

VOL. 36, NO. 1 • WINTER 2008

# FREMONTIA

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JOURNAL OF THE CALIFORNIA NATIVE PLANT SOCIETY

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SERPENTINE GRASSLANDS

EDGEWOOD—THE WHOLE STORY

COYOTE RIDGE SUCCESS

ITALIAN RYEGRASS INVASION

CNPS FELLOWS: CHARLI AND JOHN DANIELSEN

# FREMONTIA

VOL. 36, NO. 1, WINTER 2008

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California Native Plant Society

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the California Native Flora*

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CNPS carries out its mission through science, conservation advocacy, education, and horticulture at the local, state, and federal levels. It monitors rare and endangered plants and habitats; acts to save endangered areas through publicity, persuasion, and on occasion, legal action; provides expert testimony to government bodies; supports the establishment of native plant preserves; sponsors workdays to remove invasive plants; and offers a range of educational activities including speaker programs, field trips, native plant sales, horticultural workshops, and demonstration gardens.

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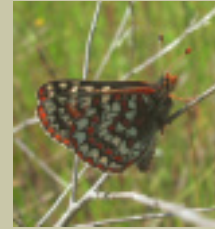
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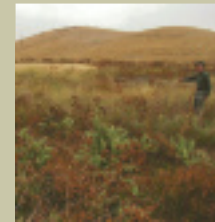


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*The Santa Clara Valley Chapter's subsequent success with Coyote Ridge was considerably smoother due to the application of lessons learned at Edgewood though adapted to fit the unique set of circumstances found in San Jose's Coyote Valley. Coyote Ridge contains the sole remaining population of the bay checkerspot butterfly and is home to many rare and endangered plant species.*

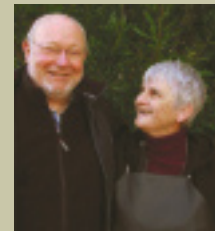


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*Charli and John Danielsen have been major figures in the California Native Plant Society for over 30 years. These indefatigable members of the East Bay Chapter have held many positions both at the state and locally—ranging from field trip chair to chapter president to state president for Charli, while John has served as state treasurer and has provided his skills on a wide array of projects.*




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THE COVER: Spring view of serpentine grasslands and surrounding plant communities at Edgewood County Park and Natural Preserve, San Mateo County. Photograph by K. Himes.

# CONSERVATION OF SERPENTINE ENDEMICS BY A CNPS CHAPTER: TWO STRATEGIES

by Carolyn Curtis and Donald Mayall

Like all other CNPS chapters, the Santa Clara Valley Chapter, covering Santa Clara County and the southern two-thirds of San Mateo County, has its distinctive habitats of particular beauty and hot spots of diversity. A factor in these hot spots in our area is serpentine grassland and chaparral associated with tectonic plate movement along the San Andreas fault. Nonnative plants do not do well on serpentine, allowing many native wildflowers to flourish as they did before western civilization arrived, resulting in stunning spring displays. Combined with endemics especially adapted to serpentine, these areas are also repositories of rare and endangered plants and animals.

A keystone species, the bay checkerspot butterfly (*Euphydryas editha* ssp. *bayensis*), listed as threatened by the US Fish & Wildlife Service, once was fairly common in the San Francisco Bay area. By the end of the last century, it had become restricted to a few areas on the San Francisco Peninsula and in the Santa Clara Valley, where its host and nectar plants survive in serpentine grassland. Pressed by urban expansion, the butterfly habitat is now only a single sizeable population.

Because these serpentine habitats were also the only locale for a number of endangered plants, the Santa Clara Valley Chapter became active in trying to conserve these areas. One area is Edgewood Park and Natural Preserve

in southern San Mateo County, west of Redwood City; the other is Coyote Ridge, an area east of Highway 101, south of the urbanized part of San Jose. Both had the same butterfly host and nectar plants, but the special status plants differed.

The butterfly and serpentine are a common thread in these two stories, as is the impact of air pollution on their ecology. That fascinating story is told elsewhere (Weiss 1999). To vastly oversimplify it, atmospheric nitrogen from air pollution has been enriching the nutrient-poor serpentine soil, causing nonnative grasses, especially Italian ryegrass (*Lolium multiflorum*), to crowd out the butterfly's host plants. This process first became apparent on and near Coyote Ridge, where prevailing



Bay checkerspot butterfly (*Euphydryas editha* ssp. *bayensis*) is federally listed as a threatened species. Photograph by S. Weiss.

winds brought high levels of nitrogen. Butterfly habitat has been maintained there through managed cattle grazing. Wind patterns are different at Edgewood, but the proximity to Interstate 280 has brought about the same result, only more slowly. The butterfly disappeared at Edgewood Natural Preserve in 2003, but there is a happy ending. Read on.

Serpentine grasslands in full early spring bloom at Edgewood Natural Preserve in San Mateo County. Photograph by B. O'Brien.



## REFERENCES

Weiss, S. 1999. Cars, cows, and checkerspot butterflies: Nitrogen deposition and management of nutrient-poor grasslands for a threatened species. *Conservation Biology* 13(6): 1476–1486.

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Vibrant ruby chalice clarkia (*Clarkia rubicunda*) provide the late spring highlight to the serpentine grasslands of Edgewood. Photograph by K. Himes.

## EDGEWOOD COUNTY PARK AND NATURAL PRESERVE: HOW IT HAPPENED

by Carolyn Curtis

In the summer of 1993, after 13 years as the centerpiece of the most bitter and protracted controversy in the history of San Mateo County, the serpentine habitat of Edgewood Park was saved from development as a golf course and officially declared a natural preserve. How this happened is a colorful and motley story of political opportunism, charisma, vision, and behind-the-scenes machinations. It required institutional courage on the part of CNPS, as well as thousands of hours of hard work from scientists and ordinary people who held an unflagging faith that a place so beauti-

ful and biologically valuable simply had to be protected.

### THE BEGINNINGS

In 1979 the County of San Mateo acquired the Edgewood property from the State of California. A quarter of the money (about \$500,000) came from the County Charter for Parks Fund, a quarter from the Midpeninsula Regional Open Space District (MROSD), and the rest from a U.S. Land and Water Conservation Fund matching grant.

Around the same time, local politicians had promised golfing inter-

ests a county golf course, but various proposed locations had aroused great opposition. When Edgewood was suggested, some environmentalists counseled the agencies to investigate the site before planning anything, because it was known that serpentinite areas tend to have unusual vegetation, and are home to many rare species.

In the Joint Powers Agreement for Edgewood that was set up between MROSD and the County, MROSD essentially abdicated any decision-making rights over Edgewood. The agreement specifically provided for a golf course, tennis

| TABLE 1. SPECIAL STATUS PLANTS AT EDGEWOOD                                |                                                            |                                                                            |                                                                                                     |
|---------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Species                                                                   | Legal Status                                               | Distribution by County                                                     | Habitat                                                                                             |
| San Mateo thornmint<br><i>Acanthomintha duttonii</i>                      | Federal: Endangered<br>State: Endangered<br>CNPS List 1B.1 | Edgewood endemic,<br>San Mateo County                                      | serpentine grasslands                                                                               |
| Franciscan onion<br><i>Allium peninsulare</i> var.<br><i>franciscanum</i> | CNPS List 1B.2                                             | Mendocino to<br>Santa Clara                                                | valley and foothill<br>grasslands,<br>often serpentine                                              |
| Kings Mountain manzanita<br><i>Arctostaphylos regismontana</i>            | CNPS List 1B.2                                             | San Mateo to<br>Santa Cruz                                                 | granite or sandstone<br>outcrops in chaparral,<br>coniferous and<br>evergreen forests               |
| fountain thistle<br><i>Cirsium fontinale</i> var.<br><i>fontinale</i>     | Federal: Endangered<br>State: Endangered<br>CNPS List 1B.1 | San Mateo County<br>extirpated at<br>Edgewood?                             | serpentine seeps and<br>ravines in valley<br>and foothill grasslands                                |
| San Francisco collinsia<br><i>Collinsia multicolor</i>                    | CNPS List 1B.2                                             | San Francisco to<br>Monterey                                               | moist, shady woodlands                                                                              |
| western leatherwood<br><i>Dirca occidentalis</i>                          | CNPS List 1B.2                                             | Marin to Santa Clara                                                       | moist slopes in<br>partial shade                                                                    |
| fragrant fritillary<br><i>Fritillaria liliacea</i>                        | CNPS List 1B.2                                             | Marin to Solano to<br>Monterey                                             | heavy soils,<br>open hills and fields                                                               |
| Marin western flax<br><i>Hesperolinon congestum</i>                       | Federal: Threatened State;<br>Threatened CNPS List 1B.1    | Marin to San Mateo                                                         | serpentine grasslands                                                                               |
| serpentine linanthus<br><i>Leptosiphon ambiguus</i>                       | CNPS List 4.2                                              | Contra Costa to San<br>Joaquin to San Benito<br>to Santa Cruz              | mostly serpentine<br>grasslands, coastal<br>scrub and foothill<br>woodlands                         |
| woolly-headed lessingia<br><i>Lessingia hololeuca</i>                     | CNPS List 3                                                | Marin to Yolo to<br>Santa Clara                                            | serpentine clay soils<br>in coastal scrub,<br>coniferous forests, valley<br>and foothill grasslands |
| chaparral mallow<br><i>Malacothamnus arcuatus</i>                         | CNPS List 1B.2                                             | San Mateo<br>to Santa Cruz                                                 | serpentine chaparral                                                                                |
| white-rayed pentachaeta<br><i>Pentachaeta bellidiflora</i>                | Federal: Endangered<br>State: Endangered<br>CNPS List 1B.1 | Edgewood and<br>nearby S.F. watershed<br>land endemic,<br>San Mateo County | serpentine grasslands                                                                               |

courts, swimming pools, waste treatment plants, and other kinds of structures. This agreement plays a role much later in the story.

The county supervisors moved

forward with plans for an 18-hole public golf course with clubhouse, and a limited recreational and picnic area. The Santa Clara Valley Chapter of CNPS, the CNPS state organi-

zation, the Committee for Green Foothills, and the local chapters of the Sierra Club and Audubon Society vigorously protested the plans, researching and proposing an alter-

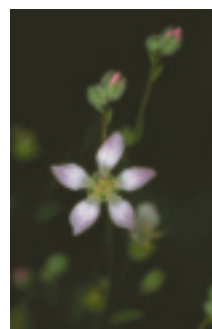
nate site across the road on watershed lands owned by San Francisco (the “southern watershed site”) that had no special habitats. This group also put out an 18-page background piece on Edgewood Park, including a natural history and a chronology.

By December 1982, despite increasing opposition, including from its own County Planning Commission, the Board of Supervisors approved a master plan for Edgewood. They also certified the Environmental Impact Report (EIR) produced by Torrey and Torrey and golf course designer Robert Trent Jones as a staged (phased) EIR. One month later, CNPS and two individuals challenged the EIR in a lawsuit.

