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City Employees Club of Los Angeles • Vol. 10 • No. 10 • Oct. 2011

DWP land management in the Crowley Lake basin is nurturing new native growth.

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City Employees Club of Los Angeles 120 West 2nd Street Los Angeles, CA 90012

CHANGE SERVICE REQUESTED



Safeguard Your Identity

With New Club Benefit!

See column, page 40.

6 October 2011 City Employees Club of Los Angeles, *Alive!*



Alive! Feature

ver the last 20 years, through management of livestock grazing and recreation, the DWP has staged a comeback of vegetation in the Long Valley. The Crowley Lake Tributary Stream Enhancement Program has been producing results, with renewed native growth along the streams. Here's how they're doing it.

Crowley Lake Tributary Stream Enhancement Program

Throughout the west, livestock grazing and other historic land uses that began more than a century ago, along with increasing use of streams for fishing, hunting, and other forms of public recreation, have impacted vegetation along streams, resulting in declining fishery and wildlife habitat and water quality. In recent years, public interest in the protection and enhancement of these important resources has grown.

Photos by John Hawkins, Club CEO; John Burnes, Alive! editor; and courtesy the DWP.

Recognizing the need to improve stream conditions, DWP biologists, ranch lessees, and consultants with riparian (streamside) habitat enhancement expertise completed environmental studies of tributaries to Crowley Lake in California's Eastern High Sierra Mountains in 1990. The studies showed the need for additional pasture fencing, which would allow both recreational and livestock use of the areas, while promoting natural improvement in streamside habitat.

In 1991, DWP staff, lessees and consultants began developing plans to modify fencing and grazing practices in the Crowley Lake tributary area. They had two goals: to provide ranchers with the

tools to effectively control, based upon scientific criteria, livestock timing and distribution in pastures and along the creeks; and to provide the public with convenient parking locations and creek access points that reduce human impacts to streams and adjacent wet meadows.

Implementation of the plans began in 1992 with the installation of the first fencing along Convict Creek. Since then, the DWP has



Lori Dermody, Watershed Resources Specialist, DWP on the cover of this month's *Alive!*

installed fencing on McGee Creek, Mammoth Creek, and the Upper Owens River using the same restoration approach.

DWP Growth in the

New native vegetation is sprouting in the Crowley Lake tributary area in Long Valley, thanks in part to the DWP's management and monitoring.



Fence Me In... and Out

Key to the new vegetative growth is the management of cattle grazing. The DWP leases much of its land in the area to private ranchers, who raise cattle on the land. Uncontrolled cattle grazing wore down the grounds.

In 1992, new fencing was installed that created a series of riparian pastures. Historically, the streamside meadows were open and accessible to livestock the entire growing season. Grasses along the stream have access to plentiful water and tend to grow faster. Livestock would concentrate along the stream and never move. With the fencing in place, the rancher can open the riparian pasture and allow the cattle to move into the pasture to graze, and when approximately 30 percent of the forage has been utilized, they move the cows out and close the gates. The cattle then can't just hang around and munch on the grasses. This allows the grasses to recover before the end of the growing season.

- continued page 9

8 October 2011 City Employees Club of Los Angeles, *Alive!*

New Growth mune Valley



Signs of Success

The changes are clear to see in the Crowley Lake tributary system.

Although this year's data – chronicled partly in this issue of *Alive!* – are not yet finalized, field time thus far indicates that the stream channels are narrowing, banks are stabilizing, and desirable riparian species now inhabit the stream banks in most areas. This was confirmed through the department's data collected in 2003 and 2004, and the field biologists expect this year's data to indicate the same.

Here are some photos of the difference.

'This Is fabulous! This is why we work in this field.'

— Lorí Dermody, DWP Watershed Resources Specialist

THE ALIVE! INTERVIEW

On Aug. 17, Alive! CEO John Hawkins interviewed Dr. David Martin, Watershed Resources Supervisor, and Lori Dermody, Watershed Resources Specialist, about the department's successful project in managing the cattle and people, bringing back native vegetation, and improving water quality. The interview took place in a conference room in the DWP's Bishop office. —Ed.

Alive!: So Dave, in layman's terms,

And today what did we see?



what do you do?

DAVE MARTIN: I supervise a staff of 17 watershed resources specialists. We have about 315,000 acres of fairly pristine watershed. We're responsible for monitoring all of the activities to ensure that we comply with state and federal environmental regulations, which includes monitoring threatened and endangered species, compliance with a lot of resources codes, and fish and game codes, among other things.

Is this unique in the City? Are there other biologists in the City or DWP that do something similar?

DAVE: There are other biologists, but they're fairly specialized, as far as I know. We specialize mostly on land management, so we have a lot of folks with specialties in wildlife management, soil science, plant ecology... LORI DERMODY: Botany, fisheries...

DAVE: Right. Our breadth of experiences is much larger than you'll find in another biological group that might work for the City.

Origins of the Project

How often do you transect to measure the changes? DAVE: We do some type of transect sampling

every year someplace in the valley.

DAVE: You saw the 20th year of monitoring for the Long Valley Riparian Livestock Management Program.

