

# Mono's Tributary Streams as Songbird Habitat

## What is the Appropriate Measure of Restoration's Success?

by Sacha Heath, PRBO Conservation Science

*Editor's note: High on the list of current and exciting research happening in the Mono Basin is the Eastern Sierra Riparian Songbird Conservation Project. PRBO Conservation Science (PRBO) has been investigating riparian bird populations in the Eastern Sierra since 1998, with projects encompassing the Owens River, Mono Lake, Hammil Valley, and the West and East Walker River watersheds (see Spring 2000 Newsletter). Primarily designed to examine habitat relationships and the effects of land management and restoration efforts on breeding birds, the study begins early enough in the spring to investigate migrant populations as well. Since the project's inception, PRBO has documented bird use of Lee Vining and Rush creeks in the Mono Basin. In 2000, efforts intensified so, now, on almost any given day between May and mid August, you can find a biologist moving quietly through the willows or fording one of Mono's tributaries. Here, Project Director Sacha Heath describes some of the results of their efforts.*

Since 1999, there has been little change in breeding bird species diversity on the lower reaches of Rush or Lee Vining Creek (Figure 1). Generally speaking, most noticeable change in breeding bird diversity and species abundance occurs over the first 5 or so years of a restoration effort—when the habitat is in a rapid stage of development and transformation. After this initial burst of new breeding birds, the rate of addition of new species or individuals decreases and more subtle changes may occur in the breeding bird community. PRBO is monitoring the effects of restoration over ten years after the initial return of water to and removal of livestock from Mono Lake's tributary streams. Subtle changes

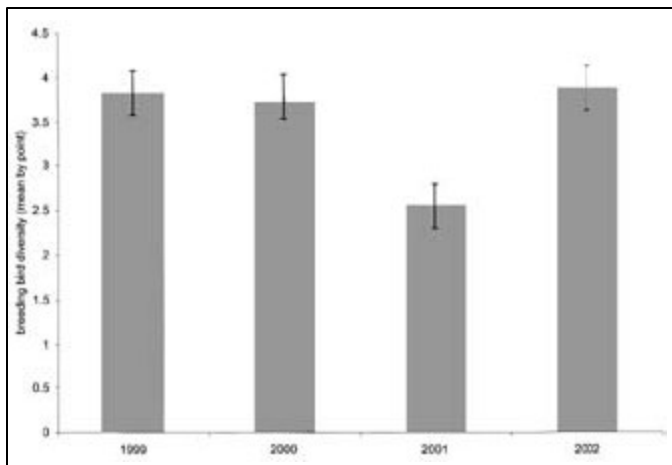


Figure 1. Mean breeding bird diversity for species detected on point count censuses, Lee Vining and Rush creeks, 1999–2002.

in the bird community are probably not as detectable by standard indices of species diversity, or in the relatively short period of time as four years.

However, as riparian herbaceous and shrub cover increase, and black cottonwoods change from saplings to trees, biologists are witnessing a slight change in breeding bird composition. In 2001, PRBO first detected nesting Willow Flycatchers on lower Rush Creek, this after a prolonged period in which Willow Flycatchers had been absent as breeders (see Summer 2001 Newsletter). In 2002, researchers documented two nesting pairs of both Warbling Vireos and Western Woodpeewees on Lee Vining and one Warbling Vireo pair on Rush Creek. These are the first confirmed breeding attempts of these high canopy nesters on PRBO's nest searching plots since the projects' initiation in 2000, and may reflect the increasing canopy heights on the restoring creek's lower reaches.

Another of the most striking results thus far is the discovery of the most abundant nesting population of Yellow Warblers documented in California. This State Species of Special Concern is one of the most common warblers in North America, but regions like the Central Valley and the Lower Colorado River have seen the dramatic decrease and near extirpation of this species primarily due to loss of riparian habitat. The Lee Vining Creek and Rush Creek Yellow Warbler populations, however, appear to be thriving. Since 2000, PRBO has found over 360 Yellow Warbler nests along 2.6 miles of Lee Vining and Rush Creek combined. Rush Creek in particular harbors the densest Yellow Warblers yet documented. Figure 2 depicts 65 Yellow Warbler territories in a just under 1-mile stretch of Rush Creek's bottomlands in 2001.

