**Revegetation Plans for Lands Removed from Irrigation**
**Laws Parcels 90, 95, and 129**
**And Abandoned Agricultural Land Parcel 94**

**March 2003**

## Summary

There are three parcels in the Laws Ranch lease that were previously irrigated and will not be irrigated in the future under the plan for re-irrigation of the ranch. These parcels are Laws 90, 95 and 129. A portion of Laws 118 surrounds parcel 129. This area will be fenced and revegetation will be augmented, as needed, in conjunction with parcel 129. Laws parcel 94, which was mapped as abandoned agricultural land, will also be revegetated. These parcels are located northeast of the town of Laws and east of the Upper McNally Canal on the Laws 7.5' USGS quad (Figure 1.)

Under these plans, the parcels will be revegetated with the goal of restoring native vegetation that is similar in cover, and species composition to nearby sites. The prescribed conditions are to be established on each parcel by 2013, and must be present two years after established with no on-site revegetation activities.

In preparing this plan, vegetation cover, composition, and species lists were determined by reviewing the LADWP 1984-87 vegetation inventory data for parcels in the vicinity (Appendix II) and located in the same ecological (range) site class in the Draft Benton-Owens Valley Soil Survey, hereafter referred to as the NRCS (Natural Resources Conservation Service 1994). In addition, species lists and other information from the NRCS descriptions were incorporated (Appendix I).

## Parcel Descriptions

### Laws 90

This 101-acre parcel is located to the east of the Upper McNally Canal (Figure 1) and is located on the Laws 7.5' USGS quad (T6S R33E, E1/2SE1/4 Sec.15 and W1/2SE1/4 Sec. 14).

The majority of this parcel was classified by the NRCS as a complex of Seaman (coarse-loamy, mixed (calcareous), thermic Typic Torriorthents) and Yellowrock (sandy, mixed, thermic Typic Torriorthents) soils with 2-5% slopes. Water permeability for both soils is similar (moderately rapid and rapid) and both are subject to severe wind erosion. Available water capacity is moderate for Seaman soil and low for Yellowrock soil. Management considerations listed by NRCS include limiting off-road vehicles, maintaining uniform plant cover, and using minimal tillage. The northeast corner of this parcel lies within the Yermo very gravelly loam soil unit. This soil is described for parcel 94.

### Laws 94

This 40-acre parcel is located to the east of the Upper McNally Canal (Figure 1) and is located on the Laws 7.5' USGS quad (T6S R33E, W1/2 NW1/4 NW1/4 Sec. 23). The majority of this parcel was classified as Yermo (very gravelly sandy loam, mixed (calcareous), thermic

Typic Torriorthent) soil with 2 - 5% slopes. Water permeability is moderately rapid and the soil is slightly subject to wind erosion.

Laws 95

This 46-acre parcel is located to the east of the Upper McNally Canal (Figure 1) and is located on the Laws 7.5' USGS quad (T6S R33E, NE1/4NE1/4 Sec. 22 and W1/2NW1/4NW1/4 Sec 23).

The majority of this parcel is located on the same soil unit as Laws 90, a complex of Seaman and Yellowrock soils. Refer to Laws 90 for a description of this soil unit.

Laws 129 and a Portion of Laws 118

Laws 129 (47-acres) and the portion of Laws 118 that surrounds Laws 129 on three sides (19 acres) are located to the south and west of the Upper McNally Canal (Figure 1) and are located on the Laws 7.5' USGS quad (T6S R33E, S1/2 SE1/4 Sec. 26 and N1/2NE1/4NW1/4 Sec. 35).

The majority of this site was classified as a Sabies (ashy (calcareous), thermic Vitrandic Torriorthents) soil with a slope range of 0 to 2%. Approximately 8.1 acres along the east edge of this parcel lies within the Yermo (loamy-skeletal, mixed (calcareous), thermic Typic Torriorthents) stony-Yermo (loamy-skeletal, mixed (calcareous), thermic Typic Torriorthents) complex with a slope range of 5 to 15%. These two soil units are in different NRCS ecological sites, Sodic Terrace and Gravelly loam, respectively.

## Goals for Laws Parcels 90, 94 and 95

Basis for Establishing Goals

Parcels 90, 94 and 95 are located in the same NRCS ecological site, gravelly loam, and were considered as one unit. The goals and species list were developed by using both the NRCS ecological descriptions and a subset of parcels extracted from the LADWP 1984-87 vegetation inventory data. The subset of vegetation parcels consists of parcels located in the vicinity (within approximately 8 km from the three parcels) and classified as belonging to the same ecological site description. Vegetation parcels adjacent to Laws 90, 94, 95 were used to develop specific cover and composition goals. Appendix I and II present summaries of the data utilized in the development of the goals.

Cover and Composition Goals for Parcels 90, 94 and 95

The revegetation goals for Laws parcels 90, 94, and 95 are the same. The goal is a native perennial vegetation cover of at least 10% by the year 2013 composed of at least ten different native species (including a native grass). Further, after two years with no on-site revegetation activities, monitoring must show that these goals have been sustained on each parcel. The overall cover value for these parcels is comparable to the cover measured during the LADWP vegetation inventory for adjacent undisturbed parcels inventoried in 1987, and is noted as the low-end cover value in the NRCS Soil Survey.

No noxious weeds rated A or B by the California Department of Food and Agriculture are to be present on the parcel. Should a noxious weed rated A or B be present it shall be removed or treated with herbicide within two weeks of its detection.

