DEDICATED TO THE PRESERVATION OF THE CALIFORNIA NATIVE FLORA

The California Native Plant Society

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May-June 2011

May General Meeting

Wednesday, May 25, 2011, 7:00 pm at the White Mountain Research Station, 3000 East Line St., Bishop. Christopher Kopp, a graduate student at UC San Diego and winner of one our chapter's DeDecker grants, will be the speaker. He will discuss his research on vegetation change in the White Mountains. His abstract follows:

Shrub invasion of alpine areas. An uphill battle?

Shifting range distributions observed worldwide provide some of the best evidence of species responses to increasing global temperatures over the past century. Many predictions of species range shifts are based on the climate envelope approach, with the null prediction that species ranges will shift poleward and upward in elevation to track suitable climate. However, observed rates of range alteration vary widely among species, potentially due to both differential dispersal rates and species interactions. In 2010 we conducted a re-survey of plant species distribution and abundance in the White Mountains of Eastern California, in areas that were originally surveyed by Harold Mooney in 1961. We aimed to answer the questions: Did plant species experience elevation range shifts? If so, did all species display similar shifts? Finally, was there evidence of shifting species interactions (i.e. competition or facilitation)?

May Board Meeting

Wednesday, May 18, 2011, 7:00 pm at the ESICE office, 512 N. 2nd St., Bishop. Members are welcome.

ANNOUNCEMENTS

Attention Plant Sale Buyers: If you have any black plastic pots from plants you bought last year, please bring them to the May 25 meeting, or drop them off at the greenhouse at White Mountain Research Station. I can also use gallon pots from plants purchased from nurseries

Katie Quinlan

FROM THE EDITOR

Next Newsletter Deadline: June 27, 2011

Send articles to: newsletter@bristleconecnps.org

EVENTS

May 21, Saturday - CNPS Field Trip: *Lime Hill, Eureka Valley Road*. Leader: Michèle Slaton. The outstanding geology and terrain in this area have resulted in unique and diverse plant communities. We will see carbonate-loving Nevada greasewood (*Glossopetalon pungens*) and rock heath (*Chaetopappa ericoides*), plus two rare shrubs - single-leaved ash (*Fraxinus anomola*) and yerba desierto (*Fendlerella utahensis*) - and the rare grass, (*Achnatherum aridum*), plus blooming cactus and annuals. We will begin our walk from the talc prospect south of Lime Hill and venture up a short but STEEP hill to visit the shrubs. We'll then walk down into 'Bowling Ball Canyon' to see what is blooming along the narrow marble passageways. We will walk about 2 miles, but the walking is steep with slippery footing.

Meet at the parking area next to the campground at the north end of Big Pine, at the intersection of Highways 395 and 168 at 8:30am. Carpooling will be encouraged along the paved route to Lime Hill. Bring lunch, water, and the usual field trip items. Contact Michèle with any questions at mslaton@schat.com or 760-938-3258.

June 5, Sunday: CNPS/FOI Field Trip: *Bodie Hills*. Co-host with Friends of the Inyo. Leader: Drew Foster. Come on out for an all day floral adventure in the Bodie Hills. Let's see what's in bloom in this mélange of the floras of the Sierra Nevada and the Great Basin high desert. Viewscapes are guaranteed to impress, sagebrush will be present and plentiful, and good times to be had by all! This will be an all-day hike, moderate to strenuous, so please bring plenty of water, a lunch, snacks, and the usual outdoor stuff (sunscreen, hat, hiking shoes, etc.)

Meet at the end of the pavement at Highway 270 (the road to Bodie State Park) to carpool, 8:30am. Don't forget your hand lenses! Call Drew at (805) 405-7577 for more information.

June 11, Saturday: CNPS Field Trip: *Blackrock Meadows: "I told you so!"* Leader: Daniel Pritchett. In July 2007 the Bristlecone Chapter of CNPS formally requested DWP and Inyo County to modify groundwater management in the Blackrock area due to degradation of rare alkali meadow habitat. Almost four years later, the Inyo County Water Department has finally agreed with our contention that management must be modified. Come on this trip to see what an official, Inyo County Water Department-certified pumping impact looks like, as well as an example of very successful groundwater management! We will explore an area from the Fort Independence reservation north to 8-mile Ranch/Blackrock hatchery area. Sense of humor and capacity for outrage required. 4x4 not necessary but high clearance never hurts. Meet at Fort Independence travel plaza/casino parking lot at 8:45AM. Bring water, snacks, hat, and sunscreen. Trip will end by noon. For more information contact Daniel at 873-8943.