### Is Density Enough?

In 1983, prominent wildlife researcher B. Van Horne wrote an important paper entitled "Density as a misleading indicator of habitat quality." Van Horne made the point that judging the quality of a habitat purely on the numbers of wildlife individuals or species that occupy that habitat may in many cases be inappropriate and not a precise enough measure.

By finding and monitoring nests and banding and recapturing individuals over several years, PRBO will be able to assess the "health" of Mono's abundant Yellow Warbler population. Productivity (nest success, number of young produced); survivorship (the likelihood of a Yellow Warbler living from one breeding season to another); recruitment (the addition of new Yellow Warbler adults into the breeding population); and potentially juvenile survival (the likelihood of a Yellow Warbler born in the Mono Basin to live through its first year) are demographic factors that we can investigate to

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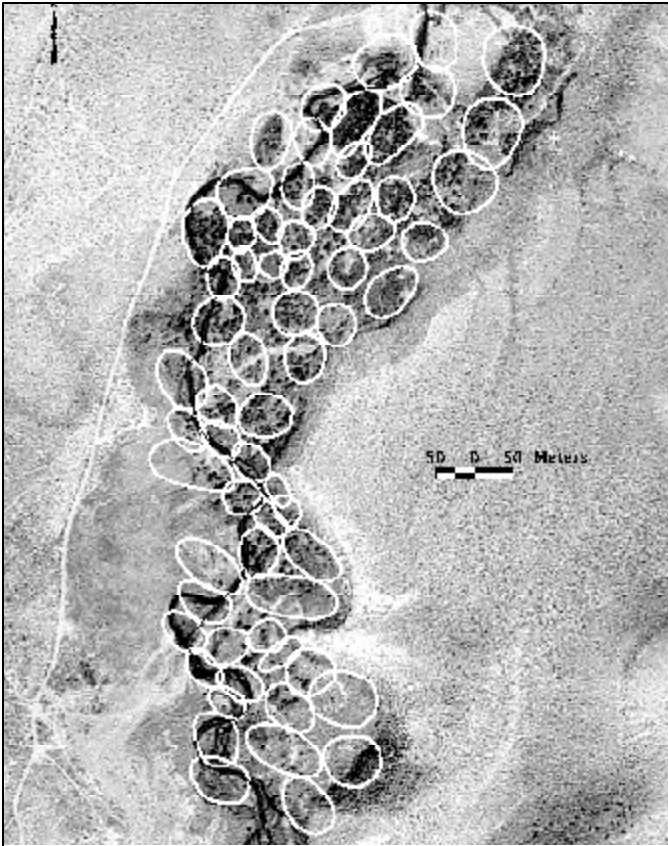


Figure 2. Yellow Warbler territories on Rush Creek, 2001

determine whether Mono Basin’s riparian stream habitat is acting as a Yellow Warbler “source” or “sink.” In other words, are Mono’s Yellow Warblers producing enough young to outweigh the costs of adult or juvenile mortality, and is productivity related to the quality of the habitat?

Around 30% of Yellow Warbler nests are successful at PRBO’s study plots—and as an isolated measure of success, can be considered around average. (A nest is considered successful in this case when it fledges at least one young of its own kind). But what happens to the other 70%? In 2002, the

leading cause of Yellow Warbler nest failure was predation by mammalian, reptilian or other avian species (Figure 3). This year, PRBO will place video surveillance cameras on Yellow Warbler nests to determine what animals are preying on their nests. These efforts will represent the pilot year work for graduate student Quresh Latif, who has been working on the Mono Basin project as a PRBO Biologist since 2001 and who expects to be in the Basin until around 2008!