What does riparian mean?

DAVE: It's the vegetation associated with the water in the stream.

A marsh?

LORI: Streamside.

DAVE: Yes, streamside vegetation. A hyporheic zone is the influence of the water from the stream extending into the flood plain. It depends on the soils how far it extends, and that dictates how wide your riparian band is. It's the streamside vegetation affected by the water flowing down the creek.

Why is what you're doing important?

DAVE: The watershed in the Upper Owens was in fairly bad condition in the 1990s, and CalTrout – an environmental special interest group that focuses on fisheries, the trout fisheries specifically – contacted the [DWP]. The streams were in a fairly degraded condition. They had been for a number of years because of the grazing practices that were ongoing at the time. Our managers contacted a consulting company from Idaho, Ecosystem Sciences, and their principal scientist, Bill Platts. He was one of the very first riparian restoration ecologists in the western United States. They brought him in, and he was working with my predecessors to develop this riparian livestock-grazing program 20 years ago.



Better Water From Better Lands

That was 20 years ago.

DAVE: Right. The project has improved the conditions where the watershed is now to a point where we don't have the sediment load in the creeks that we once had, so we have a cleaner water supply. To the City, that and it goes right in your reservoirs with all that sediment and all that stuff that's on the flood plain. Well, now we've got an intact meadow community with all of these nice grasses and grass-like species that you saw today. Those filter the sediments as the water runs down. And then the soil pores, which used to be compacted because of the livestock action, are now open, and those will hold water and act as soil storage reservoirs. Through time, those soils can release that water back into the system. It fills up, and then it slowly releases the water back in. It improves the availability of water to the City as well. Our maintenance cost is reduced because now we don't have all the maintenance on the stream systems, the diversion structures, the measuring stations, and reservoir storage. Reservoir life has been extended because we're not filling them

Alive! Feature

- continued from page 7

In addition to the fencing, alterations were made to the timing and duration of the livestock grazing.

"After 20 years, the changes [to the native habitat] have been phenomenal," says Dave Martin, Watershed Resources Supervisor, DWP, who's in charge of the project.

Runoff Management

Additionally, snowmelt runoff is more controlled and passed down directly into the creeks. This allows nature to do the heavy lifting in the restoration process: The entire amount of stream power is available to physically reshape the stream channel from being wider and shallower (untamed) to being narrower and deeper, which better promotes riparian health.

A degraded stream will be wider and shallower because there will be no vegetation to armor and protect the banks. As the stream heals, vegetation begins to grow on the banks, causing the stream power to be directed to the bottom of the channel, causing it to deepen. As this process continues, the channel continues to narrow and deepen. This is exactly what has been observed on the upper Owens River and its tributary streams.

The peak water runoff usually comes at about the time of peak seed release by the most desirable riparian plant species, so no active seeding or planting was needed for restoration purposes.

Riparian Monitoring

DWP biologists note changes in the stream profile and vegetation communities over time through periodic monitoring of the riparian corridor. In this case, DWP biologists measure changes in plant



Chris Plakos, Public Relations Manager, and Lori Dermody, Watershed Resources Specialist.

means less cost for cleaning the water, because we're delivering better-quality water. And because the watershed's in an improved condition, the quantity of water also delivered to the City can be increased. Those natural riparian flood plains act as sponges when the snowmelt comes off, because our stream systems are all snowmelt driven. The snow is essentially a

> reservoir for the City. And when that snowmelt starts coming off, if you've got degraded watershed conditions it just flushes down. It's like flushing a toilet,

with sediments.

page 13

communities, species diversity and cover, new growth of woody species such as willows and cottonwoods, streambank condition, and changes in stream channel shape and function. They do so by running cross channel transects, where they record data at regular intervals to characterize the current conditions of the site. These data are then compared to past data to note trends and changes over time, to recognize successes and failures, and to provide information to guide future management. Biologists visit each site periodically at the same time of year to judge how the environment has changed.

Transects are also done on land such as in the photo on page 11. Note in the photo that the biologists are using a tape measure at this site. They move along the tape in a specific direction, taking their measurements at specific distances. ■

From left: John Hawkins, Club CEO, and Dave Martin, Watershed Resources Supervisor, DWP.

New Growth in the Valley

Documenting the Restoration

The riparian (streamside) areas of Long Valley are seeing regrowth of native species, thanks to the DWP's management of livestock grazing and recreation.

Monitoring the Stream

In this effort, DWP biologists measure changes in the stream shape and function, bank condition, and vegetation communities of the river and creeks over time. Known points are made in the ground and logged via GPS. Then, at regular intervals, the biologists come back and re-measure the vegetation conditions and channel characteristics to note changes.

These photos were taken Aug. 17 along Mammoth Creek, a tributary of Crowley Lake.





Known points in the ground are located, and the beginning point of the transect (measuring line)







Above, Stuart Richardson, Watershed Resources Specialist, records data on vegetation communities along Mammoth Creek.

The transect is represented by this yellow measuring tape, which reaches from one side of the creek to the other. The cross channel transect is set up so that multiple vegetation communities and landforms will be represented (generally terrace to terrace). Measurements are recorded along this tape.