June 12, Sunday: CNPS Field Trip/Work Day: *Highway Clean-Up*. Leader: Scott Hetzler. Meet at the intersection of Highway 395 and Pine Creek Rd., west of 395, at 9.00 AM. We will try to be done by 1:00 PM. For more information contact Scott at (760) 873-8392.

June 25, Saturday: CNPS Field Trip/Work Day: *Devil's Postpile / Rainbow Falls weed pulling*. Leader: Holly Alpert. This will be a work day to help remove cheatgrass (*Bromus tectorum*) from Devils Postpile National Monument and surrounding areas. We will hike from the Rainbow Falls trailhead to areas of known infestations. Hiking distance may be 2-4 miles and may be over rough terrain. Bring your gloves and some garbage bags. Wear long pants and layers. Meet at Minaret Vista at 9:00 am and we will carpool from there. Contact Holly Alpert at 760-709-2212 or holly.alpert@gmail.com.

REPORTS

Field Trip Report: Pandora's Box, April 30

Jerry Zatorski led an interesting trip to Pandora's box which also included a bit of adventure. Pandora's Box is the name applied by Mary DeDecker to a canyon on the west side of the Inyo Mountains, just north of the Mazurka Canyon road. Ten participants hiked up one drainage, crossed over to an adjacent drainage, and hiked back to the starting point in the canyon bottom. The return hike required negotiating two 10-foot waterfalls. I might not have tried either of these by

myself, but our chapter co-founder Evelyn Mae Nikolaus showed me how to make my way down.

The wildflowers were diverse but not abundant. There was a population of Pygmy Cedar (*Peucephalum schottii*), a shrub in the Asteraceae much more common at lower elevations in the deserts of eastern Inyo County. The group puzzled over the distinctions between three species each of *Brickellia* and *Ericameria*. Two cacti were in flower, Beavertail (*Opuntia basilaris*) and Hedgehog (*Echinocereus engelmannii*). We saw several examples of large Cottontop cactus (*Echinocactus polycephalus*), a few Indian Paintbrush (*Castilleja angustifolia*), and several Mojave Aster (*Xylorhiza tortifolia*) in full flower. Among the many spring annuals the small-flowered *Nama pusillum* was new to me. There were both the yellow-flowered (*Calycoseris parryi*) and white-flowered (*Calycoseris wrightii*) Tackstems, small annuals often confused with Desert Dandelion (*Malacothrix glabrata*) and Desert Chicory (*Rafinesquia neomexicana*), respectively.

Steve McLaughlin

Owens Lake–It's not just for the birds

A group called the Owens Lake Planning Committee has been working now for 14 months on a master plan for the lake, that is, all of the area within the 3600-foot contour (the historic lake), *except* for the Owens River delta (more on that below). Most of the lakebed belongs to the State Lands Commission (SLC). The objectives of the master plan are (1) to control dust from the lakebed while (2) protecting the public trust values on the lakebed and (3) conserving as much water as possible. Public trust values in this case are wildlife habitat, public access and recreation, and view shed.

Groups represented on the Planning Committee are the Los Angeles Department of Water and Power (DWP), which is responsible for dust control, the Great Basin Unified Air Pollution Control District (GBUAPCD), the California Department of Fish & Game (DFG), Inyo County, economic interests (grazing, mining), local residents, the Lone Pine Paiute Tribe, and several non-governmental organizations (NGOs), including California Audubon, Eastern Sierra Audubon, Owens Valley Committee, the Eastern Sierra Land Trust, and the Bristlecone Chapter of CNPS.

The Master Plan process was preceded by a Conservation Action Plan (CAP) process which involved many fewer stakeholders; CNPS did not participate. However, the CAP did identify alkaline meadows associated with seeps and springs, mostly along the old shoreline, as key conservation targets. Because the conservation of wetland plant communities is a high priority for CNPS, it was important for the Bristlecone Chapter to be represented at the table, and I have participated on the Planning Community since its beginning.

