

92. Wagon Caves (Keeler-Wolf 1989b)

Location

Recommended for RNA establishment, this area is on the Monterey Ranger District of Los Padres National Forest. It is approximately 45 miles (72 km) SW. of King City, lying within the W. portion of the Las Milpitas Land Grant, which has not been divided into sections. It occurs within T21S, R5E (36°05'N., 121°24'W.), USGS Junipero Serra quad (fig. 183). Ecological subsection – North Coastal Santa Lucia Range (261Aj).

Target Element

Valley Oak Woodland (*Quercus lobata*)

Distinctive Features

Valley oak populations in California have declined significantly in recent years. Wagon Caves is the only area selected to represent valley oak in Region 5; it contains diverse stands of valley oak of varying ages and densities (fig. 184).

In addition, the area also contains a rich and diverse species of other vegetation types, such as chamise chaparral, riparian forests, wildflower fields, cliff and crevice vegetation, and blue oak savannas. The diversity and extent of the native grasslands in the recommended RNA (rRNA) are high, making it the best example of native grassland in any RNA in California.

Archeological: People of the Salinian culture (also known as the Antonianos) lived in the vicinity of the Wagon Caves, and at least two villages are thought to have been within or adjacent to the area. The overhangs and caves at Wagon Caves have fire-scarred roofs and other signs of use by these ancient people. Additionally, the valley oak groves likely were used by the Salinians as acorn foraging ground.

Fire History: Virtually the entire blue oak woodland SW. of the main road in the area sustained a ground fire in 1985 (known as the Rat Fire). The majority of the valley oak woodland was not affected by this fire. However, the entire stand of chaparral burned in the spring of 1975 (Indians Fire).

Rare Plants: Currently there are no Federally-, State-, or CNPS-listed rare plants occurring in the area.

Physical Characteristics

The study area covers 806 acres (326 ha) with an elevation of 1370-2465 ft (418-751 m). The San Antonio River and Santa Lucia Creek flow through the area.

Geology: The area is underlain by rocks of both sedimentary and granitic origin (Cretaceous age), the latter deposited primarily as alluvium in a broad terrace up to 1 mile (1.6 km) wide above the banks of the North Fork of the San Antonio River. The terrace is dissected by several small arroyos and minor rills.

The most conspicuous rocks in the area are shale and sandstone. Outcrops of Paleocene sandstone in the SW. corner form what are known as the Wagon Caves. The crest of a steeply sloping ridge of shale and sandstone (Miocene) forms the NE. boundary.

Soils underlying the old-growth valley oak are virtually all granitic and classified as Arroyo Seco (gravelly, sandy loam, 5-9 percent (3-5°) slopes, 60 inches [152 cm] deep). Soils underlying the younger, denser valley oak are primarily Lockwood shaley loam (9-15 percent [5-9°] slopes, 36-45 inches [91-114



Figure 183—Wagon Caves rRNA

cm] deep) and San Andreas fine sandy loam (15-30 percent [9-17°] slopes, 20-40 inches [51-102 cm] deep). Santa Ynez fine sandy loam (20-30 inches [51-76 cm] deep) supports the open savanna and grassland. The remaining five soil mapping units are: Santa Lucia-Reliz association, Rock outcrop, Psamments, Fluvents Stony, and Haire loam 15-30 percent slopes.

The general area receives 30 to 40+ inches (762-1016+ mm) of precipitation yearly. Average summer temperature is between 64 and 70 °F (18-21 °C), but highs can reach 110 °F (43 °C). The coldest temperature in the winter months averages 48-53 °F (9-12 °C). The area averages 300-330 frost-free days per year.

Association Types

Valley Oak Woodland (71130): 319 acres (129 ha). Valley oak vegetation occurs in two principal forms throughout California: as dense, closed-canopied forest in riparian areas and as open, park-like woodlands on alluvial deposits and rolling hills (*fig. 184*). The valley oak of the rRNA is in the open park-like form on alluvial terrace. The valley oak vegetation occurs as open old-growth savanna in the E. part of the rRNA, with trees attaining 5-7 ft (1.5-2.1 m) dbh, 100 ft (31 m) in height, and 550 years. Younger cohorts of trees (10-35 inches [25-89 cm] dbh, 50-60 ft [15-18 m] tall, 83-175 years old) occur in the NW. part of the rRNA along edges of rills and swales. Stand densities vary from open savannas with 5 trees/acre (13 trees/ha) to younger forests of 79 trees/acre (195 trees/ha). Average basal area cover in the old-growth stands is 57 ft²/acre (13.14 m²/ha); it is 139 ft²/acre (32 m²/ha) for the younger forests. Numerous seedlings occur (up to 1352 seedlings/acre [3340 seedlings/ha] in one plot), but saplings are very rare. Survival into sapling size seems hampered by seedling predation and recent drought.

