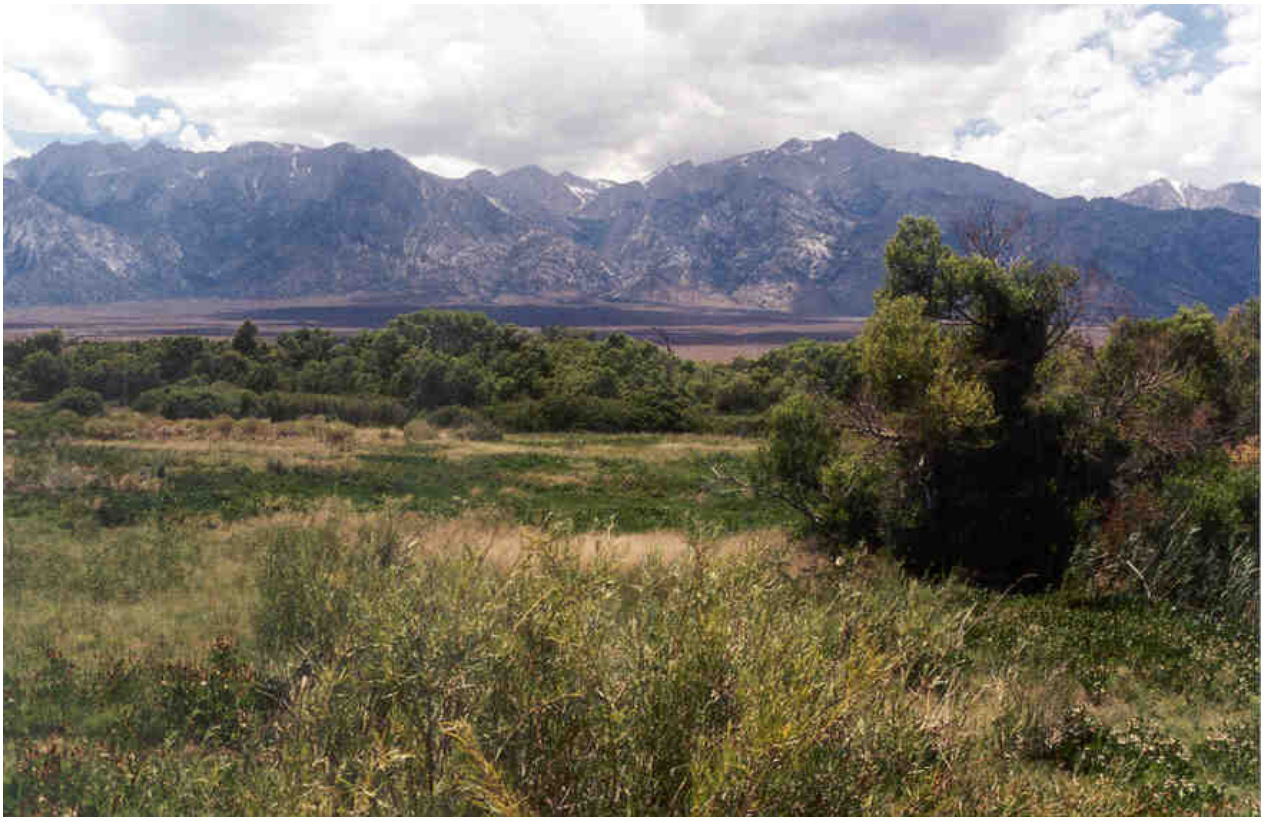
FINAL AD HOC
YELLOW-BILLED CUCKOO
HABITAT ENHANCEMENT PLAN



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Prepared by
Los Angeles Department of Water and Power
300 Mandich Street
Bishop, California 93514

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1.0 INTRODUCTION

This document provides plans for Yellow-billed Cuckoo Habitat Enhancement for the Baker Creek and Hogback Creek areas that were developed by participants of the Parties to the *1997 Memorandum of Understanding Between the City of Los Angeles Department of Water and Power, the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club and the Owens Valley Committee* (MOU). Other participants in plan development included Earthworks Restoration, Inc. (Earthworks), a consultant selected by the MOU Parties, and the grazing lessees of the Baker and Hogback Creek areas.

The Yellow-billed Cuckoo (YBC) is listed as a California Endangered Species and a U.S. Forest Service Region 5 Sensitive Species. YBC were first documented in 1891 in the Owens Valley when one bird was seen near Bishop by the first ornithologist to visit the valley (Fisher 1893) and first reports of YBC at Baker and Hogback Creeks were made in 1968 and 1977 respectively. YBC have occurred in these two areas in small numbers but it is not known if they are present every year. Los Angeles Department of Water and Power (LADWP) obtained the necessary permit and MOU to conduct YBC surveys utilizing standard protocol and completed surveys at Baker Creek in 2007 and 2008. YBC were present both years, but nesting was not confirmed. A peak of five cuckoos was observed in the Baker Creek area in 1991 but no more than one cuckoo has been found in a year at Hogback Creek. YBC breeding behavior has been observed at both sites. However, as of April 2009, no actual YBC nests have been found in the Owens Valley.

Population estimations for the Western yellow-billed cuckoo (the subspecies that occurs in California and the western US) in 1999 showed only about 50 pairs existing in California with reported significant declines in recent decades due to destruction of riparian habitats (CDFG 2009). Small increases in YBC habitat at Baker and Hogback Creeks, which could result in a few more nesting pairs of cuckoos, are therefore significant given the overall low population estimates for California.

Baker Creek is situated in the Middle Owens River Sub-basin, specifically located along Baker Creek and Giroux Ditch in an area approximately 1.5 miles west of the town of Big Pine, California. Riparian habitat is driven by springs and seeps, Baker Creek and agricultural irrigation. Hogback Creek, situated in the Lower Owens River Sub-basin, is located on the northwest corner of the Alabama Hills, west of U.S. Highway 395 and between the towns of Independence and Lone Pine, California. Hogback Creek and a major spring complex flow through the site (Figure A).

Section III.A.1 of the 1997 MOU identifies “Additional Commitments” that include studies, evaluations and commitments to specific issues. One of the issues brought forward in this section of the MOU was the evaluation and development of Yellow-billed Cuckoo Habitat Enhancement Plans for the riparian and woodland areas of Baker and Hogback Creeks.

The MOU directed Consultants to first conduct an evaluation of the condition of YBC habitat in the riparian woodland areas of Hogback and Baker Creeks. Based on that evaluation the MOU directed the Consultants to develop, as they deemed warranted, Yellow-billed Cuckoo Habitat Enhancement Plans to maintain and/or improve Yellow-billed Cuckoo habitat in the Baker and Hogback areas of the Owens Valley.

Based on their habitat evaluation, the Consultants developed plans for these two areas. These plans included provisions for fencing, grazing management, irrigation, recreation management, and planting of willows and cottonwoods to improve the suitability of these areas for Yellow-billed Cuckoos.

LADWP initiated a CEQA analysis of the Consultant's plans. This analysis determined that significant impacts from the project would occur to downstream water uses and the grazing operations associated with the Baker Creek area if the project was implemented. As a consequence, a project alternative was developed by LADWP to reduce the significant impacts associated with the Consultant's plan. This alternative was included in the Draft EIR (DEIR) prepared for the project. The DEIR was completed and circulated for public comment.

The Parties were not all satisfied with the DEIR, recommendations and project developed by the Consultants, and/or the alternative developed by LADWP. The potential impacts identified in the DEIR that were associated with the Consultant's project raised concerns for some of the Parties, including LADWP, the lessee for the Baker Creek Area and some in the public. Deficiencies in the DEIR analysis were noted in comments by some of the Parties, including Sierra Club, and some in the public. The DEIR was never finalized. This initiated a process to jointly develop projects that would meet the expectations of all Parties to the MOU and the ranch lessees while providing for downstream water uses.

Meetings were held on a regular basis with participation of LADWP, Inyo County Water Department (ICWD), California Department of Fish and Game (CDFG), the Sierra Club, the Owens Valley Committee and the ranch lessee of the Baker Creek area. A meeting was also held with the ranch lessee of the Hogback Creek area. In addition to these meetings, numerous field reviews also took place with the participation of the entities noted above. Earthworks, a consulting firm, was hired to evaluate the Baker Creek Project Area, review the planting plan developed by the participants and amend the planting plan as deemed warranted. Earthworks also evaluated the Hogback Creek Project Area and developed recommendations for the site.

The plans for Baker Creek and Hogback Creek described in this document meet the goals set forth in the MOU. The goals for the projects are that areas that are highly suitable habitat for Yellow-billed Cuckoo are to be maintained; that identified areas in the Baker Creek area that are of low to medium suitability with water tables that will support native cottonwoods and willows will be enhanced through planting and land management; and that changes in grazing management at both Baker and Hogback will improve riparian habitat resulting in benefits for YBC.

The riparian habitat at both Baker Creek and Hogback Creek has been impacted by fires. Fires have had two main deleterious effects on YBC habitat at these two locations. First, some of the mature trees in which cuckoos feed and nest are killed, making the habitat less extensive and suitable. Cottonwoods (*Populus* spp.) are more susceptible than willows (*Salix* spp.) to fire mortality as they often do not stump sprout after a fire. Second, at Baker Creek, black locust trees (*Robinia pseudoacacia*), which have relatively low habitat value for cuckoos, have sprouted back more quickly than the willows and tend to become dominant on the sites that have been burned.

A 2007 wildfire burned the riparian habitat at Baker Creek within the areas of the Apple Orchard Exclosure and the Apple Orchard. The habitat began recovering with understory species sprouting back first. Within a year of the fire, many of the willow and cottonwoods had sprouted from the base of their trunks or had root sprouted while the understory species continued to

grow. Many black locust seedlings were observed to have germinated and were growing mainly in drier areas dominated by this species. Field evaluations indicate Baker Creek has yet to recover from the effects of recent fires, but that the potential exists for increased riparian woodland habitat, and thus improved conditions for YBC. Recovery of the riparian vegetation is expected based on observations of riparian areas that burned in the Brown Pasture and Brown Exclosure approximately 12 years ago.

In 1992, a wildfire at Hogback Creek, started from a controlled burn, affected much of the site. After the fire, the site was surveyed for YBC in 1993, and at least 50 percent of the riparian habitat was documented as severely impacted from the fire with most of the large trees burned completely. However, by April 1999 the riparian habitat was observed as recovering well with significant re-growth from root sprouting (Ecosystem Sciences 2004). Field evaluations in January 2009 by participants of the Parties and Earthworks concluded that Hogback Creek has recovered from fire impacts and has a dense canopy of native willows and cottonwood.

As with all riparian areas, Baker and Hogback Creeks have a dynamic habitat with vegetation that has the ability to recover from fire and flood events. It is expected that at any time the extant forest canopy will vary depending on recent events.

At Baker Creek a planting plan has been developed with the goal of improving YBC habitat within the project area. The specific planting plan will increase the suitability of YBC habitat by planting tree species to increase canopy cover mainly in areas presently designated as non-use, as well as low and medium suitability for YBC. Planting is also intended to increase the overall value of the habitat by connecting existing areas of high suitability for YBC along Baker Creek and reducing habitat fragmentation. In addition, changes in grazing management will result in improvements to riparian habitats.

At Hogback Creek, based on the species observed, the quality of the habitat is good both from a general ecological as well as range management prospective. Based on the quality of the native habitat, planting to improve conditions for YBC is not recommended for the Hogback Creek project area. Changes in grazing management, to be implemented as part of the project at Hogback Creek, will improve riparian habitats.

This document provides the details for a planting plan and black locust control plan for Baker Creek. In addition, it details grazing management plans, recreation plans, and fire management plans for both Baker and Hogback Creeks.

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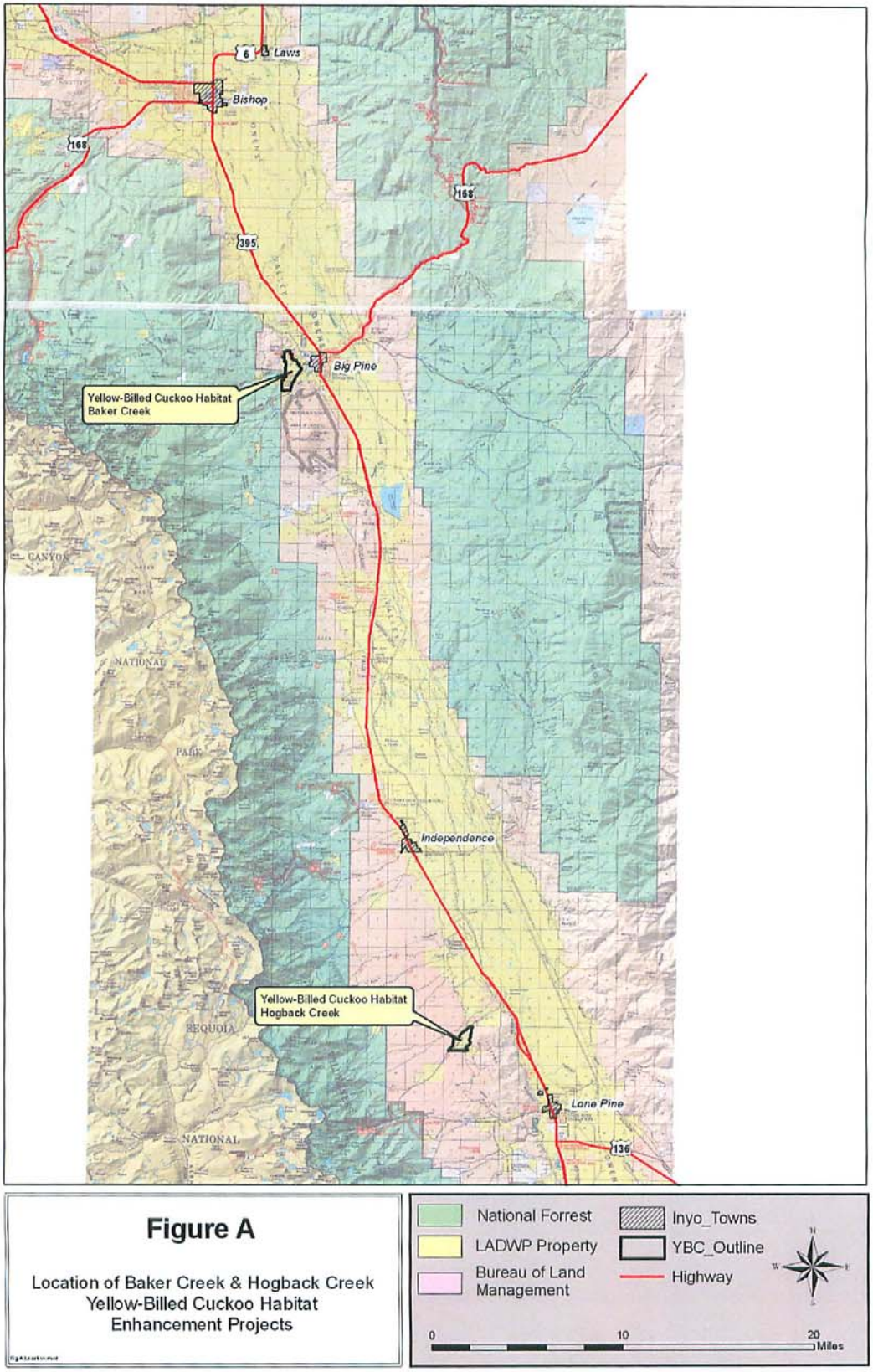


Figure A. Location of Baker and Hogback Creeks Yellow-billed Cuckoo Habitat Enhancement Projects

2.0 THE BAKER CREEK YELLOW-BILLED CUCKOO HABITAT ENHANCEMENT PROJECT

2.1. BAKER CREEK VEGETATION MANAGEMENT PLAN

2.1.1. Introduction

A working group comprised of the interested parties of the MOU (1997) and the lessee developed the consensus planting plan to maintain and/or improve the suitable habitat at Baker Creek for Yellow-billed Cuckoo (YBC) (*Coccyzus americanus*). The Baker Creek planting plan was developed by compiling information from several published sources, field reviews with members of the working group, and collection of data from the project site by LADWP. This planting plan is part of the larger Baker Creek Yellow-Billed Cuckoo Enhancement Plan. The overall enhancement plan includes management of the site for grazing, public access, and fire control as well as this planting plan.

A review of *Baker Creek Final Yellow-billed Cuckoo Enhancement Plan* (Ecosystem Sciences 2005) and specifically the analysis presented in *Appendix D* of suitable habitat for the YBC at Baker Creek provided the basis from which to investigate potential planting areas. The working group conducted field reviews in 2006 from which potential planting areas were outlined. Data across the site were collected by soil augering to assess depth to groundwater and suitability for planting. Based on the results for depth to groundwater, pilot study planting of pole cuttings was conducted in 2007. Additionally, two analyses were performed on the availability of irrigation water and general hydrology of the project site (LADWP 2006 and URS 2006).

Following a lightening strike wildfire in part of the study area, further field review was conducted by the working group in fall 2007. As with all riparian zones, Baker Creek is a dynamic habitat and has the ability to recover from disturbance such as fire and flooding. It is expected that at any time the extant forest canopy will vary depending on recent events. A field review was conducted on September 11, 2007 by representatives of LADWP, ICWD, the lessee for the area, California Department of Fish and Game, Sierra Club and Owens Valley Committee. Many of the burned riparian native trees and non-native black locust (*Robinia pseudoacacia*) were sprouting from their bases but others appeared destroyed. It was estimated recovery of the area could take 10 years or more. The field review group discussed trying to eradicate the black locust while it is vulnerable and re-sprouting.

After discussions with the California Department of Forestry, a fuel modification area was outlined that impacted a proposed planting area (See Appendix I). The working group requested further analysis to replace the area lost to the fuel modification and additional soil augering and mapping was conducted in summer 2008.

2.1.2. Goals of the Project

The 1997 MOU requires LADWP to maintain and/or improve the suitable habitat for YBC at Baker Creek. The goal of the planting plan is to improve YBC habitat within the Baker Creek project area. The specific planting plan will increase the suitability of YBC habitat by planting tree species to increase canopy cover mainly in areas presently designated as non-use, as well as low and medium suitability for YBC. Planting is also intended to increase the overall value of the habitat by connecting existing areas of high suitability for YBC along Baker Creek and reducing habitat fragmentation.

2.1.3. Description of the Project Site

The Baker Creek Yellow-Billed Cuckoo Enhancement project site is situated in the Middle Owens River Sub-basin, specifically located along Baker Creek and Giroux Ditch in an area approximately 1.5 miles west of the town of Big Pine, California. The project includes the areas within the Brown Pasture and Brown Exclosure east of Giroux Ditch, and is bisected by Sugarloaf Road, north of which the project continues to include the Apple Orchard and Apple Orchard Exclosure, and Baker Pasture. The elevation decreases from west to east across the site from 1390 meters in the southwestern edge of the Brown exclosure to 1310 meters in the northeastern edge of Baker Pasture. Topography and elevations within the site are variable.

The project site sits in a fault-bounded basin at the base of the eastern Sierra Mountains and has areas of locally shallow water table and several springs (URS 2006). As described by URS (2006), the groundwater at the site is also fed by the Giroux Ditch and Baker Creek Diversion #3 through water losses from the beds of these ditches. The combination of several faults in the project site and the creek and ditch system results in variable water table elevations over the site, which is evidenced by the location of riparian vegetation where the groundwater is shallow and upland vegetation where groundwater is not available. Groundwater elevations are variable within any year depending on runoff and irrigation both in amount and timing. Variation in groundwater also occurs in response to evapotransipiration of the existing riparian vegetation during the growing season such that ground water may rise in the fall as the riparian vegetation begins to go dormant.

2.1.3.1. Existing YBC Habitat Suitability

The project site was evaluated for YBC suitability (Ecosystem Sciences 2004). Figure B shows habitat suitability overlying an aerial photograph of the project site. The project area vegetation was mapped as polygons based on community type, and then using transect sampling data, the vegetation polygons were evaluated for YBC suitability based on a matrix of dominant canopy species, canopy cover, canopy height, and canopy volume. The evaluation determined that 8.41 percent of the Baker Creek site was high quality YBC habitat, 15.41 medium quality, 23.15 low quality, and 53.03 was classified as non-use by YBC.

The 2007 wildfire burned the riparian habitat within the areas of the Apple Orchard Exclosure and the Apple Orchard. The habitat began recovering with understory species sprouting back first. Within a year of the fire, many of the willow (*Salix* spp.) and cottonwoods (*Populus* spp.) have sprouted from the base of their trunks or have root sprouted while the understory species continue to grow. Many black locust seedlings were observed having germinated and are growing mainly in drier areas dominated by this species. Recovery of the riparian vegetation is expected based on observations of riparian areas that burned in the Brown Pasture and Brown Exclosure approximately 12 years ago, and which were evaluated for YBC suitable habitat by Dr. Steve Laymon (Ecosystem Sciences 2004). Detailed descriptions of each planting area, including areas that burned in the 2007 fire are provided below.

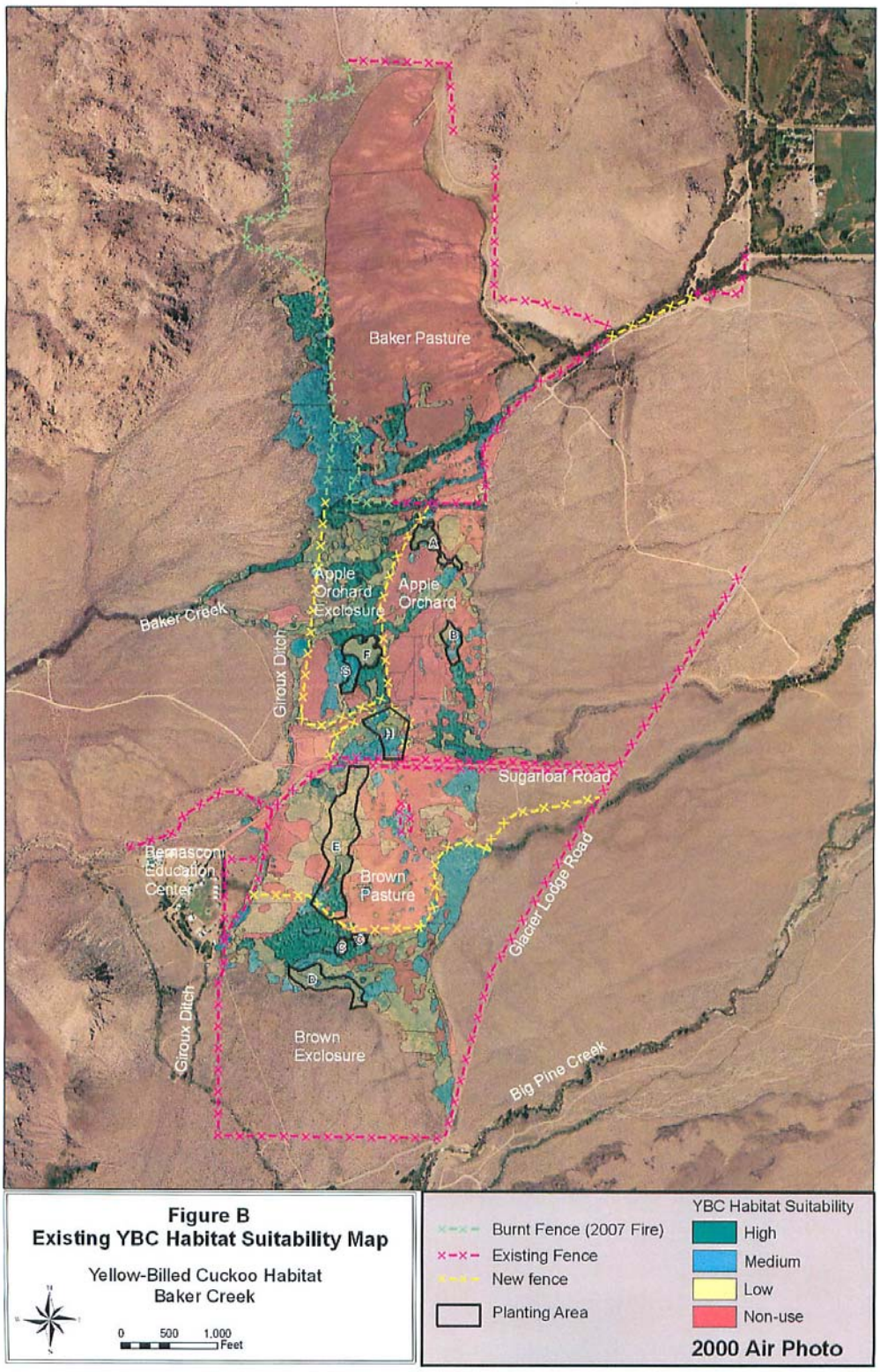


Figure B. Existing YBC Suitability Map

2.1.3.2. Existing Soil and Groundwater Conditions of Potential Planting Areas

The existing riparian vegetation at the site is a good indicator of the presence of relatively shallow groundwater at the local scale. Adequate groundwater levels are necessary to support willow and cottonwood species in establishing self-sustaining riparian habitat. Potential planting areas were delineated based on 1981 vegetation maps, 1968 air photos, and site visits guided by vegetation indicators. Figure C shows the potential planting areas. To further refine the planting areas for locations most likely to support planting of Fremont and black cottonwoods, Populus fremontii and P. balsamifera, and Gooding's and red willows, Salix gooddingii and S. laevigata, augering for depth to water information was collected. From July 7-12, 2006, Mr. Gary Peek of LADWP augered at locations selected by a sub-group that included Mr. Bob Harrington and Ms. Irene Yamashita of Inyo County Water Department, Mr. Mark Bagley of the Sierra Club, and Ms. Paula Hubbard of LADWP. After reviewing the results of the July 2006 augering, locations with documented depth to water measurements of six feet or less were re-sampled September 5-14, 2006, to determine changes in water table elevations. In addition, a series of transects were augered across the area lying between the Giroux Ditch and the Brown Pasture. In August 2008, soil and groundwater was examined in planting area J. Plant species located near the augered holes, soil texture and changes in texture were noted and the locations of the holes were recorded using a GPS. These GPS coordinates were downloaded for use in a GIS database. Figure D shows the locations by date of all the augering locations. Appendix II contains data of all the soil auguring over the site.

2.1.3.3. Test Planting of Target Species

Information gained from the augering effort was utilized to conduct experimental plantings in the spring of 2007. Fifty-four pole cuttings, including 26 Fremont cottonwood and 28 red willow were planted in planting areas A, B, E, G, and F. Figure E shows the location of each cottonwood and red willow planted as a pole cutting.

A water table depth of four to six feet is recommended for the establishment of cottonwood and willow species based on literature reviews and communications with personnel experienced in cottonwood and willow restoration. The test plantings were placed in areas with a wide range of depth to water elevations around the recommended optimum. Data collected at the time of planting included noting if the planting was a Fremont cottonwood (POFR) or a red willow (SALA), measurements of depth to water, depth of the planting hole, and comments on general observations specific to the planting area. The pole cuttings were stored in buckets of water and some had started to root prior to planting. If a pole was rooted, this condition was noted at the time of planting. The test plantings were conducted inside and outside coyote willow stands to test the success of plantings with direct competition from well established stands of this shrub willow. This information was also noted at the time of planting.

