**Wildlife Monitoring Information for Forsythe II Multiparty Monitoring Group (MMG)**

In response to Multiparty Monitoring Group (MMG) members’ requests for more information about existing wildlife monitoring efforts on the Forsythe II project area and the Front Range as a whole, Peak Facilitation has compiled the following resource for MMG members to review. The document contains sections with relevant discussion of wildlife monitoring from the US Forest Service’s (USFS’) Forsythe II Environmental Assessment (EA), the USFS’ Forsythe II Final Decision Notice/Finding of No Significant Impact (FONSI), and the Front Range Collaborative Forest Landscape Restoration Plan’s (CFLRP’s) 2017 Monitoring Report. The document is intended to inform MMG members about recent and existing wildlife monitoring efforts in the Forsythe II project area and along the Front Range.

[*From: Forsythe II Environmental Assessment*](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd549691.pdf)

2.6.4 Wildlife

Known raptor nest sites would continue to be monitored for occupancy and reproductive success at least until full completion of all project activities. To maintain as much effective habitat as possible and avoid further reduction, monitor for effectiveness of all closed features (temporary roads, landings, and skid trails).

2.2.1 Alternate Plan:

* The Magnolia Forest Group submitted a plan that would have minimal forest cutting and an emphasis on monitoring and patrols. Specifically, the plan suggested the following actions:
* The Alternate Plan suggests that wildlife monitoring be done prior to any treatment to determine what species are present within the project area along with what habitat is needed for those species to provide a basis for improving wildlife habitat. The USFS assumes presence of species based on habitat type present within the project area. MIS populations are monitored periodically at the Forest level, not the project level. There is Forest Plan direction to protect known raptor nests. Design criteria provide for surveys to be completed prior to implementation for USFS Sensitive raptor species, and protection of nests. Elk are a USFS management indicator species (MIS) and are analyzed, including cumulative effects from other actions across ownerships, in the four action alternatives (see Section 3.6 Terrestrial Wildlife for more information). Analysis for elk includes consideration of the migration corridor, recently updated by Colorado Parks and Wildlife, and design criteria provide for limitation of project activities in important winter range.

[*From: Forsythe II Final Decision Notice/Finding of No Significant Impact*](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd549685.pdf)

Wildlife Implementation monitoring will include:

* Monitoring known raptor nest sites for occupancy and reproductive success at least until full completion of all project activities.
* Monitoring for effectiveness of all closed features (temporary roads, landings, and skid trails) to ensure as much effective habitat is maintained as possible and avoid further reduction.

[*From: Front Range Collaborative Forest Landscape Restoration Plan (CFLRP): 2017 Monitoring Report*](https://cfri.colostate.edu/wp-content/uploads/sites/22/2017/10/2017_FR_CFLRP_Monitoring_Plan_Typeset.pdf)

