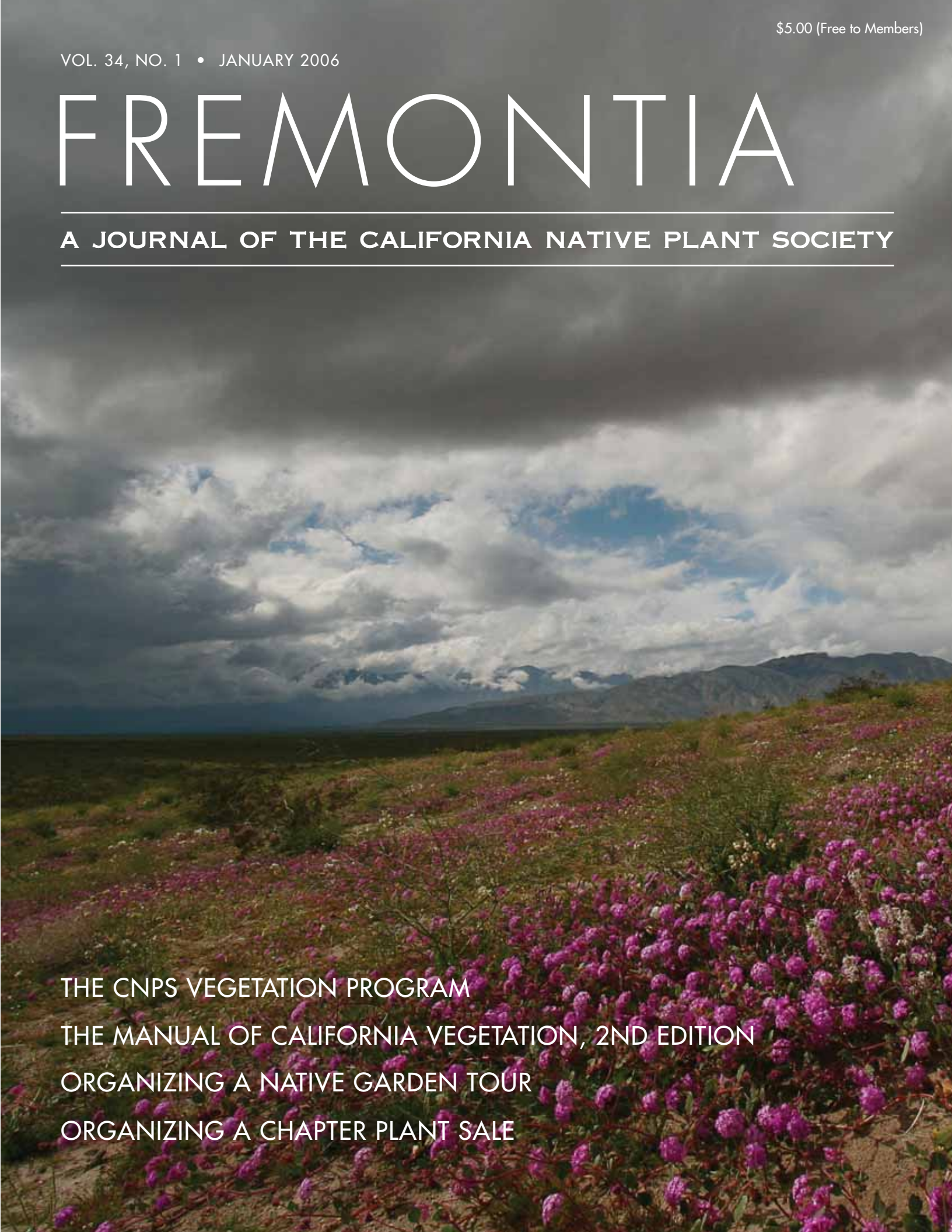


VOL. 34, NO. 1 • JANUARY 2006

FREMONTIA

A JOURNAL OF THE CALIFORNIA NATIVE PLANT SOCIETY



THE CNPS VEGETATION PROGRAM
THE MANUAL OF CALIFORNIA VEGETATION, 2ND EDITION
ORGANIZING A NATIVE GARDEN TOUR
ORGANIZING A CHAPTER PLANT SALE

FREMONTIA

VOL. 34, NO. 1, JANUARY 2006

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California Native Plant Society

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CALIFORNIA NATIVE PLANT SOCIETY

*Dedicated to the Preservation of
the California Native Flora*

The California Native Plant Society (CNPS) is a statewide nonprofit organization dedicated to increasing the understanding and appreciation of California's native plants, and to preserving them and their natural habitats for future generations.

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.

Since its founding in 1965, the traditional strength of CNPS has been its dedicated volunteers. CNPS activities are organized at the local chapter level where members' varied interests influence what is done. Volunteers from the 32 CNPS chapters annually contribute in excess of 87,000 hours (equivalent to 42 full-time employees).

CNPS membership is open to all. Members receive the quarterly journal, *Fremontia*, the quarterly statewide *Bulletin*, and newsletters from their local CNPS chapter.

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MATERIALS FOR PUBLICATION

CNPS members and others are welcome to contribute materials for publication in *Fremontia*. See the inside back cover for manuscript submission instructions.

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The Vegetation Program of the California Native Plant Society has been setting national trends in its efforts to further understand and describe the mosaic of vegetation upon the California landscape. Four articles appearing in Fremontia Volume 34, Nos. 1-4 (2006) are introduced in this article, the first being the next article in this issue.

THE MANUAL OF CALIFORNIA VEGETATION, SECOND EDITION <i>by Todd Keeler-Wolf</i>	7
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The first edition of CNPS's A Manual of California Vegetation was published ten years ago. John Sawyer, Julie Evens, and Todd Keeler-Wolf are working on completing the manuscript for the second edition. In this article, Todd highlights some of the many improvements and the wealth of new information that will be included in the second edition, and how it can be used for conservation, restoration, and land management planning.



ORGANIZING A NATIVE GARDEN TOUR <i>by Arvind Kumar</i>	17
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The author of this article, Arvind Kumar, describes how a group of dedicated volunteers organizes and partitions the work of the Going Native Garden Tour, which features Santa Clara and San Mateo County gardens. In the accompanying sidebar, Kathy Kramer provides her year-long garden tour task list and timeline for the Bringing Back the Natives Garden Tour. These tours receive funding and support from stormwater programs, water districts, solid waste agencies, foundations, and the US Fish and Wildlife Service.

PRACTICALLY EVERYTHING YOU EVER WANTED TO KNOW ABOUT ORGANIZING A CHAPTER PLANT SALE <i>by Joan Stewart</i>	21
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In this article the author describes how to run a successful plant sale based on the experience of the San Diego and Alta Peak Chapters of the California Native Plant Society. These plant sales depend on the continuing support of a large number of volunteers, provide monetary support for Chapter activities throughout the year, and end up being a lot of fun, as well as educating a lot of people about native plants.



THE 2005 DESERT BLOOM <i>Photographs by Carl Jones, John Game, Steve Matson, and Linda Vorobik</i>	27
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This first color issue of Fremontia features two pages of photographs of the desert and selected desert species in celebration of last year's tremendous bloom. We hope to include a similar photographic spread or essay in each issue of Fremontia; photographers interested in contributing should contact the Fremontia editor at Fremontia@cnps.org.

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THE COVER: Purple sand verbena (*Abronia villosa*) at Anza-Borrego Desert State Park during the lush desert spring of 2005. Photograph by C. Jones. For other images of the 2005 desert bloom, see pages 27-28; for information on Carl Jones and other photographers contributing to this issue, see the inside back cover.

EDITORIAL

It has been my great pleasure to edit and oversee the production of *Fremontia* over the past five years, and while our society continues its search for the next editor, it gives me even greater pleasure to bring this issue to you in full color. Until now the costs of production have been prohibitive. Recently, however, I found a printer whose costs were actually less than that for black and white. We hope you like it.

At the beginning of my tenure as editor, I was given the job of continuing the excellent work of Phyllis Faber (who continues her work at UC Press), publishing credible botanical information in a palatable manner, yet not “dumbing down” the publication, and after all that, slowly getting *Fremontia* back on track after falling one and one half years behind. “Yummy,” I say. “A challenge. What fun!”

Since that time, with the help of paid staff, volunteers, and contributors, the above-stated goals have been achieved. The work was very tough and frustrating at times, but the underlying goal of our society (as stated in its mission) to “*increase understanding and appreciation of California’s native plants and to conserve them and their natural habitats, through education, science, advocacy, horticulture, and land stewardship*” has always fueled my tanks. I care deeply about wild places, and am very concerned that some of my favorite places are being trampled by too many people or grazing animals, invaded by weeds, scarred by off-road vehicles, or completely destroyed by development. But I still see education as the best way to make a difference.

To me, *Fremontia* is one of our society’s most valuable environmental teaching tools. In *Fremontia* we can revel in the enjoyment of flowers through tale or illustration (e.g., Dengler’s illustrations and Blair’s article, *Fremontia* Vol. 31(1):11-17) and share what we know about a specific group of plants (e.g., the moss issue, Vol. 31(3); the seaweed issue, Vol. 32(1)). We can document the status of a rare plant (e.g., the Sonoma spineflower, Vol. 29(2):23-25), highlight a unique habitat and its botanical treasures (e.g., vernal pools in Vol. 32(2):3-9), and provide environmental advocacy tools (e.g., the rare plant issue, Vol. 29(3 & 4)). One of my favorite functions of our journal is that of honoring those who have made great contributions, both the living (CNPS Fellows) and those who have passed on (tributes and biographies).

As stated above, my work is supported by a team of others, with contributors, volunteer proofreaders, and staff who I cannot thank enough. I offer special appreciation to Bob Hass (tireless, careful, and creative copy editor and now our *Bulletin* Editor), Beth Hansen-Winter (expert designer with the eye of an artist and quite knowledgeable of the English language), and Ric Vanderbruek (very patient printer, who rolled with every punch I inadvertently threw his way).

Linda Ann Vorobik
Fremontia Editor

USEFUL WEBSITES AND CONTACT INFORMATION

California Native Plant Society (CNPS):

www.cnps.org, with links to
conservation issues, chapters,
publications, policy, etc.

For updates on conservation issues:

Audubon Society
www.audubon.org

Center for Biological Diversity
www.sw-center.org

Native Plant Conservation
Campaign www.plantsocieties.org

Natural Resources Defense
Council
www.nrdc.org

Sierra Club
www.sierraclub.org

Wilderness Society
www.wilderness.org

For voting information:

League of Women Voters
www.lwv.org, includes online
voter guide with state-specific
nonpartisan election and
candidate information.

US Senate
www.senate.gov

US House of Representatives
www.house.gov

California State Senate
www.sen.ca.gov

California State Assembly
www.assembly.ca.gov

To write letters:

President George W. Bush
The White House
1600 Pennsylvania Ave. NW
Washington, DC 20500

Senator Barbara Boxer
or Senator Dianne Feinstein
US Senate
Washington, DC 20510

Your CA Representative
US House of Representatives
Washington, DC 20515



Valley Oak woodland (mid-ground) with California goldfields and sandstone outcrops (foreground)—a classic California spring vegetation panorama in the Santa Lucia Mountains. Photograph by J. Game.

THE CALIFORNIA NATIVE PLANT SOCIETY VEGETATION PROGRAM

by Julie Evens and Todd Keeler-Wolf

It is readily apparent that if you care about California's native plants, you care about the habitats in which they live, and thus care about the diversity of vegetation that makes our state so beautiful and rich. The California Native Plant Society (CNPS) has been working to understand and protect this state's diversity of vegetation along with the rare plants harbored within



Different vegetation harbors both common wildflowers and more rare species: Goldfields (*Lasthenia californica*) (ABOVE LEFT) appear in the foreground of the top photograph; the less common *Brodiaea jolonensis* (ABOVE RIGHT) grows in the vicinity. Photographs by J. Game.



since its inception. It has an active vegetation program whose history and activities were reviewed in the CNPS 40th Anniversary year of *Fremontia* (Vol. 33, Number 3; July

2005). This year we are running a series of articles in *Fremontia* that explore a range of issues challenging the staff and volunteers of the CNPS Vegetation Program; these articles include a description of changes to the *Manual of California Vegetation* (see page 7), protocols used to gather vegetation data, the impacts of invasive plants on vegetation, the use of vegetation in conservation planning and advocacy, and the implications of vegetation in conservation legislation.

The creation of the Vegetation Program in 1991 was prompted by a perceived need to move away from

reactive conservation responses focused on saving individual species in favor of more proactive responses to conserve both the individual species *and* their surrounding habitat. The program's underlying assumption was that by defining the range of California's plant communities, this would make scientifically defensible the protection of an array of species found within a specific plant community. A further rationale for defining plant communities was the recognition that some of them were, in and of themselves, rare and therefore deserved recognition as individual units of biodiversity.