In early July 2007, the Apple Orchard area was impacted by a lightening caused wildfire. Nearly all of the riparian vegetation in this area was burned. Planting Areas A, B, F, G, and H and the trial plantings in these areas were impacted by the fire as described below. Details of the experimental plantings are noted below in descriptions of specific planting area. The data collected at planting and the results of surveys post-planting are detailed in Appendix III.

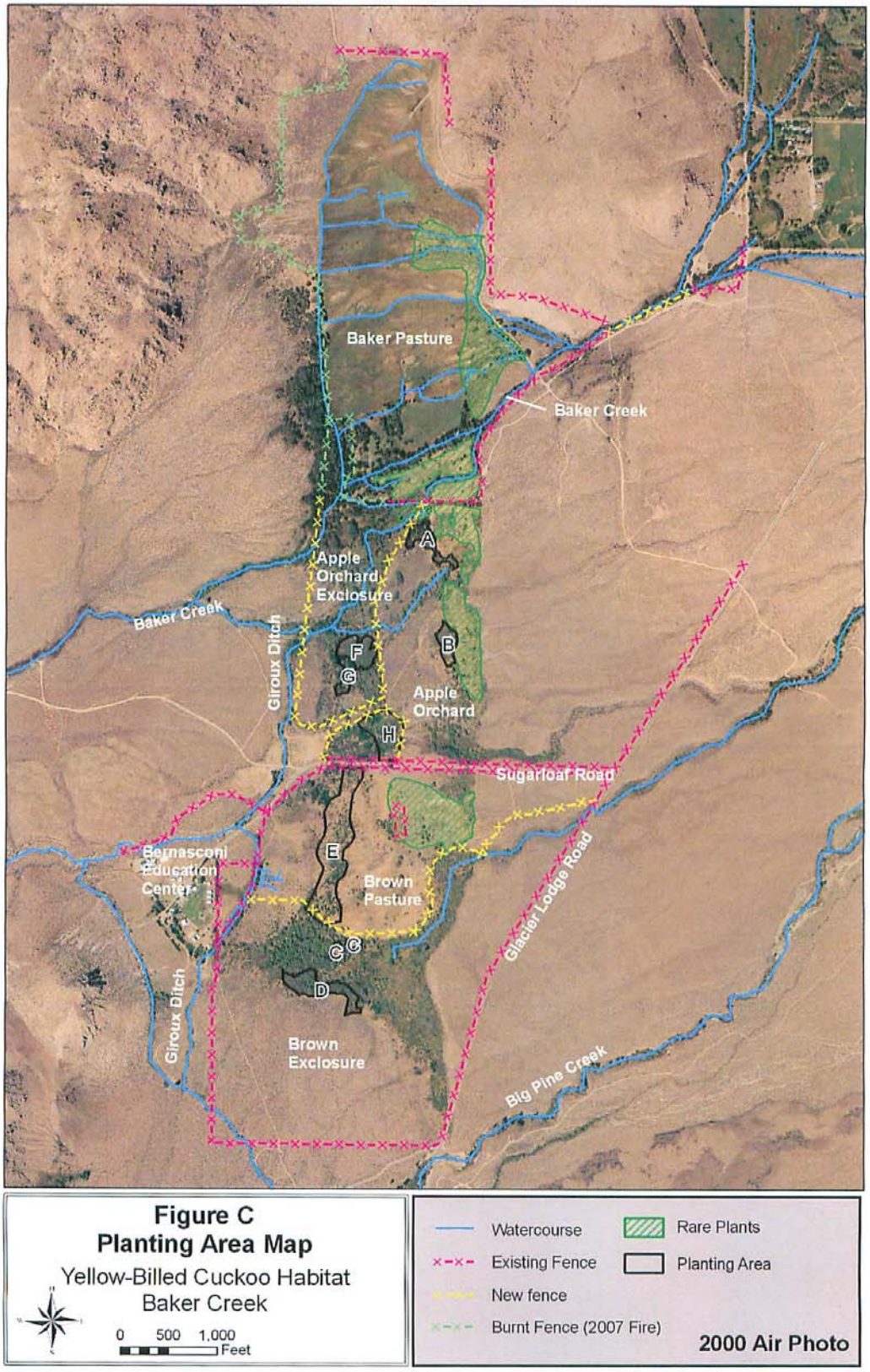


Figure C. Planting Area Map

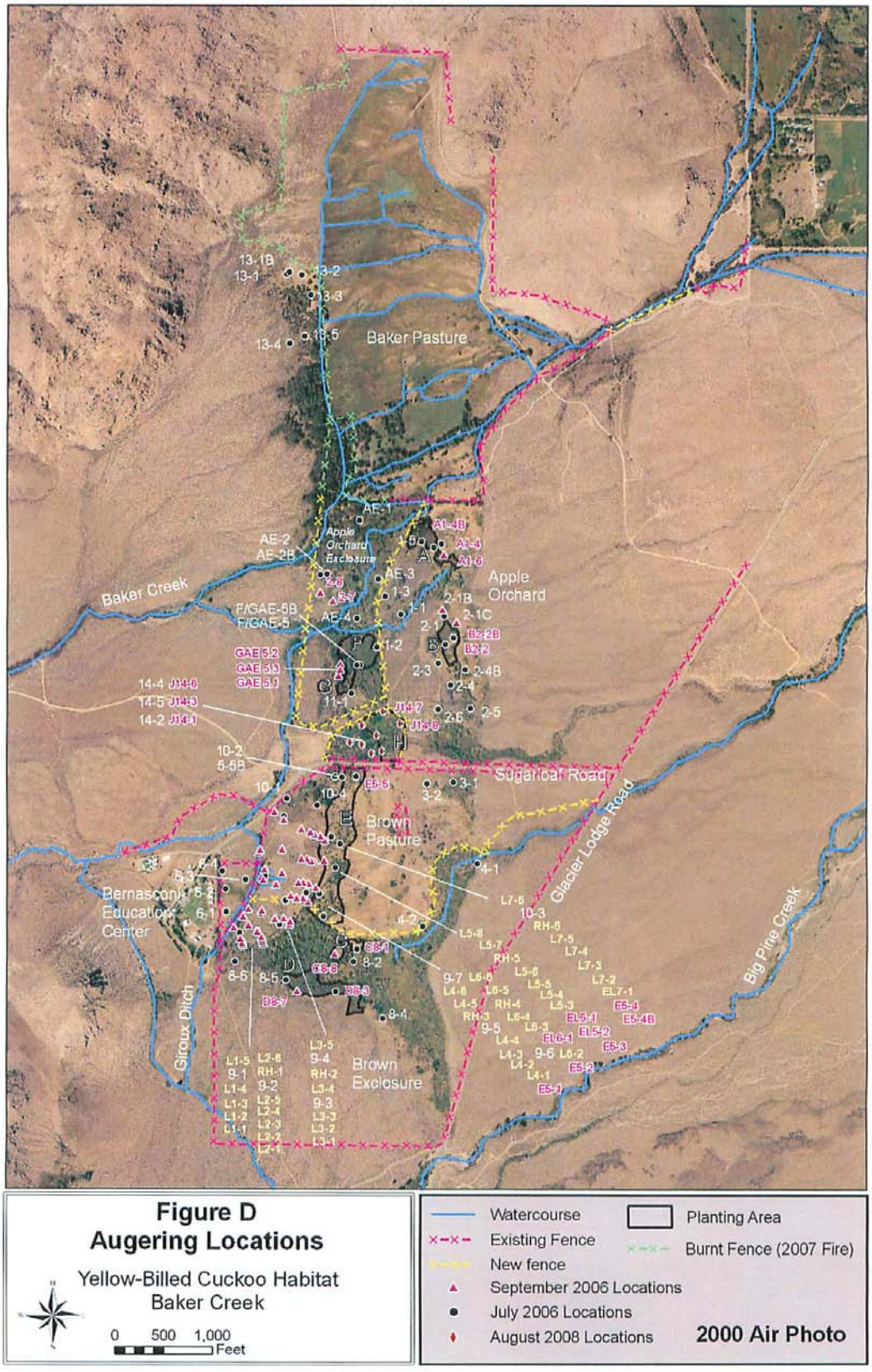


Figure D. Augering Locations

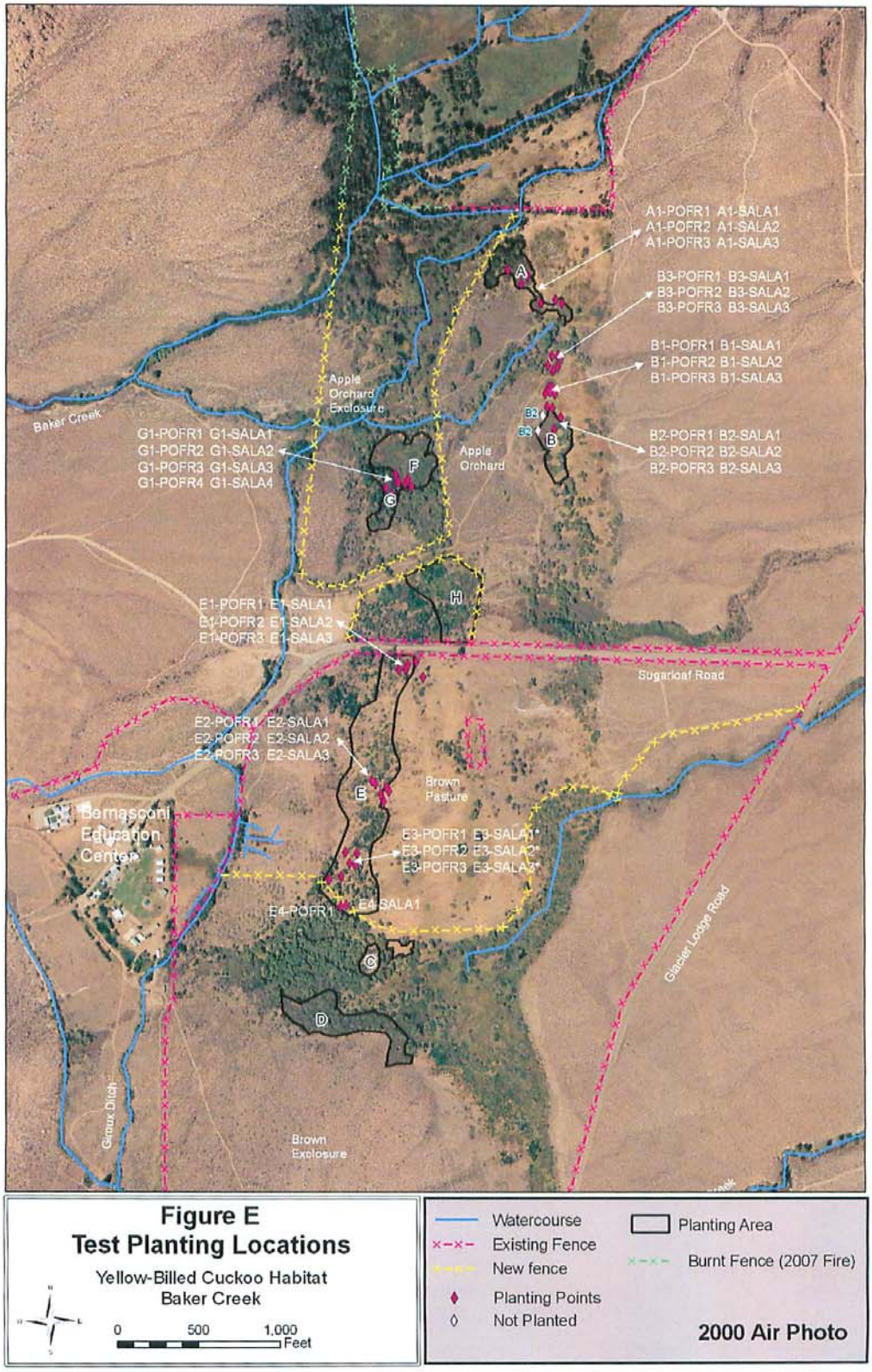


Figure E. Test Planting Locations

2.1.3.4. Descriptions of Final Planting Areas

The following section describes the conditions within each planting area. Generally, planting areas range from YBC habitat categories of non-use to medium quality habitat.

Planting Area A

This planting area is located in the Apple Orchard area of Baker Creek (Figure C) and is approximately 1.7 acres in size. Prior to the 2007 fire, vegetation was dominated by coyote willow (*Salix exigua*) patches and meadow vegetation comprised primarily of creeping wildrye (*Leymus triticoides*), wiregrass (*Juncus balticus*), white clover (*Melilotus alba*) and rubber rabbitbrush (*Chrysothamnus nauseosus*). Tree willows (Gooding's and red willows) and cottonwoods (Fremont and black) are located nearby. As of October 2008, the coyote willow and meadow vegetation have sprouted back vigorously. Willows and cottonwoods have started to sprout from their trunks or along roots.

Depth to water increased from approximately 3.8 feet in July to 4.8 feet in September at one location. A new location sampled in September had a depth to water of 6 feet. Water table elevations measured in April during trial plantings ranged from 1.9 to 5.4 feet. The water table depths observed in augered locations are within the range of planting suitability for willow and cottonwood pole plantings. Soil texture and depth to water data are presented in Table 1.

Table 1. Water Table Data for Planting Area A

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006	Water table (ft) April 2007
A1-4	Loam in the near surface horizons with clay and sand at depth.	3.8	4.8	
A1-4B		est. 3.8	3.8	
A1-6			6.0	
A1-POFR1 near 1.4				5.4
A1-POFR2 near 1.6				2.6
A1-POFR3 near 1.6				1.9
A1-SALA1 near 1.4				4.5
A1-SALA2 near 1.4				2.8
A1-SALA3 near 1.6				2.6

A total of three cottonwoods and three willows were planted in this area during trial planting. Plantings were given individual identifiers for future reference. The identifier notes the area (A1) followed by the code for the genus and species (POFR for cottonwood and SALA for tree willow) followed by a number. All of the poles were sprouting leaves when surveyed on June 4, 2007. All of the trial plantings in Planting Area A were impacted during the July wildfire. In October 2007 there was no sign that the trial plantings survived the fire. These plantings were evaluated again in the Spring 2008 and none survived the fire (See Appendix III).

Pole plantings of willow and both Fremont's and Black cottonwood, will be conducted within the coyote willow patches in Area A as well as in meadow areas. If successful, this would create a more continuous belt of forest habitat for Yellow-billed Cuckoos along the easternmost fault line of the Baker Creek area, with riparian corridors connecting the planting area to the dense riparian area located within the Apple Orchard Exclosure.

Planting Area B

This planting area is approximately 1.3 acres in size and is located in the Apple Orchard area of Baker Creek (Figure C). Prior to the fire, the vegetation was dominated by coyote willow patches and meadow vegetation comprised primarily of creeping wildrye, wiregrass, sunflower (*Helianthus annuus*), white clover and rubber rabbitbrush. Tree willows and large shrub willows are located nearby. As described for Planting Area A, the vegetation has sprouted back and is growing, including willow species.

Depth to water increased from approximately 5.6 feet in July to 6.0 feet in September. Two additional locations sampled in September had water table measurements of 7.3 feet and 6.6 feet. Water table elevations in April measured during trial plantings ranged from 1.3 to 5.3 feet. Two additional augered holes located on the west edge of Planting Area B had depth to water measurements that exceeded 6.0 feet and, therefore, were deemed too deep to plant. Some of the water table depths slightly exceed the range of planting suitability for willow and cottonwood pole plantings. Studying planted tree survival and growth in this area will provide useful information for future planting regarding water table depths acceptable for tree establishment. Soil texture and depth to water data are presented in Table 2.

Table 2. Water Table Data for Planting Area B

Auger hole	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006	Water table (ft) April 2007
B2-1B	Loam in the near surface horizons with clay and sand at depth.		7.3	
B2-2		5.6	6.0	
B2-2B		est. 6.0+	8.5	
B2-2C			6.6	
B1-POFR1 near 2.1B				1.3
B1-POFR2 near 2.1B				4.0
B1-POFR3 near 2.1B				2.5
B1-SALA1 near 2.1B				3.8
B1-SALA2 near 2.1B				5.3
B1-SALA3 near 2.1B				2.5
B2-POFR1 near 2.2				4.7
B2-POFR2 near 2.2				1.5
B2-POFR3 near 2.2				2.2
B2-SALA1 near 2.2				5.3
B2-SALA2 near 2.2				2.7
B2-SALA3 near 2.2				2.8
B3-POFR1 n. of 2.1B				3.2
B3-POFR2 n. of 2.1B				3.0
B3-POFR3 n. of 2.1B				4.8
B3-SALA1 n. of 2.1B				3.0
B3-SALA2 n. of 2.1B				3.3
B3-SALA3 n. of 2.1B				3.7

A total of nine cottonwoods and nine willows were planted in this area during trial plantings. All of the planted poles were sprouting leaves on June 4, 2007. All of the trial plantings in Planting Area B were impacted during the July wildfire. In October, 2007 there was no sign that the trial plantings survived the fire. These plantings were evaluated again in the spring of 2008 and none survived (see Appendix III.).

If successful, Planting Area B combined with Planting Area A would create a more continuous belt of native forest habitat for Yellow-billed Cuckoos along the easternmost fault line of the Baker Creek area, with riparian corridors connecting these planting areas to the dense riparian area located within the Apple Orchard Exclosure.

Planting Area C

This planting area includes two planting patches that are located in the Brown Pasture Exclosure of Baker Creek (Figure C). The combined area is approximately 0.7 acres. The vegetation is dominated by meadow vegetation comprised primarily of creeping wildrye, wild rose (*Rosa woodsii*) and rubber rabbitbrush. Tree willows and arroyo willows (*Salix lasiolepis*) surround the small pockets of meadow.

At one location, the water table was below 5.6 feet in July but measured 3.5 feet in September. However, at the July sampling date, it was noted that the soil was moist at 1.0 feet. This planting area looks promising for planting success. The other planting patch is represented by auger hole C8-8. This site was noted for having moist soil at six feet although the water table was not reached. Therefore, this patch may be less successful than the patch represented by auger hole C8-1. Soil texture and augering results are presented in Table 3.

Table 3. Water Table Data for Planting Area C

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006
C8-1	Loam in the near surface horizons with sandy loam and clay at depth.	5.6+	3.5
C8-8			6.0+

No trial plantings were conducted in this planting area.

Pole planting will be implemented in the two meadow patches. If successful, this planting area combined with the existing native forest would slightly increase the acreage of habitat for Yellow-billed Cuckoos in the Brown Pasture Exclosure of the Baker Creek area.

Planting Area D

This planting area is approximately 2.9 acres and is located in the Brown Exclosure of Baker Creek (Figure C). The vegetation is dominated by dense mixed stands of coyote and arroyo willows. Other species present include wiregrass, wild rose, rubber rabbitbrush, and sedge (Carex sp.).

Depth to water sampling in July was primarily along the southern edge of the planting area. Depth to water augering was hampered by the presence of subsurface rock which prevented reaching the water table. In September, the augering locations were completed further north. The depth to water in September was approximately 3.8 feet but additional augering was limited by the presence of subsurface rocks. The water table depths were within the range of planting suitability for willow and cottonwood pole plantings, thus, plantings in this area should be successful but may be limited due to the presence of rocks. Augering results are presented in Table 4.

Table 4. Water Table Data for Planting Area D

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006
D8-3	Sandy loam	est. 1-2'	3.8 very moist
D8-7			3.8

No trial plantings were conducted in this area.

Planting will be implemented within the willow patches. If successful, this planting area combined with the existing forest, located just to the north, would increase the acreage of habitat for Yellow-billed Cuckoo in the Brown Exclosure of the Baker Creek area.

Planting Area E

This planting area is located in the Brown Pasture and Brown Exclosure (Figure C) and is approximately 8.7 acres in size. The vegetation is dominated by meadow vegetation comprised primarily of creeping wildrye, wiregrass, wild rose, and rubber rabbitbrush. Tree willows, cottonwoods, coyote and arroyo willows, and locust trees are scattered throughout this area.

Depth to water during sampling in July ranged from 3.1 to 4.8 feet. In September, water levels were equal to or deeper than July measurements but remained within the range of planting suitability for riparian tree pole plantings. Depth to water during trial plantings in April 2007 ranged from 1.0 to 5.0 feet. The results of the augering are presented in Table 5.

A total of ten cottonwoods and ten willows were planted in this area during trial plantings. All of the planted poles were sprouting leaves on June 4, 2007 except for E3-POFR2. At the end of 2007, survivorship of cottonwoods was 40 percent and for willow survivorship was 77 percent. Forty percent of the cottonwoods failed to sprout, or sprouted and wilted, while 20 percent sprouted but were broken off at the base after sprouting. One of the wilted pole cuttings was planted within a shrub willow patch. The two pole plantings that were broken off were not planted within patches of shrub willow. As of November 2008 at the end of the second year of the test, the overall survivorship of cottonwoods was 20 percent, while red willows had a 50 percent survivorship (Appendix III).

Plantings in Area E will be implemented in the meadow areas between existing trees. The pole cuttings will be planted to avoid existing cattle trails thereby allowing passage of cattle through the area to Giroux Ditch, while minimizing creation of new trails and damage to pole plantings (see Baker Creek Grazing Management Plan). In addition, black locust trees will be removed in areas that can support native riparian trees. Planting native riparian trees and replacing black locust with native species would improve and expand Yellow-billed Cuckoo habitat. Habitat acreage would increase from direct planting and by connecting with existing habitat located to the south in the Brown Pasture and to the north in the Apple Orchard Exclosure.

Table 5. Water Table Data and Pole Planting Condition for Planting Area E

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006	Water table (ft) April 2007	Pole Planting Condition Nov. 2008
E5-1	Loam to sandy loam to sand in the near surface horizons.	3.3	4.5		
E5-2		4.8	4.8		
E5-3		4.0	4.0		
E5-4		4.4	5.0		
E5-4B		3.5	3.6		
E5-5		3.1	3.3		
EL5-1			4.7		
EL5-2			5.6		
EL6-1			5.1		
EL7-1			5.4		
E1-POFR1 near 5.5				1.8	Broken
E1-POFR2 near 5.5				5.0	Gone
E1-POFR3 near 5.5				4.3	Not Sprouted
E1-SALA1 near 5.5				1.4	Gone
E1-SALA2 near 5.5				1.4	Sprouted
E1-SALA3 near 5.5				3.3	Gone
E2-POFR1 near 5.4				2.8	Broken
E2-POFR2 near 5.4				5.0	Not Sprouted
E2-POFR3 near 5.4				4.5	Sprouted
E2-SALA1 near 5.4B				3.0	Questionable
E2-SALA2 near 5.4				3.3	Sprouted
E2-SALA3 near 5.4				2.9	Sprouted
E3-POFR1 near 5.2				3.1	Broken
E3-POFR2 near 5.2				3.1	Broken
E3-POFR3 near 5.2				3.9	Sprouted
E3-SALA1 near 5.2				3.6	Not Sprouted
E3-SALA2 near 5.2				3.3	Sprouted
E3-SALA3 near 5.2				3.3	Not Sprouted
E4-POFR1 near 5.1				1.0	Not Sprouted
E4-SALA1 near 5.1				1.7	Not Sprouted

Planting Area F

This planting area is located in the Apple Orchard Exclosure of Baker Creek (Figure C) and is approximately 2.1 acres. This area lies adjacent to Planting Area G but has been designated as a separate planting area because of the variation in the vegetation composition in the two locations. The vegetation prior to the fire was dominated by a coyote willow patch with creeping wildrye, rubber rabbitbrush, and some black locust. As described previously for planting areas A and B, the vegetation has sprouted back and is growing including willows and black locust.

Depth to water during sampling in July 2006 was 4.3 and 4.5 ft. In September 2006, water levels remained the same as July or increased slightly. Depth to water during trial plantings in April 2007 are presented with the discussion of Planting Area G. Auger holes F/GAE-5 and F/GAE-5B are located in an area that lies on the edge of both Planting Area F and G. The soil description and augering results are presented in Table 6.

Table 6. Water Table Data for Planting Area F

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006
F/GAE-5	Loam to sandy loam in the near surface horizons.	4.3	4.3
F/GAE-5B		4.5	4.8

Plantings will be established within the areas that were dominated by coyote willow prior to the July 2007 fire. Prior to the fire, the density of the willows would have hampered access for planting activities. Planting will take place while these coyote willow thickets are recovering and, therefore, more penetrable. If successful, this planting area combined with the existing habitat located to the north and south would increase the acreage of habitat for Yellow-billed Cuckoos in the Apple Orchard Exclosure.

Planting Area G

This planting area is located in the Apple Orchard Exclosure of Baker Creek (Figure C) and is approximately 1.0 acre in size. The vegetation, comprised primarily of creeping wildrye, brome (*Bromus* spp.), tree willows, coyote and arroyo willows, and black locust is recovering since the 2007 fire.

Depth to water sampling in this area conducted in September 2006 resulted in water levels between 6.3 and 7.7 feet. Depth to water during trial plantings ranged from 1.2 to 5.4 feet. Areas that were originally designated for trial plantings were not implemented because of standing water in one location and depth to water deeper than six feet in another. Unfortunately, the trial plantings were impacted by the July 2007 fire. The results of the augering are presented in Table 7.

A total of four cottonwoods and four willows were planted in the Planting Area G near the border with Planting Area F. All of the plantings were sprouting leaves on June 4, 2007 except for G1-SALA2 (Appendix III.). All the trial plantings were destroyed in the fire.

Pole cuttings will be planted in areas between existing trees and black locust will be replaced where native riparian trees will grow. If successful, this planting area combined with the existing habitat located to the north and east would increase the acreage of suitable habitat for Yellow-billed Cuckoos in the Apple Orchard Exclosure.

Table 7. Water Table Data for Planting Area G

Auger hole -#	Soil description	Water table (ft) July 2006	Water table (ft) Sept. 2006	Water table (ft) April 2007
GAE-5.1	Sandy loam in the near surface horizons with sand at depth		7.7	
GAE-5.2			6.3	
GAE-5.3			7.4	
F/GAE-5	Loam to sandy loam in the near surface horizons.	4.3	4.3	
F/GAE-5B		4.5	4.8	
G1-POFR1 near AE-5, 5B				3.3
G1-POFR2 near AE-5, 5B				3.9
G1-POFR3 near AE-5,5B				3.6
G1-POFR4 near AE-5,5B				5.4
G1-SALA1 near AE-5,5B				2.8
G1-SALA2 near AE-5,5B				1.7
G1-SALA3 near AE-5,5B				1.2
G1-SALA4 near AE-5,5B				4.3

Planting Area H

This planting area is located in the Apple Orchard area of Baker Creek (Figure C) and is approximately 3.3 acres in size. This area is a riparian corridor that lies within the Apple Orchard Exclosure that runs from the western fault line riparian habitat to the east along the Sugarloaf Road. Prior to the 2007 fire, the vegetation community was dominated by black locust in some locations but tree, arroyo and coyote willows comprise the majority of the riparian canopy in other locations. All native riparian tree and shrub species were observed sprouting back from their trunks or roots and many black locust were observed sprouting after the fire. The diverse understory in this area is recovering from the fire and is comprised of creeping wildrye, white clover, sedge, licorice (Glycyrrhiza lepidota), nettle (Urtica dioica) and other species.

