



Rare Plant Survey Protocols

A Scientific Approach

Dates: March 6-7, 2019 (Wednesday - Thursday)

Location: Tijuana River National Estuarine Research Reserve, Imperial Beach, CA

Instructors: Heath Bartosh & Aaron Sims, with a guest lecture from Katie Gross

Registration: \$395 CNPS Members / \$425 Non-Members



Target Audience: Professional botanists, ecologists, land managers, resource specialists, academics, and conservationists. Participants should have an understanding of plant terminology and capable plant identification skills.

Description: This course is designed to approach rare plant surveys using the best scientific information available. This scientific approach is built on conducting proper background review and literature searches, evaluating ecological information, assessing annual phenology, appropriate study design based on the scale of the survey area, survey execution, and adequate documentation of rare plant populations encountered.

This 2-day course will include classroom and field settings where the instructors will cover three topic areas: preparing for surveys, conducting surveys, and reporting findings. These topics will be discussed based on applicable botanical survey guidelines. Time spent in the field will be applying the concepts learned during classroom sessions. There will also be a homework assignment due at the beginning of the second day of class. A small amount of time will be spent on the proper methods of collecting voucher specimens. This course includes a certificate of completion for participants who complete CNDDDB forms satisfactorily and pass an (optional) open book exam at the end of the course.

Participants will learn:

- How to properly prepare and conduct background research prior to initiating rare plant surveys
- How to design and conduct rare plant surveys focusing on the size and topography of the study area, ecological niches, the importance of reference sites, etc.
- CA Department of Fish & Wildlife, CNPS, US Fish & Wildlife, and other relevant botanical field survey protocols
- How to use online databases and resources such as: CA Natural Diversity Data Base (CNDDDB), the CNPS Online Inventory of Rare and Endangered Plants, the Jepson eFlora/Interchange, Consortium of CA Herbaria, and others
- To fill out CNDDDB forms correctly and thoroughly
- A brief overview of laws pertaining to rare plants
- A brief overview of voucher specimen collecting techniques.

Schedule (subject to change):

Day 1 - Wednesday, March 6

Meet at Tijuana Estuary Visitor Center. Indoor lecture, classroom setting. Each of the topics covered will be discussed in relation to established rare plant survey guidelines.

8:30 am	Meet and greet, introductions
9:00 am	Overview of laws applicable to rare plant protection
9:30 am	Preparing for surveys: background research, study area evaluation, study design
12:00 pm	Break for lunch (please bring your own lunch and water)
1:00 pm	Conducting surveys: survey techniques and field data collection
2:00 pm	How to fill out the more difficult parts of the CNDDDB field survey form
3:00 pm	Reporting findings: CNDDDB forms and what the guidelines tell us
4:00 pm	Review of background research specific to study area
4:30 pm	Wrap up discussion, review, and questions
5:00 pm	Break for the day

Day 2 - Thursday, March 7

Meet at designated field site TBA. All day in the field. Spend the day learning the local flora, the importance of field keying, how to identify niche/specialized habitat, CNDDDB field form data



collection, voucher specimen collection, transect and other surveying techniques based on target species.

8:30 am	Meet at designated location and hike to field site, possibly up to 3 miles round-trip
12:00 pm	Lunch in the field (please bring your own lunch and water)
1:00 pm	Resume field work
4:15 pm	Q & A, exam (optional), course evaluations
5:00 pm	Workshop concludes

Venue: This workshop will be held at the Tijuana Estuary Visitor Center, located at 301 Caspian Way, Imperial Beach, CA 91932, with field sites nearby. Additional details will be provided to those registered about a week before the workshop.

Materials Required: Please bring...

- Hand lens
- *The Jepson Manual*, Second Edition
- Clipboard, notebook, and pencil
- Sturdy boots and field clothes appropriate for the conditions (e.g. protection from poison oak, rain, sun, heat/cold, insects, etc.)
- Sunscreen, hat, and insect repellent
- Drinking water, packable lunches, and snacks for both days
- Optional: digital camera, GPS unit, binoculars



Materials Provided: CNPS will provide handouts, field forms, and a certificate of completion after successfully completing CNDDDB forms and passing an open book exam (optional).

Physical Requirements: Participants should be physically able to walk up to 3 miles along uneven paths and trails, and remain outside for up to 8.5 hours at a time. This workshop will be held rain or shine. We will spend approximately 50% of the time in the field.

About the Instructors: [Heath Bartosh](#) is co-founder and Senior Botanist of Nomad Ecology, based in Martinez (CCo, SnFrB), and a Research Associate at the University and Jepson Herbaria at UC Berkeley. After graduating from Humboldt State University, Heath began his career as a professional botanist in 2002 and has been refining his survey methodologies over the past 10 years. In 2005 he became an active member of the CNPS East Bay Chapter. He is currently Rare Plant Committee Chair for the chapter. In 2009 he became a member of the Rare Plant Program Committee at the state level of CNPS. His role on these committees is to ensure these programs continue to develop current, accurate information on the distribution, ecology, and conservation status of CA's rare and endangered plants; and helps to promote the use of this information to influence onsite plant conservation in CA.

[Aaron Sims](#) is the statewide Rare Plant Botanist for CNPS, with primary duties as implementer of the rare plant status review process and updating and maintaining the CNPS Inventory of Rare and Endangered Plants. He received a degree in Ecology and Systematic Biology with an emphasis in Botany from Cal Poly, San Luis Obispo, where he also assisted with David Keil's Field Botany course for five consecutive years. Prior to employment with CNPS in 2010, Aaron worked in environmental consulting and as a biologist for CA State Parks on the Central Coast, performing rare plant and vegetation surveys, prescribed fire management, and producing a multitude of GIS maps pertaining to sensitive resources. Aaron has also contracted with the US Fish and Wildlife Service conducting sea bird monitoring, and with the Morro Bay National Estuary Program, producing the Atlas of Sensitive Species of the Morro Bay Area (2010) and the Green Infrastructure Network of the Baywood Fine Sands Community (2013).

[Katie Gross](#) has been working as a botanist with the CA Department of Fish & Wildlife's CA Natural Diversity Database (CNDDDB) since 2009. She earned a B.S. in Environmental Horticulture and Urban Forestry from UC Davis. As a student, she also worked for the UC Davis Arboretum Nursery where she specialized in propagating California native plants.

Registration Information: Visit www.cnps.org/workshops to sign up for this class. Registration fees are discounted for CNPS members; please visit 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, February 18, 2019**.

Before registering, please review the CNPS workshop cancellation policy, registration and payment policy, and participant expectations at www.cnps.org/workshops. The last day to cancel your registration and receive any refund for this workshop (less the cancellation fee) is **Wednesday, February 6, 2019**. Contact Becky Reilly, breilly@cnps.org with any questions.