California Native Grasslands Association

GRASSLANDS

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California Native Grasslands Association

Mission Statement

The mission of the California Native Grasslands Association is to promote, preserve, and restore the diversity of California's native grasses and grassland ecosystems through education, advocacy, research, and stewardship.

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From the President's Keyboard

CNGA Expands Outreach Statewide in 2015 *by Jon O'Brien, President*

Welcome to another exciting year of grassland conservation and awareness with the California Native Grasslands Association! 2014 was an innovative and productive year at CNGA, with the launch of a statewide service initiative and drought awareness partnership with the California Department of Water Resources (DWR).

The drought continues in California. What began as a promising December turned into another "ridiculously resilient high pressure ridge" over much of the state. The rainfalls received in December, although helpful, were not enough to pull us out of drought conditions. In Yolo County, the agricultural water situation improved, but it is still well below where we would like it to be. And this is the case throughout much of the state.

In response to the drought, CNGA is continuing to work with DWR, creating additional workshops (under the title "California's New Front Yard: Creating a Low-Water Landscape") in new areas to reduce water use in municipalities. We are currently in early planning for workshops in Santa Cruz, Merced, Sacramento, and Solano counties. Our goal is to continue developing outreach and service to the entire state in terms of grassland conservation and education, especially as they relate to reduced water use during the drought.

CNGA had a successful membership campaign that began in late 2014. We gained membership from different parts of the state, and our goal in 2015 is to service these areas better with information, workshops, and relevant publications. **If you have not yet renewed, now is the time to join us in our statewide efforts. Your support is urgently needed to help build these programs.**

Stay tuned for more on CNGA's drought-relief efforts around the state with a focus on native planting. As well, please let us know of workshops you would like us to offer or other ways CNGA could help in your area. Send your ideas and requests to admin@cnga.org.

Grasslands Submission Guidelines

Send written submissions, as email attachments, to grasslands@cnga.org. All submissions are reviewed by the *Grasslands* Editorial Committee for suitability for publication. Contact the Editorial Committee Chair for formatting specifications: grasslands@cnga.org.

Written submissions include peer-reviewed research reports and non-refereed articles, such as progress reports, observations, field notes, interviews, book reviews, and opinions.

Also considered for publication are high-resolution color photographs. For each issue, the Editorial Committee votes on photos that will be featured on our full-color covers. Photos are selected to reflect the season of each issue. Send photo submissions, as email attachments, to Ingrid Morken at grasslands@cnga.org. Include a caption and credited photographer's name.

Submission deadlines for articles: **Spring 2015** — Feb 15, 2015 **Summer 2015** — May 15, 2015 **Fall 2015** — Aug 15, 2015 **Winter 2016** — Nov 15, 2015

Managing Grasslands on Tejon Ranch: The Ecological Site Concept

by Michael White, Ph.D., Conservation Science Director, Tejon Ranch Conservancy, and Sheri Spiegal, Ph.D. Candidate, UC Berkeley Range Ecology Lab

The task of the Tejon Ranch Conservancy is to enhance conservation values on the largest, contiguous, privately owned property in California, the 270,000-acre Tejon Ranch. Interspersed with oak woodlands and shrublands, grasslands on the ranch extend from 500 ft elevation in the southern San Joaquin Valley to 6,800 ft on the peaks of the Tehachapi Mountains in Kern County, down to 3,000 ft elevation in the westernmost Mojave Desert in Los Angeles County. Overall, grasslands cover over 100,000 acres of the ranch and support significant native biodiversity. These grasslands are a management priority for the Tejon Ranch Conservancy.

