



# Vegetation Mapping

*In Conjunction with Aerial Information Systems & the CA Dept. of Fish & Wildlife*

**Dates:** March 19-21, 2019 (Tuesday - Thursday)

**Location:** College of Marin, Kentfield, CA

**Instructors:** Julie Evens, Todd Keeler-Wolf, & John Menke

**Registration:** \$665 CNPS Members / \$695 Non-Members

**Target Audience:** Professional botanists, ecologists, resource managers, GIS and vegetation mapping specialists. Participants should have an initial understanding of the subject matter and of GIS.

**Description:** Through a combination of field and computer exercises, participants will learn techniques for fine-scale vegetation mapping. Participants will practice creating a vegetation map using Geographic Information Systems (GIS) and techniques of photo interpretation, delineation, and attribution, collect reconnaissance samples to support the 2nd edition of *A Manual of California Vegetation* classification, and validate a vegetation map through accuracy assessment.

## Participants will learn:

- Principles of vegetation sampling, classification, and photo interpretation
- How to map and assess different types of vegetation, including locations and acreages
- To measure biodiversity through fine-scale vegetation mapping
- How to identify specific habitat requirements of target species and monitor habitat changes over time
- Adaptive species management using fine-scale vegetation mapping
- How to perform detailed landscape and watershed analyses with vegetation maps
- "Heads up" digitizing techniques in ArcGIS while assigning specific vegetation map attributes

## Schedule (subject to change):

### Day 1 - Tuesday, March 19

Meet at College of Marin, all day in the classroom/computer lab

9:00 am	Introductions and overview of vegetation mapping and field verification
11:00 am	Integrated vegetation classification and mapping: techniques (manual photo interpretation, heads-up digitizing, automated approaches, attribution, etc.), tools and information used in photo interpretation and delineation, use of GIS with ArcGIS or other software, examples of AIS delineations and attributions
Noon	Lunch break (please bring your own lunch and water)
1:00 pm	Mapping exercise: interpretation of imagery, delineation examples, techniques for heads-up digitizing
2:30 pm	Exercise in delineation and attribution
5:00 pm	Break for the day

### Day 2 - Wednesday, March 20

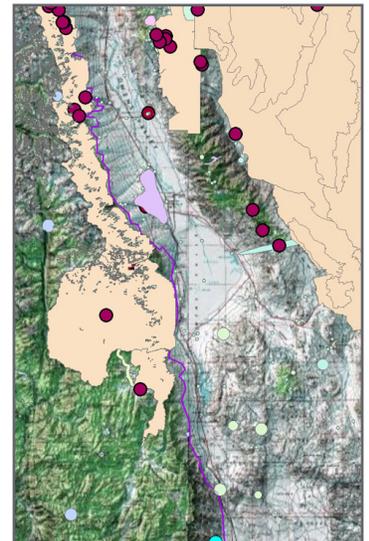
Meet at designated field site in Marin County (TBA), field exercises all day

8:30 am	Site visits and field reconnaissance: identifying stands of vegetation
Noon	Lunch in the field (please bring your own lunch and water)
12:30 pm	Site visits and field reconnaissance: collect field data, discuss need to further inventory area using other protocols (e.g., vegetation rapid assessment or plot-based methods), esp. for accuracy assessment and vegetation classification
5:00 pm	Break for the day

### Day 3 - Thursday, March 21

Meet at College of Marin, all day in the classroom/computer lab

9:00 am	Importance of field verification and map accuracy assessment (AA): number of samples and reconnaissance points to verify/validate the classification and
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	map, basics for accuracy assessment and revisions of mapping
10:30 am	Mapping exercise with field verification/AA analysis: provide AA data to review mapping of previous day, make corrections and updates to delineated area
Noon	Lunch break (please bring your own lunch and water)
1:00 pm	Complete mapping exercise
3:00 pm	Wrap-up discussion: comparison of different mapping techniques, costs, and maps produced, applications of vegetation maps for local management efforts, values of integrated sampling and mapping project, current or potential applications and mapping projects of workshop participants
4:00 pm	Q&A, course evaluations
4:30 pm	End of workshop

**Venue:** Days 1 and 3 of this workshop will be held in SMN 130 at the College of Marin's Kentfield campus, located at 835 College Avenue, Kentfield, CA 94904. Note that parking on campus is \$4 per day. Field sites TBA on day 2 will be located nearby in Marin county. Additional details will be provided to registered participants about a week before the workshop.