The lakebed can be divided into "project" and "non-project" areas. Project refers to the dust-control project, located mostly on the north, east, and south sides of the lake. The GBUAPCD monitors dust levels from the lake to identify areas with excessive PM10 (dust particles 10 microns or less) emissions. The "project" area has grown over time and likely will continue to grow as new areas become emissive.

There are currently just three approved methods for controlling dust–shallow flooding, managed vegetation, and gravel. Managed vegetation, at present, is defined as a monospecific stand of salt grass (*Distichlis spicata*) meeting certain minimum cover requirements. Since shallow flooding is the least expensive dust control method, it is the most widely one currently used on the lake. As the amount of acreage subject to dust control has increased, the amount of water applied on the lake for dust control has increased to about 95,000 acre-feet per year.

Soon after shallow flooding was initiated brine flies reappeared over much of the lakebed. The combination of water and a food source has attracted large numbers of both migratory and breeding waterfowl, including Snowy Plovers. California Audubon has identified Owens Lake as a "Significant Bird Area." But plant species are now also expanding onto the lake bed. I have compiled a list of 166 wetland plant species found on Owens Lake. Many of these were first documented by Mary DeDecker, who made several collecting trips to Cabin Bar Ranch and a few other sites along the lake. The most diverse sites, such as Willow Dip and Cartago, have more than 40 species of plants. Some sites within the dust control project have been colonized by more than 30 species of plants.

One of the ways identified by the Planning Committee to alter shallow flooding is to encourage the establishment of a diverse mix of native plants,

called "modified managed vegetation." Dust control cells near the Owens River delta are being naturally colonized; other areas will probably have to be seeded. The SLC is currently considering a greatly expanded list of plant species for use in managed vegetation.

The Planning Committee has considered two possible legal frameworks for implementing a Master Plan. The first is a Natural Communities Conservation Plan (NCCP). A portion of the lakebed would be designated as a preserve, which would be managed to maintain or improve wildlife habitat. The preserve would serve as mitigation for DWP to implement other dust- control methods elsewhere on the lakebed, provided of course that such methods satisfactorily control dust, as determined by GBUAPCD. There were two problems with this approach, however. The first is that the lakebed is a dynamic system. Almost all areas have habitat value, and the areas of "best habitat" (as identified by actual bird use) have been shifting almost yearly. Secondly, the SLC did not to wish to assume the role of permitee under an NCCP.

The other alternative is to have a Master Plan based on a master lake/streambed alteration agreement, administered under a Memorandum of Understanding between DWP and the regulatory agencies (DFG, SLC, and GBUAPCD). NGOs would have an as-yet-undefined role in the implementation of the Master Plan.

The Habitat Work Group of the Planning Committee has subdivided the lakebed into 141 polygons, 82 on the current dust-control project, and 59 on non-project areas. The largest polygon is the brine pool, which has limited habitat value but which is also not emissive. We have developed a habitat-suitability index (HSI) for each of four guilds–open water, shorebirds, waterfowl, and meadow species. An independent review panel has recommended that shorebird and waterfowl guilds be divided into separate guilds for breeding and migratory species. Plants are important particularly to defining the HSI for the meadow and breeding waterfowl guilds. Botanical parameters that go into these HSIs include vegetation structure, cover, and species richness. We multiply the HSI values for each polygon by that polygon's acreage to define the "value acres" of habitat. These value acres will be used, in a still undetermined way, to define the baseline conditions for the CEQA analysis.

From my point of view, there have been a couple of problems with the planning process. It has been–and still is–very difficult to get DWP's attention focused on the entire lakebed and not just on the dust-control project. Most of the wetland vegetation and flora is associated with springs found around the lakebed. This vegetation was identified previously as a conservation target, and it includes both CNPS-listed species and plant associations. Since DWP does not actively manage most of the area outside of the dust control project, the agency has much less interest in its condition and conservation.