In late 1983, the suit was settled out of court, on condition that sensitive habitats would be given legally adequate protection; an outside consultant would prepare an economic analysis of the proposed golf course, and alternatives, such as a nine-hole golf course and alternate sites, would be considered. The CNPS lawsuit played a critical role in saving Edgewood’s serpentine habitats from certain doom in the early 1980s. It also proved crucial in later years, when activists used it to remind the supervisors of the seriousness of the opposition—and of the precariousness of the County’s position, as it continued to ignore the conditions of the out-of-court settlement.

## ADVANCE AND RETREAT, 1987–1991

Early in 1987, a group called the Edgewood Park Citizens Committee began circulating a petition to get the golf course built. This group of golfers, most of whom



The rare and endangered plants found at Edgewood include: TOP: White-rayed pentachaeta (*Pentachaeta bellidiflora*) occurs on Edgewood and immediately adjacent parcels of land. In good years, there are tens of thousands of individual plants. LOWER LEFT: San Mateo thornmint (*Acanthomintha duttonii*) is only found in one small area of Edgewood Natural Preserve, and nowhere else in the world. LOWER RIGHT: Marin western flax (*Hesperolinon congestum*) is restricted to Bay Area serpentine grassland habitats. All photographs by J. Game.

lived near the park, included several politically prominent people.

In response, members of the Santa Clara Valley Chapter of CNPS convened a task force. This group pursued various strategies, including lobbying the San Mateo County Board of Supervisors, circulating a petition of its own that garnered 4,000 signatures, organizing a letter writing campaign, lobbying San Francisco’s supervisors (particularly

about the southern watershed site), and planning various ways to educate the public about Edgewood’s unique habitat. If all else failed, the group thought it could fall back on a countywide referendum as a second-to-last resort, and as a last resort, another lawsuit from the state organization.

Three events, two environmental in nature, brought about the end of this round of the fight:

- In September 1987 the bay checkerspot butterfly was declared a threatened species. Thus, its habitat now had some federal protection. However, there was disagreement about how the boundaries of this habitat would be interpreted. Would it include the entire park, all the serpentine areas, all places where the butterfly had been sighted through the years, or some combination of these? Furthermore, could the county get a permit anyway for “incidental take”—allowing butterflies to be killed in order to build the golf course?

- In January 1988 the Edgewood harvestman (*Calicina minor*), a rare spider discovered at Edgewood in 1983, was proposed for federal listing. (Another rare arachnid, *Microcina edgewoodensis*, apparently endemic to Edgewood serpentine, had been discovered in 1985.)

The most decisive factor, however, was that 1988 was an election year. One supervisor who supported the Edgewood golf course ran for Congress. The chief opponent in the primary found out about Edgewood and brought up the issue at every public forum; letters to the editor flowed freely. Several

Dr. Stuart Weiss releases a bay checkerspot butterfly onto tidy tips (*Layia platyglossa*) as part of the butterfly’s reintroduction at Edgewood Natural Preserve in 2007. Photograph by D. Mayall.



months into the primary campaign, this supervisor discovered an alternate site for the golf course: at the southern end of the San Francisco watershed. Negotiations began between the San Mateo supervisors and San Francisco's mayor. The supervisor won the primary in a tight finish, but lost the general election, remaining on the Board of Supervisors.

In the meantime, some members of the environmental community had changed their minds about siting a golf course on the southern watershed site. Opposition also came from entities bordering the site. The local chapter of CNPS stayed neutral.

Though Edgewood now appeared to have been spared from development, some people thought the preserve would not be safe until it was so tied up with overlapping jurisdictions that no one entity, such as the Board of Supervisors, could do anything on its own to the land. Also, Edgewood's biological uniqueness had not been officially acknowledged; the idea of having Edgewood declared a Natural Area Preserve, a new category of parklands for San Mateo County, was still a goal in search of an executable plan.

Susan Moore of the USFWS speaks at the bay checkerspot butterfly reintroduction ceremony at Edgewood Natural Preserve on April 5, 2007, while children color images of butterflies. Photograph by D. Mayall.



## THE LAST FIGHT, 1991–1993

By early summer 1991, San Francisco was also having second thoughts about a golf course on the southern watershed site. Ten of San Francisco's eleven supervisors voted the proposal down, mandating review and survey of San Francisco's watershed lands before any plans could proceed.

Also that summer, a reconstituted Santa Clara Valley CNPS Edgewood task force, which had begun discussing how to get Edgewood declared a preserve, discovered that the supervisors were again considering locating a golf course on the Edgewood site, this time a nine-hole course, driving range, or both.

When the Board of Supervisors set the golf course on the agenda for mid-September, the Edgewood task force decided to get as many people as possible to the meeting. Believing that park users would be interested, task force members leafleted there the weekend before. Virtually all who were contacted—runners, hikers, picnickers—were incensed at the idea of a golf course there. Many attended the Board of Supervisors meeting and spoke; more called and wrote letters.

At this meeting, the supervisors rejected a list of "alternate sites" and voted 5-0 to direct staff to prepare a Request for Proposals to seek a firm to prepare plans for a nine-hole course and driving range.

Leafletting at Edgewood showed the task force that Edgewood had a highly motivated constituency beyond CNPS and Sierra Club members. The task force decided to launch a

grassroots campaign with an ambitious petition drive and a press conference. It also decided to convene an organizing meeting with other groups besides those that had been involved before for the purpose of strategizing ways to oppose the project.

In the past, the Board of Supervisors and the golfing interests had marginalized the pro-Edgewood side as "environmentalists"—a noble title in some people's eyes, a derogatory one to others. The group brainstormed who the park users were—homeowners, hikers, gardeners, horseback riders, runners, photographers—and the organizations that represented them. Many people at this meeting knew, or were themselves, contacts on the boards of these organizations.

The new Save Edgewood Park Coalition quickly drafted a brief statement of purpose, updated the background information piece, composed a one-page flyer, and wrote a four-page brief. An artist who was a member of the Coalition designed a bumper sticker. Shortly thereafter the Coalition assembled an information packet for new members that included these items, plus a copy of the petition, short articles for use in newsletters and at meetings, and a photo of Edgewood in bloom.

Meanwhile the Coalition continued to seek new members and member organizations. Once groups joined, they received notice of Board of Supervisors meetings, along with news updates on campaign developments and reprints of related newspaper articles. Though the Coalition asked for donations informally a few times, there was no financial obligation for membership. Each member organization distributed information among its own members.

After only eight weeks the Coalition—which was now a 25-member-strong organization—held a press conference at which press packets were distributed. Long-time

Edgewood activist Susan Sommers brought several of her beautiful 14 x 18 inch photographs of Edgewood's serpentine wildflower meadows in full bloom. The press conference made front-page news, as did practically every story about Edgewood from then on. One reporter never failed to mention the "spectacular displays of wildflowers" when she wrote about Edgewood.

Getting petition signatures was a major part of the campaign. Just three sentences long, the petition opposed the golf course and advocated making Edgewood a Natural Area Preserve. No attempt was made to use the petitions to qualify for a ballot initiative. Anyone could sign, including children. Coalition volunteers gathered signatures at the park every weekend; the volunteer base grew as park users of all kinds offered to help. The group also gathered signatures at 10-kilometer races (many runners train at Edgewood), CNPS plant sales, and other events. Many circulated the petition, which eventually garnered over 14,000 signatures, on their own at churches and meetings. Frequently golfers signed.

Since this campaign began during the fall when wildflowers were not blooming at Edgewood, signature gatherers had with them a small photo of Edgewood in bloom to show passersby. They gave them an informational flyer, a copy of the latest news story, and the addresses of the Board of Supervisors and local newspapers. In a steady stream, people—including a third-grade class!—wrote letters.

When Edgewood was on the agenda at Board of Supervisors meetings, the Coalition spread the word by phone and flyer. Besides a steady core of supporters, new people always showed up to speak, many of whom were working people who took time off from their work to attend these daytime meetings. The other side rarely had anyone but the same small, regular group of golf



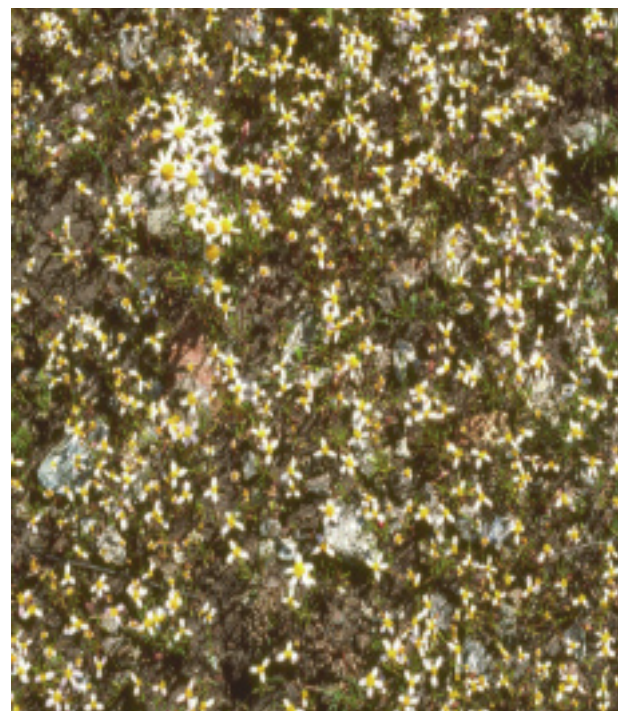
course supporters—the same voices going back years.

For higher visibility at public meetings and when gathering petition signatures, Edgewood Coalition members wore highly visible four-color badges designed by a sympathetic graphic designer that contained the Coalition logo, the ruby chalice clarkia (*Clarkia rubicunda*). The Coalition letterhead also featured this logo, along with a list of its member organizations. At Board of Supervisors meetings, Edgewood Coalition spokespersons always mentioned the number of member organizations and the current total membership, which quickly climbed into six figures. The number of active volunteers was also impressive—about 100 in all.

## ELECTION TIME AGAIN

The Board of Supervisors, up until December 1991, had been staunchly opposed to preserving Edgewood, repeatedly citing various "overriding economic concerns." But that month the first supervisor switched sides. The Coalition saw a glimmer of hope. In January the supervisors, seemingly aware of increasing popular support, set up a committee of golfers, environmentalists, and other community leaders to investigate alternate sites. Three Coalition task force members were appointed to this committee. While the alternate sites task force was meeting, the Coalition felt that Edgewood was safe from development.

