Coconino National Forest Change in Focal Species
Administrative Change #3
10/17/2024

Introduction
In June 2019 the Coconino NF made an Administrative Change that identified and added monitoring questions for its focal species, bringing the Forest Plan's Monitoring Strategy into conformance with the monitoring requirements of the 2012 Planning Rule (36 CFR 219) (USDA Forest Service 2012). The 2012 Planning Rule requires a monitoring plan element to determine the status of focal species to assess the ecological conditions required under § 219.9.

Focal species are defined by the 2012 Rule as "A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems" (USDA Forest Service 2012).

In 2019 focal species were selected using the following criteria:
- Is the species' relationship to ecological conditions well understood?
- Is the species responsive to ecological conditions in a way that informs management decisions?
- Would monitoring the species reflect progress toward or maintenance of desired ecological conditions?
- Would the species be a more direct and effective measure of ecological characteristics of interest than other potential monitoring indicators?
- Would the species provide data for multiple purposes?
- Could the species be monitored effectively and efficiently within the Forest's technical and financial capabilities?
- Is the species difficult to detect (e.g., rare or cryptic)
- Is the species abundant enough to measure change in status?
- Are there any other factors (hunting, off-forest land use, disease, etc.) that could affect the species' status that would mask the response to management activities?

The initial list of focal species from 2019 has been monitored by the Bird Conservancy of the Rockies (BCOR) who, in conjunction with forest biologists, has recommended additional species that would serve as better indicators of ecological integrity. This administrative change is to add those focal species to better meet the need to monitor the condition of the forest ecosystems they inhabit.

Identification of Focal Species
BCOR's 2021 Analysis
Discussions between the Forest Wildlife Biologist and Bird Conservancy of the Rockies (BCOR) personnel leading up to the 2021 field season led to a proposal for an analysis of the selected

focal species. There was a need to determine if monitoring these species was indeed providing the data required to reflect changes in the ecological conditions of their habitat. The analysis looked at the Forest's current three songbird focal species – Grace's warbler, Black-throated gray warbler, and juniper titmouse, in addition to other species that were detected during surveys conducted between 2006 and 2017. The objectives of the analysis were to: 1) evaluate the consistency of focal species occupancy patterns with predictions representing their habitat descriptions in the Forest Plan, 2) evaluate whether relationships for other bird species were as consistent or more consistent with habitat descriptions for designated focal species, 3) identify species with occupancy relationships suggesting their potential to serve as focal species for grasslands (a vegetation type currently lacking representative focal species), and 4) identify species relationships with additional environmental attributes not explicitly included in desired conditions to allow better interpretation of population trends.

In the analysis, habitat relationships for the three currently designated focal species largely corroborated their habitat descriptions in the Forest Plan; however other species also exhibited habitat relationships at least as consistent with current focal species habitat descriptions. Grace's warbler and juniper titmouse exhibited habitat relationships largely but not entirely consistent with their habitat descriptions. Mountain chickadee and pygmy nuthatch were identified as potential additional focal species for ponderosa pine forest habitat, black-headed grosbeak as a potential addition for the mature pinyon component of pinyon-juniper habitat, and ash-throated flycatcher as a potential addition for the juniper and snag components of pinyon-juniper forest habitat.

Considering the BCOR analysis, the 2012 Planning Rule definition of focal species, input from district biologists, and specified goals and requirements for identifying focal species the Coconino NF has determined that the following six species are the forest's focal species to be monitored for.

Mexican Spotted Owl

The Mexican spotted owl (MSO) serves as **an indicator of mature late-seral mixed conifer and late-seral ponderosa pine-Gambel oak forests within the ponderosa pine ecological restoration unit (ERU)**. MSO was not looked at in the BCOR analysis since it is a species that is well monitored in this habitat type so further analysis is not needed. As the Coconino NF moves forward with fuels reduction and forest restoration efforts, monitoring the MSO will help evaluate the persistence of the mature mixed conifer and pine-oak ecological conditions that support nesting owls.

Grace's Warbler and Pygmy Nuthatch

Grace's warbler and pygmy nuthatch are proposed as **indicators for open, park-like, mature stands of pure ponderosa pine, and in pine-oak habitats**.

BCOR's analysis found that Grace's Warbler habitat relationships matched its habitat description relatively well. Relationships for Mountain Chickadee and Pygmy Nuthatch, however, suggest they could also represent open, park-like mature stands of ponderosa pine forest at least as well as Grace's Warbler, although perhaps less so pine-oak forests (Latif 2021). The nuthatch exhibited stronger relationships with ponderosa pine and negative relationships with pinyon pine,

suggesting stronger specialization towards pure ponderosa pine forest. Conversely, neither species exhibited supported relationships with Gambel oak, suggesting Grace's warbler may better represent pine-oak forests. Considering these complementary strengths and limitations, monitoring both species may provide better information for evaluating management of ponderosa pine forests than a single species (Latif 2021).