The understories of both young, dense and old, open stands are similar. Both have relatively high cover and are dominated by annual introduced herbs and grasses with few native species. These introduced annuals include *Bromus diandrus*, *B. arenarius*, *B. rubens*, *Marrubium vulgare*, and *Urtica urens*. Dominant native species include *Stipa cernua*, *Lotus purshianus*, *Lupinus nanus*, and *Vulpia grayi*. The only woody understory member (occurring only in the younger stands) is *Toxicodendron diversilobum*.

Valley oak also co-occurs with blue oak (*Quercus douglasii*) and coast live oak (*Quercus agrifolia*) on slopes up to 20° (36 percent) in a small area in the N.-central portion of the rRNA. The valley oaks here are generally small, young, and restricted to mesic sites on N. exposures.

Blue Oak Woodland (71140): 99 acres (40 ha). This association type is limited to the San Andreas fine sandy-loam soils associated with the dendritic drainageways of the S.-central part of the rRNA. Blue oak woodland occurs generally on steeper and shallower soils than valley oak woodland. Occasional foothill pine (*Pinus sabiniana*) and scrubby interior live oak (*Quercus wislizenii*) are found as associates, but otherwise the woodland is completely dominated by blue oak.

Most of the blue oak are small and of relatively uniform density and size, most likely as a result of the fire in 1985. Blue oak averages 66 trees/acre (162 trees/ha) with a mean basal area cover of 36.2 ft²/acre (8.3 m²/ha). The average dbh is 13.4 inches (334 cm). The largest individuals are more than 3 ft (1 m) dbh and at least 70 ft (21 m) tall. There is little evidence of recent reproduction (16 seedlings/acre [40/ha]).

The cover and diversity of native species are markedly higher than in the valley oak woodland, although overall herbaceous cover is slightly less for blue oak. Common understory herbaceous species include *Avena fatua*, *Stipa cernua*, *Lagophylla ramosissima*, *Daucus pusillus*, *Vulpia myuros*, and *Erodium cicutarium*.

Grassland (42110/42200/42300): 115 acres (47 ha). This association type is variable in the rRNA and contains elements of Holland's needlegrass grassland, non-native grassland, and wildflower field communities. Typically associated with the valley oak and blue oak woodlands, it also occurs adjacent to sage scrub on the steeper, lower slopes of the NE. ridge. The grassland is relatively open (averaging less than 60 percent cover) and dominated by different species depending on exposure and soil development.

Most of understory species listed for the valley oak and blue oak woodlands also occur in the grasslands. The native-grass-and-herb component of the grasslands at Wagon Caves is high. Native perennial species present include *Stipa cernua*, *Muhlenbergia rigens*, *Elymus glaucus*, *Koeleria macrantha*, *Poa scabrella*, *P. howellii*, *Melica californica*, and *M. imperfecta*. Native herbs include *Lotus purshianus*, *Agoseris retrorsa*, *Brodiaea jolonensis*, *Clarkia rhomboidea*, *C. purpurea*, *Daucus pusillus*, and *Lupinus nanus*. A rich and diverse assemblage of native herb species also occurs on the rRNA in the form of "wildflower fields." Important species in this wildflower type are *Linanthus linifolius*, *L. ciliatus*, *Clarkia purpurea*, *C. rhomboidea*, *Lotus subpinnatus*, *Lasthenia leptalea*, *Madia gracilis*, and *Chorizanthe staticoides*.

Other non-native dominant species include *Avena fatua*, *Bromus rubens*, *B. mollis*, *Vulpia myuros*, *V. dertonensis*, *Erodium cicutarium*, *Medicago hispida*, *Hypochoeris glabra*, *Centaurea melitensis*, and *Brassica nigra*.

Additional species occurring on shallow, rocky, sandstone-derived soil are *Cirsium proteanum*, *Convolvulus malacophyllus*, *Lupinus nanus*, *Centaurea melitensis*, *Orthocarpus densiflorus*, *Plantago hookeriana*, *Chorizanthe membrenacea*, *Corethrogyne filaginifolia*, *Eriophyllum confertiflorum*, and *Calochortus supurbus*.

