THREATENED AND ENDANGERED SPECIES (T&E)

Key Points

Canada lynx

- Natural Resources Research Institute (NRRI) researchers captured and collared 33 lynx on the Superior National Forest (SNF) from 2003-2008.
- NRRI Lynx Annual Monitoring Report has an in-depth discussion of the persistence and abundance of lynx in Minnesota and how this relates to their status.
- Management activities on all projects from 2004-2008 complied with Forest Plan direction for lynx and either had no effect or were not likely to adversely affect lynx. US Fish and Wildlife Service (USFWS) concurred with all these findings.

Gray Wolf

- De-listed from federally threatened status by USFWS in 2007 and placed back on the list in 2008. Management activities on all projects from 2004-2008 complied with Forest Plan direction for threatened and endangered species and either had no effect or were not likely to adversely affect wolf or adversely modify wolf critical habitat.

A. MONITORING AND EVALUATION

Forest Plan Direction

This monitoring was conducted to address Forest Plan Objective: O-WL-4 Maintain, protect, or improve habitat for all threatened and endangered species by emphasizing and working toward the goals and objectives of federal recovery plans and management direction in the Forest Plan and Forest Plan Objective: O-WL-6 Reduce or eliminate adverse effects on threatened and endangered species from the spectrum of management activities on NFS land.

Monitoring Conducted

Conservation and Recovery of Species Habitat Objectives and Population Trends
In 2008 the Superior National Forest (SNF) gave special attention to the conservation and recovery of the two federally listed threatened and endangered species occurring on the Forest: gray wolf and Canada lynx. Most projects that may affect these species habitat have been designed to maintain, protect or improve that habitat. All were successfully developed to reduce or eliminate adverse effects.

<u>Canada Lynx</u>
Canada lynx (Figure 9d.1) was listed as a threatened species in 2000 and since then the SNF has been involved in monitoring lynx and its habitat. From 2004-2008 the main sources of information about Canada lynx on the SNF included the following:

- The Canada lynx study has been designed to address key questions about Canada lynx in the Western Great Lakes including distribution, habitat use, prey

availability, abundance and persistence. This information is needed to effectively contribute to the recovery and conservation of lynx. Study methods are described in detail in the annual study progress report available online at the following address: http://www.nrri.umn.edu/lynx/. These methods have included collecting information on distribution, snow tracking lynx, tracking on the ground and in the air radio-collared lynx, studying habitat use, collecting and analyzing genetic samples (for example, from hair or scat) and conducting pellet counts of snowshoe hare (primary prey).

- Snow tracking surveys (Figure 9d.2) are conducted when needed, usually by snowmobile, to look for presence of lynx in project areas or where there have been reports of the animal. Scat, hair or other genetic material is also collected to answer questions of presence, distribution, numbers and persistence of individuals.
- A pilot project was started in 2006 on the SNF to establish permanent snow tracking routes across the Forest. The main objective was to develop a standardized, repeatable survey to monitor lynx population indices and trends.
- In 2008 the SNF started putting together a database of all DNA samples submitted to the lab for analyses since 2002. All lynx DNA locations will then be put into a Geographic Information System (GIS) layer which will be updated on an annual basis.
- Habitat conditions for lynx are monitored using forest vegetation indicators of foraging, denning, and connectivity and security. As indicators of potential human disturbance and competition from other carnivores (such as bobcat), road and trail density, miles and effectiveness of road closures are also monitored.
- Habitat conditions, effects of management activities, and all that is known about lynx ecology on the SNF are evaluated for every ground-disturbing project on the Forest in a Biological Assessment (BA) for the projects. This information is used to determine whether projects are in compliance with Forest Plan direction for lynx.

Gray Wolf

In 2007, the gray wolf (Figure 9d.3) was removed from the US Fish & Wildlife Service's (USFWS) list of endangered and threatened wildlife established under the Endangered Species Act of 1973. In 2008, a court ruling placed the gray wolf back on the list of endangered and threatened species until further analysis was completed.

