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Yreka Fish and Wildlife Office

Summer-Fall 2019 Newsletter

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Notes from the Field Supervisor

In this edition of our newsletter we focus on forests and wildfire. The dry mixed conifer forests of the Klamath region and the wildlife that inhabit them are accustomed to fire ignited by lightning strikes. The combination of hardwoods such as oaks, and conifers like pine and Douglas fir have evolved resiliency to fires that burn with low and mixed severity.

Many of the wildlife species residing in these forests depend on the beneficial affects of periodic fire to create and maintain specific features of their habitat. However, years of drought, a century of fire suppression, and increasing temperatures have created extreme conditions resulting in fires that have increased in size and severity across our landscape.

The threat is nowhere more obvious than in the wildland urban interface. Our hearts go out to all of those affected by the devastation in Paradise, Redding and our own Klamathon area. Firefighting agencies are doing their best to keep us safe and keep our forests healthy. They have been asked to increase the pace and scale of their efforts, and now find themselves re-evaluating whether forest fuel reduction measures used in the past are still effective against the risk of this novel and uncharacteristic wildfire behavior.

Under section 7 of the Endangered Species Act, all Federal agencies share the responsibility for utilizing their authorities to carry out programs for the conservation of threatened and endangered species. The Yreka Fish and Wildlife Office (Yreka FWO) is working closely with our agency partners to streamline endangered species consultation for fuelbreak installation, forest thinning projects, and other treatment types while minimizing unintended impacts to species under our protection.

This can be tricky given that populations of some forest-dwelling species are in decline in part due to large scale, high severity wildfire. However, we remain optimistic and committed to making this work. Across northern California, the U.S. Fish and Wildlife Service (Service) is working with both Federal and non-Federal partners to create a fire resilient landscape across ownership boundaries.

Jenny Ericson, Field Supervisor
Yreka Fish and Wildlife Office

Dynamics of Wildfire and Wildlife

Forests are dynamic environments that react to change in a myriad of ways. One of the greatest agents of change in a natural system, such as a forest, is wildfire. As an ecological process, wildfire occurs with varying frequency and intensity. The wildlife, including both animals and plants, that reside in the forests of the California-Klamath area evolved with fire. However, in recent years, this area has experienced more fires with greater intensity than in years past. As a result, wildlife has not had a chance to adapt to the increase in frequency, severity, and size of the fires taking place today.

Many species require fire as part of their life cycle since it can create, remove, or maintain habitat. In other words, the consequences of fire for wildlife are complex and cannot be easily generalized. Low-severity fire may reduce understory cover, while increasing vegetative diversity, and can remove and/or create large snags and large down wood. High-severity fire is more likely to remove forest cover from large blocks of habitat and result in habitat loss. Mixed-severity fire may contribute to regeneration of hardwoods in mixed conifer forests.

Wildfire can have both detrimental and beneficial effects on wildlife and their habitats. In the California-Klamath area, wildlife species living in forest communities that depend on the effects of fire include fisher, northern spotted owl, and black-backed woodpecker. Other wildlife species influenced by fire include western and mountain bluebirds, Lewis's woodpeckers, deer, elk, turkey and even the American black bear. Meadow environments can also be greatly affected by fire in both beneficial and detrimental ways.

Fisher and northern spotted owl: The effects of wildfire on fisher and northern spotted owl can have both positive and negative consequences, depending on the size, severity and landscape position of the fire. If fire severity and extent is such that substantial areas of canopy and large trees are lost, it can take decades for the area to re-grow and support the species and their reproduction.

However, if fire severity is low or mixed, important habitat elements can be created or influenced in a manner that benefits the fisher and the owl. In other words, burned habitat may continue to support foraging and reproduction by improving cover and prey habitat for both species. The ability for fisher and northern spotted owl to use and survive in burned landscapes depends on the size of a fire and the severity of the burn, as well as pre-fire forest conditions.

Black-backed woodpecker: Black-backed woodpeckers have a narrow diet, primarily consisting of the larvae of wood-boring and bark beetles, which are more available following large-scale disturbances such as insect outbreaks and high-severity fire. These woodpeckers thrive in habitats created by large-scale disturbances.

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Above: Low severity ground fire burning on the Shasta-Trinity National Forest. Credit: USFS

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In burned forests, black-backed woodpeckers feed primarily on wood-boring beetle larvae. Because most wood-boring beetles are unable to attack living trees, they concentrate in fire-killed wood. Fire can also create snags used by black-backed woodpeckers for nesting.