Species List for Parcels 90, 94 and 95

Table 1 presents a list of species to be chosen for planting on the parcels. These species may be established by the planting of seeds or by the planting of container plants. Seed mixes and /or planting composition will be formulated to achieve 60% shrubs (with the dominant shrubs being shadscale, bud sagebrush, winterfat and indigo bush), 30% grasses and 10% forbs as recommended in the NRCS site potential composition for gravelly loam. Preference will be given to use of Owens Valley genetic plant materials. However, other seed of native species will be utilized if necessary to meet the attainment goals. If non-Owens Valley plant material is used, to optimize survival rates and assure success, the material will be obtained from locations with similar ecological conditions. If necessary, extension of timelines for attainment goals will be considered by the Technical Group to allow for the collection of Owens Valley genetic plant material.

**Table 1**. **List of Species Recommended for Planting in Laws Parcels 90, 94, and 95.** (Absent Technical Group approval, these species are the only ones that may be planted on these three parcels. The "Veg. Parcel" column lists the baseline vegetation inventory parcel that noted the presence of that species. All parcels used to develop this list are on the USGS Laws 7.5' quad unless noted with a P, in which case the parcel was located on the Poleta Canyon quad. The column "Soil/Veg association" lists "yes" if that species is present on the NRCS potential plant community for gravelly loam.)

(* NRCS potential ecological site gravelly loam recommends no more than 3% of each of these species and no more than 15% in aggregate.)

| **Taxonomic name** | **Common name** | **Life form** | **Veg Parcel w/in 8.0 km** | **Soil/Veg association** |
|---|---|---|---|---|
| *Achnatherum hymenoides* | Indian ricegrass | grass | 24, 28, 49, 91, 93, 117 | yes |
| *Achnatherum speciosum* | Desert needlegrass | grass | 28, 49, 91 | yes |
| *Elymus elymoides* | Bottlebrush squirreltail | grass | | yes |
| **Ambrosia dumosa* | White bursage | shrub | 12, 131 | yes |
| *Artemisia spinescens* | Bud sagebrush | shrub | 28, 49, 91, 93, 117, 134, P211 | yes |
| *Atriplex canescens* | Fourwing saltbush | shrub | 24, 28, 48, 49, 91, 93, 117 | |
| *Atriplex confertifolia* | Shadscale | shrub | 12, 24, 28, 48, 49, 91, 130, 131, 134, p211 | yes |
| **Atriplex polycarpa* | Allscale | shrub | 130, 131, 134, P211 | yes |
| **Ephedra nevadensis* | Nevada ephedra | shrub | 24, 28,49, 91, 93, 117, 130, 131 | yes |
| *Eriogonum inflatum* | Desert trumpet | forb | 130, 131, 134, P211 | yes |
| *Grayia spinosa* | Spiny hopsage | shrub | 12, 49, 91, 93, 117, 130, 131, 134, P211 | yes |
| *Krascheninnikovia lanata* | Winterfat | shrub | 12, 24, 28, 49, 91, 93. 117 | yes |
| **Lepidium fremontii* | Desert alyssum | shrub | 12, 28, 49, 91, 93, 117 | yes |
| **Lycium andersonii* | Anderson wolfberry | shrub | 130, 131, 134, P211 | yes |
| **Menodora spinescens* | Spiny menodora | shrub | | yes |

| Taxonomic name | Common name | Life form | Veg Parcel w/in 8.0 km | Soil/Veg association |
|---|---|---|---|---|
| *Mirabilis alipes* | Rose four o'clock | shrub | 12, 93, 117 | yes |
| *Psorothamnus arborescens* var. *minutifolius* | Indigo bush | shrub | 12, 24, 28, 49, 91, 93, 117, 130, 131, 134, P211 | yes |
| **Psorothamnus polydenius* | Nevada dalea | shrub | 24, 28, 49, 91, 93, 117 | yes |
| *Sarcobatus vermiculatus* | Black greasewood | shrub | 12, 24, 28, 48, 49, 91, 93, 117 | |
| *Sphaeralcea ambigua* | Apricot mallow | forb | | yes |
| *Stanleya pinnata* | Desert prince's plume | forb | 12 | |
| *Stephanomeria sp.* | Wirelettuce | forb | 49, 91, 130, 131, 134, P211 | |
| *Tetradymia axillaris* | Longspine horsebrush | shrub | 12, 24, 28, 49, 91, 93, 134, P211 | |
| *Tetradymia glabrata* | Little horsebrush | shrub | 12, 24, 28, 48, 49, 91 | |
| *Xylorhiza tortifolia* | Desert aster | shrub | 12, 28, 49, 91, 93, 117, 131 | |

## Goals for Laws Parcel 129 and Noted Portion of 118

### Basis for Establishing Goals

This parcel is almost entirely contained in the same NRCS ecological site, sodic terrace. The goals and species list were developed by using both the NRCS descriptions and a subset of parcels extracted from the LADWP 1984-87 inventory data. The subset of vegetation parcels consist of parcels located in the vicinity (within approximately 8 km from the site) and classified as belonging to the same ecological site descriptions. Parcels used for comparison were eliminated if they received irrigation tailwater or appeared to have other surface disturbances. While the cover values on the subset of parcels were averaged to develop specific cover and composition goals for parcels 90, 94, and 95, for parcel 129 the mid-range cover value noted in the NRCS Soil Survey for the soil and ecological site was selected as a cover goal. Appendix I and II present summaries of the data utilized in the development of the goals.

