



# Trail Talk

Mission Trails Regional Park Trail Guide Program

Trail Talk Volume 15, Issue 2

## Oaks of Mission Trails, Part III by Audrey F. Baker, Photos by Peter R. Thomas, Trail Guides

[Ed Note: Due to its length, "Oaks of Mission Trails" is being published in four parts in successive issues of *Trail Talk*.]

### A Rare Gem, the Engelmann

Described as "the most imperiled oak tree in California," our second oak tree species, the Engelmann (*Q. engelmannii*) holds a special interest and rare viewing opportunity for many



Audrey F. Baker

park visitors—two-thirds of California's Engelmann population is on private lands. Beyond the attraction of its elegant silver/blue-green foliage, sweeping, breathy, and open elliptical canopy, is the intriguing history that surrounds its rarefaction.

The fossil record details an ancient range, including southern and southwestern California that extended eastward into Arizona (and beyond), and southward deep into Baja. With the evolution of the Mojave and Sonoran deserts, the Engelmann gradually retracted toward the gentler climate of Southern California. Today, San Diego County contains 90% of the extant tree population. A USDA Forest Service report in 1998 stated that, of the small swath of trees on Catalina Island, only one tree remained extant. No update has been made. Scattered groves remain between Los Angeles County and northern Baja, with

many specimens on the Santa Rosa Plateau in Riverside County.

The species name honors the man who was dubbed the "Botanist of the West," George Engelmann, a German-American medical doctor and contemporary of Thomas Nuttall. Also called Mesa Blue Oak, E-Oaks are denizens of grasslands or sage scrub areas, and occupy the margins between mesic (moist) canyon bottoms and dryer scrub. Along with



Engelmann Oak  
(*Quercus engelmannii*)

Coast Live Oak (CLO), they are often found along rivers, but generally prefer dryer conditions; they are better at germinating and growing in low moisture environments than is CLO. Sixty to eighty percent grow on south-facing slopes, mostly at the 2300–4200' level. *Q. engelmannii* requires an 18" winter rainfall and a "deep soil source" of water. While specimens at Mission Trails receive on average only 15" annually, the protection of our marine layer balances water requirements. E-Oaks also benefit from the nutrient and water uptake enhancement

provided by mycorrhiza.

The mature Engelmann on the Oak Grove Loop is a particularly beautiful example. Its trunk, guarded "24/7" by a detachment of poison oak, has a circumference of 90", and adapting to the confines of the area, a 77' canopy spread.

Prone to caterpillars and oak root fungus, problems are many as these trees fight for survival. Cattle overgrazing tops the list of challenges the species faces. Private land sales for rural and urban housing demands are an ever-present threat to their viability. Engelmann oaks are also at a disadvantage in fire recovery. Unlike the CLO, they cannot resprout from their canopy,

but only from the root crown. Supplementing the list of challenges are herbivory by animals, birds and insects; competition for water and resources from invasive, non-native grasses; and specific weather conditions for seed growth resulting in poor reproductive success.

*Quercus engelmannii* is subdominant to the CLO. It is a medium-size tree that reaches a height of 50', with a growth rate of 2 feet per year. As an evergreen or semi drought-deciduous plant, the Engelmann

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### Writers wanted...

- Have an interesting story or photo you'd like to share with other Trail Guides? Send them to 'Trail Talk' editor Millie Basden at [trairtalkeditor@yahoo.com](mailto:trairtalkeditor@yahoo.com). Please include "Trail Talk" in the subject line!

### Speakers Needed...

- Have you heard an interesting speaker or know an interesting topic that would be appropriate for one of our monthly meetings? If so, please send your ideas to Jo Mink at [joink2@hotmail.com](mailto:joink2@hotmail.com).



Next Trail Guide  
Monthly Meeting:  
Wednesday,  
February 9th  
6:30 pm—  
Visitor Center Library

# Monthly Meeting Minutes—January 12, 2011

There were 32 Trail Guides, 1 guest, and Ranger Heidi in attendance.

