
Obispoensis

Newsletter of the San Luis Obispo Chapter of the California Native Plant Society



June 2016

Golden Top Grass *Lamarckia aurea*

The illustration used for this discussion is a grey-scale copy of a color photo of a plant in full flower to the left and a scan of a fruiting plant to the right. The left plant was photographed in the field in color and the digital photo was converted to grey-scale by a computer. The image to the right is a scan of the same flattened plant in fruit. Not that there is not a whole lot of difference between the two but it is why grasses are more easily identified in fruit than in flower. All the floral characters are still retrievable as well as the even more important fruiting characters. So, the cover is not a drawing by Bonnie. Spring is a very busy time.

It is golden top grass or simply golden top, *Lamarckia aurea*. It is a very easily recognized grass. It is a relatively small, producing a tight mound-shaped cluster of relatively broad (for a grass), flat leaves. The leaves of most grasses are extremely narrow and often rolled so as to look even narrower. The leaves are a dark gray-green that contrast with the elements of the flowering and fruiting inflorescence. Like all grasses, the unit of the inflorescence is a tiny spike (spikelet). A golden top spikelet is totally enclosed by a pair of sterile bracts (glumes). In golden top, the glumes are a bright golden tan that contrasts strongly with the darkish blue-green leaves below.

I chose the plant with no apologies in spite of the fact the species is native to the Mediterranean region of the Old World and not a California native. It's distributed worldwide. Also, I happen to have a soft spot for it. I find it's not pushy as a weed; it doesn't seem to intrude far into native vegetation. It seems to prefer shallow, rocky and/or hard packed soils such as along trails or the bases of rocky cliffs where little else grows. I wouldn't have expected to find it in our coastal dunes, but, on a recent Chapter field trip to Coreopsis Hill near Oso Flaco Lake, I found it growing in the back dunes. True, it was growing on the side of an abandoned road where coarse gravel had been laid down. I didn't see it out in the native dune vegetation. Unfortunately, I did see another grass making a strong presence in the Dunes, veldt grass (*Ehrharhta calycina*). Veldt grass is a weed that doesn't behave itself!

The common names, golden top or golden top grass, are obviously derived from the color of the inflorescence, which is produced above (on top of) the tight cluster of darkish leaves below. The species epithet, *aurea*, is

derived from the Latin word, *aur*, which means gold. The genus, *Lamarckia*, is named after the French naturalist, Jean-Baptiste Lamarck (1744-1829). On a recent field trip, I got brought down to earth when I asked if any one didn't know who Lamarck was. Several hands went up. Since Lamarck is a hero of mine, I'm compelled to remember him. Lamarck was principally a French botanist and museum director. He lived late in the period when the whole Earth was being explored (Age of Exploration) for the first time. Thousands of new, unknown organisms were being discovered and described for the first time. Many of these new species resembled known species, yet were obviously different from those known in Europe and the Near East. Lamarck, being director of the major French National Museum of Natural History, was in the center of this new knowledge. So many new species were becoming known, that the existing explanation of the origin of species was being found hard to accept. It was becoming more and more obvious to the amateur and professional naturalists (i.e., biologists, a label invented by Lamarck by the way) that these new species intergraded together. The old explanation of independent origin of all species was becoming harder and harder to defend. A number of prominent naturalists of the period wrote about the potential problem, but didn't offer any explanations as to how it could happen. Lamarck was the first to offer an explanation. He hypothesized that species change by need or by "trying harder." For example, if you were a giraffe and needed to reach the leaves at the top of a tree, you needed simply to stretch your neck. Your kids would inherit (he didn't know how) your longer neck. This is the classical explanation for a giraffe's long neck according to Lamarck's theory of change in species form or evolution. It didn't turn out to be the best explanation. It was replaced some decades later by an idea that suggested that the environment selected individual giraffes with longer necks. Individuals of a species are born slightly differently, and those who fit the environment best (i.e., had slightly longer necks in case of giraffes) were likely to have a better chance to survive. The second idea was Darwin's Theory of Evolution via Natural (Environmental) Selection. As a side note, neither Lamarck nor Darwin knew why individuals of a species are born slightly differently. That was worked out by a Darwin contemporary, Gregor Mendel. Unfortunately, the importance of Mendel's work was not discovered until the early 20th century.☼

