

Rim Fire Restoration Stanislaus National Forest

News

August, 2015

flash

- ▶BAT POPULATIONS & FIRE...PG. 1 & 2
- ▶DEER COUNT REVEALS LOW FAWNING NUMBERS...PG. 2
- ▶SPLISH, SPLASH: POND TURTLES...PG. 3
- ▶IMPROVING GREAT GRAY OWL HABITAT...PG. 4

Bats are disappearing worldwide, fires could help...

Bats occupy almost every habitat in the world and account for nearly a quarter of all mammalian species on earth. They provide critical ecosystem services as pollinators and can eat their weight in insects every night! Bats also happen to be living stressed out lives.

“In the United States, a newly introduced fungus is causing a bat disease known as White-Nose Syndrome,” said Marcie Baumbach, Wildlife Biologist, Stanislaus National Forest. “It has been responsible for the death of nearly six million bats in just the past six years. It causes hibernating bats to wake during their winter slumber, using up essential fat stores, which results in death by starvation. Global loss of habitat is another huge concern.”

Since seventeen species of this flying mammal inhabit the Stanislaus, Forest Service scientists have been monitoring bat activity, habitat associations and their overall health. The Rim Fire has changed habitat structure across the landscape, leaving many unanswered questions regarding its impact on bats.

[A study conducted after the McNally Fire](#) of 2002, in the Sierras, indicates that fires can actually increase bat habitat locally. “Not all bats are created the same,” said Baumbach, “but many will benefit from early successional stages of vegetation. Flowering plants attract insects and a small bat colony can consume over a ton of bugs within a year.”

By studying the echolocation calls of bats in the McNally fire area, scientists discovered that bat activity was generally favored within the burned sites, in some instances, significantly so. “Bats exploit a variety of habitats within the forest,” said Baumbach. “Fire creates snags that are used for roosting and raising young. Fire also reduces impenetrable vegetation, creating flyways and edge habitat, frequently used by foraging bats.”

Like many creatures that have evolved with fire, bats seem to have adapted to the fire-prone California landscape. “It’s important for people to (cont. pg. 2)



Of the 17 species of bats living within the Stanislaus NF, three are considered sensitive species. Though the Rim Fire was difficult in many ways, fire can create niches for bats to live. Bats favor snags, cavities and hiding beneath patches of loosened bark.

Globally, bat populations are in serious decline. Becoming bat savvy can help. [EDUBAT](#) is an educational program created in conjunction with USFS biologists. It provides teachers free curriculum and a trunk full of exercises and props suitable for school children to learn about bats while having fun.

Annual deer count reveals declining number of fawns



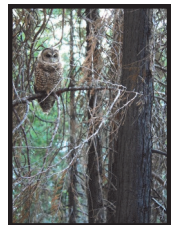
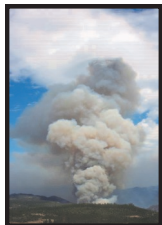
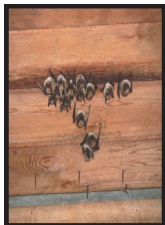
Picture a cool December morning at Cherry Lake on the Stanislaus National Forest. Biologists, Forest Service staff and volunteers have anxiously gathered for the bi-annual count of the Tuolumne deer herd. With migratory deer herds in decline statewide, this is one means scientists have of monitoring specific populations.

“To maintain deer populations, we need to see a ratio of 50 fawns for every 100 does surviving their first year,” said Nathan Graveline, Wildlife Biologist, U.S. Fish and Wildlife Service. “Instead, the 2014 count revealed the ratio was 33 fawns to 100 does. In 2015, that number dropped slightly more, probably due to the lack of forage following the Rim Fire. Basically, the Tuolumne deer herd has been declining for over 15 years without a single year achieving the necessary recruitment rate of fawns. I am, however, hopeful that

next year will be better due to the vegetation that is springing back within the Rim Fire perimeter.”

