



HABITAT ASSESSMENT FIELD PROTOCOL

Introduction

Detailed habitat assessments were conducted by CBI, TNC, and SDSU within the four designated South County grassland management planning units: Sweetwater Reservoir, Proctor Valley, Rancho Jamul Ecological Reserve, and Sycamore Canyon (Figure 1). All four units were assessed in 2011; additional assessments were conducted in 2012 at Rancho Jamul Ecological Reserve and Sycamore Canyon. The purpose of these assessments was to document existing habitat conditions and determine habitat suitability for the three target species (burrowing owl, Otay tarplant, and Quino checkerspot butterfly), as well as threats, results of past management actions, and potential management and restoration actions. Data from the habitat assessments were used to identify and prioritize species-specific management actions within each of the four planning areas. In addition, these data were used to identify preliminary vegetation associations, as well as potential restoration sites for native grasslands and forblands. Prior to conducting fieldwork, CBI and TNC reviewed soil maps, aerial photographs, and results of previous vegetation mapping, and plant and wildlife surveys in the project areas and vicinity.

Study Area Assessment

At each unit, a large study area was identified (Figure 1). Although this entire area was assessed visually, habitat assessments were conducted only in those portions of the study area that supported abiotic or biotic factors critical to the target species of concern, such as soils, topography, and/or existing or remnant vegetation. For example, low-lying areas with clay soils and nonnative grasses were included in habitat assessments because they have the potential to support Otay tarplant or native grasslands with appropriate restoration. Conversely, dense chaparral on steep slopes was excluded from assessments, because this climax community would not be expected to support target species, even with restoration.

Stand Assessment

Habitat assessments were conducted in stands, which were identified by surveyors in the field and mapped as discrete polygons. Stands had no set size. Following vegetation mapping protocols set forth by the California Native Plant Society (CNPS) Vegetation Committee for the Rapid Assessment Protocol (CNPS 2004), we defined stands by both compositional integrity (i.e., similar species) and structural integrity (i.e., similar site history and environmental conditions). Visually, this combination of factors results in stand homogeneity. For analysis purposes, each stand included in the assessment process is maintained as a discrete polygon on maps, regardless of vegetation classification.