### Cover and Composition Goals For Laws Parcel 129 and Noted Portion of 118

The revegetation goal for Laws parcel 129/118 is to establish a native perennial vegetation cover of at least 10% by the year 2013 composed of at least eight different native species (including a native grass). Further, after two years with no on-site revegetation activities, monitoring must show that these goals have been sustained on these parcels. The overall cover value selected for these parcels is a middle cover value described by the NRCS for this soil type and ecological site.

No noxious weeds rated A or B by the California Department of Food and Agriculture are to be present on any of the parcel. Should a noxious weed rated A or B be present it shall be removed or treated with herbicide within two weeks of its detection.

### Species List for Parcel 129 and Noted Portion of 118

Table 2 presents a list of species to be chosen for planting on the parcels. These species may be established by the planting of seeds or container plants. Seed mixes and/or planting

composition will be formulated to achieve 70% shrubs (with the dominant shrubs being shadscale, black greasewood, bud sagebrush and Nevada ephedra), 20% grasses and 10% forbs as recommended in the NRCS site potential composition for sodic terrace. Preference will be given to use of Owens Valley genetic plant materials. However, other seed of native species will be utilized if necessary to meet the attainment goals. If non-Owens Valley plant material is used, to optimize survival rates and assure success, the material will be obtained from locations with similar ecological conditions. If necessary, extension of timelines for attainment goals will be considered by the Technical Group.

**Table 2**. **List of Species Recommended for Planting in Laws Parcels 129/118.**
(Absent Technical Group approval, these species are the only ones that may be planted on this parcel. The "Veg. Parcel" column lists the baseline vegetation inventory parcel that noted the presence of that species. All parcels used to develop this list are on the USGS Laws 7.5' quad unless noted with a P, in which case the parcel was located on the Poleta Canyon quad. The column "Soil/Veg association" lists "yes" if that species is present on the NRCS potential plant community for sodic terrace.)

(* NRCS potential ecological site sodic terrace recommends no more than 3% of each of these species and no more than 15% in aggregate.)

| **Taxonomic name** | **Common name** | **Life form** | **Veg Parcel w/in 8.0 km** | **Soil/Veg association** |
|---|---|---|---|---|
| *Achnatherum hymenoides* | Indian ricegrass | grass | 39, P202, P226, P227 | yes |
| *Achnatherum speciosum* | Desert needlegrass | grass | | yes |
| *Artemisia spinescens* | Bud sagebrush | shrub | 39, P202, P226 | yes |
| **Atriplex canescens* | Fourwing saltbush | shrub | 69, P226, P227 | yes |
| *Atriplex confertifolia* | Shadscale | shrub | 29, 39, 41, 42, P202, P219, P226, P227 | yes |
| *Atriplex parryi* | Parry saltbush | shrub | 68, P219 | |
| **Atriplex polycarpa* | Allscale | shrub | | yes |
| *Ephedra nevadensis* | Nevada ephedra | shrub | P202, P226 | yes |
| *Grayia spinosa* | Spiny hopsage | shrub | P202, P226 | |
| **Krascheninnikovia lanata* | Winterfat | shrub | 39, P202, P226 | yes |
| *Lepidium fremontii* | Desert alyssum | shrub | 39 | |
| *Machaeranthera carnosa* | Shrubby alkali aster | shrub | 68, P219 | |
| **Menodora spinescens* | Spiny menodora | shrub | P202, P226 | yes |
| *Psorothamnus arborescens* var. *minutifolius* | Indigo bush | shrub | 39, 42, P202, P219, P226, P227 | |
| **Psorothamnus polydenius* | Nevada dalea | shrub | 29, 69, P226, P227 | yes |
| *Sarcobatus vermiculatus* | Black greasewood | shrub | 29, 39, 41, 42, 68, 104, 119, P219, P226, P227 | yes |
| *Stanleya pinnata* | Desert prince's plume | forb | | yes |
| *Stephanomeria sp.* | Wirelettuce | forb | P219, P226 | |
| **Tetradymia axillaris* | Longspine horsebrush | shrub | 39, P202, P226 | |
| **Tetradymia glabrata* | Little horsebrush | shrub | P202, P226 | |

## Schedule of Attainment of Goals for All Parcels

Beginning with the 2003 growing season, a reputable seed collecting company will be contracted to collect Owens Valley native seeds. Collection will continue annually until seed is no longer needed. During the fall of 2003, a plant/seed propagation facility will be contracted to aid in the development of Owens Valley genetic material. Further, a seed farm will be initiated on Laws parcel 27 by the 2004 growing season to assist in seed availability. The seed farm may be initiated by the planting of seeds, containerized plants, or a combination of the two. Any portion of parcel 27 that has not already been converted to irrigated pasture, and that is not a part of the seed farm, will be converted to irrigated pasture in the 2004-growing season. Following initiation, if necessary, the seed farm may be expanded into the irrigated pasture portion of parcel 27.

By the fall of 2005 an irrigation system will be installed in a portion of 90, 94, 95, and 129 followed in the 2006-growing season by the planting of containerized plants along with seeds in a portion of these parcels. The installation of an irrigation system and the planting of containerized plants and seeds in the remaining portions of these parcels will thereafter occur in a manner so that the cover and composition goals for these parcels are attained in accordance with the schedule.

