# Appendix F - Procedures for Lynx Habitat and Lynx Analysis Unit Mapping

## Lynx Habitat Mapping:

1) Information contained in the Science Team Report (Ruggiero et al. 2000a) provides the starting point for lynx habitat mapping. The outer boundary that should be used for each geographic area is shown in Chapter 8 (McKelvey et al. 2000): Figs 8.20 for western U.S., Fig. 8.22 for the Great Lakes, and Fig. 8.23 for the Northeast (these are combined into the insert map entitled "Vegetation Types and Elevation Zones Associated with Lynx Occurrences"), with the following exceptions.

In southern Colorado, the Rocky Mountain Conifer Forest type as depicted in Fig. 8.19 should be added to the outer boundary. These areas were lost in the transition to Fig. 8.20 due to vagaries of the Kuchler delineations of vegetation subtypes, rather than lack of historical occurrences (K. McKelvey, pers. comm. 2000).

2) In the western U.S., lynx occurrences generally are found only above 4,000 ft. elevation (McKelvey et al. 2000). Areas below 4,000 ft. usually should be excluded. Note that elevation ranges are specified in the geographic area descriptions in the Lynx Conservation Assessment and Strategy. (8,000 to 12,000 feet in the Southern Rockies).

3) Within the boundaries defined by the first two steps, map vegetation that could contribute to lynx habitat, as described for each geographic area in the Lynx Conservation Assessment and Strategy, using the finest-scale vegetation information that is available. The following clarifies primary and secondary vegetation for the western U.S.

- Mesic subalpine fir forests in the western U.S. are extensions of boreal forests. Subalpine fir habitat types dominated by cover types of spruce/fir, Douglas-fir, and seral lodgepole pine should be mapped as primary vegetation. These types must be present to support foraging, denning and rearing of young.
- Other cool, moist habitat types (e.g., some Douglas-fir, grand fir) may contribute to lynx habitat where intermingled with and immediately adjacent to primary vegetation. These types are described as secondary vegetation.
- Lynx do not appear to be associated with dry forest habitat types (e.g., ponderosa pine, dry Douglas-fir, and dry or climax lodgepole pine) except to move among mesic stands (Ruggiero et al. 2000b). These dry types should not be included as vegetation contributing to lynx habitat.

4) The next steps are to identify lynx habitat within a Lynx Analysis Unit (LAU), which involves consideration of several additional factors:

- Determine whether the amount and spatial arrangement of vegetation is sufficient to warrant delineating a LAU (amount, patch size, inter-patch distance).

- Evaluate land ownership pattern (to assess feasibility of achieving lynx conservation objectives on federally administered lands, to determine appropriate size and configuration of the LAU, etc.).
- Review occurrence records of all types to assess validity of identifying the area as lynx habitat – location, pattern, consistency, and year in relation to Canadian population cycles. Evaluate the records as described in Chapter 8 (McKelvey et al. 2000). Lack of records in an area does not necessarily indicate lack of habitat; conversely, detections do not necessarily indicate lynx habitat. Independently, occurrence records indicate only occurrence. Collectively, as a data set, occurrences can reveal habitats that likely are important to lynx.
- Snow depth information may be useful to exclude ungulate winter ranges and areas that do not retain adequate snow cover during the winter.

National Forest Units in the SRMGA started mapping lynx habitat in January and February of 2000, based on habitat descriptions from the LCAS, and initially used the internal Ryke and Buell protocol developed in 1999 as a starting point (Ryke and Buell 1999). Further refinements were made based on the August 22, 2000 memo from the Lynx and Wolverine Steering Committee. Each forest unit documented their specific criteria and rationale for LAU boundaries and lynx habitat. Coordination of mapping was done with adjacent administrative units and state wildlife agencies where appropriate. Lynx habitat, Lynx Analysis Units and linkage areas were coordinated with the US Fish and Wildlife Service, to achieve as much consistency as possible, given the different habitats within the SRMGA. Coordination meetings were scheduled in February, 2000, on each forest, with the lead lynx biologists for the US Fish and Wildlife Service and the US Forest Service in attendence, to review and provide recommendations or comments on each forest's lynx habitat mapping. Further instructions for the Southern Rockies habitat mapping were given including the following LAU boundary instructions:

## LAU boundaries:

1) Eliminate large areas of non-lynx habitats (primarily at lower elevations), and

2) Eliminate areas of potentially suitable lynx habitat (based on vegetation type alone), which have conditions due to isolation or climate that result in the habitat not being capable of producing lynx winter foraging habitat or denning habitat in the long term. Examples of this include the "dry" lodgepole habitat classifications and the extensive stands of pure, stable aspen.

Forest's lynx habitat maps were once again reviewed in December, 2001 by the lead lynx biologists for the US Fish and Wildlife Service (both Colorado and Wyoming) and the US Forest Service, Region 2 and accepted.

# References

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