Fred's number for January was 316. The answer in the form of a question is "How many people stopped by the nine discovery tables Trail Guides set up in 2010?" He mentioned this was a number he forgot to include in the Trail Guide Annual Report.

Fred announced the prize winners for the best walk write-ups in November and December: Terry & Wendy Esterly for their VC walk on November 20 and Audrey Baker for her VC walk on December 29. Fred also announced special prize winners: Lilian Cooper and Patti Scollay for their Discovery Table on December 5.

Fred announced that Jennifer Douglas is starting a new series of walks to be called Family Discovery walks. They will be once a calendar quarter on a Sunday afternoon. The trail will always be to the grinding rocks, and the focus will be observing the changes in nature throughout the sea-

sons. They are listed on the web site Events Calendar, and there is a flyer in the Visitor Center racks. She asked if any Trail Guide would like to participate in leading the walks with her. Marcia Stoner has volunteered to help.

Ranger Heidi mentioned that the blue plastic glove dog poop bags are no longer available, and they are requesting volunteers to bring in plastic bags they get at stores. These will be used to fill containers in the park that previously held the blue gloves. There is a collection bag in the Visitor Center by the back door.

Audrey Baker reported on the status of publicity efforts and requested Trail Guides to give her ideas about interesting items to put in future ads.

John Hopper reported that the next Trail Guide trek would be February 12 to Mt. Gower Open Space Preserve. Additional details will be sent by e-mail.

Fred thanked Millie and Tom for the great

January issue of *Trail Talk* and asked Trail Guides to continue to submit articles, pictures, puzzles, poems, etc.

Fred reviewed the status of the Discovery Tables. He mentioned that five were developed last year, and he hopes more will be put together this year. The goal is to have about 13 with each one displayed at least once each calendar quarter.

Rick Halsey gave a great presentation on the chaparral as part of Trail Guide training.

**Upcoming Events**  
Volunteer Awards Ceremony and Dinner, Saturday, February 5, 5:30 p.m. at the Visitor Center. RSVP 619-668-3281.

The next meeting is February 9, 2011, 6:30 p.m. in the Visitor Center LIBRARY. The program will be Bill Howell discussing mammalian and avian biology as part of Trail Guide training.

Respectfully submitted,

Fred Kramer, Acting Secretary

## Oaks of Mission Trails—Part III

(Continued from page 1)

is sensitive to cold below 15–20 degrees. Those famous silver-toned oblong leaves range from 1½–3" in length, and are leathery, with a greener, fuzzy underside. E-oak tree bark is gray toned, with narrow, scaly ridges and shallow furrows, and the trunk is crooked with large, twisted, spreading limbs, and a sparse crown.

The Engelmann's 1" stout, egg-shaped, warty-capped acorns begin maturing in



September and are around 1½ times as long as their diameter. They drop by November. Its acorn has two limited

opportunities to develop into a tree, at the first fall rains and around the 1<sup>st</sup> of March. At either time the evapotranspiration ratio must be low.

Like all things rare and beautiful, the gracefully elegant Engelmann gives to all who are privileged to view it an enriched life.

### Ode to the Oak: Tree and Scrub

A natural inclination when contemplating oaks is to envision impressive, towering shade trees. The second category of oaks, shrub oaks, can certainly hold their own as marvelous creations of nature. They are the shade trees of the smaller denizens of the forest. Like the "mightier" oak, they provide shelter, food, and safety for wilderness

residents.

These "trunkless" flora form branches near the soil surface. Their secondary branches grow at right angles to each other, enfolding to form a dense, overlapping canopy.

In general, they prefer drier soils than oak trees. These are "tough guy" plants, living in nearly every type of chaparral and shrub environment from coastal bluffs to desert and alpine margins.

Oaks, grand and small, inspire and evoke passion. The extraordinary and beautiful scenes they define create memories of discovery and conjure self-rejuvenation. Oaks have a long list of benefactors, from the Native American honoring them, to the naturalist pondering their magnificence, to the scientist devoted to unraveling their mysteries.