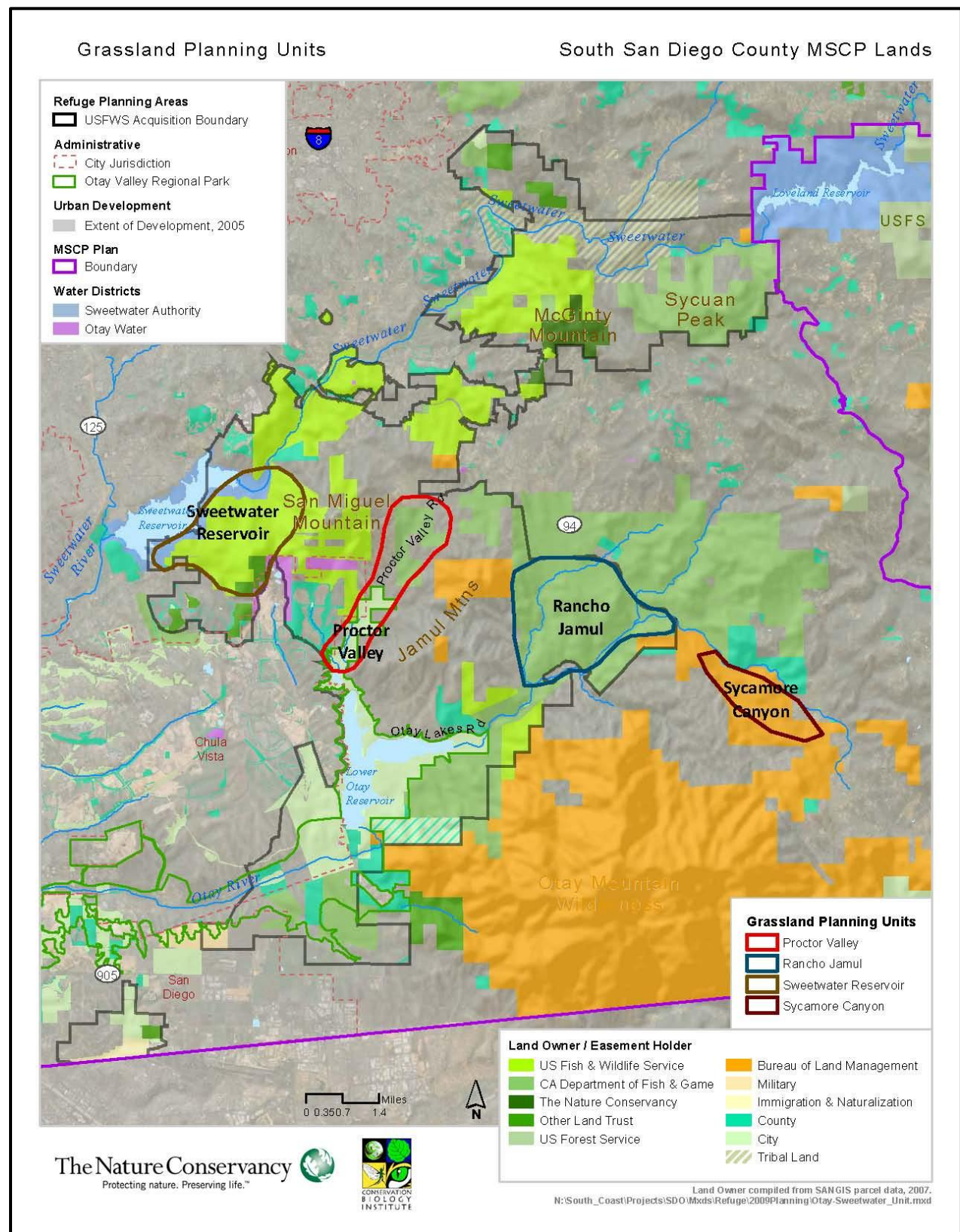


Figure 1. South County Grassland Planning Units.



2011 South San Diego County Grasslands Habitat Assessment										
Investigators _____					Date (mm/dd/yy): _____					
Planning Area/Site Name (i.e., Proctor Valley): _____					Photo Number _____					
Polygon Numeric ID (000): _____					Photo Reference: _____					
Site Prep Access: 2WD 4WD Tractor ATV None										
Slope Aspect: N NE NW S SE SW W E										
Soil Texture: _____										
Existing Vegetation Classification: SDVG: _____										
Field Assessment: _____										
Cover Classes (CC): TR (<1) 1 (1-5%); 2 (5-10%); 3 (10-25%); 4 (25-50%); 5 (50-75%); 6 (75-90%) 7 (90-95%) 8 (95-99) 9 (99-100%)										
Total Exotic Forb Cover Class: TR 1 2 3 4 5 6 7 8 9										
Exotic #1: Sp: _____ CC: _____ Exotic #2: Sp: _____ CC: _____										
Exotic #3: Sp: _____ CC: _____ Exotic #4: Sp: _____ CC: _____										
Other Exotic Forbs: _____										
Total Exotic Grass Cover Class: TR 1 2 3 4 5 6 7 8 9										
Ex Grass #1: Sp: _____ CC: _____ Ex Grass #2: Sp: _____ CC: _____										
Ex Grass #3: Sp: _____ CC: _____ ExGrass#4: Sp: _____ CC: _____										
Other Exotic Grasses: _____										
Total Native Forb Cover Class: TR 1 2 3 4 5 6 7 8 9										
Native Forb#1: Sp: _____ CC: _____ Native Forb #2: Sp: _____ CC: _____										
Native Forb #3: Sp: _____ CC: _____ Native Forb#4: Sp: _____ CC: _____										
Other Native Forbs: _____										
Total Native Grass Cover: TR 1 2 3 4 5 6 7 8 9										
Native Grass#1: Sp: _____ CC: _____ Native Grass #2: Sp: _____ CC: _____										
Native Grass #3: Sp: _____ CC: _____ Native Grass#4: Sp: _____ CC: _____										
Other Native Grasses: _____										
Total Native shrub cover: TR 1 2 3 4 5 6 7 8 9										
Native shrubs (CC): _____										
Bare Ground/Rock Cover Class: TR 1 2 3 4 5 6 7 8 9										
Thatch Cover Class: TR 1 2 3 4 5 6 7 8 9										
Thatch Depth (cm): _____										
Circle QCB Host Plants Present: <i>Plantago erecta</i> , <i>P. patagonica</i> , <i>Cordylanthus rigidus</i> , <i>Antirrhinum coulterianum</i> , <i>Castilleja exserta</i> , <i>Collinsia concolor</i>										
Cryptogamic Crusts (circle one): Y N If yes, est. Cover Class? _____										
Otay Tarplant Present (circle one): Y N If yes, total estimated number of plants? _____										
Standing biomass height (cm) _____										
Dead Standing Biomass, if present (spp and CC) _____										
Remnant Native Habitat Type(s): _____ Cover Class _____:										
Ground Squirrel Activity (H,M,L): _____										
Overall Existing Native Habitat Quality (circle): Poor Fair Good Very Good										
Disturbances (Rank each H,M,L, with rankings representing percentage of site impacted)										
ORV _____ Border Patrol _____ Dumping/Trash _____ Erosion _____ Altered Fire Regime _____ gophers _____										
Soil Compaction _____ Altered hydrology _____ Recreation _____ human disturbance _____ Historic										
grazing/Ag _____ other _____										
Notes _____										

Figure 2. Habitat Assessment Data Form.