ABOVE: A newly described vegetation type of the high Sierra is dominated by mountain pride (*Penstemon newberryi*), as shown here along the trail to Hamilton Lake. Photograph by J. Evens; inset by L. Vorobik. BELOW: Much of the subalpine and alpine vegetation in the high Sierra Nevada, such as that in the vicinity of Ruby Lake, is found in national parks or national forests. Photograph by L. Vorobik.

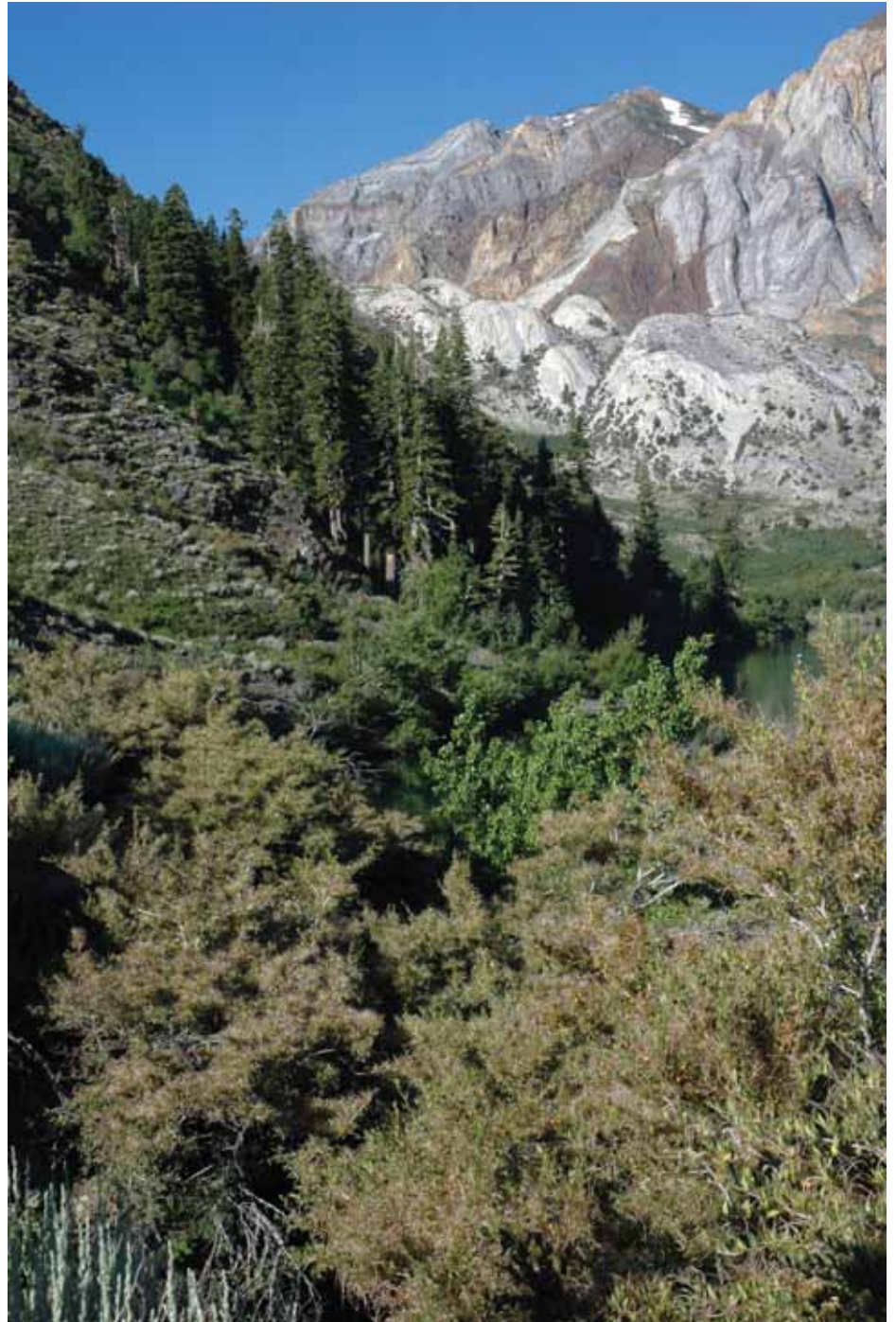




The first order of business was to develop a formal vegetation classification system. This new system—popularized by the publication in 1995 of the first *Manual of California Vegetation*—has since become widely ac-

cepted as the state standard. It has helped refocus conservation efforts from an emphasis upon individual species to one that attempts to describe natural patterns of plants upon the landscape. This broader approach is being used to address regional and statewide plant biodiversity issues.

The first article in this vegetation series, written by Todd Keeler-Wolf, explains the current revision of the *Manual* into its second edition (see page 7). Over the past decade, the methods of sampling and classification of vegetation put forth in the 1995 volume and in the program were accepted and are now widely used. This has allowed us to compile an immense amount of data on California vegetation which will be included in the new edition. The new *Manual* will also serve as an ecological guide to the patterns of vegetation across the state. As such, it will include a wealth of information on the natural history of major species within each of the vegetation categories, and on their responses to fire and other natural disturbances. It will also describe how these responses shift geographically, and as a result of different types of land management practices.



ABOVE AND LEFT: Sagebrush scrub and forest vegetation at Convict Lake, on the east slope of the Sierra Nevada. Here granitic substrates contact limestone and other metamorphic country rock, seen in the distance. Photographs by L. Vorobik. •

ABOVE LEFT: One of the rare moonworts (*Botrichium ascendens*) in California is found near an isolated relictual stand of kinnikinnik (*Arctostaphylos uva-ursi*) in the Convict Lake area. Photograph by S. Matson.

The second article of the series, appearing in the April 2006 issue of *Fremontia*, presents the recent, comprehensive vegetation mapping and classification work completed in western Riverside County under the leadership of Julie Evens and Anne Klein, and compares those efforts with previous, less rigorous data collection studies in the same area. One of the principal goals of the CNPS Vegetation Program is to establish scientifically defensible standards for data collection and interpretation,



and this article demonstrates how such efforts make possible more meaningful conservation planning.

The July 2006 issue of *Fremontia* will feature a regional perspective on how vegetation mapping and classification standards can be implemented at a county level. Lorraine Rubin, Liz Chattin, and David Magney have made great strides in creating such a program in Ventura County. In their article, they describe the goals and value of their approach, and the strategies employed in collaborating with their local county planning department. The Ventura County program can serve as model for other counties throughout the state. In the final article in this series, scheduled for the October 2006 issue of *Fremontia*, Keith Wagner explores the legal ramifications of protection for vegetation communities, and explains how conservation-minded plant lov-

ers can use the California Environmental Quality Act to defend sensitive native habitat in California.

It is our goal to share our excitement about California's diverse array of vegetation, from coastal strand to alpine heath and desert cactus stands; we hope that with each article the reader will have an added appreciation for the complexity of the mosaic of vegetation within our state, along with the challenges of understanding it, describing it, and of utmost importance, protecting it. After all, vegetation, habitat, and species protection are forever linked, and it is critically important that all of us appreciate this part of the ecological web if we are to preserve the natural beauty of California that we so often take for granted.

Julie Evens, California Native Plant Society, 2707 K Street, Suite 1, Sacramento, CA 95816. jevens@cnps.org

ABOVE: Scrub understory of Joshua tree (*Yucca brevifolia*) alliance of the eastern Sierra in the southern part of the range includes a diversity of species including burrobrush (*Ambrosia dumosa*), desert paintbrush (*Castilleja angustifolia*), tickseed (*Coreopsis tinctoria*), and chia (*Salvia columbariae*). Photograph by L. Vorobik. • BELOW: Desert scrub assemblages may appear uniform, such as this sagebrush (*Artemisia tridentata*) alliance at the eastern base of the Sierra Nevada, off Highway 395. However, in California there are numerous desert scrub assemblages. Photograph by S. Matson.





Along slopes and drainages in the eastern Sierra Nevada, stands of Jeffrey Pine (*Pinus jeffreyi*) and mountain birch (*Betula occidentalis*) are found in the canyon east of Big Pine. Photograph by J. Evens.

THE MANUAL OF CALIFORNIA VEGETATION, SECOND EDITION

by Todd Keeler-Wolf

In late 1998, I met with John Sawyer, lead author of the *Manual of California Vegetation*, to discuss the feasibility of a second edition, as there were numerous signs of its acceptance and use in generating new information. Specifically, the 1995 edition had prompted the development of several large vegetation projects in the state, including the classification, description, and mapping of major protected areas, including Yosemite National Park, Point Reyes National Seashore, Anza-Borrego Desert State Park, and a large portion of the Mojave Desert.

The *Manual of California Vegetation* had been accepted as the basis for a new quantitative approach to the classification of California vegetation by the Natural Heritage Division of The Nature Conservancy (now a separate organization called NatureServe), which uses vegetation

A NOTE ON TAXONOMY AND NATIONAL STANDARDS

In the past edition of the *Manual of California Vegetation*, we used the term “Series” to describe the major vegetation types. In the new edition we use the term Alliance. This is the result of a large scale effort in the past decade by NatureServe (www.natureserve.org), an international organization that is committed to developing standards for vegetation and species conservation and inventory in order to maintain a standard classification terminology for vegetation. To facilitate the understanding and inclusion of all of the vegetation of California into a broader view of national and international classification, we adhere to the terminology of this international vegetation classification system. The definition of the term Alliance is basically identical to the definition of the term Series in our first book, and a general description follows:

Alliance: The basic, generic unit of floristic classification, usually identified by the dominant and/or characteristic plant species in the upper layer of vegetation. For example, in the Black Cottonwood Alliance, the cottonwood (*Populus balsamifera* ssp. *trichocarpa*) is conspicuous or predominant in the tree canopy. Although black cottonwood may co-occur with trees such as willows and maples, and numerous other shrubs and herbs, those other species typically cover less ground and are less characteristic of the alliance than cottonwood.



been accepted for this purpose by many ecologists, professional agency staff, and consulting biologists; however, it was far from complete. We also agreed that the real value of the book should go beyond the identification of a new system of classification units for vegetation. Although

In the foothills of the Sierra Nevada, a high diversity of vegetation can be found including blue oak (*Quercus douglasii*) and interior live oak (*Q. wislizeni*) woodlands, chamise (*Adenostoma fasciculatum*) chaparral, and black oak (*Q. kelloggii*) and ponderosa pine (*Pinus ponderosa*) forests. Near Ash Mountain, Sequoia National Park. Photograph by J. Evens.



California serpentine grasslands and prairies are rich in native species, such as found on Coyote Ridge in Santa Clara County. Photograph by J. Evens.

as a basis for ecosystem conservation. The book was also accepted as the basis for a state standard classification system by the ecology program of the US Forest Service, as well as the California component of the National Vegetation Classification System by the state interagency vegetation committee.

VISIONS FOR A NEW MANUAL

When John and I discussed the vision for the new book, we thought about the role of the first edition as a means to introduce a framework of quantitative classification to California. We concluded that it had

TABLE 1. Example of the life history summary table of major species of true fir (*Abies*). Species listed are silver fir (*A. amabilis*), Santa Lucia fir (*A. bracteata*), white fir (*A. concolor*), grand fir (*A. grandis*), subalpine fir (*A. lasiocarpa*), red fir (*A. magnifica* ssp. *magnifica*), and Shasta red fir (*A. magnifica* ssp. *shastensis*). Key to abbreviations is as follows. Mode of

Species	Life Form					
		Seed characteristics				
		Mode of storage	Seed longevity	Mode of dispersal	Stimulation agents required for germination	
<i>Abies amabilis</i>	PP-T-ev	S, C?	S?	W	none	
<i>Abies bracteata</i>	PP-T-ev	T	S	W, G, A	WS	
<i>Abies concolor</i>	PP-T-ev	T	S	W	WS	
<i>Abies concolor</i>	PP-T-ev	T	S	A, W	WS	
<i>Abies concolor</i>	PP-T-ev	T	S	A, W	WS	
<i>Abies grandis</i>	PP-T-ev	T	S	G, W	WS	
<i>Abies lasiocarpa</i>	PP-T-ev	T	S	W	WS	
<i>Abies magnifica</i> var. <i>magnifica</i>	PP-T-ev	T	S	A, W	none	
<i>Abies magnifica</i> var. <i>magnifica</i>	PP-T-ev	T	S	W	WS	
<i>Abies magnifica</i> var. <i>shastensis</i>	PP-T-ev	T	S	W	none	
<i>Abies magnifica</i> var. <i>shastensis</i>	PP-T-ev	T	S	W	WS	

John and I are vegetation aficionados and we love vegetation for its own sake, we realized that the greatest value for potential users of the second book would be a tool to understand, manage, and sustain biodiversity of California, one of the key missions of the California Native Plant Society.

Vegetation descriptions in the first book were brief and limited by the lack of information on their distribution, their component species, and their ecological relationships to other types of vegetation. We thought one of the greatest virtues of a new book would be to include

more detailed descriptions of the major vegetation types across the state. This would include a detailed geographical discussion of the full range of variation in each type, by attempting to describe how the same vegetation type may vary from one portion of the state to another.