Under the Tejon Ranch Conservation and Land Use Agreement, conservation of the ranch is via conservation easement. Under these conservation easements, the Tejon Ranch Company retains the right to graze livestock in conserved lands. Therefore, developing a better understanding of the ranch's grasslands and identifying ways to better manage

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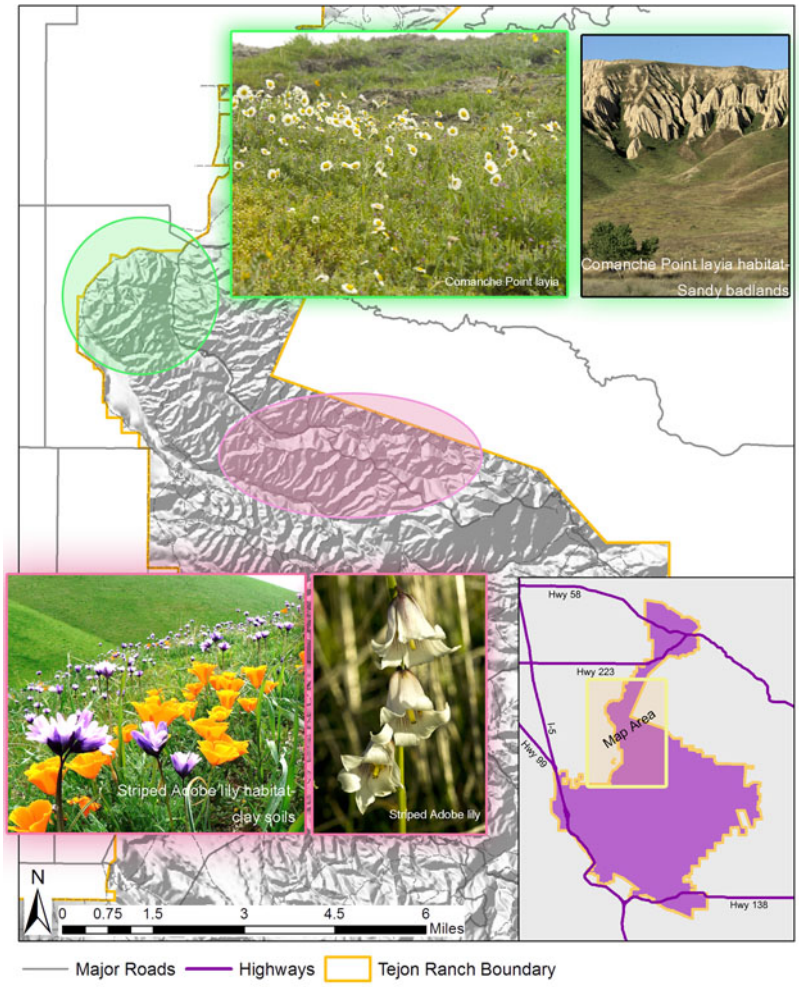

Figure 1. Ecological sites can change over short distances. In the Tejon Hills, soils change quickly, making room for a variety of rare plants. In the northwest portion of this area, plants such as Comanche Point layia (*Layia leucopappa*) can grow due to sandy soils. In the eastern, higher portion of the hills, clay soils support more geophytes, like striped adobe lily (*Fritillaria striata*). *Photos: Michael White (bottom left) and Scot Pipkin (top left and right; bottom right)*

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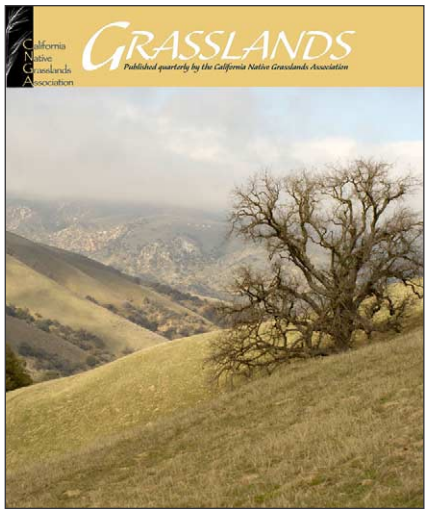

Figure 2a. The Holocene flats ecological site in 2010. *Photo: Sheri Spiegal*

Tejon Ranch *continued*

grazing has been a high priority for the conservancy since its inception. To gain this knowledge, the conservancy embarked on what is now a 5-year research partnership with the UC Berkeley Range Ecology Laboratory directed by James Bartolome.