The second problem is the exclusion of the Owens River delta. This area is part of the Lower Owens River Project (LORP) and is subject to current agreements between DWP and Inyo County. The Master Plan could not supersede the LORP agreements, but that is not an inherent obstacle to including the delta in the Master Plan. The delta contains riparian woodland, marsh, and meadow communities, is ecologically connected to the rest of the lake bed, and is certainly within the 3600-foot contour. The Planning Committee has been forced to exclude the delta largely because neither DWP nor the County is willing to work out how exactly to include it in the Master Plan. Several NGOs, including CNPS, would prefer to see the delta included in the plan.

There is still one proverbial 800-lb gorilla in the room that could derail the entire Master Plan process, and that is groundwater pumping. DWP would like to replace aqueduct water with groundwater pumped from below the lakebed for use in its shallow-flood dust control cells. This may or may not be feasible, but the Planning Committee won't have enough information by the time we hope to complete the Master Plan. Unlimited groundwater withdrawal would definitely dry up springs (it always does), leading to significant deterioration of wetland habitats around the lake. How much groundwater withdrawal would be a significant hydrological and ecological impact is very difficult to determine. And should pumping at Owens Lake be subject to the Long-term Water Agreement? DWP and the County don't agree. If DWP takes the position that groundwater pumping be part of the Master Plan, it may not be possible to achieve consensus.

Steve McLaughlin

FEATURES

Birch Creek Journal

Spring is underway at Birch Creek, and the only question now is, can we hang onto it? This is a matter of some importance to my tomatoes, which have been peeking above their walls of water for several days now and are doubtless wondering what sort of protection I will arrange for them next. I am wondering, too, because I have finally learned that spring in the Eastern Sierra is a book with many chapters, each separated from the next by a brief meditation on winter. This year, we had a lovely spring-like week in early February. Side-blotched lizards lounged on sunny boulders, Bewick's Wrens sang with full force along the creek, and mourning cloak butterflies emerged from winter hibernation. I even got a few mosquito bites. But the warm days did not last, and since then we have slipped back into winter three times by my count, with cold days and nights, flurries of snow, and winds strong enough to blow deck chairs all the way into Kern County. And it is not over yet. Without doubt, more meditation on winter will be required before I pick my first tomato.

But today, at least, it is spring again. Seeds of arroyo willow (*Salix lasiolepis*) are flying in every little breeze, and canopies of water birch (*Betula occidentalis*) and black cottonwood (*Populus trichocarpa*) are so full that you can no longer see sky between the leaves. Clumps of paintbrush (*Castilleja angustifolia*) have been blooming since the beginning of April, almost exactly when our first hummingbirds arrived, and Inyo bush lupine (*Lupinus excubitus*) has raised its purple flowers as a flag for any passing bees. Red brome (*Bromus madritensis* subsp. *rubens*) and cheatgrass (*Bromus tectorum*), those obnoxious exotic annual grasses, seem lusher than ever this year; our heavy winter rains gave them a mighty boost without doing equal good to our native spring annuals.

Because of the back-and-forth slippage between winter and spring, it can be a little hard to say exactly when spring begins in the Owens Valley. There is a theory in our neighborhood that it is spring when the local ranchers let their cows out to eat the wildflowers, hardly a satisfactory marker for anyone not totally enamored of cows. The arrival of Black-throated Sparrows toward the end of March or Brewer's Sparrows toward the middle of April might work as a sign of spring for birders but is perhaps a little esoteric for most of us. Moreover, our resident Bewick's Wrens and Sage Sparrows, having started to sing in January, are practically hoarse by the end of March, so why should migrants get all the glory? Honeybees are another possible marker for the start of spring: I first noticed them this year on a warm day in the middle of March. Some were investigating the flowers on my T-shirt, but most were gathering pollen. When these first worker bees of spring return to the hive, I have read, the sudden influx of pollen tells the queen that it is time to start laying eggs. Could there be a better sign of spring than that? Well, yes. Walk the cat back to the source of the pollen, which in this case was arroyo willow, the first woody plant to bloom in our neighborhood this year and, as far as I can tell, every year.

