the parcel (McIntosh, 1908:86-88; Eastern Sierra Land Trust, 2014:4-5; 13-14; Mono County Assessor, 1896a, 1896b, 1940a, 1940b; NRCS, 2018:3; USFS, 2001:25; USGS, 1909).

The Trust for Public Land initiated negotiations in the mid-1990s with the Conway Ranch owners and Mono County to acquire the portions of the ranch property (including the Mattly parcel north of the Lundy Powerhouse) as a conservation area. The ultimate goal of the conservation project was "… to protect and preserve the natural, open space, scenic, historic, habitat, and public access values of the property in perpetuity, while allowing for the continuation of the existing fish-rearing, sheep grazing, and public access." The Trust for Public Land eventually acquired land and some associated water rights and "by the end of 2000, The Trust for Public Land had conveyed approximately 808 acres to Mono County and 220 acres to the BLM in a complex, multi-phase real estate transaction that utilized federal, state, and foundation grant funding" (Eastern Sierra Land Trust, 2014:5).

Unlike the farming enterprises, the livestock ranching operations in Mono and Inyo Counties tended to utilize both direct land ownership and the use of public lands for range lands. One of the largest nineteenth-century operations was that of Thomas B. (T. B.) Rickey, who first established a ranch in 1859 in the northern part of the Antelope Valley, Nevada, and expanded to the south into California, locating his ranch headquarters near Coleville in the southwestern reaches of the Antelope Valley in Mono County. The enterprise thrived and continued to grow as Rickey supplied beef to the mining regions of Carson Valley, Aurora, and Bodie, eventually owning an estimated 100,000 head of cattle and 200,000 acres extending from Antelope Valley and Markleeville in the north to Bishop in the south (BLM, 1857, 1880,1902, n.d.; Imswiler, 2007:19-28; Maule, 1938:50).

Despite the establishment of privately held farms and ranches, much of the Mono Basin was in the public domain through the early twentieth century – first under the General Land Office and then under the jurisdiction of the BLM and USFS. Ranchers had utilized these lands for grazing cattle and sheep long before federal agencies had management systems in place. Upon creation of the national forests, rangers noted that uncontrolled use of the open range had led to overgrazing, threatening the viability of the land to support livestock. In response, the USFS began managing the rangelands by dividing them into tracts called allotments and setting limits on the number of livestock and duration of grazing season for each allotment. Ranchers had to apply for permits to graze livestock on a USFS allotment, including the Inyo NF lands west of Mono Lake (Hamilton and Dale, 2011:88-91; USGS, 1911, 1953, 1958). By the early 1920s, Mono NF Supervisor William Maule noted, “The Mono is primarily a sheep grazing Forest and, in fact, certain descriptive units cover territory solely used for this purpose. There are grazed within the forest, exclusive of private lands, 98,626 head of sheep and 5,874 cattle and horses” (Hamilton and Dale, 2011:88-91). While livestock ranching remains an important part of the local economy, it now takes place largely on private lands or through permits with other land-owning agencies because “grazing allotments on Forest Service lands within the [Mill Creek watershed] were eliminated over time, based on direction from the *Mono Basin National Forest Scenic Area Management Plan*” (USFS, 2001:16). More recently, Mono County terminated sheep grazing in Conway and Mattly ranch conservation areas in 2017 because of potential conflict with the Sierra Nevada bighorn sheep population (NRCS, 2018:3).

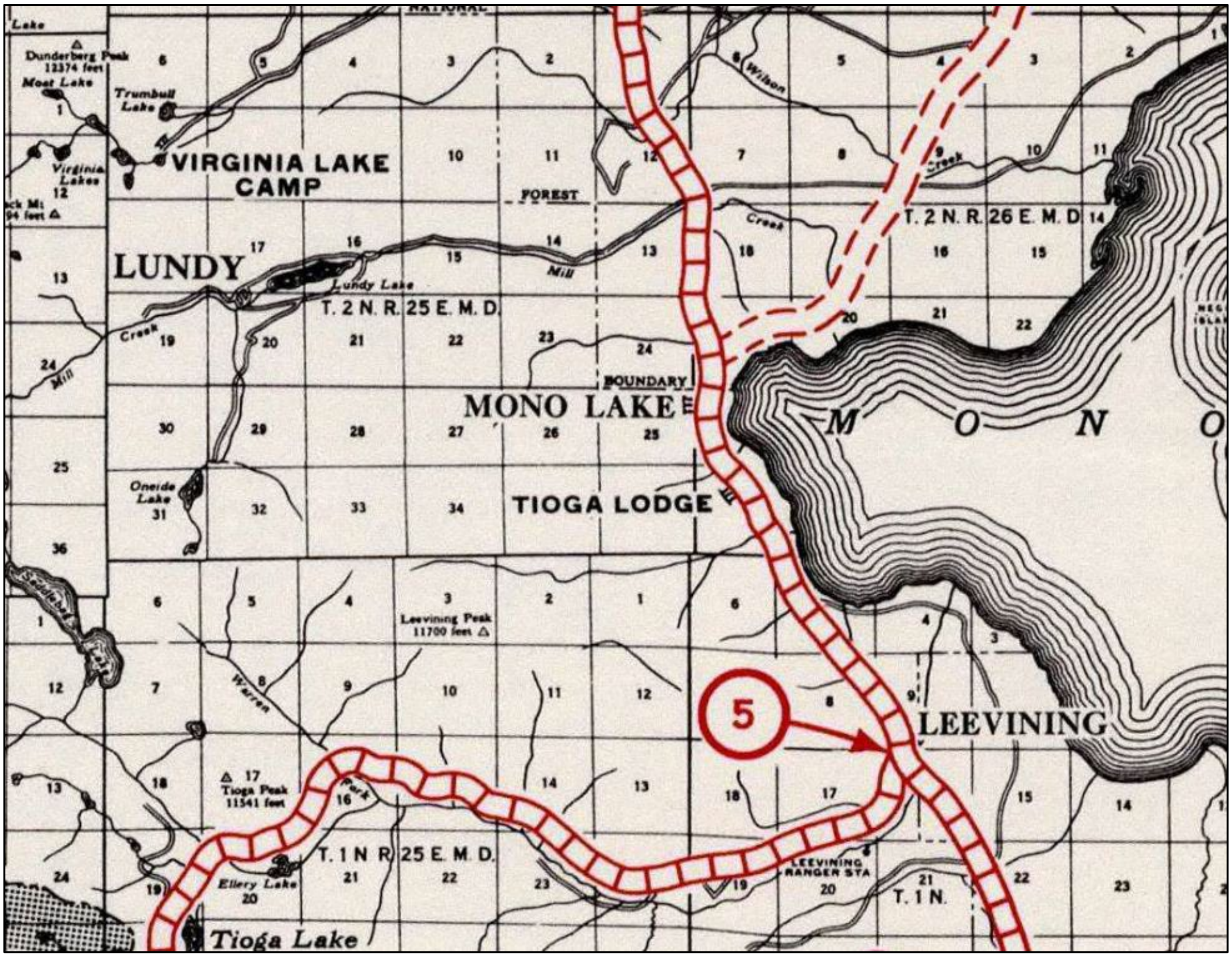
Basque sheepherders were also among the early non-Indigenous users of the eastern Sierra. The Basque ranged throughout the Sierra Nevada mountains, including the vicinity of the Study Area in central Mono County, often beginning from the San Joaquin Valley or eastern Sierra lowlands in June to reach highland grazing ranges. The grazing areas on USFS and BLM lands were subject to grazing allotments or permits for the herds of as many as 1,000 sheep that needed to be moved to fresh grazing every few days. The Taylor Grazing Act of 1934 and the Great Depression started a long decline of Basque sheep grazing operations in the eastern Sierra. New legislation required sheep raisers to establish a home ranch, which many Basques could not do during the economic downturn. The number of open-range Basque sheepherders remained relatively high in California into the 1960s, but fewer of these entrepreneurs could head their own operations, and their numbers declined after that (Hamilton and Dale, 2011:103-104; Wohlgemuth et al., 2015:22, 23, 36).

TRANSPORTATION

Nineteenth-century mining activity in Mono County was the driving force in the development, improvement, and expansion of its road system. In the 1850s and early 1860s, there were few, if any, engineered roads and travel was largely limited to pack trails. The principal routes into the county were from Carson Valley, Nevada, to the north and eastward from Tuolumne County over Sonora Pass or Mono Pass. These main routes were soon improved from trails to wagon toll roads by private companies or individuals because neither the state of California nor the local counties had the administrative or financial capacity to build and maintain roads during the mid-nineteenth century. The toll road builders took on the financing, construction, and maintenance of roads and charged travelers a toll to use their roads. County involvement was limited to granting rights-of-way and awarding toll road franchises. For example, the Sonora and Mono Wagon Road Company improved the Sonora Trail from Tuolumne County over Sonora Pass into northern Mono County. The company received a county franchise for their toll road between Sonora and Bridgeport and completed it in 1865. Other toll roads connecting the population centers and larger mining towns of the county were built in the next 2 decades by various interests, including the Bodie & State Line Road, Bridgeport & Bodie Road, Lundy Road, East Walker River Road, and the Mono Lake and Lake District Toll Road (Blow, 1920:20-26; Chappell, 1947:243-244; DeGroot, 1863; Klein and Yin, 1994:2-5; Maule, 1938:44; Wheeler, 1876; Whitney and Hoffman, 1873).

The private toll road system lasted into the early twentieth century when the state and counties began to recognize the importance of a comprehensive, well-maintained road system and had the administrative and financial structures to carry out road building and maintenance. Mono County acquired the Mono Lake and Lake District Toll Road in 1900 from Archibald McNabb. It remained a county road until about 1915, when it was taken over by the state and named State Route (SR) 23, the predecessor of U.S. 395. The state did not do any major work on the section of SR 23 along the west shore of Mono Lake until 1933, when it was brought up to state highway standards by resurfacing, widening, and reducing curve radii. By this time, the route was used by locals and increasingly by tourists visiting the eastern Sierra Nevada or traveling between Mono Lake and Yosemite National Park over Tioga Pass. The highway became part of the United States Highway System in 1934 as U.S. Highway 395 and, in the late 1950s, was straightened in the vicinity of the Study Area northwest of Mono Lake (BLM, 1857, 1880, 1902; California Department of Engineering, 1912:199-200; California Division of Highways, 1921:34, 1933, 1935b; USGS, 1909, 1953, 1958, 1986).

The north-south road (shown in red on the map in Figure 5.11-4 came into the State Highway System as SR 23 and was redesignated as U.S. 395 in 1934. The Tioga Pass Road is depicted at the bottom of the map, and SR 167 is not shown as it has yet to be built. [Excerpt from map entitled: Highway Transportation Survey of 1934, Mono County (California Division of Highways, 1935a).]



Source: California Division of Highways 1935a

Figure 5.11-4. Map from 1935 Showing State Route 23 After Being Redesignated U.S. Highway 395 (the North-South Road Shown in Red).

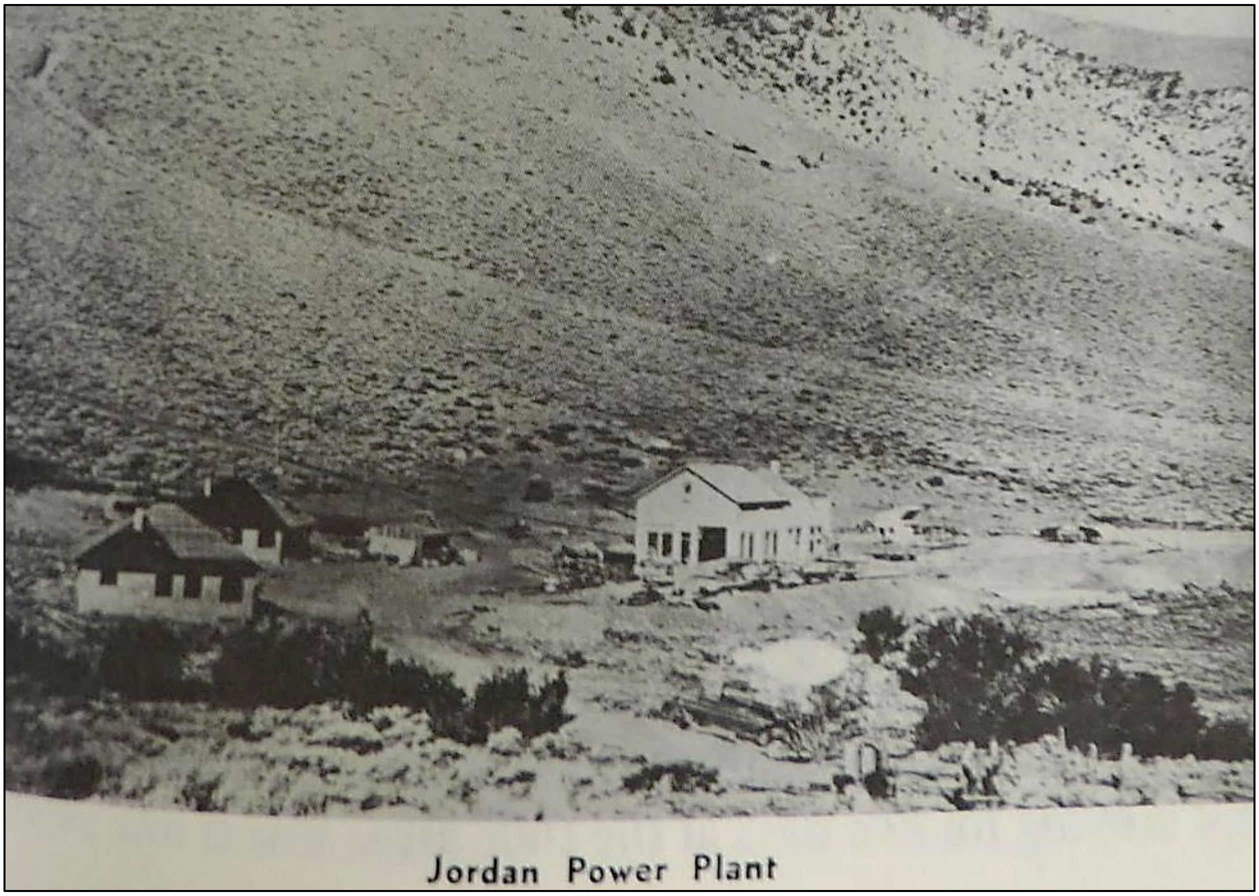
There are still relatively few paved roads in the northwestern Mono Basin other than U.S. 395. The exceptions include SR 167, which began as a series of earlier dirt roads leading to local ranches and roughly paralleling the transmission line heading east from the Lundy Powerhouse. By the 1950s, a roadway was established and paved as a nearly straight alignment running north of Mono Lake from U.S. 395 to the state border to connect to Nevada SR 359 heading north to Hawthorne. Mono County currently maintains a few paved roads in this part of the basin, including Lundy Canyon Road that runs west of U.S. 395, and Cemetery Road, which skirts Mono Lake east of U.S. 395. Other roads in this area are gravel or dirt roads, some maintained by the county and some by the USFS, while many were created informally by loggers, miners, and ranchers, or more recently by recreational users (Fairchild, 1929; USFS, 2001:26-27; USGS, 1953, 1958, 1986, 1987).

HYDROELECTRIC DEVELOPMENT

Several small hydroelectric power companies began developments in Mono and Inyo Counties at the turn of the century. Development of the Lundy Hydroelectric Project was started by James Stuart Cain. He was an entrepreneur and stockholder in the Standard Consolidated Mining Company in Bodie, California. In 1902, Cain and his partner R.T. Pierce claimed appropriation rights on the waters of Rush Creek and planned to survey Lee Vining Creek. By 1907, Cain had controlling interest in the California-Nevada Canal Water and Power Company. That year he obtained rights-of-way on public land to construct reservoirs on Lee Vining Creek as well as the right to build numerous ditches and flumes (Williams and Hicks, 1989). Cain and associates found another suitable site northeast of Mono Lake on Mill Creek, began buying up land and water rights, and made plans to construct a plant which would transmit electricity for the first time to the residents of Bodie and to mines at Aurora and Wonder, Nevada (Diamond and Hicks, 1988:7-8).

Delos Allen Chappell, another entrepreneur of hydroelectric development in Mono and Inyo Counties sold his holdings in the Victor Coal Company in Colorado and moved to California about 1906. In the fall of 1907, he became president of the Nevada-California Power Company, which had hydroelectric plants on Bishop Creek and saw Cain's development of plants on Rush, Lee Vining and Mill Creeks as a threat to the Nevada-California Power Company (Diamond and Hicks, 1988:8). Chappell tried to acquire the Pacific Power Company's holdings. He personally began buying shares in both Pacific Power Company and Hydro-Electric Company, and instructed members of his company's Board of Directors and its officers to do the same. By the end of 1911, Chappell held a substantial interest in both of these companies (Diamond and Hicks, 1988:8).

In April 1910, Hydro-Electric began construction on a hydroelectric power plant near the former mining town of Jordan on Mill Creek, northwest of Mono Lake and downstream from Lundy Lake, naming it the Jordan Powerhouse (Figure 5.11-5). Crews constructed the powerhouse, the Lundy Lake intake structure, pipeline and penstock, and a transmission line running northeast towards Bodie and beyond to Nevada for most of that year. Before the Hydro-Electric system went online on January 1, 1911, Pacific Power Company took over as operator because Hydro-Electric was embroiled in a federal lawsuit over unpermitted use of USFS lands. Meanwhile, the system generated power for just a few months before the Jordan Powerhouse and nearby attendants' cottages, as well as an older copper smelter building, were destroyed by an avalanche in March 1911 (Calhoun, 1984:103; Fowler, 1923:766-767; Moore, 1994:38-39; Theodoratus et al., 1988:9-10; Vargo, 2007).



Source: Calhoun 1984:103

Figure 5.11-5. Original Power Plant (Jordan Powerhouse) During Construction in 1910. Powerhouse Roof and the Attendants' Housing are Nearing Completion in this View.

Pacific Power crews started work on a temporary power plant as soon as they could, reportedly salvaging an undamaged generator and the water wheel, as well as "…duplicate machinery, ordered the previous fall but held in Hawthorne due to the storms… By May, the first power was generated from the temporary facility, and after the new plant was finished all the machinery was moved" (Moore, 1994:47). The new permanent powerhouse was operational by December 1911 and was called the Mill Creek Plant until SCE acquired the system in 1964 and began calling it Lundy (Fowler, 1923:797; Moore, 1994:47; Theodoratus et al., 1988:10; White, 1985:24). About a decade after the new power plant was completed it was described as follows:

> The powerhouse is just north of the mouth of Mill Creek canyon, at an elevation of 7,016 feet above sea level. The entire equipment is contained in a single building 71 feet 10 inches long by 33 feet 10 inches wide, with a bay 17 feet long by 8 feet deep at its back to contain the gates at the lower end of the pressure line. The type of construction of the powerhouse is the same as that adopted on Bishop Creek, namely, reinforced concrete pilasters with 6-inch

> reinforced concrete curtain walls between. The roof is of corrugated iron and is carried on a steel roof system (Fowler, 1923: 799).

Accounts of the avalanche tragedy do not specifically mention damage to the rock fill and concrete dam constructed to raise the level of the natural body of water known as Lundy Lake, but it appears to have been part of the original Hydro-Electric company plan. In 1923, Fowler described the dam as “of earth fill with riprapped surface which has a slope of 3 to 1, …a reinforced concrete core wall on a line even with the upstream edge of the crest, and the backing behind the core wall is rock fill with a slope of 1 ½ to 1.” The dam was designed to roughly double the lake’s surface area, but in the early 1920s, a rockslide on the north of the dam was preventing the power company from raising the water level very much. Fowler described the rest of the system in his 1923 report, and at that time, the intake for the pipeline was controlled by a 48-inch valve at the toe of the dam that fed a 54-inch diameter, 170-foot-long steel pipe connected to a 48-inch wood stave pipe coated with 8 inches of concrete. The wood stave pipe ran for almost another 12,000 feet along the south side of Mill Creek before crossing to the north side and the standpipe at the head of the riveted steel pressure line, or penstock. Fowler reported that the pressure line ran down the hillside “to the old powerhouse site, the scene of the avalanche, and then [ran] nearly horizontally across a shallow wash to the new powerhouse” (Fowler, 1923:798-799).

Pacific Power Company remained the system operator for a few years after the avalanche. Chappell's plan for Pacific Power Company was eventually to line up, by means of a transmission line, its Mill Creek plant and proposed plants at Rush and Lee Vining Creeks, with those of the Nevada-California Power Company at Bishop Creek. Chappell hoped that the power generated at these plants would one day be transmitted not only northeastward into Nevada, but southward over the Nevada-California Power Company's new 238-mile Tower line to San Bernardino. After 1911, Pacific Power Company was controlled by both Cain and Chappell. In 1913, a 56,000-volt transmission line was built from the company's Mill Creek plant to Nevada-California Power Company's Bishop Creek Plant 5 Control Station, fulfilling one part of Chappell's plan (Diamond and Hicks, 1988). The company also connected the Lundy system with the Bishop Creek system to the south; however, by 1914, Pacific Power Company had defaulted on its bonds and entered foreclosed proceedings. Ultimately, a new entity – Pacific Power Corporation – was formed in October 1915 to operate the Lundy system and other facilities. Just 2 years later, the corporation sold all of its property to the Nevada-California Power Company (controlled by Nevada-California Electric Corporation, or N-CE Corp). By the early 1920s, N-CE Corp had subsidiaries and a controlling interest in several smaller companies and their electrical generation facilities, including the Southern Sierras Power Company and the Cain Irrigation Company. The Lundy Powerhouse stayed in operation from its completion in late 1911 through the legal battles and corporate reorganizations of its early owners and then through its subsequent ownerships, including Nevada-California Power Company (1917-1936), N-CE Corp (1936-1941) and California Electric Power Company, aka Calectric (1941-1964), before SCE acquired the Lundy system as part of its acquisition of Calectric in 1964. SCE already had a “Mill Creek Powerhouse” in San Bernardino County, so the facility in Mono County became known as the Lundy Powerhouse (Fowler, 1923:766-767; Theodoratus et al., 1988:9-12; White, 1985:20, 24).

The power companies that operated the Lundy Powerhouse provided onsite housing for up to four employees and their families in a short row of 3 to 4 houses just northeast of the power plant. Census records indicate a fairly regular turnover of these employees because different families were recorded living there in each of the four censuses between 1920 and 1950. Personnel changes may be at least partly attributed to the frequent early transfers of owners and operators of the facility (U.S. Bureau of the Census, 1920-1950). The power plant was reportedly out of service during the transition from Calectric to SCE in the 1960s, from about 1961 through the end of 1967. The staff houses near the Lundy Powerhouse and other small ancillary buildings were eventually torn down, most likely after 1975 and before 1986 (Mitchell, 1975:35; USFS, 2001:18; USGS, 1958, 1986).

Today, the key Lundy Project facilities include Lundy Dam, Lundy Lake, a flowline consisting of pipeline and penstock, Lundy Powerhouse, and the MCRD. Releases and spill originate from the intake and Lundy Lake the regulating reservoir for Lundy Powerhouse. The lake has historically been drawn down in the winter to provide storage capacity for spring runoff. Water is conveyed from Lundy Lake to the powerhouse via the flowline and penstock. Minimum flows are provided into Mill Creek below Lundy Powerhouse via the MCRD.

<u>Recreation</u>

Recreation has a very long history in Mono County and continues to thrive today. The many lakes, streams, and mineral and hot springs in the area provide opportunities for fishing and swimming, while packers, hunters, and campers enjoy the surrounding forests and mountains. The high elevation snowpack provides for skiing, snowboarding, and snowshoeing. Mono Lake is a big draw not only because of its unusual beauty, but also because of the unique salinity that keeps swimmers more buoyant. Creeks and lakes draining into Mono Lake, such as Mill Creek, fed by Lundy Lake, and other streams in the region, have long been popular with fishermen. Hot springs, such as Fales Hot Springs Resort, established in the early 1860s, were perceived as a way to improve one’s health and are still a draw for visitors to the area (Cain, 1961:51-54). The late nineteenth and early twentieth centuries also saw the creation of Yosemite National Park and the National Forest System, both of which brought visitors to the Sierra Nevada region (USFS, 2001:6).

The upward trend in tourism in Mono County that began in the 1920s continued after WWII as Americans found themselves with more leisure time and the money to enjoy it. Local, state, and federal agencies, civic groups, and private entrepreneurs heavily promoted Mono County as a tourist destination, and tourism ultimately became one of the county’s main industries. World-class trout fishing draws thousands from throughout California, Nevada, and beyond. Hunting also remains popular, and other types of outdoor recreation, such as hiking, boating, camping, and winter sports, grew in popularity throughout the twentieth century. Mono Lake draws bird watchers, kayakers, and hikers.

Tourism was further enhanced by the establishment of the Mono Lake Tufa State Reserve in 1981 and the Mono Basin National Forest Scenic Area and its visitor center in 1984. Many local businesses in central Mono County cater to the needs of tourists, providing food, lodging, guided fishing, hiking, packing trips, and supplies (Alkire, 2012:3-8; Carle and Banta, 2008:115-125; Evarts, 1991:47).

Outdoor recreation of all types continued to grow in popularity in the mid-twentieth century and included construction of campgrounds on USFS lands, as well as other agencies and private company lands. Calectric established camping areas in Lundy Canyon by 1961 and Mono County has been managing the Lundy Canyon Campground facility ever since, continuing under an agreement with SCE after it acquired Calectric (Mono County Public Works, 2014, 2023). Older campgrounds were sometimes "… positioned in drainages or were otherwise too close to water. This building practice continued unabated through the 1960s; as a result, many accommodations were outdated and poorly placed for management objectives. As part of the FERC relicensing, SCE has closed campsites that were too close to water and … renovated the campgrounds" (USFS, 2001:26).

The USFS continues to manage recreation uses on the Inyo NF and, within it, the Mono Basin National Forest Scenic Area:

> The emphasis of [USFS] management on wilderness lands is to provide opportunities for solitude, challenge, and conventional recreation while protecting these wild lands and their values of natural ecological integrity and appearance. Portions of Lundy Canyon [within the national forest] are managed as a concentrated recreation area, which provides for a broad range of facilities and opportunities that accommodate a limited number of people safely, conveniently, and with little resource damage. These facilities include a trailhead for the Hoover Wilderness that accommodates moderate use by day hikers and light use by backpackers, campgrounds for moderate to extensive use during the summer season, and a private resort that caters to fishermen and campers (USFS, 2001:6).

The recreational infrastructure along Mill Creek was also described in the 2001 USFS report as follows:

> There are 52 campsites on SCE land, managed by Mono County. There is an informal parking area adjacent to Lundy Dam. This parking area serves day-use fisherman and is an informal trailhead for hikers to Lake Canyon. The US Forest Service maintains trailhead parking above Lundy Lake for day use and Hoover Wilderness visitors. In addition, a privately operated resort at the west end of Lundy Reservoir provides camping, cabins, boat rentals, a small store and a concrete boat launch recently built by SCE (USFS, 2001:27).

5.11.6. Previous Cultural Resources Studies

The proposed APE and surrounding area have a lengthy history that started in the early 1800s and continues today. The following sections describe previous studies, the archaeological sites, and built-environment resources that have been recorded to date. These resources are a testimony to the pre-contact, ethnographic, and historic period development of the area explored in the previous sections.

5.11.6.1. Previous Cultural Resource Studies

Thirty previous cultural resource investigations were identified within the proposed Study Area (Table 5.11-1). Of these, 10 have been conducted within the proposed APE or overlap the proposed APE and Study Area. Among them are the preparation of a HAPP (White, 1983) and a Historic Properties Management Plan (HPMP [White, 1990]). The archaeological studies conducted for the previous relicensing are discussed in the following paragraphs, while the built environment studies are discussed in Section 5.11.9. Maps of the previous studies are located in Appendix H (Confidential).

A HAPP was prepared by SCE for the cultural resource studies for the previous relicensing. This plan defined the APE for the previous relicensing, required inventory and evaluation of archaeological sites and built environment resources potentially affected by activities associated with the projects, and outlined the methods to comply with Section 106 of the NHPA (White, 1983). Because several separate inventory and evaluation reports were prepared for the HAPP, and because some of the reports cover portions of multiple projects, in consultation with the SHPO, it was agreed that separate “stand-alone” management plans be prepared for each of the projects, and therefore the HPMP for the Lundy Hydroelectric Project (FERC Project No. 1390) was prepared in 1990 (White, 1990).

Almost all elements of the Lundy Project were completely inventoried during the 1984 Field Season (White, 1985); exceptions were inaccessibly steep areas, where Project facilities had been removed, or where Project-related development plans were changed between HAPP adoption and the time of the HPMP.

Eighteen archaeological sites were identified and recorded during this survey, none of which had been previously recorded (CA-MNO-2400H, -2401H, -2402H, -2403H, -2404H, -2405H, -2406H, -2407H, -2408, -2409, -2410H, -2411H, -2412H, FS-05-04-51-687, -689, -691, -695, and -697). Preliminary NRHP eligibility evaluations of the sites were conducted. Sites CA-MNO-2408, -2409, and 2411H were recommended as eligible, while the remaining 16 sites were recommended ineligible (White, 1990:4-5), with SHPO concurrence on April 9, 1990 (FERC Ref No. 831003B). Eleven sites are located within the current FERC Project Boundary APE (CA-MNO-2400H, -2401H, -2402H, -2403H, -2404H, -2405H, -2406H, -2407H, -2411H, -2412H, and FS-05-04-51-687); the rest are located outside of the boundary.

Table 5.11-1. Previous Cultural Resource Studies Located Within the Proposed Study Area and APE

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
MN-00258	-	-	Crist, Michael K.	1981	A Cultural Resource Reconnaissance of the Paoha Hydroelectric Project, Mono County, California	APE	P-26-002236
MN-00802	1160170	-	White, David R. M.	1985	Results of the 1984 Field Season, Cultural Resources Survey for the Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties: Lundy, Lee Vining, Rush Creek, and Bishop Creek	APE	P-26-002400, P-26-002401, P-26-002402, P-26-002403, P-26-002404, P-26-002405, P-26-002406, P-26-002407, P-26-002411, P-26-003814, P-26-003815, P-26-003817
MN-00402	-	-	Burton, Jeffrey F.	1987	Cultural Resources of Conway Ranch, Mono Basin, California	APE	-
-	-	R1989050400507	USFS	1989	Hazardous Tree Removal Project	Study Area	-
MN-00461	-	-	Grantham, Steven, and Terry Jones	1990	Archaeological Survey Report for the Addition of Passing Lanes to Portions of Highway 395 in Mono County, California	Study Area	P-26-000422, P-26-000459, P-26-002467
MN-00420	1160288	-	York, Andrew	1990	An Evaluation of Twenty-One Archaeological Sites on the Lee Vining Creek, Rush Creek, and Lundy Hydroelectric Projects, Mono and Inyo Counties, California	APE	P-26-002411

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
MN-00527	1160314	-	White, David R. M.	1992	Results of Archaeological Survey for Groundwater and Riparian Vegetation Studies in Connection with the Lundy and Bishop Creek Hydroelectric Projects, Mono and Inyo Counties, California	APE	-
MN-00754	1161856	CA-170-00-14	Schmidt, James J.	2000	Letter Report: Southern California Edison Company Tufa 16kV Survey	Study Area	-
MN-01475	1160489	-	Taylor, Thomas T.	2000	Archaeological Survey Report Recreation Improvements At Lundy Lake/Mill Creek FERC Project No. 1390, Mono County, California	APE	-
MN-01437	1160498	-	Duke, Curt, and Terri Fulton	2003	Archaeological Survey Report Tufa Circuit, Southern California Edison, Mono County, California	APE	P-26-002454, P-26-004073, P-26-004074, P-26-004077
MN-01313	-	R2004050401050	Faust, Nicholas	2004	Mono City Fuels Reduction – South	Study Area	-
-	-	R2004050401073	USFS	2004	OHV Routes Inventory and Designation Survey	Study Area	-
MN-00872	-	CA-170-07-02	Holt, Michael	2006	Cultural Resources Inventory Report: Mono County Water Diversion Project	Study Area	-

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
MN-00910	1161685	-	Jones, Kari L., and Thomas L. Jackson	2007	Cultural Resources Inventory for the Proposed Southern California Edison Lee Vining to Conway Summit Communications Line Project	APE	P-26-002236, P-26-004835, P-26-004836, P-26-004841
MN-01044	-	-	Pollock, Katherine H.	2007	Archaeological Assessment Report for the Lundy Hydroelectric Project Flowline Road Improvements and Standpipe Replacement, Inyo NF, Mono County, California	APE	-
MN-01020	-	R2010050401450	Catacora, Andrea	2008	Letter Report: Negative Cultural Resources Inventory Letter Report for Work Order 4770-0346 and 4703-0401	Study Area	-
-	-	R2011050401662	Chambers Group	2011	Digital 395 Chambers Group Survey	Study Area	P-26-006580
-	1164498	-	Wetherbee, M., A. Elzinga, and E. Nicolay	2017	Cultural Resources Monitoring and Survey Report for Southern California Edison's Emergency Replacement of 28 Distribution Poles Located within the Inyo NF, Inyo and Mono County, California	Study Area	-
-	-	-	Rice, Sarah, and Jerome King	2019	Archaeological Survey Report for U.S. Highway 395 Shoulder Widening at Sonora Junction and Conway Ranch, Mono County, California	Study Area	P-26-008664

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
-	1165355	-	Urbana Preservation & Planning	2019	Historical Resources Analysis Report / Historic Property Survey Report Southern California Edison Company Eastern Sierras Transmission System Mono and Inyo Counties, California	Study Area	-
-	-	-	Blake, Jennifer	2020	Archaeological Survey Report for the Proposed Cemetery Road Capital Maintenance Project, Mono County, California.	Study Area	P-26-008935
-	1165369	-	Bonham, Katie, Ronnie Johnson, and Brian S. Marks	2020	Cultural Resources Assessment: Tufa 16 kV Pole 2307824E (801774830) Replacement Project, Mono County, California	Study Area	-
-	1165370	-	Johnson, Ronnie, and Brian S. Marks	2020	Cultural Resources Assessment: Tufa 16 kV Pole 2307823E (TD1522884) Preventative Maintenance Project, Mono County, California	Study Area	P-26-004077
-	1165161	-	McKendry, Erin, Ronnie Johnson, and Justin Wisely	2020	Cultural Resources Assessment: Tufa 16 kV Pole 4388210E (TD1487562) Replacement Project, Mono County, California	Study Area	-

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
-	1165343	-	Williams, Audry	2020a	Historic-era Built Environment Survey Report for Southern California Edison Company's Distribution Circuits on the Inyo NF, Inyo and Mono Counties, California	APE	-
-	-	-	Williams, Audry	2020b	Cultural Resource Survey for Southern California Edison Company's Lundy Facilities Maintenance and Repairs Project, Zone 3	APE	Lundy Return Ditch Historic
-	-	-	Williams, Audry	2020c	Cultural Resource Survey for Southern California Edison Company's Lundy Facilities Maintenance and Repairs Project, Zone 4	APE	Lundy Return Ditch Multi-component
-	1165589	-	Wilson, Z.	2020	Archaeological Survey Report for Southern California Edison's Deteriorated Pole Project (Unassigned Work Orders), Bureau of Land Management, Bishop Field Office, Inyo and Mono Counties, California	Study Area	-

IC Number	SCE Document ID	USFS Number	Author(s)	Year	Report Title	In APE or Study Area	Involved Resources
-	1165900	-	Gilbert, R., A. Lopez-Johnson, and M. Wiseman	2021	2021 Q1 Heritage Resource Management Plan (HRMP) Quarterly Compliance Report, USFS Pacific Southwest Region, Master Permits and Easements for the Operation & Maintenance of Southern California Edison's Electric Facilities on the Inyo NF, Inyo and Mono Counties, CA	Study Area	INF_TD1656168_Site_001, INF_TD1656168_Site_002
-	1165902	-	Gilbert, R., M. Wiseman, and A. Lopez-Johnson	2021	2021 Q3 HRMP Quarterly Compliance Report, USFS Pacific Southwest Region, Master Permits and Easements for the Operation & Maintenance of Southern California Edison's Electric Facilities on the Inyo NF, Inyo and Mono Counties, CA	Study Area	-
-	1165700	-	Johnson, Ronnie, and Vanessa Ortiz	2021	Cultural Resources Assessment: Tufa 16 kV Four Pole (TD1671284 & TD1767060) Infrastructure Replacement and Grid Resiliency Project, Mono County, California	Study Area	-
-	-	-	Environmental Intelligence	in progress	Inyo NF Whole Circuit Survey	Study Area	LV-Site-203, LV-Site-207

5.11.6.2. Previously Identified Archaeological Sites

Archival research conducted to date indicates that there are seven pre-contact, three multi-component (pre-contact and historic-period), and 21 historic-period archaeological sites previously recorded within the proposed Study Area. Of these, 10 historic-period archaeological sites, one multi-component site, and one pre-contact site are located within the proposed Project APE. The types of sites and their NRHP eligibility are listed in Table 5.11-2. Pre-contact sites primarily include lithic scatters and bedrock milling stations. Historic-period sites include historic debris, the remains of buildings or structures, ditches, roads, and a cemetery. Eight sites within the proposed APE have been found not eligible for listing on the NRHP, one has been determined eligible (P-26-002411 [CA-MNO-2411H, FS No. 05045100694]; White, 1990), and one does not appear to have been evaluated. The locations of these sites are depicted on maps in Appendix F (Privileged).

Table 5.11-2. Previously Recorded Archaeological Sites Located Within the Proposed Study Area and APE

Primary Number	Trinomial	USFS Number (or other designation)	Site Type	Composition of Site	NRHP Eligibility	In APE or Study Area	Property Owner
-	-	INF_TD1656168_Site_001	Historic	Refuse scatter	Unknown	Study Area	BLM
-	-	INF_TD1656168_Site_002	Historic	Refuse scatter	Unknown	Study Area	BLM
-	-	Lundy Return Ditch Historic	Historic	Refuse scatter	Unknown	APE	Private
-	-	Lundy Return Ditch Multi-component	Multi-component	Lithic scatter/ Refuse scatter	Unknown	APE	Inyo NF
-	-	LV-Site-203	Historic	Refuse scatter	Unknown	Study Area	BLM, Inyo NF
-	-	LV-Site-207	Historic	Refuse scatter	Unknown	Study Area	Inyo NF
P-26-000422	CA-MNO-422/H	05045101788	Multi-component	Lithic scatter/BRM/ Refuse scatter	Unknown	Study Area	Inyo NF
P-26-000443	CA-MNO-443	-	Pre-contact	Lithic scatter	Unknown	Study Area	Inyo NF, Private
P-26-000459	CA-MNO-459	05045101366	Pre-contact	Lithic scatter/BRM	Unknown	Study Area	Inyo NF
P-26-002236	CA-MNO-2236H	05045300211	Historic	Foundation/ Refuse scatter	Unknown	Study Area	LADWP, BLM, Private
P-26-002400	CA-MNO-2400H	05045100680	Historic	Cairn/ Refuse scatter	Not eligible (FERC831003B)	APE	Inyo NF
P-26-002401	CA-MNO-2401H	05045100681	Historic	Old Lundy Lake Road	Not eligible (FERC831003B)	APE	Inyo NF, Private
P-26-002402	CA-MNO-2402H	05045100682	Historic	Structure remains	Not eligible (FERC831003B)	APE	Inyo NF
P-26-002403	CA-MNO-2403H	05045100683	Historic	Structure remains	Not eligible (FERC831003B)	APE	Private
P-26-002404	CA-MNO-2404H	05045100684	Historic	Rock wall/ Refuse scatter	Not eligible (FERC831003B)	APE	Private
P-26-002405	CA-MNO-2405H	05045100685	Historic	Structure remains/ Refuse scatter	Not eligible (FERC831003B)	APE	Private

Primary Number	Trinomial	USFS Number (or other designation)	Site Type	Composition of Site	NRHP Eligibility	In APE or Study Area	Property Owner
P-26-002406	CA-MNO-2406H	05045100686	Historic	Old Front Street Road	Not eligible (FERC831003B)	APE	Private
P-26-002407	CA-MNO-2407H	05045100688	Historic	Cemetery	Not eligible (FERC831003B)	APE	Private
P-26-002411	CA-MNO-2411H	05045100694	Historic	Remains of the Jordan Powerhouse/ Refuse scatter	Eligible (FERC831003B)	APE	BLM, Private
P-26-002454	CA-MNO-2454	05045101413	Pre-contact	Lithic scatter/BRM	Unknown	Study Area	Inyo NF
P-26-002467	CA-MNO-2467	-	Pre-contact	Lithic scatter	Unknown	Study Area	BLM, Private
P-26-003814	-	05045100687	Pre-contact	Lithic scatter	Not eligible (FERC831003B)	APE	Inyo NF
P-26-003815	CA-MNO-3815	05045100689	Pre-contact	Lithic scatter	Not eligible (FERC831003B)	Study Area	Inyo NF
P-26-003817	-	05045100695	Historic	Painted boulder (Frog Rock)	Not eligible (FERC831003B)	Study Area	Inyo NF
P-26-004073	CA-MNO-3670	-	Pre-contact	Lithic scatter	Unknown	Study Area	BLM, Private
P-26-004074	CA-MNO-3671/H	-	Multi-component	Lithic scatter/Ditch	Unknown	Study Area	Inyo NF, Private
P-26-004835	CA-MNO-4301H	-	Historic	Refuse scatter	Unknown	Study Area	Private
P-26-004836	-	-	Historic	Ditch	Unknown	Study Area	LADWP, Inyo NF, Private
P-26-004841	-	-	Historic	Refuse scatter	Unknown	Study Area	BLM
P-26-006580	CA-MNO-4932H	-	Historic	Refuse scatter	Recommended not eligible	Study Area	LADWP, BLM
P-26-008935	-	-	Historic	Refuse scatter	Unknown	Study Area	Inyo NF

5.11.6.3. Previously Identified Built Environment Sites

White (1985) evaluated the Lundy Powerhouse and recommended it not eligible for listing on the NRHP. The SHPO concurred with this finding on December 9, 1988 (FERC Ref No. FERC861112A, FERC831003B, FERC880816A). It should be noted that the evaluation solely focused on the powerhouse and did not examine or discuss the system as a whole. Three built environment resources associated with the Lundy Project have been documented on CDPR forms (Table 5.11-3). No other built environment resources have been documented with the APE and Study Area.

Table 5.11-3. Previously Recorded Built Environment Resources Located Within the Proposed Study Area and APE

Primary Number	USFS Number (or other designation)	Composition of Resource	NRHP Eligibility	In APE or Study Area	Property Owner
-	-	Lundy Hydroelectric System*	Not Eligible (FERC831003B)	APE	BLM, Inyo NF, County, Private
P-26-004077	-	Lundy Return Ditch	Unevaluated	APE	BLM, Inyo NF, County, Private
P-26-008664	-	Mill Creek Powerhouse Road	Unevaluated	Study Area (of portion recorded)	LADWP (portion recorded)
-	-	Mill Creek-Control	Recommended Not Eligible	APE	Inyo NF, Private

*No CDPR

5.11.7. Identification and Consultation with the Tribes

See Section 5.12 Tribal Resources for information on Tribal interests and Traditional Cultural Properties

5.11.8. Current Cultural Resource Management

SCE prepared a Cultural Resources Management Plan for the Project (White, 1990). The plan identified (1) specific measures undertaken by SCE to avoid adverse impacts to the NRHP-eligible properties located within the 1390 FERC Project Boundary and (2) various programmatic measures that SCE is required to implement. The Cultural Resources Management Plan requires that if effects to NRHP-eligible properties cannot be avoided with implementation of protective and avoidance measures, SCE, in consultation with SHPO and FERC, shall address any effects in accordance with 36 CFR Part 800.

5.12. TRIBAL RESOURCES

5.12.1. INTRODUCTION

This section presents information about Tribal Resources and Native American Tribes known to have cultural interests in the vicinity of the Project. It also discusses Tribal lands and/or resources, including Native American Traditional Cultural Properties (TCPs), which could be affected by O&M of the Project. FERC's content requirements for this section are specified in 18 CFR §5.6(d)(3)(xii):

> Tribal resources. A description of Indian tribes, tribal lands, and interests that may be affected by the Project components of this description include:
>
> > (A) Identification of information on resources specified in paragraphs (d)(2)(ii)-(xi) of this section to the extent that existing Project construction and operation affecting those resources may impact tribal cultural or economic interests, e.g., impacts of Project-induced soil erosion on tribal cultural sites; and
> >
> > (B) Identification of impacts on Indian tribes of existing Project construction and operation that may affect tribal interests not necessarily associated with resources specified in paragraphs (d)(3)(ii)-(xi) of this Section, e.g., tribal fishing practices or agreements between the Indian tribe and other entities other than the potential applicant that have a connection to Project construction and operation.

Information presented in this section was collected from readily available, existing ethnographic and ethnohistoric sources, along with other archival data, and represents the type of resources that may be important to local Tribes. Tribal consultation, extensive archival research, and ethnographic interviews have not yet occurred, but will be conducted and/or used to provide information that will ensure Tribal interests and concerns are identified and addressed.

5.12.2. AREA OF POTENTIAL EFFECTS AND STUDY AREA

The proposed Tribal resources APE for the purposes of study implementation is defined as the area within the FERC Project Boundary, and a 50-foot radius around FERC ancillary facilities such as gages located outside of the FERC boundary. The proposed Tribal Resources Study Area is a 5-mile radius around the APE. This Study Area is a guide for archival research, development of the historic context and background statements, and general Tribal informant interviews (Figure 5.12-1).

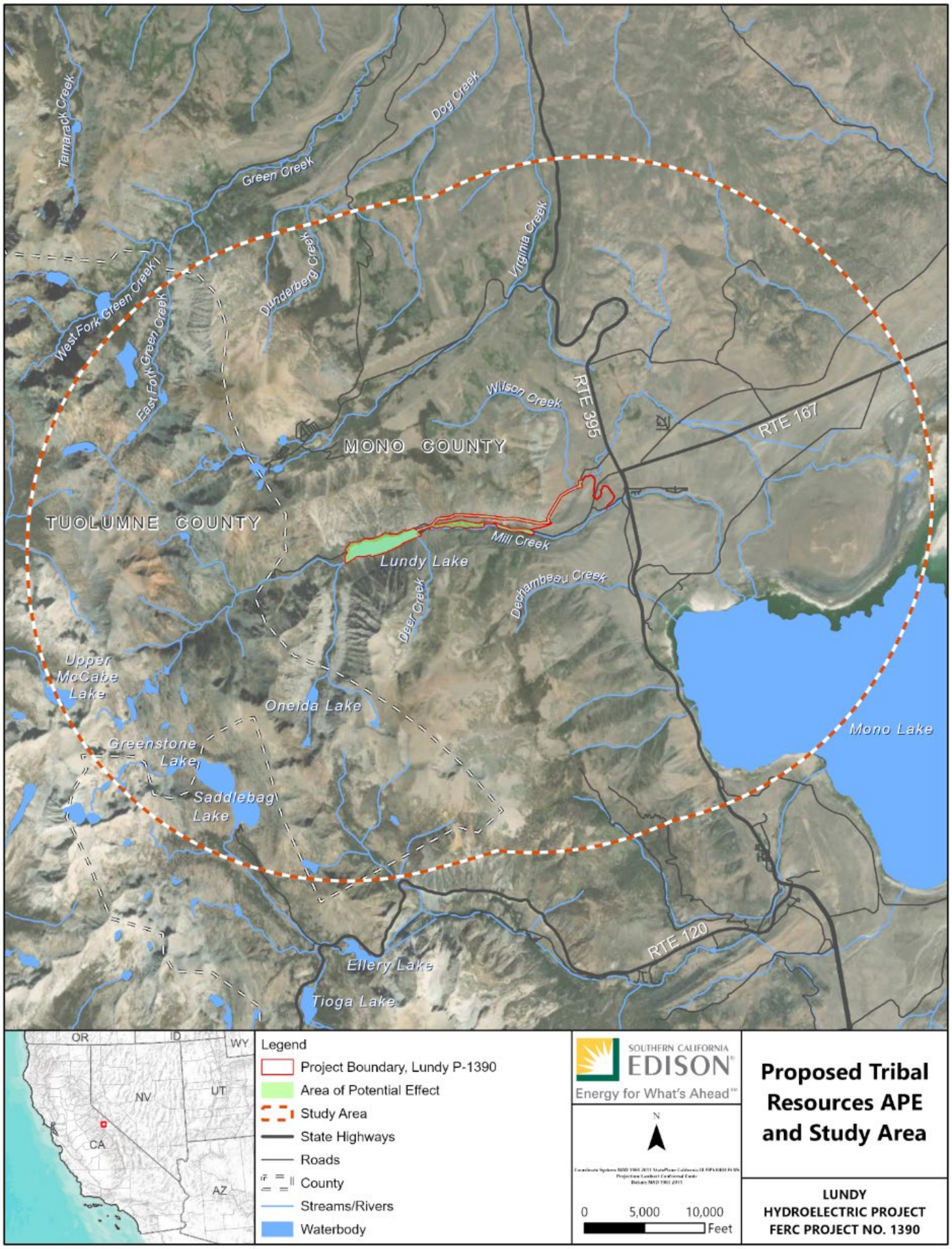


Figure 5.12-1. Proposed Tribal Resources APE and Study Area.