Habitat enhancement would involve removing black locust in areas where they are growing among native trees. Black locust will also be removed in areas where they are the dominant tree species where water tables are conducive to willow/cottonwood establishment. Pole cuttings will be planted in areas between existing trees and black locust will be replaced where native riparian trees will grow. If successful, this planting area combined with the existing habitat located to the north and south would increase the acreage of suitable habitat for Yellow-billed Cuckoos in the Apple Orchard Exclosure.

No augering for depth to water information or trial plantings were conducted in this planting area in 2006. During a field review on November 7, 2007 there was water at the soil surface in some areas. This shallow water table was likely a result of decreases in transpiration due to fire damage to riparian vegetation and due to the onset of fall and natural decreases in transpiration. During the growing season, depth to water would not be at the surface, and the area should be suitable for pole plantings of native trees. In August 2008, soil augering was conducted in eight locations across Area H. Depth to groundwater ranged from 3.6 – 6.1 feet at five of the augering locations mainly in the eastern half of the area. In three of the locations in the western portion of the Area H, groundwater was not encountered due to rocky or hard soil.

Table 8. Water Table Data for Planting Area H

Auger hole -#	Soil description	Water table (ft) Aug. 2008
H14-1		6.1
H14-3		3.6
H14-6		3.8
H14-7		4.1
H14-8		6.0

2.1.4. Planting Plan Implementation

Planting within the final planting areas will target cottonwood and tree willow as well as mid-canopy willow species to reflect the existing conditions within high suitability areas for the YBC. Over time, canopy cover will increase with the addition of these tree species. The main species that will be planted across the final planting areas are Fremont cottonwood and red willow. Black cottonwood is mostly observed at the project site around the old homestead in Planting Area A in the Apple Orchard, and it will be included as a sub-dominant species. Gooding's willow will be planted in the wettest areas where there is a reliably shallow ground water throughout the season. Additionally, arroyo willow will be included in all areas as a mid canopy willow species. Table 9 presents the species list, plant spacing, and target range of percent composition of species for the project. Conditions observed during planting will determine actual percent composition for any given planting area based on depth to groundwater.

Planting of the cottonwood and willow species will be implemented using pole cuttings. Pole cutting material was selected for the Baker Creek project based on the site analysis of the lack of predictable, reliable irrigation water availability during plant establishment and groundwater conditions across the site as described previously in Section 2.3 of this planting plan (URS 2006; LADWP 2006). Additionally, irrigation within the site would be difficult because of conflicting management goals, including public access and grazing, both of which could impact irrigation systems. In general, irrigation of riparian areas is difficult in wildlands because wildlife can be destructive and constant maintenance is required for an above ground system. The *Baker Creek Final Yellow-billed Cuckoo Enhancement Plan* (Ecosystem Sciences 2005) called for irrigation by constructing diversions and using old channels to take water when the runoff flows were adequate to take water without impacting current water users. This type of irrigation, even if reliable, cannot be counted on to establish the riparian plantings at the site. It is unknown whether the water supplied to these old channels would sub out laterally to increase riparian habitat. It is more likely the water would simply infiltrate and runoff the site. Furthermore, if flows are above the level that would allow taking water for the habitat enhancement, then generally groundwater would rise and surface saturation would occur in many of the riparian areas. Riparian habitat generally is re-invigorated through episodes of flooding which is likely to occur without irrigation. Riparian enhancement is most successful when appropriate areas are planted that meet specific requirements of the desired target species.

Therefore, the planting plan for the project site was developed with no irrigation planned to establish the pole cuttings but rather by relying on suitable site characteristics. Non-irrigated pole cuttings of cottonwood and willow species have been demonstrated to be effective in restoring riparian habitats in the arid southwest where soil and groundwater conditions are suitable (Dreesen et al. 2002).

Table 9. Baker Creek Target Upper and Mid-Canopy species List and Plant Spacing

Botanical Name	Common Name	Stock Type	Pole Cutting Spacing in Feet (Ultimate Tree Spacing) [1]	Range of Percent of Total for Upper and Mid Canopy Species[2]	Target Number Per Acre[3]
Populus balsamifera trichocarpa	Black cottonwood	Pole cutting	12 (40)	0-10	0-35
Populus fremontii	Fremont cottonwood	Pole cutting	12 (40)	30	105
Salix gooddingii	Gooding's willow	Pole cutting	12 (30)	0-10	0-35
Salix laevigata	Red willow	Pole cutting	12 (20)	40-60	140 -209
Salix lasiolepis	Arroyo willow	Pole cutting	12 (20)	10	35

[1] Spacing of pole cuttings accounts for 80 percent mortality of cottonwoods and 50 percent mortality of willows during 2-year establishment period based on limited test plantings.

[2] The range of percent composition is provided to illustrate potential species composition within planting areas. Actual composition will be determined based on depth to groundwater of specific site conditions. Therefore, the core species for all planting areas will be red willow and Fremont cottonwood, and specific species requirements will determine the presence of other species.

[3] Target number of plants per acre assumes 349 trees per acre (12' triangular spacing) with no existing canopy trees in a planting area; therefore, number of pole plantings will be adjusted to fit existing site conditions for each planting area using target percent canopy and 12' spacing, as well as depth to groundwater criteria. When trees are present, plantings should be 12' from the edge of existing canopy.

Adequate suitable material for pole cuttings for cottonwood and willow species may be difficult to impossible to collect in one season. Additionally, access and the logistics of planting all the required cuttings also may make implementation difficult to accomplish in one season. Therefore, a phased approach is recommended over at least three to five years.

Observations of the final planting areas indicate several native species presently occur and form the understory. In the area impacted by the July 2007 fire, these understory species are recovering based on observations made at the site in August and October 2008. Mainly, the understory is composed of creeping wild rye, coyote willow, stinging nettle, licorice, wild rose, and wire rush. In some areas, white clover and non-native bromes are found in the understory or dominate the understory. Since currently there is an existing understory of mainly native species and there is no planned irrigation for plant establishment, no planting of understory species is recommended.

The following sections specify the phasing of planting, the methods of planting, and the monitoring of establishment of the pole cuttings.

2.1.4.1. Phasing of Pole Cutting Installation

The number of pole cuttings per planting area is based on an estimate of current native species per the habitat suitability index as well as an estimate of suitable area within the planting area. Based on the spacing determined from survivorship of test plantings and the target species composition range specified in Table 9, areas have been prioritized for planting in order to accommodate the amount of pole cutting required for the planting plan. Areas were considered for the initial planting season where the 2007 fire burned the understory since access will be somewhat easier. Table 10 presents estimated numbers of pole plantings per planting area and the phased approach for planting.

Planting will begin in the first planting season following plan approval, and continue until each area is planted, likely within three to five seasons depending on the availability of pole cuttings. Additional planting will take place as the black locust control plan is implemented within specific planting areas over the next eight-ten years as recommended by Ecosystem Sciences (2005).

Table 10. Estimated Number of Species and Phasing for Pole Planting

Planting Area	Acres	Estimate of Required Total Pole Cuttings[1]	Estimate of Number of Pole Cuttings for Each [2]	Status of Understory	Year(s) Proposed to Plant
Area A	1.7	593	POBA 59 POFR 178 SALAE 297 SALAS 59	Recovering from fire	Year 1
Area B	1.3	397	POFR 139 SALAE 218 SALAS 40	Recovering from fire	Year 1
Area C	0.7	244	POFR 73 SAGO 24 SALAE 122 SALAS 24	Moderately developed	Year 2
Area D	2.9	768	SAGO 364 SALAE 404	Densely developed	Year 2
Area E	8.7	3,036	POFR 911 SALAE 1,821 SALAS 304	Moderately developed	Year 3-5+
Area F	2.1	733	POFR 219 SALAE 440 SALAS 73	Recovering from fire	Year 1
Area G	1.0	262	POFR 104 SALAE 209 SALAS 35	Recovering from fire	Year 1+
Area H	3.3	903	POFR 271 SALAE 542 SALAS 90	Recovering from fire	Year 2-3+

[1] Based on existing canopy estimates and habitat suitability index canopy range.
[2] Based on augering data and species requirements for groundwater levels.
+ Indicates additional planting will follow continued ROPS removal over several years.

2.1.4.2. Plant Material Collection and Preparation

Pole cuttings will be collected in the Big Pine area, if possible, but at a maximum within 25 miles of the Baker Creek area. Plant material will be collected from many individuals to include high genetic diversity. For dioecious species, collection from many individuals also assumes that an adequate number will come from both male and female trees since timing of implementation may preclude determining the sex of trees. Access to the collection areas will be conducted to minimize disturbance to sensitive habitats. The following methods will be used to harvest and store the pole cuttings:

- Poles will be harvested during the dormant season and will be stored in a cool location. Lower branches of cottonwoods will be avoided if possible to increase rooting potential (USDA 2005).
- Cuttings should be taken with sharp pruning shears or saw, without causing injury to the donor trees. When taking cuttings, cut the bottom slanted and the top square. These cuts will be used to easily identify which end is to be planted with the slanted cut down and the buds pointing up.
- Side branches will be cut from the harvested poles. Dormant leaf buds will not be removed (University of Arizona 2000). Pole cuttings will be soaked in water for a minimum of 24 hours and up to 14 days prior to planting.
- Straight poles will be at least ¾ inches but preferably 2-3 inches in diameter that are long enough to allow no more than between 18 and 24 inches above ground and one foot of water table contact below ground will be the preferred plant material. Depth to water table ranges from 2-7.5 feet with an average of 4.9 feet within the planting areas. Therefore, pole cuttings generally should range from four to ten feet in length.

<u>Planting Criteria</u>
Based on the data collected in the final planting areas, adequate depth to groundwater exists for cottonwood and willow species to establish from pole cuttings without irrigation. Overall, a water table depth of four to six feet is recommended for the optimum establishment of these species. Planting criteria for cottonwood pole planting includes a minimum of three feet of aerated soil above the water table (USDA 2005). If the water table is higher than three feet, willows can be planted in areas where the water table comes within one foot of the ground surface (University of Arizona 2000). Within the Baker Creek site, it is recommended to plant Gooding's willow in the wettest areas and arroyo willow in the driest areas.

Tables 9 and 10 present target number of each species based on present knowledge of depth to groundwater and existing habitat canopy. However, the target numbers are estimates and actual planting numbers will be determined on an as-built basis.

Access to the planting areas will be conducted to minimize disturbance to sensitive habitats. Each year prior to implementing planting, a general access map will be produced to guide access points. This access map will be based on site specific conditions including surface moisture conditions as determined by the LADWP biological staff and previous years planting. Where possible to access without damage to the habitat, areas will be accessed by 4x4 trucks or by 4x4 off-road vehicles. Areas that would sustain damage from vehicles will only be

accessed by foot. In some areas, planting will occur near rare plant areas. The rare plant areas have been mapped and care will be taken to avoid impacting Owens Valley Checkerbloom (*Sidalcea covillei*) and Inyo County Star-tulip (*Calochortus excavatus*).

Planting Methods

All specified pole cuttings will be planted in the following manner.

- Planting will take place the same day that the cuttings are removed from the storage water, and the cuttings will be kept moist during transport to the planting site (University of Arizona 2000).
- Pole cuttings will be spaced within the planting areas from other pole cuttings or existing cottonwoods and tree willows at the spacing and percentages specified in Table 9.
- If a planting area is within a patch of coyote willow, the willow patch will be trimmed to ground level within a 4-foot diameter circle. These clearings will allow sunlight to reach the new plantings.
- Planting holes will be augered to a depth of approximately one foot below the water table.
- Pole cuttings will be placed into the planting hole with the slanted cut end down (buds pointed up) with the flat or square cut end up with no more than 18-24 inches of the pole above ground and one foot of water table contact below ground.
- Moist soil will be tamped around each pole cutting as the hole is backfilled to minimize air pockets.
- Cages will be placed around each pole planting or group of poles to protect new growth from herbivory if planted in a pasture. Cages will be utilized inside exclosures if herbivory is problematic based on establishment monitoring of the pole cuttings. Once the pole cuttings are past the vulnerable stage, cages should be removed to avoid girdling the trees. Temporary fencing, electric or otherwise also may be used to protect pole plantings during the establishment period.
- The location of each pole planting will be mapped using a sub-meter GPS unit recording location and species.

2.1.4.3. As-Built Plans

An As-Built Plan will be prepared that details the location of pole plantings where the soil and hydrologic conditions were suitable for planting. The As-Built plan will reflect the number of each species that was planted within the specific planting areas in both table and map form. Since initial planting will be phased over three to five years, an annual As-Built Plan shall be prepared within three months of implementation of pole planting within each year that planting takes place, and the final As-Built Plan will be prepared within three months of the last installation of pole plantings. The As-Built Plan will be used in management and monitoring of the pole plantings after installation. The As-Built Plan supersedes all previous plans.

2.1.5. Monitoring and Management

Management of the planting areas will include monitoring the pole cuttings for herbivory and checking cages. Management will also include control of non native species, mainly black locust. Additional areas of black locust removal outside the planting areas are identified below.

2.1.5.1. Pole Cutting Monitoring

Once planted, pole cuttings should be monitored monthly for the first growing season (March to October) to check for herbivory on cuttings without cages. Pole cuttings with cages, or temporary fencing, also should be checked to see that the protective structures are secure through the season. These qualitative monitoring surveys on a monthly basis will consist of general observations, such as fitness and health of the planted species, pest problems, weed establishment, mortality, and drought stress, will be noted in each site visit within each planting area according to the As-Built Plan.

Monitoring in the first season after planting will include an annual tally of dead and/or declining plant stock planted that season, and visual estimates of cover of black locust. This information will be used to guide replanting efforts and black locust control.

2.1.5.2. Replacement of Dead Cuttings

Some mortality is anticipated in the first season for cottonwood and willow pole cuttings based on the test planting information. Although the test plantings were limited in number because of the fire, the data was used to determine planting densities and to define allowable mortality. The mortality for the pole cuttings in the limited test plantings is in the range of normal mortality of these species based on restoration experience, and therefore can be considered as targets for management purposes within the Baker Creek site. Replacement of pole cuttings will be implemented when mortality within individual planting areas in the first season for cottonwoods and willow is greater than the following:

- Cottonwoods > 50 percent
- Willows > 20 percent

2.1.5.3. Pest Management

Monitoring is required for vertebrate herbivory on the planted material to assess the need for caging or fencing. Management of cattle grazing is addressed in the Baker Creek Grazing Management Plan section.

Invertebrate herbivory is generally not a problem for riparian species that are located in suitable areas for growth as these species usually easily recover from invertebrate damage.

Monitoring is required to control beaver activity within the project area. Beaver and beaver dams will be removed if the dams are causing excessive flooding, restricting flow significantly or damaging or inhibiting the development of riparian habitat. LADWP presently conducts monitoring for beavers and contracts with a beaver trapper to remove beavers.

2.1.6. Black Locust Removal

The removal and replacement of exotic black locust trees with native cottonwood and willows will improve habitat suitability for YBC, the goal of this planting plan. Since black locust can grow in drier soils than cottonwoods or willows, the black locust trees will only be removed in areas where environmental conditions indicate that native riparian species are likely to be

sustainable either by planting or by natural recruitment once the black locusts are removed. The environmental conditions to be considered include depth to water conditions and soils present at the site as previously described for willow and cottonwood planting criteria. The removal of large black locust trees will take place over eight to ten years to allow for native tree establishment to replace the canopy cover currently provided by this species (Ecosystem Sciences 2005).

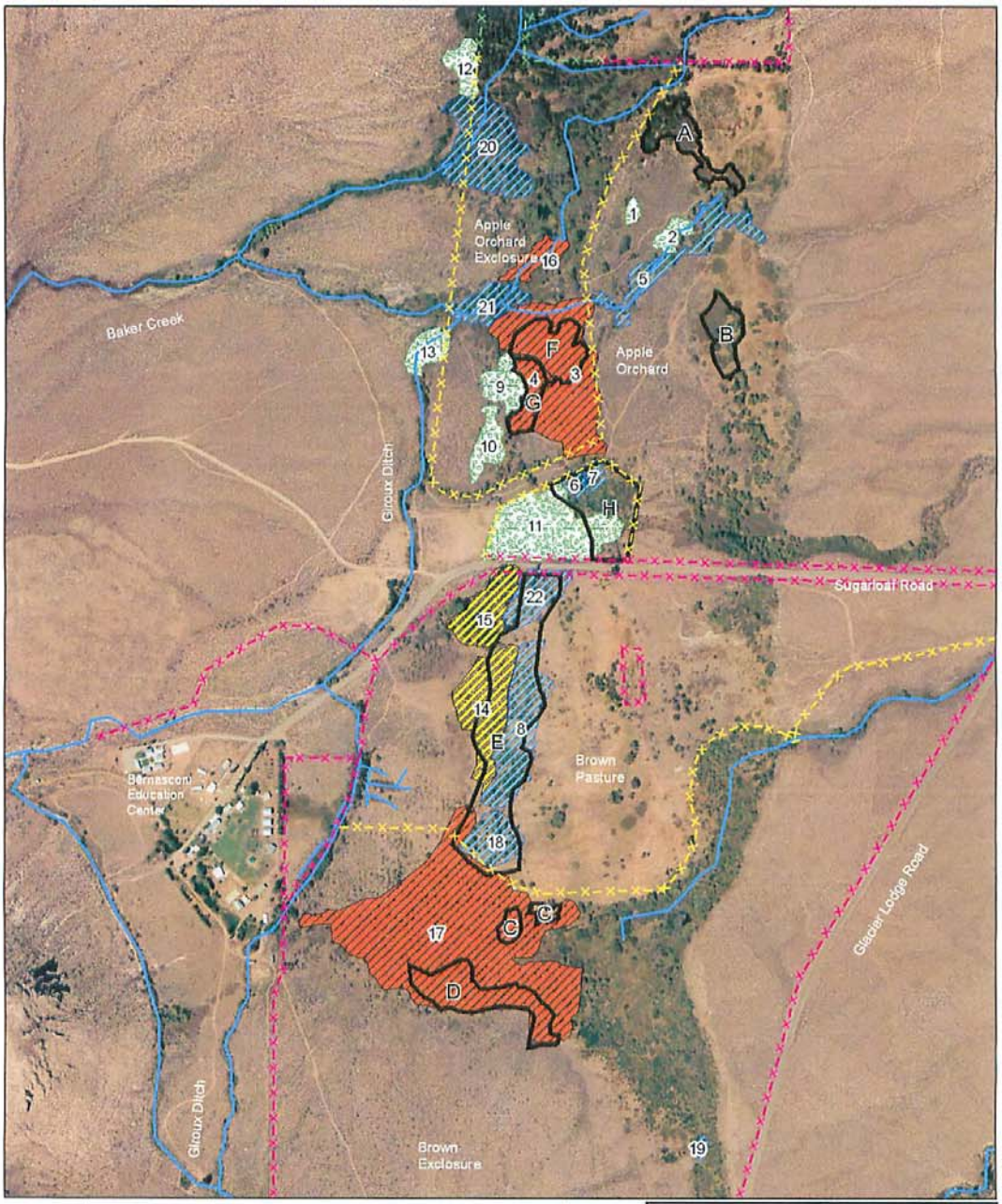
Figure F describes black locust and native riparian vegetation in the planting areas and surrounding the planting areas within the project site. The figure also provides a description of the associated soil and/or groundwater conditions within the mapped areas based on observations and soil augering data (see Appendix II and Figure D).

Removal of black locust has been described previously for the specific planting areas. The removal of black locust would occur first in the specific planting areas as planting proceeds, and then as the native pole cuttings develop additional removal can proceed. Site monitoring will guide the process of additional black locust removal.

Black locust removal will be implemented in locations outside the planting areas where willows presently occur in order to reduce competition for the native riparian species. Since YBC are known to use black locust trees, removal will occur outside the planting areas only if target native riparian species can replace the exotic tree. Once the canopy of black locust trees are removed in these areas, monitoring will be implemented to manage may germinate under the former canopy area.

The black locusts will be removed in three ways. One method will be to cut down the trees and treat the stumps with an herbicide to prevent sprouting and to kill the roots. Another method will be to kill standing trees with an herbicide and leave the dead trees standing to provide wildlife habitat. The third method will be used on young locusts that sprouted following the July 2007 fire as well as locust seedlings that germinate once canopy locusts have been removed as part of the management plan or if another fire reduces the existing locust canopy within areas identified for locust management. These locust saplings and seedlings will be sprayed using herbicide as a foliar treatment.

Locust removal by the cut-stump method will be conducted in the winter to decrease impacts to surrounding vegetation. Foliar treatments and injection methods will be applied during the growing season as appropriate for each method. All treatments will require monitoring for re-sprouting quarterly throughout the growing season. Several treatments may be required to control re-sprouting.



Tree Type	Depth to Water	Description	ID #
Locust	No Data	Locust dominated	1
Locust	No Data	Locust few willows, Planting Area 1	2
Willow	3'	Tree and shrub Willow dominated, Wet on fault.	3
Willow	3'	Tree and Shrub Willow dominated, Wet on fault.	4
Willow Locust	4'	Willow Locust mix, Planting Area 1	5
Willow Locust	Dry looking no Data	Willow Locust mix on edge of fault	6
Willow Locust	Wet on Surface	Willow dominated, few Locust	7
Willow Locust	5'-6'	Wet Tree Willow and Locust mix, Planting Area 5	8
Locust	7' 8" dry	Locust dominated, Planting Area AE	9
Locust	6' Dry Hit Rocks	Locust dominated dry, Planting Area AE	10
Locust	No Data	Locust dominated dry looking	11
Locust	No Data	Locust grove on irrigation ditch	12
Locust	On Giroux Ditch	Locust Grove	13
Locust Willow	7' Dry	Willow, Locust dominated, Planting Area 10	14
Locust Willow	7' Rocks, Dry	Locust dominated few Willows, Planting Area 10	15
Willow	Surface	Tree and Shrub Willow, Planting Area AE	16
Willow	Suface or 4'	Tree Willow and Shrub, Planting Area 8	17
Willow Locust	2'- 5'	Willow Locust mix, Planting Area 5	18
Willow Locust	Hit Rocks	Shrub willow, Locust	19
Willow Locust	4'	Tree and Shrub Willow, Locust,Planting Area AE	20
Willow Locust	On Giroux Ditch	Willow Locust mix, Planting Area AE	21
Willow Locust	4' Wet	Willow dominated, few Locust	22

Figure F. Black Locust Management Areas

Table 11 summarizes the black locust removal. Prescriptions are based on general soil and groundwater data. Site monitoring and adaptive management will determine the full extent of the control plan.

Table 11. Black Locust Removal Priority Summary

Priority	**Black Locust Area Map Number**	**Prescription Based on Suitable Site Characteristics for Native Riparian Vegetation**
Planting Areas		
E	22, 8, 18,14 (eastern portion)	Remove ROPS in Area E; plant
F	3,4, (eastern portion)	Remove ROPS in Area F; plant
G	3,4 (eastern portions)	Remove ROPS in Area G; plant
H	6, 7, 11 (eastern portion)	Remove ROPS in Area H; plant
Non Planting Areas		
	1	No action[1]
	2	No action[1]
	3 (outside of planting areas F and G)	Willow dominated – No action
	5	Remove ROPS, monitor native recruitment
	9	No action[1]
	10	No action[1]
	12	No action[1]
	13	No Action – ROPS stabilizing ditch bank
	14	Remove ROPS where natives may recruit
	15	Remove ROPS where natives may recruit
	16	Willow dominated – No action
	17	Willow dominated – No action
	19	Willow dominated – No action
	20	No action[1]
	21	Remove ROPS where natives may recruit and monitor

[1]No action refers to areas determined to be unsuitable for upper and mid canopy willows, or where upper and mid canopy willows currently dominate an area.

2.1.7. Performance Criteria

The goal of the planting plan is to improve YBC habitat within the Baker Creek project area by planting tree species to increase canopy cover mainly in areas presently designated as nonuse, as well as low and medium suitability for YBC. Table 12 shows the described condition of each planting area based on the YBC habitat suitability analysis for Baker Creek (Ecosystem Sciences 2005) prior to the 2007 fire that impacted Areas A, B, F, G, and H. Table 12 also shows the desired condition of all planting areas after enhancement. Within each planting area, the desired condition will be evaluated in areas affected by implementation of the planting plan components based on the as-built plans.

Table 12. Planting Area Designations and Current/Desired Suitability

Planting Area Designation	Current or Pre-Fire Condition YBC Suitability[1]	Desired Condition 6 – 10 years
A	Low	Medium
B	Low, Medium	Medium
C	Non-use	Medium
D	Low, Medium	Medium
E	Low	Medium
F	Low	Medium
G	Medium	High
H	Low, Medium	High

[1]From Ecosystem Sciences 2005

2.1.7.1. Planting Areas

The following criteria for tree canopy, understory development, and cover of non-native species will be considered for performance of the planting areas in areas affected by the implementation of the planting plan components as documented in the As-Built Plans.

In Year 6 following initial planting of each area, the following canopy absolute cover will be achieved:

- Planting Areas A, B, C, D, E, and F – Cover of target upper and mid canopy species is at least 50 percent.
- Planting Areas G and H - Cover of target upper and mid canopy species is equal to 65 percent.
- Native species understory cover will be at least 50 percent in all planting areas.
- Black locust cover will be no more than five percent in all the planting areas.
- Cover of other non-native species in the understory will be less than 25 percent in all planting areas.

2.1.7.2. Non-Planted Black Locust Removal Areas

In Year 3, following the removal of black locust in areas dominated by willows where no planting of target willow trees has been specified, or following fire within these areas, the management criteria for non-native species will be:

- Black locust cover will be no more than five percent, and
- Cover of other non-native species in the understory will be less than 25 percent.

2.1.8. Monitoring and Reporting

The following monitoring and reporting for the planting areas and the black locust removal is required to assess the progress of the plan.

2.1.8.1. Planting Areas

Quantitative monitoring will assess the attainment of final success criteria and identify the need to implement contingency measures in the event of failure. Monitoring will begin in late summer after the second growing season since initial planting to capture the fullest extent of the growing season and after the majority of avian species have finished breeding. Monitoring will continue annually through Year 6 within each planting area or until the success criteria are met.

Percent canopy cover of the mitigation plantings will be measured by using the point-intercept sampling method along a 50-meter transect. At each 0.5-meter interval along each transect (beginning at the 50-cm mark and ending at 50-meter), a point is projected vertically into the vegetation. Each plant species intercepted by a point is recorded, providing a tally of hits for each species in the herbaceous, shrub, and tree canopies, making it possible to record more than 100 hits in any 50-meter transect. Percent cover for each species, according to vegetation layer (herb, shrub, and tree of the understory, mid-canopy and upper canopy) can be calculated from these data. The transect data will also be used to record natural recruitment of willow and cottonwood species as distinct from the planted cuttings.