We also realized that one of the most widespread uses of the book would come from land managers who were interested in maintaining a natural mosaic of vegetation in the landscape, and who needed to know more about the responses and characteristics of each vegetation type to natural and unnatural disturbance

regimes such as fire, flood, invasive exotics, and climate change.

FIRE AND OTHER NATURAL PROCESSES

Agencies and organizations (such as the US Forest Service, National Park Service, California Department of Forestry and Fire Protection, and California Department of Fish and Game) involved in the Association of Fire Ecologists (AFE) had long wanted more and better information on how different vegetation types respond to fire, because they knew that fire and fuels management could

Sprouting: SB = stems and branches. Lifeform: PP = polycarpic perennial; T = tree; ev = evergreen. Mode of storage: S = soil; C = cone; T = transient (short seed life). Seed longevity: S = short (less than 2 years). Mode of Dispersal: W = wind; G = gravity; A = Animal. Stimulation Agents: WS = water and stratification. Workshop/Region: WS2 = Klamath-North Coast-Cascades-Modoc; WS3 = Sierra Nevada; WS4 = Southern California; WS5 = Central Coast and Valley. [For key to abbreviations used in Survivability column, contact author.]

Biological characteristics associated with disturbance							Workshop/ Region
Vegetative characteristics					Notes	Recruitment	
	Mode of sprouting	Survivability of mature plants after fire/disturbance	Disturbance stimulated flowering (Y/N)	Known range of reproductive viability (years)			
	none	FS- A1, B1	N 400 (500)	(20) 30 to		L	WS2
	none	FS-A1, D1	N	??-100+	look at Steve Tally thesis 1974	L	WS5
	none	FH-A2, D2	N	40 to 300 (400)		L in open sites, M in shade	WS2
	none	FH-A2 susceptible to rot from scarred	N	25 to 400+		High	WS3
	none	FH-A2 susceptible to rot from scarred, D2	N	25 to 400+		L	WS4
	none	FS-B1, C1, D1; but large trees relatively FH-A2	N	20 to 250 (300)		L	WS2
	SB	FS-A1, B1, C1, D1	N	20 to 200+		Depends on substrate	WS2
	none	FH-A2, B2	N	(35) 45 to 500+		E	WS3
	none	FH-A2, B2	N	(35) 45 to 500+		E	WS2
	none	FH-A2, B3	N	30 to 600			WS3
	none	FH-A2, B2	N	30 to 350?			WS2

be improved greatly statewide. For example, managers could be provided a framework that represents the natural palette of vegetation and how it responds to fire. AFE wanted to have a compendium of information which would enable managers to identify the characteristics of vegetation types throughout the state with regard to their natural fire regime and response to fire.

Neil Sugihara, the state fire ecologist for the Forest Service, spearheaded a discussion with John and me. This led to an agreement with the Joint Fire Sciences Council, an interagency group of federal agencies responsible for setting the scientific framework for fire and fuels management. This agreement called for the addition of information on fire and other natural disturbance ecology in the new manual.

This effort in some cases went beyond John's and my knowledge. Thus, AFE agreed to support us in gathering and summarizing additional information through the coordination of five workshops. The workshops would be held throughout the major ecological regions of the state, where we would gather together experts in vegetation and fire ecology for two to three days.

The workshops included: 1) Warm Deserts, 2) Klamath, North Coast and Modoc regions, and Great Basin regions, 3) Sierra Nevada, 4) Southern California mountains and valleys, and 5) Central Valley and Central Coast Ranges. They were facilitated by Carrie Shaw of the UC Davis Information Center for the Environment and were attended by 20 to 30 experts. Each workshop took place every four to five months over a period of two years, with the first one held at Joshua Tree National Park in January 2000 and the last one held at UC Davis in June 2002.

Prior to these workshops, John and I would provide new written descriptions for each of the vegetation alliances in the region. Then the team of workshop participants would

TABLE 2. Fire regimes per vegetation alliance.

Alliance	Temporal		Spatial		
	Frequency (yrs)	Seasonality	Size/Extent	Complexity	
<i>Abies amabilis</i> silver fir	200+ Freq	Aug-Sept	individ to stand	low	
<i>Abies bracteata</i> Santa Lucia fir	50-100+ depending on understory	Jul-Nov	less than stand size	mod-high	
<i>Abies concolor</i> white fir					
<i>Abies concolor</i> white fir	5?-50?	Aug-Sept	up to stand size	low-high	
<i>Abies concolor</i> - <i>Abies magnifica</i> white fir-red fir	10-50, 12-161, 32-38 median Stuart and Salazar 3-150 inland, 20-150 other inland Skinner, 15-20 median Taylor	Aug-Oct	Small to hundreds of hectares	high	
<i>Abies concolor</i> - <i>Abies magnifica</i> white fir-red fir	overall range 50-100 (overall range would be shorter due to higher productivity and longer burning season)	Aug-Sept	up to stand size	low-high	
<i>Abies concolor</i> - <i>Pinus lambertiana</i> white fir- sugar pine	5-50 (data from so. Sierra has mean freq of 10.)	Aug-Sept	up to stand	low-high	
<i>Abies concolor</i> - <i>Pseudotsuga</i> <i>menziesii</i> white fir- Douglas fir	40 Stuart (most coastal), 15-25 Thompson's Ridge, Skinner 4-50 overall)	Aug-Oct	Small to thousands of hectares	mod	

contribute its knowledge on such things as fire history and response of the major dominant species to fire. They also provided knowledge on the degree to which current fires and disturbance events have deviated from what is thought to be pristine patterns of frequency and intensity, and particularly prior to the effects of fire suppression, invasive weeds, and increased human population in the past 150 years.

In addition to the basic descriptions for the vegetation types, two tables were being developed through the workshops. The first one in-

cluded information specific to the principal component species of the vegetation types occurring in each of the ecological regions. This table summarizes the life-history traits of these species (Table 1 on pp. 8-9).

Information in the life history table describes the innate capacity of the major component species to respond to fire and disturbance. Taken in tandem with the species composition information for a given vegetation type, the ideal fire regime for each vegetation alliance would be described. As a way of illustration, consider a vegetation

	Magnitude		Type	Notes	Region
	Intensity	Severity			
	low	very high	surface	All known California stands are relatively uniform in structure and have had stand-replacing fires.	Klamath Mtns., local, Westside
	low-high	low-high	surface-dependent crown	Most remaining stands are in steep highly protected sites inaccessible to fire.	Central Coast
				Longer interval in Warner's than westside. Carl Skinner has report on Raider Basin in Warner Mountains. A "weird" place. Vale (1975) grazing disturbance info. Sue Husari—interaction between insects and fire disturbance. Larger stand-replacing fires on east side in white fir due to drier sites and more beetle attacks.	Warner Mtns., other areas east of Cascades
	low-high	low-high	surface, passive, dependent	Similar to red fir data.	Upper Montane—Forests of Sierra Nevada
	low-high mostly low	low-very high	ground-dependent crown	Wind-throw up to hundreds of hectares. Local avalanche with increased fuel loads at the end of the chutes.	Klamath—North Coast Range—Cascades
	low-high	low-high	surface, passive, dependent	Similar to red fir data.	Upper Montane—Forests Sierra
	low-high	low-high	surface, passive, dependent	Data from Southern Sierra has mean frequency of 10.	Montane—Forest Sierra Nevada
	low-very high, mostly low-moderate	low-very high, mostly low	surface-dependent crown (mostly surface)	California stands are very long persisting; Douglas-fir is not seral in these stands.	Klamath—North Coast Ranges—Cascades Westside

type that includes primarily a perennial shrubby species that cannot resprout after fire, and which has seeds that only germinate following heat treatment. This vegetation requires typically short fire intervals with comparatively intense fires to maintain itself. It contrasts markedly from a vegetation type that is primarily composed of resprouting shrubs that sexually reproduce with animal-dispersed fruit and that do not require heat stimulation.

A compilation that contained this type of information would greatly assist ecologists and land managers

in determining what the appropriate fire management regimes should be for a variety of vegetation types in a given area. Thus, it would provide guidance in how best to maintain (or to alter) the existing array of vegetation.

Another table was compiled for the overall responses that different vegetation types have to fire and other disturbance (Table 2). This table includes the general relationships of natural fire and disturbance seasonality, frequency, and intensity to each of the treated vegetation alliances.

Taken in combination, these two

tables tell us the basic natural disturbance regimes and responses of the individual component species of each vegetation type defined and of the vegetation itself.

GEOGRAPHICAL VARIATION

In the first edition of the book, we relied largely on the bioregional subdivisions of the state as outlined in *The Jepson Manual* (Hickman 1993) to briefly denote the range of each vegetation type. Because much was not known at this time and the



Example of a distribution map for Curl-Leaf Mountain Mahogany Alliance showing the known or presumed distribution in black, based on the selection of the ecological subsections (Miles and Goudey 1997). The resulting map shows in relatively fine scale a standardized ecologically based likely distribution of the alliance. Illustration by T. Keeler-Wolf.

NEW VEGETATION MANUAL SAMPLE SUMMARY REGIONAL DISTRIBUTION FOR CURL-LEAF MOUNTAIN MAHOGANY ALLIANCE

Klamath Mountains (M261A): The alliance is local at montane, subalpine elevations in the eastern ranges. Some small stands occur as far west as the Russian Peak Wilderness and North Yolla Bolly. Keeler-Wolf (1990e) qualitatively describes *Cercocarpus ledifolius* stands at Sugar Creek candidate RNA in Siskiyou Co. Keeler-Wolf (1990e) describes stands at Crater Creek candidate RNA in Siskiyou Co. Three structural forms of the alliance exist there, including open shrub-steppe, denser shrubland, and a taller woodland of old-growth individuals.

Northern California Coast Ranges (M261B): The alliance occupies ultramafic substrates and is local on exposed ridges at montane elevations. Stands are scattered on Greywacke sandstone ridges (> 1,500 m) in the Yolla Bolly Mountains. Keeler-Wolf and Keeler-Wolf (1974) report on stands in the Yolla Bolly Mountains of Tehama Co. Hemphill (1952) reports stands as far south as Mt. St. John in Mendocino Co.

Southern Cascades (M261D): Stands occur on volcanic slopes in Medicine Lake Highlands and on Goosenest, Mt. McGee, and Whaleback Mountains. (Sawyer, personal observation 2002.)

Modoc Plateau (M261G): Stands are widespread in the Warner Mountains, and on escarpments and outcrops throughout the Devils Garden (e.g., Keeler-Wolf 1985) and other parts of the section. Young et al. (1977) qualitatively describe two types in northeastern California. Jensen (1989) Raider Basin candidate RNA in Modoc Co.; Jensen & Schierenbeck (1990) report tree density, frequency, and cover at Raider Basin candidate RNA in Modoc Co.

Southern California Mountains (M262B): Stands occur on higher elevations of the Transverse and Peninsular ranges. They are common on the northern slopes of the San Bernardino and San Gabriel mountains and on the eastern escarpment of the San Jacinto and Santa Rosa mountains. The southern-most stands in California occur on Villager Peak at the northeastern corner of Anza-Borrego Desert State Park (Keeler-Wolf et al. 1998).

Stand of curl-leaf mountain mahogany approximately one meter tall at timberline, 3,200 m elevation, with krummholz white-bark pine (*Pinus albicaulis*) at Warren Bench, Mono Co. Photograph by T. Keeler-Wolf.

Mono (341D): Stands are common on the eastern escarpment of the Sierra Nevada associated with *Juniperus occidentalis* ssp. *australis*, *Pinus monophylla*, *P. jeffreyi*, *P. flexilis*, and *P. albicaulis*. (Keeler-Wolf et al. 2003y). Stands in Lee Vining Canyon have burned in the past decade and currently show moderate seedling re-establishment, recruiting from adjacent non-burned stands (Keeler-Wolf, personal observation 2002).

Southeastern Great Basin (341F): Stands are common in the White-Inyo Range, and in the Panamint Mountains. Stands may occur in the Argus Range at the highest elevations (Keeler-Wolf 1990e). Thomas et al. (2004) define an association in Saline Valley, and report it from Inyo and Panamint ranges, Inyo Co.

Northwestern Basin and Range (342B): Stands are scattered at the highest elevations.



Curl-leaf mountain mahogany (*Cercocarpus ledifolius*). Photograph by C. Weber, courtesy of the Jepson and University Herbaria and UC Regents.



Stand of five meter tall curl-leaf mountain mahogany with emergent Jeffrey pine (*Pinus jeffreyi*), around 2,000 m elevation in Lee Vining Canyon, Mono County. Photograph by T. Keeler-Wolf.

focus was on identification of the vegetation and less on a compendium of information, we believed this sufficient. As we compiled the information for most vegetation alliances for the second edition, we realized that there was now more geographical variation in many of the alliances than we could easily put into a single sentence or phrase. Moreover, this information is suggestive of significant ecological differences in stands of the same vegetation alliance in different parts of the state. In this edition, we have adopted a different system, based on the Ecological Subregions of California (Miles and Goudey 1997) and accompanying map developed by the USDA Forest Service and Natural Resource Conservation Service. This system divides the state into a hierarchy of 19 sections and 224 subsections, based on combinations of ecological influences including climate, geology, and natural vegetation patterns. This system provides a more detailed and ecologically based foundation to describe the array of vegetation across the state, though the precise delineation of boundaries is debatable.