Research Goals and Summary of Findings

The focus of the Tejon Ranch grasslands research has been to document how the composition of plant species changes from one location to another and from one year to the next on the ranch. One of the findings is that geographic locations that support grasslands on Tejon Ranch can be usefully organized into "ecological sites." An ecological site is a set of land units with a common climate that have similar topographic and soil characteristics, support similar potential vegetation, and respond similarly to management (USDA 2014). The idea is that within a regional climate zone, a group of sites with a particular combination of soil and topography will support a specific set of plant species, while another group of sites with different soil and topography will support a different set of plant species. The sites composing an ecological site are usually not contiguous, but instead are arranged across the landscape as the result of regional-scale geomorphic and geologic patterns. For example, in the annual grassland landscape of Tejon Ranch in the southern San Joaquin Valley, we found that sites on flatter, low-elevation locations on sandy soils, which were formed during the recent Holocene, support a different set of plant species than do finer-textured soils on the Pleistocene-aged terraces that inter-finger with the Holocene flats at slightly higher elevations.

Furthermore, we have also found that plant species in the grasslands vary in their species composition from year to year depending on weather, but that through time, species composition remains more similar within ecological sites than it does between ecological sites. Thus, the ecological site concept does appear to be a useful way to describe grassland plant communities and their changes over time.

As a result of their demonstrated utility, ecological sites are being promoted for range management by the U.S. Department of Agriculture (USDA), and the conservancy is using an ecological site framework to organize its grassland and grazing management planning. The USDA Natural Resources Conservation Service provided critical technical assistance for the ecological site

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Figure 2b. The Holocene flats ecological site in 2011. *Photo: Sheri Spiegal*

Tejon Ranch *continued*

classification at Tejon Ranch. To date, 20 ecological sites supporting grasslands have been identified, 13 in the heterogeneous San Joaquin Valley grassland landscape and 7 in the western Mojave grassland landscape. A few ecological site examples on the San Joaquin Valley side of the Ranch are shown on the map in Figure 1.

One of the interesting and relevant findings of this research is that some ecological sites tend to support a higher abundance of native plant species, while others are typically dominated by non-native plant species. For example, species composition was measured at study plots in the Holocene flats and Pleistocene terraces at peak standing crop in the spring of 2010, 2011, and 2012. Analyzing the plot data across all 3 years revealed significant community differences between the ecological sites. While exotic annual grasses accounted for about 70% of the relative cover in both ecological sites over the years, the relative cover of native annual forbs was three times higher in the Holocene flats than the Pleistocene terraces (16% vs. 5%). Moreover, both had a unique set of indicator species, or species with high frequency in, and exclusivity to, the plots in the ecological site (Dufrene and Legendre 1997). Indicator species in the Pleistocene terraces were

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Figure 3. The Pleistocene terraces ecological site in 2010 (*left*) and 2011 (*right*). *Photos: Sheri Spiegal*

Introducing CNGA's 2015 Board of Directors

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Meet the newest directors on the Board

Jennifer Buck is Vegetation Ecologist with the California Native Plant Society in Sacramento, where she works on the Grassland Initiative, surveying and describing grassland assemblages across the Great Valley and Carrizo Plain. Jennifer re-visits plots to test the stability of grassland communities both seasonally and annually across many years. She earned both a B.S. and a M.S. degree in Plant Biology at UC Davis.

Jodie Sheffield is Seed Specialist for Delta Bluegrass Company in Stockton, where she is in charge of research and development. She comes to CNGA with over 25 years of experience in the turf grass industry. The emphasis of her recent work is water conservation––developing the use of California native grass species to provide cutting-edge, water-saving sods.