The number of sampling transects in each planting area will be determined to ensure statistical confidence based on the size and variation of each planting area. In the smallest planting areas that are under an acre, at least three 50-meter long transects per planting area will be used to monitor the development of the habitat. The transects will be randomly located for the first sampling event and permanently marked to facilitate their use in subsequent years. The random sampling locations will be stratified within the sampling areas as per the As-Built Plans to insure that the transect locations measure the actual areas where planting has been implemented.

Photodocumentation will provide a visual record of the progress of planting areas. One photograph at each transect will be taken during annual monitoring.

2.1.8.2. Black Locust Control Areas

It is expected that monitoring for black locust within planting areas will be captured by the transect sampling for pole plantings since removal of black locust will be coordinated with suitable planting areas. Additionally, monitoring of black locust control areas outside of the planting areas will be required to determine progress in eliminating targeted trees. Monitoring will also demonstrate whether willow species are increasing within control areas. Baseline surveys will be performed prior to removal of black locust to document the pre-control condition

by documenting the species under the canopy of each tree or groups of trees targeted for removal. Permanent line-intercept transects will be used to sample areas of black locust removal as described for the planting areas. Once control begins within an identified area, monitoring will be repeated annually for three years to document changes in the plant community. Monitoring results will be used to guide the black locust control program over eight-ten years.

The performance criteria for the control program will be no more than five percent cover of black locust in all areas where black locust has been removed outside of planting areas. If the criteria for maximum cover of black locust trees and/or seedlings are greater than five percent at the end of three years, additional treatment will be implemented and the area monitored until the criteria is achieved and demonstrated for three years.

2.1.8.3. Annual Reports

Annual reports will be prepared each year by LADWP to summarize the progress of the willow and cottonwood planting and black locust control. The annual reports will include a brief introduction to include the performance standards, monitoring methodologies, monitoring results for the year, and discussion of any adjustments required to achieve the overall goal to improve the habitat.

2.1.9. Adaptive Management

The goal of the planting plan is to increase suitable habitat for YBC. The project will integrate monitoring results to guide management of the habitat to achieve the goal. Management changes may need to be made throughout implementation of the project. The following adaptive management outline will be used to guide management of the planting areas and the black locust removal. These management guidelines will be incorporated into the larger Baker Creek Yellow-Billed Cuckoo Enhancement Plan.

2.1.9.1. Willow and Cottonwood Planting Areas

Planting areas will be evaluated based on the performance monitoring.

- If planting areas do not achieve performance standards within 6 years of initial planting, each area will be re-evaluated for suitability, and if warranted, abandoned as a planting area.
- Methods to enhance riparian areas not specified in the plan may be utilized in the future if they show promise for success.
- Areas that show great success may be expanded, if warranted.
- If herbivory is problematic and limiting success, cages or small temporary exclosures will be used in conjunction with planting. This determination will be made on a site-by-site basis.

2.1.9.2. Black Locust Control

- If control methods that are not noted in the plan become available in the future and if these methods have applicability in the project area, they may be considered for implementation.

- If fire impacts the designated YBC planting areas or black locust control areas, seedling and saplings will be controlled as specified previously in Sections 2.6 and 2.7.
- If disturbances created by black locust removal impact desirable understory species, removal may be suspended or new methods may be employed. This determination will be made on a site-by-site basis.
- If studies determine that the YBC are utilizing black locust for foraging and nesting, the black locust control program may be discontinued.
- If willow and cottonwood are growing quickly and creating a forested canopy in less time then expected, the timeframe for black locust removal may be decreased from the eight to ten years noted in the plan.

2.1.9.3. Weed Control

- If noxious weeds become a problem based on annual monitoring during plant establishment, measures to control these species will be implemented. The control measure implemented will be species specific.
- If new and improved weed control measures become available, they will be considered for control of noxious weeds in the project area.
- If fire impacts the YBC enhancement area at Baker Creek, noxious weeds will be controlled based on annual monitoring of the site.

2.1.10. Limitation on Replacement of Plantings

Fire and other catastrophic events are beyond the control of LADWP. Accordingly, it is appropriate that limitations be placed on the requirement to replace plantings that are irreparably damaged or destroyed due to such catastrophic events.

LADWP shall be responsible for a *one-time* replacement of planted willows and cottonwoods irreparably damaged or destroyed by catastrophic events clearly beyond the LADWP's control, and subject to the following stipulations:

- The irreparable damage or destruction occurs within 18 months following completion of the initial planting; and,

- Over 60 percent of the total acreage of plantings at the mitigation site is irreparably damaged or destroyed.

LADWP shall not be responsible for replacement of plantings if the catastrophic event occurs more than 18 months following the initial planting or if 60 percent or less of the total acreage of plantings is irreparably damaged or destroyed. If a catastrophic event occurs that affects 60 percent or less of the planting acreage, or occurs more than 18 months after the initial planting, the performance standards for tree canopy cover, shall no longer apply to the areas damaged or destroyed by the catastrophic event. At such time, the site standards for canopy cover shall be in reference to similar conditions documented in the adjacent burned communities.

This limitation applies only to planted material and does not apply to the overall management and maintenance of Baker Creek, black locust removal, and monitoring. Performance standards for exotic species, including black locust, shall remain as described previously in Sections 2.6 and 2.7 of this planting plan.

Any irreparable damage or destruction of plantings caused by catastrophic events, including the acreage affected, any required replanting, and any changes in application of performance criteria, shall be documented in the annual reports.

2.1.11. References

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USDA. Natural Resource Conservation Service. *Guidelines for Planting Dormant Pole Cuttings in Riparian Areas of the Southwest. Los Lunas Plant Materials Center.* URL: www.nm.nrcs.usda.gov/news/publications/publications.html (accessed 5 Oct 2006).

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Appendix 1. Evaluation of Baker Creek Planting Area H for Potential Fire Issues

On May 1, 2008 Mrs. Paula Hubbard met with Mr. Larry Martinez of the California Department of Forestry. Mrs. Hubbard described the planting plans stating that Planting Area H was to receive irrigation from the Giroux Ditch in 92 percent or greater runoff years and that the goal would be to establish a forested area composed of native cottonwood and willow trees. This newly forested area would create a continuous forested area from the Giroux Ditch to the forested areas of the Brown Pasture and Brown Exclosure.

Battalion Chief Martinez stated the following:

- In order to protect the school, school occupants and fire fighters, a safety zone was needed.
    - This safety zone would allow firefighters to safely cut line using heavy equipment or hand crews and then fire out the area to the east of the break to prevent fire from moving from east to west towards the school facility.
    - Without this safety zone, there would be no buffer for school or fireman protection.
    - The safety zone needs to be approximately 150 yards wide from tree canopy edge to canopy edge.
    - This would allow for a slight increase in the forested width on the east side of Planting Area H as delineated on the attached photo.
    - At this location up canyon winds and 60 foot flame lengths could be expected.

- Currently, vegetation on the school grounds and in adjacent areas is in need of work to create a shaded fuel break.
    - A shaded fuel break is created by eliminating shrubs below trees.
    - Shrubs are ladder fuels that increase flame lengths and carry flames into the canopies of forested areas (crowns).
    - A fire that crowns will push into the school facility and endanger structures and occupants.
    - The forested area that lies to the south of Planting Area H needs shaded fuel break cleanup work.

Appendix 2. Augering Data and Synopsis at Baker Creek

			7/7-12/2006	9/5-14/2006
Planting Area-#	**Depth**	**Moist**	**Water table**	**Water table**
1-1	6'	2'	No	
1-2	6'	3'	No	
1-3	6'	5'	No	
A1-4	3.8'	1.75'	3.8'	4.8'
A1-4B	3.3'	2.2'	est. 3.8'	3.8'
1-5	6'	2.3'	No	
A1-6				6'
2-1	5.6'	2.2'	No	
B2-2	5.6'	2'	5.6'	6'
B2-2B	6'	1.6'	est. 6'+	8.5'
2-3	5.3'	3.5'	No	
2-4	5.8'	3.4'	No	
2-4B	6'	1.6'	No	
2-5	5.6'	3'	No	
2-6	5'	5'	No	
3-1	5.6'	3.1'	No	
3-2	5.8'	4.75'	No	
4-1	3.2'	0.75'	No	
4-2	5.8'	2'	No	
E5-1	3.25'	1.2'	3.25'	4.5'
E5-2	4.75'	1.7'	4.75'	4.75'
E5-3	4'	1.6'	4'	4'
E5-4	4.4'	2'	4.4'	5'
E5-4B	3.5'	1.5'	3.5'	3.6'
E5-5	3.1'	1.4'	3.1'	3.25'
5-5B	2.4'	No	No	
6-1	5.3'	4.5'	No	
6-2	6'	45'	No	
6-3	5'	4.5'	No	
6-4	5'	3.8'	No	
7	Swampy			

			7/7-12/2006	9/5-14/2006
Planting Area-#	**Depth**	**Moist**	**Water table**	**Water table**
C8-1	5.6'	1'	5.6'+	3.5'
8-2	Water on Surface			
D8-3	0.5'	0.25'	est. 1-2'	3.75'very moist
8-4	1'	0.5'	No	
8-5	1'	No	No	
8-6	1.75'	No	No	
9-1	6'	4.4'	No	
9-2	5.5'	4.5'	No	
9-3	5.25'	3.5'	No	
9-4	6'	No	No	
9-5	6'	No	No	
9-6	6'	2.4'	No	
9-7	3'	No	No	
10-1	1.8'	No	No	
10-2	3.6'	No	No	
10-3	5.1'	3.5'	No	
10-4	5.7'	3'	No	
11-1	6'	3'	No	
13-1	2.25'	2.25'	No	
13-1B	1.75'	1.2-1.7'	No	
13-2	2'	1.2'	No	
13-3	1.2'	0.6-1'	No	
13-4	1.25'	No	No	
13-5	2'	2'	No	
AE-1	Wet on Surface			
AE-2	3.5'	1.5'	3.5'	0.3'
AE-2B	2'	1'	2'	0.9'
AE-3	Wet on Surface			
AE-4	2'	No	No	
F/GAE-5	4.3'	2'	4.3'	4.3'
F/GAE-5B	4.5'	2'	4.5'	4.8'

Appendix 2. continued.

			9/5-14/2006
Planting Area-#	**Depth**	**Moist**	**Water table**
B2-1B	7.3'	5'	7.3'
B2-2C	6.6'	5'	6.6'
D8-7	3.75'	2'	3.75'
C8-8	6'	6'	No
GAE-5.1	7.7'	7'	7.7'
GAE-5.2	6.25'	5.3'	6.25'
GAE-5.3	7.4'	6'	7.4'
L1-1	3.8'	1.4'	3.8'
L1-2	2.7'		No
L1-3	5'	2'	5'
L1-4	4.6'		No
L1-5	10'		No
L2-1	2.2'	1.1'	2.2'
L2-2	4.3'	2.7'	4.3'
L2-3	2.5'		No
L2-4	6.7'	5'	6.7'
L2-5	6'		No
L2-6	10'		No
L3-1	4.25'	1.2'	4.25'
L3-2	6.3'	2.7'	6.3'
L3-3	5.7'	5'	No
L3-4	4.6'		No
L3-5	10'		No
L4-1	6.75'	3.4'	6.75'
L4-2	7.1'	6'	7.1'
L4-3	3'		No
L4-4	3.3'		No
L4-5	10'	10'	No
L4-6	10'		No

			9/5-14/2006
Planting Area-#	**Depth**	**Moist**	**Water table**
EL5-1	4.7'	2.6'	4.7'
EL5-2	5.6'	4.3'	5.6'
L5-3	2'		No
L5-4	5.8'		No
L5-5	8'		No
L5-6	6.6'		No
L5-7	6'		No
L5-8	10'		No
EL6-1	5.1'	3.1'	5.1'
L6-2	5'		No
L6-3	8.25'	8.25'	No
L6-4	8.8'	6.5'	No
L6-5	5.7'	5.2'	5.7'
L6-6	10'		No
EL7-1	5.4'	4.1'	5.4'
L7-2	6.7'	6'	6.7'
L7-3	7.5'	6.25'	7.5'
L7-4	10.2'	9.3'	10.2'
L7-5	9.2'		No
L7-6	2'		No
Random Hole 1	10.4'	10.4'	No
2	5.3'		No
3	4'		No
4	5'		No
5	7'		No
6	5'		No
			8/6/2008
J14-1	6.1'		6.1'
14-2	1'		No
J14-3	3.6'		3.6'
14-4	3.25'	3.25'	No
14-5	2.4'		No
J14-6	3.8'		3.8'
J14-7	4.1'		4.1
J14-8	6'		6'

Appendix 3. Trial Planting Data and Condition on Specific Dates at Baker Creek

Planting Id	Planting Monitoring							
	5/2/2007	6/4/2007	7/19/2007	9/10/2007	10/23/2007	4/23/2008	7/15/2008	11/3/2008
A1-POFR1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
A1-POFR2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
A1-POFR3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
A1-SALA1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
A1-SALA2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
A1-SALA3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-POFR1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-POFR2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-POFR3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-SALA1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-SALA2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B1-SALA3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-POFR1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-POFR2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-POFR3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-SALA1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-SALA2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B2-SALA3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-POFR1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-POFR2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-POFR3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-SALA1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-SALA2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
B3-SALA3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
E1-POFR1	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Broken	Broken	Broken
E1-POFR2	Sprouted	Not Sprouted	Not Sprouted	Gone	Gone	Gone	Gone	Gone
E1-POFR3	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Not Sprouted	Not Sprouted
E1-SALA1	Sprouted	Sprouted	Wilted	Wilted	Gone	Gone	Gone	Gone
E1-SALA2	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted
E1-SALA3	Sprouted	Sprouted	Gone	Gone	Gone	Gone	Gone	Gone
E2-POFR1	Sprouted	Sprouted	Sprouted	Broken	Wilted	Broken	Broken	Broken
E2-POFR2	Sprouted	Sprouted	Sprouted	Sprouted	Wilted	Not Sprouted	Not Sprouted	Not Sprouted
E2-POFR3	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Sprouted	Sprouted
E2-SALA1	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Questionable
E2-SALA2	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Sprouted	Sprouted
E2-SALA3	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Sprouted	Sprouted
E3-POFR1	Sprouted	Sprouted	Sprouted	Broken	Broken	Broken	Broken	Broken
E3-POFR2	Not Sprouted	Not Sprouted	Not Sprouted	Broken	Broken	Broken	Broken	Broken
E3-POFR3	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Sprouted	Sprouted
E3-SALA1*	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Not Sprouted	Not Sprouted
E3-SALA2*	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted
E3-SALA3*	Sprouted	Sprouted	Sprouted	Sprouted	Sprouted	Not Sprouted	Not Sprouted	Not Sprouted
E4-POFR1	Sprouted	Sprouted	Sprouted	Wilted	Wilted	Not Sprouted	Not Sprouted	Not Sprouted
E4-SALA1	Sprouted	Sprouted	Sprouted	Sprouted	Questionable	Not Sprouted	Not Sprouted	Not Sprouted
G1-POFR1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-POFR2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-POFR3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-POFR4	Not Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-SALA1	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-SALA2	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-SALA3	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned
G1-SALA4	Sprouted	Sprouted	Burned	Burned	Burned	Burned	Burned	Burned

2.2. BAKER CREEK AREA GRAZING MANAGEMENT PLAN

2.2.1. Prologue

Owens Valley Management Plans are one of the components required in the Memorandum of Understanding (MOU) between the City of Los Angeles Department of Water and Power (LADWP), the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club, and the Owens Valley Committee (1997). The goal of the Owens Valley Management Plan is to support the achievement of LADWP's watershed management goals, which are to improve water quality, improve water-use efficiency, maintain compatibility with water gathering activities, and support LADWP's goal of continuing a cost-effective aqueduct operation. Additional goals are to establish a healthy, functioning ecosystem for the benefit of biodiversity and special status species while providing for the continuation of sustainable uses, including recreation, livestock grazing, agriculture, and other activities (MOU, 1997). LADWP plans to achieve these goals through the implementation of "Best Management Practices" (BMPs), and apply adaptive management to build and maintain a healthy watershed. BMPs are methods, measures, or land management practices designed to improve watershed health.

One of the items to be addressed in the Owens Valley Management Plans was livestock grazing. In an effort to meet the goals of protecting valuable water resources while providing for the continuation of sustainable uses, LADWP, in consultation with Ecosystem Sciences, the MOU consultants, and the ranch lessees, developed Grazing Management Plans for each of the then 49 ranch leases in Inyo County. These grazing management plans are designed to meet regional water quality regulations by implementing BMPs that address water quality issues and enhance existing conditions. During the development of all the plans with the exception of the Baker Creek Area plan, staff from Ecosystem Sciences and the Watershed Resources section of LADWP coordinated closely with the lessees in an attempt to develop plans that are compatible with the lessees' operations yet ensure that watershed health goals are met. The Baker Creek Area grazing management plan was developed in cooperation with representatives of the Sierra Club, Inyo County Water Department, California Department of Fish and Game, LADWP and 4-J Cattle Company, the lessee for the area.

Several issues were raised during the development of the final drafts of plans for ranch leases that lie within the boundaries of the Lower Owens River Project (LORP). These issues included forage utilization rates on upland areas, assessing the condition of irrigated pastures, and critical operational management areas for the leases. In an effort to address these issues, a focus group of ranch lessees met with staff from LADWP in December 2003. The intent was to arrive at solutions that were acceptable to both LADWP and the lessees on these critical issues. In attendance representing LADWP were Mr. Gene Coufal, Mr. Clarence Martin, Mr. Brian Tillemans, Mrs. Paula Hubbard, Ms. Debbie House, Mr. David Martin, and Mr. Dale Schmidt. Lessees in attendance were Mr. Scott Kemp, Mr. Mark Johns, Mr. Mark Lacey, Mr. Ron Yribarren, and Mr. Gary Giacomini.

In early drafts of the Grazing Management Plans, irrigated pasture conditions were to be determined ocularly and pastures qualitatively rated as being in poor, fair, good, or excellent condition. Pastures rated as either poor or fair would have utilization standards established in an effort to improve their condition rating. In an effort to establish a more quantitative system of rating that would be less susceptible to bias, LADWP staff tested the Natural Resource Conservation Service Guide to Pasture Condition Scoring and determined that the method was quantitative, easy to implement, repeatable, and yielded consistent results among various users. Members of the lessee focus group indicated that the method was acceptable.

Beginning in 2004, LADWP and the lessees jointly would start assessing irrigated pastures on all leases. Due to the number of irrigated pastures, it was determined that it would not be possible to assess the condition of all irrigated pastures on all leases every year, but a subset of all irrigated pastures will be jointly (LADWP and lessee) evaluated annually. During years of below-normal precipitation and when water allotments for irrigation are reduced, there will be no downgrading of pasture condition. If irrigation reduction lasts for more than one season, however, adjustments in livestock numbers may be necessary to ensure there are no long-term detrimental impacts to irrigated pastures.

Early Grazing Management Plan drafts established upland forage utilization rates at 65 percent as long as there were 31 days of rest for the pasture at some time during the growing season. LADWP staff were concerned that this level of utilization and short rest period would prohibit native grasses from completing seed set and, consequently, result in a decline in the trend of the upland area. More restrictive language setting utilization rates at 50 percent if plants were grazed at anytime during the period from April 2 to September 30 was not acceptable to the rancher focus group because of the restrictions concerning being able to move livestock to other private lands or federal permit areas prior to April 2. As a compromise, 65 percent utilization was established for all upland areas as long as there was a minimum of 60 continuous days of rest for the area during the plant "active growth stage" to allow seed set between June and September. If the pasture does not receive 60 continuous days of rest between June and September, utilization rates will be set at 50 percent. This was acceptable to the lessees and should not prohibit the achievement of LADWP's goal if adaptive management guidelines are followed.

The final concern that the rancher focus group expressed was that there are portions of their leases that are critical to their ability to operate. These areas include livestock gathering areas, holding areas, and shipping areas. LADWP recognized these needs and agreed that establishment of utilization standards for these areas would not be appropriate.

2.2.2. Summary

The MOU between LADWP, the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club, the Owens Valley Committee, and Carla Scheidlinger provides for the re-watering of the Owens River from the Los Angeles Aqueduct Intake downstream to the Owens Dry Lake. The MOU designates that water will be released into the river at predetermined flow rates. The goal of the LORP, a product of the MOU, is to establish a healthy functioning riverine/riparian ecosystem. The continuation of sustainable uses, including recreation, livestock grazing, agriculture, and other activities, is also emphasized in the MOU. This grazing management plan was developed with MOU goals in mind. The team consulted with the lessees in the development of the plan. The 4-J Ranch Lease lies outside the boundaries of the LORP; however, the goals of both the LORP and LADWP are still applicable.

The Baker Creek Ranch Lease is owned by the 4-J Cattle Company, Inc., and managed by Mr. Mark Johns. The lease livestock program is a commercial cow/calf operation. In conjunction with grazing LADWP leases, cattle also spend parts of the year on Bureau of Land Management (BLM) and U.S. Forest Service (USFS) permits.

Type E lands are supplied with water sufficient to avoid decreases and changes from vegetation conditions that existed on such lands during the 1981–1982 runoff year (Inyo County and City of

Los Angeles, 1990). Type E Vegetation comprises 214 acres on the 4-J Baker Creek Area Ranch Lease.

Riparian/wetland lands are associated with Big Pine Creek, Baker Creek, and Bell Canyon. Riparian areas are also associated with the fault lines on the west and east edges of the Baker Creek area. Management changes for riparian/wetland areas involve the installation of two exclosures within the project area.

The Baker Creek area is considered to be dominated by a spring/seep complex mapped as DWP 26 in the Springs and Seeps Inventory completed by Ecosystem Sciences. Some of this complex will be within the two new exclosures to be installed in the Baker Creek area.

Special Status Species are those that are either state or federally listed as threatened or endangered. The Yellow-billed Cuckoo (*Coccyzus americanus*), a state endangered species, has been documented utilizing the Baker Creek area. The following state species of special concern avian species are known to nest in the Baker Creek area: Northern harrier (*Circus cyaneus*), Yellow-breasted chat (*Iteria virens*), Yellow warbler (*Dendroica petechia*) and Long-eared owls (*Asio otus*). Improvements from future implementation of the project are expected to enhance habitats for these species.

The lessee will have one to three years from the date this new grazing plan is implemented to phase in requirements described in this plan. At the beginning of the fourth year, the lessee must meet all standards, criteria, and other management directions outlined in this plan.

Future grazing will be modified from the present grazing management. Grazing management changes will be made to maintain and/or improve Yellow-billed Cuckoo habitat and maintain healthy riparian habitat while maintaining the viability of the ranch operations. This will be accomplished by the establishment of two exclosures and setting grazing utilization criteria. Regardless of the scheduled “off-dates,” stock will be removed when monitoring determines that average utilization of herbaceous forage on riparian sites has reached 40 percent. This new grazing approach will benefit riparian areas in the Baker Creek Area and, together with other components of the overall plan; help to fulfill the goal of maintaining and/or improving Yellow-billed Cuckoo habitat. Long-term monitoring will compare vegetation response on the riparian pastures with non-grazed areas established as controls. If long-term monitoring determines that livestock management is precluding the development of desired riparian communities on the 4-J Ranch Lease, grazing prescriptions will be modified to attain desired conditions. Riparian pastures may also contain upland habitat. If significant amounts of upland vegetation occur within a riparian pasture or field, upland grazing utilization standards, as outlined in this lease plan, will also apply to these upland habitat types. Livestock will be removed from a riparian pasture when either the riparian or the upland grazing utilization standard is met.

Upland management objectives are to sustain livestock grazing, provide productive wildlife and fish habitat, maintain desired healthy range conditions, and maintain or increase range condition trend. Maximum annual average herbaceous livestock grazing utilization allowed in upland areas is 65 percent if grazing occurs only during the plant dormancy period. Maximum average herbaceous forage utilization allowed in upland areas is 50 percent if livestock grazing occurs during the active plant growing period, however, if no livestock grazing occurs during the active plant growing period (that period when plants are “active” in putting on green growth) or the pasture or field is completely non-used for a minimum of 60 continuous days during the latter part of this “active stage," allowable forage utilization can be increased from 50 to 65 percent.

LADWP and the lessees will jointly determine irrigated field or pasture condition. The method utilized will be the Natural Resource Conservation Service Pasture Condition Assessment. Irrigated fields or pastures scoring 80 percent or greater will be considered in good to excellent condition. These fields or pastures will not be subject to any changes in grazing management. Any irrigated field or pasture scoring less than 80 percent will require management prescription changes (i.e., changes in utilization as needed, livestock numbers, and season, or duration of use). The irrigated pasture (the Baker Pasture) scored greater than 80 percent; therefore, no management changes are necessary at this time.

Ecological or range sites within the pastures will be monitored through condition and trend evaluations, documented annual range inspections, and periodic photos of established points. Utilization cages will be used to monitor forage use. Management directions specified in this plan may be modified through adaptive management based on review of monitoring information. The adaptive management approach provides flexibility to account for unforeseen benefits or impacts.

2.2.3. Introduction

2.2.3.1. Plan Development

In the early 1990s, LADWP initiated proactive watershed projects in Long Valley, Mono County. These projects developed stream bank grazing strategies and recreational use measures to improve the health of selected Long Valley streams. By maintaining watershed health, LADWP provided good water quality for their customers, while fish, wildlife, and other natural resources benefited as well. The success of these watershed projects encouraged LADWP to expand these efforts to their other lands in the Owens Valley.

In 1997, the MOU was signed between the City of Los Angeles (City), Inyo County, California Department of Fish and Game, Sierra Club, State Lands Commission, the Owens Valley Committee, and Carla Scheidlinger. This MOU provided for the resolution of conflicts and environmental concerns between the parties, and led to approval of the *1991 EIR on Increased Groundwater Pumping*. The main aspect of this MOU was further definition of the LORP. One component of the LORP Action Plan is the Land Management Plan. The livestock grazing portion of this plan called for involving efforts similar to those undertaken in Long Valley.

The MOU states that, "[LADWP], in consultation with MOU Parties and others, will identify and prioritize for plan development, those areas where problems exist from the effects of livestock grazing and other land uses." All plans must be completed within approximately ten years of the discharge of the writ (approximately 2007). This grazing plan will become part of the LADWP's Land Management Plan.

This grazing plan was developed to address livestock management issues and to develop livestock management guidelines needed to achieve LORP and LADWP's watershed management goals. This plan is integrated with other management plans upstream and downstream of this lease.

The MOU emphasizes the need to maintain sustainable levels of agriculture, livestock grazing, recreation, and other activities. Thus, the plan took into consideration the needs of multiple users. LADWP also recognizes the important role people living and working in the Owens Valley play in ecosystem management. Human perception, human values, and local traditions were considered in the development of the grazing plan. Plan development was closely coordinated with the lessees in an attempt to produce plans compatible with the lessees' operation, yet ensure environmental goals are met.