Survey Methodology

During the assessment process, project field personnel systematically walked each grassland management planning area to characterize and map grassland condition and assess habitat for target species. Mapping was conducted using existing access roads, trails, lookouts, and vantage points and by walking through the vegetation where possible. For each polygon, field staff documented the attributes listed on the field assessment form (Figure 2). Field surveys were conducted at the height of spring flowering, between the months of March and June. Copies of all assessment forms and photographs are maintained at CBI. In addition, all data from the field forms have been entered into an excel spreadsheet; these data were used to map existing conditions and identify potentially suitable habitat for target species and habitats through a habitat query process.

Habitat Assessment Forms

A description of each 'field' on the habitat assessment form is provided below.

Unique ID

Assign a unique, three-part identification (ID) number (XX-X-XX) to each grassland polygon, as follows:

- the first 2 digits refer to the survey year (11 for 2011)
- the second digit classifies the polygon as to site (Rancho Jamul=1, Sycamore Canyon=2, Sweetwater=3a or 3b, Proctor Valley=4)
- the third 2 digits represent the unique location number

For example 11-1-25 is grassland polygon number 25, documented on Rancho Jamul in 2011. Unique ID numbers were assigned in the office after completion of the assessment, and were recorded in the upper right-hand corner of each field form. This ID number, along with all recorded data on the field form, is entered into an Excel database.

Investigator(s)

Record name(s) of individuals conducting the habitat assessment.

Date

Record date of habitat assessment.

Planning Area/Site Name

Record planning area/site name. Each of the four study sites has a unique site code and number; the site code is recorded on the habitat assessment form, while the site number is an additional field in the Excel database.



Site Name	Site Code	Site Number
Rancho Jamul Ecological Reserve	RJER	1
Sycamore Canyon	SC	2
Sweetwater Reservoir – San Diego National Wildlife Refuge	SW1	3a
Sweetwater Reservoir – Sweetwater Authority	SW2	3b
Proctor Valley	PV	4

Photo Number

Document each polygon with one or more photographs. Record the photo number(s) on the habitat assessment form and in the jpeg (or other) photo file name. Number photos consecutively or using the investigators' photo numbering system (e.g., roll number, frame number).

Photo Reference

Record the location and view direction from compass bearings for each photograph (e.g., southwest corner, view to northeast; northwest to southeast).

Polygon Numeric ID

Assign a unique number to each polygon in the field. Numbering for each site starts at 01 and runs consecutively (*note*: occasionally, polygons were aggregated or dropped, which resulted in gaps in numbering).

Site Preparation (Prep) Access

Indicate the type of vehicle that would be needed and/or appropriate to access the site for restoration purposes. Potential choices include:

- 2-WD vehicle – polygon generally accessible by any vehicle; well-maintained roads adjacent to or in proximity to polygon.
- 4-WD vehicle – polygon accessible by 4-WD vehicle; roads may be present but in poor condition and/or steep.
- Tractor – Site accessible by vehicle but would likely require large-scale disking or plowing as part of overall restoration effort.
- ATV – all-terrain vehicle generally required to access polygon; polygon not in proximity to roads.



- None – Access by foot only.

Slope Aspect

Indicate the predominant aspects(s) of the slope on which the polygon is located, i.e., north, northeast, northwest, south, southeast, southwest, west, or east. A polygon may include more than one aspect. Aspect can be estimated or recorded in degrees, as measured with a compass.

Soil Texture

Record the soil texture of the upper soil horizon. Record soil series, if known.

Existing Vegetation Classification

Vegetation categories were assigned to polygons based on visual assessments and vegetative cover estimates. In general, field-assessed categories followed the more generalized Holland vegetation codes (Holland 1986; Oberbauer et al. 2008), while office-assessed categories followed the more detailed San Diego Vegetation Classification (Sproul et al. 2011) and utilized estimates of species cover. The latter are accurate to the degree that cover estimates are accurate and complete. Vegetation classification is intended to guide restoration efforts and does not replace the need for detailed and focused vegetation mapping using standard methods such as the CNPS Rapid Assessment Protocol (CNPS 2004).

