

# Flammulated Owl study addresses habitat associations

by Max Ciaglo and Ross Calhoun

This past fall brought to a close the third year of our Flammulated Owl migration study.

Since 2013 we have been trapping Flammulated Owls after the breeding season on Colorado's Pike National Forest (PNF), and since 2014 this effort has been made possible by the generosity of the Denver Field Ornithologists (DFO) Grants Fund.

The Flammulated Owl is a small raptor that breeds in dry montane forests from central Mexico to British Columbia and subsists primarily on moths.

The species' insectivorous diet forces northern populations south during winter months to locations where climates are mild enough to support the insect life that they need to survive.

As a result, winter records of the species range from central Mexico to as far south as El Salvador.

In recent years the species has received increased attention due to a lack of data on population trends as well as its close association with older conifer forests, which are becoming increasingly younger, denser, and more fragmented due to fire suppression and habitat alteration.

Research has shown that breeding owls are strongly associated with yellow pine—especially ponderosa pine—throughout their range.

But habitat associations during migration and winter months are still poorly understood.

In 2013, in association with Dr. Brian Linkhart and the Colorado College Venture Grant Fund, we began to address this gap of knowledge by trapping Flammulated Owls after the breeding season on the PNF.

In 2014, after receiving funds from the DFO, we were able to triple our netting efforts and greatly expand the scope of our investigation.

Now we are incredibly happy to report on another successful season funded by the DFO Grants Fund.

This fall we captured a total of 71 birds, compared to 66 individuals in 2014, and 18 from our initial efforts in 2013.

Of these 71 birds, ten were recaptured within this fall season,

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Max Ciaglo and Ross Calhoun take feather measurements on a Flammulated Owl.



Ross Calhoun erects a mist net. *Michael Ciaglo*

and another three individuals were caught that had been banded in previous years. With these captures, we have now reported the highest rate of recapture among all similar studies investigating the fall migratory movements of Flammulated Owls.

Recapturing previously banded birds is one of the most important goals of any migration study, as recaptures often provide rare and valuable long-term data about the movement and habitat use of avian populations.

The ten birds recaptured within the fall of 2015, along with seven similarly recaptured birds from previous years, give us evidence that ponderosa pine dominated forests are being used by Flammulated Owls for extended periods of time after the breeding season.

The reasons for this may vary, but it is likely that these individuals are using this time to build fat stores either before or during their migration—a behavior crucial to long-term survival.

Two adult owls first caught in 2014, and another adult from 2013, were all recaptured this year at similar dates to their initial captures.

Data from these recaptures suggest that Flammulated Owls may show fidelity to migratory or premigratory grounds within breeding habitat.

If these findings are further supported, we might infer that Flammulated Owls depend on larger, more interconnected pine forests throughout their annual life cycle than the literature currently suggests.

Flammulated Owls have been deemed an indicator species, meaning that the health of their populations can be used to estimate the health of old ponderosa pine ecosystems.

Our work to better understand the movements of these owls will improve this approximation and add clarity to the relationship between the health of owl populations and that of Colorado's forests.

Moving forward, we plan to con-

textualize our findings by determining if our birds originated locally or from more northern populations.

With this data, we hope to further inform our understanding of the full scope of habitat use by this sensitive species in an effort to aid in the development of effective management practices.

Observations such as ours, and the ability to ask these broad ecological questions, are only attainable through continued and consistent efforts across multiple years.

Our research over the past two years would not have been possible without the DFO.

We cannot begin to express our gratitude for their support and look forward to updating the organization as our study progresses.

Next year we aim to continue our work in the PNF, adding more bands to this population and hopefully seeing more bands returned as we continue to investigate this understudied life stage of an incredible Colorado bird.

**All photographs taken by Michael Ciaglo**



Ross Calhoun takes data on a captured owl.



Affixing an identification band to a young owl.