The Bear Creek Community Bird Survey: Birds, Fire, and Community Science

By Nathan Trimble

As readers of *Oregon Birds* surely know, birding is an enjoyable and personally enriching hobby that gets us out in nature and connects us with the beauty of the world around us. But can birding be more than a hobby? Can amateur birders turn their love for nature into legitimate progress in protecting biodiversity? In the case of the Bear Creek Greenway, local birders are showing that counting birds can help to positively influence how a community interacts with the natural environment.



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The Bear Creek Greenway is a

20-mile paved trail that parallels Bear Creek through the towns of Ashland, Talent, Phoenix, Medford, and Central Point in the Rogue River Watershed of southwestern Oregon. The Greenway is dotted with several parks and a significant amount of riparian (riverside) woodland in an otherwise urbanized part of the Rogue Valley. It is enjoyed by cyclists, walkers, picnickers, and of course birders.

Riverside vegetation like that found along Bear Creek makes up a proportionally small amount of land in Oregon but hosts a disproportionate number of plants and animals. Riparian woodlands often occur in places where people tend to farm and build settlements, making any remaining patches of intact riparian habitat especially precious and important for wildlife. The Bear Creek Greenway is a natural refuge for both wildlife and people in a world where agriculture and urban development now dominate so much of our landscape.

The Fire and the Survey

On September 8, 2020, the Almeda Fire devastated the human community living near Bear Creek and drastically changed this immeasurably valuable natural area. Driven by high winds and dry conditions, flames ripped through the vegetation along the Bear Creek Greenway, destroying thousands of homes in the process. The courageous efforts of our firefighters eventually contained the blaze and prevented catastrophic loss of life, but much of the wildlife habitat along the creek was reduced to ash and blackened trees. On top of that, legitimate concerns about the risk of another fire have prompted substantial vegetation clearing and snag (dead tree) removal in many locations along the creek. All of this adds up to a massive loss of available bird foraging and breeding habitat in one of the most important areas of riparian woodland in the Rogue Valley.

The habitat along the Greenway was not pristine before the fire. It was a patchwork of open parkland and roadside along Interstate 5 interspersed with more natural, brushy patches with tall cottonwood, willow, and other riparian trees. Much of the pre-fire shrub layer was composed of Himalayan Blackberry, an aggressively spreading invasive species that now dominates vast areas of the Pacific Northwest. The scarcity of intact riverside habitat today, however, combined with the





The Almeda Fire burned large areas along Bear Creek in 2020 (top). By early 2023, groundcover and understory were greening up and filling in (middle). Replanting by volunteers is speeding the process of habitat recovery (right).

Photos by Frank Lospalluto.



Bear Creek Community Bird Survey Overview Map



Volunteers surveyed seven study sites — five burned and two unburned — along Bear Creek between Central Point and Ashland. Map courtesy of Nathan Trimble.

Greenway's location in the most urbanized region of Southern Oregon make it a vitally important stretch of land for birds. Colorful spring arrivals such as Yellow Warblers, Bullock's Orioles, and Yellow-breasted Chats fill the air with song throughout the breeding season. Wintering Golden-crowned and White-crowned Sparrows flit through the streamside bushes during the colder months, and uncommon migrants such as Willow Flycatchers stop over on the way to and from their breeding grounds.

The Greenway also serves as an important corridor for other wildlife. Mammals such as black bears still travel along Bear Creek, lending credence to its name. Salmon and steelhead spawn and rear in the waters once shaded by tall trees, now largely denuded by the fire. Just like the people of Southern Oregon, wildlife doesn't give up because of a disaster. A plethora of creatures still carry out their lives along Bear Creek, although the Almeda Fire has certainly made their struggle for survival more challenging for now.

In the aftermath of the fire, the birding community of the Rogue Valley came together to try to understand what had happened to this amazing birding resource and to ensure that the future management of the Bear Creek Greenway is pursued with the health of bird populations in mind. The outpouring of concern and the desire among local birders to help led the Rogue Valley Audubon Society, along with the Klamath Bird Observatory, Rogue River Watershed Council, the Southern Oregon Land Conservancy, and eBird Northwest to create the Bear Creek Community Bird Survey. The Bear Creek Community Bird Survey is an ambitious community science project that utilizes the skill of local birders to monitor bird numbers along the length of the Greenway. It consists of seven study areas scattered along the length of the creek, each of which is divided into two half-mile transects (see MAP). The sites are divided into burned and unburned categories, with the unburned sites meant to serve as a reference to compare with the burned sites. Volunteers begin surveying within the first hour after sunrise and take 30-45 minutes to make their way slowly along each transect. As they go, they count the total number of individual birds for each species that they detect. These lists are then uploaded into a dedicated eBird account where the data can be compiled and analyzed. The surveys are designed to be simple to complete and to bring the birding community together in a shared effort to learn about and protect what they love.