5.12.3. Information Sources

This section was prepared utilizing the following sources:

- Existing ethnographic literature, including Davis (1962, 1963, 1965); Davis-King (2007, 2010); Davis-King and Snyder (2010); Fowler (1989); Fowler and Liljeblad (1986); Merriam (n.d., 1898-1938), and Powers (1976)
- Native American Heritage Commission (NAHC) Sacred Lands File and Native American Consultation List (NAHC, 2023a, 2023b)
- Records on Ancestry.com, various
- Records on file at the National Archives and Records Administration (NARA), San Bruno, various
- Southern California Edison reports (White, 1983, 1985)
- Tribal websites, various
- *Voices of the People: The Traditionally Associated Tribes of Yosemite National Park* (National Park Service, 2019)

5.12.4. Identification of Tribes

5.12.4.1. Background Introduction

A review of existing ethnographic literature, census, records available on Ancestry.com, and records on file at NARA, San Bruno, identifies that the Project is in the homeland of the Mono Lake Kutzadika'a, a Northern Paiute group comprised of families with ties to the Lundy Canyon/Mill Creek, Lee Vining Creek, and Rush Creek drainage areas, the Mono Lake Basin, and the Bodie Hills. In addition, the greater Kutzadika'a homeland, extending from what is now Yosemite National Park in the Sierra Nevada Range east to Walker Lake and north and south along the eastern Sierra piedmont, was used during traditional seasonal rounds. Other groups have some affiliation with the Project vicinity, including the Southern Sierra Miwuk, the Central Sierra Me-Wuk, the Owens Valley Paiute, the Bridgeport Indian Colony, the Walker River Paiute, and possibly the Washoe and other Tribes.

The NAHC Sacred Lands file search conducted for the Project did not provide results, meaning no ethnographic studies conducted in the proposed Lundy APE were identified (NAHC, 2023a). The contact list provided for the Lundy Project was mostly limited to eastern Sierra Nevada Tribes considered potential stakeholders (NAHC, 2023b). Tribes identified include the Mono Lake Kutzadika'a Tribe, the Bridgeport Paiute Indian Colony, the Utu Utu Gwaitu Tribe of the Benton paiute Reservation, the Bishop Paiute Tribe, the Big Pine Tribe of the Owens Valley, the Washoe Tribe of Nevada and California, the Wadatkuta Band of the Honey Lake Valley, the Wuksache Indian Tribe/Eshom Valley Band, North Fork Rancheria of Mono Indians and the North Fork Mono. Information from the USFS, National Park Service, and/or Bureau of Indian Affairs (BIA) regarding groups with whom they consult may supplement the list of Tribal stakeholders.

5.12.4.2. Tribes with an Interest in the Project Area

The FERC communicates with federally recognized as well as unrecognized Tribal groups. This policy is also followed by SCE, and formal consultation with Tribes with an interest in the Project Area will commence in 2023. The western portion of the Project is near Yosemite National Park, which consults with seven Traditionally Associated Tribes, six of whom are discussed below. Additional Tribes with a possible interest in the Project Area are also discussed below.

Mono Lake Kutzadika'a Tribe (Mono Lake Indian Community)

The Mono Lake Kutzadika'a (Kootzaduka'a) Tribe, which at present is not federally recognized, is a Traditionally Associated Tribe of Yosemite National Park due to the Tribe's affiliation with the Mono Lake-Yosemite area since time immemorial (National Park Service, 2019). The Mono Lake Kutzadika'a are the Tribe closest to the Project and members are knowledgeable about the Tribal resources and heritage of the area. The Tribe operates the Mono Lake Kootzaduka'a Indian Community Cultural Preservation Association, a 501(c)(3) nonprofit organization whose goal is to protect cultural resources and traditional perspectives, and to maintain the Kutzadika'a language and traditions. Federal legislation to recognize the Mono Lake Kutzadika'a was introduced to Congress in September 2020. The Tribe continues to pursue federal recognition by the BIA while actively seeking a land base on the west side of Mono Lake near Lee Vining. In addition, the Cultural Preservation Association is engaged in the recordation of cultural sites, trains Tribal Monitors, assists federal, state, and county governments on the implementation of projects within the Kutzadika'a homeland, maintains a list of Tribal resources, including a map of Indigenous trails, within their homeland, collects herbarium samples of important plant species, and consults with agencies and organizations to protect cultural resources threatened by development, water exports, and climate change (Mono Lake Kootzaduka'a Indian Community Cultural Preservation Association, 2023a; Tonenna, 2023). The Cultural Preservation Association organizes traditional walks with neighboring tribes, such as the Miwuk and Owens Valley Paiute, as a way of passing down traditional knowledge (Mono Lake Kootzaduka'a Indian Community Cultural Preservation Association, 2023b). The Tribe also partners with others to bring back traditional land management practices that will restore damaged landscapes and enhance productivity of certain resources critical to the continuation of traditional cultural practices (Tonenna, 2021).

Bridgeport Indian Colony

The Bridgeport Indian Colony, located just outside the town of Bridgeport in Mono County, California, is the closest federally recognized Tribe to the Project and is a Traditionally Associated Tribe of Yosemite National Park (National Park Service, 2019). The Bridgeport Paiute, traditionally known as the Pogai-duk adu, is closely related to the northern Mono Lake branch of the Kutzadika'a. The Bridgeport Indian Colony, which has about 117 Tribal members and 80 acres of land, maintains a cultural department to oversee heritage resource matters and is active in preserving and protecting the Tribe's cultural heritage. The Tribe currently includes members with Paiute, Miwok, Mono, Shoshone, and Washoe ancestry (Bridgeport Indian Colony, 2012).

Bishop Paiute Tribe

The reservation for the federally recognized Bishop Paiute Tribe, which is also a Traditionally Associated Tribe of Yosemite National Park, is near the city of Bishop in northern Owens Valley, Inyo County, California (National Park Service, 2019). The Bishop Paiute Tribe has actively pursued, and continues to pursue, historic and cultural data about their people and is greatly interested in Paiute heritage and sacred areas, specifically in Inyo and Mono Counties. The Tribe has a Tribal Historic Preservation Officer (THPO) with oversight by a Cultural Advisory Committee and the Tribal Council. The Bishop Paiute Tribe is the fifth largest in California, with about 2,000 Tribal members, many of whom reside on the 875-acre Bishop Paiute Indian Reservation (Bishop Paiute Tribe, 2023). Bishop Tribal members and their ancestors used the upper regions of the Sierra Nevada, especially for summer activities and travel. Tribal enrollment includes people with ancestral ties to the Project Area.

American Indian Council of Mariposa County/Southern Sierra Miwuk Nation

The American Indian Council of Mariposa County (AICMC), also known as the Southern Sierra Miwuk Nation (SSMN), is a Traditionally Associated Tribe of Yosemite National Park and is affiliated with the eastern portion of the park and with Mariposa County (National Park Service, 2019). The Tribe, which is working to achieve federal recognition, has members with Mono Lake Kutzadika'a and Miwuk heritage who are knowledgeable about the resources and geography of the Project Area. The AICMC strives to protect, preserve, and enhance their spiritual and cultural values, as well as the physical resources of the SSMN, by maintaining the customs, traditions, and heritage of their ancestors (SSMN, 2023). As noted above, a trans-Sierran walk is organized by members of the Miwuk, Mono Lake Kutzadika'a, and other Paiute Tribes. The walk, which starts at the Farrington Ranch near Mono Lake, traverses Mono Pass into Dana Meadows, and continues down through the Yosemite high country to Tenaya Lake in Tuolumne County. The walk changes direction from year to year.

Tuolumne Band of Me-Wuk Indians

The Tuolumne Band of Me-Wuk Indians, located in the Sierra Nevada foothills in Tuolumne County, California, is a federally recognized Tribe with ancestral territory that extends into much of Yosemite and the Tioga Pass area (Tuolumne Band of Me-wuk Indians, n.d.). The Tuolumne Rancheria was purchased on October 26, 1910, and established as one of two local reservations for landless Me-Wuk. The original acquisition consisted of 289.52 acres. Today, there are over 1,700 acres of fee and trust land. Approximately 200 people live on the Rancheria, with an additional 200 non-resident members who are also enrolled in the Tribe. The Tuolumne Rancheria supports heritage programs and preservation throughout the region, largely in Tuolumne County. Although they do not have a THPO, they have an active cultural resource program. Tribal members have ancestral affiliations with Bridgeport and Mono Lake, as well as all three Sierran Miwok language groups. They are a Traditionally Associated Tribe of Yosemite National Park (National Park Service, 2019).

North Fork Rancheria of Mono Indians of California

The North Fork Rancheria of Mono Indians of California is a federally recognized Tribe and a Traditionally Associated Tribe of Yosemite National Park (National Park Service, 2019). This large Tribe of nearly 2,000 members is in the small community of North Fork, in rural Madera County (North Fork Rancheria of Mono Indians of California, 2020). The North Fork people speak a version of Northern Paiute and have ancestral and genealogical ties to Mono Lake and areas to the south, as well as to people in the Yokuts and Miwok linguistic groups. The Tribe conducts an annual Mono Nation walk, which crosses the Sierra on a different alignment than the AICMC-Kutzadika'a walk mentioned previously. The Tribe has expressed an interest in other FERC projects in the Mono Lake area via SCE's Project webpage.

North Fork Mono Tribe

The North Fork Mono Tribe, which is recognized by the state of California, is in the central Sierra Nevada foothills but has a traditional homeland that extends to the Sierran crest. The more than 150 members of the Tribe live on several BIA trust allotments. The Tribe maintains a nonprofit, 509 (a) 2, applying for and receiving federal grant funding to support research on environmental/ecological restoration projects in the Sierra National Forest (North Fork Mono Tribe, n.d.). Long a strong voice for the advocacy of all Tribal cultural resources, including the floral and faunal resources of the area, the North Fork Mono Tribe has recently mapped the Mono Trail on the western side of the Sierra to connect it with various passes such as Mono, Parker, and Tioga, as well as the eastern Sierra portion of the Mono Trail.

Big Pine Paiute Tribe of Owens Valley

The reservation of the federally recognized Big Pine Paiute Tribe is near the town of Big Pine in Inyo County, California. The Tribe actively pursues historic and cultural data about their people and is greatly interested in Paiute heritage and sacred areas in Inyo and Mono Counties, as well as parts of western Nevada. The Tribe has a THPO who is guided by cultural advisors. There are about 600 Tribal members, the majority of whom reside on the 279-acre Big Pine Paiute Indian Reservation (Big Pine Paiute Tribe, 2023). Tribal ancestors used upper regions of the Sierra Nevada, especially for summer activities and travel, and current members continue to value this area. People with Kutzadika'a ancestral ties are enrolled with the Big Pine Paiute Tribe.

Fort Independence Indian Community of Paiute Indians of the Fort Independence Reservation

The reservation of the federally recognized Fort Independence Community of Paiute Indians is a few miles north of the town of Independence in Inyo County, California.

Members of this Tribe, who have an interest in their history and heritage, are affiliated with other Paiute Tribes in the eastern Sierra. They have a THPO and other cultural advisors who participate in cultural discussions on projects that are far-ranging geographically, including the FERC projects in the Mono Lake area (Fort Independence Indian Reservation, 2020).

Walker River Paiute Tribe

The federally recognized Walker River Paiute Tribe, traditionally known as the Agai-Dicutta ("Trout Eaters"), is in Nevada (Walker River Paiute Tribe, 2023). More than 1,200 people reside on the Walker River Reservation, which was created in 1874 and has a land base of nearly 325,000 acres. The Tribe's connection to the Project is directly related to seasonal rounds where the Sierra Nevada provided summer camps and higher-elevation resources, while the present reservation area was a traditional wintering ground, including for the Kutzadika'a, due to milder winters. Thus, the Tribe has strong genealogical and historical ties to the Mono Lake Kutzadika'a.

Washoe Tribe of Nevada and California

The federally recognized Washoe Tribe of Nevada and California has ties to the Mono Lake area as a secondary resource area (https://washoetribe.us/aboutpage/4-Page-washoe-history). The Tribe has a THPO who works with a cultural advisory committee composed mainly of Wá·šiw-speaking elders. They have several distinct colonies (Washoe Tribe of Nevada and California, 2020), with members of the Woodfords Colony in Markleeville in Alpine County having the greatest affiliation with the Project Area. The Southern Washoe people are traditionally known as the Hungalelti.

5.12.5. Ethnography and Ethnohistory

The Lundy Project Area is in the traditional homeland of the Mono Lake Kutzadika'a (Kootzaduka'a), who have inhabited the Mono Lake area since time immemorial and live there to the present day. The Kutzadika'a, who are the southernmost band of the group referred to by anthropologists as the Northern Paiute, speak the local Uto-Aztecan dialect of *Numu Yadooana* (National Park Service, 2019). The name Kutzadika'a, or Kutsavi Eaters, derives from kutsavi (kootzabe), the pupae of the alkali fly, *Ephydra hians*, found in the waters of Mono Lake. This important source of highly nutritious, easily digestible, and storable protein, which is still prized by the Kutzadika'a and other Tribes, was supplemented by other foods such as tuba'a, the nuts of the pinyon pine (*Pinus monophylla*), wea, black oak acorn (*Quercus kelloggii*), and peagu, the larvae of the Pandora moth (*Coloradia pandora*), as well as other animal and vegetal foods (Fowler and Liljeblad, 1986:437; National Park Service, 2019). The people traveled widely, from Walker Lake in Nevada to the east, up into the Sierra Nevada and Yosemite Valley to the west, and north and south along the eastern Sierra Nevada piedmont. Neighboring Tribes include the Miwuk to the west, the Me-Wuk to the northwest, and the Washoe to the north, as well as other Uto-Aztecan speaking Paiute and Western Shoshone groups to the northeast, east, and southeast.

5.12.5.1. Ethnographers

The Northern Paiute are a geographically widespread linguistic group with a homeland that extends from an area just south of Mono Lake, north into Oregon and Idaho, west into the Sierra Nevada, and east to the Little Humboldt and Reese rivers. This vast area includes numerous groups connected by language but somewhat diverse in culture, due in part to the varied environment of their homelands. As such, several principal ethnographers of the Northern Paiute are not discussed below as their interests lie with people living great distances from and in different environments than the Project Area.

Some early investigations of the Northern Paiute were conducted by Stephen Powers in the mid-1870s and John Wesley Powell in 1880. Willard Park (1933-1940; see also Fowler 1989) investigated the Walker River area in the 1930s. However, C. Hart Merriam appears to be the first ethnographer to visit the Project vicinity and speak with people who had experienced the arrival of the first non-natives. Emma Lou Davis (1965) prepared the first ethnographic overview of the People of the Project Area. Substantial unpublished data, including the notes of Davis, as well as Margaret Wheat, Omer Stewart, Sven Liljeblad, Warren d'Azevedo, and numerous others held in multiple institutions, largely in the American west, could yield additional ethnographic data of relevance to the Project.

C. HART MERRIAM

Among the earliest anthropological accounts of the Project Area and vicinity were those resulting from C. Hart Merriam's trips in 1898, 1900, and 1901. His visits to Bridgeport in 1900 and Mono Lake in 1900 and 1901 were followed by numerous visits to Mariposa, Midpines, Bull Creek, Yosemite, and Hetch Hetchy over the next 3 decades. His journals cover 40 years of handwritten notes (1898-1938), which largely remain unpublished. Merriam's first reference to Yosemite was from mid-August 1898, when he observed that Yosemite Valley was nearly empty, with only a "few Mewuk Indians...left in the valley" (Merriam, 1898:85-100). Two years later, Merriam (1900:63) visited Bridgeport and noted the Indigenous People there were eating soup made of pine nuts, as well as acorn meal mush, even though oaks were not found in the region. When the Indigenous People of Bridgeport were asked about the acorn, Merriam was told they crossed the passes to gather them on the west slope of the Sierra, but also traded pine nuts for acorn with groups to the west (Merriam, 1900:64).

From Bridgeport, Merriam traveled south to Mono Lake, where he found two women preparing acorn whom he said had just returned from a trip across the Sierra to gather them (Merriam, 1900:67). In September of 1900, Merriam camped for a few days on Lee Vining Creek and talked with the Indigenous People at two camps on the Farrington Ranch, noting that they carry their baskets to Yosemite to sell to tourists and consequently want fancy prices. He also noted that they got acorn "on the west slope" (Merriam, 1900:70). Additionally, Merriam (1923) noted:

> Farther north, in the middle Sierra region, the Mono Lake Koo-tsa-be dik-kah (a branch of Northern Piute) have long made a practice of climbing Bloody Cañon and Mono Pass in order to visit Tuolumne

> Meadows for hunting and fishing, and not infrequently descended the west slope as far as Yosemite Valley to obtain acorns and to trade with the Muwa [Miwuk] Indians of that region, while contrariwise, the Yosemite Indians sometimes visited Mono Lake. [Merriam 1923:375]

This observation is important in that the most direct and perhaps faster route to Mono Lake from Yosemite Valley would be through Lee Vining Canyon, but the native people chose to hike over the Mono Pass and via Bloody Canyon instead. According to Merriam's 1955 essay on the Mono Paiute and their use of the Mono Trail for the obsidian trade:

> Chunks of the rough obsidian were sometimes carried long distances to be worked, and doubtless also to be bartered with other tribes, as shown by accumulations of stone flakes and "rejects" in remote spots, even on the faraway west flank of the Sierra. The site of these ancient workshops may be seen today on a commanding eminence a little north of the Yosemite. It is where the trail from Mono Pass and Lake Tenaya breaks through the dark green forest of pines and firs and suddenly comes out on a ridge of bare rock overlooking a new world—a world of granite domes, yawning chasms, and lofty mountains. The abruptness of the transition is startling (Merriam 1955:73-74).

Although Merriam referenced the Mono Trail, it is unlikely that the specific place about which he wrote was on the Mono Trail itself (as currently plotted on the USGS maps), since by this time in his life and research, Merriam stayed along established vehicle routes. He also took the Bishop-Mono Lake Stage Line, where he could get off at "Lee Vining Creek Power House." The location was probably on or near Tioga Road, which had usurped the trail by 1883 (Davis-King and Snyder, 2010). Merriam (1966:76) noted that trade occurred in both directions. The Indigenous People at a camp east of Bridgeport visited by Merriam in 1902 had acorn from Hetch Hetchy. While attempting to communicate in the Paiute language with one person at the camp, the man said he did not understand everything Merriam was saying as he came from the other (west) side of the Sierra. When Merriam realized the man was "Mu'wa" and talked to him in his own language, the astonished man "grinned from ear to ear" (Merriam, 1902:241).

In October 1910, Merriam (1910:154) visited a camp in Yosemite Valley, noting "a couple of dozen Indians are there now, all of same Tribe—Mew'wah—some having come up from El Portal" and others from Colorado. The next day "Some Piute Indians came in from Mono Lake to take part in the dances" (Merriam, 1910:155). It rained and snowed during the night and Merriam felt sympathy for the people from Mono Lake, who had no shelter. The People decided to return home, traveling up the Yosemite Falls Trail and camping near the top the following night. Upon daylight, they headed through the snow to Tuolumne Meadows and on to Mono Lake via Lee Vining Creek Pass instead of Mono Pass "as there was less snow that way" (Merriam, 1910:157).

FREDERICK HULSE

Frederick Seymour Hulse, a physical anthropologist by training, came to California in 1934 to work with Alfred Kroeber at the University of California, Berkeley (Giles, n.d.). In the summer of 1935, Kroeber sent Hulse to the eastern Sierra to compile oral histories as part of the Works Progress Administration's Great Depression program to collect California native languages, vocabularies, stories, and cultural traits. Hulse compiled ethnographic materials in Inyo and Mono Counties, including Lee Vining and Bridgeport, that were recorded by bilingual Paiute men and women hired to interview their elderly relatives (Hulse, 1935). Among the stories compiled by Hulse were those related by:

- Tina Charley (Lee Vining; born about 1869; stories, customs, autobiography)
- Jake Gilbert (Lee Vining; born about 1865; stories, customs, autobiography)
- Susie Jim (Bridgeport; born about 1845; old "Indian customs")
- Joe Lent (Bridgeport; born about 1887; old "Indian customs")
- Jim (Jack) Lundy (Me-Wuk, born about 1876 at Deer Flat in Tuolumne County but married to two Kutzadika'a sisters born in Mono County; his life and escape from the Mother Lode)
- Silas B. Smith (Bridgeport; born at Mono Lake about 1874; stories)
- Bridgeport Tom (Bridgeport, Mono Lake, Coleville, Round Valley; born at Bridgeport about 1860 but married to Kutzadika'a two sisters born at Mono Lake; origin and other stories)

These and other stories of creation and lifeways will inform future studies, as they are specifically about Lee Vining, Mono Lake, east-west travel on Indigenous trails, the water of the Sierra Nevada, resource procurement and processing, and more. Several of the people listed above are ancestors of the Mono Lake Kutzadika'a, as well as members of other Tribes with ties to the Project Area.

EMMA LOU DAVIS

Emma Lou Davis is known for her work with the Indigenous People of Mono Lake, including "Hunter-Gatherers of Mono Lake" published in 1962, "The Desert Culture of the Western Great Basin: A Lifeway of Seasonal Transhumance" published in 1963, and *An Ethnography of the Kuzedika Paiute of Mono Lake, Mono County, California*, published in 1965, in which Davis described the seasonal round of the Mono Lake Kutzadika'a. Each spring Kutzadika'a families left their winter camps and moved toward the Sierra, camping along streams in sheltered canyons and eating early greens such as wild onions and cress. Deer were hunted as they migrated from winter ranges at low altitudes to summer ranges in the high Sierra (Davis, 1963:203). Around Mono Lake,

> … the pattern of land utilization was such that almost every square mile of open country was visited and now shows a telltale flake or two of obsidian. These can be called use areas. There are other places, perennially favored as camps, where chipping waste lies thick. These can be referred to as occupancy areas (Davis, 1963:204).

As the high passes cleared of snow, the seasonal round of "trade and travel" commenced, during which the Kutzadika'a "freely traveled to other areas as pleasure or necessity dictated and other people came into the area to visit and to harvest" (Davis, 1965:29). Davis (1962) noted:

> In addition to its appeal as a food larder, Mono Lake basin was a cross-roads for trade and travel. Four trans-Sierran trails, crossing Mammoth, Mono, Walker [Virginia Creek] and Tioga Passes, debouched into the valley. Here they were intersected by a north-south piedmont trail (Davis, 1962:27).

Davis noted that deer were hunted more frequently than bighorn sheep, which ranged as high as the Sierran summit to feed on alpine plants, but that "both sheep and deer killed far from home were boned out on the spot, the meat sun dried then carried home in the hide" (Davis 1965:33). She observed that the mule deer returned each year and judging by the deer herds of that time:

> …the Mono Lake people were in a favorable deer locale. A large herd has a summer range in the high country just west of the lake and there is another concentration in the Laurel Creek-Sherwin Creek area near Mammoth Mountain. There is, however, no certainty that deer were previously as plentiful in the region as were sheep (*Ovis canadensis*) (Davis, 1965:26-27).

Davis's map of food crop localities and deer migration routes is reproduced as Figure 5.12-2.

<u>David White (SCE)</u>

David White (1983, 1985) prepared overviews and management plans for the Rush Creek, Lee Vining Creek, and Lundy SCE projects, noting that ethnographic data suggest there may be at least seven categories of archaeological resources in the Project vicinity, most of which remain relevant to present Tribal uses. These seven categories are traveler's camps, temporary hunting camps, ambush/game blind locales, Pandora moth larvae collecting sites, vegetation procurement sites, obsidian procurement/processing sites, and rock art/shrine sites. No Tribal values or outreach efforts were reported for either of these investigations.

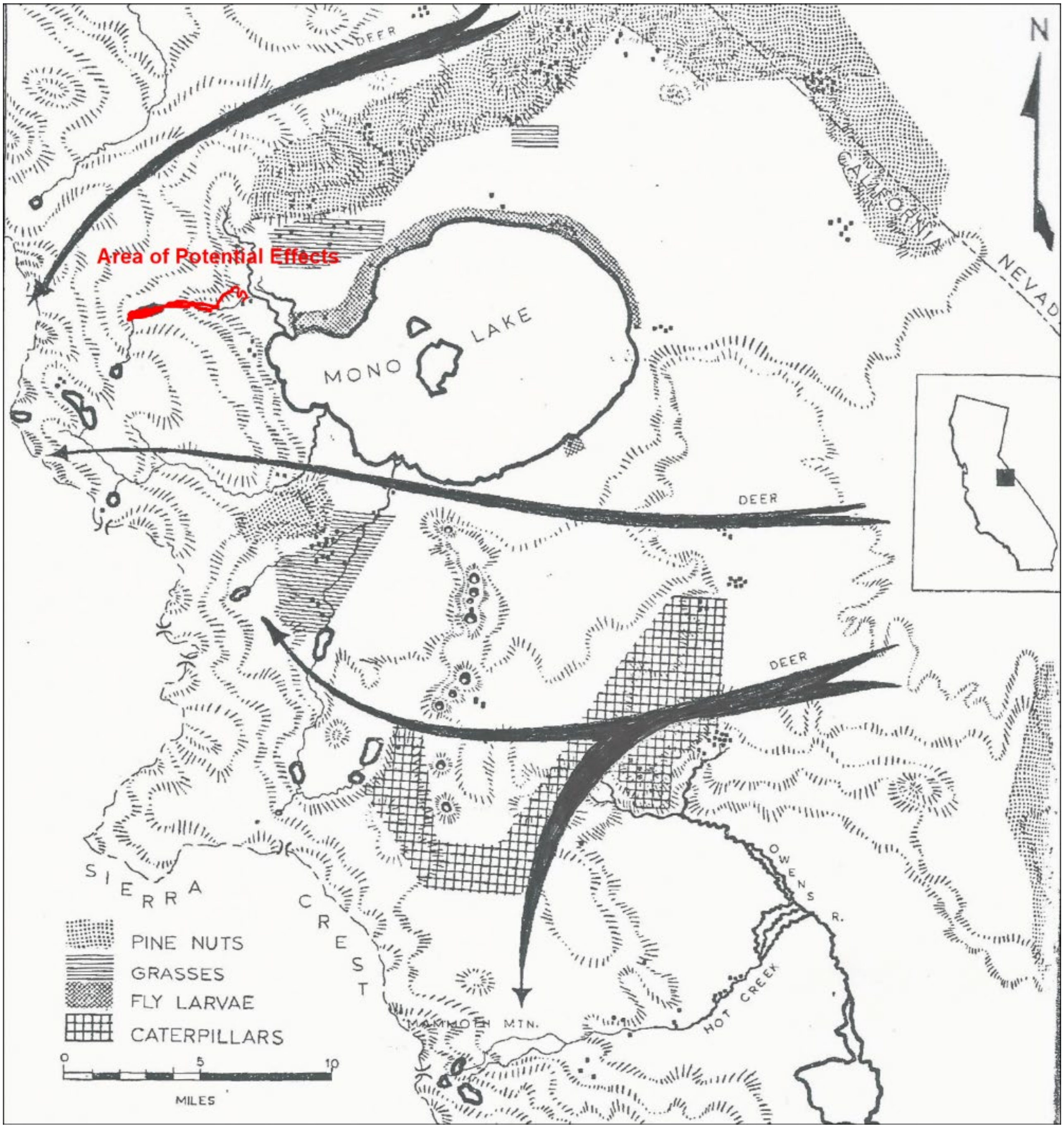


Figure 5.12-2. Kutzadika'a Food Crop Localities and Deer Migration Routes (Davis, 1965).

5.12.5.2. Ethnographic Summary

The Mono Lake Kutzadika'a homeland includes the FERC Project Boundary and proposed Tribal Resources Study Area, although there was some land use overlap with the Me-Wuk, Miwok, Owens Valley Paiute, Walker River Paiute, and other Paiute Tribes, as well as possibly the Washoe. For this discussion, emphasis is placed on the Northern

Paiute, a linguistically homogenous but politically and culturally distinct people. The Northern Paiute language is one of two that contribute to Western Numic, part of the Uto-Aztecan language family. The language is very closely affiliated with that spoken by the Owens Valley Paiute, a group immediately south of the Kutzadika'a. Other neighbors include various Northern Paiute groups such as the *Tövusidökadö* and the *Aga'idökadö* to the north, the Washoe to the north and west, and the Southern Sierra Miwok and Central Sierra Me-Wuk to the west (Fowler and Liljeblad, 1986). Fowler and Liljeblad (1986) also give the name Kutsavidökadö to the Kutzadika'a, a name which translates to "kutsavi eaters."

Important large and medium-sized mammal species include pronghorn (*Antilocapra americana*), Rocky Mountain mule deer (*Odocoileus hemionus hemionus*), Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), jackrabbit (*Lepus* sp.), and cottontail (*Sylvilagus* sp.). Various small mammals, including squirrels, chipmunks, mice, rats, and gophers were also part of the diet. Carnivores, including foxes, weasels, martins, raccoons, bears, bobcats, cougars, and coyotes are present throughout much of the area, but appear not to have been hunted. Insects were seasonally important to the Kutzadika'a, especially the alkali brine fly (*Ephydra hians*), otherwise known in its pupal stage as kutsavi, and piaggi, the caterpillar of the Pandora moth (*Coloradia pandora*). The Mono Lake brine fly and brine shrimp (*Artemia monica*), the only life in the waters of Mono Lake, helped support dozens of waterfowl species. Grebes, pelicans, cormorants, herons, egrets, geese, and numerous duck species were some of the waterfowl valued for their flesh, eggs, bones, and feathers. Other birds, especially the grouse and quail, were also important food items. Some birds, such as the golden eagle (*Aquila chrysaetos*) and the black-billed magpie (*Pica pica*), were especially important for regalia and ceremonial purposes.

There are several distinct native fishes in Mono County associated with either the Lahontan Basin system in the north or the Death Valley system in the south. The Lahontan Basin system in Mono County includes the portion drained by the Walker River, a tributary to ancient Lake Lahontan. The Death Valley system includes Mono and Owens lakes, but Sada (2000) found no evidence that either lake supported native fish historically. Of the 16 native fish in the two systems, eight are known historically in Mono County: Lahontan cutthroat trout (*Oncorhynchus clarki henshaw*), speckled dace (*Rhinichthys osculus*), Lahontan redside (*Richardsonius egregious*), Owens sucker (*Catostomus fumeiventris*), Owens pupfish (*Cyprinodon radiosus*), Owens tui chub (*Gila bicolor snyderi*), mountain whitefish (*Prosopium williamsoni*), and the Paiute sculpin (*Cottus beldingi*) (Sada, 2000). Trout were later introduced to the streams in the Sierra Nevada and became a regular part of the diet (McCarthy, 1996).

Structures varied seasonally and functionally, with the *koni*, a dome-shaped familial house being the primary winter residence. The door is often away from the prevailing wind, but a view to the east is desired. Smoke exited the house from a central opening at the top.

Depending on the size of the family, the house could be quite large—up to 15 feet in diameter. The homes at Mono Lake often had a long entrance tube to prevent cold air and snow from entering the residence. Circular or semi-circular brush shelters built to protect from the wind are also very common in the area. They are usually formed from sagebrush and lack a firepit, roof, or set entrance. Historic photographs show that people hung various tools, clothing, baskets, and other items from brush windbreaks. These sagebrush shelters have a surprising survival rate and are extant on the shores of Mono Lake, not far from the Project. The floors are often covered with artifacts from tool or basket manufacture. Photographs and descriptions of the more substantial Mono Lake winter homes suggest they had semi-subterranean foundations. Where such houses were constructed, they would often house two or three other families and, according to Fowler and Liljeblad (1986), may have a group size of up to 50 people. Summer camps were much smaller and more oriented toward individual families.

Material culture largely reflects subsistence and residence patterns, with milling slabs and less frequent rock mortars indicative of seed and nut processing. Stone tools made of local materials such as obsidian from the Bodie Hills source, which is in the Kutzadika'a homeland, as well as from toolstone obtained from other sources via direct procurement or trade, found use for hunting, scraping, cutting, and smoothing tasks. Basketry includes both twined and coiled varieties of several important functional types and dimensions.

The Northern Paiute may have encountered outsiders by the early 1800s and had likely experienced some changes to their environment and lifeways by this time. For example, horses were quickly adopted after being introduced into the Great Plains region in the 1700s, allowing people to become more nomadic. On his journey from California to the Great Salt Lake in 1827, Jedediah Smith encountered 20 to 30 Indigenous men on horseback at Walker Lake; these men could have been Kutzadika'a or their relations. As explorers, fur trappers, and settlers of many ethnic affiliations moved west, they encroached on Northern Paiute territory. Stories of these strange outsiders and the atrocities they committed against Indigenous People likely reached the Kutzadika'a even before the physical incursion began.

By 1850, seekers of mineral wealth rushing to California and western Nevada had profoundly impacted Indigenous lifeways in many areas. Seed plants were eaten and trampled by the emigrant's livestock, water sources were fouled, and game was hunted or frightened away, depleting the traditional resources the People depended on for survival. After entering Yosemite Valley in 1851, the Mariposa Battalion, a unit of the California State Militia, burned the Indigenous People's villages and food stores, massacred many People, and forcibly removed others, bringing the act of genocide even close to home (Madley, 2016).

The ranching, lumber, and mining industries that were soon established in the Mono Lake area, including Lundy Canyon, caused such destruction of important subsistence resources that the Kutzadika'a were forced to incorporate wage labor into their traditional subsistence strategy to avoid starvation. Non-native manufactured materials such as metal, glass, and ceramics became a part of the People's material culture, and non-native foods and clothing were adopted. Detailed accounts of the Mono Lake Kutzadika'a's interaction with the newcomers include Cain (1956, 1961), Davis-King (2010), and Fletcher (1982, 1987), among others.

In the early twentieth century, decorative baskets made specifically for sale became an important source of income for women. Kutzadika'a weavers such as Lucy Telles, Carrie Bethel, and sisters Nellie and Tina Charlie, elevated this art form and have become among the most revered basket makers worldwide (Bates and Lee, 1990; National Park Service, 2019). Basket makers from this time period often used sharpened ferrous-metal nails for awls, scrapers made of glass for cleaning willow, and perforated tin can lids for sizing split willow rods.

By this time, the federal government had assumed oversight of Indigenous People, resulting in removal to reservations for some, and for the Kutzadika'a and others, a period of neglect. However, the Kutzadika'a have suffered the same attempts at cultural genocide because of the forced removal of their children to government- or church-run boarding schools as did other Indigenous People in the eastern Sierra region and elsewhere. Although the Kutzadika'a's traditional way of life has been altered because of a multitude of factors resulting from outside influences, they have preserved much of their culture and history due to their resilience and perseverance.

MONO LAKE AREA INDIAN CENSUS DATA

Prior to non-native contact, an estimated 6,000 people were spread across Northern Paiute territory in Nevada (Fowler and Liljeblad, 1986), but it is unknown how many of these people were Kutzadika'a. C.E. Kelsey (1909) attempted to document all of California's Indigenous People in 1905 and 1906, including those who were "homeless" (i.e., not living on reservations or allotments), as well as those who owned land (i.e., had patented allotments or Indian homesteads). Kelsey recorded 51 households in the Mono Lake area, including Bodie, Farrington, and Mono Lake, with a total of 157 individuals. As of 1906, only three Kutzadika'a, Fee Foster, Johnnie Cluette, and Henry Jamison (Jameson), had filed on allotments and were thus counted as landowners. Emma Lou Davis (1965) reported that only 37 Indigenous People still lived in Lee Vining in 1960.

Census data available on Ancestry.com was briefly reviewed and will be tabulated later. The following list of people living in the Mono Lake/Lee Vining area is from the Office of Indian Affairs, Applications for Enrollment with the Indians of the state of California (NARA, 1928-1933). The application forms were filled out in 1930 but presumably recorded the applicant's residence in 1928. The following list does not include the numerous people who were born at Mono Lake but were living in Yosemite Valley, Bridgeport, Sweetwater, Walker River Reservation, Yerington, Benton, Round Valley, Bishop, and perhaps elsewhere in 1928. Further archival research may identify others living at Mono Lake in 1928.

- Nanie Frank Cluette (Woy-ya), born at Mono Lake about 1870, her son Hank Cluette, and one granddaughter, both also born at Mono Lake, as were Nannie's parents, John (Tu-ack-ti-u) Frank, who died in 1930, and Mattie John (O-hi-u-a), who died about 1888; the family moved to Yerington sometime after 1928; Nanie is the widow of Johnny Cluette [Application for Enrollment 4969].

- Lula Charlie Hess, born at Mono Lake about 1894, and five children, all also born at Mono Lake; Lula is the daughter of Young Charlie and Nellie Jim Charlie and the granddaughter of Patsy Jim, all of whom are also living at Mono Lake [Application for Enrollment 4973].

- Patsy We-do-zi Jim (Hi-do-nee), born about 1845; occupation is basket maker; Patsy Jim is the sister of Mattie Yankee and the maternal grandmother of Carrie McGowan Bethel, Minnie McGowan Turner, Sadie McGowan, Lewis McGowan, and Lula Charlie Hess, all also living at Mono Lake [Application for Enrollment 4974].

- Young Charlie (Su-du-wee), two children, and his wives, sisters Nellie Jim Charlie and Tina Jim (Wi-to-ni) Charlie, both born at Mono Lake in the 1860s; Young Charlie's occupation is ranch hand and Tina's occupation is basket maker; Young Charlie and Tina are also the parents of Dick Charlie, who is also living at Mono Lake [Applications for Enrollment 4975, 4976, 4977].

- Mattie We-do-zi Yankee (Ye-vo-na), born at Rush Creek about 1850; Mattie is the sister of Patsy Jim, who is also living at Mono Lake [Application for Enrollment 4978].

- Dick Charlie and his wife Alice Mike Charlie, both born at Mono Lake, he in 1903 and she in 1904; Dick's occupation is ranch hand; he is the son of Young Charlie and Tina Jim Charlie, both of whom are also living at Mono Lake; Alice is the daughter of Big Mike and Maggie McBride Mike and the sister of Cause Mike, all of whom also live at Mono Lake [Applications for Enrollment 4979, 4980].

- Big Mike (Su-mul-en-ne), born at Mono Lake about 1856, and his wife Maggie McBride Mike (O-hi-u-ne), who was born at Benton; Big Mike's occupation is ranch hand; Big Mike and Maggie are the parents of Cause Mike and Alice Mike Charlie, both of whom are also living at Mono Lake; Big Mike's deceased parents, Tuk-kum and Wha-to-ni, were also born at Mono Lake and resided there after their marriage; Maggie's father, Jim McBride (Co-pe-tun), was born at Bridgeport and her mother, Mattie McBride (Pa-ga-ge), was born at Benton [Applications for Enrollment 4981, 4982].

- Cause Mike, born near Mono Lake about 1897, and his four sons, all born near Mono Lake; occupation is ranch hand; Cause is the son of Big Mike and Mattie McBride Mike and the sister of Alice Mike Charlie, all of whom are also living at Mono Lake [Application for Enrollment 4983].

- Mildred Charlie Hess and four children; Mildred is the daughter of Young Charlie and Nellie Jim Charlie, both of whom are also living at Mono Lake [Application for Enrollment 4984].

- Minnie McGowan Turner and four children; occupation is laundress; Minnie is the granddaughter of Patsy Jim (Hi-do-nee) and the sister of Carrie McGowan Bethel, Sadie McGowan, and Lewis McGowan, all of whom are also living at Mono Lake [Application for Enrollment 4986]

- Carrie McGowan Bethel; occupation is basket maker; Carrie is the granddaughter of Patsy Jim (Hi-do-nee) and the sister of Minnie McGowan Turner, Sadie McGowan, and Lewis McGowan, all of whom are also living at Mono Lake [Application for Enrollment 4987]

- Sadie McGowan; occupation is housekeeper; Sadie is the granddaughter of Patsy Jim (Hi-do-nee) and the sister of Minnie McGowan Turner, Carrie McGown Bethel, and Lewis McGowan, all of whom are also living at Mono Lake [Application for Enrollment 4988].

- Mary Joe Jack (Maw-sa-bi-nu), born at Mono Lake about 1855; occupation is basket maker; her maternal grandmother, Wa-bi-u-nee, was living at Mono Lake in 1852; Mary is the mother of Jasper Jack and Sally Jack Lundy and the sister of Anna Joe McLaughlin, all of whom are also living at Mono Lake [Application for Enrollment 4989].

- Anna Joe McLaughlin (Pu-yu-ne), born at Mono Lake about 1854, and husband Joe McLaughlin (Pa-gu-na), who was born in Long Valley; her maternal grandmother, Wa-bi-u-nee, was living at Mono Lake in 1852; Anna is the sister of Mary Joe Jack, who is also living at Mono Lake [Applications for Enrollment 4990, 4991].

- Jake Gilbert (Tu-ni-ik), born in Mono County about 1865, and four children, also born in Mono County; occupation is ranch hand; Jake's parents, To-hok-kum and Sow-wup-pu-na, were both born at Mono Lake and were residing there prior to their deaths in 1910 and 1920; Jake is also the father of Nellie Gilbert, who is also living at Mono Lake with her two children [Application for Enrollment 4994].

- Nellie John Reynolds, born in Mono County about 1899, and four children, all born in Mono County; occupation is dishwasher; Nellie is the daughter of Captain John, who died about 1925; her mother, Susie John, and her sister, Bessie Summers, are also living at Mono Lake [Application for Enrollment 4995].

- Nita Trainor Gregory (Pu-u-e-mi), born at Mono Lake about 1877, and her husband Pat Gregory, who was born at Bodie about 1867; Pat's occupation is miner and Nita is a laundress; Nita is the daughter of John Trainor and Mattie, both of whom were born at Mono Lake and resided there after their marriage; she is the mother of Davis Gregory and Vina Gregory Williams, both of whom are also living at Mono Lake [Applications for Enrollment 4996, 4997].

- John Trainor (So-no-vi-ga), born at Mono Lake about 1840, is the father of Nita Trainer Gregory and the grandfather of Davis Gregory and Vina Gregory Williams, all of whom are also living at Mono Lake [Application for Enrollment 4998].

- Davis Gregory, born at Mono Lake in 1906; occupation is laborer; Davis is the son of Nita Trainor Gregory and Pat Gregory, the brother of Vina Gregory Williams, and the grandson of John Trainor, all of whom are also living at Mono Lake [Application for Enrollment 4999].

- Willie King or Kane, born at Mono Lake about 1895; occupation is ranch hand [Application for Enrollment 5001].
- Mike Williams (So-no-go-no), born at Mono Lake about 1873, and one child, also born at Mono Lake; both have lived at Mono Lake since birth; occupation is laborer; both of his parents, now deceased, were born in Mono County and resided at Mono Lake after their marriage; Mike is the sister of Jennie Harrison, who is also living at Mono Lake [Application for Enrollment 5002].
- Louis Murphy (Y-u-od-de), born in Mono County about 1886, and one child; occupation is laborer; Louis sold his allotment [on Rush Creek] in 1929 for $3,000, purchased 20 acres of land on the Walker River Reservation with the some of the proceeds, and moved to the reservation in May 1930; his father, Jake Harrison (Wa-su-pa-tu), who was born at Dobe Meadows (cf. Adobe Meadows), is also living on the Walker River Reservation where he purchased 40 acres from the proceeds of the sale of his allotment [Application for Enrollment 5003, 5239].
- Albert Summers, his wife Bessie John Summers, and one child; Albert's occupation is laborer; Bessie is the daughter of Captain John, who died about 1925; her mother, Susie John, and sister, Nellie John Reynolds, are also living at Mono Lake [Applications for Enrollment 5004, 5006].
- Lena Tom Dondero, born at Mono Lake about 1880, and five children; Lena is the daughter of Bridgeport Tom and Louise (Louisa) Sam Tom, and the granddaughter of Captain Sam, all of whom are also living at Mono Lake [Application for Enrollment 5005].
- Captain Sam (Si-ya-we-ga-no-de), born about 1833 in Mono County; he is the father of Louise (Louisa) Sam Tom and Leanna Sam Tom, both of whom are also living at Mono Lake, and the grandfather of nine children fathered by his daughters' husband, Bridgeport Tom, three of whom are also living at Mono Lake [Application for Enrollment 5010].
- Louise (Louisa) Sam Tom (Pa-gu-ma-hi), born at Mono Lake about 1863; Louise is the wife of Bridgeport Tom, the sister of Leanna Sam Tom, Bridgeport Tom's second wife, the daughter of Captain Sam, and the mother of Lena Tom Dondero and Harry Tom, all of whom are also living at Mono Lake, as well as the mother of Lucy Tom Telles, Alice Tom James, Sarah Tom Johnson, and Mack Tom, all of whom are living in Yosemite; all six of their children were born at Mono Lake [Application for Enrollment 5011].
- Jasper Jack (Na-zu-du), born at Mono Lake about 1893, and one child, also born at Mono Lake; occupation is laborer; Jasper is the son of Mary Joe Jack and the brother of Sally Jack Lundy, both of whom are also living at Mono Lake [Application for Enrollment 5012].
- Sim Lundy, born at Mono Lake about 1893, wife Sally Jack Lundy (Sa-ya-yu-ne), born at Mono Lake about 1895, and four children, all born at Mono Lake; Sim's occupation

is laborer; Sim's father, Jack Lundy (Ah-wan-a-he-a), who was born in Tuolumne County and is Me-Wuk, is living at Bridgeport, while Sim's mother, Maggie Howard (To-du-ho-ok), who was born in at Mono Lake, is living in Yosemite; Sally Jack Lundy is the daughter of Mary Joe Jack and the sister of Jasper Jack, both of whom are also living at Mono Lake [Applications for Enrollment 5013, 5014].

- Jennie Charley Harrison (Se-ab-ba), born at Mono Lake about 1863; occupation is housekeeper; Jennie is the mother of Frank Sam, who is also living at Mono Lake with his wife and five children, and the sister of Mike Williams, who is also living at Mono Lake with one child [Application for Enrollment 5015].

- Frank Sam, wife Betsy Summers Sam, and five children, all born at Mono Lake, Frank in 1900 and Betsy in 1902; Frank's occupation is laborer; Frank is the son of Jennie Charlie Harrison, who is also living at Mono Lake, and Young Sam, who died in 1901; Betsy is the sister of Tommy Summers, also living at Mono Lake with his wife and their four children; their mother Mattie Summers (Ho-wa-du-ne), who was born and lived at Mono Lake, died in 1927 [Applications for Enrollment 5016, 5017].

- Tommy Summers, wife Marjorie Farrington Summers, and four children; Tommy's occupation is laborer; he is the sister of Betsy Summers Sam, who is also living at Mono Lake with her husband and their five children; their mother, Mattie Summers (Ho-wa-du-ne), who was born and lived at Mono Lake, died in 1927; Marjorie's mother, Mamie Tom Brown, who was born at Mono Lake and is living at Bishop, is the daughter of Bridgeport and Leanna Tom, both of whom are also living at Mono Lake [Applications for Enrollment 5018, 5019].

- Henry Jameson (Kaw-ma), born at Mono Lake about 1872, his wife Anna Charley Jameson (We-to-nee), born at Mono Lake about 1880, and one child, also born at Mono Lake; Henry's occupation is ranch hand; his deceased father, Cha-pa-ra-da, who was born in Mariposa County, and his deceased mother, Yo-bid-do-no, who was born in Mono County, lived at Mono Lake after their marriage [Applications for Enrollment 5020, 5021].

- Lewis McGowan, born at Mono Lake about 1889; occupation is truckdriver for the state of California; Lewis is the grandson of Patsy Jim and the brother of Minnie McGowan Turner, Carrie McGowan Bethel, and Sadie McGowan, all of whom are also living at Mono Lake [Application for Enrollment 5022].

- Nellie Gilbert, born at Dobe Meadows (cf. Adobe Meadows) in 1900, and two children, both born at Mono Lake; Nellie is the daughter of Jake Gilbert, who is also living at Mono Lake with his four other children [Application for Enrollment 5025].

- Joe McBride, born in Mono County about 1886, his wife Ida Tom Harrison McBride, born at Mono Lake about 1890, their four children, and Ida's five children by a previous marriage; occupation is laborer; Ida is the daughter of Bridgeport Tom and Leanna Sam Tom and the granddaughter of Captain Sam, all of whom are also living at Mono Lake [Applications for Enrollment 5026, 5028].

- Willie Williams, born at Mono Lake about 1897, Vina Gregory Williams, born at Mono Lake about 1901, and their six children, all also born at Mono Lake; Willie's occupation is laborer; Willie is the son of Mike Williams and Maggie Howard, both of whom are also living at Mono Lake; Vina is the daughter of Pat and Nita Trainor Gregory, the sister of Davis Gregory, and the granddaughter of John Trainor, all of whom are also living at Mono Lake [Applications for Enrollment 5029, 5030].

- Scotty John, born in Mono County about 1899, and two children, both born in Inyo County; occupation is ranch hand; Scotty is the son of Captain John, who died in 1925, and Susie John, who is also living at Mono Lake [Application for Enrollment 5031].