For each written description, we are developing a map and a paragraph that depicts each of the ecological subsections in which a vegetation alliance occurs. This includes a summary of each vegetation type in each of the major ecological sections of the state (see the example of Curl-leaf Mountain Mahogany Alliance in the sidebar on p. 12). We hope that by describing the more specific geographic distribution of each of the alliances, we can indicate the variety of settings in which types occur, and also indicate where gaps still exist in our knowledge.

Additionally, we are attempting to depict this geographical and ecological variation using a photographic record of each alliance (see examples on p. 12). With the help of CNPS volunteers, we are compiling a photographic archive with rep-

resentative shots of each vegetation type throughout California. For more information on how you can contribute photos of vegetation types, please visit the CNPS vegetation program website at: www.cnps.org/programs/vegetation/index.htm.

Regional accounts also provide us with the ability to address the varying conservation issues for a given vegetation alliance. In some regions an alliance may be abundant, while in others the same alliance may be extremely rare (see tufted hairgrass images at right).

AN INFORMATION EXPLOSION

Upon setting the stage in the first edition, there has been an explosion of information on California's vegetation in the past ten years. Much of this is a result of collaborative vegetation projects with the CNPS Vegetation Program, local CNPS chapters, California Department of Fish and Game, National Park Service, California State Parks, US Forest Service, USGS, and other agencies.

In the first edition of the *Manual*, John and I defined approximately 220 series, plus about 30 more habitats, unique stands, and vernal pool systems. In the second edition we already have 383 alliances defined, with perhaps another 70–80 provisional alliances. This increase has come primarily from a huge infusion of new survey data collected from 15 or so major projects covering about 25% of the state. For a summary of the recent statistics see Keeler-Wolf and Evens (2005).

For example, major work in the Mojave Desert (Thomas et al. 2004, Evens 2003) has brought our understanding of vegetation from one of general patterns and largely anecdotal definitions, to one of more complete understanding with fine-scale regional mapping and several thousand individual quantitative samples. Additionally, a huge



CLOCKWISE FROM TOP: The native grassland Coast Tufted Hairgrass Alliance (*Deschampsia caespitosa* var. *holciformis*) is somewhat more wide-spread, though still rare in California, in the outer North Coast Ranges as seen here at Point Reyes, where about 70 acres occur. • The Coast Tufted Hairgrass Alliance, depending on its regional location, may be locally very rare, such as in the western Sacramento—San Joaquin Delta, Sacramento County (Sherman Island Wildlife Area). The total area of this vegetation in the entire Delta and Sacramento Valley area is probably less than one acre. • Further north in the tidelands of British Columbia, the Coast Tufted Hairgrass Alliance in the foreground is commonly occurring in hundreds of acres. This image is taken from the north shore of Vancouver Island near Johnstone Strait, British Columbia. Photographs by T. Keeler-Wolf.

amount of detailed vegetation information has been collected in southern California, the Sierra foothills, serpentine grasslands, shrublands, and woodlands in California, as well as the subalpine and alpine Sierra Nevada. This work has led to

the definition of many types of vegetation that had not been known previously, including that of vegetation types covering large areas of the Mojave, which were unknown when the first edition was written (see photograph below).

In the first edition, many vegetation types were poorly known and were combined into generic categories. These included montane and subalpine meadow types characterized by an array of sedges, rushes, and various species of grasses. Montane and subalpine thickets of willows, alders, and other woody riparian species also were not quantitatively sampled and understood. As a result of recent sampling, analysis, and mapping of these types, we are able to replace generic and relatively unsatisfying categories such as montane and subalpine meadow habitats with specific vegetation alliances that are now known to comprise these habitats (see sidebar at right).

The same concept has been extended to vernal pools. The broad categories of vernal pools widely known by California botanists and ecologists have been updated with

Menodora spinescens (Greenfire) Alliance, which covers thousands of acres in the northern Mojave Desert. It was not known to exist prior to extensive sampling efforts in the late 1990s. Photograph by T. Keeler-Wolf.



NEW VEGETATION ALLIANCES

Examples now known to comprise subalpine wetland scrub (Sawyer and Keeler-Wolf 1995).

Salix arctica alliance—arctic willow scrub
Salix bebbiana alliance—Bebb's willow scrub
Salix lemmonii alliance—Lemmon's willow scrub
Salix eastwoodiae alliance—Sierran willow scrub
Salix jepsonii alliance—Jepson's willow scrub
Salix lutea alliance—yellow willow scrub
Salix melanopsis alliance—dusky willow scrub
Salix orestera alliance—grayleaf Sierran willow scrub
Salix planifolia alliance—tea-leaf willow scrub
Cornus sericea alliance—red-osier dogwood scrub
Lonicera conjugialis alliance—double honeysuckle scrub

more detailed definitions. Systematic sampling of individual stands throughout many of the vernal pool systems statewide (Barbour et al. 2003, Barbour et al. 2005) has resulted in a more functional array of individual alliances. These alliances may be either locally distributed or more widely distributed throughout the state.

TAKING CRITICISM TO HEART

Although the value of the first edition (at least from the author's perspective) outweighed the confusion it brought upon the world, there were valid criticisms in several reviews following its publication. Comments included the lack of hierarchical context for the classification, the incompleteness of the classification for certain areas in the state, and the use of common names. Furthermore, certain types were missing references or translations to other well-known classification systems, including the widely used Munz and Keck California plant communities, or the CalVeg classification (used by the US Forest Service Remote Sensing Lab and California Department of Forestry and Fire Protection).

We have tried to systematically address these comments with numer-

ous additions or modifications to the new manuscript. Scientific names are now used for the primary alliance names. A complete hierarchy based on the new national and international vegetation classification system is included. Each vegetation type is referenced to its Ecological System. These systems are now widely used by NatureServe to synthetically classify the array of vegetation throughout North America (see www.natureserve.org/publications/usEcologicalsystems.jsp). Further translations to the Munz and Keck and the CalVeg classification systems are included with each description, as are revised translations to the Wildlife Habitat Relationships (WHR) system.

One of the primary criticisms of the first edition came from academics who believed in a more traditional view of vegetation classification. Traditionally, a classification is built by an accumulation of individual vegetation samples that are synthesized through analysis into a series of quantitative descriptions. This approach was taken when possible in the first edition, where large numbers of samples had been collected and analyzed, such as with many of the tree-dominated types of the montane zone. However, some vegetation types had not been widely sampled, and thus were not



The Ponderosa Pine-Incense-Cedar Alliance (*Pinus ponderosa*-*Calocedrus decurrens*) comprises the lower elevation, warmer portion of what is commonly thought of as the Sierran mixed conifer forest. These stands exist in part as a result of a specific fire regime outlined in the sidebar below. Photograph by T. Keeler-Wolf.

ready for quantitative analysis and description.

Since that time, many more types have been recently sampled and quantitatively analyzed, resulting in new definitions or the renaming of many types. In many ways, the taxonomic issues that confront vegetation nomenclature are mirrored in organismal taxonomy. Just as genera and species have been named, renamed, and reordered as a result of additional scientific information and new technology, vegetation types are undergoing the same types

of changes. Such changes will likely continue until sufficient sampling and analysis have been accomplished to obtain a complete statewide and quantitative understanding of vegetation.

A DIFFERENT PERSPECTIVE OF BIODIVERSITY

Why should we be interested in vegetation at this fine of a scale? Many nature lovers are satisfied with perceiving the beauty and intricacy of nature at the level of the individual species. Yet most of us realize the need for a framework within which these species can be placed. Whether it is formal or informal, vegetation or habitat classification has often become the common language we use for this purpose.

Categorically defining vegetation can clearly be overwhelming and should never replace the fundamental approach to species description and conservation. However, studying and assessing vegetation offers useful, satisfying exercises that can be used for broad-scale conservation efforts and for depicting patterns of biodiversity. Many ecologists hold the fundamental viewpoint that species never stand alone but exist as members of a vegetation community. Vegetation that also defines habitat for animals has seen a great surge of interest in NCCP and HCP plan-

FIRE CHARACTERISTICS OF PONDEROSA PINE-INCENSE-CEDAR ALLIANCE

Fire in ponderosa pine (*Pinus ponderosa*)-incense cedar (*Calocedrus decurrens*) stands was typically high frequency and low intensity. Cat-face scars reveal that multiple low intensity burns on most mature trees are common throughout the range of this alliance in California. Incense-cedar seedlings and saplings are more readily killed by fire than most other associated conifer species (Habeck 1992a), including *P. ponderosa* (Habeck 1992b). Longer intervals between surface fires favor regeneration of *C. decurrens* over *P. ponderosa*.

ning efforts. Furthermore, vegetation or habitat conservation has been a primary focus for animal, plant, and natural community (vegetation) conservation spearheaded by the Nature Conservancy, NatureServe, and other organizations over the last several decades.

We hope our second edition inspires greater interest not only among the scientific community, but to a broader audience. Its use by managers, planners, and conservation biologists has already taken off. However, as a result of the revised *Manual*, we would find it immensely satisfying to see nature lovers discover an increased excitement and wonder in being able to recognize an array of natural vegetation patterns and find enjoyment in understanding the underlying ecological reasons for the patterns.

OUR VISION FOR THE FUTURE

The new *Manual of California Vegetation* will not be the last edition. More information remains to be collected on vegetation for specific areas of the state, including the Coast Ranges, Modoc Plateau, grasslands and other herbaceous communities of the Central Valley, and the foothills of the Sierra Nevada. After information is collected on all state vegetation types, we can progress with a more systematic approach toward ecosystem conservation.

Knowledge of vegetation can assist conservation efforts immensely because it can be easily quantified (e.g., mapped and defined from the ground), and can provide important guidelines for the desired future conditions of natural ecosystems. The effects of natural processes such as fire, flood, and plant disease outbreaks are now better understood as they relate to vegetation. This enables us to better predict the patterns and pathways that vegetation will follow based on these external influences (image and sidebar on p. 15).

The vegetation descriptions in the new *Manual* will also provide valuable information to restoration ecologists. Now we have excellent examples of reference sites that managers can access by selecting plot definitions and descriptions for different vegetation types (see image below). In the near future, we hope these individual definitions and plot samples will be available through the Internet. These types of resources will enable restoration ecologists to judge the appropriate selection of species for restoration in different regions of the state, based on the natural geographic variation within different vegetation types. The resources could also provide a means for ecologists to assess the success of restoration efforts to attain a given species composition and habitat structure. This could be determined by looking at samples of different types of native and natural high-quality vegetation stands.



An excellent example of a native annual forbland/grassland in Dye Creek Preserve, Tehama County. The mixture of native annual and perennial species include *Hemizonia* (*Centromadia*) *fitchii*, *H. pungens*, *Calycadenia fremontii*, *Centaurium muchlenbergii*, *Navaretia* sp., *Trichostemma lanceolatum*, *Lessingia virgata*, *Vulpia microstachys*, *Aristida oligantha*, and *Nassella pulchra*. Only a minimal cover of non-native annual species is present. Such sites provide excellent examples of reference conditions for restoration efforts. Photograph by T. Keeler-Wolf.

The future refinement of the *Manual* is open-ended at this point. Perhaps we will be able to update it using the Internet or other digital means. There is current discussion of creating a database version, which will enable users to query and select information in a customized format. Queries may be based on geography, on species composition, or on physiological vegetation groups (chaparral, vernal pools, coniferous forests, oak woodlands, etc.).

John and I are working on the final manuscript of the book with the assistance of Julie Evens, which should be completed in early 2006. Publication costs and other details are yet to be fully worked out, but the next edition likely will be printed on thin ("bible style") paper, will have a CD to display most of the photographs, and will largely be issued as a soft-cover edition.

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ORGANIZING A NATIVE GARDEN TOUR

by Arvind Kumar

Note from the Editor: I received these suggestions for running a garden tour from Arvind Kumar and Kathy Kramer (see sidebar) separately, and found it interesting and instructive to see how their ideas matched, but even more fun to see each author's unique perspective.

In late 2002, a few members of the Gardening With Natives group, part of the Santa Clara Valley Chapter of the California Native Plant Society (CNPS), began work on the first native garden tour in the San Francisco Bay area. Their successful effort inspired other tours, and this year, three different garden tours were held in the Bay Area. These tours welcomed visitors to a combined total of 98 gardens in five counties, had 7,575 registrants and a total of 23,700 garden visits! The tours were produced by about 280 volunteers. These numbers do not include garden tours held in southern California, where native plant gardening is popular as well.



The owners of this Los Altos home replaced a swimming pool with a pond lined with sedges and other native plants; now many species of birds call this garden their home. All photographs by A. Kumar unless otherwise noted.

