



Ellen Dean and  
Gordon  
Harrington in  
the field

# The Plant Detective

Text by Sylvia Wright, Campus News Service, 2010

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Most people visiting this mountain meadow on this August day would see the grand panorama of waving green grass, dotted with a few last flowers, rimmed by trees. We would probably notice the blue sky, the breeze and the dancing white butterflies.



Meadow in bloom

UC Davis Center for Plant Diversity herbarium curator Ellen Dean perceives all that, too, with the average-person part of her mind that records unconsciously that it is morning, late summer, and she is high in the Sierra Nevada.

But what she really sees, with the focused and intense botanist part of her mind, is the single plant right at her feet: its stem (round, flat, smooth, fuzzy or jointed), leaves (elliptical, linear, auriculate, lanceolate), flowers (single or compound), developmental stage (sprout, bloom, fruited, dormant), and habitat type (wet, moist or dry).

In a moment, she sees that plant, identifies it, determines whether it is unexpected and pins it onto her mental meadow map.

Dean collecting plants to add to the plant list with ace volunteer Kate Mawdsley





Dean finishing up the plant collecting job by placing plant samples in a plant press.



Dean curates the UC Davis Center for Plant Diversity herbarium, the second largest university herbarium in California (after UC Berkeley's). The Davis center's collection of grasses, with more than 40,000 specimens, is among the best in the state. "We help anyone at the university with a plant identification question," Dean says. "That includes plant scientists, of course, but also entomologists, geologists, soil scientists, wildlife biologists, forensic botanists, master gardeners and Cooperative Extension farm advisors."

Top right: one of the 300,000 herbarium specimens at the Center for Plant Diversity. Top left: the plant identification lab at the Center. Bottom left: student Lynn park mounting a specimen

Dean has identified thousands of plants, ranging from burrs stuck to a crime suspect's clothing to poisonous plants from a pet cat's stomach and weeds invading cattle pastures.



Walking alongside Dean this morning in the Sierra is Tamara Sasaki, an ecologist with the California Department of Parks and Recreation. The department is interested in updating some nearby park facilities, but the existing plant list is inadequate for determining if there are any special plants at the park that might need protection. So Sasaki has commissioned Dean to create a detailed flora list and map. Why Dean? Sasaki answers: “She’s the best.”

Hearing this, Dean rolls her eyes and shakes her head. On this two-day field trip, her third to the meadow this summer, she is struggling to put her observations in order. She is particularly concerned about accurately characterizing the preferences of a rare California native wildflower that she has found in the meadow, one of the hawksbeards.



Dean recording data in the meadow while daughter Margaret Starbuck photographs the plants the team encounters. Left: a meadow hawkweed.

As she walks with Sasaki, clipboard in hand and eyes on the ground, her analyses start to gel. She is talking both to Sasaki and herself. “See, it’s not down there in that wet *Juncus*. Where the *Juncus arcticus* gets too thick, there’s a lot of water in there, it’s not there,” she says. “So it’s got to be on an upland. But it’s not so high that you’re in the *Elymus glaucus*. See how the *Elymus glaucus* is going around here, around us, in a band, and we’re in a depression right here a little bit?”

“So every once in a while it creeps into the *Elymus glaucus* over there but mostly it’s in this midlevel between the lowest, which is the *Scirpus*; the next low, which is the *Juncus*; and then this level. And then there’s the uplands that have more of the *Elymus glaucus*. And then the next level goes even higher and has *Leymus cinereus*.” She nods. She definitely has it now. “It really likes it here in this alkaline crud. Between the water and the - yeah, it’s the in-between.”



Dean recording data in the meadow while Duke University Collections Manager Layne Huiet helps collect samples