- Susie John (Ko-be-na-ko-wa) was born in Mono County about 1856; occupation is basket maker; Susie is the widow of Captain John, who died in 1925, and the mother of Scotty John, who is also living at Mono Lake [Application for Enrollment 5032].

- McKinley Abe (Ya-du-ba-ga), born in Mono County about 1856, and one child; McKinley is also the father of Mary Abe Horton, who also lives at Mono Lake; his deceased parents, Too-ze-was-si and Ka-doo-ni, were both born at Mono Lake [Application for Enrollment 5034].

- May Abe Horton (Poo-we-un-a), born in Mono County about 1898, and one child, born in Inyo County; occupation is basket maker; May's parents are McKinley Abe, who is also living at Mono Lake, and Sa-ba-na-e, who is deceased [Application for Enrollment 5035].

- Mary Grasshopper (Wa-bi-o-ne), born at Mono Lake about 1855 and resided there until her death in 1928; Mary is the mother of Nettie Grasshopper Jackson [Application for Enrollment 5040].

- Nettie Grasshopper Jackson, born at Mono Lake about 1880 and resided in Mono County until five years ago, is living at Yerington with her husband Sullivan Jackson, who was born in Mono County, and one child; Sullivan is a laborer: Nettie is the daughter of Mary Grasshopper, who was living at Mono Lake until her death in 1928 [Application for Enrollment 5040].

- Alice Jameson Rambeau, born near Mono Lake in 1900, husband Ned Rambeau, born in Mono County, likely at Benton, their child, born at Mono Lake, and Ned's three children from a previous marriage, all of whom were born in Mono County; Ned's occupation is laborer; Alice is the daughter of Henry Jameson and Anna Charlie Jameson, both of whom are also living at Mono Lake; Ned's mother, Jennie Walker Rambeau, was born and is living at Benton [Applications for Enrollment 5042, 5066].

- Mattie Stevens (Nu-bi-u-nik-e), born at Mono Lake about 1838 and living there at the time of her death in 1928; she is the mother of Lizzie Stevens [Application for Enrollment 5049].

- Bridgeport Tom, born at Bridgeport about 1860, and his wife Leanna Sam Tom, born at Mono Lake about 1870, are the parents of Mamie Tom Brown, who lives at Bishop, Ida Tom McBride, who lives at Mono Lake, and Agnes Tom Castro, who lives in Yosemite; all of their children were born at Mono Lake; Bridgeport Tom's second wife, Louisa Tom (see above) is Leanna's sister; his father, Wa-te-kaw-ne, was born at Mono Lake and his mother, Nepi-e, was born at Bridgeport; Leanna's father, Captain Sam, was born in Mono County and her mother, Susie Sam, who died in 1902, was born in Yosemite [Applications for Enrollment 8825, 8826].

5.12.6. Tribal Lands

The Mono Lake Kutzadika'a Tribe, which is not yet recognized by the federal government, currently has no legal land base but is actively pursuing ownership of land in the Mono Basin. Ten of the families listed above received allotments in the Mono Lake area, including Henry Jameson, whose allotment was on Lee Vining Creek, John Cluette, Fee Foster, Louis B. Murphy, Young Charlie, Joe McLaughlin, and Mike Williams, who all had allotments on Rush Creek, Bridgeport Tom and Indian George (Sam) whose allotments were on Walker Creek, a tributary to Rush Creek, and Captain John, whose allotment is on the north side of Mono Lake (Marks, 2023). Patents for these allotments were issued between 1907 and 1920. By 1929, nine of them had been acquired by non-natives desiring the water rights attached to the allotments to use for irrigation and the development of hydroelectric power, once again dispossessing the Kutzadika'a of their ancestral lands. The LADWP eventually obtained some of these allotments from the original purchasers and began exporting the Kutzadika'a's water to Los Angeles. Further research is needed to determine if other families filed on but did not receive allotments in the Mono Basin, including on Mill Creek in or near the Lundy Canyon Project Area. All known allotments are well outside the Project. The closest federally recognized Tribe to the Lundy Project Area is the Bridgeport Indian Colony and some Kutzadika'a have become Tribal members. Other people with ancestral ties to Mono Lake are currently members of the AICMC, Bishop Paiute Tribe, Tuolumne Band of Me-Wuk Indians, Walker River Tribe, and perhaps others.

5.12.7. Tribal Interests

No field investigation of Tribal groups or interests has occurred in the Project Area, and the earlier relicensing ethnographic overview was largely an archival review (White, 1983) with no ethnographic interviews or field studies. For the current relicensing effort, a letter will be sent to all Tribes listed in section 5.12.4, *Identification of Tribes*, and perhaps others. Tribal outreach will be conducted to obtain information. Respect for and acknowledgement of sensitive or significant resources will be honored.

5.12.7.1. Traditional Cultural Properties

A TCP is a resource that is eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of that community. A TCP must have integrity and meet at least one of the four NRHP eligibility criteria (36 CFR 63) to be considered a historic property (defined as a resource listed in or determined eligible for listing in the NRHP). When a traditional cultural place is evaluated as eligible for listing in the NRHP, it is termed a TCP. To date, no TCPs have been identified in the Project Area, but the potential for these will be investigated more fully during the Study Plan development and implementation.

5.12.7.2. Tribal Cultural Places and Values

As noted, no ethnographic study of the Lundy Project appears to have been prepared. Based on other ethnographer's interactions with Tribal groups, there are some activities and places that may be important. These are discussed below.

ETHNOBIOLOGICAL CONSIDERATIONS

The Project Area was not investigated for ethnobiological background materials, but previous studies have suggested this will be a major factor of interest to the Tribal groups. The Kutzadika'a are knowledgeable and remain close to their land, gathering kootzabe when the pupae are ready, as well as pine nuts, peagu, and other foods in season. Medicine plants of all types are abundant in the Project vicinity and several Kutzadika'a are known to gather. Ceremony still occurs around such activities, and it is anticipated that this topic will be expanded during the Study Plan development. In addition to cultural uses of plants and animals, it is anticipated the Kutzadika'a will want to discuss traditional land management practices.

TRANSPORTATION CORRIDORS

The Project Area and vicinity, especially the upper meadow areas, were prime summer locations for the Kutzadika'a. The route up Mill Creek past Lundy and into Warren Fork or points further west was used, although other nearby routes such as the one leading up Walker Creek (Bloody Canyon) to Mono Pass and Dana Meadows may have been favored.

Trails in the Mono Lake region, most of which are described in detail by Davis-King and Snyder (2010) are described briefly below. Additional trails, like that which followed Lee Vining Creek from the town to at least Warren Fork of Lee Vining Creek, and the trail to Lundy will be investigated in the future.

A detailed discussion about transportation corridors in the Project Area is not intended for this section; rather, sufficient data are presented to alert the reader to the importance, quantity, and nature of such trails that will be a theme of Tribal Resource studies.

Mono Trail

The Mono Trail is a complex trail system on both the east and west slopes of the Sierra Nevada. Portions of this trail complex were mapped as existing trails by earlier explorers and cartographers such as California State Geological Survey (Whitney and Hoffman, 1873), Hoffmann and Gardner (1868), Muir (1890a, 1890b), and Wheeler (1880).

Dana Fork to Tioga Pass

The Dana Fork of the Tuolumne River trail went from Parker Pass Creek toward Tioga Pass. The Tioga Road took the place of the trail early on; consequently, the trail is shown as such on only two maps: Clayton (1861, Figure 7) and Johnson (1887). This trail's heritage is supported by the presence of archaeological sites along the route. The trail was used in every sense—local, connector, and trans-Sierra—especially in Dana Meadows where moraines coming out of Parker Pass Creek create varied vegetation and soils as well as hunting opportunities (Davis-King and Snyder, 2010). The presence of occasional soda and mineral springs increases the area's attraction.

Dana Fork toward Mono Pass

Maps beginning with Trask (1853) show this trail or parts of it, as do those of Benson (1897), California (Whitney and Hoffman, 1873), Clayton (1861), DeGroot (1863), Farley (1861), Hoffmann and Gardener (1868), Johnson (1887), LeConte (1893), LeConte et al. (1896), McClure (1895, 1896), Muir (1890a, 1890b), and Wheeler (1880). Maps made after Benson's have shown the Tioga Road rather than the Dana Meadows section of the Mono Trail. The segment between the Gaylor Lakes and the present Mono Pass trail from the Tioga Road was abandoned long ago but has been recorded by Yosemite National Park as an archaeological site and was part of the Mono Trail blazed and described as an Indian route to the eastern Sierra by Tom McGee in 1857 (Paden and Schlichtmann, 1955).

A portion of this trail appears to pass through the future Tioga Lake and continues on to and terminates at Saddlebag Lake (LeConte et al., 1896). McClure (1895) also shows a road from Lee Vining to Gibbs Creek, and a trail from that point more westerly passing by the north end of Ellery Lake before continuing to Tioga Pass. Another trail follows the Tioga crest above the Warren Fork of Lee Vining Creek and leads to Lake Canyon above Lundy Lake, first passing by Saddlebag, which appears to be two separate lakes at this time. Evidence suggests these are Indigenous trails as well, based largely on adjacent archaeological sites.

Current Tioga Road to Mono Pass Trail

The present trail to Mono Pass from Tioga Road first appeared as a connector between the Tioga and Mono Pass trails on Johnson (1887) and LeConte (1893). There are Native American archaeological sites along this route which was also used by sheep men and miners. Mining occurred along the Sierra crest, where the granitic rocks are overlain by a variety of metamorphic rocks (Huber et al., 1989), with most mining locations accessed from the east side. There were trail connectors for supply and communication between Lundy, Bennettville, and Golden Crown at Mono Pass, of which this trail was one. Before the mines, however, Indigenous People used the same route, and, because it provided access more from the east side than from the west, it is probable that much of its use was by People traveling from the east side, rather than those coming from the west, although this speculation is only supported by the trail's unusual orientation. The Kutzadika'a communicated that they had been told of this trail out of Silver Lake, south of Mono Pass, which went along the crest (2009 letter from Kutzadika'a Tribe to Yosemite National Park, Appendix E in Davis-King and Snyder, 2010). The same letter referenced a trail from Lundy Lake to Saddlebag Lake, but this has yet to be researched for the Lundy PAD.

PLACE NAMES (FROM NATIONAL PARK SERVICE, 2019)

Kootzagwwae (Mono Lake Basin)

Kootza Paatsehota (Mono Lake)

Pabayoo Kiba'a (Sierra Nevada)

Aabe (Mono Craters)

Toohoobaawaekatudu (Negit Island)

Tohabaawaekatudu (Paoha Island)

OTHER PLACE NAMES

Other place names may be identified with additional archival research, literature review, and interviews with Tribal Elders and other subject matter specialists.

5.12.7.3. Archaeological Sites with Ethnographic Affiliations in/near the Proposed APE

At present, no archaeological sites with certain ethnographic affiliations have been identified in the proposed APE.

5.12.8. CURRENT CULTURAL RESOURCE MANAGEMENT

SCE prepared a HAPP for the Project (White, 1983). The plan identified specific measures undertaken by SCE to avoid adverse effects to the NRHP-eligible properties and various programmatic measures that SCE is required to implement. Measures include cultural resource surveys, documentation of cultural resources, NRHP evaluation of cultural resources, evaluation of potential Project effects, preparation of treatment plans for eligible resources, and annual reporting.

5.12.9. POTENTIAL ADVERSE EFFECTS

SCE's review of readily available information has not identified impacts to Tribal resources in the Project Area. This situation may change once further outreach and consultation with Tribes has been conducted.

5.12.10. PROPOSED MITIGATION AND ENHANCEMENT MEASURES

No additional mitigation or enhancement measures relating to Tribal resources are currently planned. However, SCE plans to evaluate this as part of the relicensing process in consultation with stakeholders. Should any major changes be planned for the Project, appropriate BMPs to address effects on Tribal resources would be implemented.

5.13. SOCIOECONOMIC RESOURCES

5.13.1. INTRODUCTION

The Lundy Project is located near the town of Mono City, Mono County, California, approximately 5 miles west of the Project facilities. Mono City is a small town with a total area of 7.8 square miles, located at 6,768 feet elevation (see Figure 1.1-1). The surrounding area has almost no development aside from the roads that traverse the vicinity. Mono County is centrally located on the eastern side of California. Tuolumne, Mariposa, Madera, and Fresno Counties border to the west; Alpine County borders to the north; and Inyo County borders to the south. The state of Nevada lies to the east. An extensive road system provides transportation through the county: "U.S. highways 6 and 395 traverse in a general north-south direction, while numerous scenic byways and county roads run east-west within the county" (CEDD, 2021).

The following is a summary of socioeconomic data for the town of Mono City and Mono County, where the Project is located, including population patterns, average household income, and employment sectors.

5.13.2. INFORMATION SOURCES

This section was prepared using the following information sources:

- California Employment Development Department (CEDD) (2021)
- Data USA, 2020a, 2020b, 2020c, 2020d, 2020e, 2020f, 2020g, 2020h, 2020i, 2020j, 2020k, 2020l, 2020m, 2020n, 2020o, 2020p, 2020q
- National Land Cover Database (MRLC Consortium, 2019)
- U.S. Census Bureau Information (2010a, 2010b, 2016a, 2017a, 2018a, 2019a, 2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f)

5.13.3. GENERAL LAND USE PATTERNS

The Project is located on Mill Creek in Mono County, California, on private land owned by SCE and on federal lands (USFS and the BLM, and a small portion of Mono County lands). The predominant land cover types are evergreen forested lands, shrub/scrub, barren, grassland/herbaceous, and open water (MRLC Consortium, 2019) (see Figure 5.9-2 and Table 5.9-2 in Section 5.9, Land Use).

5.13.4. POPULATION PATTERNS

Mono City is a small town with a population of 224 people. It is classified as a census-designated place (CDP) under the U.S. Census Bureau for socioeconomic data collection and statistical purposes. Between 2010 and 2020, the population of Mono City increased from 172 residents to 224, a 30.23 percent increase (U.S. Census Bureau, 2010a, 2020a). By 2021, the U.S. Census Bureau estimate placed the population of Mono City to 197, slightly down from 2020 (U.S. Census Bureau, 2021a). From 2016 to 2019, the population fluctuated widely, declining to 58 in 2017. Generally, the number of residents remained between 96 and 115 persons (U.S. Census Bureau, 2016a, 2017a, 2018a, 2019a). The next largest towns near Mono City are Bridgeport (553 people) and Lee Vining (217 people) (Data USA, 2020d, 2020e). Both towns are located within Mono County.

The current population of Mono County is approximately 12,978 people and has experienced a total decrease in population of 1.7 percent since 2020 when the population was 13,198, a rate slightly faster than the rest of California (decline of 1.29 percent) (U.S. Census Bureau, 2020a).

Table 5.13-1 summarizes the population estimates for the town of Mono City and Mono County, as well as for the state of California, as reported in the 2010 Census and 2020 American Community Survey Demographic and Housing survey results.

Table 5.13-1. Populations from 2010 to 2020 in Mono City, Mono County, and California

City/County/State	2010 Census Population	2020 Population Estimates	% Change 2010-2020
Mono City	172	224	+30.23%
Mono County	14,202	13,195	-7.09%
California	37,253,956	39,538,223	+6.13%

Source: U.S. Census Bureau, 2010a, 2020a

The median age in Mono City is 38.9 years old, slightly older than the median age of California residents at 37.6 years old (U.S. Census Bureau, 2021f). The total number of civilians in the labor force in Mono County (ages 16 or older) in 2021 was 108, or 65.6 percent, slightly above California's employment rate of 57.6 percent (U.S. Census Bureau, 2021d, 2021e). One-tenth (10.0 percent) of the population lives below the poverty line, slightly lower than the state of California at 12.3 percent (U.S. Census Bureau, 2021c).

As of 2020, the diversity of Mono City is characterized as predominantly White, with a population of approximately 184 residents identifying as White alone, 15 residents as one non-White race, 15 residents as two or more races, and one resident as three or more races. 9 residents chose not to identify (U.S. Census Bureau, 2020b). Approximately 0.0 percent of Mono City's 224 residents are foreign-born (outside the United States), significantly less than the rate of foreign-born residents in Mono County at 16.8 percent and California at 26.6 percent (U.S. Census Bureau, 2021f).

5.13.5. Project Vicinity Employment Sources

From 2019 to 2020, employment in Mono City increased from 54 to 99 employees, an increase of 83.3 percent (U.S. Census Bureau, 2019a and 2020c). The 99 people employed in the following industries: Professional, Scientific & Technical Services (57 people), Other Services, Except Public Administration (22 people), and Transportation and Warehousing (20 people) (U.S. Census Bureau, 2021e). Median household income data for the town of Mono City was not publicly available at the time of this writing. However, Mono County's median household income was $71,138 in 2021 (U.S. Census Bureau, 2021c). This is lower than the state median household income of $84,907 (U.S. Census Bureau, 2021).

5.13.6. Household Information

Table 5.13-2 provides the income, employment, and workforce statistics for households and families in Mono County from the 2020 Census survey. Table 5.13-3 breaks down the income statistics for households in the Mono County census designated places.

Table 5.13-2. Household and Family Distribution and Income for Mono County

Mono County	
2017 to 2021 Households	5,361
2021 Percentage of Population in the Workforce	65.6%
2018 to 2021 Median Household Income (in 2021 dollars)	$71,138
January to December 2021 Unemployment Rate	2.4%
Average Household Size	2.42

Source: U.S. Census Bureau, 2020b; 2020c; 2021c; 2021d

Table 5.13-3. Household Income for Mono County Census-Designated Places

Household Income in the Past 12 Months (In 2020 Inflation-adjusted Dollars)		
Location	**2020 Median**	**Annual Change 2019–2020 (Percent)**
County-wide	$71,138	$64,924 (2020)
Mono County Census-Designated Places		
Aspen Springs	N/A	N/A
Benton	$42,708	+4.84%
Bridgeport	$71,641	-15.2%
Chalfant	$59,491	-6.51%
Coleville	N/A	N/A
Crowley Lake	N/A	N/A
June Lake	$100,586	N/A
Lee Vining	N/A	N/A
McGee Creek	N/A	N/A

Household Income in the Past 12 Months (In 2020 Inflation-adjusted Dollars)		
Mammoth Lakes	$68,784	+15.4%
Mono City	N/A	N/A
Paradise	$49,275	-4.44%
Sunny Slopes	$44,674	N/A
Swall Meadows	$151,818	+40.8%
Topaz	$73,396	N/A
Twin Lakes	$68,831	+28.6%
Virginia Lakes	N/A	N/A
Walker	$58,125	-7,2%

Source: Data USA, 2020a, 2020b, 2020c, 2020d, 2020e, 2020f, 2020g, 2020h, 2020i, 2020j, 2020k, 2020l, 2020m, 2020n, 2020o, 2020p, 2020q

N/A = data not available

5.14. ENVIRONMENTAL JUSTICE

5.14.1. INTRODUCTION

Consistent with Executive Orders 12898[19] and 14008[20], SCE provides the following Environmental Justice (EJ) information for the Lundy Project. This analysis s meant to provide an understanding of the number of EJ communities present within the Lundy Project area and identify if there is a need for further study.

5.14.2. IDENTIFICATION OF ENVIRONMENTAL JUSTICE COMMUNITIES

The thresholds used for populations meeting EJ status are as follows:

- The “meaningfully greater analysis” method was used to determine EJ status based on race:
    - To meet EJ criteria using the “meaningfully greater analysis,” a block group qualifies as having EJ communities if the total minority population for a block group is at least 10 percent greater than that of the county population:
        - (County minority population) x (1.10) = threshold above which a block group minority population must be for inclusion as an EJ community
- The “low-income threshold criteria” was used to identify EJ communities based on income level, where the block group must have a higher percentage of low-income households than the county.

5.14.3. ENVIRONMENTAL JUSTICE COMMUNITIES IDENTIFIED

The Lundy Hydroelectric Project is located on the eastern slope of the Sierra Nevada along Mill Creek approximately 5 miles west of Mono City off Lundy Road, in Mono County, California. Within a 1-mile zone around the Project Boundary (here forth the Project Boundary with a 1-mile radius will be referred to as the Project Area) there is one census block group that could potentially be impacted by the relicensing of the Lundy Project. The one census block group within the Project Area includes one minority population. This minority population does not meet the requirements for status as an EJ community.

In addition to race, EJ communities include groups of individuals with income levels below the poverty level, measured by household. Within the Lundy Project Area, there are zero communities meeting EJ status related to household income level (Table 5.14-1).

[19] Executive Order No. 12898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.
[20] Executive Order No. 14008, 86 Fed. Reg. 7619-7633 (Jan. 27, 2021) Tackling the Climate Change Crisis at Home and Abroad.

The communities analyzed for EJ include individuals unable to speak English. Within the Lundy Project Area, there are zero such individuals in any block groups (U.S. Census Bureau, 2020).

There is one block group that borders Lundy Project lands; within that one group, zero groups are minority EJ communities and zero groups are minority and low-income EJ communities. (Table 5.14-1; Figure 5.14-1).

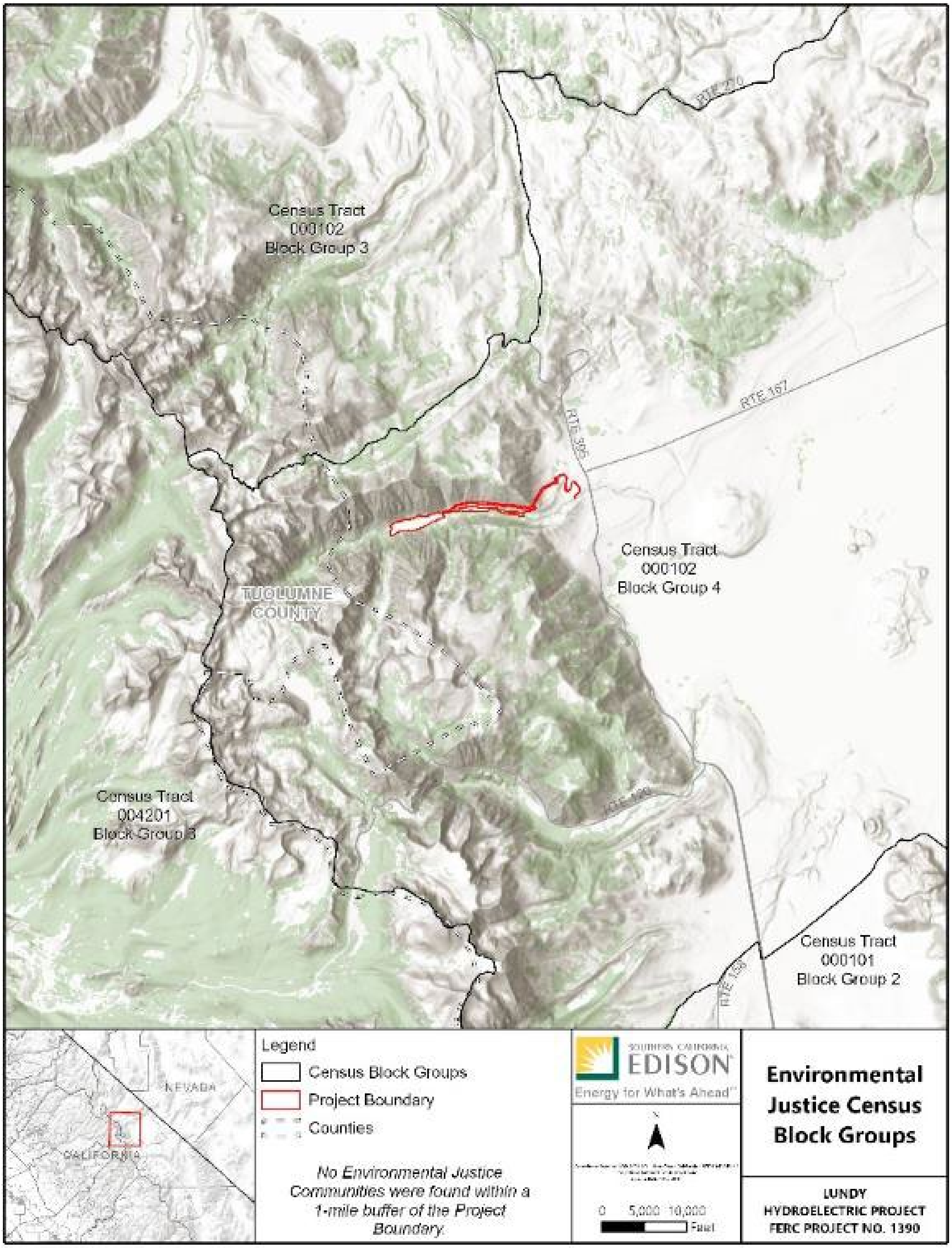


Figure 5.14-1. Environmental Justice Census Block Groups.

Table 5.14-1. Race and Ethnicity, Low-Income, and Language Data

	RACE AND ETHNICITY DATA										LOW-INCOME DATA	LANGUAGE DATA
Geographic Area	Total Population (count)	White Alone, not Hispanic (count)	African American / Black (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%)	Below Poverty Data (%)	Non-English Speaking Persons Aged 5 Years and Greater (%)
California	39,346,023	14,365,145	214,2371	131,724	5,743,983	135,524	124,148	1,322,199	15,380,929	63%	12%	3%
Mono County	14,395	9,338	32	178	629	0	107	218	3893	35%	8%	1%
Census Tract 000102, Block Group 4	266	252	0	0	0	0	0	0	14	5%	0%	0%

Source: U.S. Census Bureau, 2020

6.0 PRELIMINARY ISSUES AND STUDIES LIST FOR EACH RESOURCE AREA

This section presents potential resource issues and lists proposed studies and analyses needed to support evaluation of potential effects from continued Lundy Project O&M. This section also describes existing and proposed environmental measures and relevant comprehensive plans. FERC content requirements for this section are specified in 18 CFR § 5.6(d)(4).

6.1. PRELIMINARY RESOURCE ISSUES WITH INFORMATION GATHERING NEEDS OR PROPOSED STUDIES

This section identifies preliminary issues identified for which data gathering, potential studies, and/or analyses may be needed to address Lundy Project effects or complete the license application. SCE has identified preliminary topics related to water resources, aquatic resources, wildlife resources, botanical resources, recreation resources, and cultural/tribal resources in Table 6.1-1.

Items identified in Table 6.1-1 should be considered preliminary and are subject to modification pending consultation with stakeholders, and submission of study requests by interested parties, as described in Section 2.0, *Plans, Schedules, and Protocols*.

Table 6.1-1. Summary of Potential Issues and Studies

Study Plan Topic	Potential Resource Issue	Proposed Study Approach
Water Quality	Lundy Project operations have the potential to affect water quality in Lundy Lake and Mill Creek below Lundy Dam. Potential bacterial contamination from recreational users at FERC-approved recreation facilities.	Lundy Lake and Mill Creek Water Quality Monitoring (WQ-1) • Assess water quality within Lundy Project affected stream reaches, and within Lundy Lake. • Provide data to inform CWA 401 water quality compliance with Basin Plan objectives.
	Lundy Project operations have the potential to warm temperatures in Lundy Lake and Mill Creek below Lundy Dam.	Lundy Lake and Mill Creek Water Temperature Monitoring (WQ-2) • Assess water temperature within Lundy Project affected streams, and within Lundy Lake. • Provide data to inform CWA 401 water quality compliance with Basin Plan objectives.
Aquatics	Lundy Project operations have the potential to affect fish occupying Lundy Project waters.	Fish Community Survey (AQ-1) • Assess species composition, distribution, abundance, and age of fish communities in Lundy Lake and affected stream reaches.
	Lundy Project operations may have the potential to strand fish in areas with high stranding risk.	Fish Stranding Study (AQ-2) • Evaluate stranding risk through the bypass reach
Botanical	Potential effects from Lundy Project operations and maintenance on special-status botanical resources that are either known or have the potential to occur in the Lundy Project Area. Introduction and/or spread of invasive plant populations have the potential to occur due to Lundy Project maintenance activities.	General Botanical Resources Survey (TERR-1) • Determine the presence and distribution of special status plants and invasive weeds. • Map plant communities in the Study Area. • Characterized riparian and wet meadow vegetation in the Study Area and along Mill Creek.
Wildlife	Potential effects from Lundy operations and maintenance on special-status wildlife species that are either known or have the potential to occur in the Lundy Project Area.	General Wildlife Survey (TERR-2) • Determine the presence and distribution of special-status wildlife. • Document and characterize wildlife that use Mill Creek.

Study Plan Topic	**Potential Resource Issue**	**Proposed Study Approach**
Recreation	Characterize existing recreation use and access, assess future recreation needs associated with the FERC-approved Lundy Project recreation facilities.	Recreation Use and Needs Assessment (REC-1) • Evaluate recreation use at the FERC-approved Lundy Project recreation sites. • Assess the amount of use each site is receiving (including percent of capacity) and the recreation activities that occur at each site.
	It is necessary to evaluate the condition of and public accessibility to existing FERC-approved recreation facilities.	Recreation Facilities Condition Assessment (REC-2) • Conduct an inventory of and map of existing FERC-approved Lundy Project recreation sites, including locations, facilities/amenities, general condition, ownership, and management responsibilities.
Cultural	O&M for the Lundy Project could affect cultural resources that are listed in or eligible for listing in the National Register of Historic Places.	Cultural Resources – Archaeology (CUL-1) • Conduct additional background archival research of the Study Area. • Identify and document archaeological resources within or immediately adjacent to the Area of Potential Effects (APE). • Develop information sufficient for a Historic Properties Management Plan (HPMP). Cultural Resources – Built Environment (CUL-2) • Conduct additional background archival research of the Study Area. • Identify and document built-environment resources within or immediately adjacent to the APE. • Develop information sufficient for HPMP.

Study Plan Topic	Potential Resource Issue	Proposed Study Approach
Tribal	O&M for the Lundy Project could affect tribal resources.	Tribal Resources (TRI-1) • Conduct background archival research of the Study Area. • Identify and document tribal resources identified within or immediately adjacent to the APE. • Conduct a thorough Native American ethnographic/ethnohistoric survey of the APE. • Conduct interviews with knowledgeable informants • Develop information sufficient for HPMP.

6.2. RELEVANT QUALIFYING FEDERAL OR STATE COMPREHENSIVE WATERWAYS PLANS

Section 10(a)(2)(A) of the Federal Power Act, 16 USC Section 803 (a)(2)(A), requires FERC to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. On April 27, 1988, FERC issued Order No. 481-A, revising Order No. 481, issued October 26, 1987, establishing that FERC will accord Federal Power Act Section 10(a)(2)(A) comprehensive plan status to any federal or state plan that 1) is a comprehensive study of one or more of the beneficial uses of a waterway or waterways; 2) specifies the standards, the data, and the methodology used; and 3) is filed with the FERC Secretary.

FERC currently lists 111 comprehensive management plans for the state of California (FERC, 2022), of which, 11 pertain to waters in the vicinity of the Lundy Project (Table 6.2-1).

Table 6.2-1. Qualifying Federal or State Comprehensive Waterway Plans Potentially Relevant to the Lundy Project

Federal or State	Resource Management Plans/Policies
Federal	Bureau of Land Management. 1993. *Bishop Resource Management Plan*. Department of the Interior, Bishop, California. April.
Federal	U.S. Forest Service. 2019. *Land Management Plan for the Inyo National Forest. Department of Agriculture, Bishop, California*. September.
Federal	National Park Service. 1993. *The Nationwide Rivers Inventory*. Department of the Interior, Washington, D.C.
Federal	U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986. *North American Waterfowl Management Plan*. Department of the Interior. Environment Canada. May.
Federal	U.S. Fish and Wildlife Service. No Date. *Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service*. Washington, D.C.
State	California Department of Fish and Game. 2003. *Strategic Plan for Trout Management: A Plan for 2004 and Beyond*. Sacramento, California. November.
State	California Department of Fish and Game. 2007. *California Wildlife: Conservation Challenges, California's Wildlife Action Plan*. Sacramento, California.
State	California Department of Fish and Game. U.S. Fish and Wildlife Service. 2010. *Final Hatchery and Stocking Program Environmental Impact Report/Environmental Impact Statement*. Sacramento, California. January.
State	California Department of Fish and Wildlife. 2008. *California Aquatic Invasive Species Management Plan*. Sacramento, California. January.
State	California State Water Resources Control Board. 1975. *Water Quality Control Plan on the Use and Disposal of Inland Waters Used for Power Plant Cooling*. Sacramento, California. June.

Federal or State	Resource Management Plans/Policies
State	California State Water Resources Control Board. 2015. *ISWEBE Plan: Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California*. Sacramento, California. April. [Amended May 2017 and August 2018.]

Source: FERC, 2022

6.3. RELEVANT RESOURCE MANAGEMENT PLANS

In addition to the waterways comprehensive plans listed above, some agencies have developed resource management plans to help guide their actions regarding specific resources of jurisdiction. The resource management plans listed below (Table 6.3-1) may be relevant to the Lundy Project and may be useful in the relicensing proceeding for characterizing desired conditions.

Table 6.3-1. Other Potentially Relevant Resource Management Plans

Federal, State, or Local	Resource Management Plans/Policies
Federal	Bureau of Land Management. 1987. *Final Environmental Impact Statement for 19 Wilderness Study Areas within the Benton-Owens Valley and the Bodie-Coleville Study Areas*. Department of the Interior, Bakersfield, California.
Federal	U.S. Forest Service. 1989. *Mono Basin National Forest Scenic Area Comprehensive Management Plan*. Department of Agriculture, Bishop, California.
Federal	U.S. Forest Service. 2004. *Sierra Nevada National Forest Land and Resource Management Plan, Amendment*. Department of Agriculture, Vallejo, California. January.
Federal	U.S. Fish and Wildlife Service. 2013. *Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report.* Denver, Colorado. February.
State	California Department of Parks and Recreation. 2013. *Outdoor Recreation in California's Regions 2013*. Sacramento, California.
State	California Department of Parks and Recreation. 2014. *2012 Survey on Public Opinions and Attitudes on Outdoor Recreation in California Complete Findings*. Sacramento, California.
State	California Department of Parks and Recreation. 2021. *California Statewide Comprehensive Outdoor Recreation Plan.* Sacramento, California.
Local	Mono County. 2021. *Mono County General Plan*. Mono County Planning Division, Mammoth Lakes, CA.

7.0 LITERATURE AND SOURCES CITED

7.1. SECTION 1.0 - INTRODUCTION

None.

7.2. SECTION 2.0 - PLANS, SCHEDULES, AND PROTOCOLS

None.

7.3. SECTION 3.0 - GENERAL DESCRIPTION OF THE RIVER BASIN

FERC (Federal Energy Regulatory Commission). 2007. Order Amending License and Dismissing Requests for Rehearing.

LADWP (Los Angeles Department of Water and Power). 1987. Mono Basin Geology and Hydrology. March.

MLC (Mono Lake Committee). 2020. "About Mono Lake." Accessed: August 2020. Available online: https://www.monolake.org/about/

MRLC Consortium (Multi-Resolution Land Characteristics Consortium). 2021. Multi-Resolution Land Characteristics Consortium Interactive Viewer. Accessed: August 2023. Available online: https://www.mrlc.gov/viewer/.

SCE (Southern California Edison). 1997. Comments on the California Department of Fish and Game (CDFG) Instream Flow Report.

USFS (United States Forest Service). 2001. North Mono Basin Watershed/Landscape Analysis.

_____. 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada. R5-MB-294. Pacific Southwest Region*. September. Accessed: August 24, 2020. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf

U.S. Climate Data (United States Climate Data). 2020. Weather History Lee Vining, California. Accessed: August 2020. Available online: https://www.usclimatedata.com/climate/lee-vining/california/united-states/usca0601.

7.4. Section 4.0 - Project Location, Facilities, and Operation

FERC (Federal Energy Regulatory Commission). 2007. Order Amending License and Dismissing Requests for Rehearing.

Fowler, F. H. 1923. *Hydroelectric Power Systems of California and their Extensions into Oregon and Nevada*. U.S. Geological Survey Water-Supply Paper 493. Government Printing Office, Washington, D.C.

Southern California Edison (SCE). 2022. Hydro Net Generation Records

Southern California Edison, USDA Forest Service, USDOI BLM, CDFG, MLC, California Trout, American Rivers. 2004. *Lundy Hydroelectric Project Settlement Agreement for submission to the Federal Energy Regulatory Commission*. January 2004.

Southern California Edison, USDA Forest Service, USDOI BLM, CDFG, MLC, California Trout, American Rivers. 2022. *First Amendment to the Lundy Hydroelectric Project Settlement Agreement*. May 2022.

Theodoratus, D. J., C. M. Blount, V. H. Diamond, and R. A. Hicks. 1988. *Historic Overview of the Rush Creek and Lee Vining Creek Hydroelectric Projects*. On file, Southern California Edison Company, Rosemead, California.

White, D.R.M. 1985. *Results of the 1984 Field Season, Cultural Resources Survey for the Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties: Lundy, Lee Vining, Rush Creek, and Bishop Creek*. On file, Southern California Edison Company, Rosemead, California.

7.5. Section 5.0 - Description of the Existing Environment

7.5.1. Geology and Soils

Barth, A. P., J. D. Walker, J. L. Wooden, N. R. Riggs, and R. A. Schweicker. 2011. “Birth of the Sierra Nevada Magmatic Arc: Early Mesozoic Plutonism and Volcanism in the East-central Sierra Nevada of California.” *Geosphere* 7:877–897. Available online: https://doi.org/10.1130/GES00661.1.

Bursik, M. 1991. “Relative Dating of Moraines Based on Landform Degradation, Lee Vining Canyon, California.” *Quaternary Research* 35:451–455. Available online: https://doi.org/10.1016/0033-5894(91)90057-C.

Bursik, M. and K. Sieh. 1989. “Range Front Faulting and Volcanism in the Mono Basin, Eastern California.” *Journal of Geophysical Research: Solid Earth* 94(B11):15587–15609.

CDFG (California Department of Fish and Game). 1996. *Mill Creek Stream Evaluation. July 1996*. Report 96-1, Volume 1, 163 pp.

CGS (California Geological Survey). 2015. CGS information warehouse: mineral lands classification and landslides. Accessed: June 12, 2023. Available online: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/.

______. 2022. Historical mineral production in California. Accessed June 8, 2023. Available online: https://www.conservation.ca.gov/cgs/minerals/mineral-production/dashboard.

Chesterman, C.W. and C.H. Gray Jr. 1975. Geology of the Bodie 15-minute quadrangle. Mono County, California: California Division of Mines and Geology Map Sheet, 21. Available online: https://ngmdb.usgs.gov/Prodesc/proddesc_74212.htm.

Diggings. 2023. Mining in Mono County. Accessed June 12, 2023. Available online: https://thediggings.com/usa/california/mono-ca051.

FERC (Federal Energy Regulatory Commission). 1992. *Final Environmental Assessment for Hydropower License. Lundy FERC Project No. 1390-001.* California. Federal Energy Regulatory Commission, Office of Hydropower Licensing, Washington, D.C.

Freeman, N. M. and D. W. Johnson. 1946. *Physiographic Divisions of the Conterminous U.S.* United States Geological Survey, Washington, D.C. Available online: http://water.usgs. Gov/GIS/metadata/usgswrd/XML/physio.xml.

Gillespie, A. R., and D. H. Clark. 2011. "Chapter 34 - Glaciations of the Sierra Nevada, California, USA." In Quaternary Glaciations - Extent and Chronology: A Closer Look, edited by J. Ehlers, P.L. Gibbard, and P.D. Hughes. *Developments in Quaternary Sciences* 15:447–462. Amsterdam: Elsevier Science. Accessed: June 2023. Available online: https://doi.org/10.1016/B978-0-444-53447-7.00034-9.

Huber, N. K., P. C. Bateman, and C. Wahrhaftig. 1989. Geologic Map of Yosemite National Park and Vicinity, California (No. 1874). Available at: https://pubs.usgs.gov/imap/i1874/

LADWP (Los Angeles Department of Water and Power). 1987. *Mono Basin Geology and Hydrology*.

Lahren, M. M. 1989. "Tectonic Studies of the Sierra Nevada: Structure and Stratigraphy of Miogeoclinal Rocks in Snow Lake Pendant, Yosemite-Emigrant Wilderness; and TIMS Analysis of the Northern Sierra Terrane." Doctoral dissertation. University of Nevada, Reno.

Le, K., J. Lee, L. A. Owen, and R. Finkel. 2007. "Late Quaternary Slip Rates Along the Sierra Nevada Frontal Fault Zone, California: Slip Partitioning Across the Western

Margin of the Eastern California Shear Zone–Basin and Range Province." *GSA Bulletin* 119(1-2):240-256. https://doi.org/10.1130/B25960.1.

Millar, C. I., and W. B. Woolfendan. 1999. "The Role of Climate Change in Interpreting Historical Variability." *Ecological Applications* 9(1):207–216. Available online: https://doi.org/10.1890/1051-0761(1999)009[1207:TROCCI]2.0.CO;2.

Mono Lake Committee. 2023. Mono Lake levels, 1979-present. Accessed June 2023. Available at https://www.monobasinresearch.org/data/levelmonthly.php.

Parker, G. 1976. "On the Cause and Characteristic Scales of Meandering and Braiding in Rivers." *Journal of Fluid Mechanics* 76(3):457-480.

______. 1991a. "Selective Sorting and Abrasion of River Gravel. I: Theory." *Journal of Hydraulic Engineering* 117(2):131-147.

______. 1991b. "Selective Sorting and Abrasion of River Gravel. II: Applications." *Journal of Hydraulic Engineering* 117(2):150-171.

Phillips, F. 2017. "Glacial Chronology of the Sierra Nevada, California, from the Last Glacial Maximum to the Holocene." *Geographical Research Letters* 43: 527-552. Available online: https://doi.org/10.18172/cig.3233.

Putnam, W.C. 1949. "Quaternary Geology of the June Lake District, California." *Bulletin of the Geological Society of American* (60):115–122.

Read, E. 2021. *Lundy Hydroelectric Project (FERC No. 1390) Summary and Progress in Riparian Monitoring for 2020 Compared to Previous Years*. August 1, 2021. Southern California Edison.

Reheis, M. C., S. Stine, and A. M. Sarna-Wojcicki. 2002. "Drainage Reversals in Mono Basin During the Late Pliocene and Pleistocene." *Geological Society of America Bulletin* 114(8):991-1006.

Sawyer, T. L., and W. A. Bryant, compilers. 1995. Fault number 42, Silver Lake Fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey. Accessed: June 12, 2023. Available online: https://earthquake.usgs.gov/cfusion/qfault/show_report_AB_archive.cfm?fault_id=42&section_id=.

Sawyer, T.L. and W.A. Bryant, compilers. 2002. *Fault Number 41, Mono Lake Fault. In Quaternary Fault and Fold Database of the United States*. Compiled in cooperation with the California Geology Survey.

Sawyer, T. L., compiler. 1995. Fault number 65a, Southern Sierra Nevada Fault Zone, independence section. In Quaternary fault and fold database of the United States: U.S. Geological Survey. Accessed: June 12, 2023. Available online:

https://earthquake.usgs.gov/cfusion/qfault/show_report_AB_archive.cfm?fault_id=65&section_id=a.

Schweickert, R. A., and M. M. Lahren. 1987. "Continuation of Antler and Sonoma Orogenic Belts to the Eastern Sierra Nevada, California, and Late Triassic Thrusting in a Compressional Arc." *Geology* 15:270–273. Available online: https://doi.org/10.1130/0091-7613(1987)15<270:COAASO>2.0.CO;2.

SCE (Southern California Edison Company). 1999a. *Final Erosion Control and Revegetation Plan. Lundy Hydroelectric Project. FERC No. 1390*. Compliance with New License Article 402.

______. 1999b. *Final Penstock Monitoring Plan. Lundy Hydroelectric Project. FERC No. 1390*. Compliance with New License Article 401.

Stine, S.W. 1987. *Mono Lake: The Past 4,000 Years*. University of California, Berkeley.

Stine, S. 1990. "Late Holocene Fluctuations of Mono Lake, Eastern California." *Palaeogeography, Palaeoclimatology, Palaeoecology* 78(3-4):333-381.

______. 1995. *Restoration of Degraded Riparian, Wetland, and Deltaic Environments on Mill Creek, Mono County, California*. November 1995.

USDA (United States Department of Agriculture) Forest Service. 2001. *North Mono Basin Watershed/Landscape Analysis*.

USDA—NRCS (United States Department of Agriculture—National Resource Conservation Service). 2023. Web soil survey. Accessed June 12, 2023. Available online: http://websoilsurvey.sc.egov.usda.gov/.

USGS (U.S. Geological Survey). 2008. May Lundy Mine. Available online: https://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10310710 (Accessed June 14, 2023).

______. 2018. Mineral resources data system: U.S. Geological Survey database. Available online: https://mrdata.usgs.gov/. (Accessed June 9, 2023).

Vorster, P. 1985. A water balance forecast model for Mono Lake, California. Mono Lake Committee, Mono Basin Clearinghouse. Accessed: July 20, 2020. Available online: https://www.monobasinresearch.org/onlinereports/waterbalance.php.

Wahrhaftig, C., G. M. Stock, R. G. McCracken, P. Sasnett, and A. J. Cyr. 2019. Extent of the Last Glacial Maximum (Tioga) Glaciation in Yosemite National Park and Vicinity, California. U.S. Geological Survey Scientific Investigations Series Map, 3414.

Wilcock, P. R. and J. C. Crowe. 2003. "Surface-based Transport Model for Mixed-size Sediment." *Journal of Hydraulic Engineering* 129(2):120-128.

7.5.2. Water Resources

CDFG (California Department of Fish and Game). 1996. *Mill Creek Stream Evaluation. July 1996*. Report 96-1, Volume 1, 163 pp.

CEDEN (California Environmental Data Exchange Network). 2023. Database. State Water Resources Control Board, Sacramento, CA. Accessed: May 2023. Available online: California Environmental Data Exchange Network (CEDEN) | San Francisco Estuary Institute (sfei.org).

LADWP (Los Angeles Department of Water and Power). 1987. Aqueduct Division–Hydrology Section. Mono Basin Geology and Hydrology. March 1987

LRWQCB (Lahontan Region Water Quality Control Board). 2021. *Water Quality Control Plan for the Lahontan Region (as amended)*. First published in 1995, revised 2021. Accessed: May 2023. Available online at: Basin Plan - References | Lahontan Regional Water Quality Control Board (ca.gov)

Lee, K. 1969. *Infrared Exploration for Shoreline Springs at Mono Lake, California Test Site*. Stanford Remote Sensing Laboratory, Technical Report 69-7.

Lowe, S., K. Huck, A. Misico, L. Scribe, and D. Sussman. 2023. *Lahontan Surface Water Ambient Monitoring Program's 20-Year Water Quality Review and Recommendations.* Lahontan Regional Water Quality Control Board. SFEI Contribution No. 1110. San Francisco Estuary Institute-Aquatic Science Center, Richmond, CA. Available at: Lahontan Surface Water Ambient Monitoring Program's 20-Year Water Quality Review and Program Recommendations | San Francisco Estuary Institute (sfei.org).

Melack, J. M., J. L. Stoddard, and C. A. Ochs. 1985. "Major Ion Chemistry and Sensitivity to Acid Precipitation of Sierra Nevada Lakes." *Water Resources Research* 21(1): 27–32. DOI:10.1029/WR021i001p00027.

SWRCB (State of California Water Resources Control Board). 2023a. *Final California 2020 Integrated Report (303(d) List/305(b) Report). Supporting Information. Regional Board 6 - Lahontan Region. Mill Creek (Mono County)*. Available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_revised_final/apx-b/01339.shtml.

______. 2023b. *Draft California 2020 Integrated Report (303(d) List/305(b) Report). Supporting Information. Regional Board 6 - Lahontan Region. Lundy Lake.* Available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_draft/apx_b/00391.shtml.

USDA (United States Department of Agriculture). 2001. *Forest Service Region 5 Inyo National Forest*. North Mono Basin Watershed/Landscape Analysis.

Williams, M. W., and J. M. Melack. 1991. “Solute Chemistry of Snowmelt and Runoff in an Alpine Basin, Sierra Nevada.” *Water Resources Research* 27(7):1575–1588. DOI:10.1029/90WR02774.

7.5.3. Fish and Aquatic Resources

CalFish (California Fish). 2023. California fish species—brown trout, brook trout, and rainbow trout. Accessed: May 20, 2023. Available online: http://calfish.ucdavis.edu/species/.

Calkins, D.J. 1989. *Winter Habitats of Atlantic Salmon, Brook Trout, Brown Trout and Rainbow Trout. A Literature Review*. U.S. Army Corps of Engineers. Special Report 89-34. October.

CDFG (California Department of Fish and Game). 1996. *Mill Creek Stream Evaluation*. July 1996. Report 96-1, Volume 1, 163 pp.

CDFW (California Department of Fish and Wildlife). 2023. California natural diversity database. Accessed: May 20, 2023. Available online: https://wildlife.ca.gov/Data/CNDDB.

EA (EA Engineering, Science, and Technology, Inc.). 1986. *Instream Flow and Fisheries Studies for the Mill Creek Hydroelectric Project*. Southern California Edison Company, Rosemead, California. June.