The time and effort these committed volunteers have put into the past two-plus years of surveying is impressive. More than 45 volunteers have logged over 12,500 hours of birding time and 103,000 observations into eBird for this study! Only one survey has been missed since the beginning of the project due to inclement weather—a truly remarkable achievement for a totally volunteer-driven effort.

Results

So, what have we found? It is apparent from our results that a great many birds continue to use Bear Creek as its habitat begins to recover following the fire. Volunteers have recorded a cumulative total of 157 bird species for the survey thus far, with 143 species being observed in 2021 and 140 species observed in 2022. Some species highlights include Eurasian Wigeon, Red-necked Phalarope, Ferruginous Hawk, Lewis's Woodpecker, Prairie Falcon, American Dipper, Northern Mockingb'rd, and Tricolored Blackbird. Bear Creek has also proven a reliable place to find wintering Peregrine Falcons and Merlins. The most detected bird by far has been the European Starling, with 14,793 observations. American Robin has been second-most detected, with 9,961 observations.

Simply counting the total number of species from year to year, however, may not be the most telling metric of Bear Creek's recovery. Birds are often used by ecologists as indicators of the health of the environment they inhabit. Focusing on a few riparian and shrubdependent species can give us a more meaningful picture of how the riparian habitat along Bear Creek is changing over time. **TABLE 1** and **TABLE 2** show the average number of detections per visit (in 2021 and 2022, respectively) for a few "canary-in-the-coal-mine" species most likely to be affected by changes in riparian vegetation. North Mountain Park and Dean Creek are the two "reference" sites that were not directly impacted by the Almeda Fire. The other five sites all experienced significant vegetation loss due to the fire.

As expected, in 2021, numbers of all riparian-habitat bird species analyzed were notably lower in the five burned sites than in the two unburned sites. This presumably resulted from the drastic loss of vegetation due to the fire. The one exception was European Starling, which was fairly consistent across sites. The incredible versatility of these invasive birds makes them successful at colonizing the mixture of natural habitat and urban landscape along Bear Creek and also better able to cope with drastic changes.

In 2022, the picture was more complicated. Riparian-habitat bird detections generally increased at burned sites as the vegetation began to grow back due to natural regrowth and restoration efforts, such that there was less difference between burned and unburned sites than in 2021. For instance, Yellow-breasted Chats increased at all burned sites, while Yellow Warbler and Spotted Towhees increased or stayed about the same at all burned sites between 2021 and 2022.

TABLE 1. Average bird detections per visit for four species in 2021

2021 Data Species	Unburned sites		Burned sites				
	North Mt Park	Dean Creek	Ashland	Lynn Newbry	Suncrest	Blue Heron	Mingus Pond
Yellow-breasted Chat	3.0	7.2	1.7	2.2	0.0	0.2	0.0
Yellow Warbler	2.6	4.9	0.8	0.7	1.9	0.3	0.7
Spotted Towhee	12.1	13.3	3.5	5.0	3.3	4.2	2.6
European Starling	45.1	48.2	14.2	42.8	52.7	41.0	42.1

Breeding bird detections were analyzed only for the months in which they regularly occur.

TABLE 2. Average bird detections per visit for four species in 2022

2022 Data Species	Unburned site North Mt Park	Vegetation cleared Dean Creek	Burned sites				
			Ashland	Lynn Newbry	Suncrest	Blue Heron	Mingus Pond
Yellow-breasted Chat	5.3	1.5	4.3	2.8	0.5	1.2	0.2
Yellow Warbler	1.6	2.1	2.1	0.9	1.4	0.6	0.7
Spotted Towhee	13.6	13.2	5.2	8.8	3.8	3.5	2.3
European Starling	42.8	41.3	21.3	51.8	62.3	37.1	46.4

Breeding bird detections were analyzed only for the months in which they regularly occur.



The chart shows the abundance of four riparian shrubnesting birds at Dean Creek in 2021 and 2022 (before versus after shrub clearing).



Merlin, Red-winged Blackbird, and Audubon's (Yellow-rumped) Warbler. Photos by Frank Lospalluto.