Forest Communities: Forests characterized by highly variable natural disturbances, such as mixed-severity fire regimes, are relatively resilient to recurrent fire that burns at higher severity. These types of fires do not result in a complete loss of species richness of hardwoods, conifers and shrubs and often promote the regeneration of complex mixed conifer forests.

So, what then is the "right amount of fire?" The answer is that it depends. Fires of shorter return intervals and lower intensity and severity versus largescale stand-replacing fires are overall more beneficial to watersheds and wildlife. Mixed severity fires that burn in a mosaic of high, moderate, and low intensity are considered highly beneficial. So, rather than suppressing all types of fire, it is sometimes good to allow some burning to occur when the proper conditions are met.

Balancing considerations for public safety, protection of wildlife species habitats, cultural resources, water quality, and land and timber resources is a challenging task.

Focused planning efforts are key to implementing strategically placed treatments so that fire can continue shaping the landscape.

With this in mind, we are working with our partners to help reduce the severity and size of wildfires by collaboratively planning forest thinning projects, controlled burns, strategically placed fuelbreaks, and more. We do this to improve forest health and resilience for the conservation of listed and at-risk wildlife, and to promote safer forest communities for the public.

- Christine Jordan,
fish and wildlife biologist

Fire severity is described as:

- **Low severity** - burns at ground level and does not kill overstory trees. This type of fire partially consumes understory vegetation as well as smaller wood on the forest floor, reintroducing nutrients into the soil.
- **High severity** - (also called stand-replacing fires) kills most vegetation and may span large landscapes.
- **Mixed-severity** - characteristic of our region; produces a complexity of habitats for a diverse group of species. This fire type occurs across varying fire return intervals with combinations of surface, torching, and crown fire.

Black backed woodpecker, top, and northern spotted owl, above, may benefit from low and mixed-severity fires. Below, burned (brown) and unburned (green) areas of a mixed-severity fire on the Klamath National Forest. Credit: USFWS

Seeking Solutions: Wildfire, Wildlife, and Human Safety

Living in northern California, it is impossible to ignore the risk wildfire poses to our communities. Many of us are seeking solutions to ensure human safety while maintaining the forested landscapes and species within this place we call home.

So, what do we do to protect what we love? The Yreka FWO, the Klamath National Forest and the Shasta-Trinity National Forest are working to design fuel breaks for installation around community Wildland Urban Interface areas (WUI) along ridgelines and also to provide safe access routes.

All Federal agencies share the responsibility for utilizing their authorities to carry out programs for the conservation of threatened and endangered species under section 7 of the Endangered Species Act (ESA).

In addition, all Federal agencies must consult with the Service on projects that may impact species listed as threatened or endangered under the ESA.

Section 7(a)(1) of the Endangered Species Act: Federal agencies shall utilize their authorities to carry out programs for the conservation of threatened and endangered species.

The Yreka FWO and the Klamath and the Shasta-Trinity National Forests operate under a streamlining agreement that increases collaboration and coordination between the agencies providing a forum for information exchange during consultation. Early collaboration on projects enhances everyone's ability to consider community, ecosystem, and species concerns during the development of a project. It also shortens the time frame to complete the consultation process.

In addition to streamlining, another tool is developing a programmatic consultation document that addresses multiple actions over multiple years. Once a programmatic is in place, individual projects can tier to it, expediting the ESA consultation process. For projects that do not adversely affect threatened or endangered species this can be a quick process. For projects that involve take of listed species the process can be more challenging.

Programmatic Section 7(a)(2) Consultation: A consultation addressing an agency's multiple actions on a program, region, or other basis. Programmatic consultations allow the Services to consult on the effects of programmatic actions such as:

(1) Multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas; and

(2) A proposed program, plan, policy, or regulation providing a framework for future proposed actions.

Source: 84 FR 45016 (2019 revised regulations)

Developing a programmatic consultation for fuel treatments is a proactive process taken in advance of wildfire. In the midst of a fire, firefighter safety and public safety are paramount regardless of whether the affected area provides habitat for ESA listed species. In these cases, ESA regulations are placed on hold. No natural or cultural resource or structure is worth a human life.