On-site revegetation activities conducted by LADWP or its contractors, such as planting, seeding and irrigation, may continue through spring of 2013. Species from Table 1, for parcels 90, 94 and 95, and Table 2, for parcel 129/118 will be planted in a manner sufficient to attain the cover and composition goals for these parcels in accordance with the schedule. Once planted, the seeds and plants will be irrigated in a manner sufficient to attain the cover and composition goals for these parcels in accordance with the schedule. Following planting, if necessary, an area will be reseeded or replanted in a manner sufficient to attain the cover and composition goals for these parcels in accordance with the schedule.

Vegetation cover and composition consistent with the revegetation goal for each parcel is to be attained by 2013. The final attainment for a parcel requires sustainability of the vegetation with two years of no on-site revegetation activities. After revegetation goals have been met and maintained for 2 years, revegetation efforts will be considered complete and there will be no further monitoring of the parcel.

**Table 3. Summary of Revegetation Site Cover, Composition, Weed Control Goals for Parcels**

| **Laws parcel** | **90** | **94** | **95** | **129/118** |
|---|---|---|---|---|
| Average cover of native, perennial species (all spp. combined) | $\geq$ 10% | $\geq$ 10% | $\geq$ 10% | $\geq$ 10% |
| # of native spp | $\geq$ 10 | $\geq$ 10 | $\geq$ 10 | $\geq$ 8 |
| Noxious weeds | 0 Remove/treat w/in two weeks of detection. | 0 Remove/treat w/in two weeks of detection. | 0 Remove/treat w/in two weeks of detection. | 0 Remove/treat w/in two weeks of detection. |

## Monitoring Procedures for Determining Goal Compliance

The goal for all parcels is an average cover value of at least 10%. Further, each of the 20 or 30 transects run in each parcel must have a cover value of at least 2%. The composition goal for parcels 90, 94 and 95, is at least ten different native perennial species, including a native grass, dispersed over the parcel. For parcel 129/118 the composition goal is at least eight different native perennial species, including a native grass, dispersed over the parcel.

Confirmation of achieving the cover goal for a parcel will be verified by using the permanent transect technique described below; however, if the random transect technique described below is utilized, and shows significant variation in the cover value for a parcel, the Technical Group will decide which method will be utilized for verification of cover. Confirmation of achieving the composition goals will be verified by any one of the four techniques described below. Permanent and random transects will be conducted no later than the peak (June) of the 2013-growing season.

1. Permanent Transects. Beginning in 2010 permanent line point transects will be annually used to measure conditions within each revegetated parcel and beginning in 2013 (or sooner, if LADWP believes that the conditions required to initiate the two year period with no on-site activity have been attained) the data will be used to assess goal attainment. Parcels 94, 95 and 129/118 will each be divided into 20 equal sized sections. Parcel 90 will be divided into 30 equal sized sections. Within each section, one permanent line-point transect will be established. The permanent transect will be sited so that it will provide an accurate representation of the vegetation cover in the section. Each transect will be 50m in length and a reading will be taken every 0.25m. All perennials are to be identified to species. Plant species not hit but observed as present on the site within the parcel will be noted on the data sheets. Staff from LADWP and from the Inyo County Water Department will jointly site the permanent transects, will jointly conduct monitoring using the transects, and will jointly analyze the transect data within 2 months of collection.

   For parcel 90, there should be at least three "hits" for at least six different native perennial species out of the total of all the readings of all the permanent transects in the parcel. The other four native perennial species should be observed as present on the parcel, but do not have to be "hit" on any transect. For parcels 94 and 95, there should be at least two "hits" for at least six different native perennial species out of the total of all the readings of all the permanent transects in the parcel. The other four native perennial species should be present on the parcel, but do not have to be "hit" on any transect. For parcel 129/118, there should be at least two "hits" for at least five different native perennial species out of the total of all the readings of all the permanent transects in the parcels. The other three native perennial species should be present on the parcel, but do not have to be "hit" on any transect.

2. Random Transects. Beginning in 2013 (or sooner, if LADWP believes that the conditions required to initiate the two year period with no on-site activity have been attained), at the request of either party, stratified random line point transects will be conducted to verify that the results of the permanent transects accurately depict the vegetation conditions. Parcels 94, 95, and 129/118 will each be divided into 20 equal sized sections. Parcel 90 will be divided into 30 equal sized sections. Within each section, one or more random transects will be established. All transects will be sited so that they will provide an accurate representation of the vegetation cover in the section. Each transect will be 50m in length and a reading will be taken every 0.25m. All perennials are to be identified to species. Plant species not hit, but observed as present on the site within the parcel, will be noted on the data sheets. The same cover and composition goals, and the same sampling standards that are applicable to the permanent transects apply to the random transects. Staff from LADWP and from the Inyo County Water Department will jointly site the random transects, will jointly conduct monitoring using the random transects, will jointly set the standard for determining whether a composition goal is attained if more than one random transect is run per section, and will jointly analyze the transect data within 2 months of collection. Transect data will be jointly analyzed within 2 months of collection.

3. Observation Method. Attainment of a composition goal will be considered established if plant species not hit, but observed as present and noted and documented at the time that the permanent or random transects were run, shows that the composition goal has been attained.

4. Other Method. Attainment of a composition goal will be considered established if a credible technique, different from the three techniques described above, that is jointly agreed upon and conducted, shows that the composition goal has been attained.

Pilot sampling may be done to determine whether the cover attainment goals can be measured with 20 or 30 transects as recommended in this revegetation plan. If it is determined that this monitoring scheme will not provide the necessary data for assessment of goal compliance, a new sampling method will be adopted by the Technical Group. The transect data and analysis must be transmitted to the Technical Group by the end of September in the year the data is collected.