3.1.4. Wildlife: Developing a wildlife monitoring plan for the Front Range CFLRP has been a complex process involving several phases of work. Clement and Brown (2011) contained suggestions regarding the most informative species and taxa to monitor and recommended an initial focus on recording wildlife sign on common stand exam (CSE) plots before and after treatment. However, neither funding nor consensus on the desired conditions for wildlife were readily available for a full wildlife monitoring effort during the early years of collaborative forest landscape restoration (CFLR) work. With a supplemental grant from the Southern Rockies Landscape Conservation Cooperative, a small group from the LRT initiated wildlife sign surveys on CSE plots in a subset of treated and untreated areas in 2011-13 to evaluate general patterns of wildlife use (Briggs et al. 2017); this pilot study found no significant differences in fresh sign from ungulates or tree squirrels on treated vs. untreated plots one year post-treatment, but concluded that these methods did not provide enough detail on patterns of habitat use or population status and trends to merit adoption for a diverse suite of species or longer time frames. In 2013, a group of specialists from several agencies was convened by the Front Range Roundtable’s (FRRT’s) Landscape Restoration Team (LRT) to evaluate wildlife monitoring options in greater depth and provide recommendations for a full monitoring program. This “Wildlife Working Team” (WWT) met monthly for over a year, and quarterly thereafter, adopting a process, methods, and recommendations that are fully described in WWT report to the LRT (Truex et al. (in preparation)). The first step in the WWT planning process was to develop a comprehensive list of vertebrate species and invertebrate family/genera/species that occur in Front Range montane forests. This was compiled from existing information sources such as the Colorado Natural Heritage Program database, agency “watch lists” (e.g. federally listed species, MIS of the USFS, and USFS Sensitive Species), field guides, and more general species distribution information. More than 300 species were included on this initial list. In the second step, the list was filtered to select species that had the majority of their distribution in the CFLRP landscape footprint, defined as encompassing elevations between 6000 – 10000 feet, from the Colorado/Wyoming border to the city of Colorado Springs, including all habitat associations. This filter narrowed the list to 145 species/groups by removing all those that had only marginal or seasonal overlap with the focal landscape or were known to have been extirpated there. In the third step, the 145 species were categorized and scored according to 3 criteria developed by the WWT (described in more detail in Truex et al. (in preparation)). The criteria included (i) the degree to which each species was “ecologically informative” of the condition of ponderosa pine-dominated forest and had key ecological functions in this ecosystem (Marcot and Vander Heyden 2001); (ii) the “political prudence” of monitoring the species (e.g. status as federally listed under the Endangered Species Act (ESA) or a USFS Sensitive Species) and (iii) the “socio-economic” importance of the species (e.g. game species or popular watchable wildlife). The scores for each species for the 3 criteria were developed based on published literature, agency reports, expert opinion, and extensive discussion among WWT members, resulting in 64 species/groups with high consensus scores. In the fourth and final step, the WWT evaluated the feasibility and desirability of monitoring each of these species/groups, considering factors such as scale and population parameters for measurement; the existence of tested and effective protocols; costs and logistics; and representation of diverse trophic levels. Based on this evaluation, the WWT recommended 12 species/groups to the LRT for full monitoring efforts at either a primary or secondary level. Primary species (“Tier 1”) were four passerine songbirds (mountain bluebird, golden-crowned kinglet, olive-sided flycatcher, and pygmy nuthatch), two woodpeckers (Williamson’s sapsucker and hairy woodpecker), the northern goshawk, and two tree squirrels (Abert’s squirrel and pine squirrel). Secondary species/groups (“Tier 2”) were the flammulated owl, seven bats (big brown bat, hoary bat, little brown bat, long-legged myotis, silver-haired bat, western long-eared myotis and western small-footed myotis), and carabid beetles. After consideration of these recommendations in early 2014, the LRT approved the initiation of an agreement between USFS and the Bird Conservancy of the Rockies (BCR) to monitor most of the Tier 1 species (songbirds, woodpeckers, and tree squirrels as feasible) every other year beginning in summer 2014. BCR follows a well-established protocol for Integrated Monitoring in Bird Conservation Regions (IMBCR; White et al. 2015) that uses point counts to generate estimates of species’ occupancy (percent of sites occupied) and density (number of individuals). For the Front Range CFLR landscape, the IMBCR approach was tailored to represent a spatially balanced design with 60, 1 km² grids sampled each season in each of the two Front Range National Forests (NFs), divided equally among forested areas between 6000 and 9500 feet that were a) slated for CFLR treatment and b) not slated for treatment, respectively. Each grid contains 16 locations for point count surveys, generating a total of 1920 points sampled in each monitoring season (see White et al. 2015 and Truex et al. (in preparation) for more details). In addition to this primary monitoring program, several additional species-specific monitoring steps or decisions were taken. Because the IMBCR protocols involve aural detections of species such as songbirds, woodpeckers, and the pine squirrel, which may not be as effective for less vocal species like the Abert’s squirrel, the WWT evaluated additional methods to monitor Abert’s squirrel. A pilot study was conducted by Colorado Parks and Wildlife (CPW) and USFS in 2014 and 2015 using camera traps and Abert’s squirrel feeding sign surveys at a subset of the IMBCR grids. The camera traps detected a total of 23 wildlife species at 10 grids in treatment areas and 10 in untreated areas on each of the 2 NFs. To monitor the Northern Goshawk, a USFS-designated Sensitive Species, the WWT recommended that existing USFS protocols be followed in 2017 and every 5 years thereafter. Despite this recommendation, the WWT has decided to forego Northern Goshawk due to competing monitoring interests. For the “Tier 2” wildlife, the WWT recommended that monitoring be undertaken by partner agencies or institutions, rather than funded and conducted under the CFLRP work plan, given the specialized methods or expertise needed to effectively monitor the status of these species/groups. In summary, as of spring 2017, two full seasons of monitoring Tier 1 wildlife have been completed by BCR via a USFS contract at 120 sites across the CFLR landscape (2014 and 2016) and two pilot seasons of camera trapping have been completed by CPW and USFS personnel at a subset of 40 sites (2014 and 2015). For additional information, see the attached presentations from the Bird Conservancy of the Rockies on using analysis to inform management and navigating the Conservancy’s online data viewer.