- Laura Finley, supervisory fish and wildlife biologist

Above: A wildland firefighter works the front lines of a forest fire. A collaborative effort between the Yreka FWO and the Klamath and Shasta-Trinity National Forests is underway to create fuel breaks to manage wildfire and provide safe escape routes in forest communities. Credit: USFWS

Fisher and Marten: Habitat Connectivity Model Update

In the summer/fall 2018 edition of our newsletter, we shared how the Yreka FWO was collaborating with the Conservation Biology Institute to model habitat connectivity for fisher and Pacific marten.

The final modeling has been completed and the important core habitats and linkages for fisher and marten have been tentatively identified. The report can be found here.

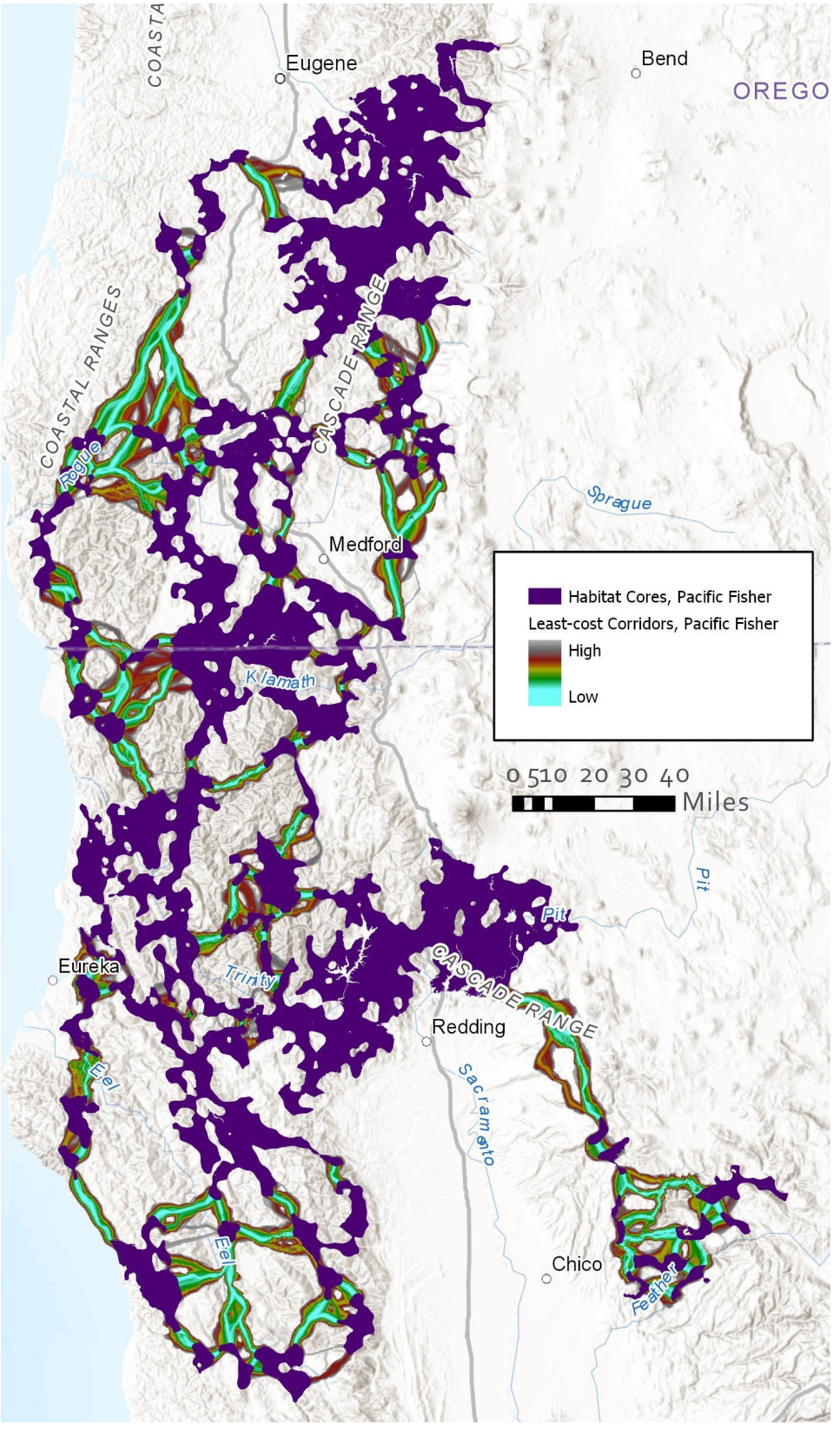
We're now moving on to the next phase of ground-truthing the model results to ensure that they represent the actual conditions in our forests.