By early spring, three of the five supervisors were now supporting the preservation of Edgewood. All three,



TOP LEFT: Sickie-leaf onion (*Allium falcifolium*) is a delightful miniature perennial found in serpentine rock outcrops. It has not been seen recently at Edgewood. Photograph by B. O'Brien. • TOP: White-rayed pentachaeta (*Pentachaeta bellidiflora*) is usually found growing in dense colonies. It is interesting to note how variable the number of ray flowers are from plant to plant. All of the white flowered daisies in this image are this species. Photograph by K. Himes. • BOTTOM: The diminutive mouse ears (*Mimulus douglasii*) is found in shallow serpentine scalds where there is little competition from other plants. Photograph by K. Himes.

coincidentally, were running for Congress. They would be running against another candidate who had always spoken out in favor of pre-



Edgewood's serpentine grasslands. TOP: A classic view in early spring featuring California poppies (*Eschscholzia californica*), goldfields (*Lasthenia californica*), and tidy tips (*Layia platyglossa*). • LEFT: In late spring, ruby chalice clarkia (*Clarkia rubicunda*) lights up the drying grasslands. Photographs by B. O'Brien.

serving Edgewood. The fourth supervisor was running unopposed for reelection to the board and was still supporting the golf course. The fifth supervisor, the most strident golf course supporter, was serving his last term on the board.

In April, something much more momentous occurred. In honor of Earth Day, one of the supervisors running for Congress proposed making Edgewood a Natural Preserve. The Coalition, of course, turned out the troops for this Board of Supervisors meeting. The proposal passed 4 to 1, the only holdout being the pro-golf course supervisor.

The Coalition thought the fight was over, and threw a victory party

at Edgewood. In June, one supervisor won the Republican primary, and one supervisor won the Democratic primary; she would go on to win the general election in November 1992.

## SURPRISE SETBACK

The supervisors' proposal to make Edgewood a preserve went to the Parks and Recreation Commission for approval. Instead of the unanimous rubber-stamping the Coalition expected, it barely passed 3-0. (In order to pass, this proposal had to receive a minimum of three positive votes.) When the proposal came back to the Board of Supervisors in August for final approval, a "compromise" was passed (3-2). It set aside two-thirds of Edgewood as a preserve, but also authorized \$25,000 to conduct a constraints analysis (feasibility study) to see if a

golf course could be built on the remaining third. The supervisors who were not running for Congress had backed the golf course side again.

The Coalition had presumed the Parks and Recreation Commissioners would be knowledgeable about Edgewood and neglected to educate them (the other side had obviously worked behind the scenes). It also had not prepared for a possible reversal of the preserve proposal. In response, the Coalition expanded to 41 organizations, from its previous 25, and added 12 businesses. More people wrote letters. The Coalition wrote a strongly worded comments letter opposing the constraints analysis proposal, but mostly bided its time.

## REAL VICTORY THIS TIME

The fall election of 1992 saw a development project on the coast lose by the largest margin in the history in San Mateo County. Two new pro-environment supervisors took their seats on the board. It looked as if there were now at least three votes for a natural Edgewood by the spring of 1993.

In July 1993 Palo Alto-based Thomas Reid Associates, an environmental review firm, presented its constraints analysis to a packed Board of Supervisors meeting. They concluded that the parts of Edgewood flat enough to support a golf course were the very parts with protected species (a point we had known all along). After listening to the presentation, even some of the Edgewood Park Citizens Committee members voiced support for a public golf course in the county but *not* at Edgewood. Following the unanimous adoption of the constraints analysis, one of the new supervisors presented a change in the Joint Powers Agreement with Midpeninsula Open Space Preserve, giving it equal decision-making power over Edgewood. This change also eliminated all references to structures and spe-

cifically declared Edgewood a Natural Preserve.

## HOW MUCH DANGER WAS EDGEWOOD IN?

This lengthy scenario reminds us that while we have an Endangered Species Act in this country, it by no means assures automatic protection of habitat that contains such species. Edgewood Park is a perfect example of this reality. Although the Endangered Species Act covered the serpentine grassland habitat of the bay checkerspot butterfly after this insect was declared threatened in 1989, this provided no automatic protection for Edgewood. The park's governing body would have had to agree to abide by the Act, or be constrained to. In this case, it had to be constrained to, which was the goal of the drawn-out community effort described above.

The people working to put a golf course on Edgewood included some of the most powerful figures in San Mateo County public life, as well as an internationally known golf course designer. Our side was not perceived as organized or capable in the way that the other side was, and clearly did not possess even a small percentage of its financial resources. Originally, the environmental community was able to reach a stalemate, chiefly due to the CNPS lawsuit, but not to prevail.

## WHAT WORKED AND WHAT DIDN'T

In the early days, considerable effort was spent researching the southern watershed for an alternative golf course site, and getting the support of other entities, such as the City of San Francisco, to preserve Edgewood in its natural state. That strategy ultimately failed. The feeling of environmental organizations turned against sacrificing one open

space site, however logged over and previously farmed, to save another. They felt that the strategy of proposing alternate sites for development is essentially compromise, and is not a proper or productive role for conservationists.

The critical change for Edgewood was the decision to go grassroots, despite misgivings that it might prove too labor-intensive. Once this path was taken, the next critical choice—and probably the most important to the eventual winning over of local politicians—was to broaden allies on “our side” far beyond the usual conservation organizations. This strategy proved that Edgewood had widespread community support, a point underscored every time a new member organization joined the Coalition.

The Save Edgewood Park Coalition included conservation organizations, including locally based ones; nature-interest groups, such as the Defenders of Wildlife; garden clubs (Garden Clubs of America requires member clubs to undertake a conservation project); homeowners' organizations; park user groups such as runners, equestrians, and hikers; student ecology organizations; and miscellaneous groups such as the local humane society, a local political club, and an ecological street-theater group. The Coalition could have signed up many more small local businesses than the 12 it did. Two retail businesses had the petition on display.

Beyond recruiting organizations into the Coalition, other effective tools in the campaign included:

- A way to involve the public: In our case, we used a petition, accompanied by a flyer containing the latest news about Edgewood and names and addresses of people to write to. We didn't use a form letter, but urged people to write what they felt. Many of these letters were truly eloquent.
- Regular community contact: We had a presence at the park every

weekend, and at other places as well.

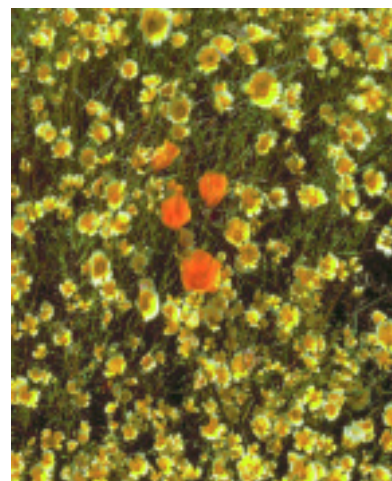
- Big (14" by 18") color pictures of photogenic habitats and plants to show at the press conference, public hearings, and meetings.
- Colorful badges to identify supporters at public meetings.
- Cost-spreading: Each member organization distributed Edgewood materials to its own members, which reduced the Coalition's costs and increased its efficiency.
- Never giving up: We knew Edgewood was special and that we were right.

We had fun with this. It was always heartening to read the latest letter to the editor, exciting to see people get involved, and the first intimations of victory were sweet.

## PRESENT AND FUTURE: FRIENDS OF EDGEWOOD NATURAL PRESERVE

In October 1993 a gathering at Edgewood celebrated the Coalition's victory and its disbanding, and the birth of the Friends of Edgewood. This active organization has taken over responsibility for the Edgewood Natural Preserve docent program from the Santa Clara Valley Chapter of CNPS. It participates in weed removal and habitat restoration in conjunction with CNPS and the County Parks and Recreation Division, and

Tidy tips (*Layia platyglossa*) and California poppy (*Eschscholzia californica*). Photograph by B. O'Brien.



holds monthly adopt-a-highway cleanups.

The Friends puts out an excellent newsletter and website ([www.friendsofedgewood.org](http://www.friendsofedgewood.org)); maintains an informal trail patrol; and has embarked on an ambitious effort to fund and build a visitors center in a non-critical habitat area of the preserve. Early on, a Friends committee created a draft master plan to replace the old golf course-based 1980s master plan for Edgewood.

CNPS and the Friends cross-pollinate: Edgewood neighbors who get involved in the Friends learn about CNPS and native plants, and many CNPS members are active in the Friends.

## INVASIVES: A THREAT FROM A DIFFERENT DIRECTION

After Edgewood was designated a preserve, chapter members began to realize that an entirely different kind of threat could be upon us—



CNPS volunteers weeding in Edgewood's yampah meadow. Photograph by K. Korbholz.

the loss of habitat due to aggressive invasives such as yellow star thistle (*Centaurea solstitialis*). Nonnative plants had been of some concern throughout the chapter's involvement with the site. The area had never been plowed or even grazed, but it was rural, with several homesteads and their gardens and orchards. The main concern in the early days was a moist swale that was heavily infested with fuller's teasel (*Dipsacus fullonum*). CNPS obtained a permit from the county that allowed crews to dig it out over a number of years. Eventually the teasel was largely eradicated.

Jake Sigg, at that time president of the neighboring Yerba Buena Chapter, urged us to make weed management a top priority at Edgewood. A chapter weed group under the direction of Ken Himes was formed, which engaged in hand removal of yellow star thistle, slowly regaining ground each year. Not nearly as extensive but in some ways a bigger problem at the preserve was Italian thistle (*Carduus pycnocephalus*), which thrives in

shade and seemed unfazed by annual hand removal. There was also a wet meadow near the west entrance of the park that had so much bristly oxtongue (*Picris echioides*) that it was hard to tell that it had once been a field of Kellogg's yampah (*Perideridia kelloggii*). Hand removal by volunteers brought about a virtually complete restoration of the meadow (see photographs on page 11).

The Friends of Edgewood became concerned with invasives and has proven an excellent source of volunteers. Together with CNPS and the San Mateo County Department of Parks and Recreation, the three

Edgewood Natural Preserve is home to many plant communities besides its well-known serpentine grasslands. This view shows some of its oak woodland, chaparral, and a ribbon of riparian vegetation. Photograph by K. Himes.



TABLE 2. INVASIVE PEST PLANTS AT EDGEWOOD

| Species                                                                                                                        | Rating                | Location                        | Management                    |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|-------------------------------|
| Italian thistle<br><i>Carduus pycnocephalus</i>                                                                                | Cal-IPC M<br>CDFA C   | woodlands<br>throughout         | hand pulling by<br>volunteers |
| yellow star thistle<br><i>Centaurea solstitialis</i>                                                                           | Cal-IPC H<br>CDFA C   | grasslands<br>throughout        | hand pulling by<br>volunteers |
| fuller's teasel<br><i>Dipsacus fullonum</i>                                                                                    | Cal-IPC M<br>CDFA CNL | swale north of<br>central ridge | hand pulling by<br>volunteers |
| Italian ryegrass<br><i>Lolium multiflorum</i>                                                                                  | Cal-IPC M             | serpentine<br>grasslands        | mowing by<br>County workers   |
| bristly oxtongue<br><i>Picris echinoides</i>                                                                                   | Cal-IPC L<br>CDFA CNL | yampah meadow<br>near kiosk     | hand pulling by<br>volunteers |
| Ratings: Cal-IPC: H = High, M = Moderate, L = Limited<br>CDFA: C = lowest of three rating levels, CNL = Considered, Not Listed |                       |                                 |                               |

agreed to work together on invasives management in Edgewood. County park crews have cut down eucalyptus trees, and mowed and weed-whacked, while volunteers from CNPS and the Friends do hand removal. In addition, the local Weed Management Area (WMA) has received several grants for weed control at Edgewood from the California Department of Food and Agriculture.