## Annual Reporting

Beginning in 2003, in addition to any other required reporting activities, LADWP will prepare an annual report on this revegetation project to the Technical Group.

Beginning in 2010, if revegetation is not on schedule as described in this plan, the annual report will be expanded to include identification of any areas where LADWP believes the agreed upon revegetation goals cannot be timely and/or feasibly implemented. The purpose of this aspect of the report is to provide an alert as early as possible to potential problems (fire, insects, floods, soil problems, etc.) so the Technical Group can consider the problem and attempt to

resolve it well before the deadline for goal attainment. The expanded report will describe LADWP's good faith efforts to timely implement the plan and the reasons for why LADWP believes the goals cannot be feasibly or timely achieved. If LADWP believes the goals for an area cannot be feasibly achieved, the report will provide a description of proposed alternative mitigation for the area. If LADWP believes the goals cannot be timely implemented, the report will include a revised time schedule for implementation of the goals.

## Dispute Resolution

The Technical Group will attempt to resolve a matter presented in an annual report. However, if the Technical Group does not agree to a proposed schedule revision, the original schedule will remain in effect unless it is modified through dispute resolution. If the Technical Group is in disagreement over some other aspect of an annual report, including a disagreement over whether goals have been achieved, or over the activities or alternative mitigation that will be implemented if the goals for an area have not been achieved by 2013 or 2015, either LADWP or the County may seek a resolution of the issue through dispute resolution. Resolution of a disputed issue may include a declaration that LADWP has not acted in good faith. If LADWP has not achieved the revegetation goals in an area by at least 2015, and if there has been a declaration as a result of dispute resolution that LADWP has acted in bad faith in implementing the revegetation plan, unless otherwise agreed, LADWP will implement a permanent irrigated crop in the area where the goals have not been achieved.

## Interim Activities and Reporting

LADWP (or its contractors) will undertake such work as is necessary to achieve the revegetation goals for each parcel within the established schedules.

If a noxious weed rated A or B by the California Department of Food and Agriculture is observed on a parcel, the weed will be treated or removed within two weeks of its detection.

LADWP shall annually report all activities performed on each parcel, and shall provide copies of all data collected, as part of its Annual Monitoring and Reporting on other revegetation measures in the Owens Valley.

Staff from Inyo County and DWP will meet at the conclusion of the 2010 growing season to discuss results from revegetation efforts and any potential changes that might be necessary in order to meet the goals of these revegetation efforts.

## Land Management Following Attainment of Mitigation Goals

Following attainment of the vegetation goals on the parcels identified in these plans, LADWP will manage these lands consistent with the requirements of the Water Agreement.

### *References*

*NRCS. Unpublished. 1994 Draft – Benton/Owens Valley Soil Survey Manuscript.*

# Appendix I

# NRCS Ecological Site Descriptions

Site Name: Gravelly Loam
029XG009CA

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL
CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

Date: Mar. 92
Revised: Jan. 94

SITE NAME: Gravelly Loam

PLANT SYMBOL: ATCO-ARSP5/ORHY

SITE NUMBER: 029XG009CA

Developed in cooperation with: LADWP
Prepared by: PJN

MLRA: 29
SOIL SURVEY AREA: 802

**Benton-Owens Valley Soil Survey**

A. PHYSICAL CHARACTERISTICS

1. PHYSIOGRAPHIC FEATURES:

   This site occurs on alluvial fans, fan terraces, stream terraces, lava flows, and volcanic tablelands. Elevations are 3700 to 5700 feet. Slopes range from 0 to 30 percent, but slope gradients from 2 to 5 percent are most typical.

2. CLIMATIC FEATURES:

   a. The climate on this site is characterized by mild, cool winters (30 to 60 degrees F) and hot, dry summers (70 to 100 degrees F). The average annual precipitation ranges from 4 to 8 inches with most falling as rain from November to March.

   b. The average frost-free period is 140 to 200 days.

3. POTENTIAL PLANT COMMUNITY:

   a. The plant community is dominated by shadscale, budsage, and Indian ricegrass. Potential vegetation composition is about 60% shrubs, 30% grasses, and 10% forbs.

   b. The following table lists the major plant species and percentages by weight, air dry, of the total plant community that each contributes in an average production year.

| Plant Symbol | Common Name | % Composition (air-dry weight) |
|---|---|---|
| TREES | | |
| SHRUBS | | |
| ATCO | Shadscale | 20-35 |
| ARSP5 | Bud sagebrush | 5-15 |
| CELA | Winterfat | 5-15 |
| PSARM | Fremont dalea | 5-10 |
| GRSP | Spiny hopsage | 2-5 |
| SSSS | Other shrubs | 5-15 ** |
| AMDU2 | White bursage | |
| ATPO | Allscale saltbush | |
| EPNE | Nevada ephedra | |
| LEFR2 | Desert alysum | |
| LYAN | Anderson wolfberry | |
| MESP2 | Spiny menodora | |
| PSPO | Nevada dalea | |

** Allow no more than 3% of each species of this group, and no more than 15% in aggregate

| | | |
|---|---|---|
| GRASSES AND GRASS-LIKE PLANTS | | |
| ORHY | Indian ricegrass | 10-20 |
| STSP3 | Desert needlegrass | 5-10 |
| PPGG | Other perennial grasses | 2-5 ** |
| SIHY | Bottlebrush squirreltail | |

** Allow no more than 2% of each species of this group, and no more than 5% in aggregate

| | | |
|---|---|---|
| FORBS | | |
| PPFF | Other perennial forbs | 2-8 ** |
| ERIN4 | Desert trumpet | |
| MIRAB | Four-o'clock | |
| SPAM2 | Desert globemallow | |
| AAFF | Other annual forbs | T-5 |

** Allow no more than 2% of each species of this group, and no more than 8% in aggregate

c. Approximate ground cover (basal and crown) is 10 to 25 percent.

d. Total annual air-dry production:

| | Estimated Total Annual Production Air-dry Weight lbs/ acre |
|---|---|
| Favorable Years | 350 |
| Normal Years | 250 |
| Unfavorable Years | 100 |

e. Plant community dynamics:

Overgrazing this site would cause a decrease in Indian ricegrass and the more palatable shrubs such as winterfat and budsage. White burrobush and Russian thistle would invade this site.