We will be hiring interns through our Klamath Basin Tribal Coordination Program and look forward to applying the information we collect to support restoration and forest management decision making.

We have also begun engaging with local stakeholders to determine where and how to use this information. Preliminary meetings have occurred with CalTrans regarding safer wildlife crossings and we plan to organize focus groups for private and public landowner and land managers.

We will provide further updates as this process continues.

- Rebecca Reeves,
fish and wildlife biologist



At right is a map from the connectivity report showing fisher habitat cores and potential linkages. Credit: USFWS

Species Spotlight: Fisher

The fisher (*Pekania pennanti*) lives in forests with a dense multi layered canopy, large old-growth conifers and hardwoods, dead tree snags and large hollow downed wood.

Fishers historically occurred throughout much of Canada, the Rocky Mountains, and northern and western United States. Fisher populations on the west coast are now found primarily in California in the southern Sierra Nevada, and in the Cascade, Klamath, Siskiyou and Trinity mountains of northern California and southern Oregon. Fishers are also being reintroduced in national parks in Washington state and portions of California.

The fisher has a beautiful light to dark blackish-brown fur coat often with irregular white patches on the chest and belly. Fishers are related to weasels, and have a long body with short legs and a long bushy tail. Male fishers weigh between seven and 13 pounds, and are from three to four feet long. Females weigh between three and six pounds, and measure two and a half to three feet long.

Fisher prey on birds, squirrels, mice, shrews, voles, reptiles and insects. They will also eat plants, fruit and dead animals. Fishers hunt in dense forest stands, avoiding openings where predators such as coyotes and bobcats may find them.

Fishers are solitary except during the breeding season which occurs from late February through April. Female fishers raise one to three young, called kits, usually in tree cavities. When about a year old, kits disperse and establish their own home ranges.

One of the threats to fishers is rodenticides used in marijuana cultivation, especially illegal grows. These rodenticides prevent the blood from clotting and are transferred to the fisher after it ingests prey, such as a rodent. The poison can be transmitted to nursing kits.

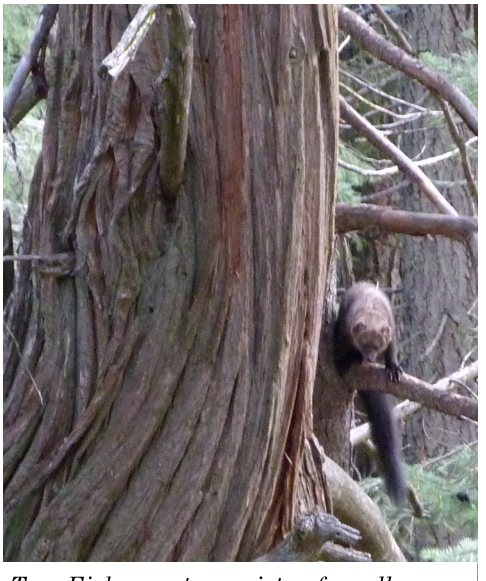
In partnership with California Department of Fish and Wildlife (CDFW) and the Integral Ecology Research Center, the Yreka FWO has played a key role in supporting research on the effects of rodenticides on fisher and other animals, as well as removing toxicants from public lands.

To further fisher conservation, the Yreka FWO partnered with Sierra Pacific Industries, CDFW and North Carolina State University (NCSU) to reintroduce and study fishers on managed timber lands in the northern Sierra Nevada range since 2008.

Fisher have been monitored continually for 14 years in the eastern Klamath region of California and Oregon. This effort has brought together many partners including CDFW, Forest Service, Michigan-California Timber Company, Fruitgrowers Supply Company, NCSU, Oregon State University and the Wildlife Conservation Society.

Fisher conservation is a collaborative effort and the Yreka FWO appreciates all of our partners.

- Laura Finley, supervisory fish and wildlife biologist



Top: Fishers eat a variety of small mammals, birds and even plants. They typically hunt in dense forests to avoid predators. Credit: Mel Fechter.
Above: Fishers den in large, old growth tree cavities from February through April. Credit: Rebecca Green/USFS

Oak Habitats: Biological Hotspots at Risk

Areas with oak trees are one of the most biologically diverse habitats in our region, and support more wildlife than any other terrestrial ecosystem in northern California.