CNGA extends a big thank you to outgoing Board Members Stefan Lorenzato and Taraneh Emam.

Stefan has been instrumental in developing partnerships that are helping CNGA grow. Taraneh has been an active member of the CNGA Research Committee and produced several insightful pieces for publication in *Grasslands*.

Tejon Ranch *continued*

the exotic annual grass *Bromus hordeaceus*, the exotic annual forb *Erodium brachycarpum*, and the native annual forb *Trifolium microcephalum*. In the Holocene flats, indicator species were the exotic annual grass *Bromus rubens* and the native annual forbs *Gilia tricolor*, *Plagiobothrys arizonicus*, and *Plagiobothrys canescens*.

Assessing the plot data on an inter-annual basis reveals a more complicated picture, however, because the abundance of natives at both ecological sites varied dramatically from year to year based on weather. The photos in Figures 2 and 3 show the Holocene flats and Pleistocene terraces in 2010 and 2011. In general, the wildflowers are native species while the grass is predominately non-native. You can see that the Holocene flats supported many native wildflowers in 2010, whereas the Pleistocene terraces were dominated by non-native grass. In 2011, however, both sites were dominated by non-native annual grass.

Next Steps

The conservancy's challenge is to identify grazing management regimes that can enhance native species abundance and cover in the midst of this spatial and temporal complexity. Based on this body of grasslands research, however, it appears that some ecological sites, like the Holocene flats, have a greater potential to support native plants than do other ecological sites (like the Pleistocene terraces). Understanding ecological sites provides information to consider *where* to prioritize scarce management resources within the large area of Tejon Ranch to get the biggest native grassland biodiversity bang for the buck. This research also provides information on *how* to manage grassland biodiversity. In some cases, the high abundance of non-native grasses depresses habitat quality for not only native plants but some native animals as well. To improve grassland habitat quality, the conservancy is currently working with the grazing lessees at Tejon to utilize livestock as a management tool to help remove dense non-native grasses in those ecological sites that support high native plant potential.

Keep in mind that these are management experiments. The conservancy will document the outcomes and determine whether the proposed managed grazing regime indeed achieves conservation objectives. However, 5 years of grassland research has provided a strong science foundation rationalizing these experiments, and we will continue to learn about their efficacy through long-term monitoring. Follow the conservancy's blog to keep posted on news and learn more about the Tejon grasslands and their management: **tejonconservancy.blogspot.com.**

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2014 Planned Grazing Workshop Draws Ranchers, Land Managers, and Restoration Practitioners

by Richard King, CNGA Board Member

In October 2014, CNGA once again offered the popular workshop, "Planned Grazing for Ranchers," in conjunction with the Ukiah offices of the Mendocino County Resource Conservation District, the USDA Natural Resources Conservation Service, and the Farm Bureau. Hosted by the Ridgewood Ranch near Willits, the 3-day workshop drew ranchers and other land managers from all over California. As the instructor, I taught proven principles and practices necessary to develop a grazing plan that improves grassland health. Developed by Allan Savory, these practices are increasingly practiced throughout the world's grazing lands to improve ecological processes, including water and nutrient cycles, solar energy flow, and community dynamics. I have practiced them on my own small ranch since 1991. Participants learned the concepts and how to implement them successfully. I believe that learning how to manage grasslands should be the first step for those who want to improve them.

The Ridgewood Ranch—"home of Seabiscuit"—is a working ranch with a variety of enterprises, including a cow-calf operation overseen by Brian Bartholomew. Recent consecutive years of drought have resulted in a reduction in stocking rate, even in one of the higher rainfall areas of California.