The worst invasive problem is the most recent one. We had witnessed the impact of nonnative grasses on butterfly habitat in the South Bay, and found it also happening at Edgewood Natural Preserve.

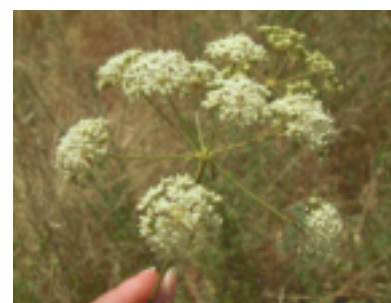
By 2003 the bay checkerspot butterfly had disappeared at Edgewood. The solution in the South Bay, managed grazing, was not feasible at Edgewood because of its small size. Mowing the grasses, which began on an experimental basis in the grasslands in 2004 and was expanded with a grant from PG&E in 2005, has proven effective. In 2006 an application to reintroduce the butterfly was approved by the US Fish & Wildlife Service.

## BUTTERFLIES ARE FREE!

More than 100 people joined press and TV crews in the serpentine grassland at Edgewood County Park and Natural Preserve in early April 2007 for the ceremonial release of several female bay checkerspot butterflies, brought by Stuart Weiss from the last remaining major population at Coyote Ridge. Caterpillars from Coyote Ridge had been released at Edgewood a few weeks earlier and were already emerging as butterflies and were seen flying about.

In a place of honor before the speakers' platform a group of children colored in butterfly pictures. Stuart placed the butterflies on tidy tips (*Layia platyglossa*) in little pots to let them get adjusted to freedom. Knowing that the bay checkerspot butterfly is home again at Edgewood lifts the spirits of those of us who have worked so long and so hard to preserve not only this remarkable butterfly, but also its unique serpentine grassland habitat.

Carolyn Curtis, 531 Alger Ave., Palo Alto, CA 94306. ccurtis@ix.netcom.com



TOP: The restored yampah meadow in full summer bloom. • BOTTOM: Kellogg's yampah (*Perideridia kelloggii*) is a showy, long-lived perennial that favors seasonally moist habitats. These habitats are frequently overrun with invasive exotic plants. Photographs by K. Korbholz.

# PROTECTING COYOTE RIDGE

by Donald Mayall

Coyote Ridge, a 15-mile-long block of serpentine, is the westernmost part of the Mt. Hamilton Range, which is oak woodland, forest, and rangeland. West of Coyote Ridge is Coyote Valley, currently agricultural but under great development pressure from the expanding City of San Jose. The ridge consists of several very large tracts, which have been privately owned.

In the early 1980s, it became clear that new land would be needed for San Jose's waste material. A landfill site under consideration was located east of U.S. Highway 101 between

points of view. Steep and comprised of serpentine, the land did not have much agricultural value nor was it easy to build on. It was, however, the home of the bay checkerspot butterfly. The butterfly was not a listed species at that time, but it had been under study by Stanford University's Center for Conservation Biology (CCB) and seemed likely to be listed.

United Technology Corporation, which owned a large tract of serpentine and nonserpentine land to the north where it manufactured and tested rocket fuel, opposed the impending listing and took action to

the U.S. Fish and Wildlife Service (USFWS) [July 15, 1985]. The butterfly was listed as a federally threatened species in September 1987.

## THE CONSERVATION PLAN

The Kirby Canyon Conservation Plan called for a 250-acre area adjacent to the landfill that was prime habitat for the Bay checkerspot butterfly to be set aside as a mitigation for the impact of the landfill on butterfly habitat. This site, subsequently referred to as the Butterfly Trust Area, was leased by the landfill operator from a private landowner. The lease was originally specified to run for 15 years. The Plan also called for managed grazing over the entire landfill site, including the Trust Area. The Plan also set up a trust fund, to which the landfill operator would contribute \$50,000 each year, expecting that at the end of the 15-year period the fund would be large enough to purchase the trust area. This expectation was based on faulty assumptions that made this purchase entirely unfeasible; it overestimated interest rates and underestimated increases in land values. As this discrepancy became obvious, chapter members grew concerned over whether the Trust Area would remain protected.

A popular CNPS field trip features the serpentine grassland flora at Coyote Ridge. Photograph by J. Mason.



Spring bloom on the serpentine grasslands of Coyote Ridge in Santa Clara County. Photograph by K. Himes.



downtown San Jose and Morgan Hill. The area was known as Kirby Canyon, after a small stream that ran to Coyote Creek. The name Coyote Ridge was applied later, by chapter members and others, to denote the elevation above, which directed waters west to Coyote Creek.

Kirby Canyon seemed undesirable for other uses from several

block it, declaring that it would be a threat to national security. A story by a local reporter exposed the silliness of this position, and public opinion swung in favor of the butterfly. Anticipating that the listing would in fact become a reality, the landfill applicants supported it and submitted a conservation plan for the bay checkerspot butterfly to

## CNPS CHAPTER ROLE IN PROTECTING THE RIDGE

Members of the Santa Clara Valley Chapter of CNPS had been involved in plant surveys at the site since the early 1980s, including some working for consultants on the landfill application. With the chapter rare plant coordinator and others sending reports to the California Natural Diversity Database (CNDDB), it was clear by this point that several sensitive plant species occurred there, including one listed as endangered by the USFWS; a state listed species; and a number of CNPS special status plants (see Table 1).

In November 1990 Dr. Stuart Weiss of the Stanford CCB, a student who had done his doctoral work on the bay checkerspot butterfly on Coyote Ridge, presented his findings to the chapter in a slide show that featured dramatic pictures of the wildflower meadows of the ridge against the backdrop of the Hamilton Range. Naturally, chapter members wanted a spring field trip there. Although the ridge was closed to the public and accessible only through the landfill, Weiss and Dr. Alan Launer of the Stanford CCB arranged for our access and led us on a trip in April 1991. Similar trips took place in April 1994 and again in 1996, when the wildflower fields were so remarkable that it was a topic of discussion within the chapter. We resolved to make this an annual field trip.

By 1993 Edgewood was a Natural Area Preserve, while a similar treasure lay within our chapter's boundaries on private land, lacking any protection except the conservation agreement between the landfill and the City of San Jose. Two events added to our interest and concern for Coyote Ridge. One was the Endangered Species Recovery Workshop for southern San Francisco Bay serpentine plants, sponsored by the California Department of Fish and Game in April 1997 in Palo Alto,

## THE DOW DRIVE SETTLEMENT AGREEMENT

In 1997 the chapter and the Santa Clara Valley Audubon Society jointly filed suit against the City of San Jose for certifying a negative declaration allowing a housing project to proceed. The project was likely to result in the loss of nearly 2,000 Santa Clara Valley dudleya on a serpentine hillside on the west side of the valley (not part of the Coyote Ridge formation). The project proponent settled out of court, and under the settlement agreement the chapter was entitled to choose existing dudleya acreage on private land with an equal number of dudleya. The land was to be placed in a conservation easement operated by a nonprofit or public agency at the expense of the project proponent.

The chapter subsequently chose an eight-acre parcel on Coyote Ridge, although this mitigation easement could have been located elsewhere in the county. The parcel on Coyote Ridge was particularly attractive and we hoped would set a precedent for obtaining easements there. The chapter also received mitigation funds that it placed in an account restricted to activities that would preserve serpentine endemics in Santa Clara County. These funds were to prove useful in developing a database, producing a brochure, and supporting other activities related to the newly protected area.

Santa Clara Valley dudleya (*Dudleya setchellii*). Photograph by J. Game.



where the available information on nine List 1B plants was discussed and evaluated. The other event was the publication of the *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* by USFWS in 1998. Both made us aware that CNPS could be doing more to protect endangered plants in our region.

We decided to make protection of Coyote Ridge an official chapter goal and formed a committee to work on the issue. We drew upon the experiences that had proven effective at Edgewood, such as educating the public and developing coalitions. A video about Edgewood had been a successful tool for educating chapter members and the public, so chapter members created one to tell the story of Coyote Ridge. The video, *They Called it the Valley of Heart's Delight*, was shown on local public access stations throughout the county.

Coyote Ridge, however, lacked

several advantages that Edgewood had. It was closed to the public, and no communities around it considered it a destination, recreational resource, or even an asset of any kind. Consequently there were no neighborhood groups to involve in coalitions. Further, Coyote Ridge was not threatened by any imminent event. There were no plans for private development of the land, at least none that were known to the public. No inappropriate public uses, such as roads, golf courses, or reservoirs, were being discussed. So there was no sense of urgency in preserving the area. The strategy for Coyote Ridge was going to have to be different. It was clear that resources beyond those normally available to the chapter would be required. Fortunately the chapter had just acquired funds from the Dow Drive Settlement agreement, which soon proved a godsend (see sidebar).

## EARLY PROJECTS ON SERPENTINE IN SOUTH SANTA CLARA COUNTY

Serpentine is found on both sides of the Santa Clara Valley. Although there are problems associated with building on it, by the 1980s developers were running out of level space and turning their sights to the hills. (A few of the better-known developments that popped up there include the Valley Christian High School, Calero Lake Estates, Shea Homes, and Cerro Plata.) Most of these places had listed plant species, including the Santa Clara Valley dudleya (*Dudleya setchellii*), most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*), and the Mt. Hamilton thistle (*Cirsium fontinale* var. *campylon*). The chapter made CEQA comments on the Environment Impact Reports (EIRs) with regard to the suitability of the projects, the appropriateness of the mitigations, and especially the feasibility of proposed transplantation or relocation of listed species such as those mentioned above. In general our comments had no impact whatever.

The Calero Lake Estates development was not completed, however, partly because of USFWS re-

strictions to avoid impact to butterfly habitat. At the Shea Homes development, which included a significant amount of butterfly habitat, the developer had stopped all grazing. As a result, nonnative grasses choked out the butterfly host plant and the butterfly population dropped sharply. On a particularly large project (Cerro Plata), two private individuals sued the City of San Jose on environmental and other grounds. The chapter supported the suit financially, but the city won on a technicality having to do with the powers of charter cities. Subsequently, the Center for Biodiversity sued the USFWS for failing to enforce the Endangered Species Act (ESA) in regard to this development and obtained an injunction, stopping grading at the site. In the settlement the USFWS issued a Biological Opinion and the builder agreed to a number of measures that reduced impacts on listed species.