However, despite their inherent value, oak habitats remain one of the most threatened ecological communities in the Pacific Northwest. Current estimates suggest that over 30 percent of oak habitats in California have been lost to urban and residential development, conversion to cropland and disease.

In California over 300 species of native mammals, birds, amphibians and reptiles use oak habitats for breeding, foraging and cover. For this reason, oaks are considered an ecological keystone, which is a species that has a disproportionately large effect on its natural environment relative to its abundance.

Why do oaks support such abundant wildlife? Acorns, the nut of the oak tree, provide a highly nutritious easily digestible food source for a suite of birds and small mammals, deer, elk and black bear. Acorns are abundant in autumn and winter when other plant resources are limited.

Also, mature oak stands have old decaying limbs which are excavated by primary cavity nesters such as hairy and Lewis's woodpeckers. Once abandoned by the primary cavity nester, secondary nesters such as mountain bluebirds and tree swallows can reuse the cavities.

Over time, old decaying limbs fall off, creating larger cavities that provide denning sites for mammals such as raccoons and fisher.

The complex structure of an oak tree's crown provides cover from the weather, a lot of surface area for foraging and nesting, and supports a myriad of invertebrates that attract insect eating birds. Fallen leaves provide cover and create a wet microclimate for amphibians such as woodland salamanders. Oak habitats are also central to many Native American cultures.

In northern Siskiyou County the biggest threat to oak habitats is the spread of or encroachment by conifer trees. Historically, fires caused by lightening or used to manage the landscape maintained the health and function of oak habitats.

Frequent, low-intensity fires have traditionally been used to kill the less fire tolerant young conifers. They also released nutrients into the soil, stimulated growth of native grasses and forbs, killed the larvae of insects that consume acorns, and promoted growth of new oak seedlings.

With the arrival of Euro-American settlers, many traditional land management practices, including the use of fire, were gradually abandoned. Active fire suppression over the past hundred years or more has disrupted the natural disturbance process of frequent low-intensity fire

As a result, many oak habitats have become dominated by coniferous species, particularly Douglas-fir, Ponderosa pine and Western juniper. These faster growing conifers can rapidly overtop and suppress slow-growing, shade-intolerant oaks.

Overtopping causes the oak's crown to die back and reduces acorn production. Over time, the oak crown becomes more shaded and the oak eventually dies.

Locally, the Scott and Shasta valleys are focal areas for oak restoration. These valleys have big patches of oak habitat and are crucial connections to oak habitats in Shasta County, along the I-5 corridor and north to the Oregon border.

Over the past decade, the Yreka FWO has partnered with the Natural Resources Conservation Service (NRCS), local non-profit organizations, and 16 private landowners in the Scott and Shasta valleys to restore over one thousand acres of oak habitat. And, the Yreka FWO and NRCS are working on seven additional projects.

Restoration efforts focus on thinning or removing conifers. Releasing oaks from competition with conifers restores light, water and nutrients to the oaks, and has a positive effect on oak growth and acorn production. Thinning or removing conifers also reduces fuels and the likelihood of uncharacteristically severe wildfire in these oak habitats.

Currently, the Karuk Tribe has formulated a climate adaptation plan with fire as a central component. For thousands of years, the Karuk have used fires of different intensity to create a patchwork of varying habitat types that support different kinds of plant and animal species.

Further north the Service is actively restoring oak habitats throughout Jackson County, Oregon. Collectively, these efforts are restoring the function of oak habitats and enhancing connectivity at a large landscape scale that is meaningful to the wildlife species that inhabit these areas.

- David Johnson,
fish and wildlife biologist

Preceding page: Oregon white oaks are unable to survive as pines, junipers, firs and others encroach on their habitat. Credit: Dave Johnson/USFWS

Right: As oaks die, limbs fall off which create cavities of all sizes. Larger cavities provide den sites for forest mammals such as fisher and raccoons. Credit: Dave Johnson/USFWS

We are Yreka FWO: Meet Bob Carey

Each newsletter, we introduce a member of the Yreka FWO team. This issue, we feature Bob Carey, a supervisory fish and wildlife biologist who works on habitat conservation planning with private landowners.

Growing up near Pittsburgh and southern Ohio, Carey considered himself an adventurous kid who liked to spend time outdoors.

"I was always interested in the plants and animals I saw," Carey said. "This eventually led me towards a career working with wildlife."

Carey credits his father, a medical researcher, for introducing him to hunting and fishing and kindling an interest in the sciences.