These staggering numbers testify to the current phenomenal interest in gardening with native plants. It should come as no surprise: Many Californians are very sensitive to environmental issues

and want to do the right thing if they can. They want their yards to be free of poisons and chemicals. They want to use less water and energy. They want butterflies and birds to feel at home in their gar-

TABLE 1. GARDEN TOUR WEBSITES AND CONTACTS

To volunteer your time or your garden for next year's native garden tours, or for more information (including tour dates), contact the tour in your area:

Area	Tour	Website	Email / Event Date
Alameda and Contra Costa counties	Bringing Back the Natives Garden Tour	www.BringingBackTheNatives.net	Kathy@KathyKramerConsulting.net May 7, 2006
Los Angeles	Theodore Payne Garden Tour	www.theodorepayne.org	info@theodorepayne.org April 1 & 2, 2006
Orange County	Orange County Native Garden Tour	www.ocnps.org	sbjayne@cox.net see website
San Francisco	Mother's Day Tour	www.cnps-yerbabuena.org/gardentour.html	jeannehalpern@hotmail.com May 14, 2006
Santa Clara and San Mateo counties	Going Native Garden Tour	www.GoingNativeGardenTour.org	info@GoingNativeGardenTour.org April 30, 2006

TASK TIMELINE FOR BRINGING BACK THE NATIVES TOUR by Kathy Kramer

The May 2005 Bringing Back the Natives Garden Tour contained 55 pesticide-free, water-conserving Alameda and Contra Costa County gardens that provided habitat for wildlife and contained 30% or more native plants. On the day of the tour native plants were sold or given away at 16 gardens, more than 40 talks were given, and 191 volunteers staffed the gardens. More than 5,000 people registered for this free event; they made nearly 20,000 garden visits. The following timeline may help others to plan successful tours.

June–November

1. Search for pesticide-free, water-conserving, native plant gardens; write and send out press releases, contact the local California Native Plant Society chapter and garden clubs, run articles in local newspapers and newsletters.
2. E-mail or mail applications to homeowners and field questions.
3. Review applications and set up appointments.
4. Visit potential gardens to assess them and meet homeowners.
5. Notify all applicants, accepted and rejected.
6. Write garden descriptions and directions to each home; send to homeowner for confirmation they are correct, and revise per their comments. Ensure homeowners return signed expectation letter and survey.
7. Obtain plant lists from homeowners.
8. Assist homeowner, if s/he is interested in making changes

to their garden that would improve it for the tour. Provide homeowners with information on getting their gardens certified by the National Wildlife Federation. Encourage homeowners to prepare plant lists and label plants.

9. Update flier, press releases and e-mail notices.
10. Develop partnerships with interested agencies, such as water districts, stormwater agencies and non-profits that can help promote or support the tour.
11. Join the statewide Garden Club Association.
12. Revise and update the Bringing Back the Natives Garden Tour website (www.bringingbackthenatives.net/). As gardens are accepted, their photos, description, and plant lists will be loaded up.
13. Update promotional list—individuals, organizations, cities, agencies, and non-profits that will receive fliers, press releases and e-mail about the tour.
14. Begin promoting event.
15. Begin soliciting volunteers.
16. Coordinate with South Bay Going Native Garden Tour and with Bringing Back the Natives Garden Tour homeowners, speakers, volunteers, financial supporters, partner agencies, and non-profits.

December

17. Finalize list of gardens that will be on the tour.
18. Begin laying out the Garden Guide.
19. Solicit tour guidebook bids from printers.
20. Obtain bids from a mailing house for tour guidebook distribution to registrants.
21. Print and distribute flier.

22. Write press release and promote tour through newspapers; city, agency, and non-profit newsletters; and e-mail.
23. Begin sending press releases to quarterly newsletters.
24. Coordinate with South Bay Going Native Garden Tour, and with Bringing Back the Natives Garden Tour homeowners, speakers, volunteers, financial supporters, partner agencies, and non-profits.

January–March

25. Continue distributing fliers and other promotional activities.
26. Identify and contact speakers.
27. Open registration.
28. Maintain registrant list in a database.
29. Solicit volunteers and assign them to gardens.
30. Take stock of garden tour signs that will be posted in front of participating homes.
31. Solicit bids and have T-shirts printed for homeowners and volunteers.
32. Confirm commitment from speakers.
33. Gather handouts for distribution on the day of the event.
34. Send tour guide book to printer.

April–June

35. Continue event promotion.
36. Continue soliciting volunteers and assigning them to gardens.
37. Continue distributing fliers.
38. Confirm with all speakers.
39. Continue coordinating with South Bay Going Native Garden Tour, homeowners, speakers, volunteers, financial supporters, agencies, and non-profits.
40. Connect volunteers and gardeners, and suggest they meet for a pre-tour.

41. Distribute signs, T-shirts, and handouts to homeowners.
42. Distribute T-shirts to volunteers.
43. Coordinate with homeowners and volunteers.
44. Manage registration.
45. Print labels and mail tour booklets to registered participants.
46. Develop, copy, and distribute evaluations for homeowners, tour participants, volunteers, and speakers.
47. Hold tour.
48. Tally number of visitors to each garden; summarize evaluations from homeowners, participants, speakers, and volunteers.
49. Write and send thank-you notes to homeowners, speakers, and volunteers.
50. Collect homeowner and participant evaluations, signs, and leftover handouts from the homeowners.
51. Write final report and distribute to financial supporters.

September

52. E-mail tour participants and ask them to fill out an on-line form about how their participation in the tour helped them to change (or didn't) their gardening practices.
53. Summarize survey responses.
54. Provide this information to financial supporters.

When planning for a year, plant corn. When planning for a decade, plant trees. When planning for life, train and educate people. (Chinese proverb)

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Ceanothus branches billow over the fence at this Palo Alto residence.

dens. They want a lower maintenance landscape. Of course, they want all this without sacrificing aesthetics or property value.

The idea of using native plants in the home garden resonates, but enthusiasm is often unaccompanied by knowing how to start. Many are missing access to information: books, lectures, workshops, nurseries, and tours that show them how native plants fit into the home landscape.

A group of committed volunteers can make a huge difference by giving the public an opportunity to see home gardens landscaped with California native trees, shrubs, and flowers. Visitors can see what types of plants thrive in different urban environments, and what sets of species complement one another in color, form, or blooming time. They can see examples of attractive ground covers, and different shrubs that are drought-resistant.

The following guidelines were compiled for our own use, but in sharing them here we hope to inspire and facilitate others in this fantastic and fun way to educate others about native plants

TOUR GUIDELINES

The following list summarizes the guidelines that the Santa Clara Valley Chapter followed, resulting in three successful native plant garden tours.

1. Form a core committee 8-12 months ahead of the anticipated

tour date. You will need a group because the work involved is far greater than any one person can handle. The group needn't be very large—four to six people may be sufficient—and they won't have to quit their day jobs. We divided our work along the following lines: garden selection, public relations, website and registration, docent coordination, and overall tour coordination.

2. Decide on the communication tools and frequency. We met face

BELOW: Ruby chalice clarkia (*Clarkia rubicunda*) brightens up the native garden in late spring. • BOTTOM: *Salvia spathacea*, *Salvia Bee's Bliss*, *Arctostaphylos* sp., and *Ceanothus* Dark Star in a San Jose garden. Photograph by S. Morris.



to face every two months to every two weeks, but most of our work was done through email. We used Yahoo groups on the Internet for committee communication, email archive, shared files, and occasional polls.

3. Pick a date, time, and tour format. Native gardens are at their best in spring. A Sunday in April or May, 10 am to 4 pm, worked well for us. We chose an open house format with no admission fee to attract the most visitors and keep administrative overhead low. The Theodore Payne tour charged admission to pay for part of the tour expenses.
4. Find the gardens. Without them, there is no tour. Put the word out and solicit gardens. Don't be shy about approaching garden owners and urging them to share their unique gardens with the community for just one day. Send garden solicitation announcements to the media. Establish criteria for garden selection, such as the minimum percentage of native plants in each garden. We found our gardens through CNPS, Gardening With Natives, and native landscape designers.
5. Find sponsors. Ask local agencies such as the water district and runoff prevention program to help pay for the cost of garden signs, copying, T-shirts, and other materials.
6. Create a website and registra-

The magnificent Fleming garden in Berkeley was one of the highlights of the Bringing Back the Natives garden tour.



The Going Native Garden Tour features many private home gardens like this one in the Peninsula and South Bay.

- tion infrastructure. A website gets the word out 24/7. If you need to limit the number of visitors, have people register through the website and enforce a for-registrants-only policy. A committee member with website design experience is invaluable.
7. Announce the tour. Prepare a press release with a photo of a tour garden and send it out to all local newspapers, magazines, radio, and television stations. Use e-mail to keep your costs down. Remember that magazines like *Sunset*, *Via*, and our own *Fremontia* have deadlines six months in advance of publication date.
8. Recruit volunteers. Each garden needs greeters to welcome visitors and have them sign guest books. A docent leads guided tours of the garden and answers specific questions. Garden owners are usually the best docents, but will be exhausted without assistance. Non-owner docents should visit their assigned garden in advance to familiarize themselves with the plants. Our volunteers came from CNPS, UC Cooperative Extension Master Gardeners, participating landscape designers, and local college horticulture programs.
9. Ask garden owners to prepare garden descriptions and directions. What is unique and special about each garden? How old is it? How large is it? What is the percentage of natives? This information will help visitors decide which gardens to visit. Concise, accurate directions to each

garden are a must; do not rely on web-based mapping tools, as they may be incorrect.

10. Prepare materials for each garden. Each garden will need a large sign to help visitors locate the garden. It should have a guest book (photocopied sheets will do) for visitors to sign. Distribute tour materials to gardens prior to tour day.
11. Prepare incentive materials, if any. We offered volunteers T-shirts one year; another year we had magnets with a picture of natives in bloom for all visitors.
12. Encourage garden owners to label their native plants. Visitors want to learn about native plants, and labels are an essential component of such a tour. Visitors also appreciate plant lists to make notes on and take home.
13. Send garden descriptions and addresses to all registrants one to two weeks before tour day. With 2,000 registrants, we relied primarily on e-mail; it kept costs down. Registrants also received a write-up on tour etiquette: a list of dos and don'ts to make the tour enjoyable to all.
14. On tour day, enjoy the gardens! Relax and have fun.
15. After tour day, collect signs and guest books. Tally visitors at each garden, and write a tour report for the sponsors. Store signs for reuse next year. Have a review meeting to go over visitor feedback and to discuss what worked and what you may want to do differently next year.

Finally, send thank you notes to all volunteers, and if possible, arrange a tour of selected gardens for volunteers only, ending with a potluck at the last garden. A party brings a special closure to a great team effort.

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PRACTICALLY EVERYTHING YOU EVER WANTED TO KNOW ABOUT ORGANIZING A CHAPTER PLANT SALE

by Joan G. Stewart

Chapter plant sales are at the heart of the California Native Plant Society (CNPS) Horticulture Program, and practically all chapters hold them. This article provides detailed information about all the things to consider when planning and running a native plant sale. The procedures described here are those of a large plant sale where all plants are selected by, bought, handled, and sold under chapter direction. All arrangements are coordinated by one or two project leaders who are able to draw on a considerable number of experienced and enthusiastic chapter volunteers. This system is distinctly different from chapter sales where nurseries are more directly involved, and also from sales where a large proportion of material is grown by members. Each of the several approaches to running a plant sale has its own advantages and drawbacks. But we all have the same goal—working to help others enjoy native plants in their gardens, and to understand and appreciate the diversity of our native flora.

SAN DIEGO'S PLANT SALE

One of the most ambitious of all CNPS plant sales is organized by the large, urban San Diego Chapter. While the plant sale is held in that city, our chapter's members—as in many other chapters—are spread over a much larger geographical area, in this case including San Diego and Imperial counties. The chapter has offered native plants for gardens by means of an annual fall plant sale for more than 30 years, and the event has developed a complex pattern. Donated material is encouraged but over the years has not contributed a



The San Diego native plant sale at Balboa Park, showing the unique signs that guide customers to the plants they want. Photograph provided by J. Stewart.

significant portion of the stock, so we rely on buying plants. Our plant sale is an October event, with the date selected two years in advance, trying to avoid other Balboa Park events that could interfere with traffic and parking. We typically gross close to \$20,000, selling about 3,000 gallon cans of 200 to 250 different kinds of plants.

In past years the chapter experimented with several locations for the sale, but eventually settled on an outdoor patio in centrally located Balboa Park that has easy free-way access. Because our chapter is a member—along with other plant-related organizations—in a botanical society recognized by the city, we are able to use the Parks Department facilities at no cost for events and meetings, and are not required to obtain a certificate of insurance. Park staff assist by providing a “no-parking” curbside loading section

just outside the patio. Countering these advantages are restrictions on the hours permitted for use. Plants must be delivered and removed on the day of the sale during the hours the park is open, and limited mid-day parking creates problems.