## LATER PROJECTS, BETTER OUTCOMES

By the late 1990s there was a growing body of scientific evidence, as well as pressure from USFWS and

public opinion, that resulted in better environmental outcomes on several proposed projects in south Santa Clara Valley. These included the Metcalf Energy Center and the Valley Transportation Authority (VTA), both of which involved widening and access road construction along US 101. Metcalf Energy Center proponents conceded that additional atmospheric nitrogen from this power plant would have an indirect negative impact on the bay checkerspot butterfly population. The VTA also agreed the ramp and highway widening would have an even greater impact on the butterfly. These entities considered steps to mitigate these impacts. Additionally, some of these project sites proved to be habitat for the federally listed California red-legged frog (*Rana aurora* ssp. *draytonii*).

## DEVELOPING A COALITION

We recognized that in order to conserve Coyote Ridge, we would have to have the support of other environmental organizations and credibility with public agencies. To begin, chapter members contacted The Nature Conservancy, which had just announced the Mt. Hamilton Project; Waste Management, Inc., the operator of the landfill; the Stanford University CCB; USFWS; and the newly formed Santa Clara County Open Space Authority, the public open space agency for the eastern two-thirds of Santa Clara County, including the Coyote Ridge area.

We solicited support and participation from other environmental organizations, including the Committee for Green Foothills, the Santa Clara Valley Audubon Society, the local Sierra Club chapter, and the Greenbelt Alliance. In spring of 1999, Dr. Weiss and chapter members agreed to an expanded program of education and outreach to the environmental community of Santa Clara County and the decision makers in public agencies, including

Ben Hammett assesses the Mt. Hamilton thistle (*Cirsium fontinale* var. *campylon*) wetland during the CNPS-DFG Vegetation Survey. Photograph by J. Evens.



TABLE 1. SPECIAL STATUS PLANTS AT COYOTE RIDGE

| Species                                                                          | Legal Status                                               | Distribution by County                                  | Habitat                                                            |
|----------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------|
| big-scale balsamroot<br><i>Balsamorhiza macrolepis</i> ssp. <i>macrolepis</i>    | CNPS List 1B.2                                             | Tehama to Santa Clara                                   | grasslands,<br>oak woodlands                                       |
| Tiburon Indian paintbrush<br><i>Castilleja affinis</i> ssp. <i>neglecta</i>      | Federal: Endangered<br>State: Endangered<br>CNPS List 1B.2 | Coyote Ridge, Santa Clara County and Marin to Napa      | serpentine grasslands                                              |
| coyote ceanothus<br><i>Ceanothus ferrisiae</i>                                   | Federal: Endangered<br>CNPS List 1B.1                      | Santa Clara                                             | serpentine grasslands, chaparral                                   |
| Mt. Hamilton thistle<br><i>Cirsium fontinale</i> var. <i>campylon</i>            | CNPS List 1B.2                                             | Alameda to Santa Clara and Stanislaus                   | serpentine seeps and ravines in valley and foothill grasslands     |
| Santa Clara Valley dudleya<br><i>Dudleya setchellii</i>                          | Federal: Endangered<br>CNPS List 1B.1                      | Santa Clara                                             | serpentine grasslands                                              |
| Franciscan wallflower<br><i>Erysimum franciscanum</i>                            | CNPS List 4.2                                              | Marin to Santa Clara                                    | valley and foothill grasslands, serpentine or granitic             |
| fragrant fritillary<br><i>Fritillaria liliacea</i>                               | CNPS List 1B.2                                             | Marin to Solano and Monterey                            | heavy soils, open hills and fields                                 |
| Loma Prieta hoita<br><i>Hoita strobilina</i>                                     | CNPS List 1B.1                                             | Contra Costa to Santa Clara and Santa Cruz              | chaparral, woodlands and riparian areas                            |
| smooth lessingia<br><i>Lessingia micradenia</i> var. <i>glabrata</i>             | CNPS List 1B.2                                             | Santa Clara                                             | serpentine grasslands                                              |
| serpentine linanthus<br><i>Leptosiphon ambiguus</i>                              | CNPS List 4.2                                              | Contra Costa to San Joaquin to San Benito to Santa Cruz | mostly serpentine grasslands, coastal scrub and foothill woodlands |
| large-flowered linanthus<br><i>Leptosiphon grandiflorus</i>                      | CNPS List 4.2                                              | Sonoma to San Luis Obispo and Kern                      | open grassy flats                                                  |
| Hall's bush mallow<br><i>Malacothamnus hallii</i>                                | CNPS List 1B.2                                             | Alameda to Santa Clara and Merced                       | serpentine chaparral                                               |
| Metcalf Canyon jewelflower<br><i>Streptanthus albidus</i> ssp. <i>albidus</i>    | Federal: Endangered<br>CNPS List 1B.1                      | Coyote Ridge endemic, Santa Clara County                | serpentine grasslands                                              |
| most beautiful jewelflower<br><i>Streptanthus albidus</i> ssp. <i>peramoenus</i> | CNPS List 1B.2                                             | Alameda to San Luis Obispo                              | valley and foothill grasslands often serpentine                    |

elected officials. The outcome of this discussion was the formation of a multigroup coalition, the Coyote Ridge Committee.

Using funds from the Dow Drive Settlement Account, in March 2001 the chapter contracted with Dr. Weiss to produce a GIS database of the serpentine areas of the county, integrating land-use and biological data on a parcel-by-parcel basis. From that data, we assembled a compendium of information on the natural resources of Coyote Ridge. Taking the initiative in collecting this information increased the chapter's visibility as a serious advocate for the protection of Coyote Ridge.

## ENVIRONMENTAL DEVELOPMENTS IN OUR FAVOR

In November of 2000, the voters of San Jose approved an initiative by over 80% that established an urban growth boundary (UGB) around the city, an astounding margin of support for open space protection. Other cities in the county

had urban growth boundaries that had been approved by their governing bodies, but this initiative could be reversed only by another popular vote. Coyote Ridge lies within the limits of the City of San Jose, and beyond the UGB; thus the ridge was taken off the table as a site for tract development.

In 2001, as part of the settlement of a lawsuit initiated by the Center for Biodiversity, the USFWS proposed designating 15 areas in San Mateo and Santa Clara Counties, including Edgewood and Coyote Ridge, as Critical Habitat for the bay checkerspot butterfly. Listings of the areas to be designated were published in 2001. Such a designation does not give the federal government any authority over the use of nonfederal lands unless the owner is planning a project that requires a federal permit or uses federal funds. Thus, the USFWS ruling did not actually protect any habitat in our area, but it put developers and public agencies on notice that areas that are or were habitat for the bay checkerspot would receive careful environmental scrutiny.

Christal Niederer directs other CNPS members surveying the Tiburon Indian paintbrush (*Castilleja affinis* ssp. *neglecta*) at Coyote Ridge. Photograph by D. Mayall.



## CNPS PUBLIC OUTREACH FOR COYOTE RIDGE

The Santa Clara Valley Chapter, working with other members of the Coyote Ridge Committee pursued several strategies to engage the public.

**Walks:** Beginning in 1997, the chapter began conducting at least two walks to the ridge every spring. In 2003 the Coyote Ridge Committee invited elected officials and decision makers from a number of public agencies and nonprofit organizations in the county to spring walks on the ridge. That year was particularly good for wildflowers, and the walks extended into mid-May with at least a dozen trips and more than 100 participants. The walks became a regular feature in successive years.

**Talks:** The task force also began giving slide presentations (later becoming PowerPoint presentations), first to environmental groups whose participation we were soliciting, and then to public forums, including environmental studies classes at local universities and community colleges, to high school teachers, and to other CNPS chapters.

**The Coyote Ridge Brochure:** In January 2001, the chapter published a full-color brochure about Coyote Ridge, highlighting the natural, scenic, and ecological values of its ecosystem. Designed by a professional graphic artist, the brochure included pictures of the wildflower meadows in spring, and close-ups of the butterfly and some of the listed plants, all taken by professional photographers. Some 4,000 copies of the brochure were printed and distributed on field trips and at public presentations.

## CNPS RESEARCH ON COYOTE RIDGE

The chapter continues to explore and document the area.

**Monitoring:** Chapter volunteers

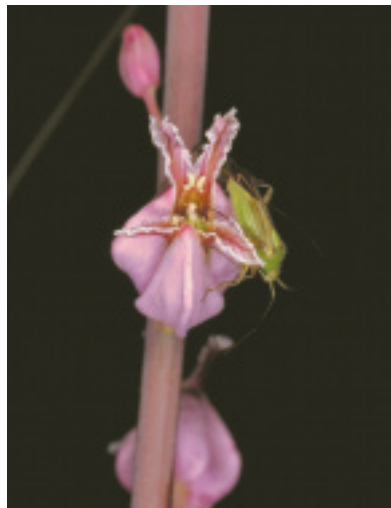


have developed and expanded a list of plants identified on Coyote Ridge that currently includes more than 400 taxa. Chapter volunteers have also documented the existence of 14 special-status plants on the ridge, resurveying them and sending in reports to the CNDDDB. Of particular significance was a thorough documentation of the state and federally listed Tiburon Indian paintbrush by Dr. Weiss and staff and chapter volunteers in May 2006 (see Table 1).

The State-Chapter CNPS–Department of Fish and Game (DFG) Vegetation Survey: In 2001 the state office of CNPS solicited proposals for a vegetation survey to be conducted by the state vegetation botanist, with help from the chapter. Believing that some of the vegetation associations of Coyote Ridge were undocumented, possibly rare, and deserving of protection, the chapter responded with a proposal that was accepted by the state office. Training began in the fall of 2001 and surveys were conducted in 2002 and 2003. In 2004, CNPS published the report, *Vegetation Associations of a Serpentine Area: Coyote Ridge, Santa Clara County, California*.

## FURTHER STEPS TOWARD PRESERVATION

The proliferation of projects affecting the bay checkerspot butterfly and serpentine habitat in southern Santa Clara County resulted in increasing pressure on local agencies to consider a multispecies area-wide Habitat Conservation Plan/



Some of the rare plants at Coyote Ridge include, TOP LEFT: Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*) has bright white calyces and flowers. This plant is now only found on Coyote Ridge, as all of its other localities have been buried by housing developments. Photograph by J. Mason. • TOP: Coyote ceanothus (*Ceanothus ferrisae*) is found at the margins of serpentine grasslands and in serpentine chaparral plant communities. It is only found in Santa Clara County. Photograph by J. Game. • BOTTOM LEFT: Most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*) is found on Coyote Ridge, but this population is not as brightly colored as they typically are at other locations in the region. Photograph by J. Game. • BOTTOM RIGHT: Tiburon Indian paintbrush (*Castilleja affinis* ssp. *neglecta*) is a more recently discovered rare plant from Coyote Ridge. This population is quite a distance from the next nearest population on the Tiburon peninsula in Marin County. Photograph by J. Game.

