

(SAMPLE Press Release: coverage of a public science lecture)

“The Secret Lives of Pacific Fishers”

Rebecca E. Green USFS (US Forest Service) & UC Davis

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Adorable, Arboreal Pacific Fishers Need Tall Trees and Room to Roam to Survive

by Alexali Brubaker on Nov 30, 2016

Elusive Pacific Fishers are not a familiar animal to many people. In fact, “Most of the time, when I mention fishers, people ask 'Is that a kind of bird?' Now, I make sure I have a picture of one on my phone to show people” says Rebecca Green, researcher with the US Forest Service and doctoral student at UC Davis. Green is unlocking secrets of the species' habitat use and unusual reproductive biology as part of efforts to help conserve the species, and has discovered some surprising threats that fishers face.

Fishers are in the family Mustelidae, along with otters, badgers, weasels, and wolverines. The arboreal habits of these cat-sized carnivores have required researchers to employ some creative technology to track their behavior. The geographic distribution of the species as a whole has shrunk from its historic spread, and although habitat loss is a frequent explanation for declining species, Green and colleagues sought to dig into the details of what fishers need and what they might be missing.

Specially trained dogs from Conservation Canines in Washington State were brought in to the study site in the Southern Sierra to search for fisher scat in a systematic grid search. In addition, individuals were trapped and fitted with radio collars for telemetry. Researchers can infer that females are about to give birth by settling in to a particular tree for an extended time (typically, they range far and wide and use a variety of different resting trees, so committing to one tree is a clear sign that young on the way).

Female fisher home ranges are huge (especially for such a small-bodied animal) -- 1200 hectares, and males' are even bigger, often 3 times that size. To place that in perspective, Golden Gate Park is 412 hectares. The conservation implication is that land managers must conserve large swaths of appropriate habitat or these animals may not be able to survive.

Fishers exhibit unusual reproductive biology. After giving birth in about March, the female fisher goes into estrus about a week later. Male fishers tend to find females near the natal (birth) den and they breed, then leave. Females delay implantation of the embryo for ~ 10 months. So far, no one really knows how, or why. In addition to their clear need for sufficient habitat, several features of fishers' breeding biology create additional vulnerability to disruption. Since their reproductive cycle is set up with only one window of opportunity to

breed each year, any disturbance to the well-being of mother and kits, or ability of males and females to find each other and breed, can ruin reproductive success not only for the given year but for the next.

They also need large (pre-made) den cavities to raise young in. These cavities are created by other mammals, Pileated woodpeckers (the only woodpecker species that excavates a large enough cavity for fishers), or decay. Fishers have never been observed hollowing out their own den or even enlarging pre-existing ones, and so are absolutely dependent (to the best of our knowledge) on re-using a cavity of sufficient size formed by other wildlife species or decay processes.

Large cavities require large trees. Species used most frequently in the study site include oak and incense cedar. Thus, fishers would most likely have trouble successfully breeding in habitats without large specimens of these trees, and a take-home message of the study is that forest managers need to be aware of the critical importance of conserving large old trees of key species (on large unbroken stretches of forest, since fishers were also found to be reluctant to use lands with gaps in the canopy cover).

Finding and observing litters of young involved climbing to dizzying heights and peering into the den cavities with cameras mounted on poles. Litter size varied from 1 to 3 kits across US & Canadian study sites, with the smallest litter size (~1.6) found here in the Southern Sierra. It's unclear why, but smaller average female body size has been proposed as a possible explanation. Given that fishers have one chance per year at successfully raising young, this small litter size means that every kit counts!

Other threats to fishers beyond habitat loss include natural predation from larger carnivores. Green's colleagues set up "fisher CSI" using DNA technology to test samples of saliva residue on carcasses. A certain level of predation is part of a balanced ecosystem, but if it gets out of control, could result in predators eating certain prey species out of existence. This assessment of the relative proportions of predation by various species will assist ecologists in determining if there is balance between fisher populations and those of their various natural enemies, or if the predation rate from any given species is becoming unsustainable.

The research team also discovered an unexpected, unintentional, but nonetheless deadly indirect threat from humans: rodenticide put out at illegal marijuana grow sites. One dose may not kill a fisher immediately (depending on body size) but the poison is a potent anticoagulant, so an affected fisher could bleed to death from any tiny cut or scratch.

Pacific Fishers may not be as well-known as the iconic Spotted Owl, but their continued existence also relies on conservation of old-growth forests. Good stewardship in the Pacific Northwest is needed to ensure their survival and will allow humans a chance to get to know these mysterious mammals.