______. 1988. *East Side Sierra Hydroelectric Relicensing Studies: Fish Populations in the Mill Creek Hydroelectric Project.* Southern California Edison Company, Rosemead, California. January.

FERC (Federal Energy Regulatory Commission). 1992. *Final Environmental Assessment for Hydropower License. Lundy FERC Project No. 1390-001*. California. Federal Energy Regulatory Commission, Office of Hydropower Licensing, Washington, D.C.

______. 2007. Order Amending License and Dismissing Requests for Rehearing.

Moyle, P. B. 2002. *Inland Fishes of California*. Berkeley: University of California Press.

Rehn, A. C., R. D. Mazor, and P. R. Ode. 2015. *The California Stream Condition Index (CSCI): a New Statewide Biological Scoring Tool for Assessing the Health of Freshwater Streams*. SWAMP Technical Memorandum, SWAMP-TM-2015-0002. California Department of Fish and Wildlife, Southern California Coastal Water Research Project.

Sada, D. 2000. Native Fishes. In *Sierra East. Edge of the Great Basin*, edited by Genny Smith, pp. 246-264. University of California Press, Berkeley.

SCE (Southern California Edison). 2021. *Lee Vining Hydroelectric Project (FERC Project No. 1388) Pre-Application Document. Volume I.* August.

SWRCB (State of California Water Resources Control Board). 2023a. *Final California 2020 Integrated Report (303(d) List/305(b) Report). Supporting Information. Regional Board 6 - Lahontan Region. Mill Creek (Mono County).* Available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_revised_final/apx-b/01339.shtml.

______. 2023b. *Draft California 2020 Integrated Report (303(d) List/305(b) Report). Supporting Information. Regional Board 6 - Lahontan Region. Lundy Lake.* Available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_draft/apx_b/00391.shtml.

USFWS (United States Fish and Wildlife Service). 2023. Information for planning and consultation (IPaC): online project planning tool. Accessed: May 10, 2023. Available online: https://ecos.fws.gov/ipac/.

Vestal, E.H. 1954. *Creel Returns from Rush Creek Test Stream, Mono County, California, 1947–1951*. In California Fish and Game Volume 40, Number 2, April 1954. California Fish and Game, Sacramento, California.

Watz, J., E. Bergman, O. Calles, A. Enefalk, S. Gustafsson, A. Hagelin, P.A. Nilsson, J.R. Norrgard, D. Nyquist, E.M. Osterling, J.J. Piccolo, L.D. Schneider, L. Greenberg, and B. Jonsson.. 2015. “Ice Cover Alters the Behavior and Stress Level of Brown Trout *Salmo trutta*.” *Behavioral Ecology* 26(3):820-827.

7.5.4. Botanical Resources

CDFW (California Department of Fish and Wildlife). 2023a. California natural diversity database. CDFW, Natural Heritage Division. Sacramento, CA. Accessed: March 21, 2023. Available online: https://wildlife.ca.gov/data/cnddb.

_____. 2023b (January). Special vascular plants, bryophytes, and lichens list. CDFW, Natural Heritage Division. Sacramento, CA. Accessed: March 21, 2023. Available online: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline.

_____. 2023c (January). State and federally listed endangered, threatened, and rare plants of California. CDFW, Biogeographic Data Branch. Sacramento, CA. Accessed: March 21, 2023. Available online: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline.

Cal-IPC (California Invasive Plant Council). 2020. Cal-IPC inventory. Berkeley, CA. Accessed: May 15, 2023. Available online: https://www.cal-ipc.org/plants/inventory/.

CNPS (California Native Plant Society). 2023. Rare plant inventory (online edition, v9.5). Sacramento, CA. Accessed: February 21, 2023. Available online: https://www.rareplants.cnps.org.

CCH (Consortium of California Herbaria). 2023. Data provided by the participants of the Consortium of California Herbaria for special-status plant species. University of California, Berkeley. Accessed: March 21, 2023. Available online: http://ucjeps.berkeley.edu/consortium/.

Inyo NF (Inyo National Forest). 2019. *Persistence Analysis for Species of Conservation Concern Inyo National Forest*. Inyo National Forest, Region 5 Regional Office, and Washington Office Enterprise Program.

NRM – TESP/IS (Natural Resources Manager – Threatened, Endangered, and Sensitive Plants/Invasive Species). 2018. *Botany At-risk Species and Invasive Species Inventory Database.* Obtained from Inyo National Forest Staff on February 16, 2021. USDA Forest Service, Inyo National Forest. Bishop, CA. April.

Psomas. 2006. *Biological Determination of No Effect on Listed Species for Lundy Dam Penstock Repair.* Southern California Edison Company.

_____. 2008a. *Biological Resources Evaluation of the Lundy Penstock and Standpipe Replacement and Road Maintenance Project*. Southern California Edison Company.

_____. 2008b. *Biological Resources Evaluation of the Lundy Dam Pipeline Slip Intake Lining and Intake Structure Reconstruction Project.* Southern California Edison Company.

_____. 2008c. *Lundy Dam Repeater Antenna and Solar Panel Upgrade Project, Mono County, California: Results of Rare Plant Survey*. Memorandum. Southern California Edison Company.

_____. 2009. *Lundy Hydroelectric Generation Facility, Mono County Return Ditch (Wilson Creek to Mill Creek) Enhancement Plant Community Impact Analysis.* Southern California Edison Company.

_____. 2017. *Results of a Pre-construction Survey for Nesting Birds and Special-Status Plant and Wildlife Species for the Lundy Return Ditch Project, Lundy Lake, Mono County, California.* Memorandum. Southern California Edison Company.

Read. 2021. *Summary and Progress in Riparian Monitoring for 2020 Compared to Previous Years*.

USFS (United States Forest Service). No Date. Vegetation Classification & Mapping. CALVEG Mapping Zones. Accessed: July 2021. Available online: https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347192.

7.5.5. WILDLIFE RESOURCES

Anderson, A., and O. Wallmo. 1984. ”*Odocoileus hemionus*. Mammalian Species.” *American Society of Mammalogists* 219:9 pp. https://doi.org/10.2307/3504024.

AmphibiaWeb. 2023. Species Account for *Batrachoseps robustus*. University of California, Berkeley, CA. Accessed: June 10, 2023. Available online: http://amphibiaweb.org.

Best, T.L. 1996. *Lepus californicus*. Mammalian Species. *American Society of Mammalogists* 530:10 pp. https://doi.org/10.2307/3504151.

Billerman, S.M., B.K. Keeney, P.G. Rodewald, and T.S. Schulenberg (Eds). 2022. Birds of the world. Cornell Laboratory of Ornithology, Ithaca, NY, USA. Accessed: August 1, 2022.June 2023. Available online: https://birdsoftheworld.org/bow/home.

Blood, B.R. 2018. Guide to the Terrestrial Mammals of Southern California. Unpublished manuscript. Research Associate in Mammalogy, Natural History Museum of Los Angeles County.

Bureau of Land Management (BLM). 2019. *Special Status Animals in California, Including BLM Designated Sensitive Species*. Available online. https://www.blm.gov/sites/default/files/docs/2023-10/BLM-CA_WILDLIFE_Special_Status%20_Species_November_2019_508.pdf.

CaliforniaHerps.com. 2023a. California snakes range maps: a guide to the amphibians and reptiles of California. 2023. Accessed: July 1, 2023. Available online: http://www.californiaherps.com/snakes/snakesmaps.html.

______. 2023b. California lizards range maps: a guide to the amphibians and reptiles of California. 2023. Accessed: July 1, 2023. Available online: http://www.californiaherps.com/lizards/lizardsmaps.html.

CDFW (California Department of Fish and Wildlife). 2019. *Evaluation of the Petition from the Xerces Society, Defenders of Wildlife, and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act.* California Fish and Game Commission.

_____. 2023a. California natural diversity database. RareFind 5. Commercial version. CDFW, Biogeographic Data Branch. Accessed: March 21, 2023. Available online: https://wildlife.ca.gov/data/cnddb.

_____. 2023b. California wildlife habitat relationships system life history accounts and range maps. CDFW, Biogeographic Data Branch. Sacramento, CA. Accessed: March 21, 2023. Available online: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

_____.2023c. Sierra Nevada red fox detected in the southern Sierra Nevada. January 24, 2023. Accessed June 27, 2023. Available online: https://wildlife.ca.gov/News/Archive/sierra-nevada-red-fox-detected-in-the-southern-sierra-nevada.

_____. 2020d. California mammal hunting regulations. Accessed: June 10, 2023. Available online: https://wildlife.ca.gov/Hunting/Deer.

FERC (Federal Energy Regulatory Commission). 1992. *Final Environmental Assessment for Hydropower License Lundy FERC Project 1390*.

Hershler, R. and W. L. Pratt. 1990. "A new Pyrgulopsis (Gastropoda: hydrobiidae) from Southeastern California, with a Model for Historical Development of the Death Valley Hydrographic System." *Proceedings of the Biological Society of Washington* 103: 279–299.

iNaturalist. 2023. Lundy Canyon. Accessed April 27, 2023. Available online: https://www.inaturalist.org/observations?place_id=157327&subview=map..

Innes, Robin J. 2016. *Centrocercus minimus, C. urophasianus*, sage-grouse. In: Fire Effects Information System. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available online: www.fs.usda.gov/database/feis/animals/bird/cent/all.html.

Inyo NF (Inyo National Forest). 2020. *At-risk Aquatic and Terrestrial Species on Inyo National Forest.* January 1, 2020. Unpublished list maintained by the Inyo National Forest, United States Department of Agriculture Forest Service.

______. 2019. *Persistence Analysis for Species of Conservation Concern, Inyo National Forest*. Inyo National Forest, Region 5 Regional Office, and Washington Office Enterprise Program.

IUCN (International Union for the Conservation of Nature). 2015. Hatfield, R.; Jepsen, S.; Thorp, R.; Richardson, L. & Colla, S. Crotch bumble bee. IUCN Red List of Threatened Species. Accessed: June 27, 2023. Available online: https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T44937582A46440211.en.

Lariviere, S. 2001. "*Ursus americanus*. Mammalian Species." *American Society of Mammalogists*. No. 647. 11 pp.

Psomas. 1999. *Threatened, Endangered, and Sensitive Species Management Plan Lundy Hydroelectric Project (FERC No. 1390)*. Southern California Edison Company.

______. 2006. *Biological Determination of No Effect on Listed Species for Lundy Dam Penstock Repair*. Southern California Edison Company.

______. 2008a. *Lundy Dam Repeater Antenna and Solar Panel Upgrade Project, Mono County, California: Results of Rare Plant Survey.* Memorandum. Southern California Edison Company.

______. 2008b. *Biological Resources Evaluation of the Lundy Penstock and Standpipe Replacement and Road Maintenance Project.* Southern California Edison Company.

______.2008c. *Biological Resources Evaluation of the Lundy Dam Pipeline Slip Intake lining and Intake Structure Reconstruction Project.* Southern California Edison Company.

______. 2009. *Lundy Hydroelectric Generation Facility, Mono County Return Ditch (Wilson Creek to Mill Creek) Enhancement Plant Community Impact Analysis*. Southern California Edison Company.

______. 2017. *Results of Pre-Construction Survey for Nesting Birds and Special-Status Plants and Wildlife species for the Lundy Return Ditch Project, Lundy Lake, Mono County. California*. Memorandum. Southern California Edison Company.

Shuford, W.D., and T. Gardali, Eds. 2008. *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1.* Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

USFS (United States Forest Service). 2001. *Ansel Adams, John Muir, and Dinkey Lakes Wilderness Management Plan Final Environmental Impact Statement*. Inyo and Sierra National Forests. Biological Assessment / Biological Evaluation.

______. 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada*. *R5-MB-323a. Pacific Southwest Region*. September. Accessed: August 24, 2020. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf.

USFWS (United States Fish and Wildlife Service). 2017. *California Spotted Owl (Strix occidentalis occidentalis) Conservation Objectives Report*. USFWS, Sacramento Fish and Wildlife Office, Sacramento, CA.

______. 2021. Birds of conservation concern. Accessed: June 2023. Available online: https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf.

______. 2023. *Information for planning and consultation (IPaC): online project planning tool*. Accessed: January 24, 2023. Available online: https://ecos.fws.gov/ipac/.

Young, S.P. 1958. *The Bobcat of North America, Its History, Life Habits, Economic Status and Control, with List of Currently Recognized Subspecies*. Washington, D.C: The Wildlife Management Institute.

7.5.6. Floodplains and Wetlands Resources

CDFW (California Department of Fish and Wildlife). 2020. California natural diversity database. CDFW, Natural Heritage Division. Sacramento, CA. Accessed: February 23, 2023. Available online: https://wildlife.ca.gov/data/cnddb.

FERC (Federal Energy Regulatory Commission). 1992. *Final Environmental Assessment for Hydropower License Lundy FERC Project Number 1390-001*. California.

FGDC (Federal Geographic Data Committee). 2013. *Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition*. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.

iNaturalist. 2023. Lundy Lake—Lundy Canyon Area. Accessed April 27, 2023. https://www.inaturalist.org/observations?nelat=38.03241649107292&nelng=-119.2196934225402&place_id=any&subview=map&swlat=38.0255120526954&swlng=-119.240817424003.

Lichvar, R.W. and J.J. Gillrich. 2011. *Final Protocol for Assigning Wetland Indicator Status Ratings during National Wetland Plant List Update*. Hanover, NH: USACE, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

NRM – TESP/IS (Natural Resources Manager – Threatened, Endangered, and Sensitive Plants/Invasive Species). 2018. *Botany At-Risk Species and Invasive Species Inventory Database*. Obtained from Inyo National Forest Staff on February 16, 2021. USDA Forest Service, Inyo National Forest. Bishop, CA. April.

Psomas. 2008a. *Biological Resources Evaluation of the Lundy Penstock Standpipe Replacement and Road Maintenance Project.* Southern California Edison Company.

______. 2008b. *Biological Resources Evaluation of the Lundy Dam Pipeline Slip Intake lining and Intake Structure Reconstruction Project*. Southern California Edison Company.

______. 2010. *Raptors in the Lundy Project Area.* Memorandum. Southern California Edison Company.

______. 2017. *Results of a Pre-construction Survey for Nesting Birds and Special-Status Plant and Wildlife Species for the Lundy Return Ditch Project, Lundy Lake, Mono County, California*. Memorandum. Southern California Edison Company.

SCE (Southern California Edison Company). 2017. *Southern California Edison Invasive Mussel Prevention Plan*. July 2017. Southern California Edison Company. Rosemead, CA. 32 pp.

USFS (United States Forest Service). 2013. *Forest Service National Strategic Framework for Invasive Species Management*.

______. 2009. Vegetation classification & mapping. CALVEG mapping zones. Accessed: July 2021. Available online: https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347192.

______. 2001. *North Mono Basin Watershed/Landscape Analysis*. Region 5 Inyo National Forest.

______. 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada. R5-MB-323a. Pacific Southwest Region*. September. Accessed: August 24, 2020. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf.

USFWS (United States Fish and Wildlife Service). 2020. Wetlands Mapper. USFWS, National Wetlands Inventory. Washington D.C. Accessed: July 2020. Available online: http://www.fws.gov/wetlands/Data/Mapper.html.

7.5.7. Rare, Threatened, and Endangered Species Resources

CDFW (California Department of Fish and Wildlife). 2019. *Evaluation of the Petition from The Xerces Society, Defenders of Wildlife, and the Center for Food Safety to List Four Species Of Bumble Bees as Endangered Under The California Endangered Species Act.* Fish and Game Commission.

CDFW. 2023a. California natural diversity database. RareFind 5. Commercial version. CDFW, Biogeographic Data Branch. Accessed: March 21, 2023. Available online: https://wildlife.ca.gov/data/cnddb.

_____. 2023b. California wildlife habitat relationships system life history accounts and range maps. biogeographic data branch. CDFW, Biogeographic Data Branch. Sacramento, CA. Accessed: March 21, 2023. Available online: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

_____. 2023c. Sierra Nevada red fox detected in the southern Sierra Nevada. January 24, 2023. Accessed: June 27, 2023. Available online: https://wildlife.ca.gov/News/Archive/sierra-nevada-red-fox-detected-in-the-southern-sierra-nevada.

FERC (Federal Energy Regulatory Commission). 1992. *Final Environmental Assessment for Hydropower License Lundy FERC Project 1390-001*.

IUCN (International Union for the Conservation of Nature). 2015. Hatfield, R.; Jepsen, S.; Thorp, R.; Richardson, L. & Colla, S. Crotch bumble bee. IUCN Red List of Threatened Species. Accessed: June 27, 2023. Available online: https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T44937582A46440211.en.

Psomas. 1999. *Threatened, Endangered, and Sensitive Species Management Plan Lundy Hydroelectric Project (FERC No. 1390)*. Southern California Edison Company.

_______. 2006. *Biological Determination of No Effect on Listed Species for Lundy Dam Penstock Repair.* Southern California Edison Company.

_______. 2008a. *Lundy Dam Repeater Antenna and Solar Panel Upgrade Project, Mono County, California: Results of Rare Plant Survey.* Memorandum. Southern California Edison Company.

_______. 2008b. *Biological Resources Evaluation of the Lundy Penstock and Standpipe Replacement and Road Maintenance Project.* Southern California Edison Company.

_______. 2008c. *Biological Resources Evaluation of the Lundy Dam Pipeline Slip Intake lining and Intake Structure Reconstruction Project*. Southern California Edison Company.

_______. 2009. *Lundy Hydroelectric Generation Facility, Mono County Return Ditch (Wilson Creek to Mill Creek) Enhancement Plant Community Impact Analysis*. Southern California Edison Company.

_______. 2017. *Results of Pre-Construction Survey for Nesting Birds and Special-Status Plants and Wildlife species for the Lundy Return Ditch Project, Lundy Lake, Mono County. California.* Memorandum. Southern California Edison Company.

USFS (United States Forest Service). 2001. *Ansel Adams, John Muir, and Dinkey Lakes Wilderness Management Plan Final Environmental Impact Statement*. Inyo and Sierra National Forests. Biological Assessment / Biological Evaluation.

United States Fish and Wildlife Service. 2023. *Information for planning and consultation (IPaC): online project planning tool*. Accessed: January 24, 2023. Available online: https://ecos.fws.gov/ipac/.

7.5.8. Recreation Resources

CDFW (California Department of Fish and Wildlife). 2023a. CDFW fishing guide map viewer. Lundy Lake. Accessed June 23, 2023. Available online: https://apps.wildlife.ca.gov/fishing/?stockid=17168.

_______. 2023b. CDFW fishing guide map viewer. Mill Creek. Accessed June 23, 2023. Available online: https://apps.wildlife.ca.gov/fishing/?stockid=17168

CDPR (California Department of Parks and Recreation). 2021. California statewide comprehensive outdoor recreation plan (SCORP). Accessed June 23, 2023. Available online: https://www.parksforcalifornia.org/scorp/2021.

_______. 2023a. California's vision for park equity, 2000-2020: transforming park access with data and technology. Accessed June 23, 2023. Available online: https://www.parksforcalifornia.org/park_equity.

_______. 2023b. Designing parks using community-based planning: methods from California's statewide park development and community revitalization program. Accessed June 23, 2023. Available online: https://www.parksforcalifornia.org/planning_guide.

Mono County. 2023a. Lundy Canyon campground. Mono County Public Works. Accessed: June 23, 2023. Available online: Lundy Canyon Campground | Mono County California.

_______. 2023b. Lundy Lake. Fishing, hiking, and camping. Mono County, California. Accessed: June 23, 2023. Available online: https://www.monocounty.org/places-to-go/lakes-rivers-creeks/lundy-lake/.

_______. 2021. *Mono County General Plan.* Mono County Planning Division, Mammoth Lakes, CA. Accessed: July 2023. Available online: https://monocounty.ca.gov/planning/page/general-plan.

Mountain Project. 2023. Lundy Canyon climbing. Accessed: June 26, 2023. Available online: https://www.mountainproject.com/area/111342499/lundy-canyon.

NPS (National Park Service). 2023. Yosemite Park statistics. Accessed: June 26, 2023. Available online: https://www.nps.gov/yose/learn/management/statistics.htm.

SCE (Southern California Edison). 2015. *Licensed Hydropower Development Recreation Report, FERC Form No. 80*. March 26, 2015.

USFS (United States Forest Service). 2018. *USDA Forest Service National Visitor Use Monitoring Report.* January 21, 2018. Accessed: June 23, 2023. Available online: https://apps.fs.usda.gov/nvum/results/A05004.aspx/FY2016.

_______. 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada. R5-MB-323a. Pacific Southwest Region*. September. Accessed: June 2023. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf.

_______. 2020. Lundy campgrounds. Accessed: June 26, 2023. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd486882.pdf.

_______. 2023a. Inyo National Forest. About the Forest. Accessed June 23, 2023. Available online: Inyo National Forest - About the Forest (usda.gov)

_______. 2023b. Lundy Canyon Trail. Accessed: June 26, 2023. Available online: https://www.fs.usda.gov/recarea/inyo/recreation/recarea/?recid=20646&actid=51.

_______. 2023c. Mono Basin Scenic Area Visitor Center. Accessed: June 26, 2023. Available online: https://www.fs.usda.gov/recarea/inyo/recarea/?recid=20620.

_______. 2023d. Hoover & Hall Area Trails. Accessed: June 26, 2023. Available online: stelprdb5337621.pdf (usda.gov).

7.5.9. Land Use and Management

Baker, Michael. 2021. Lundy Conveyance Exhibit. 2021.

BLM (Bureau of Land Management). 2022. BLM Surface Management Agency Layer. Department of the Interior Bureau of Land Management.

Mono County. 2012. *Mono County Basin Community Plan*. Accessed July 2023.Mono Basin Regional Planning Advisory Committee, Mono County. Available online: https://monocounty.ca.gov/sites/default/files/fileattachments/rpac_-_mono_basin/page/4007/mb_plan_rpacfinal_06.13.12.pdf

____. 2021. *Mono County General Plan*. Mono County Planning Division, Mammoth Lakes, CA. Accessed: July 2023. Available online: https://monocounty.ca.gov/planning/page/general-plan.

MRLC Consortium (Multi-Resolution Land Characteristics Consortium). 2021. Multi-Resolution Land Characteristics Consortium Interactive Viewer. Accessed: August 2023. Available online: https://www.mrlc.gov/viewer/.

USFS (United States Forest Service). 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada. R5-MB-323a. Pacific Southwest Region*. September. Accessed: August 24, 2020. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf.

_______. 2022. USFS Surface Management Parcels Layer.

7.5.10. Aesthetic Resources

Baker, Michael. 2021. Lundy Conveyance Exhibit. 2021.

BLM (Bureau of Land Management). 2022. BLM Surface Management Agency Layer. Department of the Interior Bureau of Land Management.

Mono County. 2023. Lundy Canyon campground. Mono County Public Works. Accessed: June 2023. Available online: Lundy Canyon Campground | Mono County California.

NFF (National Forest Foundation). 2020. Our Forest: Inyo National Forest. Accessed: July 2023. Available online: https://www.nationalforests.org/our-forests/find-a-forest/inyo

NPS (National Parks Service). 2023. Traffic in Yosemite National Park. Accessed: July 2023. Available online: https://www.nps.gov/yose/planyourvisit/traffic.htmUSFS (United States Forest Service). 2015. FSH 1909.12 - Land Management Planning Handbook, Chapter 20 – Land Management Plan. Accessed: June 2023. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd567391.pdf.

USFS (United States Forest Service). 2019. *Land Management Plan for the Inyo National Forest. Fresno, Inyo, Madera, Mono and Tulare Counties, California; Esmeralda and Mineral Counties, Nevada. R5-MB-323a. Pacific Southwest Region*. September. Accessed: June 2023. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd664404.pdf.

USFS (United States Forest Service). 2020. Inyo National Forest. Accessed: June 2023. Available online: Inyo National Forest - Home (usda.gov)

_______. 2022. USFS Surface Management Parcels Layer.

7.5.11. Cultural Resources

Ali, G. A. H. 2018. *Late Glacial and Deglacial Fluctuations of Mono Lake, California*. Unpublished Ph.D. dissertation, Graduate School of Arts and Science, Columbia University.

Alkire, C. L. 2012. *Economic Contribution of Mono Basin National Forest Scenic Area Designation*. Prepared for the Wilderness Society. September.

Antevs, E. 1948. “Climatic Changes and Pre-white Man.” *University of Utah Bulletin* 38:168-191.

Arkush, B. S. 1995.*The Archaeology of CA-MNO-2122, A Study of Pre-Contact and Post-Contact Lifeways Among the Mono Basin Paiute*. University of California Anthropological Records 31.

Basgall, M. E. 1983. *Archaeology of the Forest Service Forty Site (CA-MNO-529), Mono County, California*. On file, Inyo National Forest, Bishop, California.

_____. 1987. “Paleoindian Occupation in Central-Eastern California: The Komodo Site.” *Current Research in the Pleistocene* 4:50-54.

_____. 1988. Archaeology of the Komodo Site, an Early Holocene Occupation in Central-Eastern California. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by J. A. Willig, C. M. Aikens, and J. L. Fagan, pp. 103-119. Nevada State Anthropological Papers 21, Carson City.

_____. 1989. Obsidian Acquisition and Use in Prehistoric Central-eastern California. In *Current Directions in California Obsidian Studies*, edited by R. E. Hughes, pp. 111-126. Contributions of the University of California Archaeological Research Facility 45, Berkeley.

_____. 1991. *The Archaeology of Nelson Basin and Adjacent Areas, Fort Irwin, San Bernardino County, California*. On file, U.S. Army Corps of Engineers, Los Angeles, California.

_____. 1998. *Phase II Evaluation of Archaeological Site CA-MNO-1977, on the Little Walker River, Mono County, California*. Archaeological Research Center, California State University, Sacramento. On file, California Department of Transportation, District 9, Bishop.

_____. 2009.Understanding Pre-Newberry Prehistory in the Inyo-Mono Region. *California Archaeology* 1(2):303-304.

Basgall, M. E., and M. A. Giambastiani. 1995.*Prehistoric Use of a Marginal Environment: Continuity and Change in Occupation of the Volcanic Tablelands, Mono and Inyo Counties, California.* Center for Archaeological Research at Davis Publications 12. University of California, Davis.

Basgall, M. E., and K. R. McGuire. 1988. *The Archaeology of CA-INY-30: Prehistoric Culture Change in the Southern Owens Valley, California*. On file, California Department of Transportation, District 9, Bishop.

Bettinger, R. L. 1977. Aboriginal Human Ecology in Owens Valley: Prehistoric Change in the Great Basin. *American Antiquity* 42(1):3-17.

_____. 1981. *Archaeology of the Lee Vining Site, FS# 05-04-51-219 (CA-MNO-446), Mono County, California*. Department of Anthropology, University of California, Davis, and Far Western Anthropological Research Group, Inc., Davis, California. On file, Inyo National Forest, Bishop, California.

_____. 1982. Aboriginal Exchange and Territoriality in Owens Valley, California. In *Contexts for Prehistoric Exchange*, edited by J. Ericson and T. Earle. Academic Press, New York.

_____. 1989. *The Archaeology of Pinyon House, Two Eagles, and Crater Middens: Three Residential Sites in Owens Valley, Eastern California*. Anthropological Papers of the American Museum of Natural History 67, New York.

_____. 1991. “Aboriginal Occupation at High Altitude: Alpine Villages in the White Mountains of Eastern California.” *American Anthropologist* 93:656-679.

_____. 1999a. From Traveler to Processor: Regional Trajectories of Hunter-Gatherer Sedentism in the Inyo-Mono Region, California. In *Settlement Pattern Studies in the Americas: Fifty Years Since Viru*, edited by B. R. Billman and G. M. Feinman, pp. 39-55. Smithsonian Institution Press, Washington, D.C.

_____. 1999b. What Happened in the Medithermal. In *Models for the Millenium: The Current Status of Great Basin Anthropology*, edited by C. Beck, pp. 62-74. University of Utah Press, Salt Lake City.

_____. 2015. *Orderly Anarchy: Sociopolitical Evolution in Aboriginal California*. University of California Press, Oakland.

Bettinger, R. L., and M. A. Baumhoff. 1982. “The Numic Spread: Great Basin Cultures in Competition.” *American Antiquity* 47:485-503.

Bettinger, R. L., and T. F. King. 1971. “Interaction and Political Organization: A Theoretical Framework for Archaeology in Owens Valley, California.” *Annual Reports of the University of California Archaeological Survey* 13:139-150. Los Angeles.

Bettinger, R. L., and R. E. Taylor. 1974. “Suggested Revisions in Archaeological Sequences of the Great Basin in Interior Southern California.” *Nevada Archaeological Survey Research Papers* 5:1-26. Carson City.

Bettinger, R. L., M. G. Delacorte, and K. R. McGuire. 1984. *Archaeological Excavations at the Partridge Ranch Site (CA-INY-2146), Inyo County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop, California.

Bieling, D. G. 1992. *Perspectives on Behavior Gained from Lithic Analysis and Archaeological Investigations Near Bridgeport, Mono County, California*. Unpublished Master’s thesis, Department of Anthropology, Sonoma State University, Rohnert Park, California.

Blake, J. 2020. *Archaeological Survey Report for the Proposed Cemetery Road Capital Maintenance Project, Mono County, California*. On file, California Department of Transportation, District 9, Bishop.

BLM (United States Bureau of Land Management). n.d. Historical Index Page for T2N, R25E and R26E, Mount Diablo Baseline and Meridian.

_____. 1857.Master Title Plat for T2N, R26E, Mount Diablo Baseline and Meridian. Filed December 17, 1857.

_____. 1880. Master Title Plat for T2N, R25E, Mount Diablo Baseline and Meridian. Filed February 19, 1880.

_____. 1902.Master Title Plat for T2N, R26E, Mount Diablo Baseline and Meridian. Filed January 31, 1902.

Blow, B. 1920. *California Highways: A Descriptive Record of Road Development by the State and by Such Counties as Have Paved Roads*. H.S. Crocker Co. Inc., San Francisco.

Bonham, K., R. Johnson, and B. S. Marks. 2020. *Cultural Resources Assessment: Tufa 16 kV Pole 2307824E (801774830) Replacement Project, Mono County, California*. Cardno, Sacramento, California. Letter report on file, Bureau of Land Management, Bishop, California.

Brady, R. T. 2011. "Obsidian Source Distribution and Prehistoric Settlement Patterns at Mono Lake, Eastern California." *Journal of California and Great Basin Anthropology* 31(1):3-24.

Burton, J. F. 1987. *Cultural Resources of Conway Ranch, Mono Basin, California.* Trans-Sierran Archaeological Research, Columbia, California. Prepared for Triad Engineering, Mammoth Lakes, California.

Cain, E. M. 1961. *The Story of Early Mono County: Its Settlers, Gold Rushes, Indians, Ghost Towns*. Fearon Publishers, Inc., San Francisco.

Calhoun, M. 1984. *Pioneers of Mono Basin*. Artemisia Press, Lee Vining, California.

California Department of Engineering. 1912. *Third Biennial Report of the Department of Engineering*. State Printing Office, Sacramento.

California Division of Highways. 1921. *Biennial Report California Highway Commission*. State Printing Office, Sacramento.

_____. 1933. *Plan and Profile of State Highway in Mono County Between Two Miles North of Lee Vining and Mono Inn*. August 21, 1933.

_____. 1935a. *Highway Transportation Survey of 1934, Mono County*.

_____. 1935b. *Plan and Profile of State Highway in Mono County, between Bodie Road and Point Ranch*. April 29, 1935.

California Division of Mines. 1927. *District Reports of Mining Engineers, Los Angeles Field Division, Mono County*. *Thirteenth Report of the State Mineralogist.* State Printing Office, Sacramento.

California State Mining Bureau. 1894. *Twelfth Report of the State Mineralogist*. State Printing Office, Sacramento.

_____. 1917. *Mines and Mineral Resources of Alpine County, Inyo County, and Mono County*. State Printing Office, Sacramento.

Carle, D., and D. Banta. 2008. *Mono Lake Basin*. Arcadia Publishing, San Francisco, California.

Carpenter, K. L. 2001. *Data Recovery Investigations at CA-MNO-891 and CA-MNO-2416/H*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Catacora, A. 2008. *Negative Cultural Resources Inventory Letter Report for Work Order 4770-0346 and 4703-0401*. ASM Affiliates, Inc., Carlsbad, California. Letter report on file, Southern California Edison Company, Rosemead, California.

Chambers Group, Inc. 2011. *Digital 395 Survey*. On file, California Department of Transportation, District 9, Bishop.

Chappell, M. 1947.Early History of Mono County. *California Historical Society Quarterly* 26(3):233-248.

Clark, W. B. 1970. *Gold Districts of California*. California Division of Mines and Geology, Sacramento.

Clay, V., and J. King. 2020. *Cultural Resources Survey of 1,992 Acres in the Bodie Hills and Conway Summit Area, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, Bureau of Land Management, Bishop, and Inyo National Forest, Bishop, California.

_____. 2021. *Cultural Resources Survey of 955 Acres in the Bodie Hills, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, Bureau of Land Management, Bishop, and Inyo National Forest, Bishop, California.

Coleman, D. S., W. Gray, and A. F. Glazner. 2004. “Rethinking the Emplacement and Evolution of Zoned Plutons: Geochronologic Evidence for Incremental Assembly of the Tuolumne Intrusive Suite, California.” *Geology* 32(5):433-436.

Crist, M. K. 1981. *A Cultural Resource Reconnaissance of the Paoha Hydroelectric Project, Mono County, California*. On file, Southern California Edison Company, Rosemead, California.

Darcangelo, M. J., W. R. Hildebrandt, and A. Ruby. 2005. *Cultural Resources Inventory for the Reduction of Pinyon Pine Stands within the Rancheria Gulch and Kirkwood Springs Areas, North of Mono Lake, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, Bureau of Land Management, Bishop, California.

Davis, R. C., ed. 1983. Appendix I: The National Forests of the United States. *Encyclopedia of American Forest and Conservation History*, *Volume II*. Macmillan Publishing Company, New York.

Davis-King, S., and J. B. Snyder. 2010. *The Silver Thread - Upper Tuolumne River American Indian Land Use in Yosemite National Park: Ethnographic Context for the Tuolumne Wild and Scenic River Comprehensive Management Plan and Environmental Impact Statement, Tuolumne County, California*. Davis-King & Associates, Standard, California. On file, National Park Service, Yosemite National Park, California.

DeGroot, H. 1863. *DeGroot's Map of Nevada Territory*. Warren Holt, San Francisco.

Delacorte, M. G. 1990. *The Prehistory of Deep Springs Valley, Eastern California: Adaptive Variation in the Western Great Basin*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

_____. 1999. *The Changing Role of Riverine Environments in the Prehistory of the Central-Western Great Basin: Data Recovery Excavations at Six Prehistoric Sites in Owens Valley, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Delacorte, M. G., and K. R. McGuire 1993. *Report of Archaeological Test Evaluations at Twenty-Three Sites in Owens Valley, California*. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to Contel of California, Inc., and on file at Bureau of Land Management, California Desert District, Ridgecrest.

Delacorte, M. G., M. C. Hall, and M. E. Basgall. 1995. *Final Report on the Evaluation of Twelve Archaeological Sites in the Southern Owens Valley, Inyo County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Diamond, V. H. and R. A. Hicks. 1988. *Historic Overview of the Rush Creek and Lee Vining Creek Hydroelectric Projects*. On file at SCE, Rosemead, California.

Duke, C., and T. Fulton. 2003. *Archaeological Survey Report Tufa Circuit, Southern California Edison, Mono County, California*. LSA Associates, Inc., Irvine, California. On file, Southern California Edison Company, Rosemead, California.

Eastern Sierra Land Trust. 2014. *Conway and Mattly Ranches Conservation Easement: Baseline Documentation Report*. November 3, 2014. Eastern Sierra Land Trust, Bishop, California.

Eerkens, J. W. 2001. *The Origins of Pottery among Late Prehistoric Hunter-Gatherers in California and the Western Great Basin*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Santa Barbara.

_____. 2003. “Residential Mobility and Pottery Use in the Western Great Basin.” *Current Anthropology* 44:728-738.

_____. 2004. “Privatization, Small-Seed Intensification, and the Origins of Pottery in the Western Great Basin.” *American Antiquity* 69(4):653-670.

_____. 2005. “GC-MS Analysis and Fatty Acid Ratios of Archaeological Potsherds from the Western Great Basin of North America.” *Archaeometry* 47(1):83-102.

Elston, R. G., D. Zeanah, and B. Codding. 2014. “Living Outside the Box: An Updated Perspective on Diet Breadth and Sexual Division of Labor in the Prearchaic Great Basin.” *Quaternary International* 352:200-211.

Ericson, J. E. 1982. Production for Obsidian Exchange in California. In *Contexts for Prehistoric Exchange*, edited by J. E. Ericson and T. K. Earle, pp. 129-148. Academic Press, New York.

Evarts, J., ed. 1990. *California’s Eastern Sierra: A Visitor’s Guide*. Cachuma Press, Los Olivos, California.

Fairchild Aerial Surveys. 1929. Aerial photographs, Flight C-718. December 1, 1929, through January 31, 1930. Available online at UC Santa Barbara Library (mil.library.uscb.edu). Accessed May 13, 2023.

Faust, N. 2004. *Heritage Resources Report: Mono City Fuels Reduction – South*. On file, Inyo National Forest, Bishop, California

Fowler, F. H. 1923. *Hydroelectric Power Systems of California and their Extensions into Oregon and Nevada*. U.S. Geological Survey Water-Supply Paper 493. Government Printing Office, Washington, D.C.

Fredrickson, D. A. 1991. *Archaeological Evaluation of CA-MNO-2456, -2488, and -564, near Bridgeport, Mono County, California*. Anthropological Studies Center, Sonoma State University, Rohnert Park, California. On file, California Department of Transportation, District 9, Bishop.

_____. 1998. *An Archaeological Evaluation of CA-MNO-566 and -2466, Huntoon Valley, Mono County, California*. Anthropological Studies Center, Sonoma State University, Rohnert Park, California. On file, California Department of Transportation, District 9, Bishop.

Giambastiani, M. A. 1998. *Phase II Evaluation of Archaeological Site CA-MNO-3018, Near Sonora Pass, Mono County, California*. Archaeological Research Center, California State University, Sacramento. On file, California Department of Transportation, District 9, Bishop.

Gilbert, R., A. Lopez-Johnson, and M. Wiseman. 2021. *2021 Q1 Heritage Resource Management Plan (HRMP) Quarterly Compliance Report, USFS Pacific*

Southwest Region, Master Permits and Easements for the Operation & Maintenance of Southern California Edison's Electric Facilities on the Inyo National Forest, Inyo and Mono Counties, California. Environmental Intelligence, Pasadena, California. On file, Inyo National Forest, Bishop, California, and Southern California Edison Company, Rosemead, California.

Gilbert, R., M. Wiseman, and A. Lopez-Johnson. 2021. *2021 Q3 Heritage Resource Management Plan (HRMP) Quarterly Compliance Report, USFS Pacific Southwest Region, Master Permits and Easements for the Operation & Maintenance of Southern California Edison's Electric Facilities on the Inyo National Forest, Inyo and Mono Counties, California*. Environmental Intelligence, Pasadena, California. On file, Inyo National Forest, Bishop, California, and Southern California Edison Company, Rosemead, California.

Gillespie, A., and P. H. Zehfuss. 2004. Glaciations of the Sierra Nevada, California, USA. In *Quaternary Glaciations - Extent and Chronology, Part II*, edited by J. Ehlers, and P. L. Gibbard, pp. 51-62. Elsevier Science, Amsterdam.

Gilreath, A. J. 1995. *Archaeological Evaluations of Thirteen Sites for the Ash Creek Project, Inyo County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Gilreath, A. J., and W. R. Hildebrandt. 1997. *Prehistoric Use of the Coso Volcanic Field*. Contributions to the University of California Archaeological Research Facility 56. Berkeley.

_____. 2011. Current Perspectives on the Production and Conveyance of Coso Obsidian. In *Perspectives on Prehistoric Trade and Exchange in California and the Great Basin*, edited by R. E. Hughes, pp. 171-188. University of Utah Press, Salt Lake City.

Goldberg, S. K., E. J. Skinner, and J. F. Burton. 1990. *Archaeological Investigations at Sites CA-MNO-574, -577, -578, and -833: Stoneworking in Mono County, California*. Infotec Research, Inc., Sonora, California. On file, California Department of Transportation, District 9, Bishop.

Grantham, S. D., and T. L. Jones. 1990. *Archaeological Survey Report for the Addition of Passing Lanes to Portions of Highway 395 in Mono County, California*. On file, California Department of Transportation, District 9, Bishop.

Halford, F. K. 1998. *Archaeology and Environment on the Dry Lakes Plateau, Bodie Hills, California: Hunter-Gatherer Coping Strategies for Holocene Environmental Variability*. Unpublished Master's thesis, Department of Anthropology, University of Nevada, Reno.

_____. 2001. New Evidence for Early Holocene Acquisition and Production of Bodie Hills Obsidian. *Society for California Archaeology Newsletter* 35(1):32-37.

_____. 2008. *The Coleville and Bodie Hills NRCS Soil Inventory, Walker and Bridgeport, California: A Reevaluation of the Bodie Hills Obsidian Source (CA-MNO-4527) and its Spatial and Chronological Use*. On file, Bureau of Land Management, Bishop, California.

Hall, M. C. 1980. *Surface Archaeology of the Bodie Hills Geothermal Area, Mono County, California: A Cultural Resources Inventory*. On file, Bureau of Land Management, Bakersfield, California.

_____.1983. *Late Holocene Hunter-Gatherers and Volcanism in the Long Valley-Mono Basin Region: Prehistoric Culture Change in the Eastern Sierra Nevada*. Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Riverside.

_____. 1990. *The OXBOW Archaeological Incident: Investigations at Twenty-three Locations Between Owens Valley, Eastern California, and Walker Basin, Southwestern Nevada*. Archaeological Research Services, Inc., Virginia City, Nevada. Submitted to Oxbow Geothermal Company, Reno, Nevada.

Hamilton, T., and E. Dale. 2011. *Bridgeport Ranger District Heritage Overview.* On file, Humboldt-Toiyabe National Forest, Bridgeport, California.

Hanrahan, K. E. 2022. *Distribution and Chronology of Schist Millingstones in Owens Valley*. Unpublished Master's thesis, Department of Anthropology, California State University, Sacramento.

Hodelka, B. N., M. M. McGlue, S. Zimmerman, G. Ali, and I. Tunno. 2020. "Paleoproduction and Environmental Change at Mono Lake (eastern Sierra Nevada) during the Pleistocene–Holocene Transition." *Palaeogeography, Palaeoclimatology, Palaeoecology* 543:109565.

Holt, M. 2006. Cultural Resources Inventory Report: Mono County Water Diversion Project. On file, Bureau of Land Management, Bishop, California.

Hoover, M. B., H. E. Rensch, E. G. Rensch, and W. N. Abloe. 1990. *Historic Spots in California*. 4th edition, revised by Douglas E. Kyle. Stanford University Press, Palo Alto.

Imswiler, S. 2007. *Thomas B. Rickey: Pioneer Nevada Cattleman*. Self-published.

Jackson, R. J. 1985. *An Archaeological Survey of the Wet, Antelope, Railroad, and Ford Timber Sale Compartments in the Inyo National Forest.* On file, Inyo National Forest, Bishop, California.

Jenkins, D. L., and C. N. Warren. 1984. "Obsidian Hydration and the Pinto Chronology in the Mojave Desert." *Journal of California and Great Basin Anthropology* 6(1):44-60.

Johnson, R., and B. S. Marks. 2020. *Cultural Resources Assessment: Tufa 16 kV Pole 2307823E (TD1522884) Preventative Maintenance Project, Mono County, California*. Cardno, Sacramento, California. Letter report on file, Bureau of Land Management, Bishop, California.

Johnson, R., and V. Ortiz. 2021. *Cultural Resources Assessment: Tufa 16 kV Four Pole (TD1671284 & TD1767060) Infrastructure Replacement and Grid Resiliency Project, Mono County, California*. Cardno, Sacramento, California. On file, Bureau of Land Management, Bishop, California.

Jones, K. L., and T. L. Jackson. 2007. *Cultural Resources Inventory for the Proposed Southern California Edison Lee Vining to Conway Summit Communications Line Project*. Pacific Legacy, Inc., Santa Cruz, California. On file, Southern California Edison Company, Rosemead, California.

King, J. H., and V. Clay. 2018. *Cultural Resources Survey of 3,866 Acres in the Bodie Hills and Sagehen Summit Area, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, Bureau of Land Management, Bishop, California.

King, J. H., W. R. Hildebrandt, and J. Rosenthal. 2011. Evaluating Alternative Models for the Conveyance of Bodie Hills Obsidian into Central California. In *Perspectives on Prehistoric Trade and Exchange in California and the Great Basin*, edited by R. E. Hughes, pp. 148-170. University of Utah Press, Salt Lake City.

Klein, D. B., and C. Yin. 1994. The Private Provision of Frontier Infrastructure: Toll Roads in California 1850-1902. *Working Papers/University of California Transportation Center* 238. University of California Transportation Center, Berkeley.

Larson, W. E. 2009. *Prehistoric Riverine Adaptations in the Western Great Basin: A Distributional Survey of the Owens River, Inyo County, California*. Unpublished Master's thesis, Department of Anthropology, California State University, Sacramento.

Maule, W. M. 1938. *A Contribution to the Geographic and Economic History of the Carson, Walker, and Mono Basins in Nevada and California*. On file, Humboldt-Toiyabe National Forest, Bridgeport, California.

McGuire, K. R. 1981. *Archaeological Investigations in the Southern Sierra Nevada: The Kennedy Meadows/Rockhouse Basin Segment of the Pacific Crest Trail.* Far Western Anthropological Research Group, Inc., Davis, California. On file, Sequoia National Forest, Porterville, California.

_____. 1994. *Archaeological Resources Evaluation at CA-MNO-2743, CA-MNO-2744, CA-MNO-2747, and CA-MNO-2763H, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

_____. 1996. “Review: The Archaeology of CA-MNO-2122, A Study of Pre-Contact and Post-Contact Lifeways Among the Mono Basin Paiute.” *Journal of California and Great Basin Anthropology* 18(2):321-323.

_____. 2007. Models Made of Glass: A Prehistory of Northeast California. In *California Prehistory: Colonization, Culture, and Complexity*, edited by T. L. Jones and K. A. Klar, pp. 165-176. Altamira Press, Walnut Creek, California.

McGuire, K. R., K. L. Carpenter, and J. Rosenthal. 2012. Great Basin Hunters of the Sierra Nevada. In *Meetings at the Margins: Prehistoric Cultural Interactions in the Intermountain West,* edited by D. Rhode, pp. 124-141. University of Utah Press, Salt Lake City.

McGuire. K. R., W. R. Hildebrandt, and J. S. Rosenthal. 2015. *NAWS China Lake Research Design and National Register Eligibility Guidance for Prehistoric Resources*. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to NAVFAC Southwest Division, San Diego, California.

McIntosh, F. W. 1908. *Mono County, California*. F. W. McIntosh, Bridgeport, California.

McKendry, E. M., R. Johnson, and J. Wisely. 2020. *Cultural Resources Assessment: Tufa 16 kV Pole 4388210E (TD1487562) Replacement Project, Mono County, California.* Cardno, Sacramento, California. Letter report on file, Bureau of Land Management, Bishop, California.

Mensing, S. A., L. V. Benson, M. Kashgarian, and S. Lund. 2004. “A Holocene Pollen Record of Persistent Droughts from Pyramid Lake, Nevada, USA.” *Quaternary Research* 62:29-38.

Mensing, S. A., J. Smith, K. B. Norman, and M. Allan. 2008. “Extended Drought in the Great Basin of Western North America in the Last Two Millennia Reconstructed from Pollen Records.” *Quaternary International* 188:79-89.

Milliken, R., and W. R. Hildebrandt. 1997. *Culture Change along the Eastern Sierra Nevada/Cascade Front, Volume V: Honey Lake Basin*. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to the Tuscarora Gas Transmission Company, Reno, Nevada.

Mitchell, R. 1975. “Avalanche on Copper Mountain.” *Desert Magazine* 38(11):35-36.

Mono County Assessor. 1896a. Assessment Map. Township 2 North, Range 25 East. Sheet 58.

_____. 1896b. Assessment Map. Township 2 North, Range 26 East. Sheet 59.

_____. 1940a. Assessment Map. Township 2 North, Range 25 East. Sheet 58.

_____. 1940b. Assessment Map. Township 2 North, Range 26 East. Sheet 59.

Mono County Public Works. 2014. Lundy Canyon campground info. Accessed May 13, 2023. Available online at https://monocounty.ca.gov/facilities/page/lundy-canyon-campground.

_____. 2023. Parks & recreation areas. Accessed May 13, 2023. Available online at https://monocounty.ca.gov/ facilities/ page/parks-recreation-areas.

Montague, S. T. 1996. *The Dana Meadows Archaeological Testing Project, Yosemite National Park, Tuolumne County, California*. Yosemite Research Center Publications in Anthropology 19. Yosemite National Park.