Honeybees will gather pollen from almost any source that is accessible to them whether it is a stereotypical "bee flower" or not. They will take pollen from grass flowers, for instance, and even from pollen-dusted corn kernels scattered on the ground for birds. I was not surprised, therefore, to see hundreds of honeybees at the staminate catkins of arroyo willow, but I *was* surprised a day or two later to notice a number of native bees crawling over the pistillate catkins. There could be only one reason for that behavior: the bees were finding nectar in the flowers. This just seemed wrong. I had always assumed that arroyo willow, like most woody species that bear male and female flowers on separate plants, is pollinated by wind. Pollen drifts from staminate to pistillate plants on random breezes and although much pollen is presumably wasted, enough lands in the right place to do the job. But if this was the case with arroyo willow, why would pistillate catkins make an effort to attract bees with nectar? Producing nectar is energetically expensive, and plants that rely on wind for pollination typically do not go to the trouble.

Puzzled, I looked into the matter a little further and learned that arroyo willow is almost entirely pollinated by insects. Christopher Sacchi and Peter Price studied this species near Flagstaff, Arizona, and published their results in the *American Journal of Botany* in 1988. They treated some stems of arroyo willow by enclosing them in mesh bags to keep insects from getting at the flowers. They marked other stems but did not bag

them. At the end of the season, Sacchi and Price counted seed production of their experimental stems and found that stems in bags had made virtually no seeds at all. It was quite possible for pollen to drift through the mesh–being good scientists, they made certain of that–but even so, wind pollination was almost completely ineffective in producing seeds. More than 99 percent of the seeds in their experiment came from unbagged stems that were freely accessible to bees, flies, and other insects. Thus the need for nectar: pollinators must have some reason to move from staminate to pistillate catkins, or very little pollen would be shifted to the spot where it can fertilize ovules. Nectar, produced in minuscule glands of the pistillate flowers, provides the motivation.

This year on Birch Creek, flowering of arroyo willow started in the middle of February and continued for two months, with individuals in colder locations lagging behind those in warmer spots. By the end of March the earliest bloomers were starting to disperse their seeds; by the middle of April, few flowers were left, seeds were drifting everywhere, and leaves were starting to expand. I admit that mid-February seems a tad early for the official beginning of spring. The average last date of frost is more than three months away at that point, and there is still plenty of time for one of those deep freezes that breaks pipes and makes us long for a Hawaiian vacation. But if spring is the season of renewal, arroyo willow is where it starts. From those first flowers comes a cascade of effects: native bees provision their larvae and honeybees initiate a new cycle of colony growth; arriving warblers and kinglets find a myriad of small insects; western tiger swallowtails lay eggs on expanding leaves. There's no logical spot on this continuum to which we can assign the beginning of spring, so we might as well go back to the point where it all begins, to the moment when a small, gray bud uncurls from its pussy-willow fastness and opens with all the promise that a flower can bring.

Jan Bowers

CONSERVATION

Drought Recovery Policy abandoned

Inyo County Supervisors have apparently abandoned the strongest language requiring water table recovery in the Inyo-LA Long Term Water Agreement (LTWA) and associated EIR. The language is a two-paragraph document known as the Drought Recovery Policy (DRP) and it calls for recovery of soil water "within the rooting zone." The DRP was adopted by the Inyo-LA Standing Committee in 1991 to insure water table recovery from enormous drawdowns of the late 1980's. I have written about its importance repeatedly over the years. The DRP was adopted because of doubt as to whether the LTWA's experimental "On/Of" pumping management protocol would be adequate to bring about needed water table recovery. With 20 years of data, it is now clear the doubt was well founded. Nonetheless, DWP unilaterally terminated the DRP in 2001. Inyo objected strenuously on procedural grounds (DWP cannot unilaterally terminate a policy adopted by the Inyo-LA Standing Committee), as well as substantive ones (water tables in many areas had not recovered sufficiently to meet the DRP's goal). Although Inyo Supervisors blustered and threatened litigation, they never pulled the trigger. The County still asserted the DRP was in effect as recently as 2010, although 2006 was the last year the county bothered to actually report which parcels were still subject to it.

This year Inyo finally threw in the towel. In its comments on DWP's proposed annual operations plan Inyo County didn't even mention the DRP. Consistent with Inyo County's long-standing efforts to minimize public knowledge of and involvement in water policy, there was no prior discussion of the DRP abandonment by the Inyo County Supervisors or Water Commission, and the Director of the Inyo County Water Department recently stated he didn't know whether the county still held the DRP to be in effect or not.