Many factors have been impacting deer, but the absence of regular fires is one of the most critical issues. “Deer are browsers,” said Graveline. “They have a strong preference for newly emerging brush. Though they will eat grasses and herbaceous plants, these are not top forage choices. Regular fires create a mosaic on the landscape, creating gaps within the forest. Within these gaps, post-fire species of shrubs, like deer brush, buck brush and bear clover, flourish.”

“Regular fires keep fuel loads in check and maintain a more open forest understory, creating a forest structure that improves oak survival and increases plant diversity,” said Crispin Holland, Forest Biologist, Stanislaus National Forest. “That benefits wildlife species such as deer, bear, squirrels and woodpeckers. Landscape variability, which is created by periodic fires, helps to hold ecosystems together. Irregular shaped edges and gaps that favor wildlife are created. Fire suppression, on the other hand, creates homogeneity on the landscape, not biodiversity.”



Forest fires create bat habitat

realize that not all fires are bad,” said Baumbach. “Periodic fires can open up the forest, increase roosting sites, and allow for echolocation calls to bounce through the forest without being overly interrupted. These sound waves enable bats to navigate and locate prey, such as pyro-philous (fire-loving) beetles, and consume them along with mosquitoes and other insects by the hordes.”

For additional information on bats, visit:

- Edubat: <http://batslive.pwnet.org/edubat/>
- Bat conservation: <http://www.batcon.org/>
- Build a bat house: <http://www.batconservation.org/bat-houses>
- White-Nose Syndrome: <http://vimeo.com/76705033>
- A plethora of bat information: <http://tinyurl.com/odnosxh>



Splish, splash, I was taking a bath!



When most people think of Western Pond Turtles, they think of pools of water, but scientists like Steve Holdeman also think of fire.



Although the relationship of turtles to fire is a complex one, there does seem to be anecdotal evidence that having more open upland habitat, as would have occurred under a more natural fire regime, could be beneficial.



“Heat is really important to pond turtles,” said Holdeman, Aquatic Wildlife Biologist on the Stanislaus NF. “Fires open up the canopy and remove dense thickets of brush. That creates areas where turtles can nest in relatively open locations. Since heat from the sun aids in egg development and keeping hatchlings warm over the winter, having some open habitat could be beneficial to this sensitive species.”



Like other reptiles, turtles have to thermoregulate by modifying their behavior. If they are cold, they collect the warming rays of the sun on their shells, while basking. If too hot, they slip into the water to cool their systems down.



“During the egg incubation period, the gender of baby turtles is determined by the temperature in the nest,” said Holdeman. “For about 7 to 15 days, the eggs are especially sensitive to temperature changes. Eggs that are kept warmer during that critical period produce female hatchlings whereas cooler eggs produce male turtles.”



“Fire is a dynamic process,” said Holdeman, “and its impacts vary depending upon site specific conditions. While battling the Rim Fire, some heavy equipment crossed Drew Creek. Consequently, we sent folks in to re-contour the drainage and stabilize the stream channels. The loss of large woody debris within streams can change stream morphology. Since turtles like the habitat complexity the woody debris provides, we added some logs back in.”

Biologists continue to monitor turtle populations on the Forest to learn more. Though there is considerable literature available that documents the effects of fire on many wildlife species, little of it addresses reptiles.

We are reaching out to future generations of land stewards...



- The water cycle is taught to school children by Aquatic Biologist, Steve Holdeman.
- Marcie Baumbach, Wildlife Biologist, attended a field day in March to teach school children about terrestrial wildlife.
- The good fire vs. bad fire story was shared with Sonora elementary students by Georgia Dempsey, Public Affairs Officer for the Rim Fire.
- Woodsy Owl joined the fun by entering a poster contest!
- USFS fire crews taught fire prevention messages to kids at Smokey’s fishing hole at the Calaveras County Fair.
- Local kids work on their junior ranger badge, assisted by Clare Long, Partnership Coordinator.
- Fifth graders learned how to run a town meeting when Dusty Vaughn stepped in to help.
- Forest Service staff helped to create EDUBAT to share information on bats with kids.