Wrentit numbers declined notably after understory removal at the Dean Creek site. *Photo by Frank Lospalluto.*

However, in 2022 land managers also cleared a large amount of shrub vegetation from one of the unburned sites (Dean Creek) in an effort to reduce future fire risk. The clearing at this site in 2022 drastically altered what had been the most intact riparian habitat of any site in the survey. Whereas Dean Creek in 2021 had boasted a higher abundance of the riparian and shrub-nesting birds examined than any other site, observations of these species declined drastically in 2022. The CHART compares data for four species at Dean Creek between 2021 and 2022. Numbers of Spotted Towhees remained high, but numbers of Yellow Warblers, Wrentits, and Yellow-breasted Chats fell considerably. Wrentits are very site-specific and require dense, unbroken shrub habitat to breed. Chats depend specifically on very thick riparian vegetation, such as willow thickets or Himalayan blackberry, both of which were largely removed at Dean Creek in the 2022 post-fire thinning. While the more generalist Spotted Towhees seem to have weathered the shrub clearing at Dean Creek well, more sensitive riparian-dependent species experienced a clearly detectable reduction in numbers there.

Conclusions

While two years may not be enough to draw concrete scientific conclusions about bird populations along Bear Creek, patterns have already started to emerge. Two big takeaways so far are: (1) The habitat in burned areas seems to be recovering, and (2) Human actions after an extreme fire can exert effects on the ecosystem that are similar to those of the fire itself.

Our data show that riparian birds at sites burned by the Almeda Fire have increased within just two years in some locations—a testament both to the resiliency of nature and to the effective restoration work that has already taken place. The stark, blackened moonscape left by the fire in many places has now been replaced by swaths of shrubby cottonwood and willow regrowth. What was bare ground two years ago is now covered in thick grass, shrubs, and little flags marking planted native trees, some of which are already stretching their young branches toward the sun. A huge amount of work has been done to protect the fire-damaged Greenway and begin the long process of restoration. This has involved laying out straw "wattles," sowing fast-growing grasses for erosion control, and planting thousands of native trees and shrubs. This work has been performed by a diverse array of organizations, including Jackson County Parks, Rogue Valley Council of Governments, Oregon Department of Environmental Quality, the Inter-Tribal Ecosystem Restoration Partnership, the Rogue River Watershed Council, Lomakatsi Restoration Project, and many others. The effects of this work are starting to come into focus with the apparent increase in avian life detected by this study.

In the case of Dean Creek, however, post-fire thinning has transformed the site from some of the most productive habitat along the creek to a place where riparian bird numbers seem to have declined. Whether or not this level of thinning is necessary to reduce fire risk is an open question. What seems clear from the last two years of surveying, however, is that the thinning has reduced the available habitat for riparian and shrub-dependent birds. Dean Creek no longer hosts as many birds in comparison to burned sites because the actions taken there post-fire have reduced the habitat in much the same way as the fire itself did. The Dean Creek site now prompts questions about the effects of management for fire risk reduction on our bird populations. Shrub management may be helpful in reducing fire risk and blackberry removal is a necessary first step for restoring native riparian vegetation. But to safeguard riparian birds, any shrub removal should be conducted incrementally, outside of bird-nesting season, and only if there is a firm plan to replace it with native vegetation that fulfills a similar ecological function.



White-throated Sparrow. Photo by Frank Lospalluto.

The Bear Creek Community Bird Survey will monitor how Dean Creek recovers from post-fire thinning in the coming years. Its bird populations will depend on how we decide to manage it going forward. The good news is that nature, combined with ecologically minded, hardworking people, can produce quality bird habitat in a relatively short amount of time. The ecosystem can and will recover from devastating events if given the chance.

Like so much of the modern world, Bear Creek is a place in flux. The Almeda Fire was one of many drastic di turbances that have occurred there in modern history, from the arrival of European colonizers to the creation of Interstate 5 to the construction of the Greenway itself. Bear Creek's modern iteration, however, is one that supports wildlife communities reliant on the limited space left in today's urbanized world. This capacity to support riparian wildlife is threatened by increasingly frequent extreme weather events like the Almeda Fire.

Birds are so visible, so charmingly vocal, and so fun to watch. They can also tell us a lot about the environment on which they depend. Along the Bear Creek Greenway, local birders are turning their skill and passion for these alluring creatures into positive action to better understand and protect a birding treasure. Bear Creek is sure to see more changes in the coming years. The dedicated volunteers of the Bear Creek Community Bird Survey are committed to uncovering and sharing how these changes are affecting our birds.

Want to help? Find out more about this community science opportunity and how you can participate by visiting the Rogue Valley Audubon Society webpage: https://www.roguevalleyaudubon.org/bearcreek-surveys/