4. COMMONLY ASSOCIATED SITES:

a. Principal sites that commonly occur in association with this potential plant community include:

| | |
|---|---|
| BLM 29-45 | Arid Loam 4-6" p.z. |
| (029XGO07CA) | Saline Bottom |
| (029XGO13CA) | Sodic Terrace |

b. Competing sites (and their differentiae) that are similar to this potential plant community:

| | |
|---|---|
| (029XGO17CA) | Loamy<br>[More productive site] |

5. SOILS:

a. The soils that characterize this site are very shallow to very deep and range from well-drained to excessively drained. They are formed in mixed alluvium, basaltic lava, and rhyolitic tuff. Surface textures are sandy loams and loamy sands. Available water capacities are very low to moderate and the hazard of water erosion is slight to severe. Wind erosion hazard is slight to severe. Effective rooting depth is 60 inches or more. Honova soil has a restrictive layer from 4 to 14 inches.

| MU# | Soil Map Units |
|---|---|
| 251 | Honova cobbly loamy sand, 0-9% slopes |

| | |
|---|---|
| 253 | Honova loamy coarse sand, 9-30% slopes |
| 281 | Taboose*-Lava flows complex, 5-15% slopes |
| 416 | Seaman, sandy loam, 0-2% slopes |
| 421 | Seaman-Yellowrock complex, 2-5% slopes |
| 431 | Yermo, stony- Yermo complex, 5-15% slopes |
| 432 | Yermo, very gravelly sandy loam, cool, 2-5% slopes |
| 690 | Arizo-Yellowrock complex, 2-5% slopes |

6. WILDLIFE COMMUNITIES:

   a. Productive lagomorph, rodent, and reptile habitat.

   b. Passerine nesting areas, particularly various sparrow species.

   c. Late winter/early spring use by tule elk. *Some* calving may occur.

B. MAJOR USES AND INTERPRETATIONS

1. LIVESTOCK GRAZING:

   a. Season of Use -Other Management Considerations

      This site is primarily used *for* spring cattle grazing especially in favorable years when abundant annual growth is produced.

   b. General guide to initial stocking rate. Before making specific recommendations, an on-site evaluation must be made.

| | Pounds/acre air drv | AUM/AC | AC/AUM |
|---|---|---|---|
| Normal Years | 250 | | |

2. GENERAL MANAGEMENT CONSIDERATIONS:

   Reduce the hazard *of* erosion by avoiding overgrazing and preserving the existing plant cover.

3. WILDLIFE:

   Avoid overgrazing and excessive disturbance by domestic livestock during tule elk calving season.

   WATERSHED:

   Runoff is slow to medium. The erosion hazard is slight to moderate.

| Soil Series | Hydrologic Group | Hydrologic Conditions and Runoff Curves | | |
|---|---|---|---|---|
| | | Good | Fair | Poor |
| Arizo | A | 41 | 46 | 61 |
| Honova | D | 81 | 83 | 88 |
| Seaman | B | 63 | 66 | 76 |
| Taboose | A | 41 | 46 | 61 |
| Yellowrock | A | 41 | 46 | 61 |
| Yermo | B | 63 | 66 | 76 |

4. MAJOR POISONOUS PLANTS:

5. RECREATION AND AESTHETICS:

   This site is located on City of Los Angeles, Department of Water and Power (LADWP) property, and is open to public use.

6. THREATENED AND ENDANGERED PLANTS AND ANIMALS:

   Planners will refer to State and Federal lists of endangered species. Management recommendations will address impacts on endangered species and their critical habitats (refer to Endangered Species Policy and California Endangered Species Handbook).

7. FIRE:

   Fire is very infrequent at this site.

8. TYPICAL SITE LOCATION:

   NW1/4 Section 26, T6S, R33E
   One mile east of Laws, Inyo Co., CA

9. FIELD OFFICE: Bishop

10. APPROVED BY: Signed by Leonard Jolley
    State Range Conservationist
    SCS California

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

Date: Mar. 92

SITE NAME: Sodic Terrace

PLANT SYMBOL: ATCO-SAVE4/ORHY

SITE NUMBER: 029XG013CA

Developed in cooperation with: LADWP
Prepared by: PJN

MLRA: 29
SOIL SURVEY AREA: 802

**Benton-Owens Valley Soil Survey**

A. PHYSICAL CHARACTERISTICS

1. PHYSIOGRAPHIC FEATURES:

   This site occurs on stream terraces, fan terraces, and valley bottoms. Elevations are 3600 to 4200 feet. Slopes range from 0 to 2 percent.