Monitoring activities conducted for the gray wolf are described in the MIS section of this report.

Evaluation and Conclusions

Canada Lynx

NRRI researchers have captured and collared 33 lynx on the SNF. Over 15,000 locations of collared animals have been made, which have led to den sites, patterns of movement and habitat use. Of the 33 radio-collared lynx, 17 of them are deceased. There were no confirmed deaths of the five radio collared lynx in 2008. The causes of death during this

project were varied, with 13 of the 17 deaths probably related to humans. Lynx have maintained a continuous presence since 2003. At least 78 individual lynx have been identified genetically through 2007 with additional samples to be submitted this year.

The Natural Resources Research Institute (NRRI) had three animals radio collared at the start of 2008 in Minnesota and by the end of 2008 only two male lynx had functioning transmitters. They could not locate the last transmitting radio collared female (L31) after April 2008. There were two additional radio collared lynx (one male and one female) with transmitting collars located in Ontario in May 2008.

The 2008 NRRI Lynx Annual Monitoring Report has an in-depth discussion of the persistence and abundance of lynx in Minnesota and how this relates to their status.

Figure 9d.4 shows the distribution of lynx from the radio-collared locations. The 2007 Monitoring and Evaluation (M&E) Report shows the distribution of lynx in the Western Great Lakes region.

From 2004-2008 project specific snow tracking surveys were conducted for five of the nine landscape-scale vegetation management projects (Dunka, Mid-Temperance, Whyte, Tracks and Echo Trail). Tracks, confirming lynx presence, were found in Dunka (three lynx) and Whyte (one or two lynx tracks seen may have been the same individual). Project-specific monitoring wasn't necessary on the other four projects since the lynx study had already confirmed presence.

A total of 25 DNA samples were collected and analyzed in 2008. Quality DNA was obtained from 23 of these samples. Eleven unique individuals were identified. Six of these were new individuals to the DNA database and five were recaptures of previously known individuals. DNA collection will continue in 2009.

During Forest Plan revision the SNF and USFWS agreed upon indicators of habitat conditions that would address lynx risk factors. Vegetative habitat indicators include the amount of habitat suitable for snowshoe hare (primary prey) and red squirrel (secondary prey), amount of habitat not suitable for snowshoe hare, denning habitat, and connectivity habitat. These are monitored for an annual "snapshot" of conditions. Data were also updated for each of the nine landscape-scale vegetation management projects that were decided between 2004 and 2008 to ensure best available information was used to plan and analyze the projects. Since 2004 all nine of the projects (Virginia, Tomahawk, Dunka, Inga South, Mid- Temperance, Whyte, Cascade, Devil Trout, and Echo Trail) maintained, protected or improved habitat indicator conditions for lynx. Appendices E1 and E2 include information on lynx habitat conditions and Forest Plan standards and guidelines.

Roads and trails, selected indicators of human disturbance and competition from bobcats, have also been monitored on an annual basis. Since 2004, an effort has been made to update the roads database. This process has revised incorrect mileage, deleted roads that

did not actually exist and changed jurisdictions on roads. These edits were primarily done on Objective Maintenance Level (OML) 1 and 2 roads which accounts for much of the difference between 2008 and prior years.

Since 2004 the miles of OML1 and 2 roads have increased. Existing and planned OML 1 road miles are consistent with Forest Plan projections. Existing and planned OML 2 road miles currently exceed the miles projected for 2014 (Transportation section of this report). This increase is due to a number of factors including edits to errors in the database and assigning unclassified and OML 1 roads to OML 2 roads. No new OML 2 road construction was approved in 2008 decisions.

The Forest Plan objective is to have no unclassified roads. The SNF will strive to meet this objective by implementing Forest Plan direction to either add these roads to its system or to decommission them. The Travel Management project (TMR) began in 2008 (scheduled to be implemented in 2009 or later). It will make decisions on all unclassified roads on the Forest. Appendix D2 includes the effects of the TMR proposed action on road density by Lynx Analysis Unit (LAU) (Transportation section of this report).