Cover Classes

Cover data were recorded for five functional groups:

- Exotic forbs
- Exotic grasses
- Native forbs
- Native grasses
- Native shrubs

The following cover class (CC) categories were used:

<u>Category</u>	<u>Estimated % Cover</u>
TR	<1% cover
1	1-5%
2	5-10%
3	10-25%
4	25-50%
5	50-75%
6	75-90%
7	90-95%
8	95-99%
9	99-100%



Individual species cover class is based on the estimated percent cover of the identified species in the functional group. Cover class estimates should be recorded for the most prevalent species; all species present in the functional group may be recorded on the back of the assessment form.

Total cover class is based on the estimated percent cover of all species in the functional group; individual species cover classes do not necessarily add to this total.

Bare Ground/Rock cover is the estimated percent cover (expressed as a cover class) of bare ground and rocks within the polygon.

Thatch cover is the estimated percent cover (expressed as a cover class) of thatch within the polygon.

Thatch Depth

Record depth of thatch (cm) measured vertically from the soil surface.

QCB Host Plants Present

Record the presence of any Quino checkerspot butterfly host plants in the study area. Potential host plants include:

- *Plantago erecta*
- *Plantago patagonica*
- *Cordylanthus rigidus*
- *Antirrhinum coulterianum*
- *Castilleja exserta*
- *Collinsia concolor*

Cryptogamic Crusts

Record the presence of cryptogamic crusts, as well as the estimated percent cover (expressed as a cover class) of cryptogamic crust within the polygon. Cryptogamic crusts are defined as a soil surface crust of various cyanobacteria, lichens, mosses, and fungi.

Otay Tarplant Present

Record the presence of any Otay tarplant (*Deinandra conjugens*) present in the polygon, as well as total estimated number of plants present.

Standing Biomass Height

Record the height of herbaceous vegetation within the polygon, as measured vertically from the soil surface.

Dead Standing Biomass, if present (Species and Cover Class)

Record the species and estimated percent cover (expressed as a cover class) of dead, standing plant material within the polygon, excluding dead material from the current year's growth.



Remnant Native Habitat Type(s)

Identify any remnant native habitat type(s) within the polygon based on species composition and disturbance factors; types are generally assigned a Holland vegetation classification.

Ground Squirrel Activity

Identify the presence and level of ground squirrel activity within the polygon. Activity levels are defined as:

High (H)	Active colonies observed
Medium (M)	Scattered to dense burrows, no animals observed
Low (L)	Scattered burrows, no animals observed
0	No burrows or animals observed

Gopher Activity

Identify the presence and level of ground squirrel activity within the polygon. Activity levels are defined as:

High (H)	Active colonies observed
Medium (M)	Scattered to dense burrows, no animals observed
Low (L)	Scattered burrows, no animals observed
0	No burrows or animals observed

Overall Existing Native Habitat Quality

Rank the existing native habitat quality, *generally* using the following scale (based on modified Trudgen & Keighery vegetation condition scale):

Poor	Native vegetation structure lacking; few or no native species; cover/abundance of weeds 60-80%; disturbance incidence high
Fair`	Vegetation structure modified or somewhat modified; native species present but not dominant; cover/abundance of weeds 20-60%; disturbance incidence high
Good	Vegetation structure modified or somewhat modified; native species = or > nonnative species; cover/abundance of weeds 5-20%; minor signs of disturbance
Very Good	Vegetation structure intact or nearly so; native species dominant; cover/abundance of weeds <5%; no disturbance or minimal signs of disturbance



Disturbances

Identify and rank disturbances within the polygon; rankings indicate the percentage of the site impacted and generally correspond to the following:

High	Disturbance occurs over >50% of polygon
Moderate	Disturbance occurs over 10-50% of polygon
Low	Disturbance occurs over <10% of polygon

Notes

Provide additional observations about the site, wildlife occurrences, or deviations from the assessment protocol.



References

- California Native Plant Society (CNPS). 2004. Vegetation rapid assessment protocol. CNPS Vegetation Committee. Revised September 20.
http://cnps.org/cnps/vegetation/pdf/rapid_assessment_protocol.pdf
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Department of Fish and Game. 156 pp.
- Oberbauer, T, M. Kelly, and J. Buegge. 2008. Draft vegetation communities of San Diego County. Based on Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Department of Fish and Game. 156 pp.
- Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, and K. Harper. 2011. Vegetation classification manual for western San Diego County, first edition. Prepared by AECOM, California Department of Fish and Game, and Conservation Biology Institute. Prepared for San Diego Association of Governments.