Between 40 to 60 volunteers work before and on the day of the sale, organized by a coordinator who decides what plants will be bought, from which growers, and in what quantities. The coordinator also arranges for day-of-sale delivery of previously tagged (with name and price) material, and who oversees associated tasks and volunteers (i.e., who does what). Many members accept the same job year after year. Rather than considering the sale as the work of a committee, it is managed as a loosely linked group of members who assume specific tasks and work as independently as possible.

WHAT PLANTS ARE SOLD

The San Diego Chapter selects, buys, and sells plants, maintaining control over all aspects of the plant sale. The San Diego plant sale does not rely directly upon only one nursery, nor does it largely depend upon members growing a large number of the plants for sale. Planning begins by reviewing “post-it” slips that show how quickly each species sold out the prior year, and what did not sell well. Based on this information, in April a wish list is sent to several southern California commercial growers and nurseries that specialize in native taxa. This preorder lets growers know what we anticipate wanting, but does not represent a commitment on either side. In July, growers are contacted for comments on the earlier list, giving them a chance to call attention to taxa they have added to their inventory, and to note species that will not be available.

In mid-August or early September (this partly depends on weather in the latter part of summer), we again talk with individual growers and provide a firmer list of what we will buy in October. Member-grown material is now included in a master list, and we sort out which taxa are needed but not yet located. We are also careful to confirm terms of the larger commercial orders—discounts and/or wholesale prices, arrangements for delivery, and return-of-unsold plants.

Some growers, primarily those from whom we are only buying small numbers of plants, are unable to deliver between 6 am to 8 am on the day of the sale. Our volunteer “dispatcher” then arranges to pick them up. We also keep track of potential member-grown material that will be donated. Some people like to start plants but aren’t able to maintain them over the summer months. Others will tend plants that have already been started. The dispatcher ensures that all plants propagated

A DIFFERENT KIND OF PLANT SALE

The plant sale of the Alta Peak Chapter (Tulare County) of the California Native Plant Society (CNPS) is among the smaller chapter plant sales, and employs a different model than many. Most plants are supplied by a single nursery, and the material available to purchase includes only what is sent to us on the day before the sale.

The sale is usually held the first Saturday in October, but plans for the sale are set in motion in late spring. At that time we confirm the date for the sale with the plant supplier, Intermountain Nursery, and reserve the dates for our sale days with the Three Rivers Art Center, a site that has an attractive small fenced area.

In late July or early August the chapter receives the Intermountain Nursery plant list and makes up a preorder form that is inserted into the fall chapter newsletter and also handed out at chapter programs. These preorder forms allow chapter members to place an order ahead of time with a 50% deposit for the specific plants they desire. Members can also sign up on the form to help unload plants the day before the sale as well as on the day of the sale; the number of volunteers responding by using this form has been excellent.

In August the initial order is placed with Intermountain Nursery based on the sales of previous years. After August we make up another order list reflecting any needed changes in the order as new member orders are received. This list is submitted to the nursery the week before the sale. Two or three weeks prior to this we offer a chapter program that focuses on landscaping with natives. At approximately 10 am on the Friday before the sale the nursery truck arrives, and we check off the plants from our order lists as the plants are unloaded. At this time volunteers label the plants and place them on the outdoor staging area. Preorders are then pulled and placed in a separate place, and volunteers can pay for their orders, purchase any additional plants if they wish, load them up in their vehicles, and then we all depart. Later, when the sun has set behind the mountain and the area is cooler and quiet, someone returns to recheck the orders to be picked up the next day, and also waters all the plants.

At 8:30 am on Saturday, a couple of volunteers arrive and set up a table for the cashier and another one for books. Volunteers hang up the chapter sign, check out the area, and then open the gate for business. They also help people find their orders and load their cars, and a botanist is on hand to answer questions. By 11 am the madness has subsided and we can relax. By 1 pm any unsold plants and books are packed up and everyone departs.

On Sunday morning a volunteer drives to Intermountain Nursery and returns the unsold plants. Other suppliers make their own arrangements for picking up unsold plants. Last year the chapter ordered 500 plants and returned only 34. The treasurer counts the money, deposits it at the bank on Monday, and mails Intermountain Nursery a check. The sale has many benefits: the nursery does some business, thus promoting good will in the community, the chapter makes some money to offset expenses, individuals have beautiful plants, and enjoyment and knowledge of native plants grows with the likelihood of their being seen and enjoyed within home gardens.



Jean Struthers, director of the CNPS Santa Clara Chapter Nursery, helps volunteer Marisol label and prune plants. Photograph by A. Kumar.

by chapter volunteers are cared for, and works with the person in charge of donated plants to have them delivered early on the sale day, tagged with names and prices. This often requires moving plants around the county, calling on help from volunteers with small trucks or other suitable vehicles.

At the plant sale we offer species that are currently or recently native to the area and can be expected to grow well in some portion of our chapter's very diverse geographical region. This includes a few taxa from northern Baja California and some from the offshore Channel Islands. We also deal in certain cultivars, especially of species or cultivars of California lilac and manzanita (*Ceanothus* and *Arctostaphylos*, respectively) as these are well-known and popular. However, we only select those likely to do well in this part of the state.

Each year we try to have "New This Year—Try" species as well as the continuing favorites: matilija poppy (*Romneya coulteri*), woolly bluecurls (*Trichostema lanatum*), bush poppy (*Dendromecon rigida*),

and sage (*Salvia* spp.). Grasses have become increasingly in demand and we try to offer a variety. By the end of summer many of these, such as purple needle grass (*Nassella pulchra*) and its relatives, tend to look unattractive, and both suppliers and buyers need reassurance about their value in landscaping.

PUBLICITY

Publicity is essential to the success of any chapter's native plant sale. Ours begins by mailing out a springtime press release to magazines that require five to six months lead time for calendar listings. Later, depending on publication deadlines, press releases are sent to other magazines, professional newsletters, and journals, and finally to local newspapers—both those with city-wide circulation and smaller neighborhood publications. The chapter's publicity chair handles this work. A flyer is inserted in the September chapter newsletter, and copies are also made available at the September chapter meeting for members to post in libraries, schools, work-

places, or wherever a member thinks is useful. Local radio stations, botanical consultants, and museums also help spread the word.

For two to three months before the plant sale, brief notices are included in our chapter newsletter detailing progress and unmet needs. Specific portions of larger jobs are described, so that a volunteer can offer to take on a discrete and well-defined task, while understanding how his or her work fits into the larger picture. The October newsletter includes a list of all plants available at the sale, as well as a list of plants by category: trees, tall or short shrubs, climbers, rock garden plants, and herbaceous perennials.

In the five to six weeks prior to the sale, we are guided and reminded by lists, kept and amended from year to year, that specify what to buy and what to do, and that keep track of the names and contact information of individuals who can help with these tasks. Many of these small details are what make the plant sale fun and productive for those of us doing the work. For example, green and yellow crepe paper streamers, which help control access to the sale area, are bought to wind around pillars that enclose the outdoor patio. The rows of one-gallon cans additionally mark boundaries for the plant sale, making the area quite secure despite the open nature of the site.

We replenish 'post-it' pads stamped with "(Species) . . . sold out at . . . (the time)," and stacks of sales slips bound in pads. Pages with instructions on "Procedures for . . ." are revised and duplicated for volunteers. New signs are made for species we haven't offered before, and we pull signs from storage that we will need based on the updated master list. Because the September chapter program is on a horticultural topic it attracts members and friends with related interests. At this time a sign-up sheet is circulated describing work that needs to be done during the sale.

PRICING AND PLANT PREPARATION

In pricing plants, we consider the retail prices of the various nurseries that provide the largest proportion of what we sell. Since these vary somewhat, and because our goal is to help as many people as possible to learn about and enjoy using native plants, we do not have a rigid formula for setting our asking prices, which generally range between \$2 and \$8.50, and sometimes go as high as \$15 for unusual or special species. We avoid using containers larger than one gallon since carrying these to and from the site is difficult. While this is our chapter's

only fundraising event, we prefer to sell more plants—perhaps at lower



ABOVE LEFT: Gumweed (*Grindelia* sp.) is a hardy, late season bloomer for low water situations. • MIDDLE



LEFT: Rosy buckwheat (*Eriogonum grande* var. *rubescens*) a two foot tall perennial from the garden. •

BELOW: Yarrow (*Achillea millefolium*) is a hardy perennial for native plant gardens. Photographs by A. Kumar.



prices than what we could get—rather than fewer plants at higher prices. Four-inch pots and other small containers are used less frequently than are one-gallon containers, but member-grown material tends to be distinctive.

Shortly after each year's sale, we replenish the supply of plastic tags imprinted with CNPS and our chapter address. Plant names are computer-printed on return address labels, following the latest revision of the master plant list, and we stick several thousand of these on plastic tags, add a price written on a colored dot (coded to make the sales slip write-up more efficient), rubber band tags by taxon, arrange these alphabetically in plastic cups, then pull those that are needed for each grower, nursery, or donor. These segregated batches will then be delivered in the week prior to the sale. (An alternate to color-coded dots on the white plant tags is the use of commercially available colored tags. Each method has certain advantages.)

We ask suppliers not to water after Wednesday and to place tags into the soil of each can. It is important to make sure that however the names are printed—whether on adhesive-surfaced return address labels or directly onto plastic—that the ink is waterproof. The goal is to have everything arrive at the curb on the morning of the sale labeled, priced, and ready to be moved onto the patio, lined up behind the appropriate sign for each plant.

Several essential tasks remain for the last week before the sale. Often last-minute questions from local newspapers need responses, worker assignments are confirmed, plants are tagged, the contract for the site and required nursery license are attached to the coordinator's clipboard, Park staff confirms our request for tables and chairs, the date is marked on the custodian's calendar, and name tags are prepared for all workers.

THE DAY OF THE SALE

Setup begins before 6 am on Saturday morning. It is a hectic effort to unload plants and line them up properly behind the signs on the concrete patio floor around the perimeter. Arrangement is alphabetical by genus. Set-up helpers bring wagons or carts to move gallon cans more efficiently. The scene is seen as mass confusion by first-time workers, but planning and experience pay off, and volunteers who have worked before assure those that are first-timers that by nine o'clock all will be ready.

In addition to name tags, we ask all plant sale volunteers to wear a CNPS T-shirt or visor cap. Each of the major jobs (sales slip write-up, security, cashier) is supervised by a team leader who conducts a short briefing just before the sale begins to clarify any unclear procedures, and to answer questions.

By 8 am most volunteers have arrived, including experts to work as sales advisors with designated sections (A-C, D-G, etc.), people with hand-held calculators to write up sales slips, cashiers to take payments (cash or checks are accepted), people to help with security, volunteers to carry purchases to cars for those needing assistance, someone to run around putting the Sold-Out "post-it" notes on signs and generally keeping stock tidy, sales table workers, and plant advisors to circulate and offer advice to undecided buyers. Our plant advisors generally include professional landscape designers, consultants, and some very experienced gardeners who provide the friendly advice and encouragement that keep our customers coming back year after year.

A ring of tables in the center of the patio serves as our sales table for all non-plant items, and is managed by the same volunteers who perform this job at meetings or other events. Handouts that describe growing natives and related horticultural

topics are available. Some, consisting of several pages, are sold more or less at cost, but we always offer some free handouts. Bulbs and seeds are brought in and sold by a helper who obtains them both from commercial sources and from members.

The hospitality chair has hot water for coffee and tea, fruit juices, and doughnuts or muffins for workers in the hour or so before we open to the public. We sell no food. We open for a members-only presale at 9:15, and to the public at 10:00. A membership list is available as a backup to any questions that may arise about who can or cannot enter early. A staffed membership table is positioned outside the entrance, and most years we recruit between 30 to 50 new members. We ask that those joining write a separate check for membership, and another for any plants or other materials they buy.

Lines for both the pre-sale and the general public stretch out to the street. At this time an important task for a security worker is "crowd-control," which involves keeping buyers happy and answering their questions, while also redirecting park visitors elsewhere who are not interested in the plant sale. There is excellent opportunity for education/public outreach about CNPS while people are waiting to enter the sale. The chapter display exhibit is set up in the area where the line forms, and attracts much attention.

We ask workers not to collect their own purchases prior to the 9:15 am opening. Because the patio area is so exposed, those waiting in line wonder why they must watch others remove plants before they are allowed to enter; this can lead to awkward explanations. Those helping in the early hours, however, have a chance to examine the stock, locate what they want, and be prepared to grab as the mob pours in.

We ask that anyone expecting to buy five or more of any single species let us know several weeks in advance of the sale date, so we can



adjust the number of plants we order. If a person, project, or organization needs a large number of plants, we try to arrange for these to be taken early in the morning while trucks are unloading at the curb, and before plants are arranged inside the patio area.

THE SALE BEGINS

At 9:15, the "OK, we're open!" call goes out. The crowd surges in, holding shopping lists that are often master lists from the newsletter that they have marked up. Volunteers bring in shallow cardboard boxes in which buyers can place their gallon cans. Repeat buyers often bring their own boxes. Soon buyers are ready to pay, and two lines form, one for people paying with cash, and the other for checks. A security worker stays behind these two adjacent tables with the responsibility of watching all financial exchanges.