2. CLIMATIC FEATURES:

   a. The climate on this site is characterized by mild cool winters (30 to 60 degrees F) and hot dry summers (70 to 100 degrees F). The average annual precipitation ranges from 4 to 6 inches with most falling as rain from November to March.

   b. The average frost-free period is 140 to 225 days.

3. POTENTIAL PLANT COMMUNITY:

   a. The plant community is dominated by shadscale, black greasewood, and Indian ricegrass. Potential vegetation composition is about 70% shrubs, 20% grasses, and 10% forbs.

   b. The following table lists the major plant species and percentages by weight, air dry, of the total plant community that each contributes in an average production year.

| Plant Symbol | Common Name | % Composition (air-dry weight) |
|---|---|---|
| TREES | | |
| SHRUBS | | |
| ATCO | Shadscale | 30-40 |
| SAVE4 | Black greasewood | 15-25 |
| ARSP5 | Bud sagebrush | 5-15 |
| EPNE | Nevada ephedra | 2-5 |
| KOAM | Green molly kochia | 2-5 |
| SSSS | Other shrubs | 5-15 ** |
| ATCA2 | Four-wing saltbush | |
| ATPO | Allscale saltbush | |
| CELA | Winterfat | |
| ARTRT | Basin big sagebrush | |
| PSPO | Nevada dalea | |
| TETRA3 | Horsebrush | |
| SUTO | Mojave seablite | |
| MESP2 | Spiny menodora > 1 | |
| SAVEB | Bailey greasewood >2 | |

> 1: Occurs between Warm Springs Road and Highway 168

>2: Occurs in Chalfant Valley

** Allow no more than 3% of each species of this group, and no more than 15% in aggregate

| | | |
|---|---|---|
| GRASSES AND GRASS-LIKE PLANTS | | |
| ORHY | Indian ricegrass | 5-15 |
| PPGG | Other perennial grasses | 2-5 *** |
| DISPS2 | Inland saltgrass | |
| SPAI | Alkali sacaton | |

** Allow no more than 2% of each species of this group, and no more than 5% in aggregate

| | | |
|---|---|---|
| FORBS | | |
| PPFF | Other perennial forbs | 2-5 ** |
| STPI | Desert princesplume | |
| AAFF | Other annual forbs | T-5 |
| CHST | Steve's duskymaiden | |
| MAGL3 | Desert dandelion | |

** Allow no more than 2% of each species of this group, and no more than 8% in aggregate

c. Approximate ground cover (basal and crown) is 5 to 15 percent.

d. Total annual air-dry production:

| | Estimated Total Annual Production Air-dry Weight lbs/ acre |
|---|---|
| Favorable Years | 650 |
| Normal Years | 400 |
| Unfavorable Years | 200 |

e. Plant community dynamics:

Overgrazing this site would cause a decrease in the perennial grasses and the more palatable shrubs, such as kochia and bud sagebrush. Shadsca1e and black greasewood would increase. Watersage saltbush will dominate on disturbed sites such as abandoned farmland. White burrobush and Russian thistle are invaders on this site.

4. COMMONLY ASSOCIATED SITES:

a. Principal sites that commonly occur in association with this potential plant community include:

(O29XGOO7CA) Saline Bottom
(O29XGOI2CA) Sandy Fan

b. Competing sites (and their differentiae) that are similar to this potential plant community:

(029XGOO7CA) Saline Bottom [SPAI-DISPS2 dominant species]

5. SOILS:

a. The soils that characterize this site are moderately deep to very deep and well-drained. They are formed in mixed alluvium. Surface tex tures are sands, loamy sands, and sandy loams. Available water capacity ranges from very low to high to very high, and the hazard of water erosion is slight. Wind erosion hazard is moderate to severe. Effective rooting depth is typically 60 inches or more. Water tables are greater than 60 inches.

| MU# | Soil Map Units |
|---|---|
| 422 | Seaman-Yellowrock-Cajon, saline-sodic, 0-2% slopes |
| 609 | Poleta-Mazourka-Eclipse, 0-2% slopes |

| | |
|---|---|
| 610 | Mazourka-Eclipse complex, 0-2% slopes |
| 611 | Mazourka-Eclipse complex, 0-2% slopes |
| 634 | Poleta-Mazourka-Slickspots complex, 0-2% slopes |
| 644 | Mazourka loamy sand, 0-2% slopes |
| 654 | Poleta-Mazourka complex, 0-2% slopes |
| 696 | Sabies loam, 0-2% slopes |
| 710 | Sabies-Yaney complex, 0-2% slopes |
| 711 | Goodale-Yaney complex, 0-2% slopes |
| 712 | Yaney-Yaney loam association, 0-2% slopes |

6. WILDLIFE COMMUNITIES:

Common species include: reptiles; lagomorphs; kangaroo rats; mice; white-tailed antelope ground squirrels; ravens; loggerhead shrikes; black-throated sparrows; coyotes; red-tailed hawks; and bobcats. There is limited Tule elk use--mainly in the spring.

B. MAJOR USES AND INTERPRETATIONS

1. LIVESTOCK GRAZING:

a. Season of Use -Other Management Considerations

This site is primarily used for late winter/spring grazing, especially in favorable years when annual forbs are abundant.

b. General guide to initial stocking rate. Before making specific recommendations, an on-site evaluation must be made.

| | Pounds/acre air dry | AUM/AC | AC/AUM |
|---|---|---|---|
| Normal Years | 400 | | 10-12 |

2. GENERAL MANAGEMENT CONSIDERATIONS:

Reduce the hazard of wind erosion by avoiding overgrazing, preserving existing plant cover, and limiting operation of off-road vehicles.