Daniel Pritchett

Inyo County sacrifices parcel Blackrock 94

In the last issue I wrote about a report issued by the Inyo County Water Department (ICWD) in February, 2011, which concluded that "significant" change is occurring at parcel Blackrock 94 and that such change must be avoided or mitigated under the terms of the Inyo-LA Long Term Water Agreement. ICWD only wrote the report because the Bristlecone Chapter had formally requested in 2007 that management of the parcel be modified because of the obvious pumping impacts occurring. Notwithstanding ICWD's

conclusion, I predicted Inyo County would not recommend reduced pumping in 2011.

I was correct. In its comments on DWP's proposed 2011 operations plan, Inyo County proposed business as usual: pumping 12,800 af for the Blackrock Hatchery pumps. This volume of pumping, as the County well knows, simply perpetuates the drawdowns which are causing the damage in Blackrock 94. Making this recommendation in light of the documented pumping impacts in the parcel is an impressive display of hypocrisy even for Inyo County.

Now that we finally know Inyo's position that the impacts at Blackrock 94 must be "avoided or mitigated," an important question is raised. Why did the County not object to the excessive pumping over the past 20 years which led to the impact in the first place? Was the Water Department staff asleep at the switch? Was the impact an un-predictable anomaly which could not have been anticipated by modern science? Was the County trying its best but somehow screwed up?

Unfortunately the impact was all too predictable. In fact, none other than DWP actually predicted it. DWP's 1976 and 1978 EIR's included a "Vegetation Impact Matrix" which associated different kinds and degrees of impacts to vegetation with water table drawdowns of different magnitudes. Management of Blackrock 94 has consisted of a continuous drawdown since 1988, the magnitude of which would cause "extreme" or "very high" impacts according to DWP's impact matrix. Inyo certainly knew of this matrix, as well as abundant other data documenting the effects of drawdowns. It certainly cannot be claimed that the current impacts are an anomaly that could not have been anticipated and avoided. To the contrary, in addition to knowing that the magnitude of the drawdown made impacts inevitable, Sally Manning, then on the ICWD staff, recognized them in monitoring data and publicly discussed them fully 12 years ago, in 1999. In 2003, ICWD even released a report concluding that the likelihood of needed water table recovery in the parcel was slight even with "minimal pumping" (i.e. 12,400 af/yr, even less than Inyo now recommends). I see no way to avoid the conclusion that Inyo County has knowingly violated its own interpretation of the LTWA in its past and current management recommendation for Blackrock 94. If any readers have sufficient money to spend on a lawsuit, I think there is a strong case against Inyo County for bad faith/fraud in its joint management of this parcel with DWP.

A remarkable feature of this conclusion is that it reveals Inyo to be even worse than DWP. This is because DWP, unlike Inyo, cannot be accused of hypocrisy. DWP argues that the hatchery pumping is part of the "reliable water supply" to which it is entitled under the LTWA, hence parcel Blackrock 94, by implication, is a sacrifice zone and the pumping impacts don't matter. Inyo County, on the other hand, argues that the pumping impacts do matter and must be avoided or mitigated, yet Inyo continues to recommend pumping volumes which neither avoid nor mitigate.

Even more remarkable is that Inyo has put itself in such a bad position when there is such an obvious solution: reducing pumping to the volume of the former flow of Blackrock Spring. If pumping were reduced to this volume (about 8000 af/yr) the hatchery would receive as much water as it was originally built to use, and ICWD models suggest water table recovery would start immediately. The Department of Fish and Game, which operates the hatchery, has proposed this solution and reportedly offered to increase production elsewhere if Blackrock production declined.

The best explanation I can offer for Inyo's intransigence is small-town politics. If the Chamber of Commerce, the Inyo County Cattlemen's Association, or an off-road vehicle advocacy group (instead of the Bristlecone Chapter of CNPS) had advocated a pumping reduction, our Supervisors would have recommended it years ago.

Daniel Pritchett

MEMBERSHIP

Membership Application

The California Native Plant Society is an organization of lay persons and professionals united by an interest in the plants of California. It is open to all. The society, working through its local chapters, seeks to increase the understanding of California's native flora and to preserve this rich resource for future generations.

To Join or Renew: please contact Sally Manning or
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