Natural Communities Conservation Program (HCP/NCCP). In September 2001, the Board of Supervisors of Santa Clara County authorized a Request for Qualifications for the development of an HCP/NCCP scoping and strategy report. In September 2004, the County, the Cities of

Gilroy, Morgan Hill, and San Jose, and the Santa Clara Valley Water District signed a Memorandum of Understanding. CNPS was the only environmental nongovernmental organization to attend the signing and we made it clear we intended to be involved in the stakeholder process.

It has been our belief that this process will provide the best protection, in the long run, for the endangered serpentine species.

## LAND ASSEMBLY

The chapter believed that the assembly of land on Coyote Ridge protected by ownership or conservation easement would discourage inappropriate proposals for land use and provide the basis for a managed habitat for the endangered species. What has emerged is admittedly piecemeal, but as we learned at Edgewood, there are some benefits in having multiple jurisdictions involved in habitat protection. To date, five pieces of land south of Metcalf Road totaling about 1,000 acres have received some form of protection:

The Butterfly Trust Area, a 250-acre area at the top of the ridge east of the recycling center, is a mitigation site for the loss of butterflies

caused by the construction and operation of the landfill. This land is leased by the Kirby Canyon Landfill and Recycling Facility.

Painted Rock Preserve is a privately owned eight-acre parcel at the base of the ridge, with a conservation easement negotiated by CNPS in settlement of a lawsuit to protect the federally listed Santa Clara Valley dudleya.

The Red-Legged Frog Easement, an 82-acre parcel at the base of the ridge next to the Painted Rock Preserve, is an easement on land owned by the adjacent golf course and is a mitigation site for the destruction of frog habitat due to the golf course development. This area protects watershed lands above the frog's habitat, rather than the actual frog habitat itself.

The Silicon Valley Land Conservancy properties include 100 acres on Coyote Ridge, as mitigation for the indirect air pollution impacts on

the serpentine habitat of three power plants in Santa Clara County, including the adjacent Metcalf Energy Center.

The VTA purchase, mitigation for the Highway 101 widening and interchange projects alongside Coyote Ridge, is a parcel of 550 acres of prime habitat on the ridge adjacent to the Butterfly Trust Area and the Silicon Valley Land Conservancy properties.

## LAND MANAGEMENT

Conservation easements or even land ownership do not adequately protect habitat in an urban setting, such as in southern Santa Clara County. An essential and missing element is the management of the land to preserve rare species and their habitats. This role is being assumed by the Santa Clara County Open Space Authority (SCCOSA), a public entity under California law with an elected board of directors. It is funded by a parcel tax and covers the eastern two-thirds of Santa Clara County. CNPS originally chose SCCOSA to assume responsibility for Painted Rock Preserve at the time of the Settlement of the Dow Drive lawsuit. Subsequently, SCCOSA agreed to assume management of the red-legged frog easement. These two easements sat unmanaged for several years as negotiations over other areas took place. As additional pieces of land became available, such as the Silicon Valley Land Conservancy properties and the VTA purchase, a workable management strategy for the ridge began to emerge.

## THE SILICON VALLEY LAND CONSERVANCY

The Silicon Valley Land Conservancy is a nonprofit organization formed in 1998 to purchase and hold agricultural easements and critical habitat in Santa Clara County. It has

Coyote ceanothus (*Ceanothus ferrisiae*) blooms in early spring in dense chaparral at the south end of Coyote Ridge near Anderson Dam. Photograph by B. O'Brien.



TABLE 2. INVASIVE PEST PLANTS AT COYOTE RIDGE

| Species                                                                                                                                                 | Rating                | Location                                           | Control                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------|-------------------------------------------------------------|
| barb goatgrass<br><i>Aegilops triuncialis</i>                                                                                                           | Cal-IPC H<br>CDFA B   | along roads<br>in serpentine<br>grasslands         | hand pulling by<br>volunteers, burning<br>by County workers |
| Italian thistle<br><i>Carduus pycnocephalus</i>                                                                                                         | Cal-IPC M<br>CDFA C   | woodlands                                          | hand pulling<br>by volunteers                               |
| yellow star thistle<br><i>Centaurea solstitialis</i>                                                                                                    | Cal-IPC H<br>CDFA C   | along pipeline<br>fill in serpentine<br>grasslands | weed whacking by<br>contract workers                        |
| pampas grass<br><i>Cortaderia selloana</i>                                                                                                              | Cal-IPC M<br>CDFA CNL | wetland near<br>landfill                           | mechanical removal<br>by contract workers                   |
| Italian ryegrass<br><i>Lolium multiflorum</i>                                                                                                           | Cal-IPC M             | serpentine<br>grasslands                           | managed grazing                                             |
| Ratings: Cal-IPC: H = High, M = Moderate, L = Limited<br>CDFA: B = middle rating level, C = lowest of three rating levels, CNL = Considered, Not Listed |                       |                                                    |                                                             |

the backing of major agricultural and economic interests in the county. It holds title to some butterfly habitat on south Coyote Ridge, on nearby Tulare Hill, and on north Coyote Ridge. In 2006 the conservancy began leading walks on Coyote Ridge during wildflower season. In 2007 they hired a docent coordinator to train docents and expand the program of spring walks. The adoption of Coyote Ridge by this prestigious organization marks a major victory in the long engagement by CNPS to see this area protected.

### INVASIVES: THE NEW THREAT AT COYOTE RIDGE

Invasive nonnative grasses, principally Italian ryegrass (*Lolium multiflorum*), have long been recognized as a threat to the butterfly habitat, as has the necessity for the maintenance of managed grazing as a means of controlling these grasses. Managed grazing was specified for the Butterfly Trust Area in the Con-

servation Plan for the Kirby Canyon Recycling Center.

Other invasives have been observed by chapter members in the course of field trips, such as pampas grass, yellow star thistle, purple star thistle, Italian thistle, and summer mustard (see Table 2). When the chapter became involved in the Santa Clara County Weed Management Area (WMA), we saw the opportunity to apply for funds to remove pampas grass and do mechanical control on yellow star thistle. The pampas grass has not reappeared and the yellow star thistle appears to be under control. While the other weeds are not a serious infestation, they are not yet controlled by an ongoing program of hand pulling by chapter volunteers.

A more serious threat identified in the course of the CNPS vegetation survey is barb goatgrass, observed along a farm road north of the Butterfly Trust Area and spreading to the south. This weed grows well on serpentine. Attempts at hand removal by volunteers were not ef-

fective. The most effective control method identified so far is controlled burns in two successive years. The Santa Clara County WMA has provided support to the SCCOSA to conduct controlled burns in 2007 and 2008.

### CLOSING THE CIRCLE: RETURNING THE BUTTERFLY TO EDGEWOOD

Looking to the future, Coyote Ridge is playing a role in restoring a bay checkerspot butterfly population to Edgewood. In 2006, Dr. Weiss received approval from the USFWS to transfer caterpillars and butterflies to Edgewood in the spring of 2007 to re-establish a population. On February 15, 2007, Dr. Weiss gathered 352 caterpillars from Coyote Ridge and released them in Edgewood Natural Preserve. A fitting coda to our story!

Donald Mayall, 531 Alger Ave., Palo Alto, CA 94306. seleve@ix.netcom.com



Italian ryegrass-dominated site, late in the growing season, Sycamore Valley Regional Open Space Preserve, near Danville, California, June 2006. Ryegrass makes up 55% of the plant cover at this site. Photograph courtesy of the Range Ecology Lab, U.C. Berkeley.

## ITALIAN RYEGRASS: A NEW CENTRAL CALIFORNIA DOMINANT?

by Peter Hopkinson, Matt Stevenson, Michele Hammond,  
Sasha Gennet, Devii Rao, and James W. Bartolome

The non-native grass, Italian ryegrass (*Lolium multiflorum*), has long been characterized as a minor player in the Valley Grassland. While this may still be true in drier locations, in wetter areas of the state's annual grasslands, there is increasing evidence that Italian ryegrass is now a regional dominant, dethroning former champs such as wild oats (*Avena* spp.), soft chess (*Bromus hordeaceus*), and ripgut brome (*Bromus diandrus*).

From a cow's point-of-view, this newly emerging dominant is not a

bad thing because Italian ryegrass makes excellent forage. For a plant conservationist or those with hay fever, however, the news is not so sunny. Italian ryegrass often forms dense stands that may crowd out native plants, the loss of which may affect other native species; ryegrass has already been implicated in the demise of populations of the Bay checkerspot butterfly (*Euphydryas editha* ssp. *bayensis*) (Weiss 1999). And as spring allergy sufferers know, when Italian ryegrass begins to release its pollen, several weeks of misery lie ahead!

### EVIDENCE FOR WIDE- SPREAD ITALIAN RYEGRASS DOMINANCE IN THE BAY AREA

Native to Europe, Italian ryegrass was probably introduced to California in the late 1700s (Hendry 1931). In most descriptions of the California annual grassland, Italian ryegrass is barely mentioned (e.g., Ornduff 1974, Heady 1977). A more recent review of California grassland states that Italian ryegrass sometimes dominates locally but is generally not as widespread in the grassland as the

filarees (*Erodium* spp.) and bromes (Heady et al. 1991). Even *The Jepson Manual* limits ryegrass habitat to “disturbed sites, abandoned fields.” However, over the past decade, we have observed anecdotally how often Italian ryegrass is the dominant plant in many, largely undisturbed grassland areas of the East Bay of the San Francisco Bay Area. Other researchers have made similar observations in the South Bay.

An ongoing study by U.C. Berkeley Range Ecology Lab of 40 plots in six East Bay Regional Park District (EBRPD) properties spread over Alameda and Contra Costa counties provided the data to show that our observations were in fact accurate. Between 2003 and 2007, from a pool of approximately 90 to 115 species, Italian ryegrass was the overall dominant species in our study every year. In the warm, rainy years 2005 and 2006, ryegrass made up 23% and 32%, respectively, of the plant cover: one species contributing almost a third of the plant cover at our East Bay grassland sites. Even in the drought year of 2007, a tough year for grasses, Italian ryegrass remained dominant at 19% cover. Comparing five year average cover values for the most common species, ryegrass had almost double the cover of the next nearest species, soft chess (Table 1).

Italian ryegrass was not the dominant species at every EBRPD site: some parks had low levels of ryegrass for reasons that are not yet apparent. However, many of the areas with low levels of ryegrass or none at all in 2003 had substantial amounts by 2006, and the percentage of sites in which Italian ryegrass was the dominant increased from 28% in 2003 to 63% in



Italian ryegrass-dominated site, early in the growing season, Vasco Caves Regional Preserve, near Livermore, California, April 2006. Ryegrass makes up over 80% of the plant cover here. Photograph courtesy of the Range Ecology Lab, U.C. Berkeley.

2006, falling back to 45% during the drought of 2007.

