

1.0 INTRODUCTION

PURPOSE

The purpose of this programmatic biological assessment (BA) is to assess the potential effects to the Canada lynx (*Lynx canadensis*) from management actions included in 7 Resource Management Plans (RMPs) of the Wyoming Bureau of Land Management (BLM). Specific objectives of this biological assessment include the following:

- Summarize the biology of the lynx, including historic records and recently-mapped Lynx Analysis Units (LAUs) and habitat on BLM land in Wyoming;
- Review pertinent RMPs and identify proposed actions with the potential to affect the lynx;
- Assess the potential effects of management actions proposed in the RMPs on the lynx;
- Prepare effects determinations for the lynx for each management action in each RMP; and
- Develop conservation strategies, including best management practices, designed to protect and conserve the Canada lynx.

The analysis area for each management action is based on the boundaries specified in the individual RMPs for the field office (FO). These boundaries are described in the analysis section for each RMP and shown in **Maps 1 - 8**. The determination for each management action is based on the nature of that action and on the available lynx data for the area affected.

REPORT ORGANIZATION

This report is organized into four sections, including the following:

1.0 Introduction – describes the purpose of the analysis, the scope of the biological assessment, the action area, and the methods.

2.0 Species Information – summarizes the current listing status, ecology, abundance, distribution, and threats to the lynx in Wyoming.

3.0 Analysis of Resource Management Plans – presents a summary of all the management actions at the front of the chapter, thus eliminating the need to repeat this information in the discussion of each FO; a list of impact minimization measures; a review of the Canada Lynx Conservation Assessment Strategy (Ruediger et al. 2000) and Lynx Analysis Units; for each FO, a list of existing conservation measures, an analysis of effects from each of the management prescriptions, and a determination specific to each management program for each RMP.

4.0 Conservation Strategies – provides a list of binding Conservation Measures and non-binding Best Management Practices. These were derived in large part, but not entirely, from the Canada Lynx Conservation Assessment Strategy (Ruediger et al. 2000). These are considered to be the best science available, and are widely accepted as comprehensive and targeted for lynx.

METHODS

Each management action within 7 RMPs (**Table 1**) was reviewed to identify those with the potential to affect the lynx. For the Snake River Resource Area of the Pinedale FO, management actions from the Final Environmental Impact Statement (EIS) were evaluated. Lynx occurrence data were obtained from the Wyoming Game and Fish Department and Wyoming Natural Diversity Database (WYNDD). Lynx information was evaluated and potential effects from the management actions were analyzed. Management actions were evaluated in terms of their potential to directly and indirectly affect the lynx. The binding Conservation Measures listed in Section 4 are considered to be operant in the analysis of effects and determinations. State, private, local, and tribal activities were also evaluated to assess their potential to cumulatively affect the lynx.

Field Office	Resource Management Plan (Year Published)
Cody	Cody Resource Area Resource Management Plan (1990a)
Kemmerer	Kemmerer Resource Management Plan (1986)
Lander	Lander Resource Management Plan (1987)
Pinedale	Pinedale Resource Management Plan (1988)
Rawlins	Great Divide Resource Management Plan (1990b)
Rock Springs	Green River Resource Management Plan (1997)
Worland	Grass Creek Resource Management Plan (1998)

After potential effects were identified, the results were used to establish a determination for each management action under each RMP. Determination categories considered as part of this BA include the following:

- **No effect;**
- May affect, but is **not likely to adversely affect** due to:
 - Beneficial effects,
 - Discountable effects, and/or
 - Insignificant effects; or
- May affect, is **likely to adversely affect**.

These determinations are further defined in the U.S. Fish and Wildlife Service (USFWS) Endangered Species Consultation Handbook (USFWS 1998), as summarized in the following text.

“No effect” means there are absolutely no effects to the species and/or its critical habitat, either positive or negative. A “no effect” determination does not include small effects or effects that are unlikely to occur. If effects are insignificant (in size) or discountable (extremely unlikely), a determination of “not likely to adversely affect” is appropriate.

“Not likely to adversely affect” means that all effects to the species and/or its critical habitat are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without adverse effects to the species or its critical habitat. (For example, there cannot be “balancing,”

where the benefits of the action would outweigh the adverse effects.) Insignificant effects relate to the size of the impact and should not reach the scale where take occurs. Discountable effects are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur (USFWS 1998). Determinations of “not likely to adversely affect, due to beneficial, insignificant, or discountable effects” require written concurrence from the USFWS.

“Likely to adversely affect” means that the action would have an adverse effect on the species and/or its critical habitat. Any action that would result in take of an endangered species is considered an adverse effect. A combination of beneficial and adverse effects is still considered “likely to adversely affect,” even if the net effect is neutral or positive. Adverse effects are not considered discountable because they are expected to occur. The probability of occurrence must be extremely small to qualify as a discountable effect. Likewise, an effect that can be detected in any way or that can be meaningfully articulated in a discussion of analysis results is not insignificant: it is an adverse effect. This determination requires formal consultation with the USFWS.

Lynx habitat mapping was conducted on two different scales: Lynx Analysis Units (LAUs) were first developed by using 5th and 6th level Hydrologic Unit Codes, as outlined in the Lynx Conservation Assessment Strategy (LCAS) (Ruediger et al. 2000), and extending FS LAUs out onto BLM land where appropriate habitat occurred. This resulted in FS and BLM boundaries being matched up at the borders of the two agencies. In some instances, habitat occurred not adjacent to FS land, and these were mapped as stand-alone units. This effort was conducted by FO staff.

Once the boundaries of the LAUs were established, and the boundaries of those LAUs matched those of the U.S. Forest Service (USFS), the habitat mapping within LAUs on BLM lands was conducted through the use of image processing techniques. Landsat Thematic Mapper (Landsat 7) images were used to identify vegetation types within the LAUs using unsupervised classification. Through this process BLM was able to distinguish between areas of defined habitat (e.g., conifer forests, etc.) and non-habitat or “unsuitable areas” (e.g., lakes, alpine tundra, and other areas not considered to be capable of providing lynx habitat) on all BLM administered lands within LAUs. This process did not account for other criteria or factors, such as big-game winter ranges and slope, in defining habitat. No effort was made using the image processing technique to determine suitability conditions of the areas identified as lynx habitat.

The next step in completing the process of mapping and revision of the LAUs on BLM administered lands is to ground-truth the vegetation/habitat mapping to achieve a refined and more supervised classification of vegetation types, and therefore better habitat maps. This will serve to better represent all lynx habitat within LAUs.

A subsequent step yet to be conducted is the process of identifying and delineating acreages of lynx habitat in suitable condition and in unsuitable condition. The latter include mapped lynx habitat in early successional stages as a result of recent fires, vegetation management, beetle kill, or other disturbance (anthropogenic or natural) where the vegetation is not in a condition to support snowshoe hare populations during all seasons.