

TECHNICAL NOTES

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GUIDELINES FOR ASSESSMENT OF RANGELAND HEALTH IN CALIFORNIA'S ANNUAL GRASSLANDS AND OAK WOODLANDS

Introduction

Oak woodlands and annual grasslands make up a large portion of the vegetation community in the state. It is an area of approximately 14.5 million acres, and includes the Sacramento/San Joaquin Valley, the Sierra Foothills and the Coast Range, although annual grasses can be found in most parts of the state. This document describes how rangeland health attributes can be use by conservationist when conducting field assessments for planning purposes.

Currently there are only a few ecological sites in the annual grassland/oak woodland region that are completed. In order to use the Technical Reference 1736, *Interpreting Indicators of Rangeland Health*, and assess the 17 indicators of rangeland health using that protocol, an ecological site description must be completed, including reference sheets. With few ecological sites completed in California, other tools are needed so conservation planners working on California annual grasslands can assess resource conditions on rangelands.

The following is a key for utilizing the assessment tool that fits your situation:

1. If a soil survey is complete and an ESD is completed for the site, including reference sheets, then use **Technical Reference 1736, *Interpreting Indicators of Rangeland Health***, and assess the 17 indicators of rangeland health described in that technical reference.
(Filed in the eFOTG > Section I > Technical Notes > Range > TN-Range-CA-56)
2. If a soil survey is complete and either a draft or provisional ecological site or range site is available and the conservationist has the technical skills and ability to complete a reference sheet, then develop the reference sheet, use the **Interpreting Indicators of Rangeland Health in California's Annual Grasslands & Oak Woodland** and the accompanying **Rangeland Health Indicator Evaluation Sheet and Evaluation Matrix**
(Assessment Tools filed in eFOTG > Section I > Resource Assessment Tools)

3. If a soil survey is complete and range sites are available but with no reference sheet or the ability to complete a reference sheet, then use the **Rangeland Health Field Assessment Worksheet**.

(Assessment Tools filed in eFOTG > Section I > Resource Assessment Tools)

Utilizing this three tiered approach a planner will be able to determine how to evaluate rangeland health parameters in California. Describing Rangeland Health in California Annual Grasslands is based on the notion that the annual grasslands are a stable, threshold plant community within the Mediterranean climate. Based on this, and using the proper assessment tool, the evaluator can assess rangeland health within the California annual grassland plant communities.

Background for use of these tools

California's annual grassland and oak woodlands are a vast area of the state, comprising approximately 14.5 million acres¹. The area is dominated by a Mediterranean climate with cool wet winters and summer drought. Rains typically begin in middle to late October and continue through April, followed by a summer drought. During the drought period annual plants die completely and only survive as seed. Any perennial herbaceous vegetation becomes dormant during this dry period.

The area of the state dominated by the annual grassland vegetation type extends from the Sierra foothills to the east, west to the Pacific coast and from San Diego County to just north of Redding in Shasta County. Most of the annual grasses that dominate the state are not native to California, but are native to the Mediterranean. The climate of much of California is so similar to the Mediterranean that they have become well established and are now a major component of our rangeland ecosystem.

Currently there are 9 Major Land Resource Areas (MLRA's) in California where annual grasses dominate the herbaceous vegetation. Those include the Central California Coastal Valleys (14), Central California Coast Range (15), California Delta (16), Sacramento and San Joaquin Delta (17), Sierra Nevada Foothills (18), Southern California Coastal Plains (19) and Southern California Mountains (20) and to a lesser extent the non-forested portions of the Coastal Redwood Belt (4), and Siskiyou-Trinity (5). Within the grasslands of MLRA 4 and 5 annual grasslands are mixed with perennial grasses, as are coastal portions of MLRA 14 & 15 where sufficient moisture will support native perennial bunchgrasses.

Within these MLRA's the cool season annual grasses create a near solid stand of vegetation. Up to 2000 individual plants can be present within 1 square foot plot.² This solid vegetation cover creates ecological conditions that differ from those dominated by perennial grasses, where gaps occur between plants. In perennial systems, those gaps can be occupied by bare

¹ Division of Agriculture and Natural Resources, University of California, Davis. California Annual Rangeland Handbook, Mediterranean Climate. 2014.

² Ecology and Management of Medusahead, March 2014.

ground, litter, biological crusts, duff or rock. In annual grass systems biological crusts are rarely seen.

Interpreting Indicators of Rangeland Health in California's Annual Grasslands & Oak Woodland and the accompanying *Rangeland Health Indicator Evaluation Sheet and Evaluation Matrix* (#2 in the key above) focuses on MLRA's within California where annual grasslands dominate the herbaceous portion of the plant community. Basal gaps between plants are rare or absent in this ecoregion. During drought conditions, if sufficient rains occur for germination, the annual grasses will occupy most of the open spaces. Biomass production will usually be low during droughts but is dependent on timing of rainfall as well as amount. Like all annual plants, some seed production will always occur. Once the seed is produced the plants will die and decompose. After decomposition, during a drought year, when biomass production is low, bare ground can occur, but will not be a result of basal gaps. Residual dry matter is used to determine if adequate cover remains on annual grassland sites. This dead material is either standing, or on the soil surface in various stages of decomposition. It helps protect the soil from erosion and creates a micro-climate that holds moisture when rains occur in the fall. The litter and organic matter left on site enhances germination of seeds left from the previous growing season. It also enhances nutrient cycling and soil health.

Each indicator of rangeland health is linked to one of more physical or biological attributes, including soil & site stability, hydrologic function or biotic integrity. Each of these are interrelated and are associated with ecosystem function. Each indicator is evaluated against its departure from a reference plant community or a potential/desired plant community. Reference sites are defined as "the state where the functional capacities represented by soil/site stability, hydrologic function and biotic integrity are performing at an optimum level under the natural disturbance regime"³. This "state" usually includes the potential natural community. Land managers may have a desired plant community they are striving to achieve and it is up to the planner to work with them to create plant community goals that are obtainable based on the site potential.

If no reference community exists or one cannot be developed, the planner can use the *Rangeland Health Field Assessment Worksheet* (#3 in the key above).

³ Interpreting Indicators of Rangeland Health. Technical Reference 1734-6, Version 5, 2005, Glossary.