Moreover, Italian ryegrass appears to have been on the increase for at least a decade. In a single East Bay Municipal Utilities District watershed in El Sobrante, a nine-year study by our lab from 1993 to 2001 showed that ryegrass rose steadily from under 10% plant cover in 1993 to dominance at 45-55% cover during 1997 to 2001.

These high levels of Italian ryegrass in the late 1990s and the 2000s

contrast with the low levels found in a five-year study from the early 1970s at another East Bay site. From 1969 to 1973 at the University of California Russell Reservation in Lafayette, ryegrass only rose above 8% plant cover once, when it reached 16%.

Elsewhere in the San Francisco Bay Area, similar trends are being observed. In the South Bay, at Stanford University's Jasper Ridge Biological Preserve and at Edgewood Natural Preserve in San Mateo County, Italian ryegrass also appears to have increased substantially during the 1990s (Weiss 1999,

2002). These sites have nutrient-poor, toxic serpentine soil, which until recently has prevented invasion by most annual grasses, but ryegrass is now able to dominate even there. Four floras produced since the 1930s for Jasper Ridge indicate that ryegrass was not observed in the serpentine areas there through 1983 (see unpublished report at [http://trees.stanford.edu/CNPS/Escobar\\_Grasses.pdf](http://trees.stanford.edu/CNPS/Escobar_Grasses.pdf)). In the last few years however, at both Jasper Ridge and Edgewood, ryegrass was the dominant species, at 20-30% plant cover in 2001 and 2002 (Weiss 2002). In several other areas, both serpentine and non-serpentine, in south San Jose, Weiss (1999) reports increasing ryegrass plant cover and dominance since the mid-1980s or mid-1990s.

## IMPACTS OF WIDE-SPREAD ITALIAN RYEGRASS DOMINANCE

If this apparent widespread dominance by Italian ryegrass is a long-lasting change, the ecological impacts may be sig-

Italian ryegrass-dominated site, late in the growing season, Sycamore Valley Regional Open Space Preserve, near Danville, California, June 2006. Ryegrass makes up 55% of the plant cover at this site. Photograph courtesy of the Range Ecology Lab, U.C. Berkeley.



TABLE 1. AVERAGE PERCENT COVER FOR THE TOP TEN "SPECIES," INCLUDING LITTER (PREVIOUS YEAR'S DEAD PLANT MATERIAL) AND SOIL, 2003-2007

| Species                                                            | Average percent cover<br>2003-2007 | Species                                       | Average percent cover<br>2003-2007 |
|--------------------------------------------------------------------|------------------------------------|-----------------------------------------------|------------------------------------|
| <i>Lolium multiflorum</i><br>Italian ryegrass                      | 21.3                               | <i>Erodium botrys</i><br>filaree              | 4.1                                |
| <i>Bromus hordeaceus</i><br>soft chess                             | 11.9                               | <i>Avena barbata</i><br>slender wild oats     | 2.5                                |
| litter                                                             | 10.4                               | <i>Nassella pulchra</i><br>purple needlegrass | 2.3                                |
| <i>Avena fatua</i> *<br>wild oats                                  | 9.5                                | <i>Trifolium hirtum</i><br>rose clover        | 2.1                                |
| <i>Bromus diandrus</i><br>ripgut brome                             | 5.6                                | <i>Phalaris aquatica</i><br>Harding grass     | 2.0                                |
| soil                                                               | 4.6                                | <i>Vulpia bromoides</i><br>brome fescue       | 1.9                                |
| * For 2007 only, <i>Avena</i> sp. included in <i>Avena fatua</i> . |                                    |                                               |                                    |

nificant. Economic and health impacts may also be appreciable.

The California Invasive Plant Council's 2006 Invasive Plant Inventory ([www.cal-ipc.org](http://www.cal-ipc.org)) categorizes Italian ryegrass as having a moderate negative ecological impact in California. Cal-IPC further describes ryegrass as having a significant effect on native grassland plant communities.

While the actual ecological impacts of ryegrass dominance in California's grasslands are largely unstudied, ryegrass is known to compete strongly against other non-native grasses in California (McKell et al. 1969, Fehmi et al. 2001). In addition, experiments indicate that ryegrass may increase mortality of the native bunchgrass, purple needlegrass (*Nassella pulchra*) (Fehmi et al. 2004). Purple needlegrass is the most abundant native species in our East Bay Regional Park District study. It is also frequently used in grassland restoration projects.

In another highly invaded grassland, the pampas of Argentina, Ital-

ian ryegrass, which is non-native there too, rapidly out-competed other species, and within three years became the dominant grass in former agricultural fields (Facelli et al. 1987). The increase in ryegrass cover was correlated with an increase in local extinction of other plant species and with a reduction in plant species diversity. Whether Italian

The mug shot: Italian ryegrass (*Lolium multiflorum*). Photograph courtesy of the Oregon State University Forage Information System's Image Gallery (<http://forages.oregonstate.edu/>).



ryegrass has similar effects in California grasslands is not clear. For the EBRPD study, we could not find a strong relationship between Italian ryegrass cover and native plant cover or diversity.

Italian ryegrass is known to suppress native plants in other California vegetation communities. Since the 1940s, ryegrass has been seeded in chaparral and forests after wildfires to reduce soil erosion caused by post-fire rainfall. Numerous follow-up studies of post-fire ryegrass seeding have shown that plant cover and diversity of native herbaceous species are reduced on sites with high ryegrass cover (reviewed in Beyers 2004).

One well-studied ecological result of Italian ryegrass dominance is unequivocally negative: the disappearance of threatened Bay checkerspot butterfly populations. Stuart Weiss has spent years studying the checkerspot in its South Bay serpentine habitat and has documented how the fairly recent invasion of ryegrass into serpentine sites has

caused populations of California plantain (*Plantago erecta*) and other checkerspot larvae host plants to plummet (Weiss 1999). As go the host plants, so go the butterflies. Both the Jasper Ridge and the Edgewood butterfly populations have gone extinct, as have populations in south San Jose, with ryegrass the prime suspect (Weiss 2002). Other native plants are also declining as Italian ryegrass invades the serpentine grassland (U.S. Fish and Wildlife Service 1998).

And before you dismiss the allergy problems that Italian ryegrass causes, a recent analysis by Stanford University's Sean Anderson estimates that allergy-related consequences of non-native grasses cost Californians between \$400 million to \$1 billion per year in missed work, medication, and Kleenex. Ryegrass pollen is an abundant and potent allergen and is likely to be responsible for a significant portion of the grass pollen allergies in California. At least three of this article's authors are highly allergic to ryegrass, one of whom had to go to the hospital due to a severe ryegrass reaction during the last field season.

## WHY IS ITALIAN RYEGRASS INCREASING?

If the effects of Italian ryegrass dominance are undesirable, is there anything we can do to cut short its reign? To answer this question, it would be helpful to know why the widespread increase in ryegrass cover has occurred.

Several factors may underlie the change. Stuart Weiss has presented a strong case for air pollution being a primary cause. In addition, warmer and wetter weather may have given Italian ryegrass the boost it needed to become a common dominant.

Nitrogen "fertilization" of the soil by automobile air pollution is strongly implicated as the cause of ryegrass' invasion of serpentine soils



From left to right, the Range Ecology Lab field crew: Matt Stevenson, Peter Hopkinson, Sasha Gennet, Michele Hammond, Martin Johnson, and Devii Rao at Vasco Caves Regional Preserve, near Livermore, California, in 2005. Photograph courtesy of the Range Ecology Lab, U.C. Berkeley.

in the South Bay and Peninsula. In his work at Jasper Ridge, Edgewood, and sites in south San Jose, Weiss has shown that various forms of nitrogen are deposited on plants and soil at much higher levels in areas with bad air pollution problems (Weiss 1999, 2002). Experiments by other Stanford University researchers (reviewed in Weiss 1999) have demonstrated that nitrogen fertilization can rapidly turn a study plot from forb-dominated to grass-dominated, and that ryegrass, in particular, grows quickly and vigorously with nitrogen fertilization. It appears that over many years, air pollution has added enough nitrogen to the soil that a threshold has been crossed, allowing Italian ryegrass to flourish even in harsh soils.

In combination with nitrogen enrichment, warmer and wetter weather is likely to promote increases in Italian ryegrass cover. Weiss notes that ryegrass was rare at Jasper Ridge until 1998, a year of record El Niño rains. Experiments by Sherry Gulmon showed that ryegrass is favored in conditions with temperatures above 68°F and consistently available nitrogen and moisture (Gulmon 1979). When all three conditions were met,

ryegrass was able to out-compete wild oats and soft chess.

Gulmon's work suggests that if global climate change brings higher temperatures, especially during the growing season, California's climate may be even more suitable for Italian ryegrass domination. With continued nitrogen deposition from air pollution, increased temperatures due to global climate change, and periodic high rainfall events, such as El Niño years, Italian ryegrass may come to dominate large parts of California's central coast grasslands.

## RYEGRASS CONTROL

There is not much we can do about warmer and wetter weather, and even reducing air pollution from cars requires large-scale societal changes. Drought years reduce Italian ryegrass cover somewhat (Weiss 1999), but it appears likely that a wet and warm year would allow ryegrass to re-establish dominance.

Livestock grazing may be one management action that can mitigate some of the deleterious effects of ryegrass dominance, at least on serpentine soil. At Weiss' serpentine sites in south San Jose, nearby

areas that were grazed by cattle maintained large populations of plantain and checkerspot butterflies, and cover of Italian ryegrass was much lower. When grazing was re-introduced to one of the ungrazed sites, although the butterflies did not return, grass cover, dominated by ryegrass, fell from 75% to 45%, while forb cover increased from 10% to 30% (Weiss 1999).

The impacts of livestock grazing on Italian ryegrass and native plant cover were not so clear-cut at our East Bay Regional Park District study sites, which are not on serpentine soil. In three parks (only two in 2007), there are both grazed and ungrazed sites. Ryegrass cover was higher on the grazed sites in all years, but this difference was only statistically significant in 2004 and 2006. Native plant cover and diversity, however, did not differ between the grazed and ungrazed sites in any year.

## CONCLUSION

Data from several studies suggest that, over the past decade, Italian ryegrass has emerged as a dominant species in the annual grassland of the San Francisco Bay Area. Although the ecological repercussions of ryegrass dominance are little studied, several lines of evidence suggest that native plants and animals could be negatively impacted. Increased ryegrass pollen may also cause higher levels of allergies and asthma in people. Consequently, research into the causes, ecological impacts, public health impacts, and control of Italian ryegrass dominance should be made a priority.

Research priorities include:

- Collecting further evidence documenting the extent of Italian ryegrass dominance in the Bay Area and elsewhere in California.
- If long-term datasets are available, evaluating how much rye-

grass abundance has changed over the past several decades.