Dirk Walters

President's Input *by Bill Waycott*

During the second week in May I accompanied Lindsey Whitaker, Cal Poly graduate student and recipient of a Malcolm McLeod scholarship, to her research plots in the Guadalupe Nipomo Dunes. In her study, she is looking at the rate of invasion of *Ehrharta claycina*, also known as Veldt grass, into the dune ecological zone. Lindsey's plots are located in the area of the dunes south of Black Lake, where California State and San Luis Obispo County Land Conservancy properties meet.

As we walked through the Conservancy property towards the State owned land, we saw a thriving native dune habitat with many of the species in bloom. There were popcorn flowers, fiddle necks, an assortment of sun cups and primroses, robust California thistle, *Cirsium occidentale* var. *californicum*, deer weed, common sand aster, *Corethrogyne filaginifolia*, the giant dune bush lupine, *Lupinus chamissonis*, and lots of mock heather, *Ericameria ericoides*. There were some juvenile Veldt grass and narrow-leaved ice plant (both introduced from South Africa) scattered here

and there, but insignificant compared to the hearty showing of native dune species.

As we walked over to the State property, I stopped dead in my tracks. Incredible, I thought to myself! The Veldt grass was so thick, it had pushed out everything else. The clumps of bunch grass were evenly spaced over the entire dune surface, as if they had been planted into a pre-measured grid. A complete carpet of Veldt grass had ravaged the landscape, with virtually nothing else left in its wake. Gone were the annuals, and the hearty perennials; only a few of the larger mock heathers had survived, though not for much longer.

At this point, Lindsey explained to me the glaring disparity between the two properties. Simply put, the Conservancy land had been treated annually with a grass-specific herbicide, laboriously applied by hand, while the State land had been left alone.

Invasive weeds in Central Coast wildlands is obviously a huge problem. Personally, it is hard for me to stomach the destructive power such plants as Veldt grass unleash on some of our more delicate and unsuspecting habitats. What a mess has been created with no easy solution! *(continued)*



The demarcation between SLO Co. Land Conservancy (left) and CA State-owned properties

President's Input *continued*

San Luis Obispo County has a weed management program. Although not exhaustive, the plan lists roughly 30 species that are considered highly invasive. One can view this list and the plan's recommendations for what to do if one of these weeds is found on a property in the county (see the link below).

http://www.slocounty.ca.gov/agcomm/Weed_Control/SLO_County_s_Weed_Management_Area/Invasive_Weeds_of_SLO_County.htm

Let's educate ourselves about invasive plants by using the internet to reveal just how threatened the California landscapes have become through the introduction of non-native species to this environment, and through land development and disturbance with no realistic plan for restoration. After years and years of revegetation of our native plant communities by introduced species from other parts of the world, we now have the collective awareness and necessary tools to avoid the mistakes of the past and work together at bringing the pervasive invaders such as Veldt grass into a more controlled and directed management system.*

FIELD TRIP

Saturday, June 18, Morro Mania (varying start times) - The Morros of SLO County ! Join Andrea and Bill on the **Fifth Anniversary Hike**, a one-day ascent of the five publicly accessible Morros, near San Luis Obispo and Morro Bay. All five Morros can be hiked in succession (see schedule listed below) or selected to suit one's preferences and conditioning. Each has a beautiful but different vista---from city to oak woodland to grassland to seashore. Total round-trip distance for all five hikes is about 13 miles, with 3,500 ft. elevation gain. Bring plenty of water (store extra water in your vehicle), lunch and snacks, and dress in layers for changing weather. The day is likely to start and end cool, but be quite warm at mid-day. A hat, sunscreen, and sturdy hiking shoes are essential. Notification with hike leader at least 24 hrs in advance is requested. Leader: Bill Waycott, (805) 459-2103 or at bill.waycott@gmail.com . The plants, animals, and the geology of the area will be topics during the hikes.