The Forest Plan has objectives to maintain habitat connectivity to reduce road mortality and to identify, map and maintain linkage areas. This is currently done at the project level. For example, the Glacier project considered connectivity during development and identified LAU 8 (Fernberg Corridor) as an important linkage area between two portions of the Boundary Waters Canoe Area Wilderness (BWCAW). Through the project design several large patches of mature forest were maintained to ensure adequate connectivity between the two portions of the BWCAW.

A quick Forest-wide look at connectivity is done annually by calculating the percentage of total habitat with canopy closure (Appendix D1). The 2008 data show an adequate amount of canopy closure on all LAU's (only one LAU is below 80%).

Since 2004, 32 projects have been developed to implement the Forest Plan (through 2008). Most of the nine landscape-scale vegetation management projects (Virginia, Dunka, Tomahawk, Inga South, Devils Trout, Mid Temperance, Whyte, Cascade, and Echo Trail) were designed, in part, to benefit lynx by maintaining or providing for future suitable habitat. All projects were either not likely to adversely affect lynx or were expected to have no effect. All projects were in compliance with relevant Forest Plan management direction, including standards and guidelines.

The SNF consulted with the USFWS on any project that had the potential to affect lynx, and in all cases they concurred with SNF determinations and affirmed compliance with the Forest Plan. The findings are documented in a BA for each project and are available online at the following address: http://www.fs.fed.us/r9/forests/superior/projects/.

Gray Wolf

See the MIS chapter of this report for further information on wolf population, habitat trends and management impacts.

Since 2004, 32 projects have been developed to implement the Forest Plan (through 2008). Most of the nine landscape scale vegetation management projects were designed to benefit wolf by maintaining or providing for future suitable habitat. Of the 32 projects outside the BWCAW since 2004, 19 did not adversely affect wolves and 20 projects had no effect. All projects were in compliance with relevant Forest Plan management direction, including standards and guidelines.

The SNF consulted with the USFWS on any project that had the potential to affect wolf, and in all cases they concurred with SNF determinations and affirmed compliance with the Forest Plan. The findings are documented in a BA (for each project) and are available online at the following address: http://www.fs.fed.us/r9/forests/superior/projects/.

These successful management efforts, together with similar efforts by partners from the previous thirty or more years, have helped contribute to the successful recovery of the gray wolf. Refer to the USFWS final rules for de-listing for additional background and rationale (USDI, Fish and Wildlife Service. 2007a, 2007b).

If wolves are de-listed in the future, the status of wolf will be changed to a Regional Forester Sensitive Species (RFSS) for at least five years post-delisting. As a sensitive species, it would continue to receive special management emphasis, but Forest Plan objectives would change from recovery (Forest Plan Objective O-WL-4, p. 2-29) to maintaining, protecting or improving habitat (O-WL-18, p. 2-31) and preventing a trend back toward listing (G-WL-11, G-WL-12, and S-WL-5, pp, 2-31-32). The SNF would continue to implement the protective guidelines of the former recovery plan, per Forest Plan direction in S-WL-4 (p. 2-31). For example, the SNF would continue to manage for prey species habitat and maintain high standard roads at no more than one mile per square mile. Whenever wolves are delisted, monitoring wolf populations and their habitat would continue as a RFSS and a management indicator species in the Forest Plan.

B. REFERENCES

Moen, R., G. Niemi, and C.L. Burdett. 2008. Canada Lynx in the Great Lakes Region. NRRI Technical Report No. NRRI/TR-2008-14 Release 1.0. 52pp.

United States Department of Interior: Fish and Wildlife Service. 2008. Final rules for de-listing the Gray Wolf; 200pp.

Figure 9d.1. Canada lynx kitten.

Figure 9d.2. Canada lynx tracks.

Figure 9d.3. Gray wolf.

Figure 9d.4. Telemetry locations of lynx captured as of December 2007 (Moen 2009) in Minnesota and Canada.