_____. 2010. *High-Elevation Prehistoric Land Use in the Central Sierra Nevada, Yosemite National Park, California*. Unpublished Master's thesis, Department of Anthropology, California State University, Sacramento.

Moore, B. 1994. "The Jordan Tragedy." *The Album: Times and Tales of Inyo-Mono* Winter/Spring 1994-1995:38-47.

Moratto, M. J. 1999. "Cultural Chronology 2: The Yosemite Data." *Yosemite Research Center Publications in Anthropology* 21:17-28.

Noble, D. G. 1992. *Archaeological Excavations at CA-MNO-2213, On Highway 395 at Fales Hot Springs, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Norton, W. L. 2008. Cogitations on Corner-Notched Obsidian Points from the Inyo-Mono Region of Eastern California. In *Avocados to Millingstones: Papers in Honor of D. L. True*, edited by G. Waugh and M. E. Basgall, pp. 221-236. Monographs in California and Great Basin Anthropology 5. Archaeological Research Center, California State University, Sacramento.

NRCS (United States Department of Agriculture, Natural Resources Conservation Service). 2018. *Conway and Mattly Ranches Livestock Grazing Management Plan.* Prepared by NRCS, Minden and Reno State Offices. Accessed May 2023. Available online at https://monocounty.ca.gov/facilities/page/conway-ranch-conservation-easement.

_____. 2023. SoilWeb: an online soil survey browser. Accessed April 2023. Available online at https://casoilresource.lawr.ucdavis.edu/gmap/.

Overly, S. A. 2002. *Phase III Data Recovery at CA-MNO-3018 Near Sonora Pass, Mono County, California: High Altitude Archaeology on the East Slope of the Sierra Nevada*. Archaeological Research Center, California State University, Sacramento. On file, California Department of Transportation, District 9, Bishop.

_____. 2004. *Below the Crest: Excavation of CA-MNO-3494 at Sonora Pass, Mono County, California*. Archaeological Research Center, California State University, Sacramento. California Department of Transportation, District 9, Bishop.

Peak, A. S. 1975. *Archaeological Investigations in Inyo and Mono Counties, California*. Unpublished Master's thesis, Department of Anthropology, California State University, Sacramento.

Pollock, K. H. 2007. *Archaeological Assessment Report for the Lundy Hydroelectric Project Flowline Road Improvements and Standpipe Replacement, Inyo National Forest, Mono County, California*. On file, Southern California Edison Company, Rosemead, California.

Rice, S., and J. King. 2019. *Archaeological Survey Report for U.S. Highway 395 Shoulder Widening at Sonora Junction and Conway Ranch, Mono County, California.* Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

Rose, G. 1994. *Sierra Centennial: 100 Years of Pioneering on the Sierra National Forest.* Three Forests Interpretive Association, Auberry, California.

Rosenthal, J. S. 2012. "Prehistoric Land Use and Settlement Systems in Yosemite National Park: A View from Crane Flat." Far Western Anthropological Research Group, Inc., Davis, California. Yosemite National Park Publications. *Anthropology*. 38.

Schmidt, J. J. 2000. *Southern California Edison Company Tufa 16kV Survey*. Compass Rose Archaeological, Inc., Van Nuys, California. Letter report on file, Bureau of Land Management, Bishop, California.

Selters, A. 2012. *Images of America: Inyo National Forest.* Acadia Publishing, Charleston, South Carolina.

Spaulding, G. W. 1999. "Paleoenvironmental Studies. In Archaeological Synthesis and Research Design, Yosemite National Park, California." Edited by M. J. Moratto, pp. 29-64. INFOTEC Research, Inc., and Dames & Moore, Las Vegas, Nevada. Yosemite National Park Publications. *Anthropology* 21.

Stark, P. L. 2020. *Names, Boundaries, and Maps: A Resource for the Historical Geography of the National Forest System of the United States, the Pacific Southwest Region (Region 5)*. National Museum of Forest Service History, Missoula, Montana.

Stevens, N. E. 2002. *Prehistoric Use of the Alpine Sierra Nevada: Archaeological Investigations at Taboose Pass, Kings Canyon National Park, California*. Unpublished Master's thesis, Department of Anthropology, California State University, Sacramento.

_____. 2005. “Changes in Prehistoric Land Use in the Alpine Sierra Nevada: A Regional Exploration Using Temperature-Adjusted Obsidian Hydration Rates.” *Journal of California and Great Basin Anthropology* 25(2):41-59.

Stevens, N., and M. Lenzi. 2015. *Archaeological Survey of 1,000 Acres on the Marine Corps Mountain Warfare Training Center near Bridgeport, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, for Naval Facilities Engineering Command, Southwest Division, San Diego, California.

Stevens, N. E., M. Lenzi, and V. Clay. 2015. *Testing of 21 Archaeological Sites on the Marine Corps Mountain Warfare Training Center near Bridgeport, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, Naval Facilities Engineering Command, Southwest Division, San Diego, California.

Stine, S. 1994. “Extreme and Persistent Drought in California and Patagonia During Mediaeval Time.” *Nature* 369:546-549.

Taylor, T. T. 2000. *Archaeological Survey Report Recreation Improvements at Lundy Lake/Mill Creek FERC Project No. 1390, Mono County, California*. On file, Southern California Edison Company, Rosemead, California.

Theodoratus, D. J., C. M. Blount, V. H. Diamond, and R. A. Hicks. 1988. *Historic Overview of the Rush Creek and Lee Vining Creek Hydroelectric Projects*. On file, Southern California Edison Company, Rosemead, California.

Urbana Preservation & Planning, LLC. 2019. *Historical Resources Analysis Report / Historic Property Survey Report, Southern California Edison Company, Eastern Sierras Transmission System, Mono and Inyo Counties, California.* On file, Southern California Edison Company, Rosemead, California.

U.S. Bureau of the Census. 1920. Mono Lake District, Homer Township. Mono County Population Schedule, Sheet 8B. March 3, 1920.

_____. 1930. Homer Township, Mono National Reserve. Mono County Population Schedule, Sheet 2B, 3B, and 4A. April 21-29, 1930.

_____. 1940. Lee Vining Township. Mono County Population Schedule, Sheet 1A. April 15, 1940.

_____. 1950. Homer Township, Enumeration District 26-3. Mono County Population Schedule, Sheets 2-3. April 18-19, 1950.

USFS (United States Department of Agriculture, Forest Service). 1989. *Hazardous Tree Removal Project*. On file, Inyo National Forest, Bishop, California.

_____. 2001. North Mono Basin Watershed/Landscape Analysis. Prepared by Inyo National Forest. Available online at https://www.monobasinresearch.org/onlinereports/.

_____. 2004. *OHV Routes Inventory and Designation Survey*. On file, Inyo National Forest, Bishop, California.

_____. 2009. Toiyabe National Forest History: A Compilation. Transcription of history written before 1998 by unknown author. Transcribed and edited by L. Tracy and R. Wilson, USFS Intermountain Region. December 24, 2009.

_____. 2021a. About the Forest. Inyo National Forest. Available online at https://www.fs.usda.gov/main/inyo/about-forest. Accessed August 2021.

_____. 2021b. Districts. Inyo National Forest. Available online at https://www.fs.usda.gov/main/inyo/about-forest/districts. Accessed August 2021.

_____. 2023a. Mono Lake Ranger District. Inyo National Forest. Available online at https://www.fs.usda.gov/recarea/inyo/recreation/recarea/?recid=20252. Accessed May 2023.

_____. 2023b. Welcome to the Humboldt-Toiyabe National Forest. Available online at https://www.fs.usda.gov/htnf. Accessed May 2023.

USGS (United States Geological Survey). 1909. Bridgeport Quadrangle. 30-minute series topographic (1:125,000 scale). USGS, Washington, D.C.

_____. 1911. Bridgeport Quadrangle. 30-minute series topographic (1:125,000 scale). USGS, Washington, D.C.

_____. 1920. Bridgeport Quadrangle. 30-minute series topographic (1:125,000 scale). USGS, Washington, D.C.

_____. 1953.Mono Craters Quadrangle. 15-minute series topographic (1:62,500 scale). USGS, Washington, D.C.

_____. 1958. Bodie Quadrangle. 15-minute series topographic (1:62,500 scale). USGS, Washington, D.C.

_____. 1986. Lundy Quadrangle. 7.5-minute series topographic (1:24,000 scale). USGS, Washington, D.C.

_____. 1987. Aerial photographs, Flight NAPP. January 1, 1987, through December 31, 1990. Available online at UC Santa Barbara Library (mil.library.uscb.edu). Accessed May 13, 2023.

Vargo, C. P. 2007. Christmas Delivery at Bodie Sparks Jordan Disaster. Available online at http://explorehistoricalif.com/ehc_legacy/december07.html. Accessed May 2023.

Wallace, W. J. 1958. Archaeological Investigations in Death Valley National Monument. *University of California Archaeological Survey Reports* 42:7-22.

Warren, C. N., and R. H. Crabtree. 1986. "Prehistory of the Southwestern Area." In *Great Basin*, edited by W. L. d'Azevedo, pp. 183-193. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Wetherbee, M., A. Elzinga, and E. Nicolay. 2017. Cultural Resources Monitoring and Survey Report for Southern California Edison's Emergency Replacement of 28 Distribution Poles Located within the Inyo National Forest, Inyo and Mono County, California. SWCA Environmental Consultants, Pasadena, California. On file, Southern California Edison Company, Rosemead, California.

Wheeler, G. M. 1876. Parts of Southern Nevada and Eastern California, Atlas Sheet No. 57. In Topographical Atlas Projected to Illustrate United States Geographical Surveys West of the 100th Meridian of Longitude. U.S. Army Corps of Engineers, Washington, D.C.

Whelan, C. S., A. R. Whitaker, J. S. Rosenthal, and E. Wohlgemuth. 2013. "Hunter-Gatherer Storage, Settlement, and the Opportunity Costs of Women's Foraging." *American Antiquity* 78(4):662-678.

White, D. R. M. 1983. *Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties, California: Lundy (FERC 1390), Lee Vining Creek (FERC 1388), Rush Creek (FERC 1389), and Bishop Creek (FERC 1394)*. On file, Southern California Edison Company, Rosemead, California.

_____. 1985. *Results of the 1984 Field Season, Cultural Resources Survey for the Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties: Lundy, Lee Vining, Rush Creek, and Bishop Creek*. On file, Southern California Edison Company, Rosemead, California.

_____. 1990. *Management Plan For Historic and Archaeological Resources Associated With The Lundy Hydroelectric Project (FERC Project No. 1390), Mono County, California*. On file, Southern California Edison Company, Rosemead, California.

_____. 1992. *Results of Archaeological Survey for Groundwater and Riparian Vegetation Studies in Connection with the Lundy and Bishop Creek Hydroelectric Projects (FERC Project Nos. 1390 and 1394), Mono and Inyo Counties, California.* Applied Cultural Dynamics, Santa Fe, New Mexico. On file, Southern California Edison Company, Rosemead, California.

Whitney, J. D., and C. F. Hoffman. 1873. Topographical Map of Central California Together with a Part of Nevada. Sheet IV, California Geological Survey. Julius Bien, New York, New York.

Wickstrom, B., R. Jackson, and T. Jackson. 1993. *Archaeological Resources Evaluation at CA-MNO-891, CA-MNO-2678, and CA-MNO-2679, Mono County, California*. Biosystems Analysis, Inc., Santa Cruz, California. On file, California Department of Transportation, District 9, Bishop.

Wickstrom, C. K. R. 1993. Spatial and Temporal Characteristics of High-Altitude Site Patterning in the Southern Sierra Nevada. In *There Grows a Green Tree: Papers in Honor of David A. Fredrickson*, edited by G. White, P. Mikkelsen, W. R. Hildebrandt, and M. E. Basgall, pp. 285-301. Center for Archaeological Research at Davis, Publication No. 11.

Wigand, P. E. and D. Rhode. 2002. Great Basin Vegetation History and Aquatic Systems: The Last 150,000 Years. In *Great Basin Aquatic Systems History*, edited by R. Hershler, D. B. Madsen, and D. R. Currey, pp. 309-367. Smithsonian Contributions to Earth Sciences 33. Smithsonian Institution Press, Washington, D.C.

Williams, A. 2020a. *Historic-era Built Environment Survey Report for Southern California Edison Company's Distribution Circuits on the Inyo National Forest, Inyo and Mono Counties, California*. On file, Southern California Edison Company, Rosemead, California.

_____. 2020b. *Cultural Resource Survey for Southern California Edison Company's Lundy Facilities Maintenance and Repairs Project – Zone 3 Langemann and Stem Gate Repair and Distribution and Information Technology Project, Inyo National Forest, Mono County, California, Lundy Hydroelectric System Federal Energy Regulatory Commission Project No. 1390*. On file, Inyo National Forest, Bishop, California.

_____. 2020c. *Cultural Resource Survey for Southern California Edison Company's Lundy Facilities Maintenance and Repairs Project – Zone 4 SonTek Gauge Installation, Mono County, California, Lundy Hydroelectric Project, Federal Energy Regulatory Commission Project No. 1390*. On file, Inyo National Forest, Bishop, California.

Williams, J. C. and R. A. Hicks. 1989. *Evaluation of the Historic Resources of the Lee Vining Creek (FERC Project Number 1388) and Rush Creek (FERC Project Number 1389) Hydroelectric Systems, Mono County, California*. On file at SCE, Rosemead, California

Wilson, Z. 2020. *Archaeological Survey Report for Southern California Edison's Deteriorated Pole Project (Unassigned Work Orders), Bureau of Land Management, Bishop Field Office, Inyo and Mono Counties, California*. Environmental Intelligence, Pasadena, California. On file, Bureau of Land Management, Bishop.

Wohlgemuth, E., B. Larson, S. J. Melvin, R. Kellawan, and J. Costello. 2015. *Archaeological Survey Report for the Aspen Fales Shoulder Widening Project, Mono County, California*. Far Western Anthropological Research Group, Inc., Davis, California. On file, California Department of Transportation, District 9, Bishop.

York, A. 1990. *An Evaluation of Twenty-One Archaeological Sites on the Lee Vining Creek, Rush Creek, and Lundy Hydroelectric Projects, Mono and Inyo Counties, California.* Dames & Moore. On file, Southern California Edison Company, Rosemead, California.

7.5.12. Tribal Resources

Bates, C. and M. Lee. 1990. *Tradition and Innovation: A Basket History of the Indians of the Yosemite Mono Lake Area.* The Yosemite Association, Yosemite National Park, California.

Benson, H. C. 1897. *Yosemite National Park*. 10¾" x 13¾", scale 1 inch=4 miles. Yosemite Archive, El Portal, California.

Big Pine Paiute Tribe. 2023. Home Page. Accessed April 16, 2023. Available online at https://bigpinepaiute.org/ about-the-tribe/.

Bishop Paiute Tribe. 2023. About the Bishop Paiute Tribe. Accessed April 16, 2023. Available online at http://www. bishoppaiutetribe.com.

Bridgeport Indian Colony. 2012. Home Page: Brief history & Mission Statement. Accessed April 16, 2023. Available online at http://www.bridgeportindiancolony.com/.

Cain, Ella M. 1956. *The Story of Bodie*. Fearon Publishers, Inc., San Francisco.

______. 1961. *The Story of Early Mono County. Its Settlers, Gold Rushes, Indians, Ghost Towns*. Fearon Publishers, Inc., San Francisco.

Clayton, J. E. 1861. *Map of Esmeralda and Mono.* Bancroft Library, University of California, Berkeley.

Davis, Emma Lou. 1962. Hunter-Gatherers of Mono Lake. *Masterkey* 36(1):23-28.

______. 1963. The Desert Culture of the Western Great Basin: A Lifeway of Seasonal Transhumance. *American Antiquity* 29:202-212.

______. 1965. An Ethnography of the Kuzedika Paiute of Mono Lake, Mono County, California. *University of Utah Anthropological Papers* 75:1-56.

Davis-King, Shelly. 2007. *The Land Where the Unabiya Hungalelti, Me-Wu, and Tövusidökadö Pozidadikadi Meet: Native American Background Research for the United States Marine Corps Mountain Warfare Training Center Mono County, California*. On file, Naval Facilities Engineering Command, Southwest Division, San Diego, California.

______. 2010. *Amid the Sagebrush Plain, Atop the Lofty Peaks: Native American History in Mono County, California*. On file, California Department of Transportation, District 9, Bishop.

Davis-King, Shelly, and James B. Snyder. 2010. *The Silver Thread: Upper Tuolumne River American Indian Land Use in Yosemite National Park: Ethnographic Context for the Tuolumne Wild and Scenic River Comprehensive Management Plan and Environmental Impact Statement, Tuolumne County, California*. On file, National Park Service, Yosemite National Park, California.

DeGroot, Henry. 1863. *DeGroot's Map of Nevada Territory Exhibiting a Portion of Southern Oregon & Eastern California*. Warren Holt, San Francisco.

Farley, Minard H. 1861. *Newly Discovered Tramontane Silver Mines in Southern California and Western New Mexico*. 1 inch=18 miles. Warren Holt, San Francisco.

Fletcher, Thomas Christopher. 1982. *The Mono Basin in the Nineteenth Century: Discovery, Settlement, Land Use*. Unpublished Master's thesis, Department of Geography, University of California, Berkeley.

______. 1987. *Paiute, Prospector, Pioneer. A History of the Bodie-Mono Lake Area in the Nineteenth Century*. Artemisia Press, Lee Vining, California.

Fort Independence Indian Reservation. 2020. Homepage. Accessed April 16, 2023. Available online at https:// www.fortindependence.com/.

Fowler, Catherine S. (ed). 1989. *Willard Z. Park's Ethnographic Notes on the Northern Paiute of Western Nevada, 1933-1944*. University of Utah Anthropological Papers 114. Salt Lake City.

Fowler, Catherine S., and Sven Liljeblad. 1986. Northern Paiute. In *Great Basin*, edited by W. L. d' Azevedo, pp. 435-465. Handbook of North American Indians. Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Giles, Eugene. n.d. Frederick Seymour Hulse, February 11, 1906-May 16, 1990. Biographical Memoirs, National Academy of Sciences. Accessed April 18, 2023. Available online at http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/hulse-frederick.pdf.

Hoffmann, Charles F., and J. T. Gardner. 1868. *Map of a Portion of the Sierra Nevada Adjacent to the Yosemite Valley. From Surveys 1863-1867*. 20⅜" x 30", scale 1 inch=2 miles. Geological Survey of California, Sacramento.

Huber, N. King, Paul C. Bateman, and Clyde Wahrhaftig. 1989. *Geologic Map of Yosemite National Park and Vicinity, California.* Department of the Interior, U.S. Geological Survey Map I-1874 scale 1:125,000, Washington, D.C. Available online at https://pubs.usgs.gov/imap/i1874/. Accessed: June 2021.

Hulse, Frederick S. 1935. Lee Vining Paiute Ethnographic Notes. CU-23.1, Items 89, 90, 91, 104, 149, 150. Manuscripts on file, Bancroft Library, University of California, Berkeley.

Johnson, Willard D. 1887. *Hydrographic Basin of Lake Mono*. 14" x 11¼", scale 1:250,000. Plate XVVII. In Eighth Annual Report of the United States Geological Survey to the Secretary of the Interior: Part I, by J. W. Powell.

Kelsey, C. E. 1909. Schedule Showing Non-Reservation Indians in Northern California, 1905-1906. Bureau of Indian Affairs Box RG 79, 034 File 5340-1909, National Archives and Records Administration, San Bruno, California.

LeConte, Joseph N. 1893. *Map of a Portion of the Sierra Nevada Adjacent to the Yosemite and Hetch Hetchy Valleys*. Sierra Club Publication No. 4. 19" x 33½", scale 1 inch=4 miles. Sierra Club, San Francisco.

LeConte, Joseph N., with Theodore Solomons, Lil A. Winchell, Bolton Coit Brown, and N. F. McClure. 1896. *Map of the Sierra Nevada Mountains of Central California January 1896*. 38" x 38", scale 1 inch=4 miles. Publication of the Sierra Club No. 12. Sierra Club, San Francisco.

Madley, Benjamin. 2016. *An American Genocide: The United States and the California Indian Catastrophe*. Yale University Press, New Haven & London.

Marks, Robert B. 2023. “Dispossessed Again: Paiute Land Allotments in the Mono Basin, 1907-1929.” *Eastern Sierra History Journal*: Vol. 4, Article 1. Accessed April 2023. Available online at https://scholarship.claremont.edu/eshj/vol4/iss1/1.

McCarthy, Helen. 1996. Ethnographic Interviews and Results. In *Cultural Resources Inventory of Four Tributaries to Mono Lake, and an Evaluation Plan for the Mono Streams Restoration Project ARR #05-04-679, Volume 1*, by A. J Gilreath. Far Western Anthropological Research Group, Inc., Davis, California. On file, Los Angeles Department of Water and Power.

McClure, N. F. 1895. *Map of The Yosemite National Park Prepared for the Use of U.S. Troops, February 1895*, 16^{5}/8" x 19½", scale 1 inch=2 miles. Yosemite National Park.

______. 1896. *Map of The Yosemite National Park Prepared for the Use of U.S. Troops, March 1896*, 18" x 21½", scale 1 inch=2½ miles. Accessed April 16, 2023. Available online at https://www. raremaps.com/gallery/detail/25474/map-of-the-yosemite-national-park-prepared-for-use-of-us-t-us-government.

Merriam, C. Hart. n.d. 1898-1938. Journals [California] of C. Hart Merriam. Manuscript Division. Library of Congress, Washington, D.C.

______. 1955. *Studies of California Indians*. University of California Press, Berkeley.

______. 1966. *Ethnographic Notes on California Indian Tribes*, edited by R. F. Heizer Parts 1 and 2, University of California, Archaeological Survey Records 68(1, 2). Berkeley.

Mono Lake Kootzaduka'a Indian Community Cultural Preservation Association. 2023a. Homepage. Accessed April 18, 2023. Available online at https://preservation.monolaketribe.us/mono-lake-kootzadukaa-tribe/.

______. 2023b. Sogomea: traveling in the old way. Accessed April 18, 2023. Available online at https:// sogomea.monolaketribe.us/.

Muir, John. 1890a. *Map of Proposed Yosemite National Park Region*. 10" x 12½", scale about 1 inch=3 miles. Bancroft Library, University of California, Berkeley.

______.1890b. *Map of Proposed Boundary of Yosemite National Park*, 4⅜" x 5¼", scale 1¼"=10 miles. Bancroft Library, University of California, Berkeley.

NAHC (Native American Heritage Commission). 2023a. Response to letter dated April 30, 2023, Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Lundy Hydroelectric Project, Mono County.

______. 2023b. Native American Heritage Commission Tribal Consultation List: Mono County.

NARA (National Archives and Records Administration). 1928-33. NARA Record Group (RG) 75, Records of the Bureau of Indian Affairs. On file, National Archives and Records Administration-Pacific Region, San Bruno, California. Bureau of Indian Affairs Sacramento Agency, Applications to the Roll of California Indians 1928-1933, Microfilm Rolls 8, 15, 26. On file, National Archives and Records Administration — Pacific Region (San Francisco), 1000 Commodore Drive, San Bruno, CA 94066.

National Park Service. 2019. *Voices of the People: The Traditionally Associated Tribes of Yosemite National Park*. National Park Service, Yosemite Conservancy.

North Fork Mono Tribe. n.d. Facebook homepage. Accessed April 17, 2023. Available online at https://www. facebook.com/NorthForkMonoTribe/about_details. Accessed April 17, 2023.

North Fork Rancheria of Mono Indians of California. 2020. History. Available online at https://www.northforkrancheria-nsn.gov/our-people/history/.

Paden, Irene D. and Margaret E. Schlichtmann. 1955. *The Big Oak Flat Road. An Account of Freighting from Stockton to Yosemite Valley*. San Francisco, California [no publisher listed].

Park, Willard Z. 1933-1940. *Paviotso Field Notes.* On file, Special Collections 96-05 Box 1, File 96-05, University of Nevada, Reno.

Powers, Stephen. 1976. *Tribes of California*. Reprinted from the 1877 edition of *Contributions to North American Ethnology, Volume III*. University of California Press, Berkeley and Los Angeles.

Sada, Donald. 2000. Native Fishes. In *Sierra East. Edge of the Great Basin*, edited by Genny Smith, pp. 246-264. University of California Press, Berkeley.

SSMN (Southern Sierra Miwuk Nation). 2023. Homepage. Accessed April 16, 2023. Available online at https://www.southernsierramiwuknation.org/.

Tonenna, Dean. 2023. Personal communication to Mary Farrell and Lynn Johnson on May 8, 2023.

_____. 2021. Indigenous burning project of the Kootzaduka’a People in the Mono Basin. Accessed April 18, 2023. Available online: https://www.nps.gov/yose/learn/history culture/indigenous-burning-project-of-the-Kootzaduka-a-people-in-the-mono-basin.htm.

Trask, John B. 1853. *Topographical Map of the Mineral Districts of California*. 17¼" x 23½", scale 1 inch=20 miles. Britton & Rey, San Francisco.

Tuolumne Band of Me-wuk Indians. n.d. History. Accessed April 16, 2023. Available online: https://Mewuk.com/cultural/history.

Walker River Paiute Tribe. 2023. The Walker River Paiute Tribe. Homepage. Accessed April 18, 2023. Available online at https://www.wrpt.org/.

Washoe Tribe of Nevada and California. 2020. Washoe history. Accessed April 18, 2023. Available online at https://washoetribe.us/aboutpage/4-Page-washoe-history.

Wheeler, George M. 1880. *Wheeler Survey Expeditions of 1878, 1879. Geographical Surveys West of the 100th Meridian, Atlas Sheet 56(D)*. 18" x 22½", scale 1 inch=4 miles or 1:253,440. U.S. Army, Corps of Engineers. On file, Yosemite Research Library, Yosemite National Park.

White, David R. M. 1983. *Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties, California: Lundy (FERC 1390), Lee Vining Creek (FERC 1388), Rush Creek (FERC 1389), and Bishop Creek*

(FERC 1394). On file, Southern California Edison Company, Rosemead, California.

_____. 1985. *Results of the 1984 Field Season, Cultural Resources Survey for the Historic and Archaeological Preservation Plan for Eastern Sierra Hydroelectric Projects in Mono and Inyo Counties: Lundy, Lee Vining, Rush Creek, and Bishop Creek.* On file, Southern California Edison Company, Rosemead, California.

Whitney, J. D. and C. F. Hoffman. 1873. *Topographical Map of Central California Together with a Part of Nevada, Sheet IV.* California Geological Survey. Julius Bien, New York, New York.

7.5.13. Socioeconomic Resources

CEDD (California Employment Development Department). 2021. Mono County Profile. Accessed: June 23, 2021. Available online: https://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProfileQSResults.asp?selectedarea=Mono+County&selectedindex=26&menuChoice=localAreaPro&state=true&geogArea=0604000051&countyName=.

Data USA. 2020a. Aspen Springs, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/aspen-springs-ca/.

_____. 2020b. Benton, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/benton-ca/.

_____. 2020c. Bridgeport, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/bridgeport-ca.

_____. 2020d. Chalfant, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/chalfant-ca.

_____. 2020e. Coleville, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/coleville-ca/.

_____. 2020f. Crowley Lake, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/crowley-lake-ca.

_____. 2020g. June Lake, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/june-lake-ca.

_____. 2020h. Lee Vining, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/lee-vining-ca.

_____. 2020i. McGee Creek, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/mcgee-creek-ca.

_____. 2020j. Mammoth Lakes, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/mammoth-lakes-ca/.

_____. 2020k. Mono City, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/mono-city-ca.

_____. 2020l. Paradise, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/paradise-ca.

_____. 2020m. Sunny Slopes, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/sunny-slopes-ca.

_____. 2020n. Swall Meadows, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/swall-meadows-ca.

_____. 2020o. Topaz, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/topaz-ca.

_____. 2020p. Twin Lakes, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/twin-lakes-ca.

_____. 2020q. Walker, CA. Census Place. Accessed: May 22, 2023. Available online: https://datausa.io/profile/geo/walker-ca.

MRLC Consortium (Multi-Resolution Land Characteristics Consortium). 2021. Multi-Resolution Land Characteristics Consortium Interactive Viewer. Accessed: August 2023. Available online: https://www.mrlc.gov/viewer/.

U.S. Census Bureau. 2010a. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/acsdp5y2010.dp05?g=160xx00us0648602.

_____. 2010b. Quick Facts. Mono County, California. Accessed on May 22, 2023. Available online: https://www.census.gov/quickfacts/monocountycalifornia.

_____. 2016a. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDP1Y2016.DP05?g=160XX00US648602.

_____. 2017a. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDP5Y2017.DP05?g=160XX00US648602.

_____. 2018a. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDP5Y2018.DP05?g=160XX00US648602.

_____. 2019a. American Community Survey (ACS) Selected Economic Characteristics: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSST1Y2019.S2503?g=160XX00US648602.

_____. 2020a. California. Race. Accessed May 22, 2023. Available online: https://data.census.gov/table/DECENNIALPL2020.P1?g=040XX00US06.

_____. 2020b. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDP5Y2020.DP05?g=160XX00US648602.

_____. 2020c. American Community Survey (ACS) Selected Economic Characteristics: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSST5Y2020.S2503?g=160XX00US648602.

_____. 2020d. Bridgeport, California. Race. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDT1Y2022.B02001?q=Bridgeport+CDP,+California&g=040XX00US06.

_____. 2020e. Lee Vining, California. Race. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDT1Y2022.B02001?q=Lee+Vining+CDP,+California&g=040XX00US06.

_____. 2021a. American Community Survey (ACS) Demographic and Housing Estimates: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSDP5YAIAN2021.DP05?g=160XX00US648602.

_____. 2021b. American Community Survey (ACS) Age and Sex: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSST5Y2021.S0101?g=160XX00US648602.

_____. 2021c. Income and Poverty: Mono City, California. Accessed May 19, 2023. Available online: https://data.census.gov/profile/Mono_County,_California?g=050XX00US06051.

_____. 2021d. Employment: Mono County, California. Accessed May 19, 2023. Available online: https://data.census.gov/profile/Mono_County,_California?g=050XX00US06051.

_____. 2021e. Industries: Mono City, California. Accessed May 22, 2023. Available online: https://data.census.gov/table/ACSST1Y2021.S2405?g=160XX00US648602.

_____. 2021f. Mono City, California. Accessed May 16, 2023. Available online: https://data.census.gov/profile/Mono_City_CDP,_California?g=160XX00US0648602.

7.5.14. Environmental Justice

FERC (Federal Energy Regulatory Commission). 2022. Equity Action Plan. Accessed April 19, 2023. Available online: https://www.ferc.gov/equity.

U.S. Census Bureau (United States Census Bureau). U.S.C. American Community Survey 5-year data (2020). Census.gov. Accessed April 21, 2023. Available online: https://www2.census.gov/geo/tiger/TIGER_DP/2020ACS/.

USEPA (United States Environmental Protection Agency). 2016. Technical guidance for assessing environmental justice in regulatory analysis. Accessed April 19, 2023. Available online: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.

7.6. Section 6.0 - Preliminary Issues and Studies List for Each Resource Area

FERC (Federal Energy Regulatory Commission). 2022. Comprehensive plans. Accessed April 19, 2023. Available online: https://cms.ferc.gov/media/comprehensive-plans.

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Appendix A

Exhibit G Map of the Project

OPERATING AREA AND CAPACITY OF LUNDY LAKE		
ELEVATION IN FEET	AREA OF WATER SURFACE IN ACRES	CAPACITY IN ACRE FEET
7,807.81	132	4113
7,798	117	2889
7,788	102	1794
7,778	87	850
7,768	58	85
7,766.43	51	0
OPERATING CAPACITY IN ACRE FEET		
NET STORAGE	4113	

I, BRIAN W. MOORE, Supervising Licensed Surveyor of Southern California Edison Company, do hereby certify that this map was prepared under my general supervision and is based upon maps of the United States Geological Survey, the Bureau of Reclamation of the Department of the Interior, The Department of Public Works of the State of California, and upon surveys made over a period of years by surveyors employed by Southern California Edison Company, and that the data obtained therein are correctly shown upon this map within reasonable accuracies as required in 18CFR4.39 & 18CFR4.41.

I have reviewed the project boundary shown herein. The licensee owns in fee simple all non-Federal lands as shown on this map that are inside the project boundary. The project boundary lines that are not contour lines (i.e. access areas and dams) were based on field surveys and recorded surveys and deeds of record.

BRIAN W. MOORE, P.L.S. No. 7533, California
SOUTHERN CALIFORNIA EDISON COMPANY

PROFESSIONAL LAND SURVEYOR
BRIAN W. MOORE
No. 7533
STATE OF CALIFORNIA

- PROJECT BOUNDARY
- V — LANDS OF THE UNITED STATES
- P — PATENTED LANDS
- Pa — PATENTED LANDS OWNED IN FEE BY THE APPLICANT
- FOUND CORNER OF THE PUBLIC LAND SURVEY
- FOUND 4"x4" REDWOOD POST 4' LONG 2' IN GROUND WITH BRASS PLATE STAMPED " R.C.E. 7211 " AT SOUTHERN CALIFORNIA EDISON COMPANY PROPERTY CORNERS, UNLESS OTHERWISE NOTED
- FOUND 2" IRON PIPE WITH SOUTHERN CALIFORNIA EDISON COMPANY BRASS CAP STAMPED " R.C.E. 7211 "
- FOUND 2" IRON PIPE WITH SOUTHERN CALIFORNIA EDISON COMPANY BRASS CAP, NUMBERED AS SHOWN, ON SURVEY CONTROL LINE
- TIE LINE

BASIS OF BEARING IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 3, FROM TRIANGULATION STATION "MONO" (U.S.C. & G.S., 1956) N554,388.65, E 2,387,838.94 TO TRIANGULATION STATION "POINT BLACK" (D.W.P.) N559,402.96. E 2,404,409.23, BEING, THE ZONE 3 GRID BEARING, N73°09'52" E FOR 17,318.71 FEET

BASIS OF ELEVATIONS IS THE 1929 U.S.C. & G.S. BENCH MARK " W-916" BEING A 3 INCH BRASS CAP IN A 10 INCH CONCRETE POST NEAR THE INTERSECTION OF U.S. HIGHWAY 31 IN SECTION 12, T2N, R25E, M.D.M. MEAN SEA LEVEL DATUM, ELEV. 6889.704

ALL DISTANCES, SHOWN ON THIS MAP, ARE GROUND DISTANCES.

EXHIBIT G

LUNDY LAKE AND DAM

PROJECT 1390

SOUTHERN CALIFORNIA EDISON COMPANY
ROSEMEAD CALIFORNIA

SCALE IN FEET
300 150 0 300 600 900 1200 1500

FERC APPROVED DATE: 08/24/2017

SHEET NO. 1

FERC No. 1390-51

486380

0+00.00 TO 1+55.00 IS 54 INCH I.D. STEEL PIPE
1+55.00 TO 2+70.00 IS 50 INCH I.D. STEEL PIPE
2+70.00 TO 122+59.40 IS 48 INCH I.D. STEEL PIPE — FLOWLINE
122+59.40 TO 127+93.34 IS 36 INCH I.D. STEEL PIPE
127+93.34 TO 142+88.56 IS 34 INCH I.D. STEEL PIPE
142+88.56 TO 151+17.54 IS 30 INCH I.D. STEEL PIPE
151+17.54 TO 161+68.21 IS 40 INCH I.D. STEEL PIPE — PENSTOCK

PROFILE

SCALE 1" = 1000' HORIZ.
1" = 200' VERT.

PIPE LINE AND PENSTOCK

P. I. NUMBER	STATION	COORDINATES NORTH	EAST	BEARING	DISTANCE
101	0+00.00	560,277.56	2,368,666.65	N 65°56'15" E	355.15
102	3+55.15	560,422.30	2,368,990.80	N 54°13'43" E	191.00
103	5+46.15	560,533.90	2,369,145.70	N 69°39'39" E	299.92
104	8+46.07	560,638.10	2,369,426.80	N 72°10'05" E	814.78
105	16+60.85	560,887.50	2,370,202.10	N 52°00'25" E	272.55
106	19+33.40	561,055.20	2,370,416.80	N 41°42'08" E	574.31
107	25+07.71	561,483.80	2,370,798.70	N 80°24'18" E	220.28
108	27+27.99	561,520.50	2,371,015.80	N 83°32'33" E	830.83
109	35+58.82	561,613.90	2,371,841.00	N 61°26'59" E	432.68
110	39+91.50	561,820.60	2,372,220.90	N 77°37'28" E	133.97
111	41+25.47	561,849.30	2,372,351.70	N 87°03'14" E	184.92
112	43+10.39	561,858.80	2,372,536.30	S 83°30'54" E	637.75
113	49+48.15	561,786.80	2,373,169.70	S 87°14'00" E	783.45
114	57+31.59	561,749.00	2,373,951.90	N 86°44'17" E	193.40
115	59+24.99	561,760.00	2,374,144.90	S 81°45'40" E	111.70
116	60+36.69	561.744.00	2,374,255.40	S 85°42'20" E	903.12
117	69+39.81	561,676.40	2,375,155.60	S 82°08'13" E	1178.08
118	81+17.89	561,515.30	2,376,322.10	N 87°29'07" E	693.17
119	88+11.06	561,545.70	2,377,014.30	S 86°53'59" E	275.62
120	90+86.68	561,530.80	2,377,289.40	S 78°56'19" E	1953.83
121	110+40.51	561,156.10	2,379,206.10	N 82°29'46" E	396.06
122	114+36.57	561,207.80	2,379,598.60	N 88°47'37" E	370.64
123	118+07.21	561,215.60	2,379,969.00	N 51°35'45" E	56.04
124	118+63.25	561,250.40	2,380,012.90	N 07°14'57" E	51.53
125	119+14.78	561,301.50	2,380,019.40	N 31°59'44" W	60.99
126	119+75.77	561,353.20	2,379,987.10	N 10°39'19" W	187.21
127	121+62.98	561,537.10	2,379,952.50	N 25°33'37" E	604.71
128	127+67.69	562,082.40	2,380,213.30	N 31°02'43" E	1579.61
129	143+47.30	563,435.20	2,381,027.60	N 57°30'55" E	775.62
130	151+22.92	563,851.60	2,381,681.60	N 64°45'25" E	1045.29
131	161+68.21	564,297.20	2,382,626.70	NORTH	41.70
201					

RETURN DITCH

P. I. NUMBER	STATION	COORDINATES NORTH	EAST	BEARING	DISTANCE
201	0+00.00	564,338.90	2,382,626.70	N 13°50'45" W	109.52
202	1+09.52	564,445.20	2,382,600.50	N 34°11'25" E	756.25
203	8+65.77	565,070.50	2,383,025.30	N 61°22'03" E	62.00
204	9+27.77	565,100.20	2,383,079.70	S 83°59'13" E	216.78
205	11+44.55	565,077.50	2,383,295.20	N 54°16'37" E	168.93
206	13+31.48	565,186.60	2,383,446.90	S 67°43'39" E	194.27
207	15+25.75	565,113.00	2,383,626.60	S 34°16'54" E	327.87
208	18+53.62	564,842.20	2,383,811.20	S 07°36'31" E	136.76
209	19+90.38	564,706.70	2,383,829.30	S 05°48'50" W	728.84
210	27+19.22	563,981.90	2,383,755.50	S 05°55'41" E	225.70
211	29+44.92	563,757.50	2,383.778.80	S 12°32'46" W	359.22
212	33+04.14	563,407.00	2,383,700.80	S 27°06'40" E	136.10
213	34+40.20	563,285.90	2,383,762.80	N 85°56'07" E	117.14
214	35+57.38	563,294.20	2,383,879.60	S 46°34'57" E	171.61
215	37+28.99	563,176.30	2,384,004.20	N 60°01'13" E	187.79
216	39+16.78	563,270.10	2,384,166.80	N 14°57'10" W	51.57
217	39+68.35	563,319.90	2,384,153.50	N 53°28'40" E	178.01
218	41+46.36	563,425.80	2,384,296.50	N 13°33'41" E	128.84
219	42+75.20	563,551.00	2,384,326.70	N 19°35'47" E	154.51
220	44+29.71	563,696.50	2,384,378.50	N 15°57'09" W	224.95
221	46+54.66	563,912.70	2,384,316.70	N 35°16'34" E	221.55
222	48+76.21	564,093.50	2,384,444.60	N 18°09'43" E	212.47
223	50+88.68	564,295.30	2,384,510.80	N 80°20'44" E	132.43
224	52+21.11	564,317.50	2,384,641.30	S 65°10'03" E	300.38
225	55+21.49	564,191.40	2,384,913.80	S 36°46'59" E	646.40
226	61+67.89	563,673.90	2,385,300.70	S 30°39'09" E	104.19
227	62+72.08	563,584.30	2,385,353.80	S 36°54'22" E	158.76
228	64+30.84	563,457.40	2,385,449.10	S 03°27'15" E	111.25
229	65+42.09	563,346.40	2,385,455.80	S 24°20'38" W	350.93
230	68+93.02	563,026.80	2,385,311.20	S 46°59'40" W	569.09
231	74+62.11	562,638.80	2,384,895.20	S 30°08'29" W	121.93
232	75+84.04	562,533.40	2,384,834.00	S 07°44'21" W	167.90
233	77+51.94	562,367.10	2,384,811.40		

ACCESS ROAD

P. I. NUMBER	STATION	COORDINATES NORTH	EAST	BEARING	DISTANCE
301	0+00.00	560,521.60	2,378,616.00	N 13°22'36" W	84.32
302	0+84.32	560,603.60	2,378,596.50	N 24°11'09" E	31.26
303	1+15.58	560,632.10	2,378,609.10	N 74°31'03" E	495.06
304	6+10.64	560,764.20	2,379,086.20	N 88°14'05" E	123.41
305	7+34.05	560,768.00	2,379,209.50	N 72°48'57" E	642.02
306	13+76.07	560,957.60	2,379,822.60	N 68°48'40" E	375.32
307	17+51.39	561,093.20	2,380,172.40	N 58°26'00" E	73.39
308	18+24.78	561,131.60	2,380,234.90	N 45°23'12" E	52.42
309	18+77.20	561,168.40	2,380,272.20	N 18°01'22" W	43.98
310	19+21.18	561,210.20	2,380,258.60	N 46°18'01" W	152.77
311	20+73.95	561,315.70	2,380,148.20	N 71°13'27" W	101.02
312	21+74.97	561,348.20	2,380,052.60	N 85°38'05" W	65.72
126	22+40.69	561,353.20	2,379,987.10		

BASIS OF BEARING IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 3, FROM TRIANGULATION STATION "MONO" (U.S.C. & G.S., 1956) N554,388.85, E 2,387,838.94 TO TRIANGULATION STATION "POINT BLACK" (D.W.P.) N559,402.96, E 2,404,409.23, BEING, THE ZONE 3 GRID BEARING, N73°09'52" E FOR 17,318.71 FEET

BASIS OF ELEVATIONS IS THE 1929 U.S.C. & G.S. BENCH MARK " W-916" BEING A 3 INCH BRASS CAP IN A 10 INCH CONCRETE POST NEAR THE INTERSECTION OF U.S. HIGHWAY 31 IN SECTION 12, T2N, R25E, M.D.M. MEAN SEA LEVEL DATUM, ELEV. 6889.704

ALL DISTANCES, SHOWN ON THIS MAP, ARE GROUND DISTANCES.

RETURN DITCH RIGHT OF WAY OVER V AND Pa LANDS IS 30 FEET IN WIDTH, BEING 15 FEET EACH SIDE OF THE CENTERLINE AS DESCRIBED, IN TABULATION FORM ON THIS SHEET.

ACCESS ROAD RIGHT OF WAY OVER V AND Pa LANDS IS 20 FEET IN WIDTH, BEING 10 FEET EACH SIDE OF THE CENTERLINE AS DESCRIBED, IN TABULATION FORM, ON THIS SHEET.

I, BRIAN W. MOORE, Supervising Licensed Surveyor of Southern California Edison Company, do hereby certify that this map was prepared under my general supervision and is based upon maps of the United States Geological Survey, the Bureau of Reclamation of the Department of the Interior, The Department of Public Works of the State of California, and upon surveys made over a period of years by surveyors employed by Southern California Edison Company, and that the data obtained therein are correctly shown upon this map within reasonable accuracies as required in 18CFR4.39 & 18CFR4.41.

I have reviewed the project boundary shown herein. The licensee owns in fee simple all non-Federal lands as shown on this map that are inside the project boundary. The project boundary lines that are not contour lines (i.e. access areas and dams) were based on field surveys and recorded surveys and deeds of record.

PROFESSIONAL LAND SURVEYOR BRIAN W. MOORE No. 7533 STATE OF CALIFORNIA

BRIAN W. MOORE, P.L.S. No. 7533, California
SOUTHERN CALIFORNIA EDISON COMPANY

LEGEND

- P.I. NUMBER ON PROJECT CENTERLINE
- V — LANDS OF THE UNITED STATES
- P — PATENTED LANDS
- Pa — PATENTED LANDS OWNED IN FEE BY THE APPLICANT
- FOUND CORNER OF THE PUBLIC LAND SURVEY
- FOUND 4" x 4" REDWOOD POST 4' LONG, 2' IN GROUND WITH BRASS PLATE STAMPED " R.C.E. 7211" AT SOUTHERN CALIFORNIA EDISON COMPANY PROPERTY CORNERS
- INYO NATIONAL FOREST BOUNDARY
- TIE LINE
- TRIANGULATION STATION
- TERMINI OF RIGHTS OR FEE ACQUIRED

EXHIBIT G

LUNDY PENSTOCK AND POWERHOUSE

PROJECT 1390

SOUTHERN CALIFORNIA EDISON COMPANY
ROSEMEAD CALIFORNIA

SCALE IN FEET
500 250 0 500 1000 1500 2000

FERC APPROVED DATE: 08/24/2017

Appendix B

Consultation Record

To Whom it May Concern:

We think you may be interested to learn more about the relicensing of the Lundy Hydroelectric Project (FERC P-1390). The hydropower facilities and related lands and waters are located along Mill Creek about 4 miles northwest of Mono Lake.

Find more information including maps, project details, and meeting information by visiting the Project website at www.sce.com/lundy.

PLEASE NOTE – future Project communications will be by email only, so please opt-in at the website above or by using the QR code.

Lundy Hydroelectric Project
Relicensing

I'm a fake stamp!