Carey received his undergraduate degree in natural resource and wildlife management from The Ohio State University, and headed west soon after. While finishing his graduate degree at Oregon State University, Carey took a job with a small family-owned forest management company in Redding, California that had been in business since 1969.

"I was the first biologist on staff," said Carey. "The northern spotted owl had just been listed under the ESA, and many similar companies struggled to integrate forest and endangered species management."

In 2012, after 20 years in the private sector, Carey came to work at the Yreka FWO. His first position was a term biologist, eventually moving into his current supervisory role. His primary job focus is working with landowners to conserve at-risk wildlife populations. He writes and reviews documents, attends numerous meetings and navigates a myriad of Federal regulations.

Carey enjoys the challenges of finding balance between human needs and forest-dependent wildlife.

"Managing forests - both public and private - so they are resilient to disturbance and still function as they have for millions of years is a challenge," Carey said. "Helping people understand how a forest functions ecologically is one of my primary interests."

Carey's keen sense of humor and conversational manner helps others gain an understanding of difficult or technical topics. Carey said being able to communicate at different levels, from legislators to biologists to the general public is important in any line of work.

"Years ago I was doing a goshawk survey at 3 am in the forest when I heard a log skidder start up," Carey recalled. "I went over to the machine and this guy climbs out, completely covered in sawdust. All I saw were his eyes. He was as big as bear, and I thought 'this isn't going to go well'. But I just talked to him about the project in a way he understood and it worked out fine for both of us."

Through his years working in private and government settings, Carey has no regrets about his experiences.

"I've been fortunate to have a career that is both enjoyable and rewarding," Carey said. "I've worked with birds, bats, frogs and fish. Some of these animals are marvelously adapted to their environments."

As advice to anyone considering a science career, Carey said many people are too focused working on one species, and should consider the human aspect of managing and conserving wildlife populations.

"Wildlife occur as part of larger ecosystems," Carey said. "It is also a reality that there are many human constraints on what is achievable and what is desirable from a conservation perspective. There are many opportunities to conserve wildlife, build partnerships and work to maintain functional ecosystems."

- Susan Sawyer, Klamath Basin public affairs officer

Above: When time allows, Bob Carey continues to pursue his lifelong passion for the outdoors, including halibut fishing and big game hunting. Carey said his work mantra would be to remain professional, be solution oriented, respect others and make a difference. Credit: Bob Carey

Successful Partnerships: Butte Creek Ranch Safe Harbor Agreement

In 2015, Susan and Blair Hart, cattle ranchers in the Shasta Valley, approached the Yreka FWO about creating a Safe Harbor Agreement (SHA) for their Butte Creek Ranch property.

This type of agreement is voluntary between landowners and the Service and promotes conservation actions on private property to benefit species listed under the Endangered Species Act. The agreement covers gray wolf and northern spotted owl. In exchange, the Harts receive assurances that their property will not be subject to additional regulatory restrictions.

The Butte Creek Ranch is situated on the northeast side of Mount Shasta and is rich in natural resources - alpine meadows, forested landscapes, views of rugged, mountainous terrain, and perennial streams.

The property is owned by the Hart Family Trust, sixth generation ranchers who sustainably raise beef cattle at their Little Shasta Valley Ranch property. Every summer, they move their herd to the high elevation ranch to graze on the lush meadow grass at Butte Creek.

As part of the SHA, the Harts agreed to maintain low levels of human activity on the property and conduct meadow restoration projects to improve habitat for deer and elk, the primary prey of wolves in this area.

To avoid potential conflicts with wolves, the Harts will use non-lethal control or deterrent methods and livestock husbandry practices such as employing a range steward to monitor wolf activity, and trail cameras to document wolves and other species such as bear and mountain lions.

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Top: Mt. Shasta rises over Butte Creek Ranch which has been in the Hart family for six generations. Credit: Pacific Forest Trust

Above: Susan Hart (on right) visits with Jen Jones, who worked closely with the Harts to develop the Butte Creek SHA. The agreement enhances federally protected wildlife species while maintaining the family ranching business. Credit: Susan Sawyer/USFWS

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Although the northern spotted owl has not been detected on the Butte Creek property, forest management activities under the SHA will improve owl habitat.

The Harts plan is to thin some of the immature, dense tree stands to decrease the risk of high severity fire and provide more space under the forest canopy for owl movement.