Black-throated Gray Warbler

The black-throated gray warbler is recommended as the focal species for the **mature pinyon component of pinyon-juniper habitats**.

The black-throated gray warbler exhibits the strongest and most consistently positive relationship with pinyon pine compared to its relationships with other tree species and pinyon pine relationships exhibited by other bird species. The analysis showed that numerous other species exhibited relationships with the mature pinyon pine component of pinyon-juniper forests, but there are concerns that the recommended black-headed grosbeak utilizes a variety of habitats so may not serve as a reliable focal species for this habitat type. The literature shows that they may nest in pinyon-juniper but they are not strictly associated with pinyon-juniper, showing a proclivity for nesting in a variety of habitat types (Grinell and Miller 1944, Hill 1995), including deciduous trees in northern and central Arizona. The literature, combined with first-hand knowledge of the species by one of our district biologists, has led us to decide on keeping the black-throated gray warbler as the single focal species for this habitat.

Juniper Titmouse and Ash-throated Flycatcher

Juniper titmice and ash-throated flycatchers are indicators for **late seral pinyon-juniper habitats, particularly the snag component**.

In the BCOR analysis, juniper titmouse and ash-throated flycatcher both exhibited habitat relationships suggesting a similar potential for representing juniper and snag components of pinyon-juniper forests. Juniper titmouse showed positive relationships with juniper and snags, and negative relationships with ponderosa pine, but relationships with pinyon pine and canopy height failed to provide clear evidence for evaluating predictions for this species. There were also unanticipated relationships for Juniper Titmouse with shrubs, ladder fuels, and herbaceous vegetation. The ash-throated flycatcher exhibited relationships consistent with expectations representing the Juniper Titmouse habitat description, along with other relationships not mentioned. Based on the analysis, it is determined that monitoring juniper titmouse and ash-throated flycatcher together may improve focal species representation of late-seral pinyon-juniper forests with snags.

Song sparrow

The song sparrow is recommended as an indicator for **riparian habitat, primarily the ecosystem health of the primary vegetation in the understory in the riparian gallery.**

The song sparrow has been identified as a riparian obligate tied to the understory, with more than 90 percent of its nest and/or abundance occurring in riparian vegetation during the breeding season (Rich 2022). In a study by Rockwell and Stephens (2018), the song sparrow has been identified as an indicator as to whether restoration sites have developed ecologically-functional, early-seral riparian habitat. Input was also gathered from the Prescott National Forest (F. Anaya, personal communication, 2023), which has selected the song sparrow as a focal species for riparian habitat.

This songbird selection was not derived from the BCOR analysis. Since there are very few grid points in the BCOR surveys identified as riparian, the limited number of riparian sites being surveyed makes it difficult to make the data statistically viable. Therefore, surveys for the song sparrow will be conducted by Forest Service personnel instead. The Coconino is committed to performing surveys using similar protocol to BCOR.

No species were selected for **semi-desert, Great Basin, and montane/subalpine grasslands habitats**. The pronghorn antelope was considered for semi-desert grasslands however, focal species are defined as those that provide "meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area." Pronghorn populations are influenced by many factors, such as predation of fawns, availability of water, and competition with elk for forage. As a managed game species, pronghorn numbers may not accurately reflect the species' response to Forest Service management activities. It was determined there is not a single focal species that would serve as a good indicator of semi-desert grassland conditions. Similarly, the Vesper sparrow was considered for Great Basin and montane/subalpine grasslands, but it was determined that monitoring requirements laid out in the Forest Plan would serve as a better indicator of ecological conditions in this habitat type.

Changes to the Forest Plan Monitoring Strategy

Mexican Spotted Owl

The 2012 revised MSO recovery plan recommended that the population be monitored by estimating the rate of site occupancy for a period of 10 years. The Regional Office contracted with Bird Conservancy of the Rockies (BCOR, formerly Rocky Mountain Bird Observatory or RMBO) to conduct a 2014 pilot study implementing the monitoring protocol from the recovery plan. Based on the results of the pilot study, a random subsample of 200 sites was selected on National Forest System lands in Arizona and New Mexico to monitor for the duration of the study. Sixteen of those sites occur on the Coconino NF.