Improving great grey owl habitat

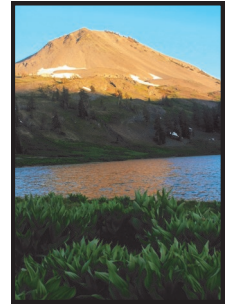
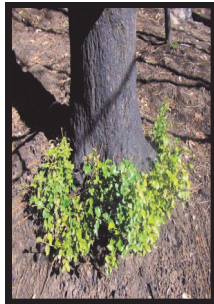
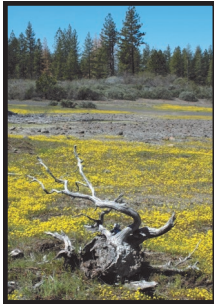
Who has a disc shaped face, asymmetrically placed ear canals, serrated feathers and a voracious appetite for voles? The answer is Great Gray Owls, a state endangered bird of prey that happens to live within the boundary of the Stanislaus.

The unique physiology of this owl enables it to effectively hunt small mammals like voles and gophers. Feathers surrounding the disc-shaped face can be adjusted to sharply focus squeaky sounds, much like a satellite dish. Their offset ear canals are used like telemetry equipment, allowing for keen depth perception and the ability to triangulate in order to find a tiny vole scurrying amongst Corn Lily stalks. Serrated feathers allow the owls to fly silently over meadows in search of food.



“When Great Gray Owl pellets have been analyzed in detail,” said Ryan Kalinowski, Wildlife Biologist on the Groveland Ranger District, “greater than 94 percent of the biomass of those pellets was comprised of regurgitated vole or gopher parts.”

“Great Gray Owl productivity is linked to vole availability,” said Kalinowski “and quality vole habitat is not currently common on the Stanislaus. It stands to reason that by increasing mesic (wet) meadow habitat where voles can flourish, management can also positively impact Great Gray Owl populations. Fortunately, the meadow restoration work we are

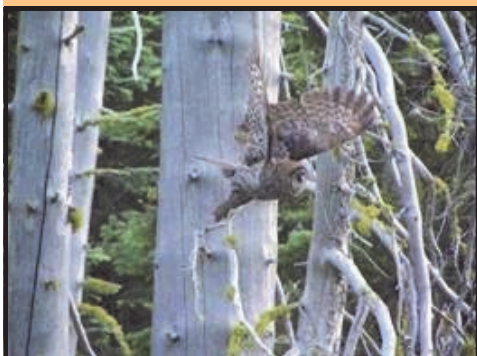


Ecotones: living on the edge

doing throughout the Forest to improve hydrologic function and raise the water table should also benefit these birds.” Meadows also provide a rich atmosphere that is favored by the owls due to the diversity they offer.

Ecotones, or the edges where two habitats meet, are prized by many species of wildlife. Great Gray Owls like to live on the edge where roosting and nesting trees are close to the foraging opportunities of an open meadow.

“Our reforestation proposed action calls for the discrete planting of small clumps of trees near the ecotone so owls will have a place to roost,” said Kalinowski. Wildlife biologists will also be enhancing nesting sites for these birds by carving out bowl-shaped platforms suitable for raising young, in the tops of 30 to 50 trees.



“The Great Gray Owl is both visually stunning and a significant member of the local ecosystem,” said Kalinowski. “We are hopeful that our active restoration projects will sustain a successful population of owls as the forest begins to regrow.”

To learn more, read the published research entitled, “Habitat relationships of great gray owl prey in meadows of the Sierra Nevada Mountains.” It is available in the *Wildlife Society Bulletin* 38: 547-556 (2014).