WILDLIFE MONITORING FOR THE COLLABORATIVE FOREST RESTORATION PROGRAM

Protocols for Monitoring Birds, Turkey, Deer and Elk

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Introduction

Wildlife responds to changes in the natural landscape. Changes resulting from restoration treatments on Community Forest Restoration Program projects may improve habitats for some species and degrade habitats for others, causing changes in the composition and abundance of wildlife on the treated site. The following procedures are designed to monitor changes in populations of selected breeding birds, mule deer, elk, and wild turkeys following forest treatments. Monitoring must begin before the treatment to establish the "baseline" condition, in order to establish the population levels in the untreated forest.

We here suggest three protocols that can be used to monitor wildlife on CFRP projects; 1) bird abundance and composition trends, 2) deer and elk populations trends, and 3) wild turkey population trends. Other wildlife protocols have been developed by others, for example, butterfly monitoring protocols developed by the Ecological Restoration Institute at Northern Arizona University. These three protocols may be used separately, or together as a set.

To minimize the number of community volunteers and time required to accomplish wildlife monitoring, the following procedures have been designed so that data for most species being monitored can be collected on the same trip to the site.

Permanent transects for monitoring deer and elk populations should be established as soon as is feasible after the start of the project. GPS locations will aid greatly in later relocation and replacement (if necessary) of transects. Notes should be taken on the location of the first point in each transect line and the compass bearings for navigating from point to point along transects. Transects should be relocated soon after the completion of the forest treatment and remarked if necessary.

Data may be entered on paper forms or electronically on a handheld computer/GPS unit loaded with CyberTracker software. For more information about CyberTracker technology, please visit the official website: http://www.cybertracker.co.za/. To borrow a GPS Unit with Cybertracker software for use on a CFRP project, see the Note* at the end of the methods .

These protocols are intended to be used by community groups to monitor forest restoration projects, specifically Collaborative Forest Restoration Program projects. Done carefully, they will yield

reliable information, useful for collaborative learning and adaptive management. The development of the protocols was supported as part of a CFRP grant to The Conservation Fund to conduct a forest restoration on the Rowe Mesa Grass Bank.

Bird Species Abundance and Composition

Materials needed: Binoculars, North American birds field identification guide, and paper data forms or hand-held computer/GPS unit with CyberTracker software.

Birds to be monitored: Each CFRP project will want to monitor a set of birds that are chosen for a reason specific to the project goals. A CFRP project may use different bird species than those included here. This example monitored the following common birds of New Mexico Ponderosa pine and pinon-juniper forests: **Spotted Towhee, Mourning Dove, Brown-headed Cowbird, Western Bluebird, White-breasted Nuthatch, and Northern Flicker.** These birds have distinctive plumage and songs making them relatively easy to identify in the field. Projects should choose for themselves which birds to monitor.

Training of monitoring personnel: Community members who conduct bird monitoring surveys should be skilled in bird identification, preferably by both sight and call/song. If necessary, sometime around the first of May a workshop may be held to train the bird observers. Local or regional birding experts, staff of regional non-profit bird conservation organizations, or government or tribal wildlife staff may be recruited to conduct this training. Training should include identification of the birds to be monitored by both sight and sound; methods for establishing the sampling stations; field methods for bird monitoring; and methods of data recording. If necessary, practice in identifying birds in the field may greatly enhance the training exercise.

Monitoring protocol: A "point count" method will be used to monitor changes in the abundance and composition of birds selected from the list above.

A "point" is a place where an observer stops to record the presence of birds. Beginning within one-half hour before sunrise and standing at the edge of the forest (meadows are excluded), the observer establishes a compass bearing into the heart of the project area. The observer then walks at a steady pace for 6 minutes following the compass bearing and stops. This establishes the first point, and the survey procedures below will be conducted at each point. Successive points will be established in the same way until the opposite edge of the project area is reached. Then the observer will follow the edge of the project area for 6 minutes and repeat the above procedure moving back

into the project area for another 6 minutes along an opposite bearing (180 degrees different) than before to establish the next point. This track will be roughly parallel to the previous one but heading in the opposite direction. This procedure should be repeated for up to 20 points, but must be completed no later than 4 hours after sunrise.