2.2.3.2. Physical Description of the Owens River Watershed

LADWP recognizes the Owens River watershed as a continuum of many habitats connected by the Owens River. For management purposes, the Owens Valley ecosystem was divided into five major sub-basins (Figure G):

- Upper Owens – the watershed draining to Lake Crowley and the watershed of Upper Rock Creek;
- Owens Gorge – includes the Owens River between Lake Crowley and the Upper end of Pleasant Valley Reservoir and the reach of Rock Creek in Birchim Canyon;
- Middle Owens – the watershed between Pleasant Valley Reservoir and the Los Angeles Aqueduct Intake, and the watershed of Lower Rock

Creek above Birchim Canyon, all which drain directly to the Owens River;

- Lower Owens River – the watershed that drains to the Owens River from the Los Angeles Aqueduct Intake to the historic bed of Owens Lake, and
- Owens Lake – the historic Owens Lake bed and the adjacent watershed draining directly to it.

Most sub-basins are hydrologically and ecologically linked; therefore, management in one sub-basin can affect other sub-basins. In addition, the Owens Valley ecosystem is influenced by the inter-basin diversion of water from the Mono Basin. LADWP's desire is to manage each individual sub-basin in a manner to maintain or improve the health of the entire watershed.

2.2.4. Goals of the Grazing Management Plan

The goal is to maintain and/or improve Yellow-billed Cuckoo habitat, support the achievement of the LORP and LADWP's watershed management goals. The primary goal of the LORP is to establish a healthy, functioning riverine-riparian ecosystem for the benefit of biodiversity and special status species while providing for the continuation of sustainable uses including recreation, livestock grazing, agriculture, and other activities (MOU, 1997). More specifically, the MOU states that, "management activities should promote diverse natural communities that are self-sustaining, comply with state and federal law concerning protected species, be consistent with water quality laws and objectives, control deleterious species, and be consistent with other LORP goals." The 4-J Ranch Lease lies outside the boundaries of LORP; however the goals of both the LORP and LADWP are still applicable.

From a watershed management perspective, LADWP's goals are to implement BMPs, and apply adaptive management to build and maintain a healthy watershed. BMPs are methods, measures, or land management practices designed to improve watershed health and prevent or reduce non-point source water pollution. This plan identifies BMP guidelines with respect to grazing management activities. Management outlined in this plan is expected to improve water quality, improve water-use efficiency, maintain compatibility with water gathering activities, and support LADWP's goal of continuing a cost-effective aqueduct operation. Good watershed management will minimize resource conflicts that may threaten LADWP's water supply while benefiting fish, wildlife, and other natural resources. Applying BMPs, with needed land treatments, will maintain already healthy rangelands and improve those that have been degraded. Over time, the BMPs outlined in this plan will be fine-tuned as needed through adaptive management until LADWP's goals are met.

2.2.5. Lease Description

The Baker Creek Lease is located 1.5 miles west of the town of Big Pine. The lease is bordered on the west by land administered by the Bureau of Land Management. The portion of the lease that is subject to this plan is divided into three separate pastures. These pastures are the Baker Pasture, the Apple Orchard Pasture and the Brown Pasture. These three pastures produce almost all the available forage on the Baker Creek Lease.

Table 13. Pastures/Field Areas on the 4-J Baker Creek Ranch Lease

PASTURE/FIELD	ACRES	PERCENT
Baker	225	15.6
Apple Orchard	566	39.3
Brown	250	17.3
North	125	8.7
Big Pine	275	19.1
TOTAL	**1441**	**100.0**

2.2.5.1. Irrigated Land

Irrigated lands are classified as any portion of the lease where the lessees receive an irrigation duty and are charged an additional fee for this irrigation. Water allotment for the lease is based on irrigated acreage as mapped in 1981-82. There are 144 acres of irrigated pasture on the 4-J Baker Creek Area Ranch Lease.

2.2.5.2. Enhancement/Mitigation Projects

Water management projects termed enhancement/mitigation (E/M) projects were designed to mitigate impacts identified and described in the *Environmental Impact Report on Water from the Owens Valley to Supply the Second Los Angeles Aqueduct* (1991). E/M projects were identified by LADWP and Inyo County. They vary in scope from one-time cleanups, planting trees along roads, returning irrigation to abandoned agricultural lands, and enhancing wildlife areas. Most E/M projects are allotted water. There are no E/M projects within the Baker Creek Area Lease.

2.2.5.3. Type E Vegetation Lands

Type E vegetation lands are identified and mapped from “Green Book” information (Inyo County and City of Los Angeles, 1990). Type E lands are supplied with water sufficient to avoid decreases and changes from vegetation conditions that existed on such lands during the 1981-1982 runoff year. There are 214 acres of irrigated Type E Vegetation on the 4-J Baker Creek Area Ranch Lease.

2.2.5.4. Revegetation Projects

No revegetation projects occur on the 4-J Baker Creek Area Ranch Lease. The project described in this document will include the planting of poles of willow and cottonwood for habitat enhancement.

2.2.5.5. Riparian/Wetland Lands

Riparian/wetland lands are associated with Baker Creek, Bell Canyon and Big Pine Creek. Riparian areas are also associated with the fault lines on the west and east edges of the Baker Creek area.

2.2.5.6. Seeps and Springs

All known seeps and springs were visited prior to plan development (Ecosystem Sciences, 2000). If the assessment indicated that current management was negatively impacting the springs, fencing to protect the spring was recommended. Most of the Baker Creek area was mapped as one continuous spring/seep complex designated as DWP 26. Much of the area mapped as DWP 26 will be included in the Brown Exclosure and the Apple Orchard Exclosure.

2.2.5.7. Special Status Species

Special Status Species are those that are either state or federally listed as threatened or endangered. The Yellow-billed Cuckoo (*Coccyzus americanus*), a state endangered species, has been documented utilizing the Baker Creek area. The following state species of special concern avian species are known to nest in the Baker Creek area: Northern harrier (*Circus cyaneus*), Yellow-breasted chat (*Iteria virens*), Yellow warbler (*Dendroica petechia*) and Long-eared owls (*Asio otus*).

Owens Valley Checkerbloom (*Sidalcea covillei*), a state endangered species and Inyo County Star-tulip (*Calochortus excavatus*), a state species of special concern are growing in the Baker area.

Two riparian exclosures will be installed in the Baker Creek Area Lease with the goal of the maintaining and/or improving habitat for the Yellow-billed Cuckoo. This action should help to improve the status of other avian species on the lease.

Figure G. RLI-491 Baker Creek Area Grazing Lease in the Owens Valley Watershed

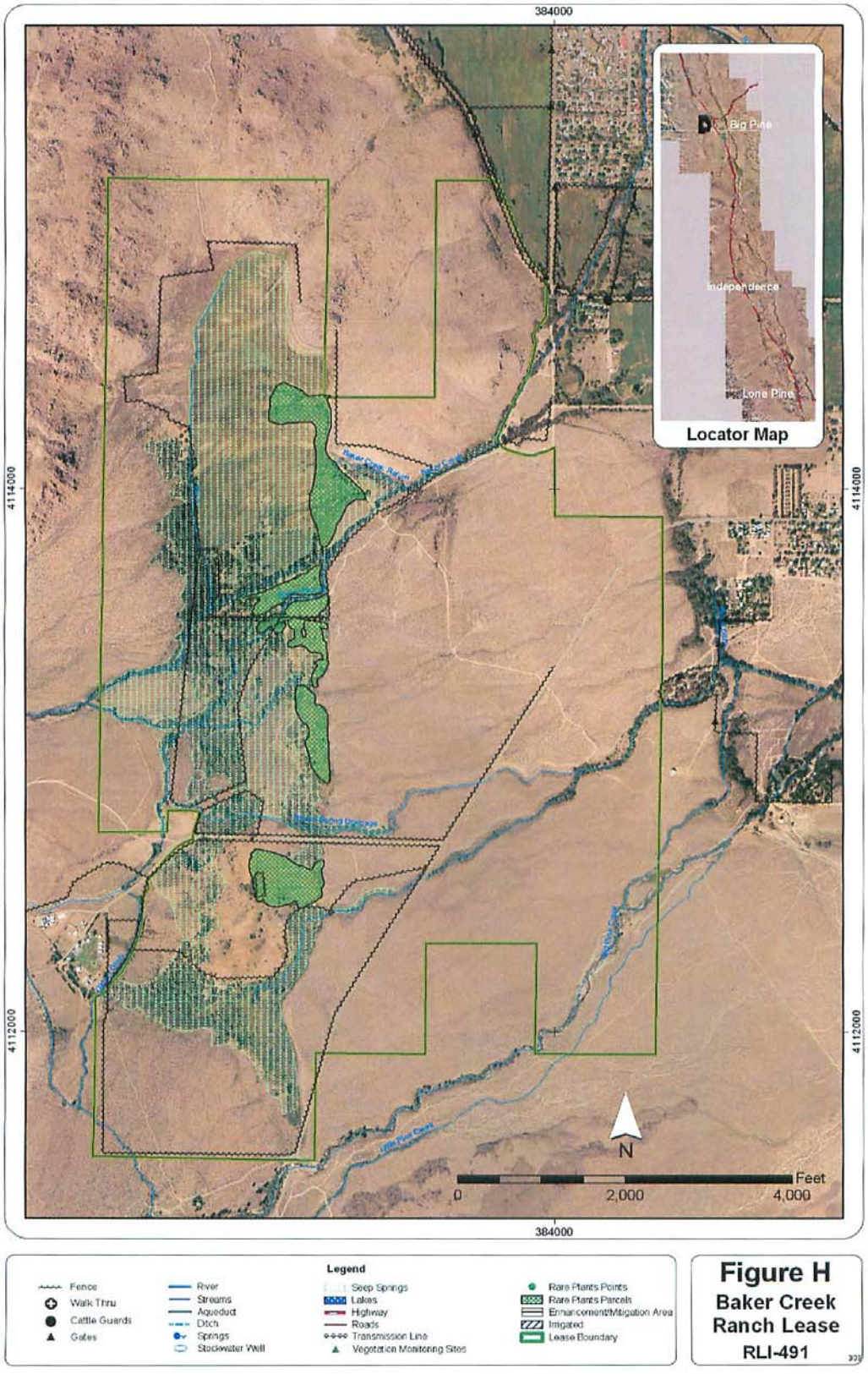


Figure H. Baker Creek Ranch Lease

2.2.6. Present Grazing Management

Livestock have grazed the Baker Lease annually for the last 150 years. Irrigated pasture and riparian vegetation comprise 20 percent of the lease, but provide 86 percent of the forage. Arid uplands account for the majority the lease. These uplands produce forage only during short periods of time associated with significant precipitation events which may or may not occur each year. Present grazing periods and numbers of cow calf pairs are noted in Table 14.

Table 14. Present Grazing Periods and Numbers of Cow Calf Pairs

Pasture	Grazing Period	Number of Pairs
Baker	May 1 to November 1	150 to175
Baker	September 15 to December 31	30 to 40
Apple Orchard	March 1 to December 31	75 to 100
Brown	May 1 to December 31	30 to 40
Big Pine	Green Up	-
North	Green Up	-

2.2.7. Pasture Management

Pastures are managed as discussed below:

Baker Pasture
The Baker Pasture is dominated by irrigated agriculture. Portions of the pasture are arid uplands. This pasture is utilized from May 1 to November 1 by 150 to 175 cow calf pairs. An additional 30 to 40 cow calf pairs utilize the pasture from September 15 to December 31. The cows utilize Baker Creek and irrigation releases for stock water needs.

Apple Orchard Pasture
The Apple Orchard Pasture is dominated by arid uplands with riparian woodlands and rush/sedge meadow along the faultline. This pasture is utilized from March 1 to December 31 by 75 to 100 cow calf pairs. The cows utilize Giroux Ditch and Baker Creek for stock water needs.

Brown Pasture
The Brown Pasture is comprised of rush/sedge meadow, riparian scrub and arid uplands. This pasture is grazed between May 1 and December 31 utilizing 30 to 40 cow calf pairs. The cows utilize the Giroux Ditch and surface water from the forested marsh area for stock water needs.

Big Pine and North Pastures
The Big Pine and North Pastures are grazed in conjunction with BLM permits outside the LADWP lease.

2.2.8. Future Grazing Management

Grazing management changes will be made to maintain and/or enhance Yellow-billed Cuckoo habitat and maintain healthy riparian habitat while maintaining the viability of the ranch operations. This will be accomplished by the establishment of two exclosures and setting grazing utilization criteria.

2.2.8.1. Exclosure Management

Two grazing exclosures are being established in the Baker Creek Area. These exclosures contain the majority of the riparian community acreages formerly located in the Brown and the Apple Orchard Pastures. These exclosures will be named the Brown and the Apple Orchard Exclosures (Figure I.). These areas will be managed to produce soil and vegetation conditions beneficial to riparian and upland vegetation communities and to wildlife that utilize these communities. The exclosures will be constructed by LADWP and maintained by the lessee.

Grazing will be excluded from these areas the majority of the time. Grazing will be utilized within these exclosures for habitat maintenance, to control herbaceous vegetation in order to promote woody species recruitment and to reduce fire hazard as deemed necessary. Only minimal grazing will be utilized. Grazing management will be coordinated between LADWP and the grazing lessee. No grazing will be implemented between June 1 and September 1 of any year because of potential Yellow-billed Cuckoo breeding activity.

The Brown Exclosure encompasses 181.9 acres. Modoc/Great Basin Riparian Scrub accounts for 34.2 percent of the acreage in this exclosure (Table 15). The Apple Orchard Exclosure encompasses 52.7 acres with 74.6 percent of this acreage being classified as Modoc/Great Basin Riparian Scrub.

Table 15. Vegetation Communities and Acreages in Exclosures

Brown Exclosure		**Apple Orchard Exclosure**	
Vegetation Community	Acreage	Vegetation Community	Acreage
Blackbrush Scrub	61.7	Blackbrush Scrub	1.2
Great Basin Mixed Scrub	31.2	Rabbitbrush Scrub	5.7
Rabbitbrush Scrub	23.5	Big Sagebrush Scrub	4.9
Big Sagebrush Scrub	3.2	Rush/Sedge Meadow	0.5
Modoc/Great Basin Riparian Scrub	62.3	Modoc/Great Basin Riparian Scrub	39.3
		Irrigated Agriculture	1.1
Total	***181.9***		***52.7***

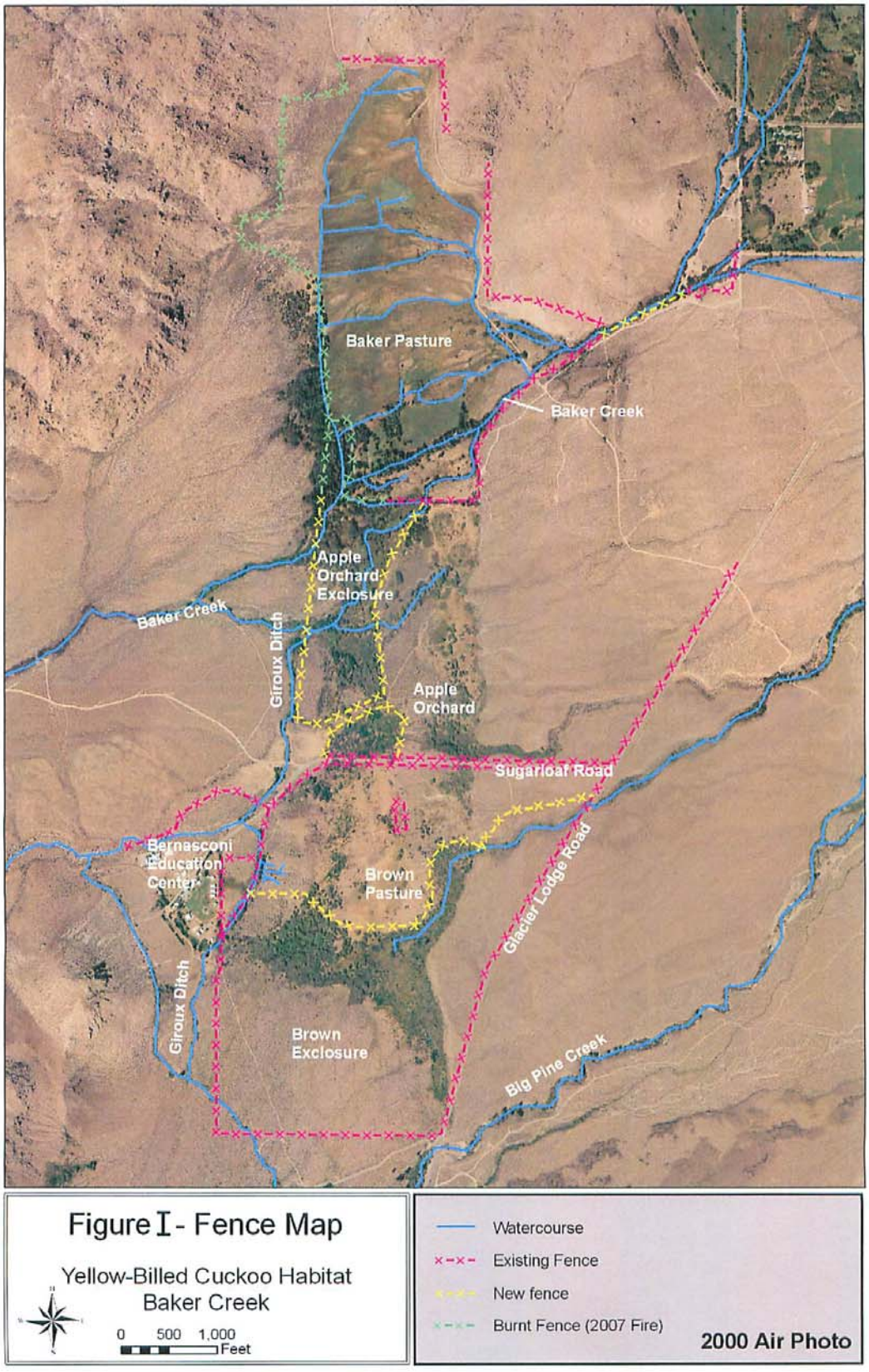


Figure I. Fence Map Yellow-billed Cuckoo Baker Creek

2.2.8.2. Pasture Management

Pastures will be managed as discussed below.

Baker Pasture
The Baker Pasture is dominated by irrigated agriculture and will be managed using the Pasture Condition Assessment discussed above. The pasture will be grazed between April 1 and December 31 utilizing 140 to 165 cow calf pairs (Table 16). Approximately two miles of fence along the west side of the pasture was damaged in the fire of 2007. A temporary fence was installed by the lessee.

Apple Orchard Pasture
The Apple Orchard Pasture is dominated by arid uplands with riparian woodlands and rush/sedge meadow along the faultline. This pasture will be grazed between March 1 and December 31 utilizing 50 to 75 cow calf pairs. A water gap to Baker Creek will be included in the pasture to provide stock water. This pasture will be managed using upland and riparian utilization standards discussed above.

Brown Pasture
The Brown Pasture is comprised of rush/sedge meadow, riparian scrub and arid uplands. This pasture will be grazed between May 1 and December 31 utilizing 30 to 40 cow calf pairs. Stock will water at the Giroux Ditch and a water gap will be constructed on Bell Canyon to provide another location for stock to water. The pasture will be managed using upland and riparian utilization standards discussed above.

Big Pine and North Pastures
These pastures will be managed as they have in the past.

Table 16. Future Grazing Periods and Numbers of Cow Calf Pairs

Pasture	Grazing Period	Number of Pairs
Baker	April 1 to December 31	140 to165
Apple Orchard	March 1 to December 31	50 to 75
Brown	April 1 to December 31	35 to 50
Big Pine	Green Up	-
North	Green Up	-

2.2.8.3. Plan Implementation

The lessee will have one to three years from the date this new grazing plan is implemented to phase in requirements described in this plan. At the beginning of the fourth year the lessee must meet all standards, criteria, and other management directions outlined in this plan.

2.2.8.4. Livestock Numbers and Grazing Duration

Future grazing will be modified from the present grazing management. Upland utilization standards will be in effect for upland areas. Riparian standards will be applicable for areas dominated by riparian vegetation. Irrigated pasture condition scoring will continue to determine the condition of all irrigated pastures on the lease.

2.2.8.5. Riparian Management

Riparian vegetation in the Baker Creek area within the 4-J Lease will be managed in accordance with Lower Owens River Project goals and will be compatible with Yellow-billed Cuckoo needs. Forage utilization will be monitored during the grazing period for each pasture. LADWP will install utilization cages on riparian areas. The lessee will monitor forage utilization throughout the grazing period. Riparian habitats can be grazed until 40 percent of the herbaceous forage on the riparian area is utilized (including elk use), or the end of the specified grazing period, whichever occurs first. Within the specified window, “on-and-off” dates for cattle can vary ± 10 days each year in response to climatic conditions, forage availability, and herd management needs; however, the total grazing days allotted and the percent forage utilization will not be exceeded. This riparian prescription will enhance the survival of riparian shrubs and trees during their first three years of growth and achieve LORP riparian objectives. Clary and Webster (1989) found that riparian shrubs can be reduced by grazing young shrub age classes. Future grazing management methods will minimize impacts to the young age classes of riparian shrubs and trees. Grazing management for riparian pastures is intended to help minimize impacts to the lessees' upland grazing needs while achieving LORP goals.

Riparian pastures may also contain upland habitat. If significant amounts of upland vegetation occur within a riparian pasture or field, upland grazing utilization standards, as outlined in this lease plan, will also apply to these upland habitat types. Livestock will be removed from a riparian pasture when either the riparian or the upland grazing utilization standard is met.

2.2.8.6. Upland Management

Upland management objectives are to sustain livestock grazing, provide productive wildlife and fish habitat, maintain desired healthy range conditions, and maintain or increase range condition trend. Maximum annual average herbaceous livestock grazing utilization allowed in upland areas is 65 percent if grazing occurs only during the plant dormancy period. Maximum average herbaceous forage utilization allowed in upland areas is 50 percent if livestock grazing occurs during the active plant growing period; however, if no livestock grazing occurs during the active plant growing period (that period when plants are “active” in putting on green growth) or the pasture or field is completely non-used for a minimum of 60 continuous days during the latter part of this “active stage" to allow seed set, allowable forage utilization can be increased from 50 to 65 percent.

2.2.8.7. Irrigated Pastures

Irrigated areas are classified as any portion of the lease where the lessee receives an irrigation duty and is charged an additional fee for this irrigation. LADWP and the lessees will jointly determine irrigated field, pasture, or area vegetation condition using the *Natural Resource Conservation Service Pasture Condition Assessment* (Appendix IV). This protocol, once followed, is designed to optimize plant and livestock productivity while minimizing detrimental effects to soil or water resources.

Pasture condition scoring involves the visual evaluation of 10 indicators each having five environmental conditions (Cosgrove et al., 2001). Each indicator is rated separately and the scores are combined into an overall score for the pasture. The overall score for a pasture can then be divided by the total possible score to give a percent rating (overall score ÷ total possible score × 100 = percent rating). Not all 10 indicators may be appropriate for use in every pasture. In this case, using less than 10 indicators will reduce the possible score, but the percent rating will still be comparable.

Irrigated areas within the lease that score 80 percent or greater will be considered in good to excellent vegetation condition. These areas will not be subject to any changes in grazing management. Any irrigated field or pasture scoring less than 80 percent will receive needed changes in management prescriptions (i.e., changes in forage utilization, livestock numbers, season, or duration of use). Necessary changes will be determined by LADWP in consultation with the lessees. These standards only apply to those portions of pastures or fields classified as irrigated on lease rent calculation maps. If rare plants occur on irrigated pastures or fields, forage utilization criteria, and duration and timing of grazing may be modified as needed to protect these species.

The irrigated pasture was assessed in 2004. The pasture was in good to excellent condition.

2.2.8.8. Seeps and Springs

Most of the Baker Creek Area was mapped within spring/seep complex DWP 26 during the Spring and Seep Inventory that was conducted by Ecosystem Sciences. Two riparian exclosures will be built that will include much of this spring/seep complex. These exclosures will have grazing excluded at most times.

2.2.8.9. Supplemental Feeding

Stock will be fed supplements as needed to keep riparian, uplands, and irrigated pastures in healthy condition and to help meet forage utilization standards. Supplements will be fed in areas away from water, riparian zones, and known sensitive plant and animal habitats. Feeding areas will be rotated from year to year to minimize impacts. In areas where livestock are not supplemented, the lessee needs to pay close attention to vegetation conditions to avoid exceeding utilization standards.

2.2.8.10. Livestock Watering

Springs, irrigation water, Baker Creek, Big Pine Creek Bell Canyon and the Giroux Ditch supply adequate livestock water to all pastures on the 4-J Baker Creek Area Ranch Lease. New exclosure fences will be built to allow livestock to water in Baker Creek when utilizing the Apple Orchard Pasture and from Bell Canyon in the Brown Pasture. Livestock water is supplied via irrigation ditches in the irrigated pasture.

2.2.8.11. Fencing

Approximately two miles of fence utilized for livestock management was destroyed in the Inyo Complex Fire in July 2007. This damaged fence will be replaced by the lessee and LADWP. New fences required for Yellow-billed Cuckoo habitat maintenance and/or improvement will be installed by LADWP. The lessees will annually maintain, prior to any livestock entering the pastures, all existing, newly constructed, and exclosure fences. All fences will be maintained to LADWP standards. For details on fence standards, see Appendix V (*Fencing Specifications)*. Disturbance to native vegetation will be minimized during fence maintenance.

2.2.8.12. Fire Management

The lessee will not burn any part of the grazing lease without first receiving LADWP written approval. All managed burning, for the purpose of improving upland rangeland, wildlife habitat, and/or watershed condition, will be conducted under the direction of LADWP. The lessee will participate and cooperate. All burn areas resulting from unintentional fire will be evaluated by

LADWP to determine fire affects. LADWP will then determine the grazing rest needed to allow rehabilitation of fire impacts, should they exist. No managed burning will be allowed in riparian habitats without proper study and evaluation. Unintentional fires in riparian habitats will be given high priority in fire suppression.

2.2.8.13. Firewood Cutting and Wood Gathering

No firewood cutting or wood gathering will be allowed in any riparian area without prior written authorization from LADWP.

2.2.8.14. Drought and Low Precipitation Years

During drought years or periods of low precipitation, LADWP may reduce the grazing period, change the timing of grazing, or reduce animal numbers. Water allocations may be adjusted to accommodate all resource concerns.

2.2.8.15. Special Status Species

The Yellow-billed Cuckoo (*Coccyzus americanus*), a state endangered species, has been documented utilizing the Baker Creek area. The following state species of special concern avian species are known to nest in the Baker Creek area: Northern harrier (*Circus cyaneus*), Yellow-breasted chat (*Iteria virens*), Yellow warbler (*Dendroica petechia*) and Long-eared owls (*Asio otus*).

Owens Valley Checkerbloom (*Sidalcea covillei*), a state endangered species and Inyo County Star-tulip (*Calochortus excavatus*), a state species of special concern are growing in the Baker area.

Two riparian exclosures will be installed in the Baker Creek Area Lease with the goal of the maintaining and/or improving habitat for the Yellow-billed Cuckoo. This action should help to improve the status of other avian species on the lease.