Two such devotees from academic disciplines were John Tucker and C. H. Muller. Professor emeritus at UC Davis, John Tucker had, from his teen-age years, a "personal passion for oak." He lived out that passion through a career in taxonomy (specializing in hybridization), that continued to his passing at age 92 in 2008. C. H. (Cornelius Herman) Muller, familiarly called "Neil," began his career at the USDA naming and classifying plants. From his pursuits at UC Santa Barbara, he is credited as "helping to develop the main areas of botany." He prominently studied oaks, and his work on the evolution of *Quercus*, and on allelopathic mechanisms (biochemicals that influence growth, survival, and reproduction) are ground breaking. Muller is

honored by having two plants named after him, *Q. cornelius-mulleri* and *Q. mulleri*. *Quercus*, of qu-course!

In the 1980s and early 90s, scrub oaks benefited from the work of K. C. Nixon and K. P. Steele, whose extensive taxonomy studies redefined the broad classification of scrub oaks into specific species and hybridized populations. Traditional taxonomy focused on leaf structure; the new "taxo" additionally considers acorn morphology (form and structure), scrutinizes leaf trichomes (the hair-like projections on the leaf underside), and recognizes distinct habitat considerations.

A case in point for this radical restructuring is the species formerly known as *Quercus dumosa*. It was considered an extensive species, running the entire expanse of coastal California, populating chaparral and woodlands from the northern Coastal Ranges into Baja California, and reaching into desert margins. The term "*Quercus dumosa* complex" denoted variations among particular plants.

We now recognize five distinct species. Truly, this is a revolution in bio-classification. The new conceptualization allows botanists and naturalists to see a progression of unique species across a changing landscape: *Q. pacifica*, specific to three Channel Islands, existing in its own ocean-bound habitat; *Q. dumosa* (Nuttall's Scrub Oak) now acknowledged as being exclusive to the coast; *Q. berberidifolia* (Scrub Oak) an interior, "hard chaparral"

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# Oaks of Mission Trails—Part III

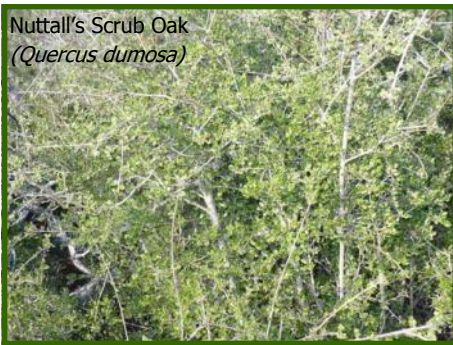
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plant; *Q. john-tuckeri*, a specimen of interior Central California; and *Q. cornelius-mulleri*, a shrub of the desert margins.

Mission Trails sustains two species of scrub oaks – *Q. dumosa* (Nuttall’s Scrub Oak) and *Q. berberidifolia* (Scrub Oak). Take note, the ambiguity of this statement will be revealed.

## *Quercus dumosa* Nuttall’s Scrub Oak

History and literature buffs enjoy a bit of trivia associated with Nuttall’s Scrub Oak’s introduction into the botanical record. The species was first collected by Thomas Nuttall (1786–1859), a botanist whose chance meeting with an aspiring author led to his serving as the inspiration for the character of ship’s botanist in Richard Henry Dana’s 1840 novel *Two Years Before the Mast*. That chance meeting took place here, in San Diego.



Nuttall’s Scrub Oak (*Q. dumosa*) may be the rarest of the scrub oaks. Restricted to Southern California and northern Baja, it resides in the sandy soils and sandstone of soft chaparral/coastal sage areas of the bluffs, hillsides and headways within “view” of the ocean. This scenic locale impedes its survival. Bluntly put, this is prime California real estate.