Upon arriving at each counting point, one trained observer will identify all different individuals of the species selected for monitoring observed (by sight or sound) within a period of 5 minutes. Other people may be present to record data, keep time, learn the procedure, or just enjoy nature; but for the sake of consistency, they should not contribute to the counting of birds. On the paper data form or data entry device (using CyberTracker) record birds within the following distance brackets: 0-25 yards, 25-50 yards, and beyond 50 yards. Care should be taken to avoid recording the same bird more than once. Some training in the estimating of distances may be necessary.

Bird surveys should be conducted on three (3) separate days between May 15 and June 30—the breeding season. If possible, the same observers should conduct each of the three surveys. These measures will improve the consistency of data collected. Surveys should not be conducted if it is raining or if the wind is strong enough to keep the leaves and twigs of trees in constant motion (8-12 mph). Such weather conditions suppress bird activity.

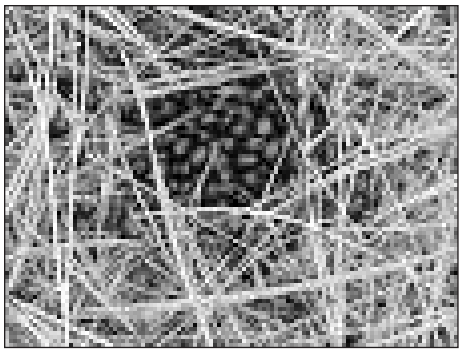
Recording data: Data may be recorded on paper data forms. Make copies of the data forms at the end of this document to take into the field. Or, data may be recorded on a hand-held computer/ GPS unit pre-programmed with the CyberTracker software. Data should be downloaded to a computer after each sampling trip. Take paper data forms into the field even when using a GPS unit, as a backup if the computerized data entry equipment is not available or battery power runs out.

Duration of monitoring: Monitoring should be conducted before the beginning of the treatment (baseline) and after completion of the treatment. Monitoring beyond the end of the project will increase the chances of documenting trends in bird populations over time.

Analysis: Data to be compared from year to year will be: number of different species observed; number of individuals of each species; and total number of birds.

Interpretation: In general, an increase in the number of native birds that were historically found in open ponderosa pine stands should be expected in the years after forest restoration. It may also be considered important to track the abundances of exotic bird species or birds, such as the brown-headed cowbird, considered detrimental to other native birds species.

Mule Deer and Elk Population Trends



Materials needed: Long measuring tape, 24 two-foot long, 1/2-inch wide rebar stakes, hammer, knife or scissors, 2000 feet of brightly colored cord, flagging ribbon, GPS unit, and paper data forms or hand-held computer with CyberTracker software.

Establishment of transects: Four to six 300-foot long transects should be established. Starting at the edge of the woods, move at least 300 feet into the heart of the project area and drive the first stake. Record the GPS coordinates of this location and mark the stake and a nearby tree with flagging ribbon. Generally following a compass bearing into the heart of the project area, set stakes at 100, 200, and 300 feet from the starting stake. At 300 feet, again record the GPS coordinates of this location and mark the stake and a nearby tree with flagging ribbon. Tie the cord to the beginning stake and lay it fairly taught at ground level between all the stakes (wrapping it several times around stakes 2 and 3) and tie it to the end stake. The cord should be threaded under forest debris and periodically weighted down with sticks or rocks (or staked down with "U" shaped stakes) to keep it snug to the ground. This will minimize the possibility of forest animals or forces of nature moving the cord. These transects do not need to be perfectly straight. Take advantage of natural pathways through the woods that generally follow the compass bearing to avoid having to crash through thick patches of brush. Successive transects should be at least 300 feet from and generally parallel to previous transects. Each transect consists of a 10-foot wide swath of ground on each side of the cord (total transect width = 20 feet). Thus, each transect provides a sample of 6,000 square feet (300' x 20') of the forest floor.

Training of monitoring personnel: Community members who conduct mule deer and elk monitoring surveys should be skilled in identifying the pellets (scat) of mule deer and elk. Hunters and amateur naturalists generally have this skill. If necessary, sometime around the first of May a workshop (combined with the bird identification workshop) should be held to train the observers. Government agency or tribal wildlife biologists or local hunters or naturalists may be recruited to conduct this training. Training should include scat identification, methods for establishing the sampling stations, field methods for pellet counting, and methods of data recording.

Monitoring protocol: A "pellet count" method will be used to monitor changes in mule deer and elk use of the treated area.