The SHA requires keeping larger trees and snags as nesting habitat for the owls. Last May, the Harts were granted a 50-year enhancement of survival permit as part of the SHA that allows them to continue small-scale, non-commercial timber operations and livestock grazing on the property.

"The SHA is integral in memorializing our vision of the ranch into the future," said the Harts. "It allows us to maintain an economically viable agriculture entity while ensuring enhancement of wildlife resources."

- Jennifer Jones, fish and wildlife biologist

Blair Hart, above, visits the Butte Creek Ranch property in August. Hart grazes his beef cattle herd on the high mountain meadow each summer. Credit: USFWS

Forest Ecology Working Group

Forest ecosystems are dynamic and complex, changing over time. For the Service, understanding forest ecology and how differing forest conditions provide habitat for various species is crucial for managing land and collaborating with partners like the U.S. Forest Service, Bureau of Land Management, timber companies, or private forest landowners.

Wildlife and forest sciences share many principals and concepts, and at the same time have some important differences. To effectively conserve the wildlife that inhabits forests, managers must work together to develop shared objectives.

Forest ecology is the scientific study of interrelated patterns, processes, flora, fauna and ecosystems in forests. Forest management is also known as forestry or silviculture.

In 2016, the Forest Ecology Working Group (FEWG) was established as a forum for the Service to exchange information related to forest ecosystems.

The FEWG charter mission is:

"Building capacity and competency for forest ecology and management within the Service."

The group has members from across the country with representatives from many programs within the Service including the National Wildlife Refuge System, Science Applications, Ecological Services, and Migratory Birds. The Yreka FWO is a participating member of this group.

To date, FEWG has accomplished the following:

- Launched online tools to facilitate rapid information exchange.
- Bi-monthly webinars covering new research relevant to forest ecology open to all Service personnel as well as conservation partners.
- Developed a new training course: *Forest Ecology and Management*, being taught at the Service's National Conservation Training Center in West Virginia. https://nctc.fws.gov/topic/online-training/webinars/forest-ecology-and-management.html
- Fostering partnerships with private forest management organizations. For example, several FEWG members in the southeastern U.S. are meeting with private forest landowners, managers, and organizations.

As FEWG continues to gain momentum, we expect to begin engaging in similar partnerships throughout the United States.

- Bob Carey, supervisory fish and wildlife biologist

Above: Aerial view of a mixed conifer forest in northern California. Credit: Sierra Pacific Industries

Tribal Youth Leadership Congress

Tribal youth attending the congress were from left: mentor Lonyx Landry, Jasmine Eleck, Susanna Blake, Melvin Farmer III and Cochise Nez. Credit: L. Landry

Wildlife, fish, and plants are the foundation of many Tribal economies and are a part of traditional practices and subsistence lifestyles.

In early July, five students from Klamath Basin tribes attended the 5th annual Native Youth Community Adaptation and Leadership Congress at the Service's National Conservation Training Center in Shepherdstown, West Virginia. They had a big question to consider:

"*As future leaders, how can you use your voice and skills to make a difference for the environment, while continuing to respect your (Tribal) culture and strengthen your sovereignty?*"

Representing the Basin this year were four high school students and one former participant who is now attending college. The goal of the congress was to help aspiring Native youth become influential by learning leadership traits and embracing skills in adaptation for addressing the environmental challenges facing their tribes and communities. Returning participant Jaycee Owsley, currently a fisheries biology major at Humboldt State University, served in a junior faculty role. This enabled her to pass her knowledge to the younger students participating this year.

"When I attended as a sophomore in high school I wasn't aware of the climate challenges happening in native communities," said Owsley. "Coming to the youth congress has showed both me and other students how to be leaders in our communities by honing our skills in technology, communication and science."

To answer the initial 'big question', students led the congress and focused on major challenges within their Tribal communities while exploring culture, tradition and science. The students unanimously agreed they all face environmental changes and shared their adaptive solutions to address those changes.

By the end of the congress, the local students had a better understanding of the challenges in the Klamath Basin. Through their participation, these future Native American leaders have gained familiarity with the support available from federal agencies, such as the Service.

Mentoring Native youth helps the Service in its efforts to empower and recruit bright, driven conservation leaders from diverse backgrounds who can assist us in finding effective solutions to the challenges we face, and who can connect with our rapidly changing American culture. The Service is committed to attracting and developing a workforce that reflects our nation and draws from its strength.