Nuttall’s Scrub Oaks (NSO) reach a height of between 3’ and 9½’ and are aided by an extensive root system that penetrates to a 30’ depth. Dense foliage and easily-accessible branches contribute to its importance as cover. A significant portion of an animal’s life is devoted to hiding and escape. These shrubs well-serve both needs, and provide thermo-defense. They mask perching and nesting sites and can cover larger animals, such as the gray fox and bobcat. Raccoons use them for den sites, as do opossum, gray and ground squirrels, and woodrats. Thickets of Nuttall’s Scrub Oak can easily hide a deer or mountain lion.

Identifying characteristics of this shrub include its dense foliage, frequently reddish young twigs, from which the new leaves spring. Small, under 1/2” in length, the leaves bear the familiar cupping of the CLO,

but have more defined margins and spines. They also have a slight forward-bending appearance along their length, with soft trichomes on the underside. The leaves, with small, rounded depressions between projecting lobes, are generally larger than *Q. berberidifolia* (*Q. b.*). The erect, straight trichomes have fewer rays than *Q. b.*, and are more visible (0.4–1.0 mm, compared to *Q. b.*’s 0.1–0.2 mm size).

NSOs play a significant role as wildlife browse. Shoots and sprouts of the summer months are eaten by deer, rodents, and rabbits, and pocket gophers feed on the cambium of young NSOs. Their service as winter browse is particularly significant.

The acorn caps are marked by a rust color against tan, and the fleshy part of its small acorn is wide and rapidly tapering (sharply acute). Acorns mature in one year and drop in the fall. They can differ dramatically in form. NSO acorns are vulnerable to mold and rot, but generally do not remain long on the ground. The acorn consumer list is long, including the California vole, the harvest, deer, and brush mouse, gray fox, raccoon, the spotted and the striped skunk, mourning dove, northern flicker, California thrasher, and California quail.

It is sad to report that although “Michael Simpson’s Checklist” states we have *Q. dumosa*, its MTRP habitat was heavily damaged by the Cedar Fire. Nuttall’s Scrub Oaks can be killed if burned at frequent intervals. Fires of high intensity or frequency simply override its resiliency. NSO’s heat-sensitive acorns generally



perish, even if protected in soil or litter. Those buried by rodents have a better survival rate. These plants,

however, are adequately adapted to survive periodic fires. Regeneration strategies include stump sprouting (if viable portions remain) and root crown sprouts (in case of trunk or aerial crown damage). Nuttall’s Scrub Oaks that have re-sprouted since the Cedar Fire are found on the Tierrasanta side of Mission Trails, which sustains many of Mission Trails’ coastal species.

## *Quercus berberidifolia* Scrub Oak

In contrast to the threatened Nuttall’s Scrub Oak, *Q. berberidifolia* is one of the two most common scrub oaks in California. It is No. 1 as the most commonly associated with chaparral. Found below the 5,000’ level throughout the northern and southern Coast Ranges and into Baja, the species also proliferates in the western Sierra and

Nevada foothills. Closely related to *Q. john-tuckeri* of interior Central California, *Q. b.* occupies more moist and varied soils.

Two examples that exhibit classic habitat choice can be seen on the Kwaay Paay side of FJST, near a couple of major gullies that descend the mountainside and meet the road. The area is about two-thirds the distance from the Visitor Center to Old



Mission Dam. It is no surprise that deer sightings are frequent here. In the month of October, mule deer may eat 300 acorns per day.

With a growth rate of 1’–2’ per year, they can reach 15’, and can be mistaken for young CLOs. Hints as to its true identity include the tendency of scrub oaks to establish dense thickets and intermingle with other shrubs and grasses. Another characteristic is its dense branching near soil level. Dense is the optimal word to describe this plant.

The waxy leaf, dark green on top and dull on the underside, is relatively flat with a rounded or heart-shaped base. Viewing the underside is the chief aid in identification. Pull out your magnification glass—its flat, star-shaped trichomes host 7 to 8 rays. Spring growth boasts 1” long yellow-green catkins, and the female flower shows small spikes on the leaf axis.