Lori Dermody, Watershed Resources Specialist, shows a transect measurement to John Burnes Alive! editor.

City Employees Club of Los Angeles, Alive! October 2011 **11**





Measurements are taken along the transect as it crosses the stream. This measures how deep the channel is at known points.

Measuring landform elevation and the depth of the creek are Watershed **Resources Specialists Chris** Allen (in the jacket) and David Livingston (in the red shirt.) TOP PHOTO: In the background are Watershed Resources Specialists Jason Morgan and Collette Zemitis.



The Fences

Key to better land management has been the construction of fences, which manage how the livestock graze the riparian areas. The DWP leases much of its land in Long Valley to cattle ranchers.

The fences can be opened and closed to better manage the grazing of livestock. Previously, cattle could graze all day on the same land, depleting the vegetation. Now the cattle are encouraged to move on to other pastures, allowing the native vegetation to recover and flourish. The fences also allow recreational access to the river.







Lori Dermody with Baltic rush (Juncus balticus), Nebraska sedge (Carex nebraskensis), Kentucky bluegrass (Poa pratensis), saltgrass (Distichlis spicata)

They're Back!

Here are some of the native vegetation species that are flourishing again in Long Valley, thanks in part to the DWP's management.



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Lupine, Lupinus sp



Indian paintbrush, Castilleja sp.





Longstalk clover, Trifolium





Nebraska sedge (Carex nebraskensis) Kentucky bluegrass (Poa pratensis)

Rabbitbrush, Ericameria nauseos



Baltic rush, Juncus balticus







Kentucky bluegrass, Poa pratensis

THE ALIVE! INTERVIEW

- continued from page 9

Success Stories

Is this a success story?

LORI: Absolutely. This is fabulous. And it's precedent-setting. DAVE: It is.

LORI: We've added similar management further down the Owens Valley subsequently, for managing the Middle and Lower Owens River. A lot of those things were based on the principles that had been exercised in the Upper Owens River in Long Valley.

What about other places in California or other places in the United States? Is this a case study?

DAVE: It is now. It is a case study. It was one of the first restoration activities of this magnitude that took place anywhere in the West. We don't tell our story as much as we should, and that's one of the big things that we're trying to do. We're going to work on a manuscript this winter and we hope to submit it for publication to the *Journal of Range Management* so that people can see our success. There's still a large environmental community out there that sees livestock use of the riparian areas as strictly forbidden, that it should never be allowed. And with our program, you can graze the riparian. We've shown that you can graze the riparian systems and maintain the habitat for threatened and endangered species and for the fishery, and still allow cattlemen to make a livelihood from the landscape.

From left: John Hawkins, Club CEO; Dave Martin, Watershed Resources Supervisor;

and Lori Dermody, Watershed Resources Specialist.

We saw a lot of the fences, the gates, and the pastures.

LORI: Right, the pastures. It's one of the first projects that actually used the riparian pastures as opposed to riparian exclosures. In this case, pastures are a way to use cattle to help manage the land as opposed to excluding them entirely from the riparian corridor.

That might be tempting to some, to just get rid of all of them and let's keep it unused.

DAVE: It's the easiest way to do it, to fence them out and don't let the livestock enter.

So this is an experiment that worked. DAVE: It is.

LORI: Yes. In that [exclusion] type of situation, you might have a whole lot of thatch buildup, and subsequently may not get the diversity that you had using the cattle as a tool.

Rewarding

Do you like your jobs?

LORI: Yes. DAVE: Most days

LORI: Most days. It is rewarding. Days like today, absolutely. This is why we work in this field.



Name a few.

DAVE: Working at Owens Lake one day, working in Mono Basin the next day, working in the Lower Owens River Project the third day, working around Bishop the fourth day, and Long Valley the fifth day. Because of our range, we go from the North Mono Basin all the way down to Rose Valley, which is south of Haiwee Reservoir, something like 150 miles. LORI: Nearly, yes.

Alive! Feature

DAVE: And we work with desert tortoises, Mohave ground squirrels, and Apache fritillaries, which are an endangered butterfly. LORI: We saw them today.

DAVE: Apache fritillaries, Southwestern willow flycatchers, yellow billed cuckoos, Owens pupfish, Owens tui chub, sage-grouse...

You guys are extreme — you know everything!

LORI: One day you could be doing stream monitoring, the next you could be doing bird surveys, or vegetation monitoring.

It must be great to see the vegetation and things come back.

DAVE: It really is.

Is there a sense of accomplishment? DAVE: Yes.

I can only imagine that, because the DWP has had a tough time up here recently. DAVE: And those are the days that make it less fun, the tough times that we have to deal with. We're still dealing with those today, but I love my job!

I love my job!

Thank you, Dave. DAVE: Thank you! ■

Special Thanks

Alive! thanks Dr. Dave Martin, Watershed Resources Supervisor; Lori Dermody, Watershed Resources Specialist; and Chris Plakos, Public Relations Manager, Bishop Office, for their welcome and great assistance.

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