While parts of the Ridgewood Ranch comprise established non-native perennial grasses and forbs, other widespread areas have large populations of purple needlegrass (*Stipa pulchra*), California oatgrass (*Danthonia californica*), blue wildrye (*Elymus glaucus*), and various perennial forbs. I believe in the practice of adding perennials to our landscapes where they are missing. This requires a totally different kind of management than we typically see on California's rangelands, where soil cover, plant vigor, and perennials receive inadequate attention, especially in annual grasslands. Ridgewood Ranch is already implementing the kinds

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Rancher Roy Ekland from Chico (*far right*) and Instructor Richard King (*far left*) share perspectives on grassland management. *Photo: Linda MacElwee*

Planned Grazing Workshop *continued*

of management changes that will benefit perennials and improve rangeland health and productivity.

Our group spent half the time on the land, learning how to read and manage the land in new ways. Some key points covered in the workshop included the following:

California's communities of grassland species coevolved with herding animals and pack-hunting predators before humans arrived. Grasslands benefitted from those interactions in many ways. With the advent of human settlement, those benefits now require management (i.e., ongoing decision-making) to mimic the natural ecological processes that once occurred. Ecological processes and desired outcomes on our typically managed grazing lands can be dramatically improved.

Successful management of any complex whole (comprising decision-makers, the resources managed, and money) requires describing on paper the holistic context under which the decision-makers want to manage that whole. The holistic context includes: a) the quality of life the decision-makers want now, b) what the decision-makers must produce to live such a life (i.e., required actions and behaviors), and c) what the environment that the decision-makers manage must become. Then, seven testing questions are used to ensure that any idea or decision implemented toward the holistic context will be sound environmentally, socially, and economically, both in the short-term and long-term.

Overgrazing from the individual plant's point of view occurs on the vast majority of California's grazed lands.

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Planned Grazing Workshop *continued*

Overgrazing occurs when plants are re-grazed during the growing season before they fully recover their vigor, which stresses them or depletes their population. Overgrazing of plants and over-resting of land, such that excessive thatch accumulation occurs, are the two primary destructive forces occurring in California's remaining grasslands.

Planning for and monitoring the complex variables that need attention can be done on a single planning chart, using a simple step-by-step process to develop the best possible grazing plan. Monitoring forward in time allows decision-makers to adjust the plan immediately as needed. Planning is done differently for the growing season versus the dry season.

Planned grazing can improve productivity, soil organic carbon, water infiltration and storage, and species diversity when compared with rotational grazing or any conventional grazing plan.

By the end of the workshop, participants had improved their ability to identify critical information from the land. The land can tell its story if we learn how to read it, which means that we must learn how to measure forage availability quickly in any pasture at any time of year.

Each participant, using a specific ranch scenario, learned steps of the planning process so that all the variables needing attention were addressed. By first understanding the concepts and then using the step-by-step planning process, they each developed the best possible grazing plan for the coming growing season.

To complete the workshop, we visited a pasture along Highway 101.There we saw an abundance of native species: California oatgrass, purple needlegrass, blue wildrye, bentgrass (*Agrostis* sp.), soaproot (*Chlorogalum* sp.), lupine (*Lupinus* sp.), brodeia (*Brodiaea* sp.), yarrow (*Achillea* sp.), flax (*Linum* sp.), and others. Despite the worst drought in California's history, despite livestock grazing of that pasture every year, and despite viewing the pasture in October long after a poor growing season had ended, those native perennials still stood tall. It is all about management!

Workshop participants learn a quick method to quantify available forage while maintaining a good soil cover. *Photo: Linda MacElwee*

Strong Recruitment from Sparse Plug Plantings of Native California Bunchgrasses

by Truman P. Young[1], Professor and Restoration Ecologist, Dept. of Plant Sciences, UC Davis, CA 95616, and Kari E. Veblen[2], Assistant Professor, Dept. of Wildland Resources, Utah State University, Logan, UT 84322.

Introduction

Grassland restoration efforts in California include plug planting or direct seeding of native perennial grasses. These plantings are usually installed at densities intended to achieve full cover of mature plants from the planted individuals, not relying on recruitment of their progeny. Recruitment of future generations would both be reassuring for the long-term success of projects and an indication that lower density plantings might be sufficient, but restoration monitoring rarely looks for recruitment in later years (see Morgan 1999).

