

Northern Spotted Owl in Muir Woods Photo: TJ Gehling, 2011 | Flickr cc

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Science of Seeing Hope and the Thing with Feathers Adelheid Fischer

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To see a northern spotted owl, you must travel a two-lane highway for many miles, then make a turn onto an unmarked road and drive until the gravel slowly disappears under a swish of overgrown grass. You creep along until the path narrows, and the branches of young Douglas fir begin to pluck at your truck antenna like mischievous kids lining a parade route. You stop just as your front bumper grazes the massive trunk of a toppled tree, blocking you from going any further. Then—and only then—do you kill the engine and step out of the car.

This is a typical workday commute for Rita Claremont, one of a small group of biologists who conduct surveys of northern spotted owls each summer in the Cascade Mountains some 45 miles east of Eugene, Oregon. On a sunny day in August 2017, I tagged along with her into the old-growth forests that are home to these birds. We were joined by two other writers who, like me, were participants in the Long-term Ecological Reflections program at the nearby H.J. Andrews Experimental Forest station. Established in 2003, the program pairs writers and scientists in the field where together they spend time "re-imagin[ing] our relation to the natural world."

Arguably, in the Pacific Northwest, no other animal has caused a greater reassessment of our relationship to the natural world than the northern spotted owl. In the pitched timber wars of the 1990s, the bird was the cause célèbre of environmentalists who sought to use the owl's plummeting numbers as a way to end tree harvesting in the dwindling old-growth forests on public lands. In response, plastic owls were hung in effigy by sawmill operators who viewed the lockdown of these commercially valuable forests as a threat to their livelihoods.

Despite securing protection under the Endangered Species Act in 1990, owl populations have continued to struggle. These days, only about 1,200 pairs are estimated to live in the entire State of Oregon, most of them confined to remnant old-growth stands, a mere two percent of the original forest.

Claremont knows these owl habitats well, having spent nearly a quarter century crashing through them in search of the birds. At 52 she says the field work has taken its toll on her shoulders, back and knees, but you'd never know it by the way this trim, energetic biologist scrambles down a steep ravine, negotiates the soggy bottom of a narrow stream, and then lopes up the opposite slope, leaping from rock to rock or traversing the length of a downed tree covered in slippery moss with the grace of an Olympic gymnast on a balance beam.

We head far upslope and settle under the immense trees that the owls favor.

Old growth | Photo: almostsummersky, 2017 | Flickr cc

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Dusk | Photo: BLMOregon, 2013 | Flickr cc

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Scanning the canopy, Claremont lets fly a convincing imitation of the bird's syncopated, four-beat hoot. Then she reaches into her backpack and pulls out a live mouse, placing it on a log in plain view. During the breeding and nesting seasons, male owls will investigate these calls and drive potential interlopers out of their territories. Sure enough, within minutes, a male owl appears on a branch silent as smoke. The bird takes a few seconds to assess the situation. Then, without warning, he free-falls out of the tree, snaps open his wings like a giant umbrella just before snagging the mouse with his talons. In one elegant scooping motion, he heads back up into the canopy and begins to glide away from us through the trees. We grab our backpacks and follow in a mad dash, keeping one eye on the bird and another on the jumble of roots and rocks on the forest floor.

What the males do with the captive mice provides Claremont with critical clues about their breeding status. If a male lacks a nesting mate, he is likely to cache the prey or eat it on the spot. If he does have a mate, he may pass his catch on to the female which, in turn, feeds it to her offspring. Claremont points out that this behavior may be a continuation of an early courtship ritual that serves to reinforce pair bonding during the raising of chicks. The challenge for the census takers is keeping pace with the male owl as he flies home to deliver the groceries. Fortunately, we don't need to clamber very far. This male has a mate and two chicks nearby. We catch up to the owls and slowly drop to the ground under their watchful gaze. To our surprise, they stay put. I look around at our group. We are seated, as if at a casual family picnic, with spotted owls. *Spotted owls*! The expressions on our faces flit from disbelief to delight to wonder and finally to reverence.

This is exactly how Claremont felt decades ago when former colleague Tim Fox on the survey crew introduced her to her first owl. She followed Fox on a long foray into the woods and then suddenly stopped. Fox was smiling. He had spied an owl. "Just look around," he said. As Claremont recalls, "I started looking around and looking around. I just looked right at the owl and past it, because they sit perfectly still and blend in. When I finally locked on to it, I was dumbfounded. I could not believe that this beautiful creature was just watching us so calmly with those big, big black eyes. It was close and it wasn't afraid. I fell in love instantly with them."

This tolerance of humans isn't unusual, Claremont says. Because the birds largely feed and nest high up in the canopy of old-growth forests, they have had relatively

Northern spotted owl | Photo: Forest Service USDA, 2009 | Flickr cc

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Spotted Owl and Marbled Murrelet Habitat, Oregon Coastal Forest | Photo: David Patte/U.S. Fish and Wildlife Service/USFWS Pacific, 2010 | Flickr cc



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few interactions with humans over time. As a result, they tend to be less wary of people than many other species of owls.