Other volunteers prepare sales slips with carbon copies for each buyer's purchases, adding tax and the total due. This expedites the checkout process. Those buying only from the central non-plant sales table pay there. Those also intending to purchase plants first receive a completed sales slip (including tax) for



ABOVE TOP: East Bay Chapter plant sale. Photograph by H. Forbes. • ABOVE BOTTOM: East Bay Chapter 2002 plant sale at 1 pm, with volunteer Jim Sharp moving plants to the will-call holding area for eager customers. At this point in the sale there is hardly anything left! Photograph by T. Morosco.

their non-plant items (books, posters, bulbs, and seeds) and then they proceed to the plant checkout lines where the cost of plants is added to their sales slip. The cashier stamps both copies "Paid," retains one, and the other is shown to the exit security person. At 10:00 the general public (those who are not members of CNPS) enters the sale area.

While customers browse through



One can buy seeds of the annuals shown at the Santa Clara Chapter native plant sale in Los Altos Hills. Photograph by A. Kumar.

the plant area, section experts try to keep their stock in reasonable order, with each species lined up behind the illustrative sign. Buyers or non-buying visitors (and there are many of these) often spend time going from sign to sign, reading, taking notes, and viewing the plants with new appreciation and understanding. The signs also make it much easier for the section experts, since each describes the natural habitat and garden preferences for the featured species, thus relieving workers from having to repeat this basic information.

SALE SLOWDOWN

As the morning passes, plant stock becomes depleted and the earlier crowd thins. By noon, although there are many plants remaining, the patio seems comparatively bare. We try to have a second shift of workers come on board at midmorning. It is during these late morning hours that much of our best salesmanship takes place, as we have time to walk around with novice growers, discussing their needs and interests. Although the sale is scheduled to continue until 2:00, usually by 1:00 we start to condense remaining cans into fewer areas. Despite this slowdown, however, we continue to sell plants until 2:00 pm.

IMMEDIATELY AFTER THE SALE

After our official closing, the chapter treasurer collects cash, checks, and sales slips and quietly leaves, accompanied by a second person for security. Volunteers collect their purchases from corners where they have been hidden, and we try to resolve questions of unsold plants. This is a problem that always faces us and there is no single solution. Commercial growers hesitate (or refuse) to take back unsold material. Local restoration projects or school gardens contact us prior to the sale to ask if we will donate certain species. Many of the workers end up adopting orphaned plants, sometimes returning them the following year.

It has been suggested that an hour before the sale ends we cut prices in order to move more of the unsold plants. From year to year there are unexplainable contrasts in what proves popular and what doesn't. Our records (the sold-out "post-its") give us ideas for next year's order, but nevertheless some very desirable plants remain. Workers take cans home to be brought back for sale at the next chapter meeting, sometimes at marked-down prices.

ACKNOWLEDGING VOLUNTEERS

A final and absolutely essential task following any plant sale is the recognition of volunteers. In our November chapter newsletter we list all those who helped with the sale. At all times during the sale day, when volunteers arrive, leave, or move from one job to another, their skills are acknowledged. These are also good times to assure them that they will be welcome at the next year's sale, to hear suggestions about what might have been done differently, and to send them home happy (if tired!).

A SEPARATE PLANT FUNDRAISER

Finally, as a completely separate event, and drawing on a somewhat different group of volunteers, the chapter participates in a one-day spring sale hosted by Tree Of Life Nursery, in conjunction with the Orange County Chapter of CNPS. This nursery has long been a good friend of CNPS, and is a major provider of plants for our annual fall sale. The nursery provides the plants and the location. The sale is held at the nursery, adjacent to their lovely springtime demonstration gardens, which provides an excellent opportunity to see mature native plants at their best. San Diego Chapter provides volunteers to help sell plants, and publicizes the event. The nursery donates a percentage of the day's profits to the two participating chapters.

SUMMARY

Plant sales raise funds in support of chapter activities throughout the year, but they also accomplish much more. New people are introduced to the world of native plants in an environment where they can ask questions about gardening with them. The public is educated on a range of subjects related to native plants, invasive plants, conservation, and other issues through one-on-one conversations, informational sheets, and book sales. And native plant sales bring in many new members to CNPS when volunteers tell visitors about chapter activities and encourage them to attend functions and to join the society. Putting on a successful plant sale is a big job and couldn't be done without many volunteers, but is worth the effort for the many benefits that are realized.

Joan G. Stewart, 37759 Highway 190, Springville, CA 93265. tori2toli@ocsnet.net



Ocotillo (*Fouquieria splendens*), a drought deciduous perennial. From Anza-Borrego Desert State Park. Photograph by C. Jones.

THE 2005 DESERT BLOOM

Photographs by Carl Jones, John Game,
Steve Matson, and Linda Vorobik

On this page and the next is a photographic celebration of the magnificence of the 2005 spring season in the California deserts. This wildflower display was considered to be the best in 50 to 100 years, depending on sources. For more about the desert environment and desert wildflowers, see the summary of the new

book, *The Best Spring Ever: Why El Niño Makes the Desert Bloom* in Books Received on page 30.

Photographers are invited to submit their work for publication in *Fremontia* for consideration as a cover image, as a photo essay, or for use with selected articles. For more in-



formation, contact the editor at Fremontia@cnps.org.



CLOCKWISE FROM ABOVE: Desert rock-nettle, (*Eucnide urens*), a desert annual. From Dedeckera Canyon of the Last Chance Range, Death Valley National Park. Photograph by S. Matson. • Purple mat (*Nama demissum* var. *demissum*), a common desert annual. From the Eureka Dunes campground, Inyo County. Photograph by S. Matson. • Bristly langloisia (*Langloisia setosissima* ssp. *setosissima*). This subspecies is less frequently encountered than the spotted ssp. *punctata*. From the edge of Eureka Valley, Inyo County. Photograph by J. Game.



LEFT AND BELOW: Hillsides glowing gold from fields of the annual desert-sunflower (*Geraca canescens*). From Death Valley National Park. Photographs by C. Jones.



RIGHT: An unusually robust plant of desert star (*Monoptilon bellidiforme*) due to plentiful winter rains. From the vicinity of the Eureka Dunes. • FAR RIGHT: Pencil cholla (*Opuntia ramosissima*), which is rarely seen in flower. From eastern Mojave Desert, Spring Mountains, Nevada. Photographs by J. Game.



ABOVE AND RIGHT: Desert dandelion (*Mala-cothrix glabrata*), a common desert annual, covers the ground below ironwood (*Olneya tesota*). The golden yellow flowers in the distance are from brittlebush (*Encelia fari-nosa*), and one plant of ocotillo (*Fouquieria splendens*) can be seen on the right. From Joshua Tree National Park. Photographs by L. Vorobik.



RIGHT: Leaves of fanleaf crinkleleat (*Tiquilia plicata*), showing dense covering of hairs which help to insulate leaves from heat of the desert sand. From the Eureka Dunes, Inyo County. Photograph by S. Matson. • FAR RIGHT: Gilman's desert buckwheat (*Eriogonum gilmanii*), from Hanging Rock Canyon, Last Chance Range, Death Valley National Park. Photograph by S. Matson.



LETTERS TO THE EDITOR

HURRAH FOR APRIL 2005 ISSUE

The latest issue [*Fremontia* Vol. 33, Number 2; April 2005] arrived yesterday, and I had to write. It is by far the best issue I have read. Lori's editorial was right on. Her experience and wisdom shine through, and I urge you to bring her back again and again.

I found Peigi's article fascinating. She is absolutely correct in her analysis of native horticulture and its potential to transform CNPS. We need to attract more members, and horticulture is the key. The scope of the task is immense, though, and the best way is to involve the chapters as much as possible.

Mike Koslosky's piece on local native grasses was inspiring. It educated me on native grasses, and gave me a concrete example of what I can do in my corner of California. We need to hear more stories like his.

David Fross's article on Beach Saltbush was informative. I value his experience and insights and I hope to read him in *Fremontia* regularly. I hope future columns will cover natives with greater potential for home gardens. Remember, the audience is not necessarily an expert one. Most Californians couldn't name 10 native plants if their life depended on it; but they are our audience!

The focus on chapters is also very interesting. It gives me a picture of the entire state, a community at a time. Invaluable.

Thanks for a great issue. Please maintain the focus on horticulture, and watch the memberships roll in.

Arvind Kumar
CNPS Santa Clara Valley Chapter

COMMON NAME REQUIREMENT

Regarding Jake Sigg's letter to the editor reacting about the use of common names in an earlier article [*Fremontia* Vol. 33, Number 2; April 2005], he presumes that the US Fish and Wildlife Service requires that common names be assigned to those taxa

that appear in the CNPS Inventory and that don't already have them. I want to clarify that the Service has no such requirement. In the 15 years I have worked here, I have always deferred to existing common names—sometimes more than one—when assembling publications. I recall one case where we were working on a newly described species without a common name (*Polygonum hickmanii*). In that situation I asked one of the coauthors and members of the local CNPS chapter if they wished to assign one.

Connie Rutherford
US Fish and Wildlife Service, Ventura
CNPS Channel Islands Chapter

CONSULTANT CONFIDENTIALITY

Increasingly, consulting botanists are being required to sign confidentiality agreements with landowners before proceeding with rare plant surveys or other biological services. In general, these agreements prohibit the botanist from disclosing anything she or he might learn about the property or development proposal, except under express permission from the landowner. I believe that CNPS, the state and federal resource agencies, and the many planning departments and other agencies who review botanical reports should be aware of these agreements and consider their implications.

Public disclosure is the fundamental intent of most environmental legislation, e.g., the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Most consulting botany work is contracted to comply with these disclosure laws. Depending on their specific wording, confidentiality agreements may tend to undermine full disclosure or raise public suspicion that relevant information is being withheld.

A botanist working on private land might become privy to several kinds of private information unrelated to rare plants, such as current land uses or planned future land uses. A landowner might have several reasons to keep information confidential. These might

include a simple desire for privacy, a preference to delay or avoid disclosing land use plans to business competitors, or a preference to present environmental impacts in a completed public document, thus avoiding early release of data or rumors. These seem legitimate reasons for confidentiality among consultants. However, depending on their terms, confidentiality agreements might also prevent botanists from releasing relevant botanical information and thus prevent public disclosure.

Consulting wildlife biologists cannot survey for certain threatened or endangered species without permits from the US Fish and Wildlife Service. These permits generally require reporting to the agency on survey results. Thus, landowners who contract with wildlife biologists for these surveys must make this exception to their confidentiality agreements. There is a comparable requirement in permits the California Department of Fish and Game issues to collect state listed plants, but no such requirement when the plants are not collected, and no permitting requirement to report federally listed species where they occur outside the Fish and Wildlife Service's jurisdiction, whether or not they are collected.

I believe that conditions could be included in confidentiality agreements to protect landowners' concerns without compromising the intent of CEQA, NEPA, or other public disclosure laws. For example, planning agencies could require that botanists submit confidentiality agreements with their reports, and the agreements could include terms such as these:

1. The consultant is permitted access to the site to assist the landowner in compliance with public disclosure laws; all relevant findings within the botanist's field of expertise will be reported to the landowner and ultimately released for public review. The confidentiality agreement will expire when the document is made public (e.g., in a draft Environmental Impact Report) or on a specified date, whichever comes first.
2. A professional botanist will collect

specimens of rare and common plants for identification and documentation. These specimens will be deposited in a publicly-accessible herbarium as permanent documents. The confidentiality agreement will expressly permit specimen collection and deposition.

3. The complete public disclosure agreement, including all its terms and conditions, will be attached to the botanist's technical reports and

attached or cited in any document incorporating or summarizing the botanist's work. If the botanist appears in public meetings to discuss the project, she or he will acknowledge the confidentiality agreement and will provide copies for public distribution.

4. There will be no prohibition of any disclosure the botanist might make to a law-enforcement agent investigating a possible violation of law,

or while testifying under oath in any legal proceeding.

I hope that CNPS, consulting botanists, and the many agencies involved in environmental review, will consider these thoughts and put policies into place to protect privacy while still allowing full public disclosure of botanical information.

Scott D. White, Consulting Biologist
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BOOKS RECEIVED



The Best Spring Ever: Why El Niño Makes the Desert Bloom, by Janice Emily Bowers, edited by Steven L. Hartman, with photography by Carll Goodpasture, 2004. CNPS, Sacramento, CA. 86 pages, \$19.95, paper.

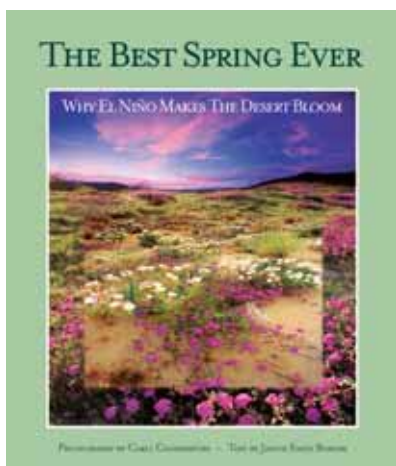
In text and photos, this book tells the story of how unusual weather conditions affect desert wildflowers.