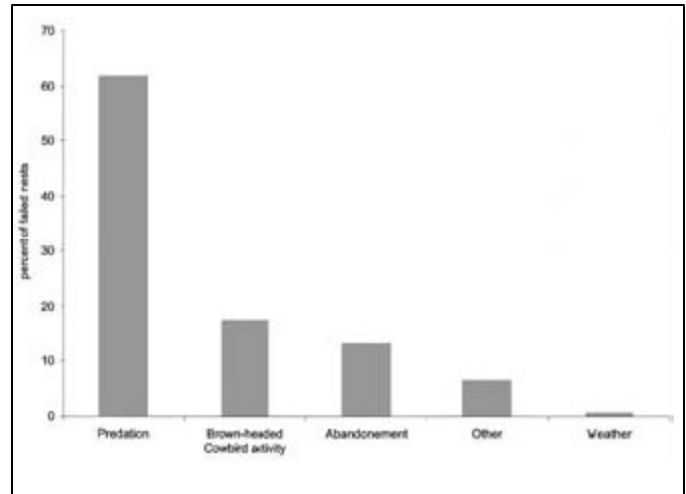


Figure 3. Causes of nest failure for 121 failed Yellow Warbler nests, Mono Basin, 2002

An anticipated result of all of this work is to provide information to land managers and restoration efforts and assist in making informed management decisions. In the Mono Basin, this type of interaction is made possible by the collaboration between PRBO and several federal, state, county and city agencies, non-governmental organizations and other researchers. ❖

*Sacha Heath of PRBO Conservation Science has been studying riparian songbirds and their habitats in the Eastern Sierra since 1998.*

## Bird Migration in the Basin

*by River Gates, PRBO Conservation Science*

The annual spring migration of birds is an exciting time of year for naturalists. A long and quiet winter is relieved by a burst of new plant growth and colorful migratory birds returning from their southern wintering grounds. Early spring is characterized by the Mono Basin’s resident birds trying out their songs and calls—often times releasing the strangest noises. Spotted Towhees and Song Sparrows can be found scouting out their territories to find their perfect singing perch. In early May, as the riparian trees are beginning to leaf out and insects become abundant, the Basin is swarmed by eager migrants on their way to their northern breeding areas. Migrants typically stop over in food-rich habitats to refuel for the next leg of their journey. In the Mono Basin, shorebirds and waterfowl use the lake’s food-

rich waters while songbirds stop and sometimes stay to breed in the recovering riparian streamside or upland sagebrush habitats.

For three years, PRBO Conservation Science has been banding birds on the four tributary creeks of Mono Lake. From May to mid-August PRBO researchers operate mist netting and banding stations at each creek. Bird banding is an important long-term research tool that allows biologists to monitor the increase or decrease of bird populations over time. Information on timing of productivity, adult recruitment, and survivorship can be gleaned from several years of banding efforts at one location. PRBO methods are standardized in accordance with national monitoring protocols to allow comparability between simi-

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# Water Policy 2003 Legislation

by Frances Spivy-Weber

The California legislature will be enacting legislation on issues that are important to those of us who want to see water supplies stretched to meet the needs of people, the economy, and the environment. Below are two bills on which I will be keeping close tabs. Given the lead time for the newsletter and the often daily changes in legislative drafts, I cannot be precise about what will be the state of the following bills when you read this. Feel free to contact me ([frances@monolake.org](mailto:frances@monolake.org)) for the latest information, and if action is needed, check the Mono Lake Committee website at [www.monolake.org](http://www.monolake.org).

Senate Bill (SB) 21, sponsored by Senator Mike Machado, will create the statutory framework for implementing Proposition 50, the \$3.44 billion Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 that California voters approved in November. Senator Machado, Chair of Agriculture and Water Resources Committee and volunteer Chair of the "Yes on Prop 50" Committee, is committed to creating an implementation framework that encourages competition among water agencies and organizations for funding. His goal is to see the project dollars spent as wisely as possible.