- Trevor Super, Native American program specialist

Jaycee Owsley, on right, a former tribal youth congress attendee, assists a new participant in generating ideas to share at the gathering. Credit: L. Landry

Creating Outdoor Classrooms

This past April, Jennifer Jones from the Yreka FWO worked with the Etna and Fort Jones Elementary Schools to complete native plant areas as part of the popular and successful Schoolyard Habitat program.

Activities included lessons on the benefits of planting a variety of native wildflowers, trees, and shrubs to attract and provide habitat for pollinators and other wildlife.

The students had already seen a variety of pollinators, including hummingbirds and bees, visiting their schoolyard and were excited to provide additional food, shelter, nesting material and other resources for their garden visitors.

Teachers use these natural areas for outdoor learning through observation, hands-on activities and nature study.

When asked how they might use their outdoor classrooms, one student said she can use math skills to measure the growth of plants.

Another said he could practice drawing and creative writing in his nature journal by describing his observations.

Before digging in the dirt, students were given a planting demonstration then they worked in teams to put plants in the ground. Enthusiasm was high as students dug, mulched and watered their new additions, which included western columbine, Oregon grape, Oregon sunshine, Idaho fescue and dogwood.

One class volunteered to create signs with plant names to help future students identify all the native plants. Several students took such ownership in the project they wanted to protect the new plants and spent their recess pulling weeds. For many years to come, students at both schools will learn from these native habitats as they weed, water, play and explore their outdoor classrooms.

- Jennifer Jones,
fish and wildlife biologist

Above: Students study plant guides in class before going to the garden site. Right: Jen Jones instructs students how to place native plants in the habitat. Credit: Susan Sawyer/USFWS

Community Outreach Summary

Spring & Summer 2019

Taught pre-K through 8th grade students about pollinators and wildlife at the Hornbrook Elementary School Science Day.

Staffed a pollinator activity station at the 26th Siskiyou County Agriculture Awareness Day. Led a wildlife scavenger hunt at L. Wehmeyer education area.

Pulled weeds to protect endangered Yreka phlox at Cracker Gulch.

Led a scavenger hunt at L. Wehmeyer education area.
Pulled weeds to protect endangered Yreka phlox at China Hill.

Taught Evergreen Elementary School 3rd grade students about local wildlife.

Taught Jackson Street School 3rd and 4th grade students about watersheds and pollinators at the school Science Fun Day.

Worked with Weed Elementary School 7th and 8th grade students to water and weed monarch waystations on the Yreka Creek Greenway.

Staffed the Siskiyou County Weed Booth at the Siskiyou County Fair. Contacted 1,290 members of the public about weed identification and control.

Taught Jackson and Siskiyou County schools about monarch butterflies.

Hosted a bats and caves workshop at Barnum Cave.

May 1

Taught Butteville Elementary School 7th graders about internal and external fish anatomy through a dissection lesson.

May 10

May 15

Hosted a spring bird walk at Greenhorn Park.

May 16

May 18

Partnered with retired Forest Service and State Park biologists, and local teachers to staff *"What Animal Has Been Here?"* booth at the Siskiyou County Science Day Festival.

May 22

May 23

Taught stream hydrology for the annual *"Ride the Wave of Health"* Festival, hosted by the Anav Tribal Health Clinic and Quartz Valley Indian Reservation.

May 29

May 30

Led a wildlife scavenger hunt at L. Wehmeyer education area.
Pulled weeds to protect Siskiyou mariposa lily at Gunsight-Humbug Ridge.

May 31

May

In May, FWO staff were interviewed by Southern Oregon University for a Women in Science project.

June 5

June 19

Hosted a pollinator plant workshop at the Yreka Community Garden.

June 25

July 17

Held a beaver workshop at Greenhorn Park.

Aug. 8

Aug. 21

Hosted a monarch waystation workshop at Greenhorn Park.

Aug. 28

Aug. 29

Taught Jackson and Siskiyou County schools about monarch butterflies.

Sept. 11

Fall 2019 Guided Nature Walks

TOPIC	DATE	TIME	LOCATION
Fall Colors	October 16	12-2pm	Upper Greenhorn Park
Truffles	November 16	10am-4pm	Yreka FWO
Acorn Food	December 4	12-2pm	Yreka FWO

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Cover: Black-backed woodpeckers prefer burned stands of trees for the abundant beetle larvae and nest cavities. Credit: Jeremy Roberts

Back: Cavities in headless oak trees attract birds and tree-dwelling mammals. Credit: Mel Fechter