Chamise Chaparral

(37200): 99 acres (40 ha). This association type occurs on the upper slopes of the NE. boundary ridge. It is dominated by *Adenostoma fasciculatum*, which often composes 70 to 100 percent of the shrub cover. Pre-fire height of the chamise is estimated to be up to 10 ft (3 m). Presently, it averages about 4.5-6 ft (1.4-1.8 m). Shrubs of *Quercus dumosa* may be up to 20 ft (6 m).

Herb cover and diversity are very low. Shrubs occurring in the area include *Arctostaphylos*

glandulosa, *Dendromecon rigida*, *Ceanothus papillosus*, *Pickeringia montana*, and *Heteromeles arbutifolia*. Coast live oak occurs as shrubby islands on the xeric upper ridge, in hollows and drainageways, and as scattered individuals on the slopes. A fuel break along the spine of the ridge provides opportunity for colonization by *Ceanothus papillosus*, *Pickeringia montana*, *Galium nuttallii*, *Camissonia contorta* var. *epiloboides*, *Cryptantha microstachys*, *C. muricata*, and other herbs typical of post-fire/recently disturbed chaparral.

Riparian (61200/61210/63310): 85 acres (34 ha). Several types of riparian vegetation occur within the rRNA. Along the upper banks of both Rattlesnake and Santa Lucia creeks is a band of coast live oak riparian



Figure 184—
Wagon Caves, view northeast through relatively dense, young valley oak stand in Wagon Caves rRNA. Trees in background are a little under 100 years old. (1988)

woodland. In the alluvium of Santa Lucia Creek is a woodland with scattered white alder (*Alnus rhombifolia*) and California sycamore (*Platanus racemosa*). At the NE. corner of the rRNA, a dense white alder riparian stand occupies the small stretch of permanent water along the Santa Lucia Creek. Along the North Fork of the San Antonio River is a well-developed riparian community dominated by white alder, willows (*Salix lasiandra*, *S. melanopsis*), mule fat (*Baccharis viminea*), and sycamore.

The understory is sparse and composed mainly of *Apocynum cannabinum*, *Datisca glomerata*, *Erigeron philadelphicus*, *Heleocharis palustris*, *Boisduvalia densiflorus*, *Castilleja* sp., and *Mentha spicata* in the San Antonio River area. Around the Wagon Caves area, *Cyperus eragrostis*, *Carex barbarae*, *C. densa*, *Veronica americana*, *Epilobium adenocaulon*, *Stachys pycnantha*, *Urtica holosericea*, *Gnaphalium palustre*, and *Trifolium varigatum* are common herbs.

Rock Outcrop (no Holland equivalent): 56 acres (23 ha). The Wagon Caves rock outcrops contain many crevice and rock-face species. These species include *Carex brevicaulis*, *Arctostaphylos pungens*, *Cercocarpus betuloides*, *Corethrogyne filaginifolia*, *Dudleya cymosa* ssp. *minor*, *Erigeron foliosus* var. *stenophyllus*, *E. petrophilus*, *Haplopappus squarrosus*, *Hiercium argentum* var. *parishii*, *Keckiella breviflora*, *Melica imperfecta* var. *flexuosa*, *Mimulus bifidus* ssp. *fascicularis*, *Pedicularis densiflorus*, *Pterostegia drymarioides*, *Selaginella bigelovii*, and *Silene californica*.

Sage Scrub (32600): 33 acres (13 ha). This association type forms an irregular zone between the grassland and chamise chaparral on the steep (30-70 percent [17-35°]) slopes of the NE. boundary ridge. Characteristic species include *Artemisia californica*, *Yucca whipplei* ssp. *percursa*, *Lotus scoparius*, *Avena fatua*, *Eriogonum fasciculatum*, *Galium nuttallii*, *G. californicum*, *Lupinus albifrons*, *Zauschneria californica* ssp. *mexicana*, *Stephanomeria virgata*, and *Monardella villosa*.

Rock outcrops are often associated with this vegetation and include many of the species previously listed for this type.

Plant Diversity

Two hundred twenty-seven species of vascular plants are listed.

Conflicting impacts

A paved, well-traveled, main county road passes through the rRNA. Shell casings and damaged tree bark are evidence of regular shooting and target practice. Camping, fishing, and rock climbing are common in the area.

Grazing occurs in the rRNA and is heaviest along the riparian zone (San Antonio River) and within the valley oak savannah.