7:30 a.m. Islay Hill, 2 miles, 500 ft. gain, moderate. The easternmost of the Morros, with views of five others. To trailhead, take Tank Farm Rd. east past Orcutt Rd, then south on Spanish Oaks Dr., then east on Sweet Bay Lane to end.

9:00 a.m. Cerro San Luis, 4 miles, 1,100 ft. gain, moderate. Has knockout views of SLO. Trailhead at the end of Marsh St., just before onramp to Hwy 101 south.

Lunch: 11:15 a.m. to 12:00 p.m., Throop Park, corner of Cerro Romauldo Street and Cuesta Drive, in SLO.

12:00 p.m. Bishop Peak, 3.5 miles, 950 ft. gain, moderately strenuous. Highest of all the Morros. From Hwy 1, go west on Highland Dr., then right on Patricia Drive. Park at trailhead on Patricia Dr. just before reaching Anacapa Circle.

3:30 p.m. Cerro Cabrillo, 2.5 miles, 800 ft. gain, moderately strenuous. 360-degree views from the Santa Lucia Mts. to coastline. Meet at Quarry Trail trailhead on South Bay Blvd, 1.4 miles south of Hwy 1 or 0.4 miles north of Turri Rd.

6:00 p.m. Black Hill, 3.0 miles, 650 ft. gain, moderate. Ocean views from Montaña de Oro north to San Simeon. From South Bay Blvd, drive into Morro Bay State Park on Main Street. Meet at the parking area on the north side of the road, next to restrooms opposite the boat marina, just east of the campground entrance.

Conservation

We will be keeping an eye on a proposed agricultural cluster on the Jack Ranch, situated on the flanks of the hills behind Country Club Estates and Rolling Hills Estates in the Edna Valley. Clustering would seem at first glance a good idea, as it can minimize the total impact of structures on open space. However potential negatives arise from the extra house lots allowed as a clustering incentive, and the fate of the created contiguous open areas under potential conversion to row crop or grapes. It is likely water supply will be an issue, as the Edna Valley has serious water supply issues.

Due to the ability of germinated grasses to 'ride out' the February drought that decimated our wildflowers, this is a spring of very tall grasses and thick stands of noxious pests such as veldt grass. As the drying grasses are tall enough to stand above the shrubs, the intensity of the infection to the dune ecosystem can readily be seen to those entering Montana de Oro Park. A group of interested parties, including CNPS, discussed with John Sayers (California State Parks) about getting some independent funding brought in for grass control, overcoming institutional barriers to use particular removal methods, and prioritizing areas for experimental treatment. It was pointed out that much of the greenbelt around Los Osos was acquired with outside money from agencies on the basis of the exceptional quality of the habitat and the high content of rare species. We will propose that investing in veldt removal will be protecting past investment, rather than declaring in a decade that the money was wasted.

As we conclude the 2015-2016 active season, I encourage chapter members to consider joining the conservation committee with the specific job of keeping a close eye on the cities where they dwell. If you follow local city politics and building plans, your knowledge would be a welcome addition that you might consider for the 2016-2017 season. The more eyes we have, the better the flora might be protected. ☘

David Chipping

The San Luis Obispo Chapter of CNPS holds its meetings the first Thursday of the month, October through June, except January, at the Veterans Hall, Grand Avenue, San Luis Obispo. Refreshments at 7:00 and program at 7:30 p.m. You don't have to be a CNPS member to attend!

Obispoensis is the newsletter of the San Luis Obispo Chapter of CNPS. It is published October through June except January. Items for submittal to *Obispoensis* should be sent to rahotaling@gmail.com. The deadline for the next issue is September 10, 2016. Botanical articles, news items, illustrations, events, and tidbits are welcome.

To find out more about the California Native Plant Society visit the websites: www.cnps.org and www.cnpsslo.org

Chapter Meeting

**Thursday, June 2, 7 p.m., Veterans Hall
801 Grand Avenue, San Luis Obispo**

June Meeting Speakers

The three Cal Poly graduate student recipients of our chapter's Malcolm McLeod Scholarship will be the featured speakers at the June 2016 Meeting. They will present information on the projects the chapter is sponsoring.