The El Niño of 1997–1998 produced one of the most prolific wild-

flower blooms in recent California history. Photographer Carll Goodpasture's images capture the desert as few people ever see it—as a once-in-a-lifetime event. Botanist and nature writer Janice Emily Bowers's text and captions provide up-to-date information about the El Niño weather phenomenon and its influence on desert ecosystems, including the relation between rain and seed germination, the interactions between

ABOVE: Sand food (*Pholisma sonora*). • BELOW: Sometimes wildflower lovers become wildflower trampers, as happened here at Anza-Borrego Desert State Park. During the El Niño year of 1998, some 10,000 visitors passed through the park daily, eager not to miss a once-in-a-lifetime event. • INSET: A solitary bee on Mojave aster (*Xylorhiza tortifolia*). All photographs by C. Goodpasture.





flowers and their pollinators, and human impacts on the desert.

This new volume contributes to our growing understanding of how weather and climate change, including global warming, affect the desert's fickle nature. As Bowers explains, it takes more than just rainfall to bring the desert alive. And when a desert comes alive, there's more than wall-to-wall wildflowers on display, as Goodpasture's photographic essay in *The Best Spring Ever* demonstrates.

Both Bowers and Goodpasture bring to the book strong credentials. Bowers, a botanist with the US Geo-

logical Survey, has lived and worked in the Sonoran Desert for more than 30 years and is the author of wildflower field guides, other books, and a collection of natural history essays. Goodpasture is an entomologist, cytogeneticist, and nature photographer. Internationally published and exhibited, his work is dedicated to what he calls "vanishing nature consciousness." He is the creator of a Smithsonian Institution traveling exhibition titled "Vanishing Pollinators" (www.sites.si.edu/exhibitions/exhibits/pollinators/main.htm) that toured from 2001 through 2005.

BOOK REVIEWS

California Native Plants for the Garden, Carol Bornstein, David Fross, and Bart O'Brien. Cachuma Press, 2005. 280 pages, hard cover, \$37.95; soft cover, \$27.95.

If you have ever wished for a single source of information dedicated to California native plants in the landscape, ask no longer. Three of our current and leading authorities on California native horticulture have joined forces with Cachuma Press, known for its high-quality publications, in bringing about this long-awaited volume. Along with beautiful photographs of native plant gardens taken by professionals passionate about our state's natural beauty, the well-organized design and expert content make this a must-have for anyone who gardens in California.

With an easy-to-use format, the book can be enjoyed by both the novice and experienced plant person. It contains extensive information on current issues about California indigenous flora, including habitat conservation, rare plant protection, and appropriate horticultural uses of native plants. A wonderful short history of native horticulture follows. The complex topic of plant communities is presented clearly without overwhelming those new to the concept. The book also includes sections on good garden design and successful native plant care.

For the next nearly 200 pages, the book profiles more than 500 plants from throughout the state. There are concise horticultural summaries and



brief but comprehensive descriptions, including plant locality, culture, and care, as well as the names of additional species and cultivars. Over 450 excellent color photographs are used to

CLOCKWISE FROM TOP LEFT: Scarlet monkeyflower (*Mimulus cardinalis*) planted along a garden pathway in a private garden, Montecito. • Lilac sand verbenas (*Abronia villosa*) and bee's bliss sage (*Salvia* 'Bee's Bliss') flourish in a Montecito rock garden where the soil has not been amended with fertilizers. • Pine Hill fremontia (*Fremontodendron californicum* ssp. *decumbens*) on a hillside beneath Hooker manzanita (*Arctostaphylos hookeri*) in a private garden, Berkeley. Photographs by S. Ingram.



show examples of plant features and successful garden groupings.

If you are looking for recommended plant selections, many are listed in a wide variety of categories such as "Deer Resistant," "Hedges and Screens," and "Aromatic Foliage." To round things out, there are suggestions on places where one can see and purchase California native plants, as well as an ever-important index of common and scientific plant names.

The horticultural information covered here is broad, inclusive, and easily referenced. With the growing public interest in gardening with California natives, it is likely many copies of this book will be sold and quickly become worn with use. This greatly anticipated publication is an important addition to the books currently available on gardening with California native plants.

Peigi Duvall

CNPS Horticulture Program Chair

The Pteridophytes of Mexico, by John T. Mickel and Alan R. Smith. (Memoirs of The New York Botanical Garden, Vol. 88.) 2004. The New York Botanical Garden Press, 200th Street and Kazimiroff Boulevard, Bronx, New York 10458-5126. 1055 pp., 328 plates. Hardbound (ISBN 0-89327-458-5) \$125.00. www.nybg.org.

This comprehensive fern flora of Mexico together with the *Flora of North*

America North of Mexico, Vol. 2, (Oxford Univ. Press, 1993) and the *Flora Mesoamericana*, Vol. 1 (Universidad Nacional Autónoma de México, 1995) makes available fern floras that cover the entire continent of North America and Central America. Many regional Mexican floras have been available, but this publication provides us with a single guide to the ferns of the entire country. It treats 1,024 taxa of pteridophytes (1,008 species and 16 varieties and subspecies) in 124 genera. The genera are arranged alphabetically as are the species in each genus. For each species the scientific name, its author, and literature citation are provided as well as information about the type and the pertinent synonymy. A short description is followed by the geographical distribution and a listing of at least one specimen examined for each state where it has been collected. Maps are included that illustrate the occurrence of the species in each state. A paragraph discusses pertinent information about the species. Excellent illustrations of just about every species are found on 328 plates in a back section at the book.

The introductory section gives a brief discussion of the geography of Mexico, the diversity of habitats, and history of fern studies in Mexico, and the geographical affinities of the fern species. For those particularly interested in the interrelationships of

genera and their family affiliations, the sections "Conspectus of the Pteridophyte Genera of Mexico" and "Classification of Pteridophyte Genera in Mexico" offer a good, although not extensive, overview. The emphasis of the work is placed on the identification of genera and species rather than the complexities of family relationships. A key to the genera, slightly over 10 pages long, based on mature plant specimens is provided. This is a well prepared key and rather easy to use. Keys to the species are included in the generic treatments. An index to scientific names takes up the last part of the book and a "Literature" section immediately follows the species treatment and provides bibliographic citations to principal references. A glossary is not provided and the user will need a basic knowledge of fern structure.

This important and monumental work brings together in one volume the rich and diverse fern flora of this country. This will not only provide a guide to identification but will also stimulate new investigations. This volume measures 11.75 by 8.25 inches, is 2.75 inches thick and weighs 6 pounds. It is not a manual that you will want to carry in your backpack into the field. It is packed with valuable information and with the keys, descriptions and especially the illustrations, is easy to use.

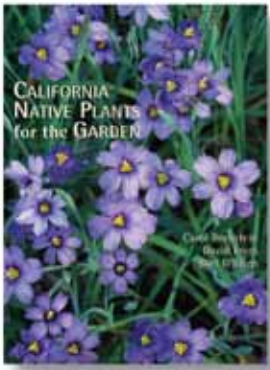
Of interest to those in California is that of the 104 fern species found in that state, 52 occur also in Mexico. The genus *Cheilanthes*, centered in Mexico where there are 60 species, 17 of them endemic, extends into California with 10 species, 7 of which are shared with Mexico.

We are fortunate that John T. Mickel, The New York Botanical Garden, and Alan R. Smith, University of California, Berkeley, have joined forces to bring us this flora. They are to be congratulated on their excellent work that involved extensive investigations and visits to herbaria not only in Mexico but also in the US. This book is a required addition to the library of all those interested in ferns and in the flora of Mexico.

Kenneth A. Wilson
Natural History Museum of Los Angeles County

California Native Plants for the Garden

by Carol Bornstein, David Fross, Bart O'Brien



Guaranteed to feed the passion of plant lovers everywhere.— Santa Barbara News-Press

A charismatic guide that speaks to both novice and expert gardeners throughout the state.— Bay Nature

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CONTRIBUTING PHOTOGRAPHERS

Stephen Ingram specializes in the landscapes and native plants of California. He is past president of the Bristlecone Chapter of the California Native Plant Society (CNPS). More of his work can be seen at www.ingramphoto.com.

Carl Jones is a professional illustrator, graphic designer, and photographer who has spent much time exploring California's scenic back-country with his camera. Carl's work can be seen at www.carlsgallery.com.

Holly Forbes is current treasurer of the East Bay Chapter and co-director of CNPS Press. She is the curator of the University of California Botanical Garden at Berkeley.

John Game works for the Life Sciences Division of the Lawrence Berkeley National Laboratory and is a research associate at the University/Jepson herbaria, UC Berkeley. More of his work can be seen at the Calphotos website, <http://elib.cs.berkeley.edu/photos/>.

Carll Goodpasture, PhD entomologist, is a fine art photographer, teacher, author, and environmental activist living in Norway. A retrospective of his work celebrating nature and environment can be seen at www.goodpasture.ritardando.net.

Steve Matson is vice-president of the CNPS Tahoe Chapter, botanist, and photographer. His images can be seen at the Calphotos website, <http://elib.cs.berkeley.edu/photos/>.

Tony Morosco is collections manager at the San Francisco Botanical Garden and former president of the CNPS East Bay Chapter. He specializes in botanical databases and enjoys flower photography and floristic surveys in his ever-dwindling free time.

Stephanie Morris is a landscape architect specializing in sustainable design and California native plants for the Bay Area. She coordinated the Santa Clara Valley Gardening with Natives group from 1999 to 2005. Her website is www.nativeplantdesign.com.

Linda Ann Vorobik is the editor of *Fremontia*, a professional botanist, and botanical illustrator. For information on her work, workshops, and illustrations, see www.vorobikbotanicalart.com.

MATERIALS FOR PUBLICATION

Members and others are invited to submit material for publication in *Fremontia*. Instructions for contributors can be found on the CNPS website, www.cnps.org, or can be requested from *Fremontia* Editor, Linda Ann Vorobik, vorobik@rockisland.com, or c/o University and Jepson Herbaria, 1001 Valley Life Sciences Bldg. #2465, University of California, Berkeley, CA 94720-2465.

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FROM THE EDITOR

A full-color *Fremontia*! With two more issues to go and then a transition to a new editor, I am sharing some of my ideas about this journal of the California Native Plant Society (CNPS) on page 3. The remainder of the issue features three topics: vegetation, horticulture, and the desert. Evens and Keeler-Wolf (CNPS Vegetation Program) provide an introduction to a series of vegetation articles that will appear this year in *Fremontia*. In the first article of this series, Keeler-Wolf discusses the next edition of *A Manual of California Vegetation*. Since its publication in 1995, there have been exciting discoveries and a need for new and different types of data collection and presentation in

order to best understand and thus protect the varied habitats within our state.

The next two articles will be enjoyed by those enthusiastic about gardening with natives, and perhaps inspire other readers to try a native plant in their garden. Kumar and Kramer list what is needed to put on a successful tour of gardens featuring native plants. All those involved with these tours hope that many will get out and visit these beautiful gardens. Joan Stewart, long-time CNPS member and CNPS Fellow, describes what it takes to put on a successful native plant sale. Thanks to all volunteers who help put on these sales and thus help get the word out about the tremendous aesthetic value of native plants.

Two books featured at the end of this issue are of particular note, as they are gorgeous, informative, and produced in part by our society. If you are inspired to garden with native plants, see the review on page 31 of *California Native Plants for the Garden*, by Bornstein, Fross, and O'Brien. And in preparation for this year's desert wildflowers, see pages 27-28 and the overview on pages 30-31 of *The Best Spring Ever: Why El Niño Makes the Desert Bloom*, by Bowers.

Finally, look for information about the photographers who contributed to this issue on page 33. We couldn't have produced a color issue without them!

Linda Ann Vorobik
Fremontia Editor

CONTRIBUTORS

Peigi Duvall is the California Native Plant Society (CNPS) Horticulture Program chair, member of the Santa Clara Valley Chapter, and a certified horticulturist with her own native landscape design business.

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Todd Keeler-Wolf is the senior vegetation ecologist with the California Department of Fish and Game and is the CNPS Vegetation Program chair.

Kathy Kramer is a member of the East Bay Chapter and on the CNPS Education Committee. She is an environmental education consultant, and coordinates the Bringing Back the Natives tour.

Arvind Kumar is a software manager with KLA-Tencor, the publicity chair of the Santa Clara Valley Chapter, and a Steering Committee member of the Going Native Garden Tour.

Joan Stewart, terrestrial and marine botanist, is plant sales co-chair of the San Diego Chapter and Chapter Council representative of the Alta Peak Chapter.

Kenneth A. Wilson is emeritus professor of biology, California State University, Northridge, as well as a research associate at the Natural History Museum of Los Angeles County.



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