The adults begin to call softly to each other in an ascending riff of Ooooooo-wee! Ooooooo-wee! The owlets join in with a kind of circular bobblehead motion atop bodies that are little more than puffs of wispy down. I look up at one of them and then squint my eyes, noting what a remarkable resemblance it bears to the big gray dust bunnies that accumulate on the floor under my bed. The male owl then begins nuzzling the face of one of the chicks which tips its head upward toward the parent in response and closes its eyes as if savoring the pleasure of the attention. In scientific circles, this is known as allopreening, or social grooming. The behavior helps with maintaining good hygiene, but it also serves to reinforce bonds among individuals in a family or social group.

Like Claremont in her first encounter with a spotted owl, I cannot get enough of looking at them. I marvel at the patterning on the birds' feathers — a stippling of whitish dots and short brown streaks that enable the birds to disappear into a background of tree bark and the forest's dappled light. Then there are the black outlines in



Threatened northern spotted owl (*Strix occidentalis caurina*) fledglings Photo: Tom Kogut/USFS, 2010 | Wikimedia Commons

the shape of a heart that scribe the bird's face. I marvel at how some hidden antenna intercepts even the most subtle signals in the forest and how their heads swivel toward these sounds in what looks like a well-oiled machined movement. But most unforgettable are the owl's eyes. Most other owl species have yellowish eyes. Spotted owls have opaque, jet-black eyes that gleam like polished glass. I look up at the birds and repeat a silent message to them over and over in my mind with as much ardent good will as I can muster: You are so beautiful. May you live long and prosper.

But spotted owls in general are not prospering. More and more territories that once hosted breeding pairs are now empty of spotted owls. Fewer owlets are living to adulthood. According to a 2017 study published by the journal *Natural Resource Modeling*, "Less than 5% of historical Spotted Owl sites are projected to contain Spotted Owls by the year 2030."

A shortage of habitat continues to be a factor. There simply is not enough oldgrowth forest left for many young owls to disperse to. But the biggest threat comes from a newcomer to the forests of the Pacific Northwest: barred owls. A relative of spotted owls, barred owls are native to the forests of the eastern U.S. Prior to Euro-American settlement, the largely treeless grasslands of the Great Plains posed a natural barrier to the immigration of barred owls into western forests. But that changed as settlers suppressed the fires that killed trees, planted shelterbelts around their homesteads, and reduced populations of ungulates such as bison and elk that kept trees in check. Protected from predators in forested riparian corridors or woodland patches planted by humans, the birds hopscotched their way west.

The newcomers quickly made themselves at home in spotted owl territory, occupying the same old-growth habitats for nesting and consuming the same prey items



Barred Owl Photo: Photo: Colleen Prieto, 2017 | Flickr cc

Red tree voles | Photo courtesy of Burt Gildart©

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of flying squirrels, tree voles and wood rats—with one critical difference. Spotted owls tend to be specialists; barred owls are generalists. When quarters become too cozy, for example, barred owls can switch to second growth or young stands. If rodent prey becomes scarce, they can supplement their diets with anything they can catch, from frogs and salamanders to crayfish and skunks. David Wiens, a biologist with the U.S. Geological Survey, even once observed a barred owl wading in a stream, vacuuming up snails. Finally, because barred owls also are bigger and more aggressive, they will feed on the offspring of spotted owls, harass and break up breeding pairs or drive adults from their nesting territories.

In 2015 sharpshooters from the U.S. Fish and Wildlife Service and U.S. Geological Survey began removing barred owls from select spotted owl population centers. In 2015-16 alone, 737 invasive owls were culled from parts of Washington, Oregon and northern California. This control process is costly and time-consuming, and the jury is still out on its long-term efficacy.

In the meantime, spotted owl surveyors like Claremont continue to head into the field each summer, walking the knife edge of hoping for the best and yet expecting the worst. The work is emotionally wrenching. Claremont recalls one episode several years

ago in which a spotted owl pair fledged two chicks just before "a solid week of hard, hard cold, nasty weather with just buckets of rain coming down. I went back to check on them and gave the male a mouse and he took me down into the rhododendrons. He just kept sitting there calling and cooing. There in the rhododendrons I could see the two babies. The first one had died and fallen on the ground. The second one obviously had lived a little longer and then he too fell over and died and was laying on top of the first chick. I picked them up and put them in my backpack because they were perfect, and I knew the Burke Museum of Natural History would want them for museum study skins. So I offered the male another mouse to try to distract him while I tried to hide the chicks in my backpack. I went down a really steep slope to get to my truck. As I was standing at my tailgate taking out the babies to put in the back of the truck, I looked up over my shoulder and there was the male sitting in a tree nearby. He knew that those were his babies."

Since then, Claremont has not gone back to that site. "It's hard," she adds. "I definitely have had days where I've cried in the woods. I just keep telling myself that I can't give up because the owls aren't giving up." ×

Threatened northern spotted owl (*Strix occidentalis caurina*) | Photo: Shane Jeffries/USFWS Endangered Species, 2007 | Flickr cc

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