2.2.8.16. Native Vegetation and Weed Control

The lessee will do necessary weed control annually on the lease. The lessee will inform LADWP of problem weed locations and whether chemical or mechanical control methods (or both) will be used. The lessee will inform LADWP as to the location of proposed herbicide application, the timing of application, the type of chemical used, and the amounts of all herbicides to be used prior to any weed control. No herbicide or other chemical will be applied near standing or flowing waters, rare plants, or near human habitation without prior LADWP approval.

2.2.8.17. Recreation

Recreation uses and policies as related to the lease will be defined in another section of the Baker Creek Yellow-billed Cuckoo Plan.

2.2.9. Monitoring and Evaluation

2.2.9.1. Forage Utilization Monitoring

Utilization cages will be placed as needed to monitor forage use by livestock. Cages will be positioned annually in selected pastures prior to the arrival of livestock. The utilization of key forage species will be documented using locally developed key species height-weight curves.

2.2.9.2. Monitoring of Range and Pasture Condition

Range trend and pasture condition will be monitored to guide future management decisions. Range condition monitoring in non-irrigated upland habitats will be conducted at permanent transect locations. Transect monitoring will consist of nested frequency sampling, vegetative cover sampling, shrub age classification, visual obstruction readings, and photo documentation. Sampling protocols will follow procedures outlined in the Interagency Technical Reference "Sampling Vegetation Attributes" in the *Rangeland Analysis and Planning Guide* (BLM, 1996). This monitoring data will be evaluated in terms of the "trend" in plant cover, plant frequency, and shrub age structure of the vegetation community. Trend results will be compared to Desired Future Condition.

Irrigated pastures will be rated using the NRCS pasture condition score sheet (Cosgrove et al., 2001). The rating system evaluates pasture productivity, stability of the plant community, and condition of soil and water resources. The system also helps identify management options needed to improve pasture condition and productivity.

2.2.9.3. Adaptive Management

Management directions will be modified as needed over time based on review of monitoring information. Adaptive management provides flexibility to account for unforeseen benefits or impacts. Future grazing management direction may be changed based on upland and riparian habitat assessments. If statewide data on Yellow-billed Cuckoo migration timing over several years indicates that the birds are arriving earlier in the year than they do presently, an evaluation will be conducted to determine if a change in grazing timing is needed to accommodate for the change in migration. Fencing, forage utilization, livestock water sources, timing, and duration of grazing will be adjusted if necessary to achieve grazing management goals.

2.2.9.4. Operational Emergencies

If a serious temporary (one year or less) grazing emergency occurs on a lessee's federal allotment(s) or on the lessee's private lands, that, in turn results in serious reductions in allotted livestock numbers, AUMs, or duration and timing of grazing, temporary deviations in grazing lease protocols on LADWP lands may be made to lessen the lessee's emergency situation. Circumstances that may necessitate emergency changes in LADWP grazing practices are fires, forage reductions from high snow years, and forage reductions from drought conditions. During the attempt by LADWP to provide grazing relief to the lessee, all grazing standards and criteria, as stated in the Grazing Lease Plan for grazing riparian and upland vegetation, will be abided by.

2.2.10. References

Agreement. 1989. *Agreement Between the County of Inyo and the City of Los Angeles and Its Department of Water and Power on a Long-Term Groundwater Management Plan for the Owens Valley and Inyo County.* Los Angeles Department of Water and Power, Bishop, CA.

Bureau of Land Management. 1996. *Sampling Vegetation Attributes in Rangeland Analysis and Planning Guide.* BLM/RS/ST-96/002+1730. National Applied Resource Science Center, Reno, NV.

Clary, W. P. and B. F. Webster. 1989. *Managing Grazing Areas in the Intermountain Region.* General Technical Report INT-263. USDA Forest Service, Rocky Mountain Research Station, Ogden, UT.

Cosgrove, D., D. Undersander, and J. Cropper. 2001. *Guide to Pasture Condition Scoring.* USDA NRCS Grazing Lands Technology Institute.

Ecosystem Sciences. 2000. *Lower Owens River Projects; Seeps and Springs Inventory Phase 1*.

Environmental Impact Report. 1991. *Water from the Owens Valley to Supply the Second Los Angeles Aqueduct, 1970 to 1990, 1990 Onward, Pursuant to a Long-Term Groundwater Management Plan.* Prepared by the City of Los Angeles Department of Water and Power and the County of Inyo, State Clearinghouse #89080705.

Inyo County and City of Los Angeles. 1990. *Greenbook for Long-Term Groundwater Management Plan for the Owens Valley and Inyo County.* Los Angeles Department of Water and Power, Bishop, CA.

MOU. 1997. *Memorandum of Understanding* Between the City of Los Angeles Department of Water and Power, the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club, the Owens Valley Committee, and Carla Scheidlinger. Los Angeles Department of Water and Power, Bishop, CA.

2.2.11. Baker Creek Area Recreation Management Plan

City of Los Angeles-owned lands in Inyo County, including the Baker Creek area, are currently managed under a multiple use concept with a substantial portion leased for agriculture, livestock and other uses. LADWP allows approximately 75 percent of its leased lands to remain open to the public for recreation and enjoyment (with the exception of critical areas such as irrigated pastures). All lands that are not open to public use are posted. LADWP intends to maintain this recreational access but acknowledges that some restrictions may need to be implemented if impacts to watershed resources become too severe or public safety becomes a concern.

LADWP property is and will continue to be managed for multiple uses, while maintaining a quality recreational experience of those who choose to recreate in the Eastern Sierra.

Access to the Baker Creek area for a variety of recreational activities will not be substantially changed during the restoration efforts for Yellow-billed Cuckoo. There are currently light recreational impacts and pressure in the area. Therefore, recreation management is to remain relatively unchanged from current practices unless increased demand or conflicts require increased management. The principle change in recreation will be the denial of Off-Highway Vehicle (OHV) use in exclosures. Otherwise, the current recreation guidelines will remain in place.

2.2.11.1. Current Recreation Guidelines

The following are guidelines for recreational use in the Baker Creek area and are the current policies of LADWP.

Camping

Overnight camping is allowed only in designated campgrounds, all of which are located outside the Baker Creek area. Designated campgrounds are developed, maintained and operated by the Inyo County Parks Department and most provide fire rings or barbeques, trash disposal facilities and restrooms. There will be no overnight camping allowed within the project area, but day-use picnicking, hiking, fishing, hunting and other outdoor activities that are currently enjoyed will continue with implementation of the project.

Fires

Fires and fireworks are prohibited in the Baker Creek area to protect against wildfires and to allow for the restoration of Yellow-billed Cuckoo habitat. Fires are only allowed in designated campgrounds.

Off-Highway Vehicles

All mechanized OHVs (including motorcycles, all-terrain vehicles, recreation vehicles, etc.) are limited to the use of existing roads and trails to limit the disturbance to plants and wildlife and to minimize any further degradation to soils and landforms. All OHV recreational users are requested to respect the concerns and needs of the livestock operator in the Baker Creek area and other recreational users, many of whom may be using the area to fish, hunt, hike, or observe birds and other wildlife.

Leased Lands
The Baker Creek area will continue to be leased for agricultural and livestock use. At least 75 percent of leased lands will continue to remain open for recreational use. All lands not open to recreational use will be posted, and all recreational users are asked to respect the operational concerns and needs of the lessee. All gates should be left as found, either open or closed, and care should be taken to not negatively impact or disturb agricultural or livestock operations, particularly in the use of firearms, OHVs, or other recreational activities that could potentially harm or disturb livestock or agriculture.

Fishing
Access to fishing in the Baker Creek area will remain open. It is not anticipated that there will be any restrictions for fishing access in the future.

Hunting
Access to hunt in the Baker Creek area will remain open. However, State of California Department of Fish and Game regulations state that firearms are prohibited to be discharged within 150 yards of occupied buildings, farm structures, livestock and public roads.

Woodcutting
Woodcutting on LADWP lands is administered through a permit process. Woodcutting is not allowed in specified sensitive areas. Only dead and downed wood can be taken by woodcutters and the season is only open during the growing season when trees are leafed out. The Baker Creek area is currently closed to woodcutting.

Hiking and Biking
Access to hike and bike in the Baker Creek area will remain open. It is not anticipated that there will be any restrictions for access for hiking or biking in the future.

Artifact Gathering or Pot Hunting
It is prohibited by federal law to disturb or remove any artifacts from previous human activity and use. This includes not only Native American artifacts but also old LADWP structures and artifacts and any old mining, homestead or agricultural structures or artifacts.

2.2.11.2. Future Recreation Guidelines

The Baker Creek area has several recreational uses that could potentially affect the success of Yellow-billed Cuckoo habitat maintenance and/or improvement efforts. The major roads and trails are shown on the Baker Creek Recreation Map (Figure J.) along with the new exclosures that will be installed as a management component of the Baker Creek Yellow-billed Cuckoo Habitat Enhancement Plan. The new exclosures will have walk-through access to foot traffic for hiking, bird watching, fishing and hunting, but the new fences will deny access to motorized vehicles.

Off Highway Vehicles
OHV activities are the most visible recreational impact at Baker Creek. The Apple Orchard Exclosure will have some effect on OHV roads and trails. Existing OHV trails inside the Apple Orchard Exclosure will no longer be accessible for OHV use. These existing trails will be available for foot traffic and are thus labeled as “Hiking Trails” on Figure J. OHV access will be maintained between the east and west sides of the Apple Orchard Exclosure through the corridor shown in Figure J. A short length of new trail/track will be constructed to provide a loop outside and along the eastern edge of the exclosure to provide access to this corridor. Cattle

guards will be placed on either end of the corridor to control livestock movement while allowing passage of OHVs and foot traffic.

Hunting
Although many types of hunting occur, hunting in the Baker Creek area is centered mainly on quail and dove. Hunters use the access roads and the parking areas around Baker Creek. Since hunting season generally opens around September 1, and Yellow-billed Cuckoos generally leave the area around this time, it is believed that hunting will not pose a risk to Yellow-billed Cuckoo.

Woodcutting
Woodcutting on LADWP lands is administered through a permit process. Woodcutting is not allowed in specified sensitive areas. Only dead and downed wood can be taken by woodcutters and the season is only open during the growing season when trees are leafed out. The Baker Creek area is currently closed to woodcutting but in the future woodcutting permits might be issued for specific locations in conjunction with the Black locust control program.

Mountain Biking
The Baker Creek area is utilized by mountain bike riders. Bike riders use the OHV roads, tracks and trails. The changes to roads and trails are discussed above under Off Highway Vehicle issues.

Hiking, Fishing and Bird Watching
The new exclosures will have walk-throughs to allow access to foot traffic for hiking, bird watching and fishing.

Miscellaneous Recreational Activities
Several other ancillary recreational activities occur in the Baker Creek area. If any recreational activities, including the ones discussed above, become problematic and impact the exclosures or planting areas, signage will be used to advise the recreating public to minimize disturbance to components of the project.

2.2.11.3. Enforcement

Enforcement will be critical to providing effective management of recreation activities in the Baker Creek area. Informational signage is essential and will hopefully achieve compliance in the project area. If signage is ineffective, additional enforcement will be required. In the event enforcement is required, LADWP will work cooperatively with the Inyo County Sheriff's Department.

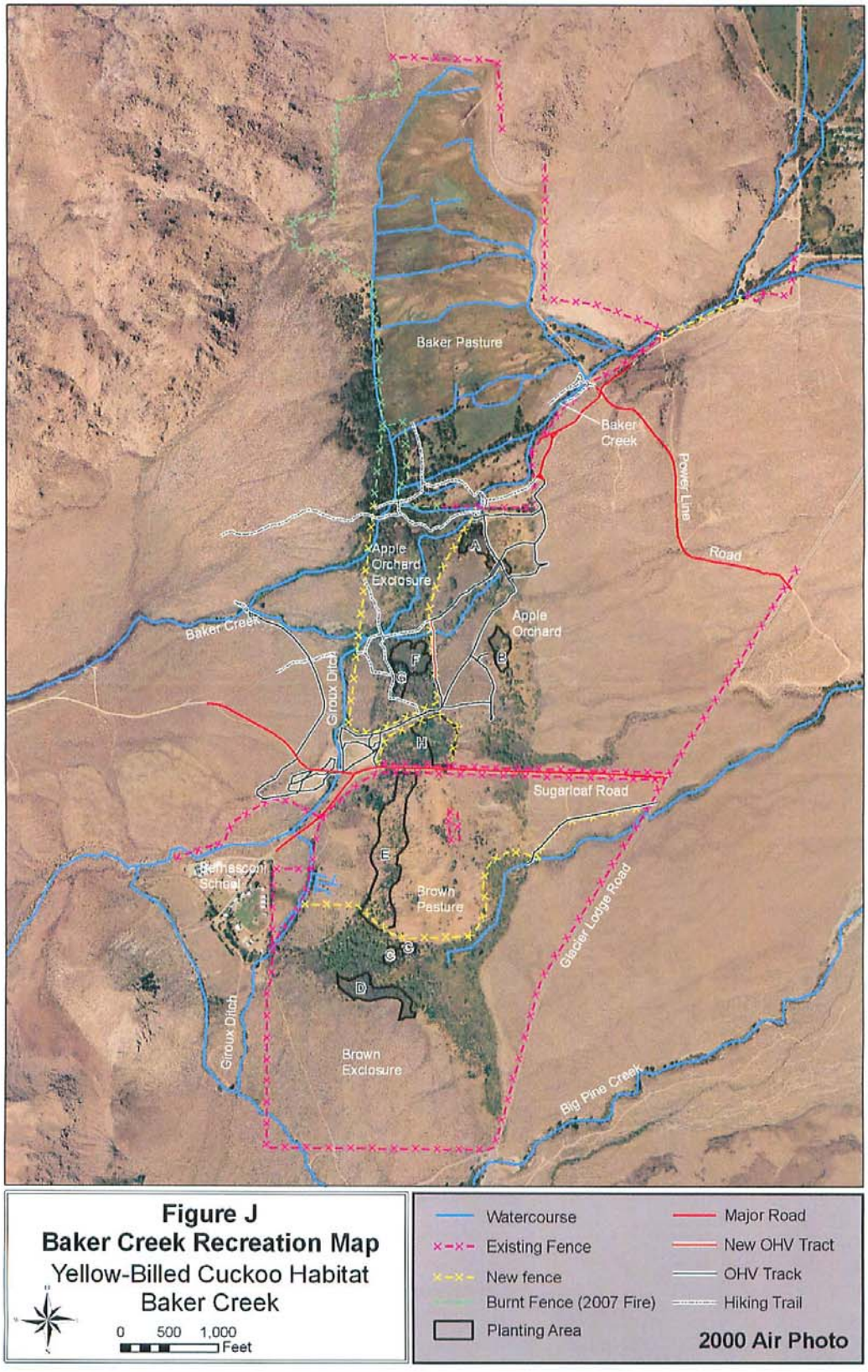


Figure J. Baker Creek Recreation Map

2.2.12. Baker Creek Area Fire Control Plan

In the recent past, wildlife habitats in the Baker Creek area have been greatly impacted by wildland fires. A 1995 fire burned a quarter of the forested lands within the lease. A 1999 fire burned an additional 24 acres of riparian woodland in the Brown Pasture. In 2007, the Inyo Complex Fire burned all the riparian woodlands in the Apple Orchard Pasture and Exclosure as well as forested areas in the Baker Pasture (Figure K). Sprouting of native tree species and non-native black locust is occurring over most of the burn area. Black locust control is one of the components of this enhancement plan. Post fire Black locust control actions are discussed in the Baker Creek Planting Plan chapter of this document. Today the area is still recovering from the three fires noted above.

Future grazing, habitat management and project implementation within the Baker Creek area will increase the volume of fuels and, in turn, potentially increase fire frequency and intensity. Therefore, more effort will be needed to prevent and manage fire in the area.

A planting area was proposed for an area that lied in a portion of the Brown Pasture to the east of the Bernasconi Education Complex. As proposed, this newly forested area would create continuous woodland from the edge of the school property to the forested areas of the Brown Pasture and Brown Exclosure. A field review was conducted by a Battalion Chief for the California Department of Forestry (CDF). A decision was made to abandon the planting area to protect the school, school occupants and fire fighters. This decision allowed for the maintenance of a safety zone that would allow firefighters to safely cut line using heavy equipment or hand crews and then back fire the area to the east of the break to prevent fire from moving from east to west towards the school facility. Further review of the area adjacent to the school facility resulted in plans for creating a shaded fuel break in the forested area to the southeast of the school facility in the Brown Exclosure. This work is to be completed by the CDF.

A fire break will be created between the project area and the community of Big Pine (Figure K). This fire break will be created by hand clearing 15 feet on either side of the power line road that runs between the Baker Creek Pasture and the Glacier Lodge Road. Native grasses and forbs will be left for groundcover. Tree branches will be trimmed to a height of 10 feet. This work will be completed by LADWP and CDF.

The lessee will continue to graze areas that lie outside exclosures. In addition, grazing will be utilized to control biomass accumulations within the exclosures. Grazing management within the exclosures will be coordinated between LADWP and the grazing lessee. Grazing will be utilized within these exclosures to reduce fire hazards as deemed necessary. No grazing will be implemented within the exclosures between June 1 and September 1 of any year because of potential Yellow-billed Cuckoo breeding activity.

No burning, firewood cutting or wood gathering will be allowed by any individual in the Baker Creek area without the written approval of LADWP. The lessee will not burn any part of the Baker Creek Area Lease without receiving LADWP approval. All managed burning for the purpose of improving rangeland, wildlife habitat, and/or watershed condition, will be conducted under the direction of LADWP. The lessee will participate and cooperate. All burn areas resulting from unintentional fire will be evaluated by LADWP to determine fire affects. LADWP will then determine the grazing rest needed to allow rehabilitation of fire impacts, should they exist. No managed burning will be allowed in riparian habitats without proper study and evaluation. If managed burning proves to be beneficial, it may be considered as a management tool in the future. Unintentional fires in riparian habitats will be given high priority in fire suppression.

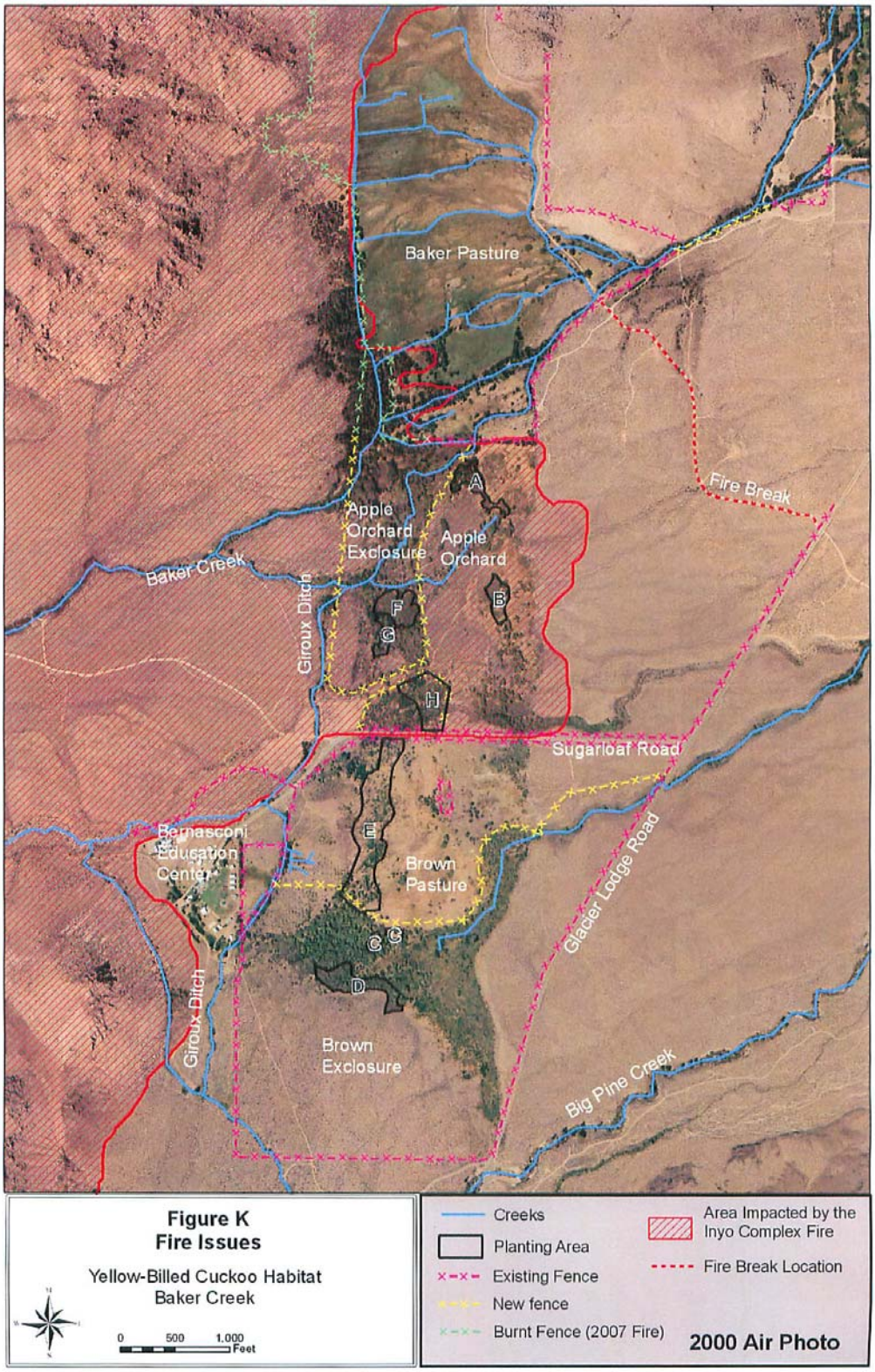
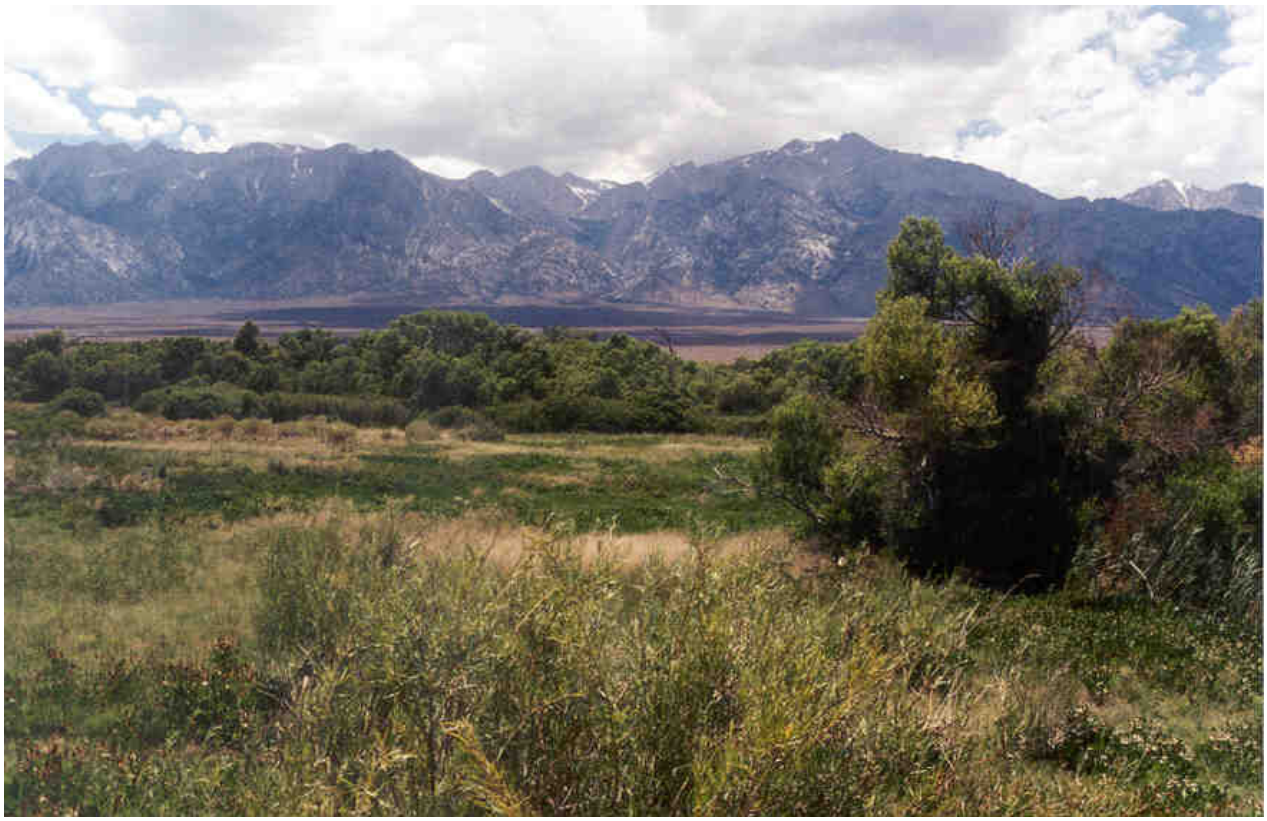


Figure K. Fire Issues YBC Habitat Baker Creek

3.0 THE HOGBACK CREEK YELLOW-BILLED CUCKOO HABITAT ENHANCEMENT PROJECT



3.1. Hogback Creek Habitat Evaluation

3.1.1. Introduction

The Hogback Creek project site, situated in the Lower Owens River Sub-basin, is located on the northwest corner of the Alabama Hills, west of U.S. Highway 395 and between the towns of Independence and Lone Pine, California. Hogback Creek and a major spring complex provide the hydrology within the site. The site is located north of Moffat Ranch Road, and it is approximately 1.5 miles in length and 0.5 miles in width. Within the project area, there is a total of 111 acres of riparian vegetation, 50 acres of mesic meadow, and approximately two acres of wet meadow based on acreages reported by Ecosystem Sciences (2004). The riparian habitat is in two main corridors separated by an upland opening of 400 to 1000 feet in width. The largest individual riparian habitat patch is approximately 1400 feet in width; however, the majority of riparian habitat is 500 feet or less in width with the average habitat width approximately 750 feet. The largest contiguous riparian-habitat patch is approximately 40 acres in size and the next largest patch is approximately 20 acres in size. The riparian habitat on the site appears to be primarily supported by seeps and springs rather than Hogback Creek itself located slightly west of the riparian habitat.

According to previous evaluations of Hogback Creek for YBC habitat, the area has at maximum habitat for two pairs based on the most recent model of YBC habitat requirements (Ecosystem Sciences 2004). Generally, a pair of cuckoos will use between 50 to 100 acres of habitat, depending on the year and resources available within a habitat. The Hogback Creek site meets the criteria for sites categorized as suitable habitat. The Ecosystem Sciences (2004) evaluation further states that the Hogback Creek site is isolated from other suitable YBC riparian habitat within the Owens Valley, and they hypothesized that the isolation and relatively small size of the suitable area means that the site likely will not be occupied by YBC every year.