**Materials Required:** Please bring...

- Clipboard, notebook, and pencil
- Sturdy boots, sunscreen and field clothes appropriate for the weather and conditions
- Plenty of water for the field; lunch and snacks for all 3 days
- Optional items include: compass and/or clinometer, binoculars, digital camera, GPS unit

**Materials Provided:** CNPS will provide course materials for the field and computer exercises (e.g., slides, map printouts, exercises, reference material, and other handouts), and workstations for the vegetation mapping exercises.

**Physical Requirements:** Participants should be physically able to hike over uneven terrain and remain in the field for up to 8.5 hours at a time. This workshop will be held rain or shine. We will spend approximately 33% of the time in the field.

#### About the Instructors:

Julie M. Evens is the Vegetation Program Director for CNPS, where she has directed vegetation projects and analyzed vegetation data for over fifteen years. She currently manages CNPS sampling protocols and databases, coordinates vegetation sampling and training sessions, collaborates on mapping projects with other agencies, and writes reports on vegetation classification across CA. Previously, she worked as a crew leader for major vegetation projects in Sequoia & Kings Canyon National Parks and the central Mojave Desert. She recently co-authored *California's Botanical Landscapes: A Pictorial View of the State's Vegetation* with Michael G. Barbour, Todd Keeler-Wolf, and John O. Sawyer, and compiled the *CNPS Fire Recovery Guide*. Julie received her BA degrees from UC Santa Cruz and MA in biology from Humboldt State.

Dr. Todd Keeler-Wolf is an ecologist who has worked in CA for over 30 years. In this time, he has had the pleasure of studying the vegetation and flora of virtually every terrestrial ecosystem in the state. Currently he is the Senior Vegetation Ecologist at the CDFW and leads their Vegetation Classification and Mapping Program (VegCAMP). He is also the Senior Advisor for the CNPS Vegetation Program, and member of the executive committee of the Ecological Society of America's Vegetation Panel. He is co-author with John Sawyer and Julie Evens of the Second Edition of *A Manual of California Vegetation* and several other books and publications, including the revised UC Press *California Plant Life Natural History* guide, and the third edition of the *Terrestrial Vegetation of California*, which he co-edited with Michael Barbour and Allan Schoenherr. Todd received all his degrees at UC Santa Cruz.

John Menke is the Senior Vegetation Mapping Specialist at Aerial Information Systems, Inc. With over 30 years of experience, he has been the lead photo interpreter for the National Park Service's Vegetation Mapping Program at Yosemite, Sequoia-Kings Canyon, Joshua Tree, Point Reyes and Golden Gate National Parks. He has also conducted mapping efforts for the Marin Municipal Water District, western Riverside County, the Sacramento Delta region, Napa County, and numerous other locations throughout CA.

**Registration Information:** Visit [www.cnps.org/workshops](http://www.cnps.org/workshops) to sign up for this class. Registration fees are discounted for CNPS members; please visit [www.cnps.org/join](http://www.cnps.org/join) if you would like to become a member. Class size is limited to 20 participants. The last day to sign up for this workshop is **Monday, March 4, 2019**.

Before registering, please review the CNPS workshop cancellation policy, registration and payment policy, and participant expectations at [www.cnps.org/workshops](http://www.cnps.org/workshops). The last day to cancel your registration and receive any refund for this workshop (less the cancellation fee) is **Tuesday, February 19, 2019**. Contact Becky Reilly, [breilly@cnps.org](mailto:breilly@cnps.org) with any questions.