The extent of recruitment of new individuals into restoration plantings of native perennial bunchgrasses is poorly known for several reasons. First, most restoration projects simply monitor planted individuals for 1–3 years after planting (Kettenring and Adams 2011) and might miss new recruits. Second, most restoration plantings of grasses are installed at relatively high densities, which if successful could both render new recruits more difficult to recognize and also be less likely to establish them in stands with high cover. Third, restoration practitioners in California grasslands are aware that it is not uncommon for initial perennial grass planting to be cryptically successful; that is, potentially high densities of planted individuals establish at very small sizes in the first year or two and only become evident in subsequent years (Vaughn and Young, forthcoming). The identification of new recruits may be more difficult under these conditions.

Nonetheless, there are some indications that additional recruitment from the progeny of planted native grasses in restoration settings occurs. For example, Rayburn and Laca (2013) reviewed the success of strip-seeding and seed islands in restoration projects where target species are planted over only a fraction of the landscape in separated strips or in small patches, with the intention that future recruitment would fill in the unplanted areas. However, there appears to be a lack of such studies in the highly invaded grasslands of California, where Mediterranean annuals appear to prevent the recruitment of native species (Stromberg et al. 2007). However, even in California grasslands there are indications of such recruitment. We have found native California grasses recruiting beyond the boundaries of seeded plots in our restoration experiments (Porensky et al. 2012, Young et al., forthcoming, Kurt Vaughn, pers. comm.; see also Dyer 2003). Restoration practitioners and native seed producers also have seen recruitment of several native California grass species between drilled seeded rows, especially after several years (John Anderson, Andrew Fulks, Emily Allen, Kurt Vaughn, Chris Rose, pers. comm.).

We report here results from a study site that provided a test of how very low planting densities of native California bunchgrasses can spread and recruit over a long interval (11 years). A small number of purple needlegrass (*Stipa pulchra*) plugs at this site led to the recruitment of many hundreds of additional individuals.

Methods

The study site is an experimental valley oak woodland restoration site in research fields of the University California, Davis. The site was planted with several hundred valley oak (*Quercus lobata*) acorns and seedlings in the winter of 1999 as part of a separate restoration experiment (Young and Evans 2005, Holmes et al. 2008, 2011). The

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[1]Truman Young has studied grassland and savanna rangelands in California and Kenya for over 20 years. [2]Kari Veblen has studied grasslands in Kenya, California, Oregon, Utah, and Colorado, the latter being where both authors were raised.

Figure 1. One of multiple stands of volunteer *Stipa pulchra* bunchgrasses that recruited from a handful of plugs planted very sparsely 8 years previously at the restored oak woodland site in Davis, California. This patch contains over 20 reproductive individuals. Note the bare ground between bunchgrasses. Planted valley oaks are in the background. *Photo: Truman Young*

Sparse Plug Plantings *continued*

original experiment was divided into 54 plots of 9 oaks each, planted at 2-m spacing, with 5 m between rows of subplots. In March 2003, following successful establishment of valley oaks, we planted in each subplot 2 plugs each of *Stipa pulchra* and blue wildrye *(Elymus glaucus)* at 2-m spacing in the interstices of the 9 oaks, for a total of 108 plugs of each species. One-third of the subplots were subject to controlled burns in June 2003 and another third in May 2004 (Holmes et al. 2008, 2011), after which there remained alive 48 *S. pulchra* and 63 *E. glaucus* individuals in May 2006 (Veblen et al. 2007). There was yearly mowing in the rows between the subplots, but no other management interventions.

In July 2014, we surveyed the entire study area, counting all individuals of *S. pulchra* and *E. glaucus*, which tended to occur in dense patches (Fig. 1). When these patches overlapped with known planting locations, we were not able to determine the fates of original plantings, but we could confirm the loss of original plantings from sites with no surviving individuals. Several stands of *S. pulchra* were so dense that distinguishing individual tussocks was difficult, so our counts may be underestimates.