- Analyzing the relationship between nitrogen deposition and Italian ryegrass dominance in the Bay Area with deposition models and field data.
- Conducting greenhouse and field experiments in serpentine and non-serpentine soils designed to investigate the effects of ryegrass on native grassland plant species richness and abundance. Experiments should be conducted under several levels of nitrogen, moisture, and temperature, including at levels predicted by regional climate change models.

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John and Charli Danielsen at Native Here Nursery in the Berkeley Hills on February 8, 2008. Photograph by J. Bray.

## NEW CNPS FELLOWS: CHARLI AND JOHN DANIELSEN

by Laura Baker and Barbara Malloch Leitner

Charli and John Danielsen, honored this past year as CNPS Fellows, have devoted over thirty years to carrying out many important developments in the Society from its infancy in the 1970s to the sophisticated organization that it is today. Among their contributions are such significant projects as overseeing the original incorporation of CNPS' rare plant data into the California Natural Diversity Data Base, moving the CNPS state office to Sacramento, supporting the Conservation and Management of Rare and Endangered Plants Conference in 1986,

encouraging the publication of *The Jepson Manual*, and founding the Native Here Nursery in the 1990s. Visionary, dedicated, and enterprising, Charli and John have taken on strategic positions in many state and chapter offices to help CNPS adapt to the changing times and needs of the Society and to address the growing threats to the California native flora.

### THE EARLY YEARS

John and Charli joined CNPS in 1975, and Charli went to work immediately as Field Trip Chair for the

San Francisco Bay Chapter. She also spent time volunteering for the weekend potting sessions in preparation for the chapter plant sale. These early experiences observing native plants both in the wild and at the potting bench laid the foundation in her native plant education that would prove critical to a developing vision of the potential for habitat restoration. While Charli was busy with various roles in the chapter, John was recruited by Scott Fleming to help with the state treasury and was then elected state Treasurer in 1980. His financial career as Vice-President at PG&E enabled him to bring a

professional's hand to getting the CNPS finances in order, learning accounting along the way in order to help reconcile the books. His tenure as Treasurer extended over a crucial three years as the Society made the transition to hiring a full-time professional botanist, Rick York, in the Rare Plant Program. John was instrumental in helping negotiate the terms for how CNPS rare plant data would be incorporated into the California Natural Diversity Database (CNDDB) for the first time.

Charli took on the office of President of the San Francisco Bay Chapter in 1981-82 when the chapter encompassed an enormous geographic area that has since been subdivided into the East Bay, Yerba Buena, and Santa Clara Valley chapters. The organizational experience that she gained at the chapter level was put to good use as she moved into the role of Vice President of Administration for state CNPS, a period during which she became point person on moving CNPS's state office from Berkeley to Sacramento. The move was finalized in 1985. Charli recalled a vivid memory of the volunteers who had been involved in the move shredding the old index cards and having a confetti party once the data had been transferred to computer. Indeed there was much to celebrate: the Society was entering the digital age and the state office was re-locating to the capitol to increase its influence in state politics!

## WIDENING THE SPHERE OF INFLUENCE

As John and Charli helped CNPS internally to mature and consolidate, they were also busy widening the sphere of influence of scientific information about native flora by joining and initiating other important projects. The years spent both on official CNPS business and in special projects such as *The Jepson*

*Manual* put Charli and John in close association with a network of plant scientists, lay botanists, and volunteers, all of whom helped shape their vision of the kind of organizational support that California's native flora would require in order to thrive.

During the 1980s *The Jepson Manual* project was well underway with a multi-talented task force of volunteers laboring to update this all-important reference work. Charli and John took their place on the Editorial Board where John lent expert assistance with computer work and Charli helped to edit the glossary so that it would be useful for the laity. John also sought corporate support for the project.

As development pressures in California mounted and the threats to native flora increased, conservation became a high priority for the society. During Charli's tenure as State President of CNPS in 1986, the Society held a pioneering conference in Sacramento on Conservation and Management of Rare and Endangered Plants from November 5-8, a seminal event that helped strengthen the network of scientists and conservation advocates across the state.

## THE DAWNING OF NATIVE HERE NURSERY

While Charli spent many an hour in meeting rooms in those early years, it was her love of native plants and thirst for information about them that drove her to become knowledgeable and capable out in the field. She understood that to be effective in conservation, she would have to learn to identify the native plants, especially the California native grasses, a claim she made good by connecting with a vanguard group. The seeds of restoration biology had been sown in the late 1970s when an enterprise called DAWN (Design Associates Working with Nature), located near the Berkeley

marina, was founded, which advocated and practiced the propagation of native plant species for the purpose of restoring ecosystems. One of Charli's larger projects at DAWN was propagating plants for a restoration project at Marina State Beach. By the mid-1980s she had become chief propagator for DAWN.

Charli had gained experience both in the field and in the nursery and was ready to undertake a major restoration project. Together with a large group of volunteers John and Charli undertook the re-establishment of a perennial bunchgrassland at Mitchell Canyon in Mt. Diablo State Park. The project involved seed collecting and propagation, a controlled burn of the area, large experimental plots planted out in various ways, and regular mowing and tending. More than a dozen years have passed since its inception, and the native grasses still thrive in Mitchell Canyon, though with less hands-on management than in the past.

When DAWN dissolved in the early 1990s, it named the East Bay Chapter of CNPS as its successor. The remaining plants from the enterprise lived on the Danielsens' back deck until a new home for them could be found. With the help and guidance of the East Bay Chapter Board, Charli began the task of finding a suitable location for a nursery, and after two years of complex negotiations with the East Bay Regional Park District for the lease, the county planning department for the building permit, and the utilities for a water hook-up, Native Here opened in 1994 with Charli as Nursery Manager. Native Here was one of the first nurseries founded to support conservation and restoration through the exclusive use of local ecotypes.

Today the Native Here Nursery is a team effort that continues to tap the individual strengths of the Danielsens and the volunteers that come to help at the nursery. John relishes the hard handiwork that keeps the nursery running—clear-

ing the site, building the infrastructure, and mending fences. He has a canniness for turning straw into gold: in one notable instance old discarded picnic benches from the Park District turned up magically as tables for propagation and storing. Yet another of John's hidden talents is the care and nurturing of volunteers who come to lend a hand at the nursery. Charli leads seed collecting expeditions and teaches propagation techniques. Over the years many plant enthusiasts have come to Native Here to learn seed collecting and propagating under a canopy of trees in Tilden Park. Native Here supports projects of individual gardeners, landscapers, and larger customers such as Walnut Creek Open Space, Mt. Diablo State Park, the Watershed Project, Caltrans, and the East Bay Regional Park District. The income from the nursery provides an important source of support to a host of activities of the East Bay Chapter.

## FIND A HOLE AND FILL IT

One of the secrets to the success of the Danielsens in their service to CNPS and to the cause of protecting native plants has been their ability to collaborate with others in identifying critical needs and devising solutions. Sometimes those collaborative efforts have been in reaching out to the larger community. One such example arose in the wake of the devastating East Bay Hills Fire. Public agencies took on vegetation management for fuel reduction with a vengeance, launching a wholesale assault on the native flora along the urban-wildland interface through the use of uninformed contractors. Together with a team of others, Charli worked to articulate the ideas behind a field manual (*Vegetation Management Almanac for the East Bay Hills*, first published in 1999) that contained photos of common weeds and the native plants with which they might be confused, a mainte-

nance calendar that helped workers decide when and how best to manage vegetation to minimize impacts on flora and fauna, and case histories and lessons learned from specific local management projects.

That same critical thinking and drive for collaboration have enabled the Danielsens to spot critical needs within the Society at the state and chapter level. As CNPS has grown in size and complexity, maintaining effective internal communication and retaining institutional memory have become increasingly important. Charli has chaired most of the committees in the East Bay Chapter at one time or another, and she has shuttled back and forth between the chapter and the state level in her work as Board member, Chapter Council Vice-President, and Chapter Council Representative. These experiences have given her a 360-degree view of the organization and its needs as well as a strong sense of the Society's history and development. This depth and breadth of perspective plays an on-going role as CNPS continues to generate policies, learn from its past, and adapt to a changing world.

At the local chapter level, one of the most important committee positions Charli has occupied is Chair of the Conservation Committee. Recognizing that the East Bay Chapter could not be fully effective in meeting the challenges of conservation with an overstrapped corps of volunteers, she spearheaded a successful funding drive to raise money to hire a part-time Conservation Analyst. This experiment in integrating a paid expert into an all-volunteer organization required management skills, the capacity to delegate and direct, and a strategic sense of where best to direct energies to make meaningful gains in conservation. Thanks to Charli's original vision, the chapter is entering its fourth year with a professional Conservation Analyst on staff. (Jessica Olsen was the first, and

served for just under a year. Lech Naumovich is the second, and has just begun his third year in this position.) Today as Chapter President, Charli remains an active member of the Conservation Committee and is still on the front lines, appearing at public hearings and meetings to represent CNPS.

For nearly 30 years, Charli and John Danielsen have been stalwart supporters of the California Native Plant Society, holding various state offices, creating new visionary projects, and anchoring the East Bay Chapter in numerous capacities. Their contributions are so many and so varied that it's difficult to summarize them all. In giving so generously of their time and talents, they have proved their worthiness to be Fellows of CNPS. The Society is deeply grateful for their shining example of service.

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## FROM THE EDITOR

This issue's first three articles by Carolyn Curtis and Don Mayall are about a few of my favorite things: serpentine grasslands, rare and endangered plants and invertebrates, sung and unsung CNPS and community volunteers, control of exotic invasive species—all tied up in the neat packages of Edgewood County Park and Natural Preserve in San Mateo County and Coyote Ridge in Santa Clara County. These great conservation success stories share another fundamental common thread—the Santa Clara Valley Chapter of CNPS. Our Edgewood story is written by Carolyn Curtis, whose dedication and grass-

roots political acumen were instrumental in the ultimate victory there. A similar major fight to preserve another equally significant serpentine grassland at Coyote Ridge was averted and the biological richness of the ridge was conserved by methods and strategies informed by the Edgewood struggle. Don Mayall writes this story.

Ironically both of these islands of magnificent floral displays and biodiversity are threatened by a much more insidious threat from Italian ryegrass as detailed by Peter Hopkinson et al. in the fourth article in this issue.

Laura Baker and Barbara Malloch Leitner celebrate the numerous past

and continuing contributions of Charli and John Danielsen. Both were named Fellows of CNPS in 2005. This enthusiastic and capable East Bay Chapter couple has dedicated significant parts of their lives to making CNPS the vital organization that it is today.

As always, I urge you to enjoy this *Fremontia* and strongly encourage you to make that special pilgrimage to Edgewood to pay homage to those innumerable dedicated spirits who invested so much time and effort to conserve and manage this prize. Regardless of when you read this, NOW is the time for a visit there.

Bart O'Brien

## CONTRIBUTORS

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**Julie Evens** is the Senior Vegetation Ecologist for CNPS. She managed the vegetation survey of Coyote Ridge.

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