3. WILDLIFE:

4. WATERSHED:

Runoff is slow. The erosion hazard is slight.

| Soil Series | Hydrologic Group | Hydrologic Conditions and Runoff Curves | | |
|---|---|---|---|---|
| | | Good | Fair | Poor |
| Cajon | A | 41 | 46 | 61 |
| Eclipse | B | 63 | 66 | 76 |
| Mazourka | B | 63 | 66 | 76 |
| Sabies | C | 72 | 79 | 86 |
| Seaman | B | 63 | 66 | 76 |
| Yaney | C | 75 | 77 | 84 |
| Yellowrock | A | 41 | 46 | 61 |

5. MAJOR POISONOUS PLANTS:

Black greasewood
Desert princesplume

6. RECREATION AND AESTHETICS:

This site is located on City of Los Angeles, Department of Water and Power (LADWP) property, and is open to public use.

7. THREATENED AND ENDANGERED PLANTS AND ANIMALS:

Planners will refer to State and Federal lists of endangered species. Management recommendations will address impacts on endangered species and their critical habitats (refer to Endangered Species Policy and California Endangered Species Handbook).

Oryctes nevadensIs - Nevada Oryctes
Proposed state endangered,
Federal candidate, Nevada threatened

8. FIRE:

Fire is very infrequent at this site.

9. TYPICAL SITE LOCATION:

   SW1/4 Section 19, T13S, R36E
   Five miles southeast of Independence, Inyo Co., CA

10. FIELD OFFICE: Bishop

11. APPROVED BY: Signed by Leonard Jolley
    State Range Conservationist
    SCS California

# Appendix II

## Vegetation Parcels used for species lists and cover and composition goals.

The data presented in Table A.1 were used to develop revegetation goals for parcels 90, 94, and 95. Table A.2 is the summary data for parcel 129/118. Parcels presented in bold lettering in Table A.1 are adjacent to the revegetation parcels and were used for the cover and composition goals. Vegetation cover and composition goals for Laws 129 used all the parcels in the table. All data are from the LADWP 1984-87 vegetation inventory unless otherwise noted.

**Table A.1** Vegetation parcel summary data for Law 90, 94, and 95. In the "Parcel" column, L represents the USGS Laws 7.5' quad and P represent the USGS Poleta Canyon 7.5' quad. "%LC" is the percent live cover for that parcel. The column "NRCS smu" is the NRCS soil map unit identification number. "# spp hit/trace" represents the number of native perennial species "hit" on a transect and those noted as in the parcel (trace species). "# spp in par" represents the total number of native species that were in the parcel during the inventory. The "dist (km) from mit site" is an approximation of the distance between the revegetation site and the parcel as determined with the GIS. All of the parcels are in the same NRCS ecological description.

| Parcel | % LC | NRCS smu | # spp hit/trace | # spp in par | Plant community | dist (km) from reveg site |
|---|---|---|---|---|---|---|
| L12 | 11 | 308375 | 10/3 | 13 | Shadscale scrub | 5.2 |
| L24 | 11 | 308/371 | 9/5 | 14 | Great Basin mixed scrub | 4.9 |
| L28 | 7 | 308/375 | 6/8 | 14 | Shadscale scrub | 2.7 |
| L48 | 15 | 308 | 7/2 | 9 | Shadscale scrub | 1.4 |
| **L49[a]** | **10** | **375** | **6/10** | **16** | **Shadscale scrub** | **1.2** |
| **L91[a]** | **10** | **379** | **6/10** | **16** | **Shadscale scrub** | **0.6** |
| **L93[b]** | **11** | **375** | **9/6** | **15** | **Great Basin mixed scrub** | **0.6** |
| **L117[b]** | **11** | **375** | **9/6** | **15** | **Great Basin mixed scrub** | **1.6** |
| L130 | 6 | 379 | 3/7 | 10 | Desert saltbush scrub | 3.7 |
| L134[c] | 8 | 375/379 | 6/4 | 10 | Shadscale scrub | 5.1 |
| P211[c] | 8 | 375 | 6/1 | 10 | Shadscale scrub | 5.5 |

Note that the raw data from the vegetation inventory was the same for parcel (a) L49 and L91, (b) L93 and L117, and (c) L134 and P211.

**Table A.2** Vegetation parcel summary data for Laws 129/118. See Table A.1 for an explanation of column headings.

| Parcel | % LC | NRCS smu | # spp hit/trace | # spp in par | Plant community | dist (km) from reveg site |
|---|---|---|---|---|---|---|
| L29 | 14 | 306 | 9/3 | 12 | Nevada saltbush scrub | 6.6 |
| L39 | 10 | 371/151 | 2/8 | 10 | Shadscale scrub | 7.6 |
| L69 | 11 | 306 | 5/3 | 8 | Rabbitbrush scrub | 5.8 |
| L104 | 10 | 306 | 2/2 | 4 | Desert greasewood scrub | 3.6 |
| L119 | 12 | 306/308 | 3/4 | 7 | Rabbitbrush scrub | 1.5 |
| P202 | 10 | 333 | 8/5 | 13 | Great Basin mixed scrub | 2.5 |
| P219 | 10 | 253 | 4/10 | 14 | Desert greasewood scrub | 5.4 |
| P227 | 11 | 292/253 | 7/2 | 9 | Desert saltbush scrub | 7.4 |
| P230 | 8 | 253/257 | 3/3 | 6 | Nevada saltbush scrub | 7.7 |