Lindsey Whitaker

Thesis Advisor: Dr. Scott Steinmaus

The Role of the Seedbank in the Spread of Invasive Species, *Ehrharta calycina*, African Veldt Grass Within the Guadalupe Nipomo Dunes Complex

Lindsey will share the results a field experiment measuring the growth of *Ehrharta calycina*, with and without the presence of its seedbank. This research will be beneficial in the management of this invasive species within the Guadalupe Nipomo Dunes Complex, where it is currently threatening native biodiversity.

Kristen Nelson

Thesis Advisor: Dr. Jenn Yost

Understanding the ecological impacts of *Eucalyptus globulus* in California

Abstract

Eucalyptus globulus (blue gum) is a non-native tree that occurs throughout coastal California. It is widely accepted that this species has extensive impacts on the native California flora, but the extent and nature of these impacts is poorly understood. Through my research, I evaluated and quantified how blue gums interact with California native species and habitats in order to better inform conservation and management strategies on land historically occupied by blue gums.

Julia Harencar

Thesis Advisor: Dr. Jenn Yost

Cryptic goldfields: A case of reticulate evolution?

My research explores the relationship between the cryptic species *Lasthenia californica* and *Lasthenia gracilis*. The species have overlapping ranges and co-occur at a few sites, likely as the result of recent secondary contact. I am investigating the possible hybridization of these species throughout California to build a picture of how much introgression is occurring, if any, and the pattern of this possible introgression throughout California.

The next chapter meeting is the October "Dessert Potluck," Thursday, October 6, 2016. Bring a dessert and photos and videos of your summer travels to share.

A seed exchange is planned as an activity for the workshop time slot before the October meeting. Information regarding seed collection is available on the chapter website.

What I've Learned: I need patience and I don't have the right shoes

I volunteer at the botanic garden Tuesday mornings. The display of yellow *Viola* on the undeveloped portion of the hills was wonderful this year and it occurred to me that there would be lots of seeds. I would really like to have the propagation crew at the garden try to grow some of these as I think they would make a nice addition to our gardens. Granted they disappear in the heat of the summer but they could make a nice groundcover under some of our shrubs and need no water in the dry time. So I approached Eve. Eve is the person who started the garden as an extension of her senior project at Cal Poly. She was receptive to the idea. I asked if I could take a bit more for other uses. Again the answer was yes and extended to some of the other plants on the hills. So when I thought the seeds might be ready I ventured out.

These are hills that are brown in the summer. They are covered with oats and ripgut and some other not so nice plants. But there are patches of *Viola* and *Sidalcea* and *Sisyrhincium*. So I had a goal of collecting all three. Finding those patches was not always easy. The plants disappear into the dried grasses. But I could find some. And in my wandering looking for patches I was excited to discover that not only are there the invasive sorts of grasses but there was lots of *Stipa pulchra*, some *Melica californica*, *Melica imperfecta* (or at least a different kind of *Melica*), *Elymus triticoides* (I think), *Elymus condensatus*, *Hordeum bracyantherum* and the most exciting find, for me, was some *Danthonia californica*. I am not collecting seeds of those grasses because they are not represented in great numbers and I want all the seed that's there to possibly increase populations. But I am collecting the seeds of the *Viola*, *Sidalcea*, and hopefully the *Sisyrhincium*.