A wildfire, started from a controlled burn, affected much of the site in 1992 (Ecosystem Sciences 2004). After the fire, the site was surveyed for YBC in 1993, and at least 50 percent of the 111 acres of riparian habitat was documented as severely impacted from the fire with most of the large trees burned completely. However, by April 1999 the riparian habitat was observed as recovering well with significant re-growth from root sprouting (Ecosystem Sciences 2004).

Yellow-billed cuckoos have been found at the Hogback Creek site on two of three occasions that the site has been surveyed; during the statewide survey in 1977 a single male was observed, and YBC were noted again during the statewide survey in 1986 (Ecosystem Sciences 2004). Not surprisingly, YBC were not observed at Hogback Creek when the site was surveyed in 1993 after the burn.

Based on their evaluations of Hogback Creek for YBC, Ecosystem Sciences (2004) recommended enhancement of the existing riparian areas by planting cottonwood and willow species in open areas adjacent to existing riparian woodland within the site. In late 2008, the consensus group directed that a detailed evaluation be performed for each area recommended for planting by Ecosystem Sciences to determine if the identified areas could support tree species. The following section presents the detailed evaluation of each area selected by Ecosystem Sciences for enhancement.

3.1.2. Soil and Vegetation Evaluation of Proposed Enhancement Areas

Areas that had previously been recommended for YBC habitat enhancement along Hogback Creek were evaluated in the field on January 7 and 12, 2009. The areas evaluated are presented in Figure L, and each site is numbered for data management purposes. At each site, soil and groundwater conditions were examined. Existing vegetation was noted for dominant species as well as occasional rare species. Since the site evaluation was conducted in winter, the list of plants is not exhaustive but rather conveys the overall habitat type for each site. Table 17 presents a summary of the soils and habitat at each sample site.

The soils within the Hogback Creek project area are classified as the Dehy-Conway-Lubkin Association, 0 to 9 percent slopes (USDA 2002). This soil association is formed as fan terraces from granitic alluvium. The representative profile for this soil association includes ponding with very poorly drained soils generally with slow surface runoff. Auger samples show that the soils are variable between sample sites and for some sites, within an auger hole (Table 17).

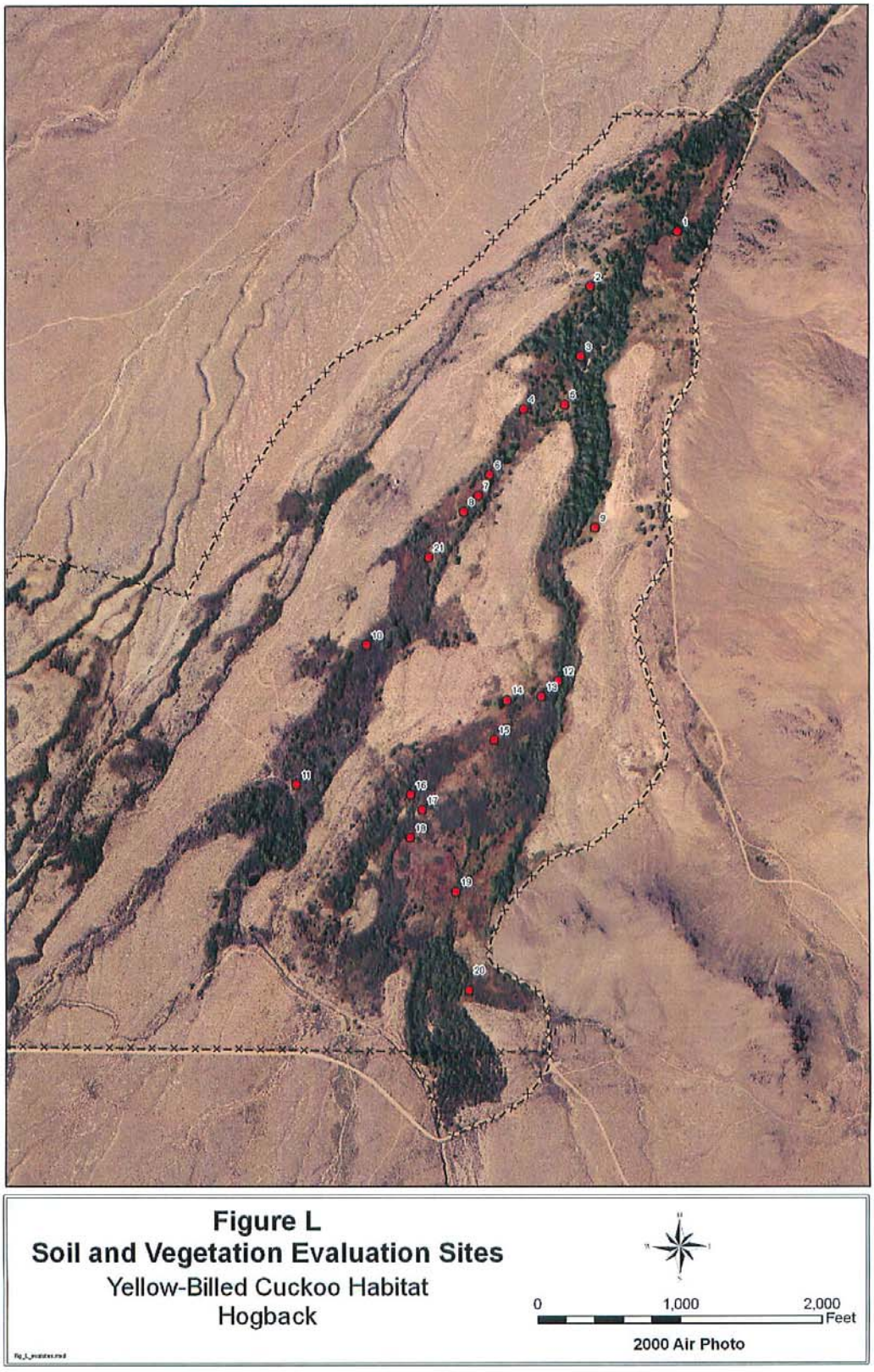


Figure L. Soil and Vegetation Evaluation Sites YBC Hogback

Table 17. Hogback Creek Soil, Vegetation, and Habitat Descriptions

Sample	Sample Depth (ft.)	Soil Moisture/Water Table Depth (ft)	Soil Texture	Habitat
1	2.8	2.4	Silty clay loam	Saline meadow
2	6.0	Dry	Gravelly decomposed granite	Saline meadow and shrub
3	2.9	2.8	Sandy	Coyote willow scrub
4	6.2	Dry	Silty loam	Saline meadow
5	4.9	4.9	Clay loam to sandy, at depth	Saline meadow
6	6.0	Dry	Silty	Saline meadow
7	Located near Sample 6 – not sampled			
8	6.0	Moist/6.0	Silty to clay	Saline meadow
9	5.5	5.5	Loam to sand, at depth	Saline meadow
10	Located in dense patch of willow & desert olive – not sampled			
11	6.0	6.0	Sandy	Saline meadow
12	1.6	Moist/1.6	Loam	Saline meadow
13	4.6	4.6	Loam to sandy gravel, at depth	Saline meadow
14	6.0	6.0	Sandy	Saline meadow
15	6.1	Dry	Silty clay loam to clay to gravel, at depth	Saline meadow
16	2.7	Moist/2.7	Clay	Saline meadow
17	4.8	Dry	Gravelly with rocks	Saline meadow
18	6.3	Dry	Silty loam to sandy loam, at depth	Saline meadow
19	6.2	Moist/6.0	Loam to gravelly sand, at depth	Saline meadow
20	2.7	Moist/2.7	Loam to sandy, at depth	Saline meadow
21		Not originally numbered on original map – not sampled		

The sample sites are more or less adjacent on at least one side to cottonwood (*Populus fremontii*) and/or willow (*Salix* spp.) riparian habitat found over the site (see Figure L). Most of the sites are classified as saline meadow habitat (USDA 1993). In general, the sites are dominated by native forb and grass species including yerba mansa (*Anemopsis californica*), saltgrass (*Distichlis spicata*), creeping wild rye (*Leymus triticoides*), and alkali sacaton (*Sporobolus airoides*). Other species commonly observed include rushes (*Juncus balticus*), nitrophila (*Nitrophila occidentalis*) and ragweed (*Ambrosia acanthicarpa*), with occasional individuals of pyrrocoma (*Pyrrocoma racemosa*), and annual sunflower (*Helianthus annuus*). At least two sites support alkali cord grass (*Spartina gracilis*), a species of concern per California Native Plant Society (CNPS) Inventory of Rare Plants with a CNPS list 4.2 limited distribution within California (CNPS 2009), and it is an indicator of high habitat value of the saline meadows. In some of the sample areas, saltbush (*Atriplex lentiformis* ssp *torreyi*) is present, and rabbitbrush (*Chrysothamnus nauseosus*) is present at the edges of the meadows with some

individuals within the sample sites. Sample sites 3 and 10 are located in dense patches of coyote willow (*Salix exigua*) as well as desert olive (*Forestiera pubescens*). Few exotic species were noted within the sample areas or in the Hogback Creek site overall. Based on the species observed at the sample sites, the quality of the habitat is good both from a general ecological as well as range management prospective.

3.1.3. Recommendations

Based on the quality of the native habitat in areas identified for enhancement for YBC, planting is not recommended for the Hogback Creek project area. The mainly saline meadows have formed on terrace fans based on the historic hydrologic patterns within Hogback Creek. Unlike Baker Creek where the exotic species removal throughout the site allows for YBC habitat enhancement, no such opportunity exists on Hogback Creek to improve the habitat for YBC except at the expense of another native habitat.

The existing habitat at Hogback Creek will be maintained through management as described in the following sections. Grazing will be managed to maintain and/or enhance YBC habitat and healthy riparian habitat while maintaining the viability of the ranch grazing operations.

3.1.4. References

CNPS 2009. *Inventory of Rare and Endangered Plants, v7-09a 1-13-09* (Seventh Edition Online http://cnps.web.aplus.net/cgi-bin/inv/inventory/cgi). California Native Plant Society.

Ecosystem Sciences 2004. *Work Plan for the Completion of Yellow-billed Cuckoo Habitat Evaluation and Enhancement Plans for Baker and Hogback Creek Areas.* Prepared for the Los Angeles Department of Water and Power and Inyo county Water Department.

USDA 2002. *Soil Survey of Benton-Owens Valley Area, California, Parts of Inyo and Mono Counties.* Natural Resources Conservation Service.

USDA. 1993. *Ecological Site Description, Saline Meadow.* USDA-SCS-CA Technical Guide Section II-E.

3.2. Hogback Creek Area Grazing Management Plan

3.2.1. Prologue

Owens Valley Management Plans are one of the components required in the Memorandum of Understanding (MOU) between the City of Los Angeles Department of Water and Power (LADWP), the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club, and the Owens Valley Committee (1997). The goal of the Owens Valley Management Plan is to support the achievement of LADWP's watershed management goals, which are to improve water quality, improve water-use efficiency, maintain compatibility with water gathering activities, and support LADWP's goal of continuing a cost-effective aqueduct operation. Additional goals are to establish a healthy, functioning ecosystem for the benefit of biodiversity and special status species while providing for the continuation of sustainable uses, including recreation, livestock grazing, agriculture, and other activities (MOU 1997). LADWP plans to achieve these goals through the implementation of "Best Management Practices" (BMPs), and apply adaptive management to build and maintain a healthy watershed. BMPs are methods, measures, or land-management practices designed to improve watershed health.

One of the items to be addressed in the Owens Valley Management Plans was livestock grazing. In an effort to meet the goals of protecting valuable water resources while providing for the continuation of sustainable uses, LADWP, in consultation with Ecosystem Sciences, the MOU consultants, and the ranch lessees, developed Grazing Management Plans for each of the then 49 ranch leases in Inyo County. These grazing management plans are designed to meet regional water quality regulations by implementing BMPs that address water quality issues and enhance existing conditions. The Hogback Creek area grazing management plan was developed in cooperation with the representatives of the Sierra Club, Inyo County Water Department, California Department of Fish and Game, LADWP and Red's Meadow Pack Station, the lessee for the area in an attempt to develop plans that are compatible with the lessees' operations yet ensure that watershed health goals are met.

Several issues were raised during the development of the final drafts of plans for ranch leases that lie within the boundaries of the Lower Owens River Project. These issues included forage utilization rates on upland areas, assessing the condition of irrigated pastures, and critical operational management areas for the leases. In an effort to address these issues, a focus group of ranch lessees met with staff from LADWP in December 2003. The intent was to arrive at solutions that were acceptable to both LADWP and the lessees on these critical issues. In attendance representing LADWP were Mr. Gene Coufal, Mr. Clarence Martin, Mr. Brian Tillemans, Mrs. Paula Hubbard, Ms. Debbie House, Mr. David Martin, and Mr. Dale Schmidt. Lessees in attendance were Mr. Scott Kemp, Mr. Mark Johns, Mr. Mark Lacey, Mr. Ron Yribarren, and Mr. Gary Giacomini.

In early drafts of the Grazing Management Plans, irrigated pasture conditions were to be determined ocularly and pastures qualitatively rated as being in poor, fair, good, or excellent condition. Pastures rated as either poor or fair would have utilization standards established in an effort to improve their condition rating. In an effort to establish a more quantitative system of rating that would be less susceptible to bias, LADWP staff tested the Natural Resource Conservation Service Guide to Pasture Condition Scoring and determined that the method was quantitative, easy to implement, repeatable, and yielded consistent results among various

users. Members of the lessee focus group indicated that the method was acceptable. Beginning in 2004, LADWP and the lessees jointly would start assessing irrigated pastures on all leases. Due to the number of irrigated pastures, it was determined that it would not be possible to assess the condition of all irrigated pastures on all leases every year, but a subset of all irrigated pastures will be jointly (LADWP and lessee) evaluated annually. During years of below-normal precipitation and when water allotments for irrigation are reduced, there will be no downgrading of pasture condition. If irrigation reduction lasts for more than one season, however, adjustments in livestock numbers may be necessary to ensure there are no long-term detrimental impacts to irrigated pastures.

Early Grazing Management Plan drafts established upland forage utilization rates at 65 percent as long as there were 31 days of rest for the pasture at some time during the growing season. LADWP staff were concerned that this level of utilization and short rest period would prohibit native grasses from completing seed set and, consequently, result in a decline in the trend of the upland area. More restrictive language setting utilization rates at 50 percent if plants were grazed at anytime during the period from April 2 to September 30 was not acceptable to the rancher focus group because of the restrictions concerning being able to move livestock to other private lands or federal permit areas prior to April 2. As a compromise, 65 percent utilization was established for all upland areas as long as there was a minimum of 60 continuous days of rest for the area during the plant "active growth stage" to allow seed set between June and September. If the pasture does not receive 60 continuous days of rest between June and September, utilization rates will be set at 50 percent. This was acceptable to the lessees and should not prohibit the achievement of LADWP's goal if adaptive management guidelines are followed.

The final concern that the rancher focus group expressed was that there are portions of their leases that are critical to their ability to operate. These areas include livestock gathering areas, holding areas, and shipping areas. LADWP recognized these needs and agreed that establishment of utilization standards for these areas would not be appropriate.

3.2.2. Summary

The MOU between LADWP, the County of Inyo, the California Department of Fish and Game, the California State Lands Commission, the Sierra Club, the Owens Valley Committee, and Ms. Carla Scheidlinger provides for the re-watering of the Owens River from the Los Angeles Aqueduct Intake downstream to the Owens Dry Lake. The MOU designates that water will be released into the river at predetermined flow rates. The goal of the LORP, a product of the MOU, is to establish a healthy functioning riverine/riparian ecosystem. The continuation of sustainable uses including recreation, livestock grazing, agriculture, and other activities is also emphasized in the MOU. This grazing management plan was developed with MOU goals in mind. The Parties to the MOU consulted with the lessee in the development of the plan. The Hogback Creek Lease lies outside the boundaries of the LORP; however the goals of both the LORP and LADWP are still applicable.

The Hogback Creek Lease is leased to Red's Meadow Pack Station. The lease is located on the northwest corner of the Alabama Hills, west of U.S. Highway 395 and south of Independence, California and north of Lone Pine, California. Hogback Creek and a major spring complex flow through the lease (Figure M).

Riparian/wetland vegetation is associated with Hogback Creek and a spring complex (DWP 6), with several outlets draining to Hogback Creek. Arid shrub communities dominate areas with deeper water tables.

The Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*), a state endangered species, has been observed on the Hogback Creek Lease.

The Owens Valley checkerbloom (*Sidalcea covillei*), a California endangered plant species, occurs on the Hogback Creek Lease. Inyo County Star-tulip (*Calochortus excavatus*), a California species of special concern also occurs in the Hogback Creek area. These two species typically occur within alkali meadows.

The lessee will have one to three years from the date this new grazing plan is implemented to phase in requirements described in this plan. At the beginning of the fourth year, the lessee must meet all standards, criteria, and other management direction outlined in this plan.

Future grazing will be modified from present grazing management. Grazing management changes will be made to maintain and/or improve Yellow-billed Cuckoo habitat and maintain healthy riparian habitat while maintaining the viability of the ranch operations. This will be accomplished by improving existing fences to eliminate trespass cattle from entering the lease, and through the application of grazing utilization criteria. Regardless of the scheduled “off-dates”, stock will be removed when monitoring determines that average utilization of herbaceous forage on riparian sites has reached 40 percent. This new grazing approach will benefit riparian areas in the Hogback Creek area and, together with other components of the overall plan, help to fulfill the goal of maintaining and/or improving Yellow-billed Cuckoo habitat. Long-term monitoring will compare vegetation response on the riparian pastures with non-grazed areas established as controls. If long-term monitoring determines that livestock management is precluding the development of desired riparian communities on the Red’s Meadow Pack Station lease, grazing prescriptions will be modified to attain desired conditions. Riparian pastures may also contain upland habitat. If significant amounts of upland vegetation occur within a riparian pasture or field, upland grazing utilization standards, as outlined in this lease plan, will also apply to these upland habitat types. Livestock will be removed from a riparian pasture when either the riparian or the upland grazing utilization standard is met.

Upland management objectives are to sustain livestock grazing, provide productive wildlife and fish habitat, maintain desired healthy range conditions, and maintain or increase range condition trend. Maximum annual average herbaceous livestock grazing utilization allowed in upland areas is 65 percent if grazing occurs only during the plant dormancy period. Maximum average herbaceous forage utilization allowed in upland areas is 50 percent if livestock grazing occurs during the active plant growing period. However, if no livestock grazing occurs during the active plant growing period (that period when plants are "active" in putting on green growth) or the pasture or field is completely non-used for a minimum of 60 continuous days during the latter part of this "active stage," allowable forage utilization can be increased from 50 to 65 percent.

The lease fenceline ranges from fair to poor condition (Figure N). The entire perimeter fence will be rebuilt or upgraded by the lessee to meet LADWP standards. The number of gates has recently been reduced to the minimum needed for managing livestock and recreation uses. Gates will be improved as needed.

Ecological or range sites within the pastures will be monitored through condition and trend evaluations, documented annual range inspections, and periodic photos of established points. Utilization cages will be used to monitor forage use. Management directions specified in this plan may be modified through adaptive management based on review of monitoring information. The adaptive management approach provides flexibility to account for unforeseen benefits or impacts.

3.2.3. Introduction

3.2.3.1. Plan Development

In the early 1990s, LADWP initiated proactive watershed projects in Long Valley, Mono County. These projects developed stream bank grazing strategies and recreational use measures to improve the health of selected Long Valley streams. By maintaining watershed health, LADWP provided good water quality for their customers while fish, wildlife, and other natural resources benefited as well. The success of these watershed projects encouraged LADWP to expand these efforts to their other lands in the Owens Valley.

In 1997, an MOU was signed between the City of Los Angeles (City), Inyo County, California Department of Fish and Game, Sierra Club, State Lands Commission, the Owens Valley Committee, and Carla Scheidlinger. This MOU provided for the resolution of conflicts and environmental concerns between the parties, and led to approval of the 1991 EIR on Increased Groundwater Pumping. The main aspect of this MOU was further definition of the LORP. One component of the LORP Action Plan is the Land Management Plan. The livestock grazing portion of this plan called for involving efforts similar to those undertaken in Long Valley.

The MOU states that, "[LA]DWP, in consultation with MOU Parties and others, will identify and prioritize for plan development, those areas where problems exist from the effects of livestock grazing and other land uses." All plans must be completed within approximately 10 years of the discharge of the writ (approximately 2007). This grazing plan will become part of the LADWP's Land Management Plan.

This grazing plan was developed to address livestock management issues and to develop livestock management guidelines needed to achieve LORP and LADWP’s watershed management goals. This plan is integrated with other management plans upstream and downstream of this lease.

The MOU emphasizes the need to maintain sustainable levels of agriculture, livestock grazing, recreation, and other activities. Thus, the plan took into consideration the needs of multiple users. LADWP also recognizes the important role people living and working in the Owens Valley play in ecosystem management. Human perception, human values, and local traditions were considered in the development of the grazing plan. Plan development was closely coordinated with the lessees in an attempt to produce plans compatible with the lessees' operation, yet ensure environmental goals are met.

3.2.3.2. Physical Description of the Owens River Watershed

LADWP recognizes the Owens River watershed as a continuum of many habitats connected by the Owens River. For management purposes, the Owens Valley ecosystem was divided into five major sub-basins (Figure M):

1) Upper Owens – the watershed draining to Lake Crowley and the watershed of Upper Rock Creek;

2) Owens Gorge – includes the Owens River between Lake Crowley and the upper end of Pleasant Valley Reservoir and the reach of Rock Creek in Birchim Canyon;

3) Middle Owens – the watershed between Pleasant Valley Reservoir and the Los Angeles Aqueduct Intake, and the watershed of Lower Rock Creek above Birchim Canyon, all which drain directly to the Owens River;

4) Lower Owens River – the watershed that drains to the Owens River from the Los Angeles Aqueduct Intake to the historic bed of Owens Lake; and

5) Owens Lake – the historic Owens Lake bed and the adjacent watershed draining directly to it.

Most sub-basins are hydrologically and ecologically linked; therefore, management in one sub-basin can affect other sub-basins. In addition, the Owens Valley ecosystem is influenced by the inter-basin diversion of water from the Mono Basin. LADWP's desire is to manage each individual sub-basin in a manner to maintain or improve the health of the entire watershed.

3.2.3.3. Goals of the Grazing Management Plan

The goal is to maintain and/or improve Yellow-billed Cuckoo habitat, support the achievement of LORP and LADWP's watershed management goals. The primary goal of the LORP is to establish a healthy, functioning riverine-riparian ecosystem for the benefit of biodiversity and special status species while providing for the continuation of sustainable uses including recreation, livestock grazing, agriculture, and other activities (MOU 1997). More specifically, the MOU states that, "management activities should promote diverse natural communities that are self-sustaining, comply with state and federal law concerning protected species, be consistent with water quality laws and objectives, control deleterious species, and be consistent with other LORP goals." The Red's Meadow Pack Station Lease lies outside the boundaries of the LORP: however, the goals of both the LORP and LADWP are still applicable.

From a watershed management perspective, LADWP's goals are to implement BMPs, and apply adaptive management to build and maintain a healthy watershed. BMPs are methods, measures, or land-management practices designed to improve watershed health and prevent or reduce non-point source water pollution. This plan identifies BMP guidelines with respect to grazing management activities. Management outlined in this plan is expected to improve water quality, improve water-use efficiency, maintain compatibility with water gathering activities, and support LADWP's goal of continuing a cost-effective aqueduct operation. Good watershed management will minimize resource conflicts that may threaten LADWP's water supply while benefiting fish, wildlife, and other natural resources. Applying BMPs, with needed land treatments, will maintain already healthy rangelands and improve those that have been degraded. Over time, the BMPs outlined in this plan will be fine-tuned as needed through adaptive management until LADWP's goals are met.

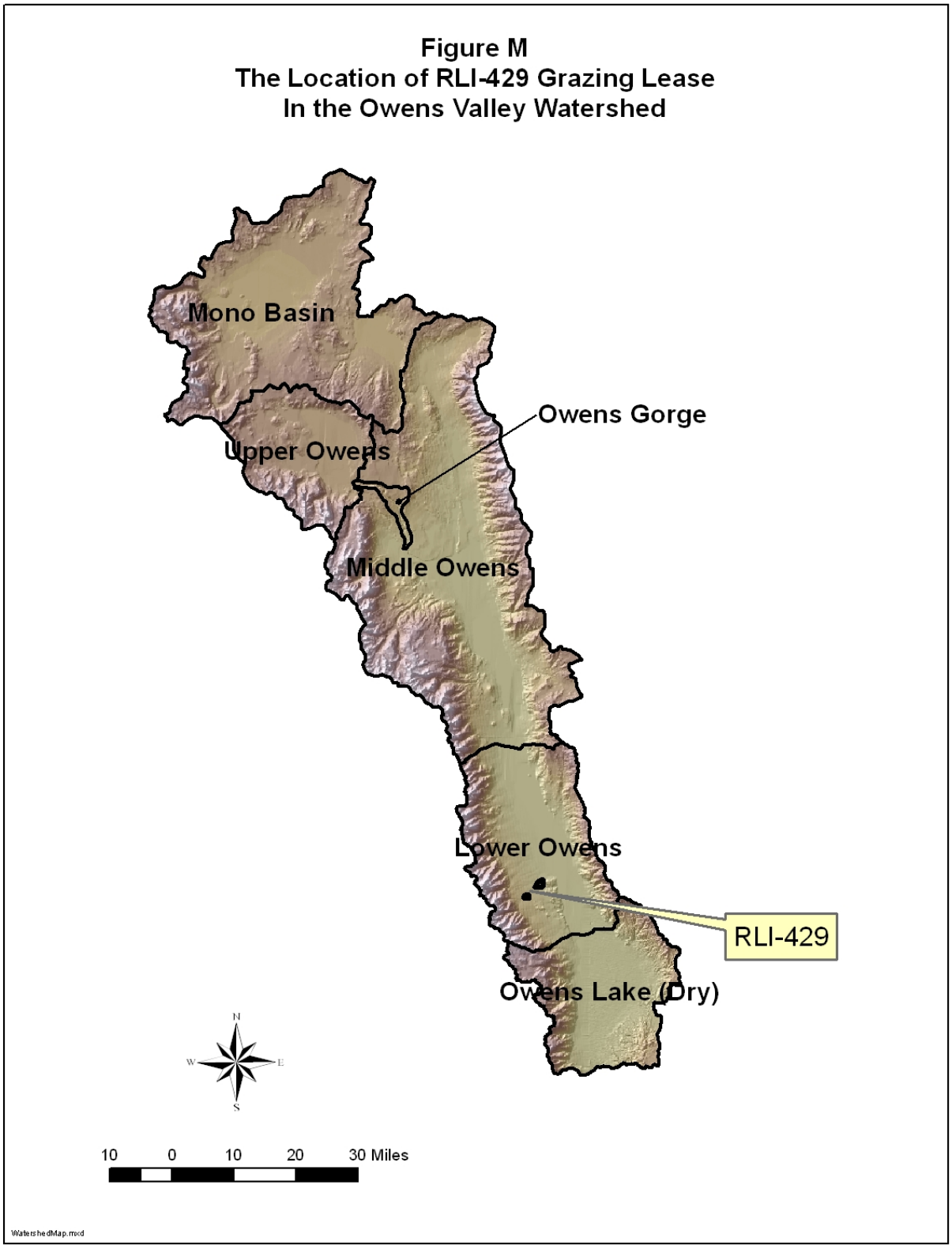


Figure M. Location of RLI-429 Grazing Lease in the Owens Valley Watershed

3.2.4. Lease Description

The Hogback Creek Lease is part of the Red's Meadow Pack Station Lease (RLI-429). The lease is used to help support a horse and mule packer operation in the Sierras. The lease is northwest of the Alabama Hills, west of U.S. Highway 395, and south of Manzanar, between the towns of Independence and Lone Pine, California (Figure N). The lease lies north of Moffet Ranch Road and is 1.5 miles long and 0.5 mile wide. Hogback Creek flows through the northwest side of the lease. Springs arise on the lease and drain toward Hogback Creek. Riparian/wetland habitat is associated with Hogback Creek and spring drainages. Spring drainage associated riparian habitat occupies two main corridors running from southwest to northeast, with dry uplands between.