NAME OF RECIPIENT

ADDRESS LINE 1

ADDRESS LINE 2

CITY, STATE, ZIP CODE

SOUTHERN CALIFORNIA
EDISON®
Energy for What's Ahead℠

Agency Cont'd	Title	Address1	Address2	Address MERGED	City	State	Zip	Phone	Email
Bishop Field Office		787 North Main Street Suite 220		787 North Main Street, Suite 220	Bishop	CA	93514	(760) 872-1110	Nick.Buckmaster@wildlife.ca.gov
Mammoth and Mono Lake Ranger Districts	Lands Specialist	P.O. Box 148		P.O. Box 148	Mammoth Lakes	CA	93546	(760) 924-5534	sirons@fs.fed.us
Bishop Field Office		351 Pacu Ln, Suite 200, Bishop, CA 93514		351 Pacu Ln, Suite 200	Bishop	CA	93514	(760)872-5031	lprimosc@blm.gov
	Archaeologist	351 Pacu Ln, Suite 200, Bishop, CA 93514		351 Pacu Ln, Suite 200	Bishop	CA	93514		ghaverst@blm.gov
	Fish and Wildlife Biologist	1980 Old Mission Drive, Solvang, CA 93463		351 Pacu Ln, Suite 200	Bishop	CA	93514	530-604-2971	monique.sanchez@usda.gov
	Archaeologist	351 Pacu Ln Suite 200		351 Pacu Ln, Suite 200	Bishop	CA	93514	(760) 873-2516	jbeidl@fs.fed.us
	Hydro/Soils/Watershed	351 Pacu Ln Suite 200		351 Pacu Ln, Suite 200	Bishop	CA	93514	(760) 873-2457	tesllsworth@fs.fed.us
	Wildlife/Fish	351 Pacu Ln Suite 200		351 Pacu Ln, Suite 200	Bishop	CA	93514	(760) 873-2450	kschlick@fs.fed.us
Bishop Field Office		787 N Main Street			Bishop	CA	93514	760-567-0413	James.Erdman@wildlife.ca.gov
Rancho Cordova Field Office		1701 Nimbus Road, Suite #A			Rancho Cordova	CA	95670		beth.lawson@wildlife.ca.gov
Bishop Field Office		787 N Main St Bishop, CA 93514						(760) 873-7452	alyssa.marquez@wildlife.ca.gov
Bishop Field Office		787 N Main Street			Bishop	CA	93514		michael.tovar@wildlife.ca.gov
Ontario HQ		3602 Inland Empire Blvd	Suite C-220	3602 Inland Empire Blvd, Suite C-220	Ontario	CA	91764		Brandy.Wood@Wildlife.ca.gov
Bishop Field Office		787 North Main Street, Suite 220, Bishop, CA 93514							Rose.Banks@wildlife.ca.gov
Bishop Field Office		787 North Main Street, Suite 220, Bishop, CA 93514						(760) 835-4304	Patricia.Moyer@Wildlife.ca.gov
Bishop Field Office		787 North Main Street, Suite 220, Bishop, CA 93514						(760) 937-3924	steve.parmenter@wildlife.ca.gov
	Senior Environmental Scientist	1001 I Street, 24th Floor			Sacramento	CA	95814	916-341-5250	adam.cohen@waterboards.ca.gov
	Senior Water Resources Control Engineer	1001 I Street, 24th Floor			Sacramento	CA	95814	916-319-0294	Rajaa.Hassan@waterboards.ca.gov
	Environmental Scientist	1001 I Street, 24th Floor			Sacramento	CA	95814	(916) 341-5369	Philip.Meyer@Waterboards.ca.gov
	Water Divison	1001 I Street, 24th Floor			Sacramento	CA	95814	(916) 327-8702	bryan.muro@waterboards.ca.gov
	Senior Environmental Scientist	2501 Lake Tahoe Blvd.		R6 Lahontan Regional Water Quality Control Board	South Lake Tahoe	CA	96150	530-542-5466	daniel.sussman@waterboards.ca.gov
		P.O. Box 2000 Sacramento, CA 95814						(530) 542-5466	parker.thaler@Waterboards.ca.gov
	Compliance & Planning Division	2501 Lake Tahoe Blvd.		R6 Lahontan Regional Water Quality Control Board	South Lake Tahoe	CA	96150	(530) 542-5491	jennifer.watts@waterboards.ca.gov
		351 Pacu Lane, Suite 200 Bishop, CA 93514						760-873-2461	adam.barnett@usda.gov
		351 Pacu Ln, Suite 200, Bishop, CA 93514						(707) 562-9109	dawn.alvarez@usda.gov
		351 Pacu Ln, Suite 200, Bishop, CA 93514							ashley.blythehaverstock@usda.gov
		351 Pacu Ln, Suite 200, Bishop, CA 93514						(760) 873-2495	blake.engelhardt@usda.gov
		351 Pacu Ln, Suite 200, Bishop, CA 93514						(760) 873-2414	nora.gamino@usda.gov
	Mono Lake District Ranger	P.O. Box 429			Lee Vining	CA	93541	(760) 647-3044	stephanie.heller@usda.gov
		351 Pacu Lane #200		Inyo National Forest Supervisor's Office	Bishop	CA	93514		Richard.McNeill@usda.gov
									Erin.Moore@usda.gov
	Tirbal Relations Program Manager								Wilfred.Nabahe@usda.gov
	Assistant District Recreation Officer	P.O Box 429		Mono Lake Ranger District Office	Lee Vining	CA	93541		Eric.Rios-Bretado@usda.gov
		1980 Old Mission Drive, Solvang, CA 93463						530-604-2971	monique.sanchez@usda.gov
	Natural Resource Staff Officer	351 Pacu Lane #200		Inyo National Forest Supervisor's Office	Bishop	CA	93514		nathan.sill@usda.gov
									thomas.torres@usda.gov
	Hydrologist/ Flood Response Incident Commander								michael.wiese@usda.gov
		351 Pacu Ln, Suite 200, Bishop, CA 93514						(760) 873-2564	daniel.yarborough@usda.gov
		10806 Hwy. 120 W/P.O. Box 429 Lee Vining, CA 93541						760-965-6893	Jameisha.Washington@usda.gov
		1323 Club Drive, Vallejo, CA 94592							victor.aguirreorozco@usda.gov
		1323 Club Drive, Vallejo, CA 94592						(707) 562-8838	tristan.leong@usda.gov
	Information and Restoration Specialist	PO Box 161			San Geronimo	CA	94963	760-647-6386	greg@monolake.org
		PO Box 550		PO Box 550	Lee Vining	CA	93541	626-309-0415	
		Paiute Reservation 25669 Highway 6 PMBI Benton, CA 93512							
		6200 Harrison Place Coachella, CA 92236							

Agency Cont'd	Title	Address1	Address2	Address MERGED	City	State	Zip	Phone	Email
	Tribal Chairman	6200 Harrison Place Coachella, CA 92236							
	President	PO Box 237, Lee Vining, CA 93541							
	Vice-President	PO Box 237, Lee Vining, CA 93541							
	Secretary/Treasurer	PO Box 237, Lee Vining, CA 93541							
	Tribal Chairperson	PO Box 237, Lee Vining, CA 93541	(760) 938-1190						
	Tribal Secretary/Treasurer/Liaison	PO Box 237, Lee Vining, CA 93541	(760) 873-8145						
	Director, Legal Services	2140 Shattuck Avenue, Ste. 801		2140 Shattuck Avenue, Ste. 801	Berkeley	CA	94704-1229		rrcollins@waterpowerlaw.com
Mono Lake Committee		319 Goodhill Rd			Kentfield	CALIF	94904-2611		
		Box 217	532 E. Mono Lake Drive		Lee Vining	CALIF	93541		hydroesq@schat.net
	Junior Senator for California	2501 Tulare Street, Suite 4290		2501 Tulare Street, Suite 4290 Fresno, CA 93721	Fresno	CA	93721	(202) 224-3553	
	Congressional District 3 - Representative	383 Main Street (The Toy Store)		383 Main Street (The Toy Store), Quincy, CA 95971	Quincy	CA	93971	(202) 225-2523	
	County Supervisor-District 1	24 Bryant Street Annex II		24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 924-1806	jkreitz@mono.ca.gov
	County Supervisor-District 2	24 Bryant Street Annex II		24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 965-9784	rduggan@mono.ca.gov
	County Supervisor-District 3	24 Bryant Street Annex II		24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(909) 325-0999	bgardner@mono.ca.gov
	County Supervisor-District 4	24 Bryant Street Annex II	P.O. Box 1236	24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 932-5532	jpeters@mono.ca.gov
	County Supervisor-District 5	24 Bryant Street Annex II		24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 221-4325	lsalcido@mono.ca.gov
	Senior Senator for California	2500 Tulare Street, Suite 4290		2500 Tulare Street, Suite 4290 Fresno, CA 93721	Fresno	CA	93721	(202) 224-3841	
	District Attorney	Mono County Courthouse, 278 Main Street		Mono County Courthouse, 278 Main Street, Bridgeport, C	Bridgeport	CA	93517	(760) 924-1710	districtattorney@mono.ca.gov
	District Attorney	Mono County Courthouse, 278 Main Street		Mono County Courthouse, 278 Main Street, Bridgeport, C	Bridgeport	CA	93517	(760) 932-5550	districtattorney@mono.ca.gov
	Public Works Director	75 N. School Street, Annex I		75 N. School Street, Annex I Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 709-0427	proten@mono.ca.gov
	Public Works - Parks and Recreation- Director of Facilities	74 N. School Street, PO Box 457		74 N. School Street, PO Box 457 Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 932-5440	jdavenport@mono.ca.gov
	Lee Vining Road Supervisor	74 North School Street	PO Box 457		Bridgeport	CA	93517	(760) 647-6336	jsmall@mono.ca.gov
	Sheriff	24 Bryant Street Annex II		24 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 932-7549	ibraun@monosheriff.org
	Treasurer-Tax Collector	25 Bryant Street Annex II		25 Bryant Street Annex II Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 932-5480	treasurer@mono.ca.gov
	Administrative Officer	74 N. School Street, Annex I		74 N. School Street, Annex I Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 932-5414	rlawton@mono.ca.gov
	Planning - Bridgeport	74 N. School Street, Annex I		74 N. School Street, Annex I Bridgeport, CA 93517	Bridgeport	CA	93517	(760) 924-1800	comdev@mono.ca.gov
	Planning - Mammoth Lakes	1290 Tavern Rd. PO Box 347		1290 Tavern Rd. PO Box 347 Mammoth Lakes, CA 9354	Mammoth Lakes	CA	93546	(760) 932-5420	comdev@mono.ca.gov
	Water System Contacts	P. O. BOX 266		P. O. BOX 266, Lee Vining, CA 93541	Lee Vining	CA	93541	760-647-6007	leeviningpud@gmail.com
	Division of Drinking Water District	1290 Tavern Rd. PO Box 347		1290 Tavern Rd. PO Box 347 Mammoth Lakes, CA 9354	Mammoth Lakes	CA	93546	760-924-1830	DDW-DWW@Waterboards.ca.gov
Bristlecone Chapter	Public Works Director	P. O. Box 364		P. O. Box 364	Bishop	CA	93515	(760) 873-8023	kqinland16@gmail.com
	Public Works - Parks and Recreation- Director of Facilities	1248 East Oak Avenue, #D		1248 East Oak Avenue, #D	Woodland	CA	95776		
Sierra Headwaters Region	Lee Vining Road Supervisor	P.O. Box 3442		P.O. Box 3442	Mammoth Lakes	CA	93546	(760) 709-1492	mdrew@caltrout.org
	Sheriff	P.O. Box 624		P.O. Box 624	Bishop	CA	93515		
	Treasurer-Tax Collector	250 N. Fowler St	P.O. Box 755	250 N. Fowler St, P.O Box 755	Bishop	CA	93515		
	Administrative Officer	819 North Barlow		819 North Barlow	Bishop	CA	93514	(760) 873-6500	jora@friendsoftheinyo.org
	Planning - Bridgeport	1418 20th Street, Suite 100		1418 20th Street, Suite 100	Sacramento	CA	95811		
California-Nevada City	Planning - Mammoth Lakes	120 Union Street		120 Union Street	Nevada City	CA	95959		
	Water System Contacts	300 Mandich Street		300 Mandich Street	Bishop	CA	93514	(760) 873-0256	eric.tillemans@ladwp.com
	Division of Drinking Water District	16 Mono Lake Avenue			Lee Vining	CA	93541	760-647-0047	
		P.O. Box 3268	2520 Main Street	P.O. Box 3268 2520 Main Street	Mammoth Lakes	CA	93546		
		P.O. Box 7382		P.O. Box 7382	Mammoth Lakes	CA	93546		
	President	P.O. Box 100 PMB 432		P.O. Box 100 PMB 432	Mammoth Lakes	CA	93546-0100		
		P.O. Box 1791		P.O. Box 1791	Bishop	CA	93515	(760) 937-4967	
		690 N Main St		690 N Main St	Bishop	CA	93514		
	Executive Director	1331 Garden Highway		1331 Garden Highway	Sacramento	CA	95833		
		10183 Truckee AirP.O.rt Rd #202		10183 Truckee Airport Rd #202	Truckee	CA	96161		
Toiyabe Chapter		2101 Webster St Suite 1300		2101 Webster St, Suite 1300	Oakland	CA	94612		
	Executive Director	P.O. Box 7989		P.O. Box 7989	South Lake Tahoe	CA	96158		
	President	P.O. Box 1183		P.O. Box 1183	Bishop	CA	93515		
California Field Office		201 Mission Street	4th Floor	201 Mission Street 4th Floor	San Francisco	CA	94105		
Eastern Sierra Chapter		P.O. Box 7399		P.O. Box 7399	Mammoth Lakes	CA	93546		
		117 Columbine Drive			Bishop	CA	93514		aspendellpoa@gmail.com
	Executive Director	401 F Street NW	Suite 308	401 F Street NW, Suite 308	Washington	DC	001-2637		
U.S. Department of the Interior	Regional Director	2800 Cottage Way		2800 Cottage Way	Sacramento	CA	95825		
U.S. Department of the Interior	Director	1849 C Street NW	MS 2624 MIB	1849 C Street NW MS 2624 MIB	Washington	DC	20240		
	Regional Administrator	1111 Broadway	Suite 1200	1111 Broadway, Suite 1200	Oakland	CA	607-4052		
	Director	500 C Street SW		500 C Street SW	Washington	DC	20472		
Division of Dam Safety and Inspections	Regional Engineer	901 Market Street	Suite 350	901 Market Street, Suite 350	San Francisco	CA	94103		
One Jackson Center	Regional Director	1111 Jackson Street	Suite 700	1111 Jackson Street, Suite 700	Oakland	CA	94607		
U.S. Department of the Interior	Director	1849 C Street NW		1849 C Street NW	Washington	DC	20240		
	District Engineer	P.O. Box 2711		P.O. Box 2711	Los Angeles	CA	053-2325		
	District Engineer	1325 J Street		1325 J Street	Sacramento	CA	814-2922		
	Division Commander	1455 Market St		1455 Market St	San Francisco	CA	103-1398		
	District Engineer	1455 Market St		1455 Market St	San Francisco	CA	103-1398		
	Commander	441 G Street NW		441 G Street NW	Washington	DC	20314		
U.S. Department of the Interior	State Director	2800 Cottage Way	Room W-1834	2800 Cottage Way Room W-1834	Sacramento	CA	825-1886		
U.S. Department of the Interior	Director	1849 C Street NW	MIB 5655	1849 C Street NW MIB 5655	Washington	DC	20240		
U.S. Department of the Interior	Regional Director	P.O. Box 61470		P.O. Box 61470	Boulder City	NV	006-1470		
U.S. Department of the Interior	Commissioner	1849 C Street NW		1849 C Street NW	Washington	DC	20240		
U.S. Department of the Interior	Regional Director	2800 Cottage Way		2800 Cottage Way	Sacramento	CA	825-1886		
	Regional Forester	1323 Club Drive		1323 Club Drive	Vallejo	CA	94592		
	Chief	1400 Independence Ave SW		1400 Independence Ave SW	Washington	DC	250-0003		
	Regional Forester	324 25th Street		324 25th Street	Ogden	UT	84401		
	Regional Director	2800 Cottage Way	Suite W-2606	2800 Cottage Way, Suite W-2606	Sacramento	CA	825-1846		
Carlsbad Field Office	Field Supervisor	6010 Hidden Valley Road		6010 Hidden Valley Road	Carlsbad	CA	011-4219		

Agency Cont'd	Title	Address1	Address2	Address MERGED	City	State	Zip	Phone	Email
Sacramento Field Office	Field Supervisor	2800 Cottage Way	Room W-2605	2800 Cottage Way Room W-2605	Sacramento	CA	5825-1846		
U.S. Department of the Interior	Director	1849 C Street NW	Room 3238	1849 C Street NW Room 3238	Washington	DC	0240-0001		
Ventura Field Office	Field Supervisor	2493 Portola Road	Suite B	2493 Portola Road, Suite B	Ventura	CA	3003-7726		
		1400 Independence Avenue SW		1400 Independence Avenue SW	Washington	DC	0250-0003		
	Regional Director	345 Middlefield Road		345 Middlefield Road	Menlo Park	CA	94025		
U.S. Department of the Interior	Director	12201 Sunrise Valley Dr		12201 Sunrise Valley Dr	Reston	VA	20192		
	Executive Director	1340 Central Blvd.	Suite 210	1340 Central Blvd., Suite 210	Fredericksburg	VA	22401		
		1101 14th St. NW	Suite 1400	1101 14th St. NW, Suite 1400	Washington	DC	20005-		
	Executive Director	P.O. Box 1540		P.O. Box 1540	Cullowhee	NC	28723		
	Director	2340 Brisbane Street		2340 Brisbane Street	West Sacramento	CA	95691-		
	Mt. Shasta Program Manager	701 S. Mt. Shasta Blvd		701 S. Mt. Shasta Blvd	Mt. Shasta	CA	96067		
	North Coast Manager	1976 Archer Rd		1976 Archer Rd	McKinleyville	CA	95519		
	Southern California Program Manager	1810 14th St	Suite 201	1810 14th St, Suite 201	Santa Monica	CA	90404		
	Conservation Director	870 Market St	Suite 528	870 Market St, Suite 528	San Francisco	CA	94102		
	California Wilderness Coordinator	655 Mongomery St	Suite 1000	655 Mongomery St, Suite 1000	San Francisco	CA	94111		
	Conservation Director	1418 20th St	Suite 100	1418 20th St, Suite 100	Sacramento	CA	95811		
	Hydro Reform Policy Advocate	1418 20th St	Suite 100	1418 20th St, Suite 100	Sacramento	CA	95811		
	Executive Director	1107 Ninth St	Suite 360	1107 Ninth St, Suite 360	Sacramento	CA	95814		
	California Water Project Director	2239 5th Street		2239 5th Street	Berkeley	CA	94710-		
California Department of Water Resources		5550 Skylane Blvd	Suite A	5550 Skylane Blvd, Suite A	Santa Rosa	CA	95403		
California Department of Water Resources		320 West Fourth Street	Suite 200	320 West Fourth Street, Suite 200	Los Angeles	CA	90013		
California Department of Water Resources		9174 Sky Park Court	Suite 100	9174 Sky Park Court, Suite 100	San Diego	CA	2124-1331		
California Department of Water Resources		2501 Lake Tahoe Blvd		2501 Lake Tahoe Blvd	South Lake Tahoe	CA	96150		
California Department of Water Resources		1515 Clay Street	Suite 1400	1515 Clay Street, Suite 1400	Oakland	CA	94612		
California Department of Water Resources		73-720 Fred Waring Drive	Suite 100	73-720 Fred Waring Drive, Suite 100	Palm Desert	CA	92260		
California Department of Water Resources		11020 Sun Center Drive	Suite 200	11020 Sun Center Drive, Suite 200	Rancho Cordova	CA	5670-6114		
California Department of Water Resources		895 Aerovista Place	Suite 101	895 Aerovista Place, Suite 101	San Luis ObisP.O.	CA	3401-5427		
California Department of Water Resources		3737 Main Street	Suite 500	3737 Main Street, Suite 500	Riverside	CA	2501-3339		
California Department of Water Resources		P.O. Box 100		P.O. Box 100	Sacramento	CA	95814		
Department of Parks & Recreation	SHP.O.	P.O. Box 942896		P.O. Box 942896	Sacramento	CA	5296-0001		
	Attorney General	1300 I Street	Suite 1740	1300 I Street, Suite 1740	Sacramento	CA	95814		
	Governor	State Capitol		State Capitol	Sacramento	CA	95814		
	Chairman	50 Tu Su Lane		50 Tu Su Lane	Bishop	CA	93514		
	Chairperson	567 Yellow Jacket Rd			Benton	CA	93512		
	Chairperson	P.O. Box 700			Big Pine	CA	93513		
	Chairperson	P.O. Box 37			Bridgeport	CA	93517		
	Chairperson	P.O. Box 67			Independence	CA	93526		
		P.O. Box 29			Lee Vining	CA	93541		
	Chairperson	P.O. Box 206			Death Valley	CA	92328		

Angela Whelpley

Subject: Lundy Hydroelectric Project - Introduction to Relicensing
Location: Microsoft Teams Meeting

Start: Tue 12/5/2023 1:00 PM
End: Tue 12/5/2023 2:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Finlay Anderson
Required Attendees Finlay Anderson; Audry Williams; Matthew Woodhall; Angela Whelpley; Brad Blood; Allison Rudalevige; Heather Bowen Neff; Lynn Johnson; Jay King
Optional Attendees: Nick.Buckmaster@wildlife.ca.gov; michael.tovar@wildlife.ca.gov; Ryan.Cooper@wildlife.ca.gov; Patricia.Moyer@Wildlife.ca.gov; adam.cohen@waterboards.ca.gov; sheila.irons@usda.gov; Thomas.torres@usda.gov; Stephanie.heller@usda.gov; adam.barnett@usda.gov; lisa@monolake.org; robbie@monolake.org; geoff@monolake.org; bartshe@monolake.org; greg@monolake.org; hydroesq@schat.net; lprimosc@blm.gov; Saeed.Jorat@ladwp.com; Mark.Ching@ladwp.com; Jnalder@mono.ca.gov; proten@mono.ca.gov; pmcfarland395@gmail.com; dechambeaucreekfdn@gmail.com; ssmiwuknation@gmail.com; claymiwumati@gmail.com; secretary@southernsierramiwuknation.org; ndondero21@gmail.com; director@southernsierramiwuknation.org; Vicechair@southernsierramiwuknation.org; mariposamiwuk@sti.net; preservation@southernsierramiwuknation.org; numugrace@gmail.com; cheyenne.stone@bigpinepaiute.org; d.gutierrez@bigpinepaiute.org; s.manning@bigpinepaiute.org; meryl.picard@bishoppaiute.org; darren.delgado@bishoppaiute.org; kutzanuumu@yahoo.com; chair@bridgeportindiancolony.com; admin@bridgeportindiancolony.com; culture@bridgeportindiancolony.com; carl@fortindependence.com; falconkeeper22@gmail.com; chair@lppsr.org; patsiata@yahoo.com; char54lange@gmail.com; jsheltraw@monolaketribe.us; dtonenna@gmail.com; Rwgoode911@hotmail.com; fbeihn@nfr-nsn.gov; cmcdonald@northforkrancheria-nsn.gov; efink@nfr-nsn.gov; one_mug@yahoo.com; administrator@timbisha.com; environmental@timbisha.com; THPO@timbisha.com; andrea@mewuk.com; jon@mewuk.com; rfuller@mewuk.com; s.saulque@bentontribe.org; Lscott@wrpt.org; lucy_basket4@yahoo.com; nayanake@comcast.net; nativearchdoc@yahoo.com; serrell.smokey@washoetribe.us; THPO@WashoeTribe.us; ashley.blythehaverstock@usda.gov; jacqueline.beidl@usda.gov; Wilfred.Nabahe@usda.gov

All – as follow up to Matthew Woodhall's email from 10/27, here a meeting invite to a Lundy hydroelectric project relicensing orientation call.

Microsoft Teams meeting

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[Click here to join the meeting]

Meeting ID: 262 447 838 45
Passcode: DmBgE3
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Angela Whelpley

From: Finlay Anderson
Sent: Tuesday, October 31, 2023 11:03 AM
To: Angela Whelpley
Subject: FW: Lundy Project Relicensing Kick-off Meeting
Attachments: Lundy Hydroelectric Project - Project Summary.docx

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From: Matthew Woodhall <Matthew.Woodhall@sce.com>
Sent: Friday, October 27, 2023 3:51 PM
To: Matthew Woodhall <Matthew.Woodhall@sce.com>
Cc: Martin Ostendorf <Martin.Ostendorf@sce.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Matthew C Paruolo <MATTHEW.PARUOLO@SCE.COM>; Kelly Larimer <Kelly.Larimer@KleinschmidtGroup.com>
Subject: Lundy Project Relicensing Kick-off Meeting

All –
Southern California Edison (SCE) is actively preparing to initiate the relicensing of the Lundy Hydroelectric Project, FERC No. 1390. The Project's FERC license will expire on February 28, 2029 which means that SCE must begin relicensing between 5 and 5.5 years in advance (i.e., between now and the end of February 2024). A brief overview of the Project and how it operates is attached; and additional information about the process may be found at www.sce.com/lundy . You are receiving this email because you have been identified as belonging to an interested party that may want to be involved throughout the process. Also, please discuss within your organization points of contact, and let me know if there is someone else who should be receiving this and future emails.

While SCE is planning to formally begin the process at the later end of this filing window, we are holding some early discussions with stakeholders so that we can be better prepared and anticipate questions you might have about the project. SCE would like to meet with agencies and other interested parties to discuss the Project and any potential issues you feel may come up during relicensing. As such, we invite you to join us for a virtual presentation and discussion on December 5, 2023 at 10:00am to learn about the Lundy Project and discuss any specific areas of interest or concern. Shortly, you will receive a meeting invite from our consultant, Kleinschmidt, with a link to the virtual meeting. If this time does not work for you, let me know and we can arrange an alternate time to review the information with you.

We look forward to hearing from you and if there are any other questions, please feel free to reach out to me.

Matthew C. Woodhall
Southern California Edison
Generation-Regulatory Support Services
909-362-1764 - Cell
626-302-9596 - Office

Angela Whelpley

From: Matthew Woodhall <Matthew.Woodhall@sce.com>
Sent: Friday, June 2, 2023 7:14 PM
Subject: Lundy P-1390 Relicensing Kick-off
Attachments: Project Summary - SCE Lundy P-1390.docx

All –
SCE is actively preparing to initiate the relicensing of the Lundy Hydroelectric Project, FERC No. 1390. The Project's FERC license will expire on February 28, 2029 which means that SCE must initiate relicensing between 5 and 5.5 years in advance (i.e., between this September and the end of next February). A brief overview of the Project and how it operates is attached. You are receiving this email because you have been identified as belonging to an interested party that may want to be involved throughout the process. Also, please discuss within your organization points of contact, and let me know if there is someone else who should be receiving this and future emails.

While SCE is planning to formally initiate the process at the later end of this filing window, we are initiating some early discussions with stakeholders so that we can be better prepared. Additionally, this year's record snow-pack presents an opportunity to potentially observe hydrologic conditions not previously seen. We are therefore contemplating the initiation of an "early" study to take advantage of these conditions, and are seeking input from you on our approach.

IMPORTANT-Please take a moment to review:
I am attaching two links for doodle polls to get us started. The first poll will help us schedule an introductory meeting at the end of June to provide a project overview, discuss key resources, learn about your interests and introduce our relicensing team. We will also discuss our proposed early study and distribute a study plan for your review. Our second doodle poll is intended to find a time to collect feedback on and concurrent with the proposed study. If you could complete these polls by June 7, we will get calendar appointments out. The appointments will come from our relicensing lead (Kleinschmidt Associates).

We look forward to hearing from you and if there are any other questions, please feel free to reach out to me.

Matthew C. Woodhall
Southern California Edison
Generation-Regulatory Support Services
909-362-1764 - Cell
626-302-9596 - Office

Angela Whelpley

From: Matthew Woodhall <Matthew.Woodhall@sce.com>
Sent: Friday, June 16, 2023 5:49 PM
To: Matthew Woodhall
Cc: Martin Ostendorf; Finlay Anderson; Angela Whelpley; Kelly Larimer
Subject: Lundy Relicensing UPDATE

All –

A couple of weeks ago I circulated a request for availability for an early discussion about SCE's plans to relicense the Lundy Hydroelectric Project. We are currently planning on formally starting that process in early February.

After reviewing folks' availability we have decided to delay this outreach for the time being. Between summer schedules and busy field seasons, it's clear that there is no rush to start this discussion. Instead, we will be reaching out with some basic information and requests for your thoughts to help guide us as we prepare for the process. We will re-evaluate opportunities to connect as we approach the fall. In the meantime, feel free to reach out with questions.

Thanks

Matthew C. Woodhall
Southern California Edison
Generation-Regulatory Support Services
909-362-1764 - Cell
626-302-9596 - Office

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MEETING NOTES*
LUNDY, FERC PROJECT NO. 1390
INTRODUCTION TO RELICENSING MEETING
DECEMBER 5, 2023, 10:00 AM–11:30 AM

Note: *These meeting notes are documentation of general discussions from the meeting held on the above-noted date and focus on stakeholder questions and comments. These notes are not a verbatim account of proceedings and do not represent any final decisions or official documentation for the Project or participating agencies.*

These meeting notes are being attached to a PDF of the PowerPoint presentation shared with meeting attendees during the December 5, 2023 meeting.

1.0 ATTENDEES

Relicensing Team Members
Matt Woodhall, SCE
Seth Carr, SCE
Audry Williams, SCE
Matthew C. Paruolo, SCE
Finlay Anderson, Kleinschmidt
Kelly Larimer, Kleinschmidt
Angela Whelpley, Kleinschmidt
Meta Bunse, JRP Historical
Heather Neff, Stillwater Sciences
Lynn Johnson, TEAM Environmental
Edith Read, E Read and Associates
Allison Rudalevige, Psomas
Brad Blood, Psomas
Jay King, Far Western

Agencies and Interested Stakeholders
Adam Barnett, U.S. Forest Service (USFS)
Sheila Irons, USFS
Jaqueline Beidl, USFS
Ashley Blythe Haverstock, USFS
Stephanie Heller, USFS
Adam Cohen, State Water Resources Control Board (SWRCB)
Bryan Muro, SWRCB
James Noss, SWRCB
Beth Lawson, California Department of Fish and Wildlife (CDFW)
Ryan Cooper, CDFW
Graham Meese, CDFW
Michael Tovar, CDFW
Trisha Moyer, CDFW
Robbie Di Paolo, Mono Lake Committee (MLC)
Greg Reis, MLC
Geoff McQuilkin, MLC
Bartshe Miller, MLC
Jennifer Czekalla, Los Angeles Department of Water and Power (LADWP)
Saeed Jorat, LADWP
Deam Tonenna, Mono Lake Kootzaduka'a Tribe
Jazzmyn Gegere (Brochini), Southern Sierra Miwuk Nation
Charlotte Lange, Mono Lake Tribe

2.0 WELCOME AND INTRODUCTIONS

Finlay Anderson (Kleinschmidt) welcomed everyone to the meeting, gave an overview of the meeting, reviewed the agenda, and reviewed meeting procedures and best practices for participating.

Audry Williams (SCE) provided a land acknowledgement noting the Lundy Project is located on the Mono Lake Kutzadikaa Tribes' traditional lands, which they have stewarded for generations

Matthew Woodhall (SCE) provided a safety minute

A Lundy Flyover Video [Lundy Flyover Video] was played to provide context for the day's discussion.

3.0 PROJECT OVERVIEW [SEE SLIDES 8-15]

Matthew provided an overview of the Lundy Project as well as explained the location, facilities and operations of the Lundy Project. Additionally, Matthew reviewed a flow diagram of how water flows through the Lundy Project. Matthew discussed the adjudicated water rights, and the priority of those rights at the Lundy Project. An opportunity was given for questions or comments, none were received.

4.0 DISCUSSION OF RESOURCE AREAS [SEE SLIDES 16-41]

Heather Neff (Stillwater Sciences) presented Water Resources, Geology, Soils, Geomorphology, Water Quality, Fish, Aquatic Habitat, and BMI. Studies being proposed in the Pre-Application Document (PAD) were presented at the end of each resource area, as applicable.

- Comment from Bartshe Miller: Suggestion to conduct water quality testing upstream of Lundy Lake due to old mining sites

  Response: Metals are being considered in the Water Quality regime.

Allison Rudalevige and Brad Blood presented Terrestrial Resources, including botanical, wildlife, floodplains and wetlands, and RTE. Studies being proposed in the Pre-Application Document (PAD) were presented at the end of each resource area, as applicable.

- Comment from Bartshe Miller: The Endangered Species Act (ESA) recently, August 2023, added the Pinyon Jay as a candidate species.

  Response: the Pinyon Jay species will be added to the list in the PAD.

Angela Whelpley presented Recreation Resources. Studies being proposed in the Pre-Application Document (PAD) were presented at the end of the resource area.

- No questions or comments were received.

Jay King and Meta Bunse presented Cultural Resources. Studies being proposed in the Pre-Application Document (PAD) were presented at the end of the resource area.

- No questions or comments were received.

Audry presented Tribal Resources. Studies being proposed in the Pre-Application Document (PAD) were presented at the end of the resource area.

- No questions or comments were received.

5.0 FERC PROCESS AND SCHEDULE [SEE SLIDES 42-50]

Finlay provided an overview of the Federal Energy Regulatory Commission (FERC), the FERC relicensing process, relicensing schedule and what the role of agencies and interested stakeholders are in the relicensing process. Finlay also discussed how agencies and interested stakeholders can participate in the relicensing process.

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Lundy Hydroelectric Project Relicensing FERC No. 1390

December 2023

Relicensing Introduction

Welcome!

Using the chat, please write your name and organization, if applicable.

Land Acknowledgment

SCE would like to take a moment and recognize that the Lundy Project is located on the Mono Lake Kutzadikaa Tribes' traditional lands, which they have stewarded for generations.

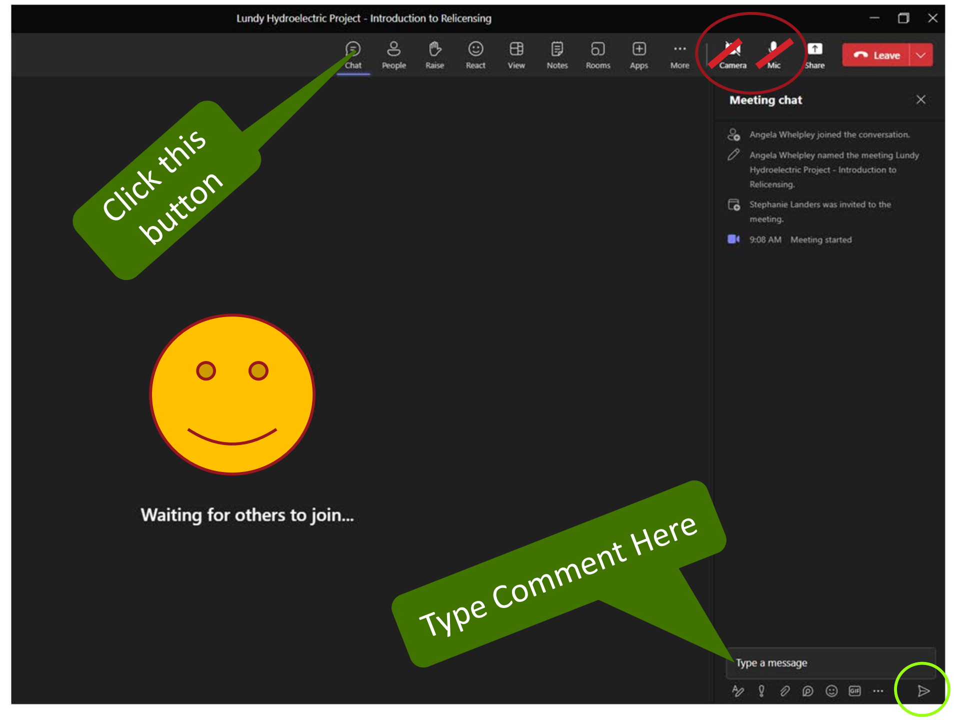
Agenda

- Welcome & Introductions
  - Safety Moment
  - Meeting Guidelines
  - Relicensing Team introductions
- Project Overview
- Resource Areas
- FERC Process Overview
- Relicensing Schedule
- Questions

Safety Moment

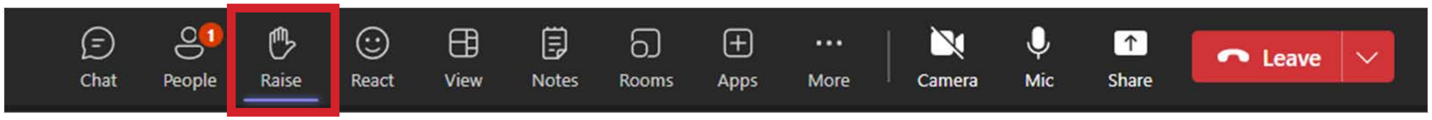
Meeting Tips and Guidelines

- Please remain on mute unless called on
- Turn off camera, unless speaking
- Consider shutting down other background programs for best meeting audio/viewing quality
- Utilize the chat box during the presentation for questions or comments
- Questions will be answered in appropriate Q&A sections as time allows



How to Ask a Question

- Use the chat box or ask question verbally
- Use the “Raise Hand” feature to indicate you would like to ask your question verbally



- Please wait to be called on and then unmute your line
  - Introduce yourself (name and affiliation) prior to speaking

Lundy Relicensing Team

SCE Team

Matthew Woodhall
Project Manager

Martin Ostendorf
Senior Manager

Audry Williams
Cultural Resources Manager

Seth Carr
Operations Manager

Lyle Laven
Production Manager

Consultant Team

Finlay Anderson
Project Manager

Angela Whelpley
Assistant Project Manager, Recreation and Land Use

Kelly Larimer
Project Director

Brad Blood and **Allison Rudalevige**
Terrestrial and Botanical

Heather Neff
Fish and Aquatics

Lynn Johnson
Tribal

Jay King and **Meta Bunse**
Cultural and Historic Property

Edith Read
Botanical Advisor

Project Overview

Photo Credit – CASC

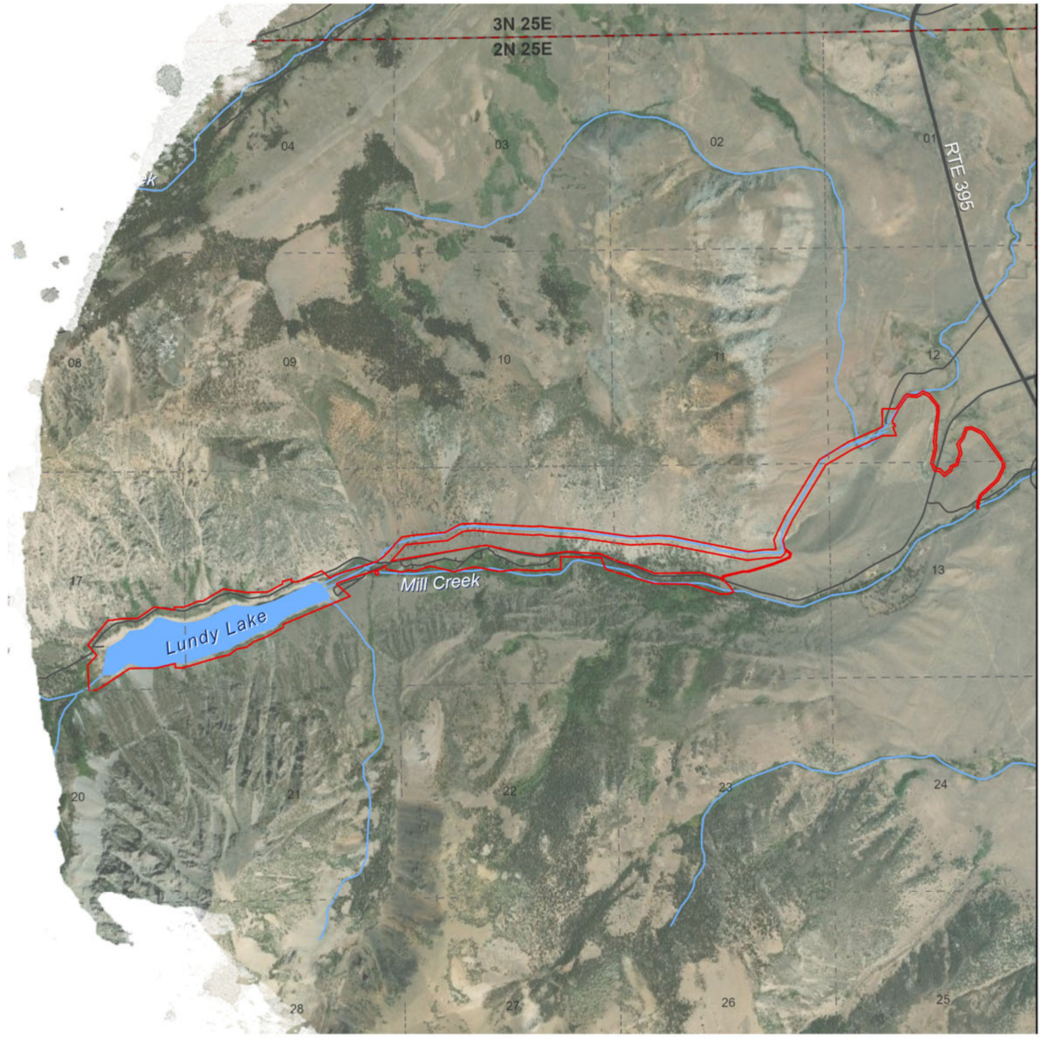
- 30-year license expires February 28, 2029
- Formal FERC process to begin February 2024 (Pre-Application Document [PAD] & Notice of Intent [NOI] filing)
- Draft License Application (DLA) to be filed Fall 2026
- No changes to operations or facilities anticipated

Project Location

- East slope of the Sierra Nevada
- Within a small portion of the Inyo National Forest
- Mono County, California
- Private Lands are primarily SCE
- Mill Creek

Project Facilities

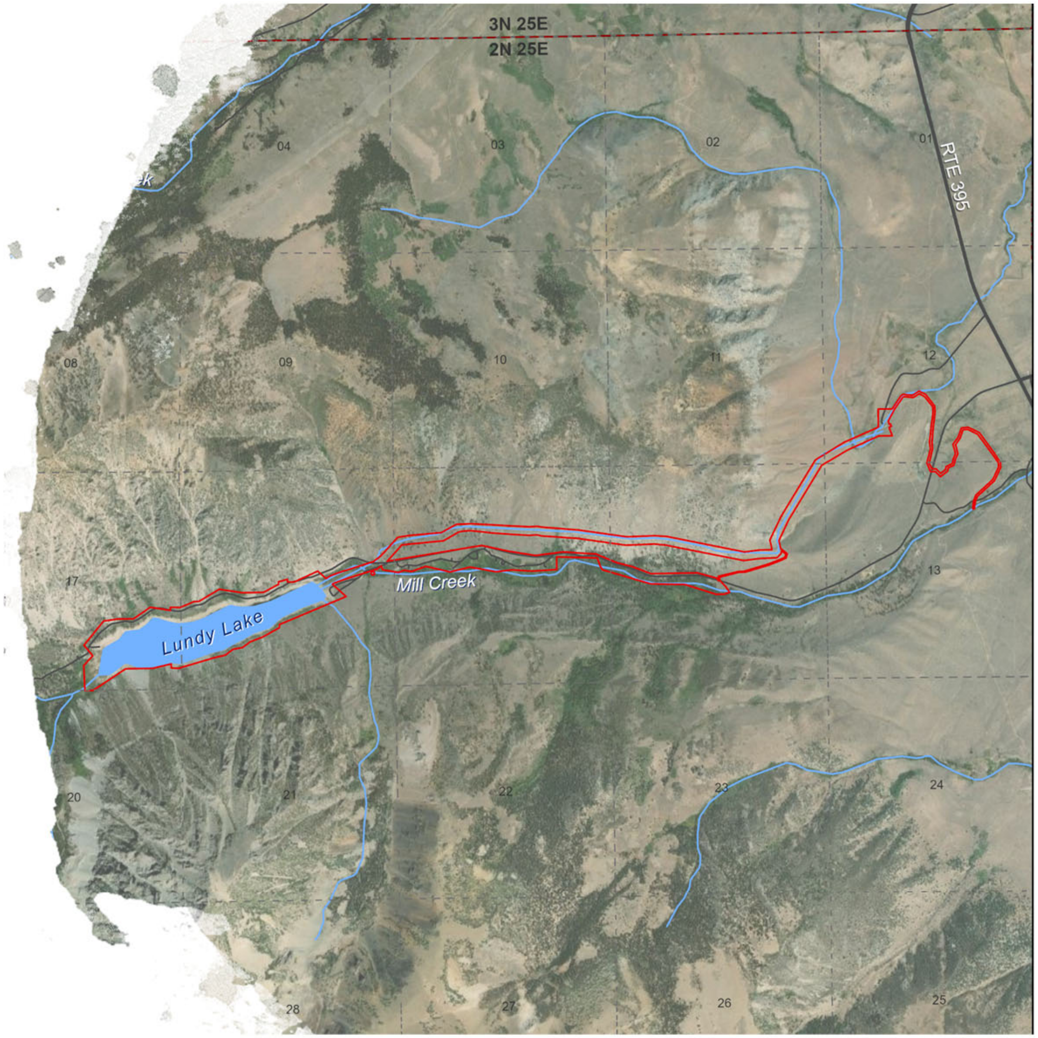
- Lundy Dam and Lake
  - Headwaters of Mill Creek
  - 73-acre reservoir
- Lundy Powerhouse
  - 3.0 megawatts
- Flowline and penstock connecting Lundy Lake and Lundy Powerhouse
- Splitterbox below powerhouse to manage flows for water-right holders

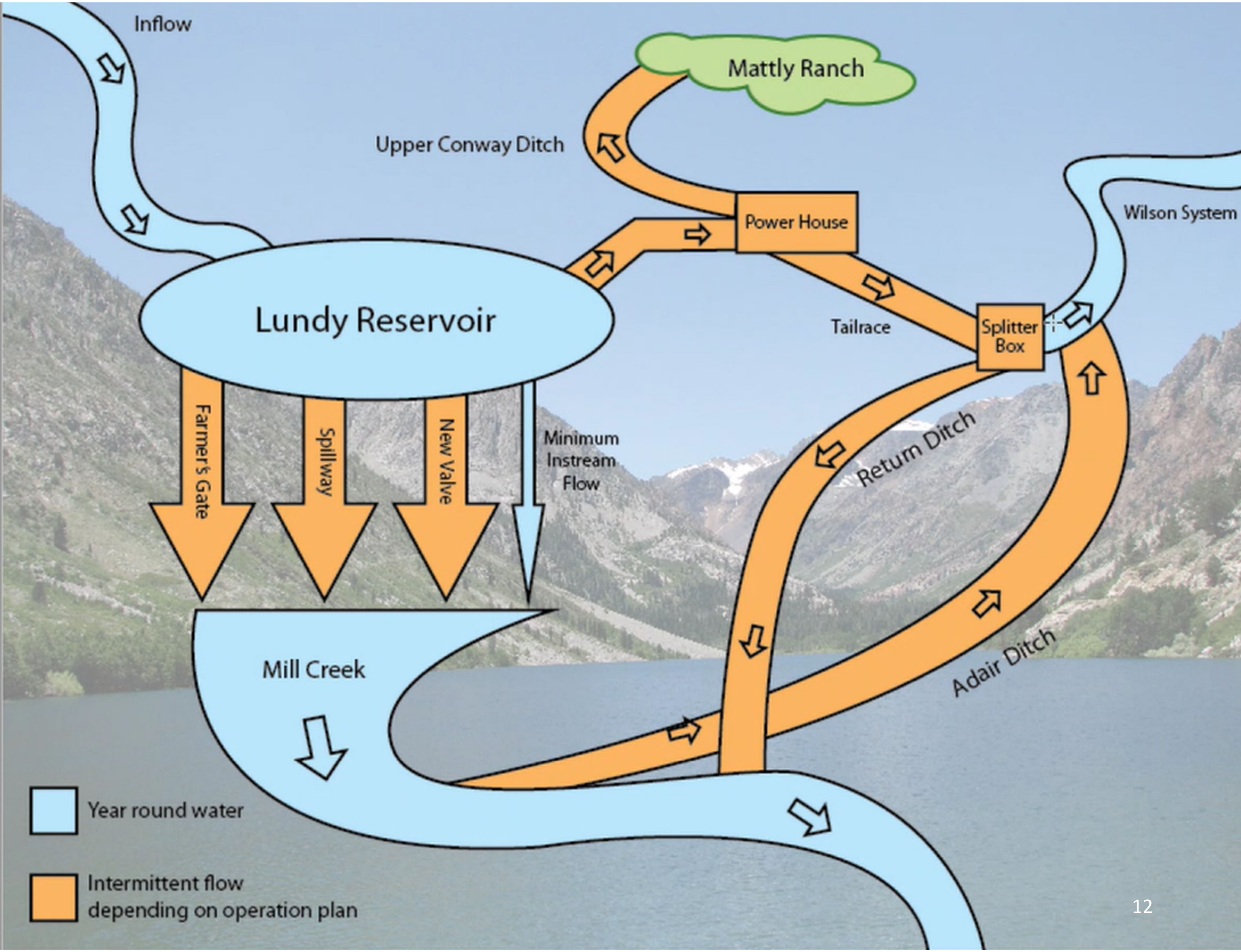


See the Project description document for more details

Project Operations

- Driven by adjudicated water rights.
- SCE passes water through powerhouse and delivers to water rights holders via:
  - Return Ditch
  - Wilson System
  - Upper Conway Ditch
- Adair ditch (historic) provides alternate means of getting water to Wilson System when powerhouse is offline



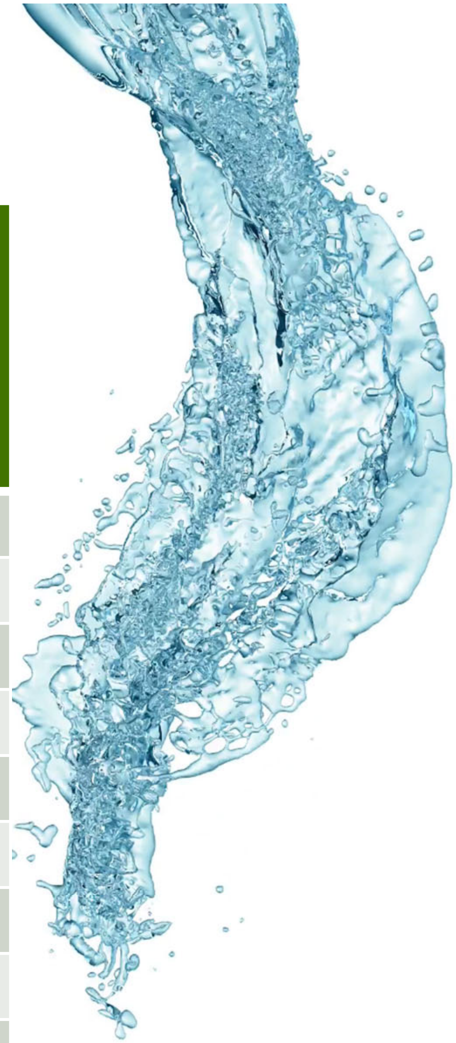

Inflow
Mattly Ranch
Upper Conway Ditch
Power House
Wilson System
Lundy Reservoir
Tailrace
Splitter Box
Farmer's Gate
Spillway
New Valve
Minimum Instream Flow
Return Ditch
Mill Creek
Adair Ditch
Year round water
Intermittent flow depending on operation plan

Water Rights

- Mill Creek Water Rights adjudicated in Mono County Superior Court November 30, 1914.
- SCE has a non-consumptive water right (pass through) for hydro power generation.