However, patience is a requirement. Finding the patches of *Viola* was not nearly as challenging as finding the seeds ready to gather. I am honing my observational skills and getting up close and personal with the plants. I was looking for black, ripe seeds so black drew my attention. Often the black was a little beetle that I saw only on violets. Is this a good bug or a bad bug? I have no idea. But if it is providing food for the birds in my book it's a good bug. Perhaps it's one of those specialist bugs that only use one plant. Questions. Down on my knees I can see the developing seed capsules and I have observed that as they ripen they lift and point to the sky. Once ripe, the capsules pop open. Sometimes a few seeds remain in the opened capsule. Whether these are defective or not I don't know but I have collected them. At least they are

black. Picking a few capsules early results in green seeds. I have picked a few, unopened but upturned, which have resulted in the sound of popping seeds in the paper bags at home. I have gotten some black seeds out of these. My favorite find is to see the open capsule, still green, and filled with black seeds. Treasure! But it has taken weeks of venturing up on the hill to get a few tablespoons of seeds. Some of these will find their way to the seed exchange.

The *Sidalcea* is another story. I found that many of the flowers did not develop into seeds. But in some areas there were more that developed than others. Does this reflect the presence of more pollinators in some areas than others? In some areas the stalks were half gone. Are they browse for deer? More observations lead to more questions. But I did collect a few seeds that seemed to be ripe. The capsules on these plants seemed to dry with the seeds remaining in the capsule. But as they dried they would separate a bit and I found that if I just brushed my fingers across a capsule seeds would fall into my hand. I found capsules with just a few seeds remaining so assumed these were ripe. I don't have many seeds of these but after sharing with the botanic garden a few will end up at the seed exchange. You should want these. I have a *Sidalcea* grown from seed that has been blooming for several months in my garden. I think it's beautiful.

As for the *Sisyrhincium*, I don't have seeds yet and am not sure that I will. Those patches, which were so obvious and seemed so huge when they were covered with their blue-purple blossoms, are very hard to find when there is no flower to beckon. Those that I have found are not yet ripe. The capsules are still green and I don't know if I will have any luck finding ripe seeds. But I am going to try.

What about not having the right shoes? The shoes I wear at the botanic garden are really old worn out hiking shoes with that open mesh sort of fabric for breathability. They are really great grass seed collectors. Those seeds penetrate through the open mesh and through my smart wool socks and into my skin. Almost intolerable. Before I drive home I have to remove my shoes and get rid of those seeds. I am pleased to find that they collect *Stipa* seeds too which means that there are plenty of *Stipa* seeds to be had. But I am very conscious of the fact that I don't want to be transferring these seeds to the trails so they are no longer used for hiking.

Marti Rutherford

Reminder: Seed exchange before the October meeting.

On Veldt Grass

by Mark Skinner

Some of the most notorious invasive plants such as *Carpobrotus*, slender leaved ice plant, and cape ivy come from South Africa. Another quite bad one is Veldt grass (*Ehrharta calycina*). This bunch grass has wide (1/4") leaves, is glaucous (grey-green) until it matures and turns maroon. From the road it has red tops which turn blond. The seed stems can reach chest height. It is a perennial that produces an incredible amount of seeds and grows throughout the year near the coast, living off fog drip, but mainly follows the rainy winter. Veldt grass is awful because it crowds and overwhelms other plants.

To be rid of it, manually pulling mature plants, including the buried crown of the plant is necessary or resprouting will occur. But this also this often stimulates seed germination. Manual removal must be repeated as seedlings appear from the seedbank. Serious infestations can be sprayed with a grass-specific herbicide such as Fusilade. Timing is critical, especially after the first several inches of rain. Some applicators report that postemergence treatment to plants over 4 inches tall is much more effective compared to treating smaller plants.

If your locale has had veldt for a long time keep at it until the seed bank is exhausted. The task is very difficult in drought and easy in wet years. Best wishes weed warriors!

We are indebted to the generosity of a number of you who joined or renewed your memberships this month. Thank you so much for your support!

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Dedicated to the Preservation of the California Native Flora

The California Native Plant Society is a statewide non-profit organization of amateurs and professionals with a common interest in California's plants. The mission of the Society is to increase understanding and appreciation of California's native plants and to preserve them in their natural habitat through scientific activities, education and conservation. Membership is open to all. Membership includes the journal, *Fremontia*, the quarterly *Bulletin*, which gives statewide news and announcements of the activities and conservation issues, and the chapter newsletter, *Obispoensis*.



San Luis Obispo Chapter of the California Native Plant Society

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