Monitoring Question 21.B. of the Forest Plan Monitoring Strategy, as added in the previous administrative change for focal species, provides for monitoring of MSO habitat:

> **Question:** Are plan components guiding fuels reduction and forest restoration activities maintaining the suite of late-seral ecological conditions within mixed conifer and pine-oak ERUs that contribute to stable or increasing MSO habitat?

Metric: Acres of change in late seral mixed conifer and pine-oak habitats.

Source: Best available remote sensing data (satellite, land cover databases) to measure change in acres. Results from Monitoring Questions 4, 5, and 6. Are plan components guiding fuels reduction and forest restoration activities maintaining the suite of late-seral ecological conditions within mixed conifer and pine-oak habitats that contribute to stable or increasing MSO populations?

This monitoring for MSO will help evaluate the persistence of the mature mixed conifer and pine-oak ecological conditions that support nesting owls.

Grace's Warbler, Pygmy Nuthatch, Black-throated Gray Warbler, Juniper Titmouse, and Ash-Throated Flycatcher

Songbirds are relatively easy to survey because data can be collected on many species at one time. Forest-wide breeding bird surveys were conducted on the Coconino NF by BCOR from 2006-2017 and those surveys were restarted in 2022. BCOR coordinates the Integrated Monitoring in Bird Conservation Regions (IMBCR) in the west. The program uses a statistically rigorous design based on random sampling, and survey data are analyzed using widely accepted statistical methods. With enough samples, the methodology yields robust and statistically sound density and occupancy estimates. The protocol records all birds detected along completed survey transects, so separate monitoring efforts are not required for the five songbird focal species. On the Coconino, survey data have yielded robust occupancy and density estimates for these songbirds. These data serve as a solid baseline for future monitoring and analysis. Continuing BCOR surveys provides a feasible and efficient way to monitor the suite of songbirds being recommended as focal species. The survey methodology incorporates data collection on fine-scale vegetation variables at each point count station, which can be incorporated into data analyses in the future.

Song Sparrow

Similar to surveys that will be conducted by BCOR, Coconino wildlife biologists will conduct presence/absence surveys for song sparrows while they are conducting their annual surveys for the yellow-billed cuckoo. Four sites within the yellow-billed cuckoo survey area will be selected as permanent monitoring locations. Surveys will be conducted annually during peak breeding season (April through August) for the song sparrow. Once the initial survey is conducted, future surveys will be conducted close to that date each year to ensure consistency.

Monitoring Question 20 of the Forest Plan Monitoring Strategy, as added in the previous administrative change for focal species, provides for monitoring of the songbird focal species. It will be modified to include the three songbirds added with this administrative change:

Question: What is the status of the six songbirds identified as focal species (Grace's warbler, pygmy nuthatch, black-throated gray warbler, juniper titmouse, ash-throated flycatcher, and song sparrow)?

Metric: Trends in occupancy (proportion of grid cells occupied across the forest) and density (birds per square kilometer) for each species. To monitor local populations and infer changes

from restoration treatments, changes in cells/routes that had restoration treatments could be compared to untreated cells.

Source: Bird Conservatory of the Rockies (BCOR) Integrated Monitoring in Bird Conservation Regions (IMBCR) data; results of annual presence/absence surveys for the song sparrow; state bird monitoring and long-standing bird monitoring data sets such as the Christmas Bird Count and Breeding Bird Surveys.

The monitoring of the status of these songbird focal species will help evaluate the condition of the associated habitats that support these songbirds, the key ecological conditions and ERUs on the Coconino, and eventually the habitat response to vegetation treatments.

Literature Cited

Grinnell, J., Miller, A.H., 1944. The Distribution of the Birds of CALIFORNIA (No. 27). Cooper Ornithological Club, Santa Clara.

Hill, G.E. 1995. Black-headed grosbeak (*Pheucticus melanocephalus*). In: Poole, A., and F. Gill, editors. The birds of North America, Number 143. Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

Latif, Q. S. 2021. Evaluating avian focal species representation of desired conditions under the Coconino National Forest management plan: Bird Conservancy of the Rockies. Brighton, Colorado, USA.

Rich, T.D. 2002. Using breeding land birds in the assessment of western riparian systems. Wildlife Society Bulletin. 30:1128-1139.

Rockwell, S.M., Stephens, J. L. Habitat selection of riparian birds at restoration sites along the Trinity River, California. Restoration Ecology. 26(4): 767-777.

USDA Forest Service. 2012. National Forest System Land Management Planning. Final rule and record of decision. Federal Register Vol. 77, No. 68, pp. 21162-21276.