Water Rights Cont.

Priority Right	Right Holder	Quantity of Right (cfs)	Cumulative LADWP	Cumulative Conway (Mono County)	Cumulative Total
1st	LADWP	1	1	0	1
2nd	Mono County	2	1	2	3
3rd	BLM	2	1	2	5
4th	Mono County	8	1	10	13
5th	LADWP	9.2	10.2	10	22.2
6th	Simis	1.8	10.2	10	24
7th	LADWP	14	24.2	10	38
8th	Mono County	5	24.2	15	43
9th	USFS	12.6	24.2	15	55.6
10th	LADWP	18	42.2	15	73.6
11th	Mono County	1	42.2	16	74.6



Source: North Mono Basin Watershed Analysis (2001)/1914 Mill Creek Decree

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Questions

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Resource Areas

Water Resources

- Contributing drainage area stored by Lundy Dam approximately 16.3 square miles
- Normal maximum pool storage capacity is 4,113 acre-feet
- Reservoir surface area at maximum pool is approximately 110 acres

Geology, Soils, and Geomorphology

Geology and Soils

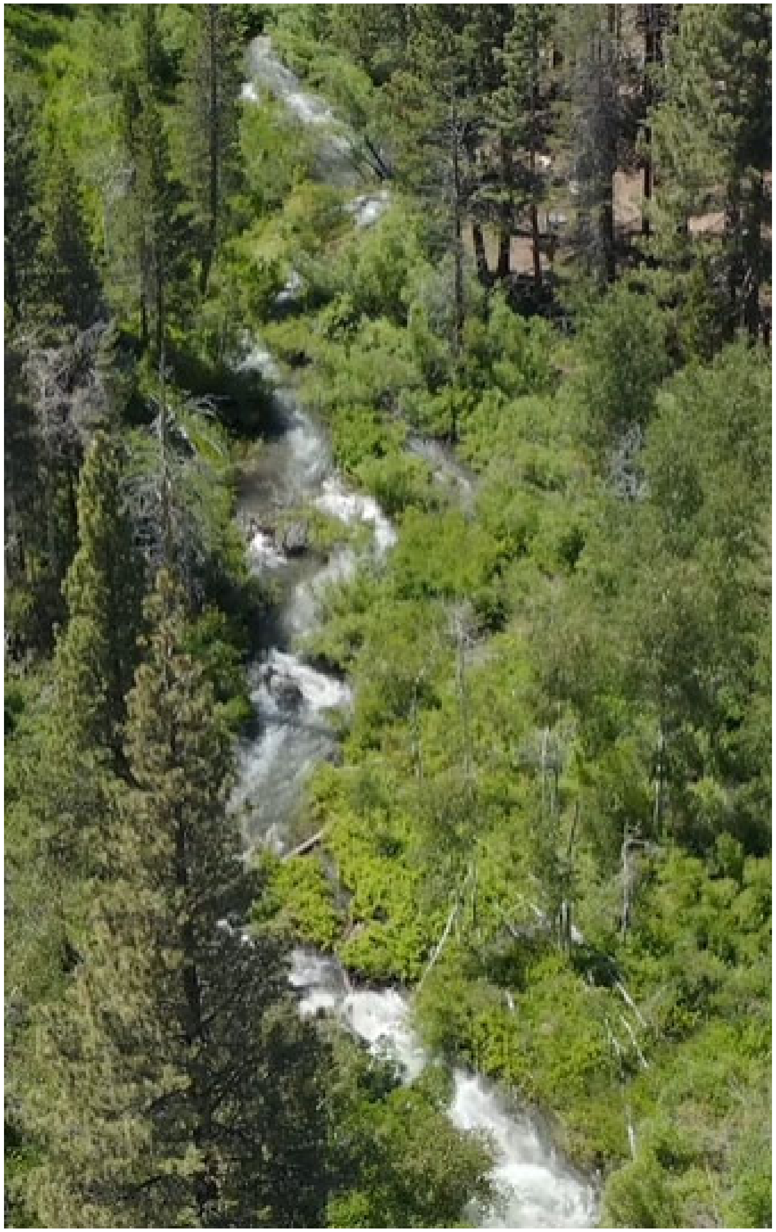
- Originally a natural lake (created by a recessional moraine)
- Soils are typically thin with coarse sediment dominated by granitic rock and glacial sediments
- The Mono Lake Fault cuts through the Lundy Project area ~2 miles east of Lundy Lake.

Geomorphology

- The bed of Mill Creek between Lundy Dam and Mono Lake primarily consists of boulders, cobbles, and sands.
- Deer Creek (downstream of Lundy Dam) was historically and is currently the primary source of sediment into Mill Creek

Water Resources: Water Quality

- Lahontan Regional Water Board water quality standards for Lundy Project reservoir and Mill Creek
- Lundy Lake and Mill Creek not on the state of California's list of impaired and threatened waters (303 (d))
- Water quality has been characterized as excellent; however, recent information includes a small number of samples from 2012 – 2013.



Water Resources: Water Quality

Proposed Study
Lundy Lake and Mill Creek Water Quality Monitoring (WQ-1) • Assess water quality within Lundy Project affected stream reaches, and within Lundy Lake • Provide data to inform CWA 401 water quality compliance with Basin Plan Objectives
Lundy Lake and Mill Creek Water Temperature Monitoring (WQ-2) • Assess water temperature within Lundy Project affected streams, and within Lundy Lake • Provide data to inform CWA 401 water quality compliance with Basin Plan Objectives

Fish, Aquatic Habitat, and BMI

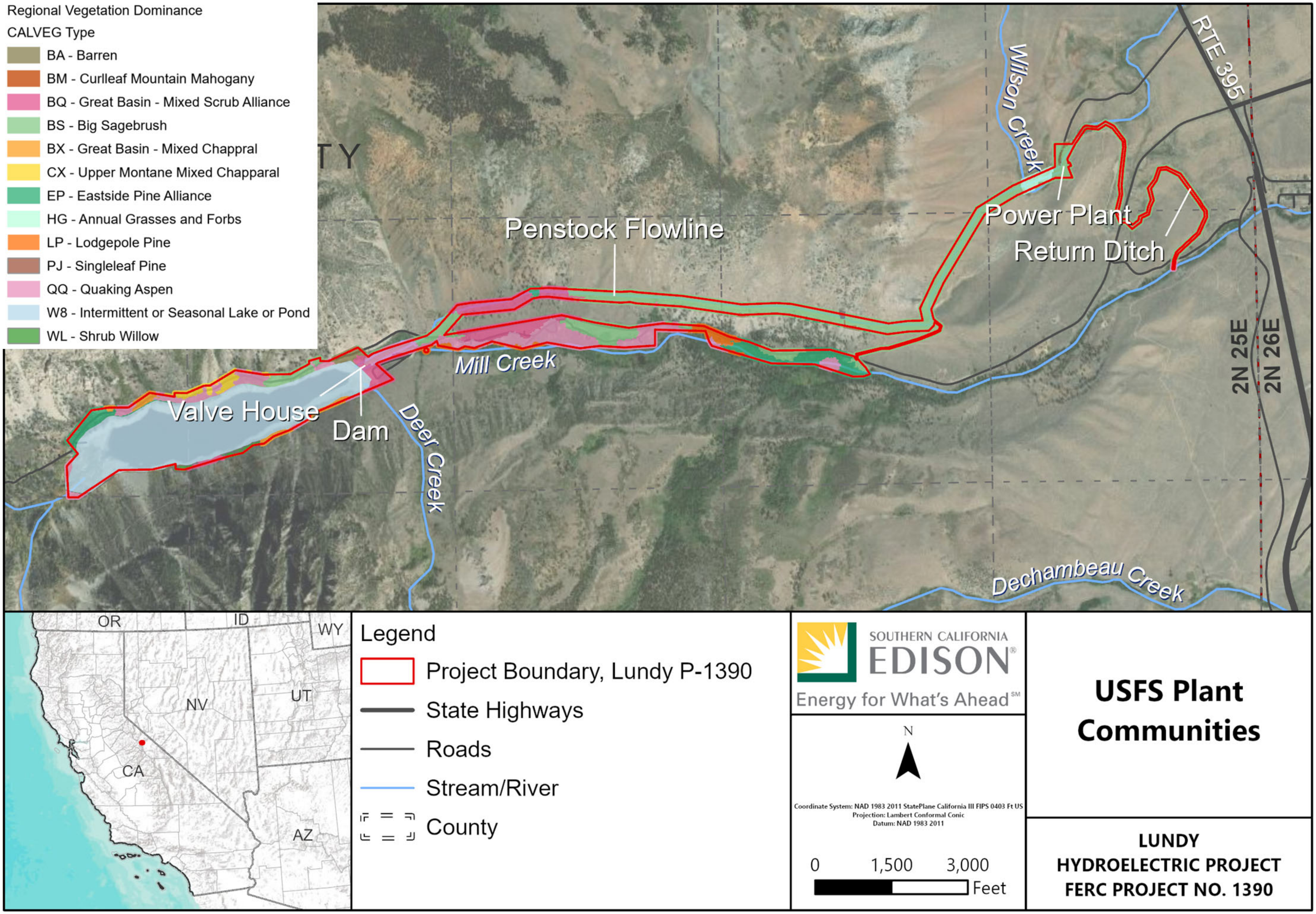
- Lundy Project Area is dominated by introduced populations of brown, brook, and rainbow trout
  - Fish monitoring conducted between 1985 and 1996 in Mill Creek from Lundy Dam downstream to Mono Lake
  - Self-sustaining population of brown trout and annual planting of rainbow trout
  - Reservoir surveys conducted in 1986 documented brook, brown, and rainbow trout in Lundy Lake
- Instream flow and aquatic habitat studies conducted in 1986 (between Lundy Dam and Upper Thompson Ditch) and 1996 (between Upper Thompson Ditch and Mono Lake)
- Benthic Macroinvertebrate sampling was conducted in 2012 (between Lundy Lake and the Mill Creek Return Ditch)
  - Stream condition is suitable for BMIs (CSCI Score = 1.15)
- Entrainment rates at the Lundy Lake intake structure are estimated to be 0.5 fish per month for brown trout and 1.6 fish per month for rainbow trout.

Fish, Aquatic Habitat, and BMI

Proposed Study
Fish Community Survey (AQ-1) • Assess species composition, distribution, abundance, and age of fish communities in Lundy Lake and affected stream reaches
Fish Stranding Study (AQ-2) • Evaluate stranding risk through the bypass reach

Botanical Resources: General

- 10 Plant Communities/Unvegetated Areas within Project Boundary.
  - Big Sagebrush Scrub = 26%
  - Quaking Aspen = 12%
  - Great Basin - Mixed Shrub = 8%
  - Various Pines = 7%
- Lower elevations and penstock alignment dominated by Big Sagebrush.
- Upper elevations, Lundy Lake, and Mill Creek dominated by a mix of Quaking Aspen, Pines, and other communities.



Regional Vegetation Dominance
CALVEG Type
BA - Barren
BM - Curlleaf Mountain Mahogany
BQ - Great Basin - Mixed Scrub Alliance
BS - Big Sagebrush
BX - Great Basin - Mixed Chappral
CX - Upper Montane Mixed Chapparal
EP - Eastside Pine Alliance
HG - Annual Grasses and Forbs
LP - Lodgepole Pine
PJ - Singleleaf Pine
QQ - Quaking Aspen
W8 - Intermittent or Seasonal Lake or Pond
WL - Shrub Willow
Penstock Flowline
Power Plant
Return Ditch
Wilson Creek
RTE 395
Mill Creek
Valve House
Dam
Deer Creek
Dechambeau Creek
2N 25E
2N 26E
OR
ID
WY
NV
UT
CA
AZ
Legend
Project Boundary, Lundy P-1390
State Highways
Roads
Stream/River
County
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N
Coordinate System: NAD 1983 2011 StatePlane California III FIPS 0403 Ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
0 1,500 3,000 Feet
USFS Plant Communities
LUNDY HYDROELECTRIC PROJECT
FERC PROJECT NO. 1390

Botanical Resources: Special-Status

- 58 special-status plants identified regionally via literature review
- 4 are known to occur within Project boundary
  - Mono Lake lupine
  - Frog's-bit buttercup
  - Masonic Mountain jewelflower
  - Golden violet
- 30 species may occur within Project boundary
- 24 species unlikely to occur within Project boundary

Botanical Resources: Invasive

- Per literature review, invasive plant species reported from region (data from USFS and Cal-IPC).
- Identified by USFS: 58 species
  - Query: list of non-native invasive plants in Inyo National Forest
- Cal-IPC Inventory: 65 species
  - Query: (1) Sierra Nevada East floristic province and (2) selected vegetation communities that occur in Project Boundary

Botanical Resources

Proposed Study
General Botanical Resources Survey (TERR-1) • Determine the presence and distribution of special status plants and invasive weeds • Map plant communities in the Study Area • Characterized riparian and wet meadow vegetation in the Study Area and along Mill Creek

Wildlife Resources

Special-Status Wildlife

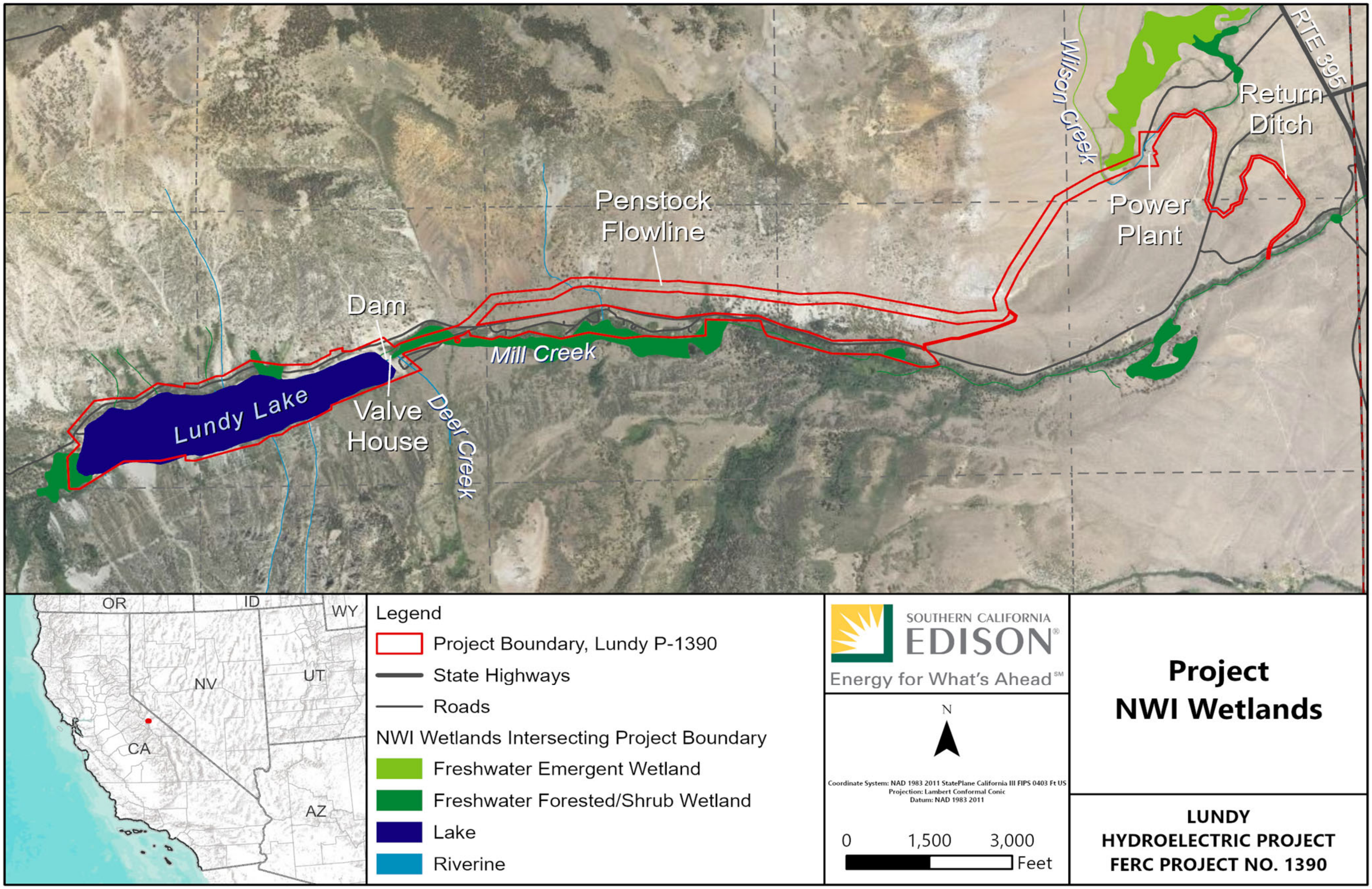
- 1 Known
  - Yellow warbler from Lundy Lake
- 11 that may occur, for example:
  - Northern goshawk
  - Greater sage grouse
  - Western mastiff bat
  - White-tailed jackrabbit
- 19 Bird Species of Conservation Concern, for example:
  - California gull
  - American white pelican

Photo by CDFW

Floodplains and Wetlands

- 4 Wetland/Riparian habitats were mapped in the Project Boundary by the National Wetlands Inventory.
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub
  - Consists of a mixture of quaking aspen and willow scrub
- Lake
- Riverine
- Provides habitat for many species of wildlife including Sierran treefrog, western terrestrial garter snake, western wood-peewee, Sierra Nevada mountain beaver, and mule deer.

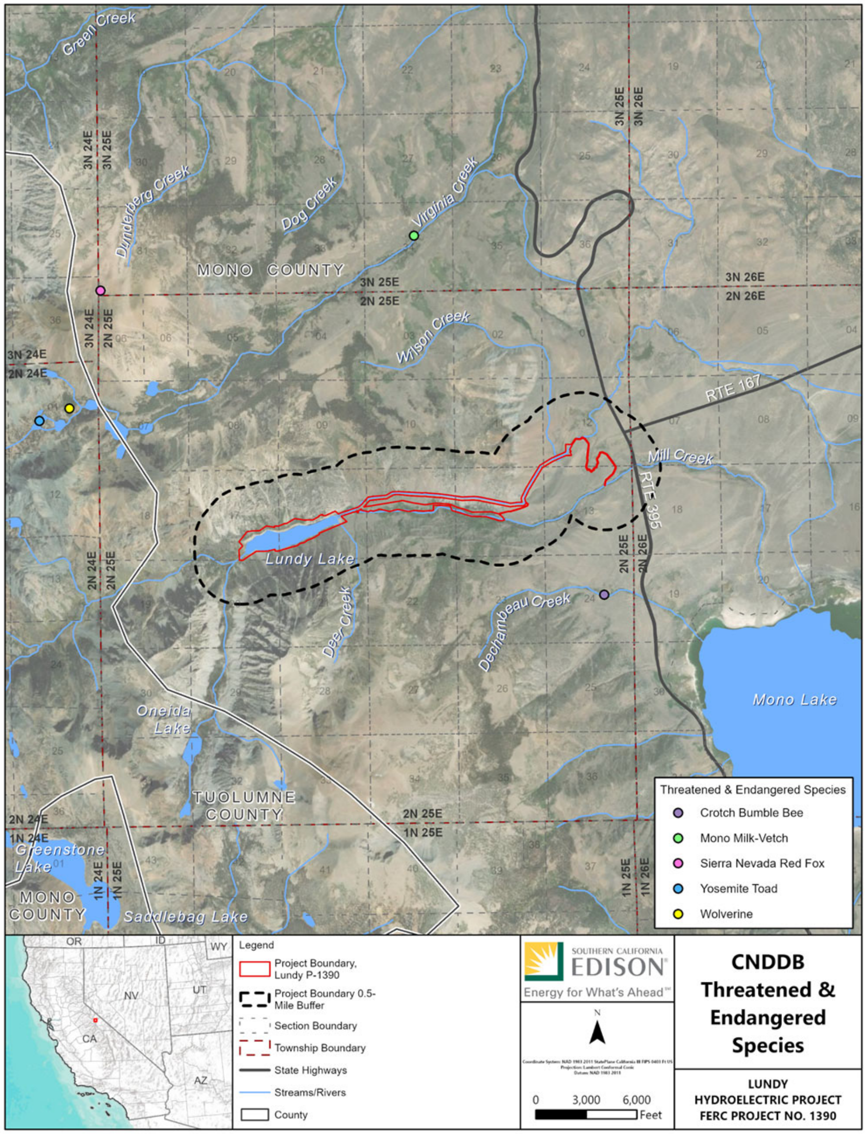
Floodplains and Wetlands



Rare, Threatened, and Endangered Species

- One federally Threatened plant species, whitebark pine, may occur. Nearest population 0.5 mile. One State Rare plant species, Mono milk-vetch, may occur. Nearest population 3 miles.
- TE or protected wildlife recorded from area
  - Bald eagle (cited in iNaturalist)
  - Golden eagle
  - Sierra Nevada bighorn sheep (includes Critical habitat)
  - Willow flycatcher
  - Sierra Nevada red fox
  - Wolverine
  - Yosemite toad
  - Crotch bumble bee

Rare, Threatened, and Endangered Species

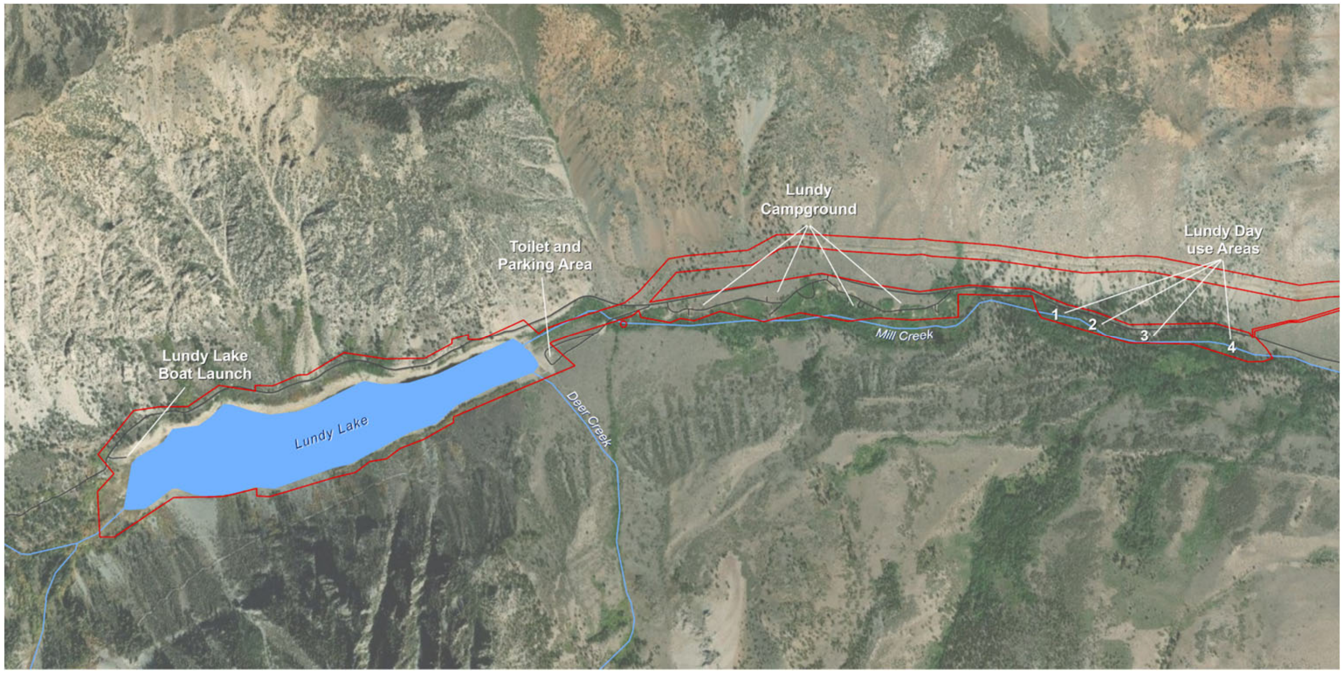


Wildlife Resources

Proposed Study
General Wildlife Survey (TERR-2) • Determine the presence and distribution of special-status wildlife • Document and characterize wildlife that use Mill Creek

Recreation Resources

- Four FERC-approved Lundy Project Recreation Facilities
  - Lundy Lake Boat Launch
  - Lundy Campground
  - Lundy Day-Use areas along Mill Creek
  - (4 total)
  - Lundy Dam Day-Use Area (Toilet and Parking Area)

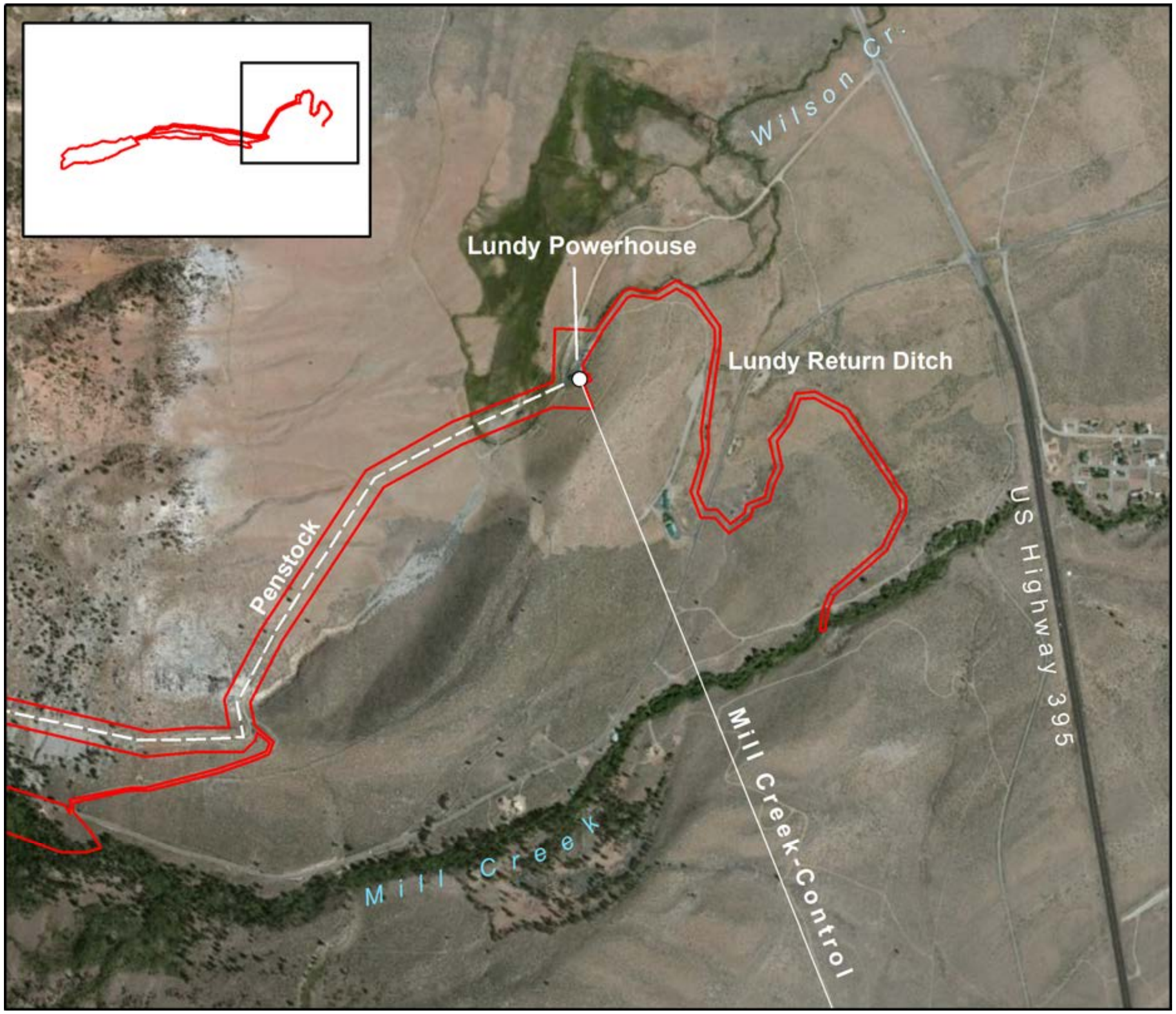


Recreation

Proposed Study
Recreation Use and Needs Assessment (REC-1) • Evaluate recreation use at the FERC-approved Lundy Project recreation sites • Assess the amount of use each site is receiving (including percent of capacity) and the recreation activities that occur at each site
Recreation Facilities Condition Assessment (REC-2) • Conduct an inventory of and map existing FERC-approved Lundy Project recreation sites, including locations, facilities/amenities, general condition, ownership, and management responsibilities

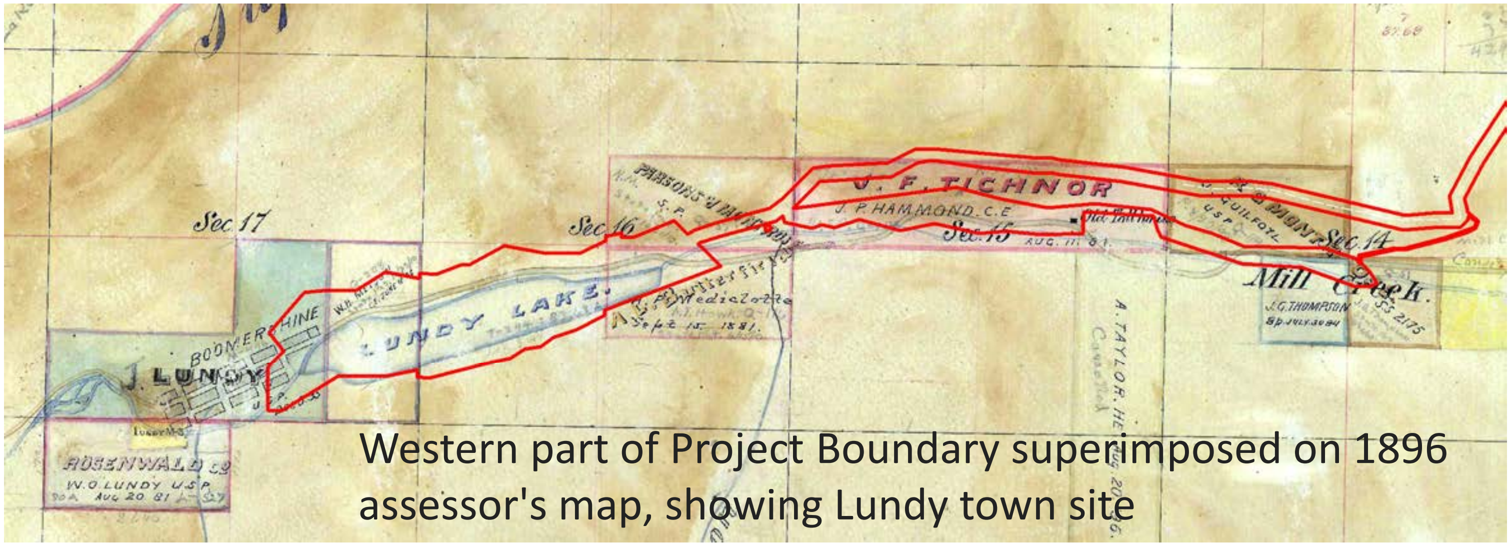
Cultural – Built Environment Resources

- Lundy system components date to 1910-1911, with some later alterations
- A 1980s National Register study of the Lundy system (and a 2020 study of T-lines) concluded built resources not eligible for listing
- 1980s study does not meet current evaluation standards, so the system needs an updated evaluation
- It is likely that the update will conclude the built resources of the Lundy system remain "not eligible" for National Register listing



Cultural – Archaeology

- Initial research included a search of records held by SCE, Forest Service, and the state, as well as historical maps and documents
- 12 archaeological sites have been previously recorded within the Project Boundary
  - o mostly historic-era features and artifact scatters; 2 sites contain precontact lithic scatters.
  - o Previous relicensing effort found the remains of Jordan Powerhouse (P-26-002411) National Register-eligible; 9 other sites were determined ineligible at that time; 2 known sites remain unevaluated.
- Lundy townsite is a listed California Point of Historic Interest but not fully archaeologically documented.
- Most of APE lacks archaeological survey coverage to current standards and will require resurvey.



Western part of Project Boundary superimposed on 1896 assessor's map, showing Lundy town site

Cultural – Archaeology and Built Environment

Proposed Study
Cultural Resources (CUL-1) – Archaeology • Conduct additional background archival research of the Study Area • Identify and document archaeological resources within or immediately adjacent to the Area of Potential Effects (APE) • Develop information sufficient for Historic Properties Management Plan (HPMP)
Cultural Resources (CUL-2) – Built Environment • Conduct additional background archival research of the Study Area • Identify and document built environment resources within or immediately adjacent to the APE • Develop information sufficient for HPMP

Basket Weaver
Mono Lake, 1901

Cultural – Tribal Resources

- Traditional Homeland of the Kutzadikaa/Mono Lake Paiute (the principal Tribal Group)
- Multiple Tribal Groups also have an interest in the Project (Northern Paiute, Owens Valley Paiute, Western Shoshone, Southern Miwok, Central Me-Wuk, Hungalelti Washo, Western Mono)
- No Federal trust Tribal lands in the Project
- No baseline ethnographic investigation of the Project conducted during previous relicensing efforts
- SCE will consult with interested Tribes; interviews and meetings have yet to be scheduled
- Identification and locations of Tribal resources including trails, camps, medicine and food gathering areas

Tribal Resources

Proposed Study
Tribal Resources (TRI-1) • Conduct additional background archival research of the Study Area • Identify and document tribal resources within or immediately adjacent to the APE • Conduct a thorough Native American ethnographic/ethnohistoric survey of the APE • Conduct interviews with knowledgeable informants • Develop information sufficient for HPMP

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Questions

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Federal Energy Regulatory Commission (FERC) 101

Federal Energy Regulatory Commission (FERC)

WHAT IS FERC?

A federal, independent agency (formally the Federal Power Commission)

WHAT DOES FERC REGULATE?

Electrical transmission, ***hydroelectric dam licensing*** *and safety, natural gas and oil pipelines*

HOW DOES FERC IMPACT YOU?

FERC manages the participation of the public, agencies, NGOs, and other interested stakeholders.

WHEN DOES RELICENSING START?

The relicensing process officially starts 5 to 5.5 years before license expiration

What is FERC Relicensing?

- Complex, multiyear
- Involves multiple participant with public involvement opportunities
- Develops an evidentiary record
- Provides FERC with decision-making information
- Determines license term and requirements

Three Basic Stages of Relicensing

- Stage 1: Initial Consultation (ask questions)
- Stage 2: Studies and Application (answer questions and file license application)
- Stage 3: Post-Filing (FERC conducts environmental review)

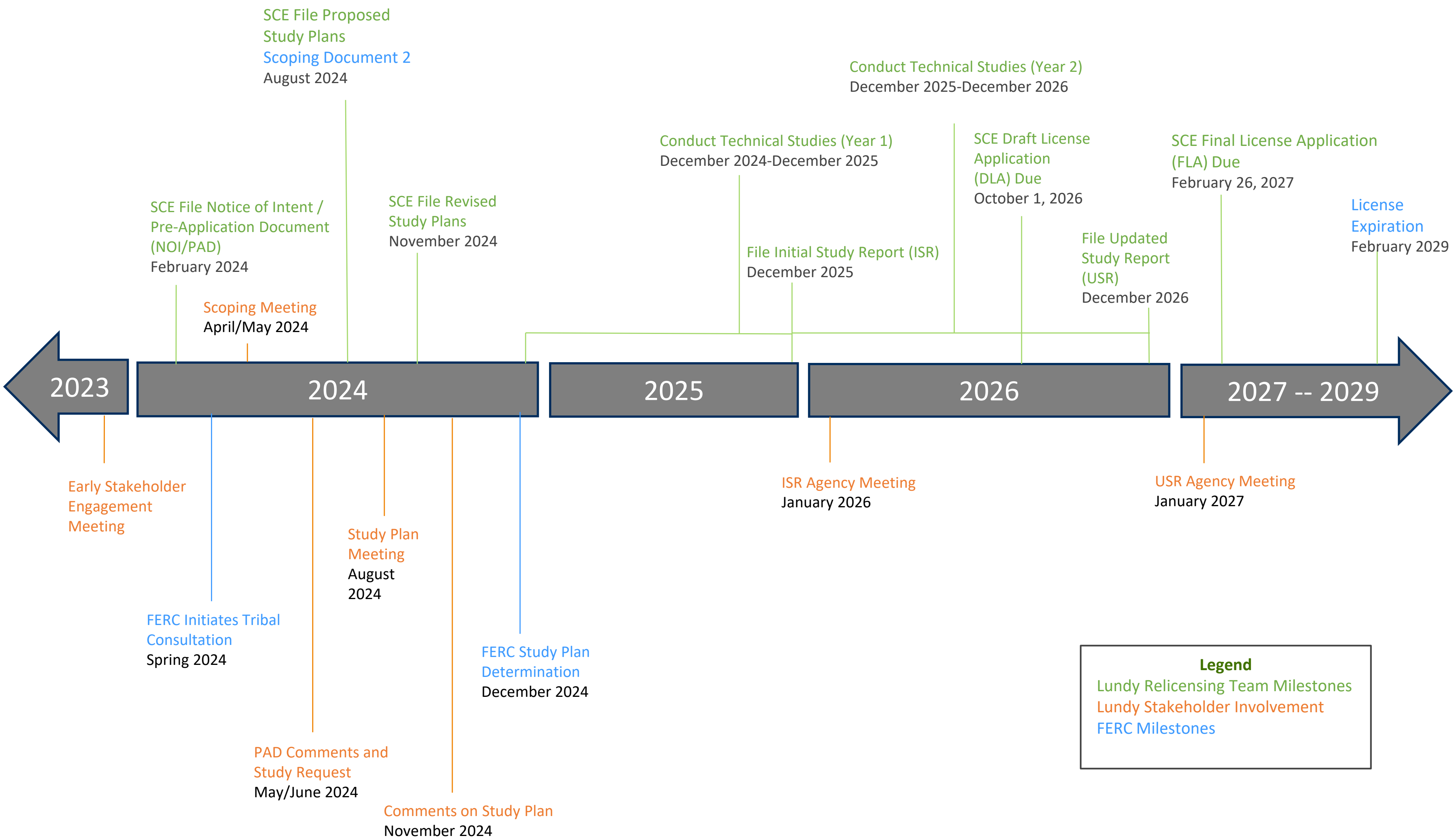
Lundy Licensing

- Use of Integrated Licensing Process
  - FERC will lead scoping and approve study plan
  - Stakeholders will have input into:
    - Scoping questions
    - Comments on Pre-Application Document
    - Study Requests
    - Comments on study proposals
    - Need for dispute resolution through FERC
    - Comments on initial and updated study reports
    - Comments on Draft License Application
    - Involvement in post-filing process
- Schedules and background materials available at www.sce.com/lundy

What sorts of questions will be addressed in relicensing?

- Must have “nexus” to Project
- Must relate to public interest or specific resource agency goals
- Relate to an appropriate study area/area of potential effects
- Avoid academic questions
- Use commonly accepted study methods
- Reference existing data or studies, if available

Lundy Hydroelectric Project Relicensing Schedule
For planning purposes only, dates subject to change.
December 2023



Licensing Participation

- Schedules and background materials available at www.sce.com/lundy
  - Contact Registration Form
- Engagement through FERC
  - Docket: P-1390
  - https://www.ferc.gov/how-contact-ferc
- Contact Information
  - Finlay Anderson: finlay.anderson@kleinschmidtgroup.com
  - Matthew Woodhall: matthew.woodhall@sce.com
  - Audry Williams: audry.williams@sce.com

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Appendix C

Single-Line Diagram (CEII)

This Material is Critical Energy Infrastructure Information (CEII).
Members of the Public may Obtain Nonpublic or Privileged Information by Submitting a Freedom of Information Act (FOIA) Request.

Appendix D

FERC License Conditions Summary Table

Table D-1: A complete description of the current license requirements (i.e., the requirements of the original license as amended during the license term (as required by 18CFR5.6(d)(2)(v)(A).

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	**Summary**		
201	Annual Charges	8/24/2017[1]	Annual Charges, Reimbursement and Recompensing the United States	Ongoing	To annually reimburse FERC for administrative costs of administering Part I of the FPA and recompense for use and occupancy of federal lands.
202	Amortization Reserve Account			Ongoing	To set aside one-half of the remaining surplus earnings, if any, cumulative computed, in the Project amortization reserve account.
203	File Project Drawings			Completed[2]	None
401	Penstock and Pipeline Monitoring	4/18/2000[3]	Inspect pipeline after seismic events of 4.0 or higher within 10 miles of penstock	Ongoing	Penstock and Pipeline Monitoring and reporting.
402	Erosion and Sedimentation Plan	5/15/2000[4]	Amend erosion control and revegetation plan 30 days prior or ground disturbing activities.	Ongoing	Comply with erosion and sedimentation plan.

[1] *So. Cal. Edison Co.*, 160 FERC P 62,174 (2017).
[2] *So. Cal. Edison Co.*, 87 FERC P 62,230 (1999).
[3] *So. Cal. Edison Co.*, 91 FERC P 62,043 (2000).
[4] *So. Cal. Edison Co.*, 91 FERC P 62,108 (2000).

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
403	Minimum Flow Plan, Avian Mortality Monitoring Plan	11/15/2007[5]; 7/30/2009;[6] 4/23/2010;[7] 3/29/2017[8]	Update plan to include detailed drawings of systems that measure minimum flow and schedule when flow will be measured for compliance. Minimum Flow Plan. FERC approved of revised Exhibit F-1 and F-2 Drawings. FERC approved ceasing the avian mortality monitoring and reporting activities.	Ongoing	Continue with Minimum Flow Plan requirements.
404	Continuous flow in the bypassed reach of Mill Creek	11/15/2007[9]	Revised cfs requirements for the protection of fish and wildlife resources, riparian vegetation, and aesthetics in the bypassed reach.	Ongoing	Continue with minimum flow requirements of 1 cfs.

[5] *So. Cal. Edison Co.*, 121 FERC P 61,154 (2007).
[6] *So. Cal. Edison Co.*, 128 FERC P 62,072 (2009).
[7] *So. Cal. Edison Co.*, 131 FERC P 62,060 (2010).
[8] *So. Cal. Edison Co.*, 158 FERC P 62,256 (2017).
[9] *So. Cal. Edison Co.*, 121 FERC P 61,154.

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
405	Protection of Sensitive Plants	5/31/2000[10]	FERC shall be notified 30 days prior to any stabilization or revegetation measure for the existing erosion gully upslope from the powerhouse.	Ongoing	No land disturbing or land clearing activities shall begin without notification to the Commission
406	Riparian Wildlife Habitat Minimization Plan	6/16/2000[11]		Ongoing	plan to minimize disturbances to riparian wildlife habitat, including injury or loss of riparian vegetation due to grazing and firewood harvesting.
407	Penstock Paint		Paint the penstock vent pipe a color chosen by the USFS, to blend the vent pipe with the surrounding landscape.	Complete	
408	Cultural Resources Management Plan	5/18/2001[12]	Before beginning any land disturbing, land clearing, or spoil-producing activities a cultural resource management plan must be filed	Ongoing	Before any disturbing activities, a Cultural Resources Management Plan must be filed to avoid impacts to site CA- Mno-2409.

[10] *So. Cal. Edison Co.*, 91 FERC P 62,144 (2000).
[11] *So. Cal. Edison Co.*, 91 FERC P 62,196 (2000).
[12] *So. Cal. Edison Co.*, 95 FERC P 62,142 (2001).

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
409	Archeological or Historic Site Discoveries			Ongoing	If archeological or historic sites are discovered during project operation, consultation must begin with SHPO.
410	Recreation Plan	8/24/2017[13]	As-built site plan drawing approved by Commission.	Ongoing	Follow recreation plan as amended.
411	Tailrace Flows			Ongoing	Authority is reserved to FERC to release tailrace flows not subject to appropriation by or allocation to holders of water rights back into Mill Creek
412	Streamflow Gages	10/24/2001; 11/15/2007;[14] 8/8/2008;[15] 8/30/2023[16]	Licensee shall file within 60 days a description of its procedures for collecting and providing gaging data to the resource agencies. Licensee shall file for FERC approval a plan to install, operate, and maintain streamflow gages or devices necessary to monitor the flow releases. Stream flow gaging	Ongoing	Follow approved plan filed in March 30, 2023.

[13] *So. Cal. Edison Co.*, 160 FERC P 62,174.
[14] *So. Cal. Edison Co.*, 121 FERC P 61,154.
[15] *So. Cal. Edison Co.*, 124 FERC P 62,117 (2008).
[16] *So. Cal. Edison Co.*, 184 FERC P 62,117 (2023).

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
			shall be fully operational by October 31, 2009. Revised Plan was filed on March 30, 2023 and approved on August 30, 2023.		
413	Sediment Transport Plan			Ongoing	No additional releases from Lundy Lake or the Mill Creek Return Ditch are necessary to move fine sediments in Mill Creek.
414	FERC Water Rights Authority			Ongoing	FERC reserves the authority to modify the terms of this license as appropriate in light of, among other things, any final adjudication of water rights that will have a bearing on whether water discharged from the Lundy Project powerhouse tailrace should enter Wilson Creek or be put into the Mill Creek Return Ditch
415	Riparian Vegetation Monitoring Plan	7/26/2000[17]	Monitoring report from five years of monitoring should be submitted	Ongoing	

[17] *So. Cal. Edison Co.*, 92 FERC P 62,056 (2000).

License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	**Summary**		
416	Land Use Authority			Ongoing	Licensee may grant permissions for certain types of use and occupancy of project lands.
417	Water Management Plan	12/3/1999[18]	Licensee shall file within 60 days for FERC approval of any recommendations regarding protection of aquatic resources following the annual meeting with agencies.	Ongoing	Continue following the water management plan
501	Headwater Benefits			Ongoing	
Ordering Paragraph D of the license incorporates the Following U.S. Forest Service conditions under Section 4(e) of the Federal Power Act (Appendix A to the license)					
Cond. 1	Requirement to Obtain a Forest Service Special- use Authorization	3/3/1999[19]	Ordering Paragraph (D) notes that the license is not subject to Condition 1	N/A	N/A
		11/15/2007[20]	Order Amending License and Dismissing Requests for Rehearing affirmed the license is not subject to Condition 1		
Cond. 2	Forest Service Approval of Final Design			Completed	

[18] *So. Cal. Edison Co.*, 89 FERC P 62,181 (1999).
[19] *So. Cal. Edison Co.*, 86 FERC P 61,230.
[20] *So. Cal. Edison Co.*, 121 FERC P 61,154.