Most of the lease vegetation burned in 1987 when a controlled fire intended to improve surrounding range condition grew out of control. In 1999, a field evaluation found riparian trees and shrubs recovering well from fire effects, largely from root sprouting (Ecosystem Sciences, no date).

3.2.4.1. Enhancement/Mitigation Projects

Water management projects termed enhancement/mitigation (E/M) projects were designed to mitigate impacts identified and described in the *Environmental Impact Report on Water from the Owens Valley to Supply the Second Los Angeles Aqueduct* (1991). E/M projects were identified by LADWP and Inyo County. They vary in scope from one-time cleanups, planting trees along roads, returning irrigation to abandoned agricultural lands, and enhancing wildlife areas. Most E/M projects are allotted water. No E/M lands occur on this lease.

3.2.4.2. Type E Vegetation Lands

Type E vegetation lands are identified and mapped from "Green Book" information (Inyo County and City of Los Angeles 1991). Type E lands are supplied with water sufficient to avoid decreases and changes from vegetation conditions that existed on such lands during the 1981-1982 runoff year. There are no Type E lands on this lease.

3.2.4.3. Revegetation Projects

No revegetation projects occur on this lease.

3.2.4.4. Riparian/Wetland Vegetation

Riparian/wetland vegetation is associated with Hogback Creek and spring complex, DWP 6 (Figure N) (Ecosystems Sciences 2000).

3.2.4.5. Seeps and Springs

All known seeps and springs were visited prior to plan development (Ecosystem Sciences 2000). If the assessment indicated that current management was negatively impacting the springs, fencing to protect the spring was recommended. Much of the Hogback Creek area was mapped as a spring/seep complex designated as DWP 6 (Figure N).

3.2.4.6. Special Status Species

Special Status Species are those that are either state or federally listed as threatened or endangered. The Yellow-billed Cuckoo has been observed on the Hogback Creek Lease. This bird is a California state-listed endangered species.

Owens Valley checkerbloom (*Sidalcea covillei*), a state endangered plant species and Inyo County Star-tulip (*Calochortus excavatus*) also occur on the Hogback Creek Lease

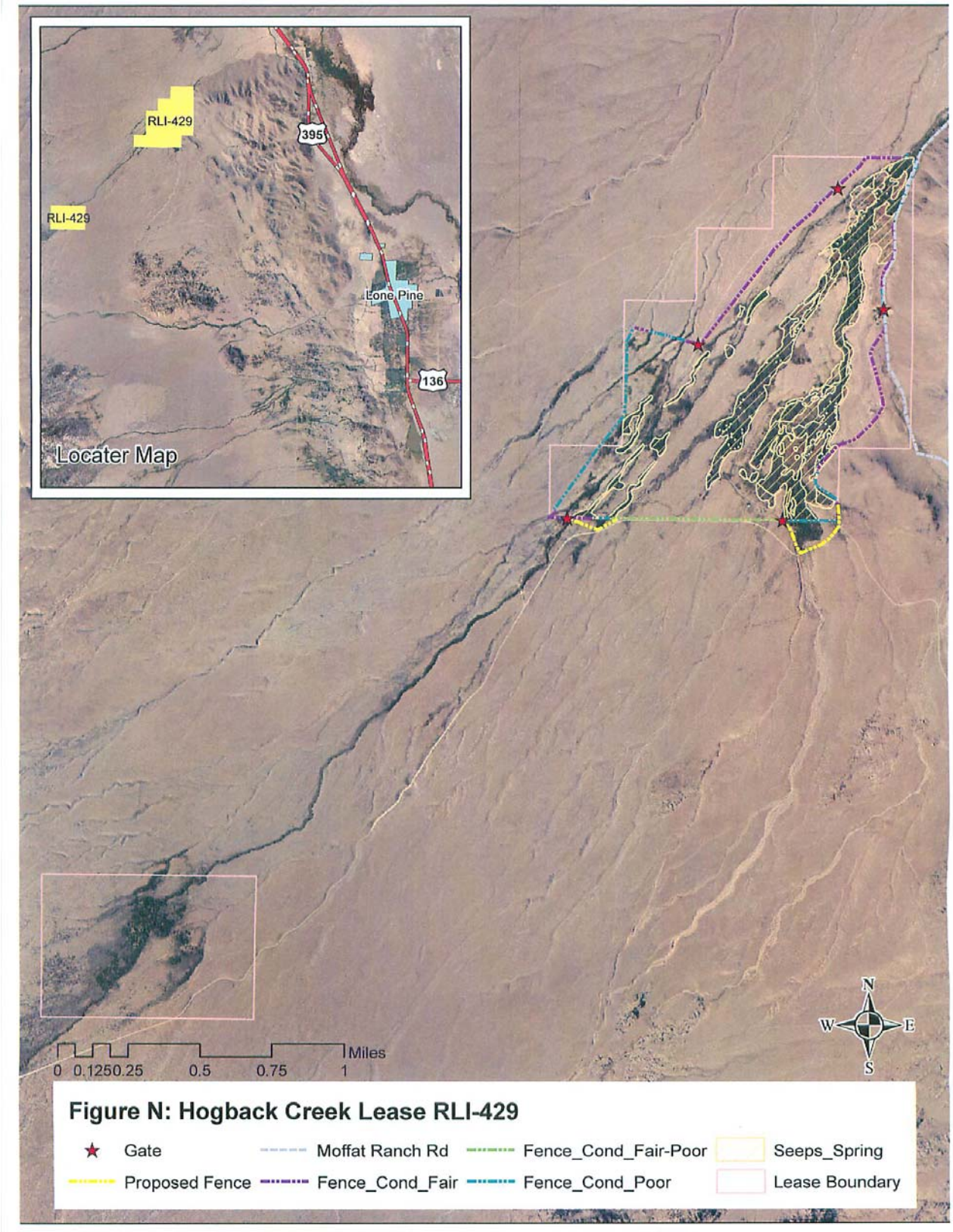


Figure N. Hogback Creek Lease RLI-429

3.2.5. Grazing Management

3.2.5.1. Present Grazing Management

The lessee grazes the lease with pack stock (40 to 55 horses and mules). Stock numbers are reduced or increased depending on summer recreational demand. The lessee does not supplement feed any animals grazing the lease. Livestock presently grazing the lease do not exceed 50 animals. During drought years, the lessee reduces livestock numbers.

The lease is typically grazed from approximately January 1 to April 30 of each year. The lease was intentionally not grazed from 1997 through 1999. During this period, however, approximately 35 cows from the Georges Creek Lease grazed the Hogback Creek Lease while also grazing surrounding BLM lands. From January 1, 2000 to the end of April 2000, 50 horses and mules grazed the lease.

In April 2000, an LADWP range inspection showed vegetation was heavily utilized; consequently, all horses and mules were removed from the lease the first part of May. By the end of June, good vegetation re-growth had occurred. Because of abundant wet spring soils and sub-water on the east riparian corridor, grasses respond rapidly during non-grazing periods.

Tree high-lining by livestock is a concern for cuckoo habitat needs, since they require a well-developed understory for nesting (Ecosystem Sciences, 2000). From observations in 1993 and 1999, Laymon and Williams (1994) (1999) found that the Hogback Creek Lease area did not appear to be overgrazed. High-lining of trees did not seem to be a problem.

Some of the gates to the lease are in poor condition and often left open, allowing cows in from other leases and an adjacent BLM allotment to graze the area. The fence has been evaluated and ranges in condition from fair to poor condition. There are no internal fences on the lease (Figure N).

3.2.5.2. Future Grazing Management

Grazing management changes will be made to maintain and/or enhance Yellow-billed Cuckoo habitat and maintain healthy riparian habitats while sustaining the viability of the ranch operations. This will be accomplished by repairing existing fences to eliminate trespass cattle use and by setting grazing utilization criteria.

3.2.5.3. Plan Implementation

The lessee will have one to three years from the date this new grazing plan is implemented to phase in requirements described in this plan. At the beginning of the fourth year, the lessee must meet all standards, criteria, and other management direction outlined in this plan.

3.2.5.4. Livestock Numbers and Grazing Duration

The lessee can continue to graze 40 to 50 head of livestock from January 1 to April 30 of each year. Future grazing will be modified from the present grazing management by setting grazing utilization criteria. Upland utilization standards will be in effect for upland areas. Riparian standards will be applicable for areas dominated by riparian vegetation. The number of stock and dates of use will remain the same as the present grazing practices. Within the specified window, "on-and-off" dates can vary each year (±10 days) in response to climatic conditions, forage development, and management needs. Total allotted grazing days, however, will not be

exceeded. The programmed time, set grazing utilization criteria and duration of grazing (mainly winter grazing) will allow for the maintenance and improvement of Yellow-billed Cuckoo habitat.

3.2.5.5. Riparian Management

Riparian vegetation within the Hogback Creek Lease will be managed in accordance with LORP goals and will be compatible with Yellow-billed Cuckoo needs. Forage utilization will be monitored during the grazing period for each pasture. LADWP will install utilization cages in riparian areas. The lessee will monitor forage utilization throughout the grazing period. Riparian habitats can be grazed until 40 percent of the herbaceous forage in the riparian area is utilized (including elk use), or the end of the specified grazing period, whichever occurs first. Within the specified window of January 1 to April 30, "on-and-off" dates for livestock can vary each year (±10 days) in response to climatic conditions, forage availability, and herd management needs; however, the total grazing days allotted and the percent forage utilization will not be exceeded. This riparian prescription will enhance the survival of riparian shrubs and trees during their first three years of growth and achieve LORP riparian objectives. Clary and Webster (1989) found that riparian shrubs can be reduced by grazing young shrub age classes. Future grazing management methods will minimize impacts to the young age classes of riparian shrubs and trees. Grazing management for riparian pastures is intended to help minimize impacts to the lessee's upland grazing needs while achieving LORP goals.

Riparian pastures may also contain upland habitat. If significant amounts of upland vegetation occur within a riparian pasture or field, upland grazing utilization standards, as outlined on this lease plan, will also apply to these upland habitat types. Livestock will be removed from a riparian pasture when either the riparian or the upland grazing utilization standard is met.

3.2.5.6. Upland Management

Upland management objectives are to sustain livestock grazing, provide productive wildlife and fish habitat, maintain desired healthy range conditions, and maintain or increase range condition trend. Maximum annual average herbaceous livestock grazing utilization allowed in upland areas is 65 percent if grazing occurs only during the plant dormancy period. Maximum average herbaceous forage utilization allowed in upland areas is 50 percent if livestock grazing occurs during the plant active growing period. However, if no livestock grazing occurs during the active plant growing period (that period when plants are "active" in putting on green growth) or the pasture or field is completely non-used for a minimum of 60 continuous days during the latter part of this "active stage" to allow seed set, allowable forage utilization can be increased from 50 to 65 percent.

3.2.5.7. Seeps and Springs

Much of the Hogback Creek area was mapped within spring/seep complex DWP 6 during the Spring and Seep Inventory that was conducted by Ecosystem Sciences. New grazing management changes will protect springs and seeps.

3.2.5.8. Supplemental Feeding

The lessee does not feed supplements to livestock. Because they are not fed supplements, the lessee needs to pay close attention to forage conditions to avoid exceeding utilization standards on upland and riparian areas. Stock can be fed supplements if needed to keep riparian and uplands in healthy condition and meet utilization standards. Livestock will be fed in areas away

from water, riparian zones, and known sensitive plant and animal habitats. Feeding areas will be rotated to minimize impacts to any one area.

3.2.5.9. Livestock Watering

Stockwater is sufficient throughout the lease. There are no plans to develop additional watering sites.

3.2.5.10. Fencing

All fences will be brought up to standards by LADWP. Fence condition is noted on Figure N. Fence sections designated as being in fair condition will be repaired, fence sections designated as being in poor condition will be rebuilt and sections noted as poor/fair will be repaired/rebuilt as needed. In addition, in two locations on the south side of the pasture, new fence will be built as noted on Figure N. Gates will be replaced/repaired as needed. The lessee will annually maintain, prior to any livestock entering the pastures, all existing and newly constructed fences. All fences will be maintained to LADWP standards. Disturbance to native vegetation will be minimized during fence maintenance. For fencing standards, see Appendix V (*Fencing Specifications*).

3.2.5.11. Fire Management

The lessee will not burn any part of the grazing lease without first receiving LADWP written approval. All managed burning, for the purpose of improving upland rangeland, wildlife habitat, and/or watershed condition, will be conducted under the direction of LADWP. The lessee will participate and cooperate. All burn areas resulting from unintentional fire will be evaluated by LADWP to determine fire affects. LADWP will then determine the grazing rest needed to allow rehabilitation of fire impacts, should they exist. No managed burning will be allowed in riparian habitats without proper study and evaluation. Unintentional fires in riparian habitats will be given high priority in fire suppression.

3.2.5.12. Firewood Cutting and Wood Gathering

No firewood cutting or wood gathering will be allowed on riparian areas without prior written authorization from LADWP.

3.2.5.13. Drought and Low Precipitation Years

During drought years or periods of low precipitation, LADWP may reduce the grazing period, change the timing of grazing, or reduce livestock numbers. Water allocations for the lease may be adjusted to accommodate all resource concerns.

3.2.5.14. Special Status Species

The Yellow-billed Cuckoo, a California endangered species, has been documented utilizing the Hogback Creek area. In addition, Owens Checkerbloom (*Sidalcea covillei*), a state endangered species and Inyo County Star-tulip (*Calochortus excavatus*), a state species of special concern are growing in the Hogback Creek area.

The improvement of existing fences and the construction of a new section of fence along with the implementation of grazing utilization standards will help with the attainment of the goal to maintain and/or improve habitat for the Yellow-billed Cuckoo.

3.2.5.15. Native Vegetation and Weed Control

The lessees will do necessary weed control annually on the lease. The lessees will inform LADWP of problem weed locations and whether chemical or mechanical control methods (or both) will be used. The lessees will inform LADWP as to the location of proposed herbicide application, the timing of application, the type of chemical used, and the amounts of all herbicides to be used prior to any weed control. No herbicide or other chemical will be applied near standing or flowing waters, rare plants, or near human habitation without prior LADWP approval.

3.2.5.16. Recreation

Recreation uses and policies as related to the lease will be defined in the chapter titled "Hogback Creek Area Recreation Plan.

3.2.5.17. Monitoring and Evaluation

Utilization Monitoring

Utilization cages will be placed as needed to monitor forage use by livestock. Cages will be positioned annually in selected pastures prior to the arrival of livestock. The utilization of key forage species will be documented using locally developed key species height-weight curves.

Monitoring of Range and Pasture Condition

Range trend and pasture condition will be monitored to guide future management decisions. Range condition monitoring in non-irrigated upland habitats will be conducted at permanent transect locations. Transect monitoring will consist of nested frequency sampling, vegetative cover sampling, shrub age classification, visual obstruction readings, and photo documentation. Sampling protocols will follow procedures outlined in the Interagency Technical Reference "Sampling Vegetation Attributes" in the *Rangeland Analysis and Planning Guide* (BLM, 1996). This monitoring data will be evaluated in terms of the "trend" in plant cover, plant frequency, and shrub age structure of the vegetation community. Trend results will be compared to "Desired Future Condition."

3.2.5.18. Adaptive Management

Management directions will be modified over time based on review of monitoring information. Adaptive management provides flexibility to account for unforeseen benefits or impacts. Future grazing management may be changed based on upland and riparian habitat assessments. If statewide data on Yellow-billed Cuckoo migration timing over several years indicates that the birds are arriving earlier in the year than they do presently, an evaluation will be conducted to determine if a change in grazing timing is needed to accommodate for the change in migration. Fencing, forage utilization, livestock water sources, timing and duration of grazing will be adjusted, if necessary, to achieve grazing management goals.

3.2.5.19. Operational Emergencies

If a serious temporary (one year or less) grazing emergency occurs on the lessee's federal allotment(s) or on the lessee's private lands that, in turn, results in serious reductions in allotted livestock numbers, or duration and timing of grazing, temporary deviations in grazing lease protocols on LADWP lands may be made to lessen the lessee's emergency situation. Circumstances that may necessitate emergency changes in LADWP grazing practices are fires, forage reductions from high snow years, and forage reductions from drought conditions. During the attempt by LADWP to provide grazing relief to the lessee, all grazing standards and criteria, as stated in this plan for grazing riparian and upland vegetation will be abided by.

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3.3. Hogback Creek Area Recreation Management Plan

City of Los Angeles-owned lands in Inyo County, including the Hogback Creek area, are currently managed under a multiple use concept with a substantial portion leased for agriculture, livestock and other uses. LADWP allows approximately 75 percent of its leased lands to remain open to the public for recreation and enjoyment (with the exception of critical areas such as irrigated pastures). All lands that are not open to public use are posted. LADWP intends to maintain this recreational access but acknowledges that some restrictions may need to be implemented if impacts to watershed resources become too severe or public safety becomes a concern.

LADWP property is and will continue to be managed for multiple uses, while maintaining a quality recreational experience of those who choose to recreate in the Eastern Sierra.

Access to the Hogback Creek area for a variety of recreational activities will not be substantially changed during the implementation of the project for Yellow-billed Cuckoo. There are currently light recreational impacts and pressure in the area. Therefore, recreation management is to remain relatively unchanged from current practices unless increased demand or conflicts require increased management.

3.3.1. Current Recreation Guidelines

The following are guidelines for recreational use in the Hogback Creek area and are the current policies of LADWP.

Camping
Overnight camping is allowed only in designated campgrounds, all of which are located outside the Hogback Creek area. Designated campgrounds are developed, maintained and operated by the Inyo County Parks Department and most provide fire rings or barbeques, trash disposal facilities and restrooms. There will be no overnight camping allowed within the project area, but day-use picnicking, hiking, fishing, hunting and other outdoor activities that are currently enjoyed will continue with implementation of the project.

Fires
Fires and fireworks are prohibited in the Hogback Creek area to protect against wildfires and to allow for the restoration of Yellow-billed Cuckoo habitat. The chapter titled “Hogback Creek Area Fire Control Plan” discusses fire issues in more detail.

Off-Highway Vehicles
All mechanized Off-Highway Vehicles (OHV) (including motorcycles, all-terrain vehicles, recreation vehicles, etc.) are limited to the use of existing roads and trails to limit the disturbance to plants and wildlife and to minimize any further degradation to soils and landforms (Figure O). All OHV recreational users are requested to respect the concerns and needs of the livestock operator in the Hogback Creek area and other recreational users, many of whom may be using the area to fish, hunt, hike, or observe birds and other wildlife.

Leased Lands
The Hogback Creek area will continue to be leased for livestock use. The chapter titled “Hogback Creek Area Grazing Management Plan” discusses grazing issues in detail. At least 75 percent of leased lands will continue to remain open for recreational use. All lands not open to recreational use will be posted, and all recreational users are asked to respect the operational concerns and needs of the lessee. All gates should be left as found, either open or closed, and

care should be taken to not negatively impact or disturb agricultural or livestock operations, particularly in the use of firearms, OHVs, or other recreational activities that could potentially harm or disturb livestock or agriculture.

Fishing
Access to fishing in the Hogback Creek area will remain open. It is not anticipated that there will be any restrictions for fishing access in the future.

Hunting
Access to hunt in the Hogback Creek area will remain open. However, State of California Department of Fish and Game regulations state that firearms are prohibited to be discharged within 150 yards of occupied buildings, farm structures, livestock and public roads.

Woodcutting
Woodcutting on LADWP lands is administered through a permit process. Woodcutting is not allowed in specified sensitive areas. Only dead and downed wood can be taken by woodcutters and the season is only open during the growing season when trees are leafed out. The Hogback Creek area is currently closed to woodcutting.

Hiking and Biking
Access to hike and bike in the Hogback Creek area will remain open. It is not anticipated that there will be any restrictions for access for hiking or biking in the future.

Artifact Gathering or Pot Hunting
It is prohibited by federal law to disturb or remove any artifacts from previous human activity and use. This includes not only Native American artifacts but also old LADWP structures and artifacts and any old mining, homestead or agricultural structures or artifacts.

3.3.2. Future Recreation Guidelines

The two new fences shown in Figure O will be built on the north side of the existing road and, therefore, will not alter road travel. The Hogback Creek area currently has few recreational uses that could potentially affect the success of Yellow-billed Cuckoo habitat maintenance and/or improvement efforts. The area is not currently used for recreational activities that might conflict with Yellow-billed Cuckoo habitat goals. Therefore, there will not be any changes to recreation management at this time. If recreational activities change, it may be necessary to adjust management of the Hogback Creek area in the future.

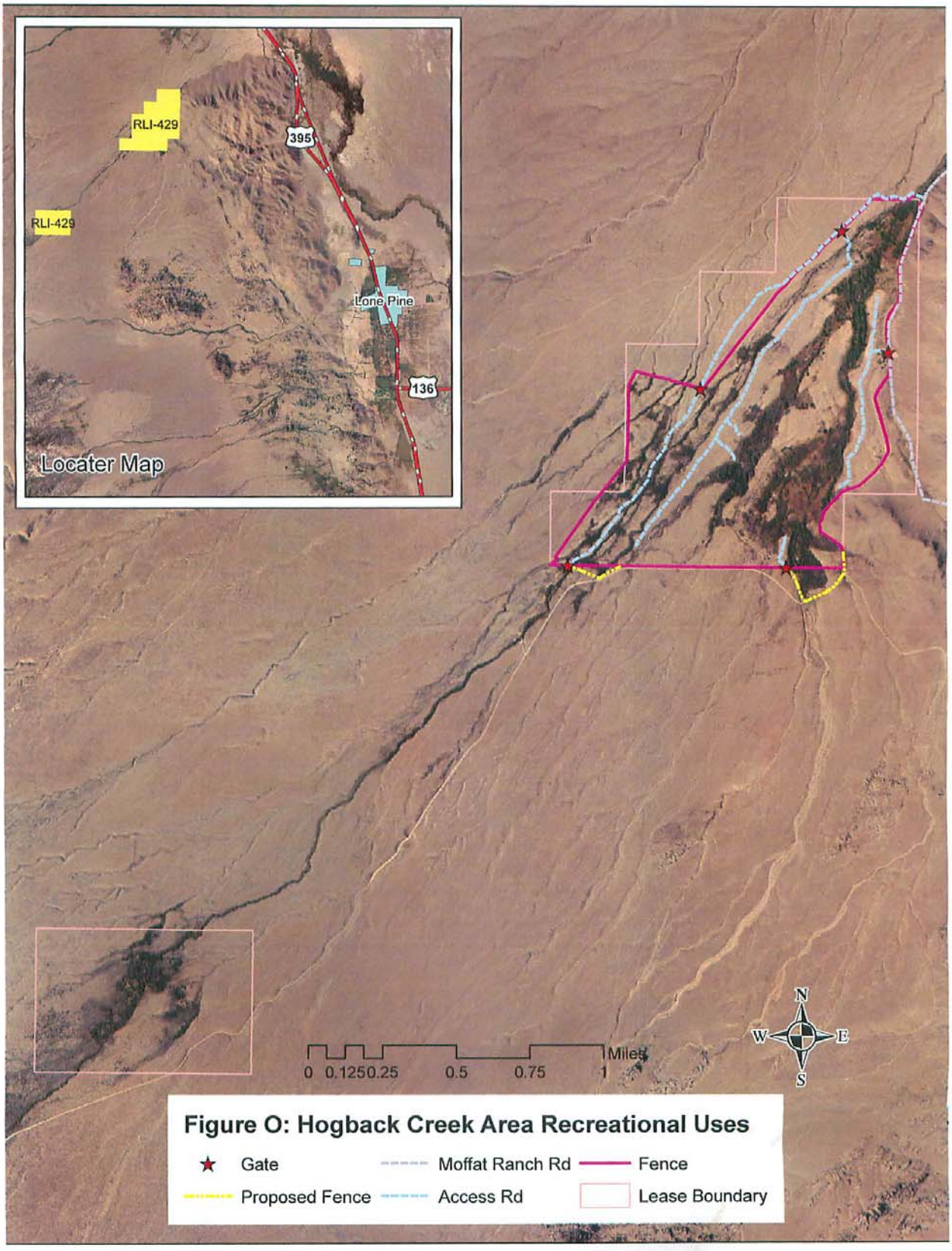

Figure O. Hogback Creek Area Recreational Uses

3.4. Hogback Creek Area Fire Control Plan

Most of the Hogback Creek Grazing Lease burned in 1987. The fire started as a controlled burn to improve rangeland condition. The fire went out of control and burned most of the riparian woodlands. A 1999 field evaluation for the "Springs and Seeps Inventory" by Ecosystems Sciences found riparian trees and shrubs were recovering well from the fire effects. The field evaluation concluded that recovery to trees was mainly due to resprouting and the herbaceous vegetation component had a high ability to recover from fire damage (Ecosystem Sciences, no date).

Future grazing and wildlife habitat management changes within the Hogback Creek area might increase the volume of fuels and, in turn, potentially increase fire frequency and intensity. Therefore, more effort might be needed to prevent and manage fire in the area.

No burning, firewood cutting or wood gathering will be allowed by any individual in the Hogback Creek area without the written approval of LADWP. The lessee will not burn any part of the Hogback Creek Area Lease without receiving LADWP approval. In addition, fire breaks will be installed prior to any controlled burns within adjacent grazing leases to manage the potential risk of wildfire in the Hogback Creek area. All managed burning for the purpose of improving rangeland, wildlife habitat, and/or watershed condition, will be conducted under the direction of LADWP. The lessee will participate and cooperate. All burn areas resulting from unintentional fire will be evaluated by LADWP to determine fire affects. LADWP will then determine the grazing rest needed to allow rehabilitation of fire impacts, should they exist. No managed burning will be allowed in riparian habitats without proper study and evaluation. If managed burning proves to be beneficial, it may be considered as a management tool in the future. Unintentional fires in riparian habitats will be given high priority in fire suppression.

3.5. References

Ecosystem Sciences. No date. *Springs and Seeps Inventory and Assessment.* Technical Memorandum No. 12. Ecosystem Sciences, Boise, Idaho. Prepared for LADWP.