Results

By the time of the 2014 survey, 15 of the 54 original subplots had been destroyed by new research projects. The remaining 39 subplots had been planted with a total of 78 *S. pulchra* and 78 *E. glaucus* plugs in 2003, of which 34 and 48 (respectively) were still alive in May 2006. We did not do a broader survey on 2006, and so we do not know whether some volunteers were already present at that time. By 2014, most of the original plugs were no longer present, but there had been recruitment of new individuals of these two native perennial grasses. We found at least 39 individuals of *E. glaucus*, of which not more than 12 were original plantings. More strikingly, we counted at least 1,153 individuals of *S. pulchra* within the study area, of which the vast majority were clearly not planted. This represented at least a 30-fold increase in the needlegrass population over a period of 11 years.

Sparse Plug Plantings *continued*

Several stands of *S. pulchra* were sufficiently dense that virtually no other vegetation was present (see Fig. 1). Although there was usually virtually no understory vegetation (including grasses) under the densest oak overstories, there was otherwise no striking pattern of *S. pulchra* with respect to canopy and intercanopy locations.

Discussion

Practicing restorationists have also reported native grass recruitment from planted individuals in California restoration sites, as well as cases where no such recruitment was seen (Rayburn and Laca 2013 and pers. comm.). However, all of these reports are from restoration plantings (or seed-increase fields) at fairly high density. Our data uniquely show that large-scale recruitment past the planted generation can occur even at very low effective planting densities of 2-m spacing, in contrast to typical plug spacings of 20–40 cm (Anderson 2001, Huddleston and Young 2004)

This observation begs the question: Why do natural (remnant) populations of California native grasses not similarly increase dramatically when left alone? One possibility is that the moderate disturbance at our study site (partial mowing) may have provided opportunities for needlegrass recruits. We have also seen needlegrass recruitment past the planted generation in seeded restoration research plots nearby (Porensky et al. 2012 Young et al., forthcoming). Similarly, rangeland researchers have found a diversity of responses of native grasses to different management actions. In particular, disturbance (grazing, clipping, fire, mechanical soil disturbance) is sometimes associated with increases in *Stipa pulchra*, and sometimes not (reviewed in George et al. 2013).

In any case, this case provides a hopeful example of how even very low densities of planted native grasses may serve as nuclei for more substantial recruitment. Experiments currently under way by Rayburn and Laca will formally test this possibility in a restoration-style setting.

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Participants at this past Fall's CNGA "Water Conservation and Lawn Conversion" workshop tour the UC Davis Arboretum and native grass gardens. *Photo: Melissa Cruz*

Mark Your Calendars for CNGA's Spring 2015 Workshops

March 6: Pesticide Safety and Herbicide Use in Grassland and Riparian Restoration Projects

This 4-hr workshop includes mock field inspections and covers all topics in the Pesticide Safety Information Series developed by the California Department of Pesticide Regulation. (4 CE hours requested from DPR) | ***Instructors:*** *J.P. Marié, Jenni King, and others* | ***Location:*** *Yolo County Agricultural Commissioner's Office, Woodland* | *Fee: $40*

March 20: The Basics of Restoration and Revegetation Using Grasses and Graminoids

This one-day classroom workshop provides strategies and techniques for restoring or re-vegetating with native grassland species. | ***Instructors:*** *J.P. Marié, Chris Rose, Bryan Young, Emily Allen, and others* | ***Location:*** *Winters Public Library, Winters* | *Fees: $150 CNGA Members / $175 Non-members / $95 Students with ID*

April 24: 8th Annual CNGA Field Day at Hedgerow Farms

This popular and inspiring day in the field offers day-long learning about all things native at Hedgerow Farms. | ***Location:*** *Hedgerow Farms, Winters*