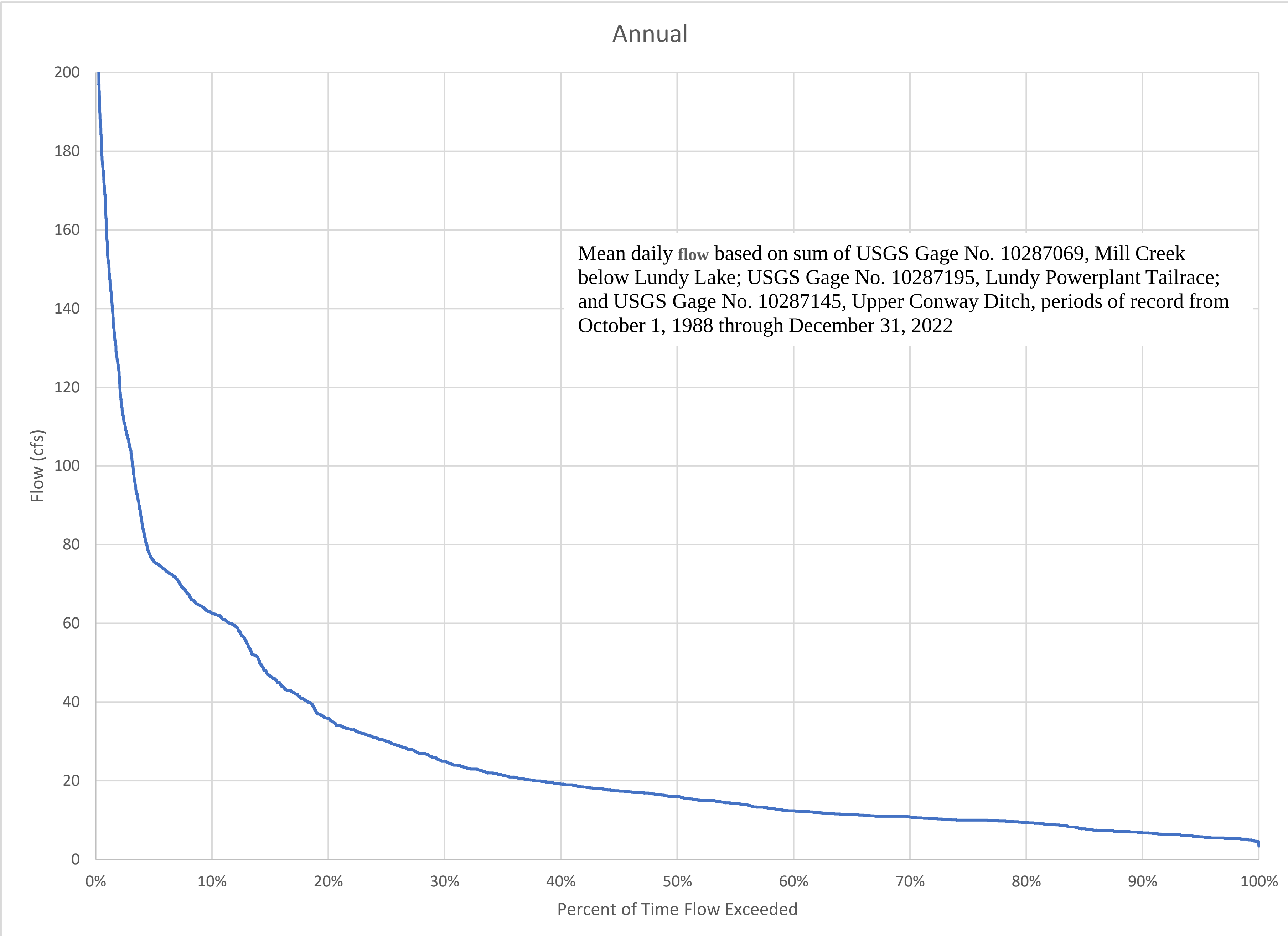
License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
Cond. 3	Approval of Changes After Initial construction			Ongoing	
Cond. 4	Consultation	11/22/2005[21]	Annual meeting will be held by May 15 and annual reports will be due by July 15 each year.	Ongoing	
Cond. 5	Minimum Streamflow Requirement	3/3/1999[22]	Ordering Paragraph (D) notes that the license is not subject to the first Paragraph of Condition 5.	Ongoing	Requirement for 7 cfs minimum instream flow resolved through subsequent settlement agreement to address prior appropriation of water rights and updated License Articles 403 and 404
		11/15/2007[23]	Order on Rehearing modified Articles 403 and 404 to be consistent with settlement agreement		
Cond. 6	Monitoring	3/3/1999[24]	Ordering Paragraph (D) notes that the license is not subject to Condition 6. Specific monitoring requirements are included in license articles	Ongoing	

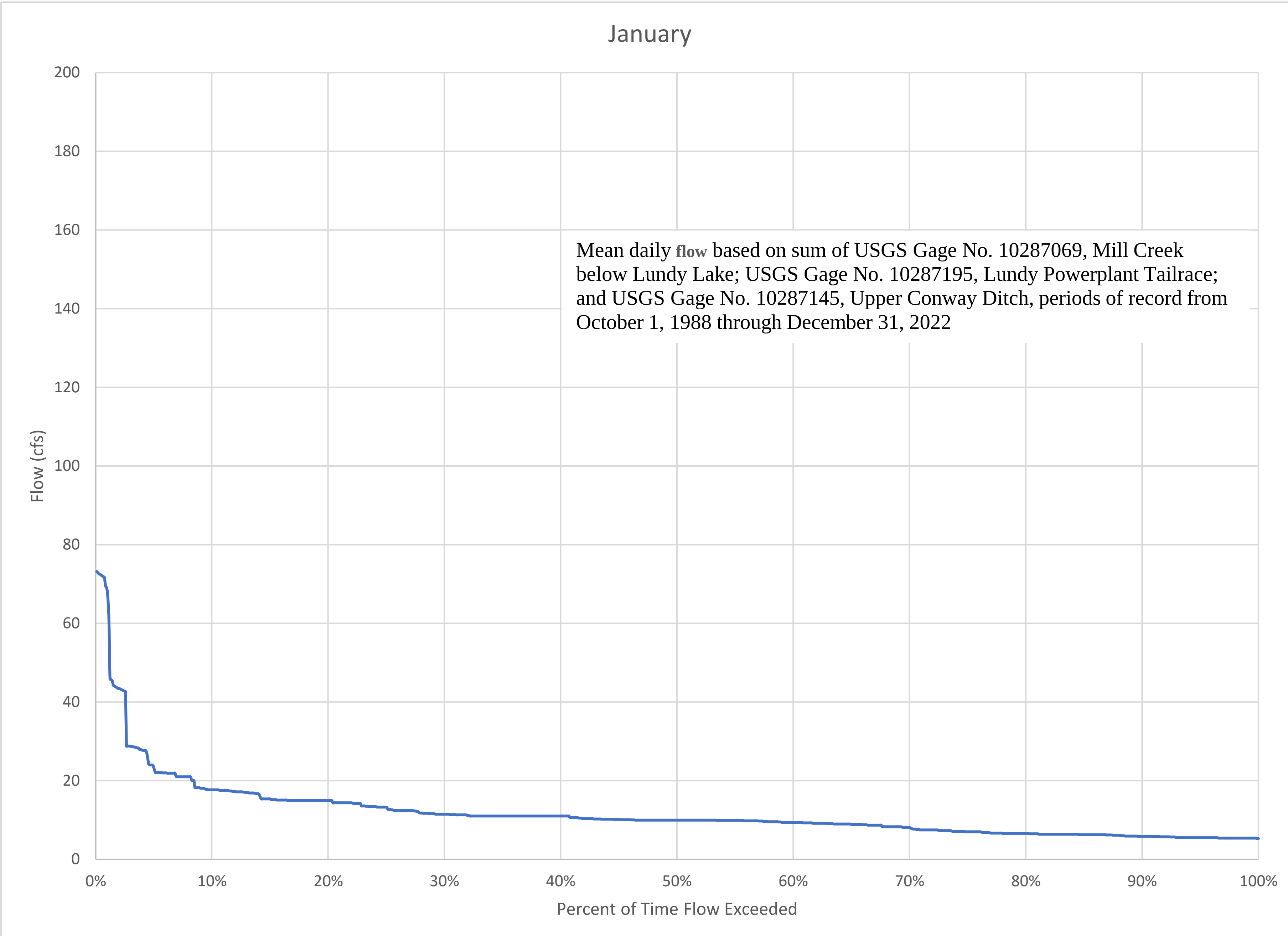
[21] *So. Cal. Edison Co.*, 113 FERC P 62,139 (2005).
[22] *So. Cal. Edison Co.*, 86 FERC P 61,230.
[23] *So. Cal. Edison Co.*, 121 FERC P 61,154.
[24] *So. Cal. Edison Co.*, 86 FERC P 61,230.

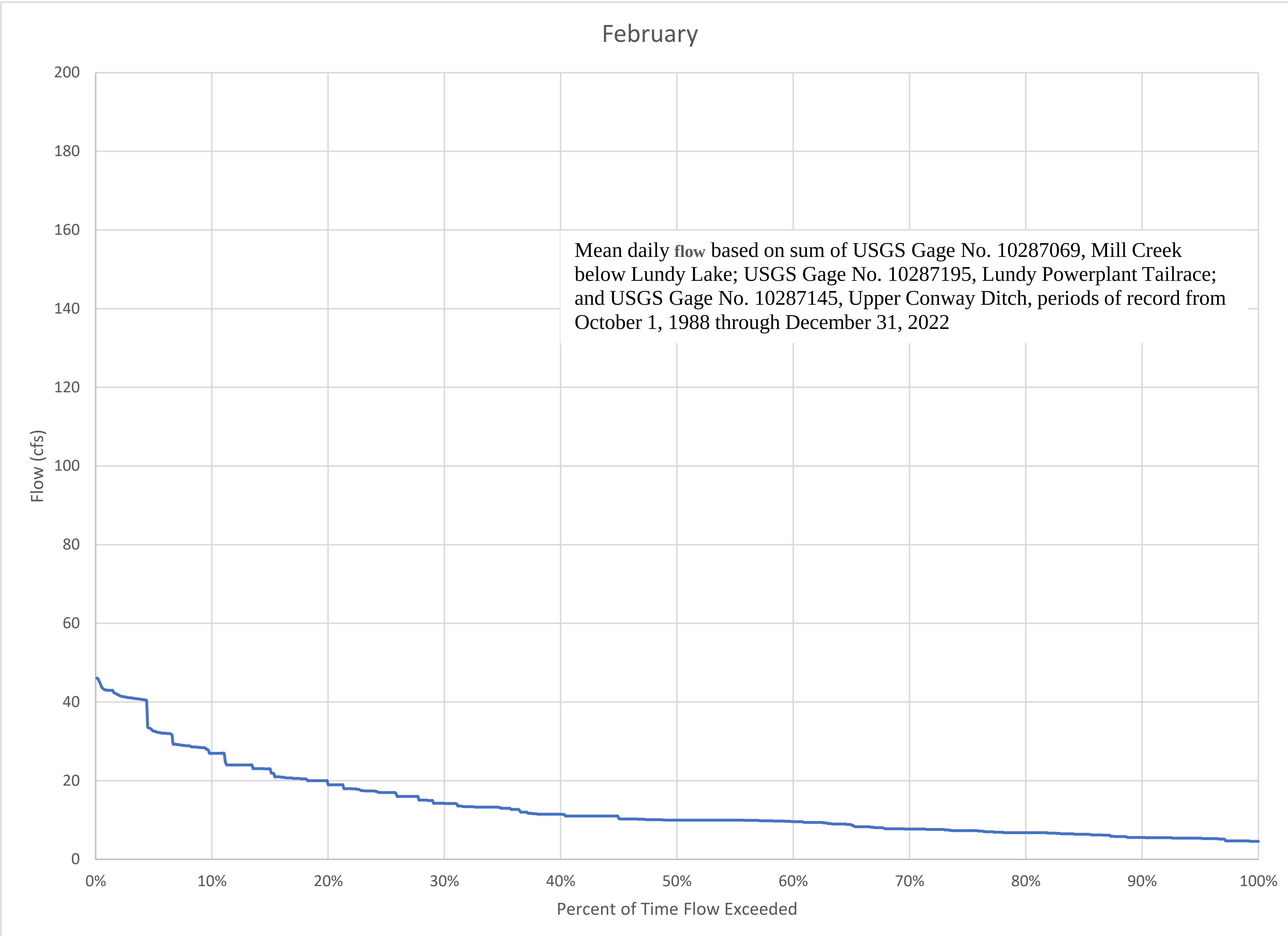
License Article	Summary of Requirement	Subsequent FERC Actions		Status	Current Compliance Actions
		Date	Summary		
Cond. 7	Hazardous Substances Plan			Ongoing	
Cond. 8	Erosion Control Plan			Ongoing	
Cond. 9	Spoil Disposal			Ongoing	
Cond. 10	Visual Resource Protection			Ongoing	
Cond. 11	Protection of Sensitive and T&E Species			Ongoing	

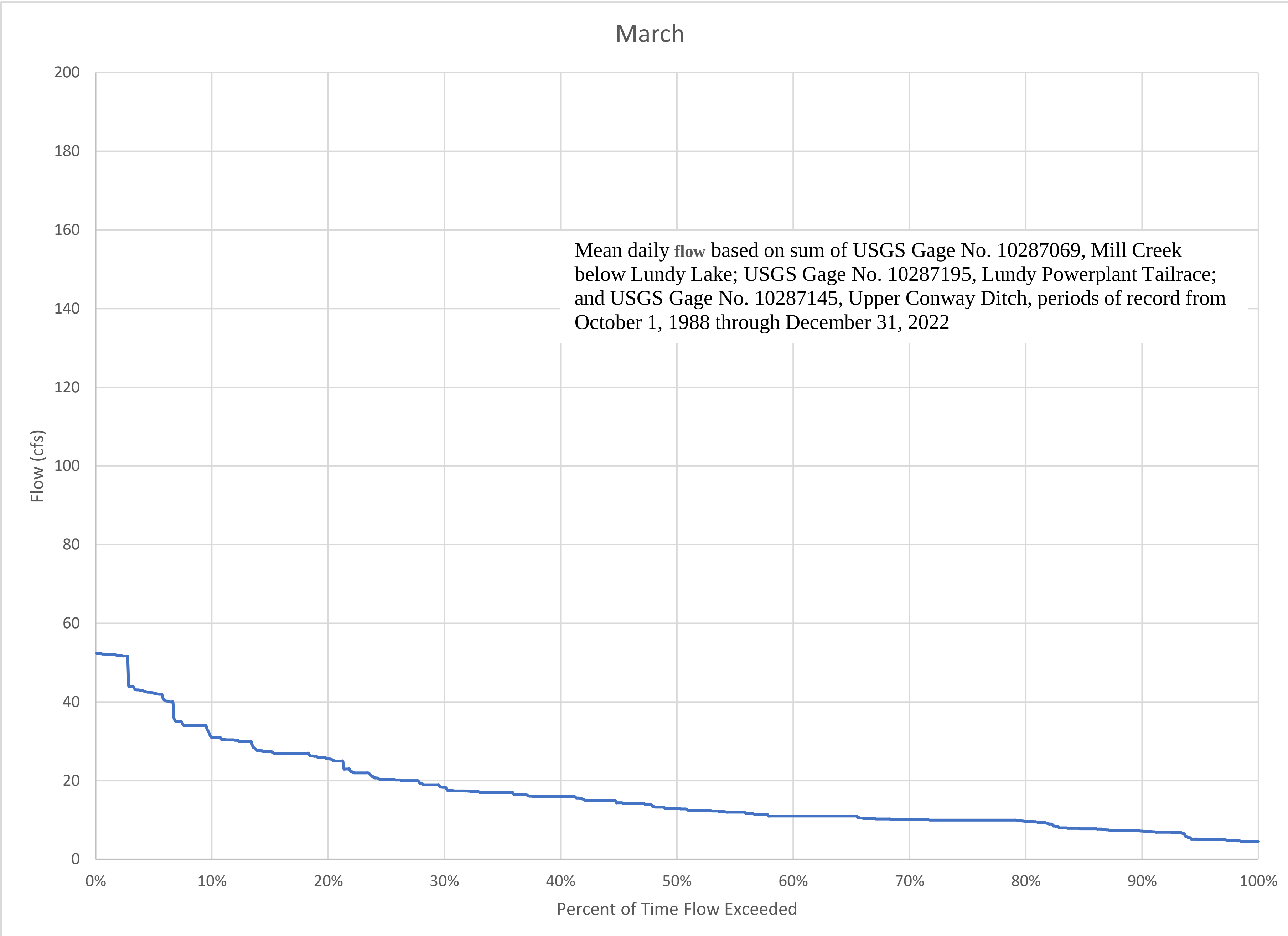
Appendix E

Flow Duration Curves

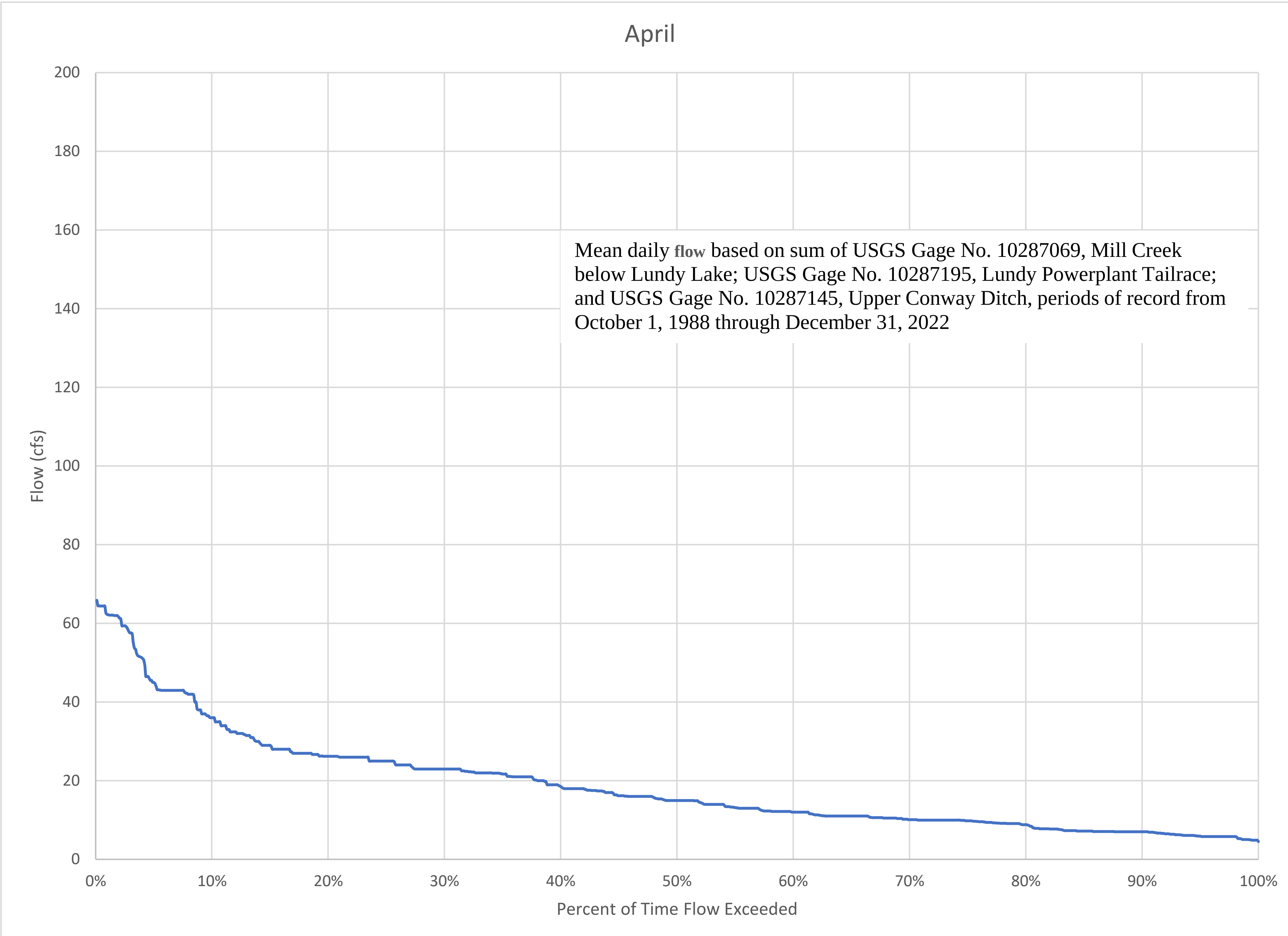

Annual
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded

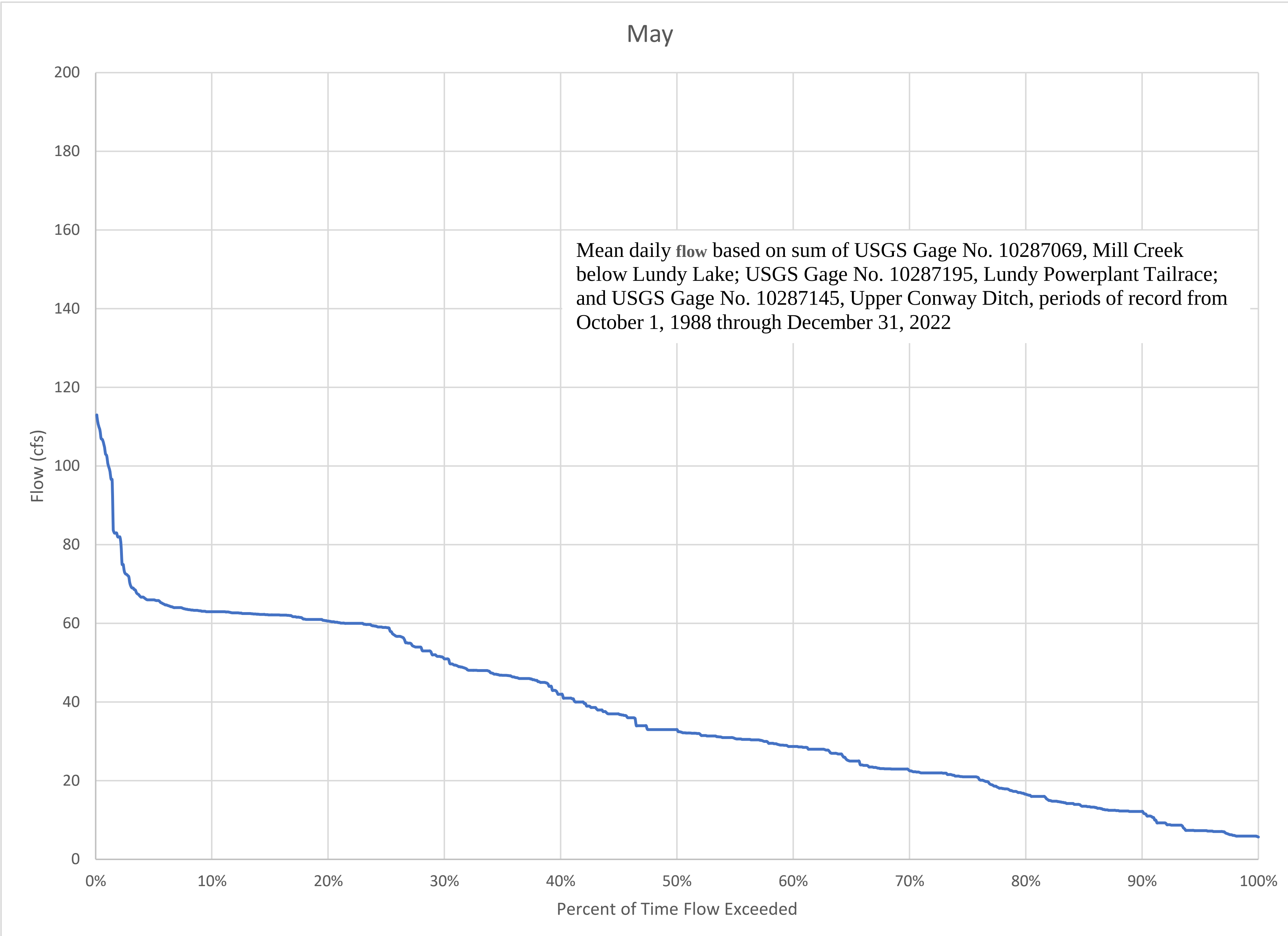

January
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded


February
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded

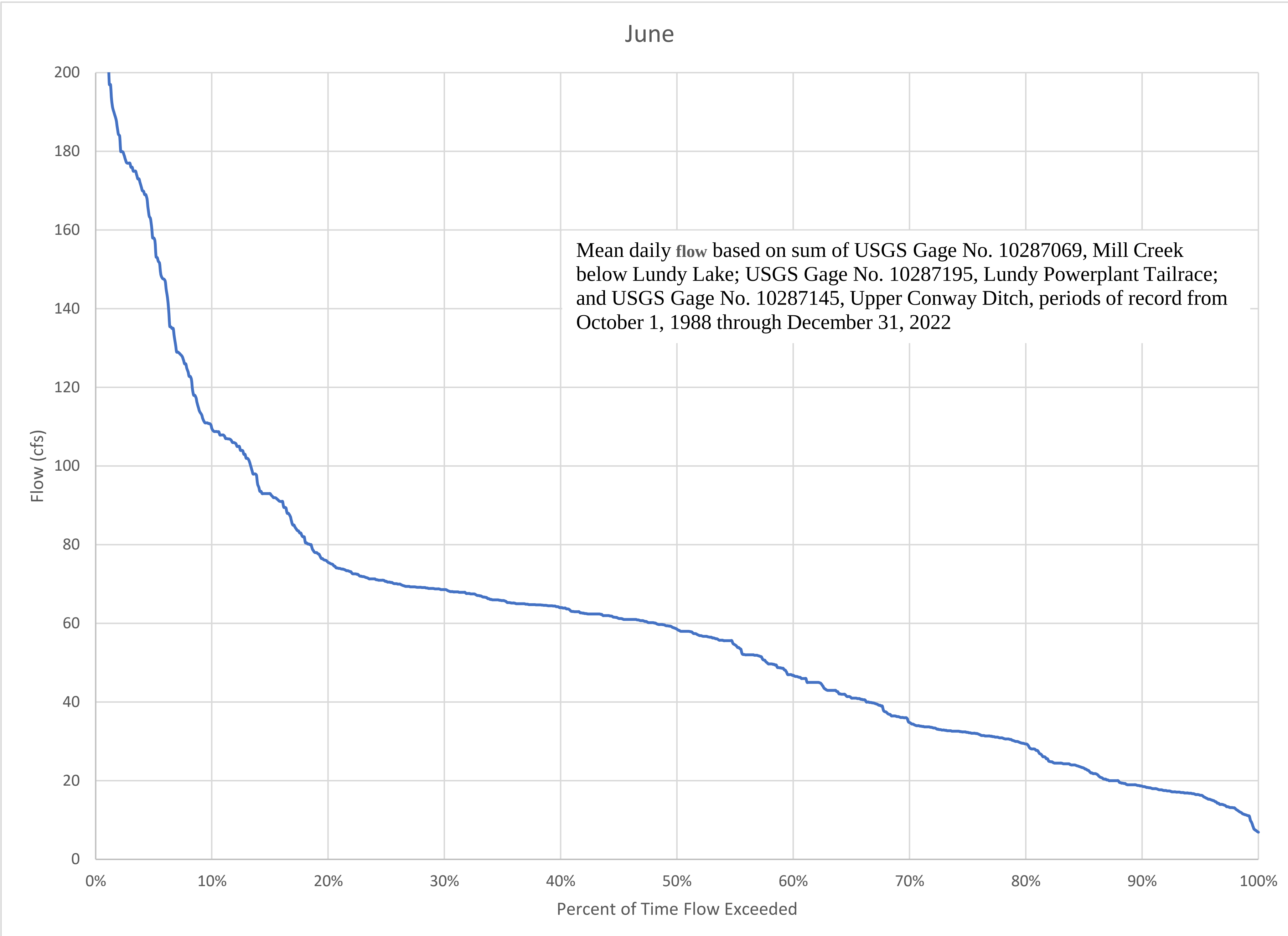


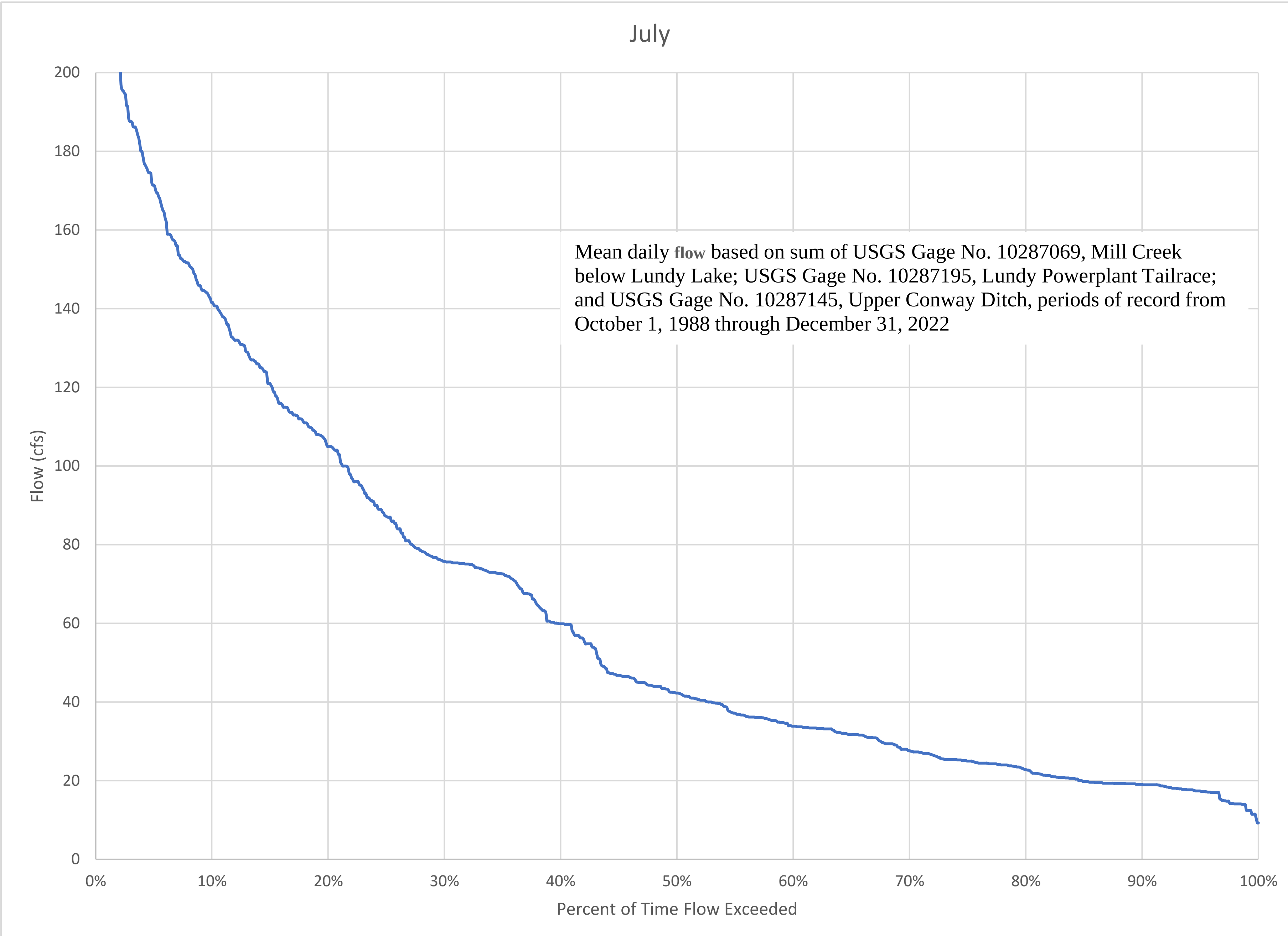
March
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022

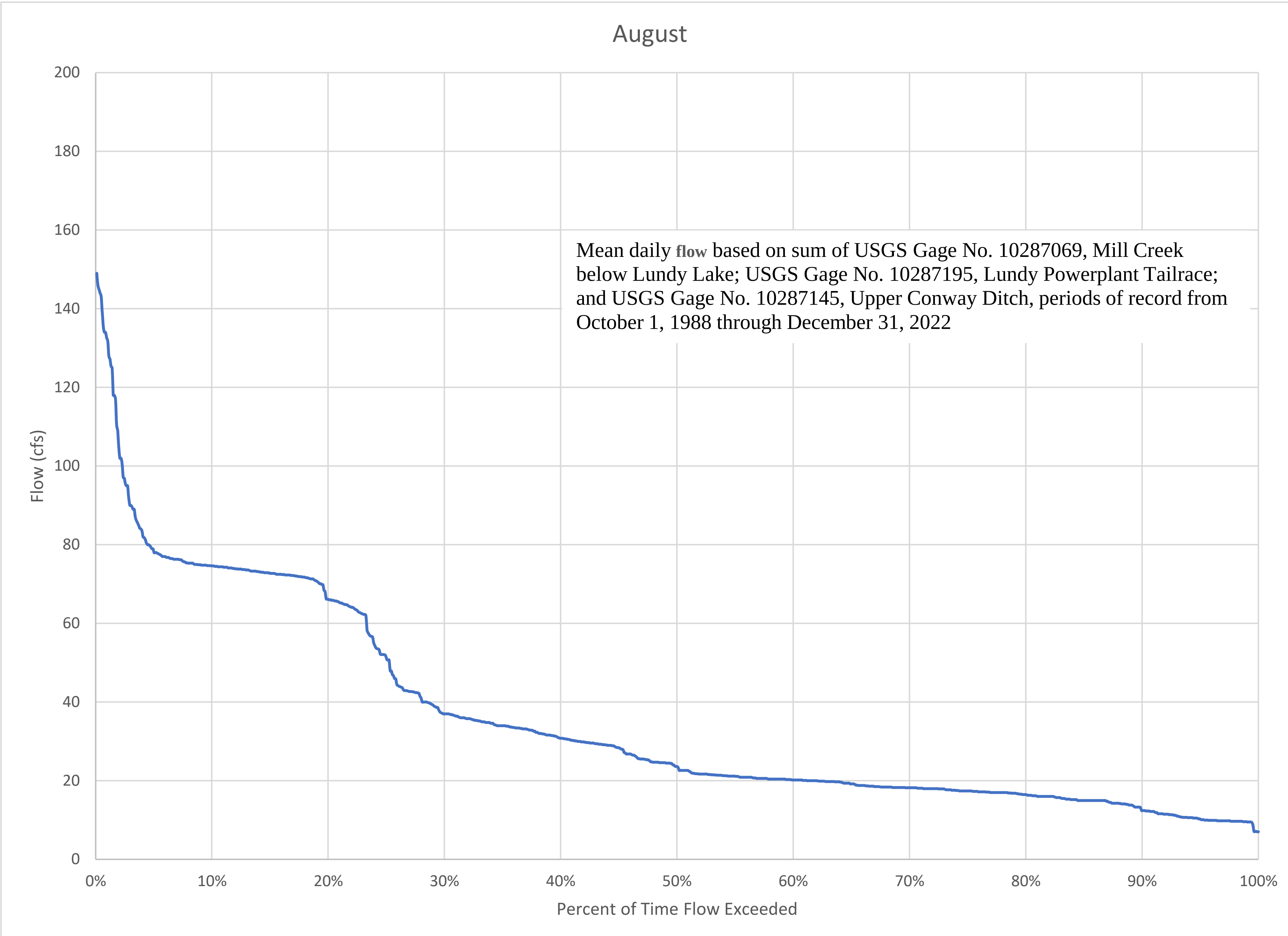

April
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded



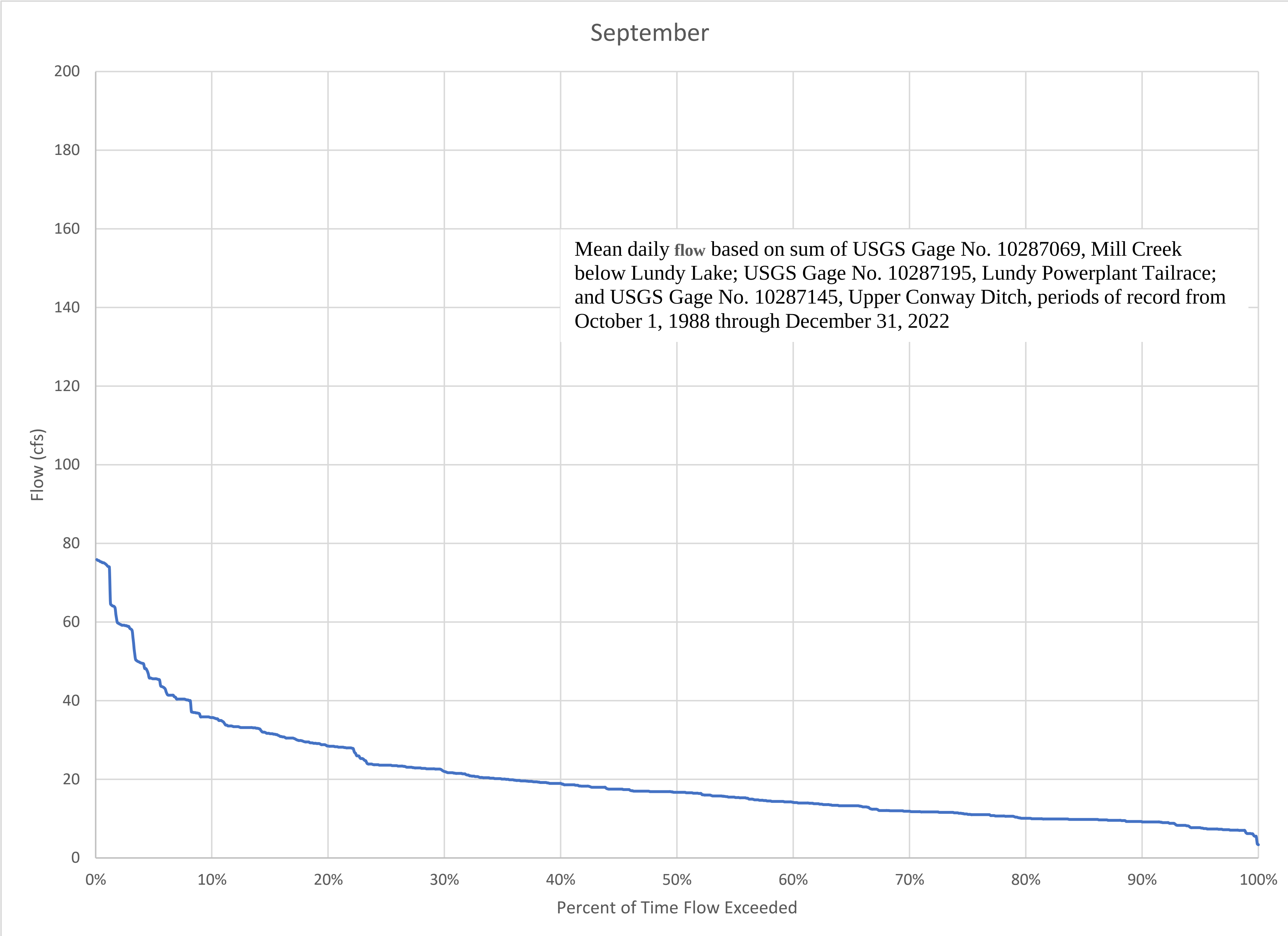
May
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022


June
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022


July
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022



August
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022


September
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
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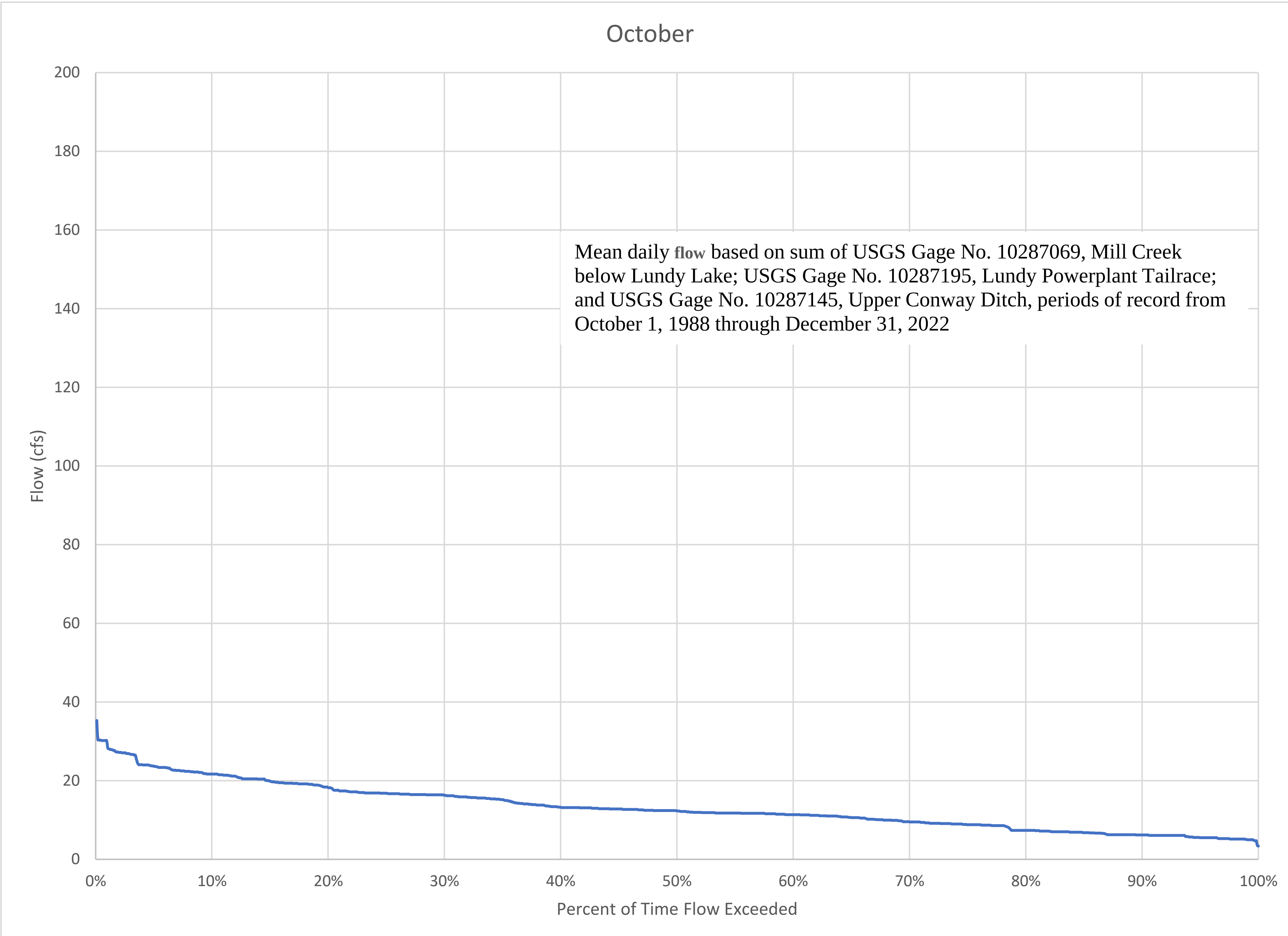
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded



October
200
180
160
140
120
100
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0
Flow (cfs)
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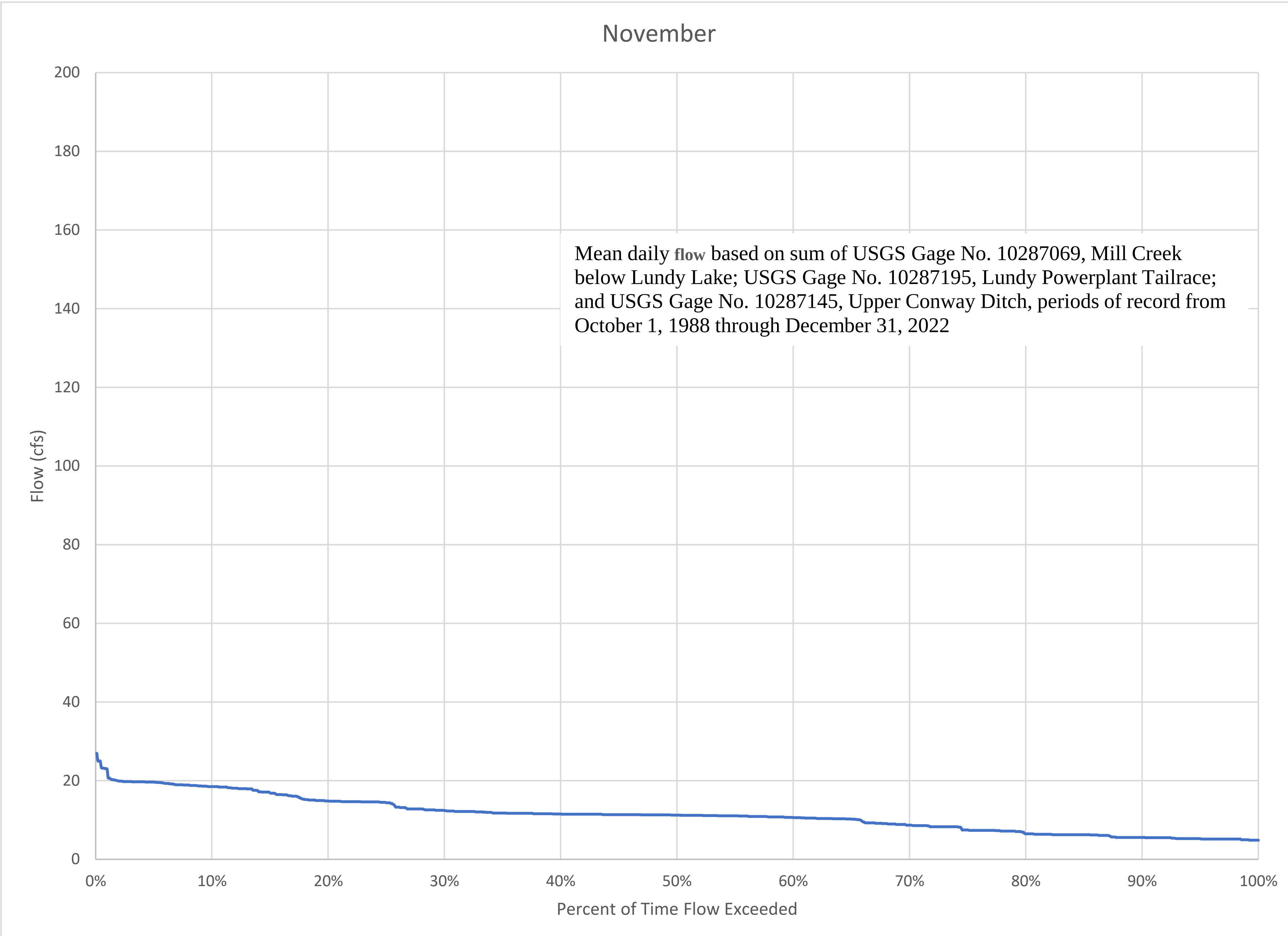
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022


November
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
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80
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0%
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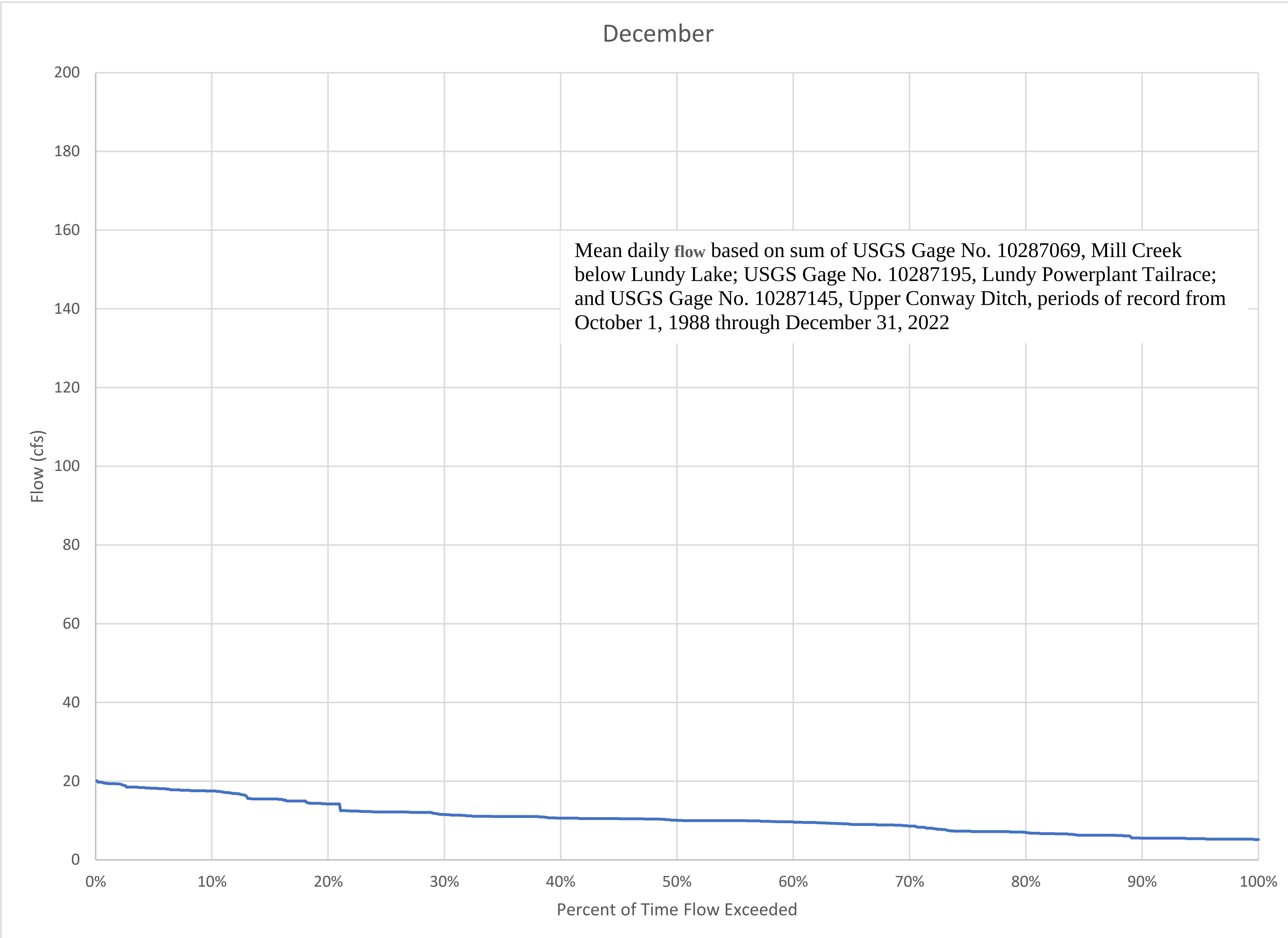
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded


December
Mean daily flow based on sum of USGS Gage No. 10287069, Mill Creek below Lundy Lake; USGS Gage No. 10287195, Lundy Powerplant Tailrace; and USGS Gage No. 10287145, Upper Conway Ditch, periods of record from October 1, 1988 through December 31, 2022
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Flow Exceeded

Appendix F

Cultural Resources (Privileged)

This Material is Privileged Information (CUI//PRIV).
Members of the Public may Obtain Nonpublic or Privileged Information by Submitting a Freedom of Information Act (FOIA) Request.