There will be money for improving drinking water quality and cleaning up beaches and streams. Prop 50 funds will encourage greater integration at the statewide and regional level. For example, if new landscape watering devices reduce the amount of water used on lawns (conservation), they should also

reduce runoff into streams or storm drains (water quality), reduce green waste, reduce energy consumption and create a water supply reserve that could be used for restoring local habitats or habitats further away like Mono Lake or the Bay Delta. Prop 50 will also make major investments in coastal watersheds and wetlands. Given the state's precarious fiscal situation, SB 21 is the vehicle that will likely allocate most of the money for water issues that will be available over the next two to three years.

Assembly Bill (AB) 306, sponsored by Assemblywoman Christine Kehoe, the Sierra Club, and Natural Resources Defense Council, will mandate water metering in all urban communities by January 1, 2008, and meter-based billing by January 1, 2009. The communities that will be most affected by this bill are Sacramento and other Central Valley communities that have local ordinances that forbid metering or using meters to bill customers. The time has come for this bill, and I am optimistic about its passage. The wild cards are the amendments. The ones I have heard so far are extending the deadlines; offering low-interest loans and grants to agencies where installing meters is not locally cost-effective; and directing the California Public Utilities Commission to allow investor-owned utilities to include the cost of meter installation in their rate base. ❖

*Fran is the Committee's Co-Executive Director. She's excited to see migrant birds traveling up the coast past her home in Redondo Beach.*

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lar sites and to allow for the contribution of our data set to a national database. This information is then provided to land managers to better inform management actions, by basing them on bird population trends and patterns, or measures of bird population health.

Some results of last year's banding effort at Lee Vining Creek demonstrate two contrasting patterns between migrant and breeding bird populations (Figure 1). Common migrant species include Wilson's and Audubon's Warblers, Hammond's, Dusky, Western and Willow Flycatchers and Swainson's

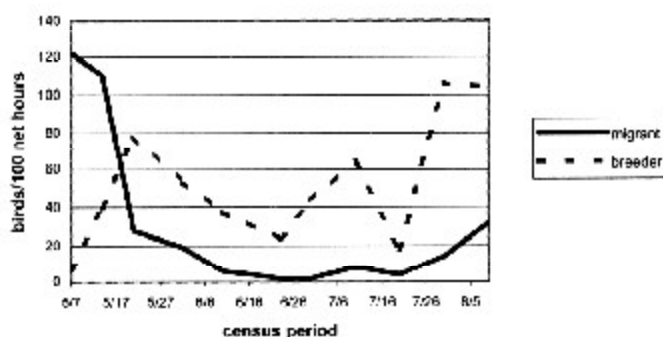


Figure 1. Bird captures at Lee Vining Creek banding station, May 1–August 15, 2002.

Thrushes. Migrant numbers peak in mid-May and drop quickly with a slight rise in numbers again in late summer. This pattern demonstrates the late spring pulse of northbound migrants and the late summer southbound migration. We predict that if we continued to band in late August we would see the trend of migrant numbers continuing to rise as adults and their fledglings head south. The continual capture of at least a few migrant species throughout the breeding season demonstrates late or early migrants, or the dispersal of birds that nest at higher elevations in the Mono Basin into Lee Vining Creek's lower reaches.

Common breeding species include year-round residents Song Sparrows, Bewick's Wrens, and Spotted Towhees and migrant species Yellow Warblers, Green-tailed Towhees, and Bullocks' Orioles. The late-May peak of breeding birds denotes the arrival of migrant birds that stay at Lee Vining Creek to nest and raise young. A sharp increase in early July and again in late July shows the dispersal of family groups and the breaking down of territories as the short breeding season comes to a close.

We look forward to continuing our fourth year of monitoring the recovery of Mono's tributaries in 2003, and will continue to contribute our findings to the larger knowledge base of the Mono Basin's spectacular ecology.