Its twigs also display the reddish brown of new growth, against smooth bark varying from light green/gray to deeper tones, with numerous

lenticels (pores for gas exchange). The acorns are usually barrel-shaped with either rounded or blunt ends and stalkless caps that cover ½ of the nut. These ripen in late summer and early fall.

Like Nuttall’s Scrub Oak, many a wonderful animal sighting has been missed through its ability to camouflage the wildlife it feeds and protects.





## Reminder from the Ranger

by Heidi Gutknecht, MTRP Ranger and Education Coordinator

Not sure what to talk about on your next guided nature walk?

Well, if you take a few moments to poke around through the white Trail Guide cabinet, located behind my desk in the back Ranger office, you might get some good ideas. The top two drawers contain magnifying glasses, small containers for bugs, various nature knick-knacks (like acorns and oak galls); geology, reptile and insect stuff. Inside the cabinet are pictures and items to help teach about birds, wildlife and the Kumeyaay. Bringing pictures or items along on guided walks to serve as visual aids can help make your walks more interesting and meaningful to the victims, I mean visitors, on your walks.

[Ed. Note: Be sure to put any borrowed items back where you found them so they will be available for your fellow Trail Guides, and so Ranger Heidi does not have to spend her time organizing the cabinet.]

## What's Happening at the Park

### Friday, February 11...

**Stars at Mission Trails**—Join members of the San Diego Astronomy Association from 5 to 8 p.m. at the Kumeyaay Lake Campground's Day Use Parking Lot. Telescopes available (weather permitting.)

### Saturday, February 19...

**Bird Walk**—Join Trail Guide Jeanne Raimond for an adventure in bird watching! We'll meet at the Visitor Center to explore the Oak Grove Loop. Bring your binoculars and field guide. 8 to 10 a.m..

**Star Party**—Resident Star-Gazer George Varga will be viewing the stars and planets at the Kumeyaay Campground Day Use Parking Lot. 5:30 to 8:30 p.m. Deep sky objects such as the Orion Nebula and the Crab Nebula will be visible through the telescope provided.

### Saturday, February 26...

**Birding Basics**—Trail Guide and resident Birder Winona Sollock will teach you five simple techniques for identifying birds at a glance. Bring your field guide, if you have one. Visitor Center. 1 to 2:30 p.m.

### Saturday, March 5...

**Tracking Walk**—Join a MTRP Trail Guide and Tracking Team Member for an adventure in wildlife tracking. Learn the art of discovering signs left behind by resident creatures. Wear long pants for kneeling. Rain cancels. Meet in front of the Visitor Center. 8:30 to 10:30 a.m.

## 2011 Trail Guide Training Lecture Schedule

Here's the schedule of lectures for the next Trail Guide training class. Lectures start around 7:45 p.m. unless there is a Trail Guide meeting that night (marked with an asterisk); then they start at 7:15 p.m. (Of course, you'll be coming to the meeting at 6:30 p.m.) Please feel free to attend any of the lectures you might want as a refresher. Since we expect another large class, please don't sit at the tables or take any handouts until all the regular students have received theirs.

- 2/9\* Birds & Mammals by Bill Howell
- 2/16 Arthropods by Dr. Michael Wall
- 2/23 Indians by Judy Alvarez
- 3/2 Botany II by Bill Howell
- 3/9\* Geology by Dr. Pat Abbott
- 3/16 Misc. Topics & Review by Bill Howell



A dowitcher foraging in Kumeyaay Lake. Long-billed dowitchers are most often associated with fresh water, but the most reliable means to distinguish a long-billed dowitcher from a short-billed dowitcher is by their different calls.

Photo by Wendy Esterly

*The February sunshine steeps your boughs and tints the buds and swells the leaves within—William C. Bryant*

## Mission Trails Regional Park Trail Guide Program

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 Trail Talk Photographer—Wendy Esterly



*The Trail Guide Program is dedicated to provide the visiting public with education and understanding of the unique environmental and historical attributes of Mission Trails Regional Park. The Trail Guides supplement the Park Rangers in outreach programs to the public.*

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