All transects must be cleared of pre-existing pellets prior to being "read" for new pellets. The period between clearing and reading of the plots should include the primary season of use (summer, winter, year-round) by deer and elk on the area and should be about the same for each monitoring period. Record the date of the plot clearing. For areas that are primarily winter range for deer and

elk, transects should be cleared in the fall and read in late spring or early summer. For areas that are primarily summer range for deer and elk, transects should be cleared in late spring or early summer and read in the fall. For areas used year-round by deer and elk, transects should be cleared one year (or for as long a period as is feasible) prior to being read. The dates that transects are cleared and read must be recorded.

Mule deer and elk pellet counts may be conducted after one of the bird counts to avoid an extra trip to the site. Count the total number of "groups" of pellets occurring within transects and record data for mule deer and elk separately. A group is any cluster of 5 or more pellets that is not connected by scattered pellets to another such group—if clusters are connected by scattered pellets, count as one group. A group on the outer edge of the transect is counted if half or more (estimated) of its pellets are within 10 feet of the transect center line (cord).

Recording data: Data may be recorded on a hand-held computer/GPS unit pre-programmed with the CyberTracker software.* Data should be downloaded to a computer after each sampling trip. Use paper data forms as a backup if the computerized data entry equipment is not available or battery power runs out.

Duration of monitoring: Monitoring should be conducted before the beginning of the treatment (baseline) and following completion of the treatment. Monitoring beyond the end of the project is encouraged and will increase the chances of documenting trends in mule deer and elk populations over time.

Analysis: Data to be compared separately for mule deer and elk will be: number of pellet groups divided by the number of days from the clearing of the plot to the counting of the pellet groups. If the time periods between clearing and reading are exactly the same for each monitoring session (baseline and post-treatment), then the step of dividing by the number of days can be skipped and the actual number of pellet groups counted can be compared directly.

Interpretation: Both deer and elk populations can be expected to increase as the grass/forb and shrub understory cover becomes more abundant over time after thinning and burning. Monitoring deer and elk numbers tracks the increase or decrease of deer and elk at a project site during and after the forest stand is restored.

Wild Turkey Population Trends

Materials needed: Paper data forms or hand-held computer/GPS unit with CyberTracker software.

Training of monitoring personnel: Community members who conduct wild turkey monitoring surveys should be skilled in identifying signs of wild turkeys. Hunters and amateur naturalists generally have this skill. If necessary, sometime around the first of May a workshop (combined with the bird identification workshop) should be held to train the observers. Government agency or tribal wildlife biologists or local hunters or naturalists may be recruited to conduct this training. Training should include scat, track, and roost tree identification; methods for establishing the sampling transects; and methods of data recording.

Monitoring protocol: A "timed search" method will be used to monitor changes in wild turkey use of the treated area.

The observer or observers will follow a path of their choosing through the heart of the wooded portion of the project area for 2 hours and record turkey sign as they find it. Sign to be recorded will include scat, tracks, adult birds, broods, and roosts. Care should be taken not to duplicate observations such as counting the tracks of the same turkey more than once.

Recording data: Data may be recorded on a hand-held computer/GPS unit pre-programmed with the CyberTracker software. Data should be downloaded to a computer after each sampling trip. Use paper data forms as a backup if the computerized data entry equipment is not available or battery power runs out.

Duration of monitoring: Monitoring should be conducted before the beginning of the treatment (baseline) and following completion of the treatment. Monitoring beyond the end of the project is encouraged and will increase the chances of documenting trends in turkey populations over time.

Analysis: Data to be compared from year to year will be: number of droppings, tracks, adult birds, broods, and roost trees observed.

Interpretation: Turkey population can be expected to benefit from features that may result from forest restoration: an increase in grass and forb understory cover, an increase in oak/acorn abundance, future production of roost trees, and piled slash that may be left for nesting. Tracking turkey abundance after treatment can reflect success in these forest restoration features.

New Mexico Forest and Watershed Restoration Institute

The New Mexico Forest and Watershed Restoration Institute at New Mexico Highlands University is dedicated to providing state-of-the-art information about forest and watershed restoration to the public, federal and state agencies, tribes, and private landowners in New Mexico. To accomplish this, the Institute collaborates with citizen stakeholders, academic institutions, NGOs, and professional natural resources managers to establish a consensus concerning prescriptions and monitoring protocols for use in the restoration of forests and watersheds in an ecologically, socially, and economically sound manner. Through research and collaboration, the Institute promotes ecological restoration and forest management efforts in ways that 1) will keep New Mexican homes and property safe from wildfire, 2) will lead to a more efficient recharge of New Mexican watersheds, and 3) will provide local communities with employment and educational opportunities.