May 16: Introduction to Grass Taxonomy and Identification

This workshop presents the basics of identifying grasses using the *Jepson Manual,* focusing on the identifying characteristics of common native and non-native grass species in California. | *Instructors: Michelle Cooper and others* | ***Location:*** *Point Reyes*

Register online at www.cnga.org or call (530) 771-7332

Figure 1. A "tussocky" stand of Idaho fescue in Sonoma County. *Photo: Ingrid Morken*

Figure 2. A bioswale on the UC Davis campus composed of red fescue and other fescue species. *Photo: Ingrid Morken*

SPECIES SPOTLIGHT: **Fescue to the Rescue**

by Andrea Williams, Vegetation Ecologist, Marin Municipal Water District and Ingrid Morken, Landscape Architect, WRA

Figure 3. A valley oak and fescue landscape on the UC Davis campus (*photo: Ingrid Morken*) *(above)* and an Oregon white oak and California fescue landscape near the Bon Tempe Reservoir in Marin County (*photo: Andrea Williams*) *(below)*.

Most of California's native fescues (*Festuca* sp.) can be found in big "tussocky" stands in natural settings, sending slender stalks of spikelets to wave above dense clumps of fine leaves. Several fescues have made their way into gardens as lawn alternatives and ornamentals, and they also can commonly be found in bioswales. Idaho (or blue) fescue (*Festuca idahoensis*), red fescue (*F. rubra*), and California fescue (*F. californica*) are three of the most common in California and are commonly used in habitat restoration projects as well as in gardens and urban settings.

Idaho fescue is probably one of the most well-known natives; the tight blue bunches accent many a drought-tolerant landscape and, for example, can be found in some of the hottest, driest spots on Marin County's Mt. Tamalpais. In the wild, it is a little looser and tends to be silver instead of blue and on occasion can be hard to tell from red fescue (*F. rubra*). A "tussocky" stand of Idaho fescue is depicted in Figure 1 at a remote site in Sonoma County.

Red fescue's leaves are not red, but its flowering stalks often are. The fine leaf blades are rolled in long needles, and in most cases, they are a deep emerald green except when the species grows in drier spots with Idaho fescue and the two species are almost indistinguishable. Red fescue does particularly well on the coast. The most common cultivar 'Molate' is from Point Molate, just on the Richmond side of the Richmond–San Rafael Bridge in the San Francisco Bay Area, where the coastal grassland was nearly lost to development. Red fescue is commonly used in bioswales, as shown with a few other fescue species in Figure 2.

One of the largest and perhaps most striking native fescue is California fescue. Clusters of blue-green leaves grow as tall as 3 ft, and tussocks can reach 4 ft across; single flowering stalks reach 6 ft or more in the air. The plant keeps its flowering stalk and stays mostly green year-round, remaining visually interesting as the seasons turn. It is often found at moist edges of oak woodlands and forests, and the stands near Azalea Hill and along Bolinas-Fairfax Road in Marin County are some of the finest anywhere. Sometimes California fescue can be difficult to distinguish from the thirsty, fungus-harboring, invasive, and non-native tall fescue (*F. arundinacea*), but the coarse, broad, green blades and "tillering" spread of tall fescue are dead giveaways. On the UC Davis campus, an installed landscape of valley oak (*Quercus lobata*) and fescue is shown in Figure 3 above a landscape of natural Oregon white oak (*Quercus garryana*) and California fescue found near the Bon Tempe Reservoir on Marin Municipal Water District land. The fescue meadow on the UC Davis campus is drought tolerant and requires little mowing and much less maintenance than a traditional lawn.

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Check out CNGA's Spring 2015 workshops on page 12!

Front cover: Annual grassland with a lone valley oak (*Quercus lobata*) in the foreground, Tejon Ranch, near Gorman, Calif. *Photo: Scot Pipkin*
Back cover: Western Meadowlark (*Sturnella neglecta*) at a historic ranch within the Point Reyes National Seashore. *Photo: Ryan DiGaudio*