

## Foothills Landscape Management Forum – Quicknote 6

February 2009 Compiled by: Chantelle Bambrick

# Lineal Inventory of the Little Smoky Caribou Range

## Background

The Foothills Landscape Management Forum (FLMF) requires an inventory of historical lineal disturbances (most commonly seismic lines) caused by oil and gas activity in the Little Smoky caribou range located in the foothills of Alberta. Restoration of the historical footprint has been identified as an important component of the overall recovery plan for west central caribou herds, as identified by the West Central Caribou Landscape Planning Team (WCCLPT).

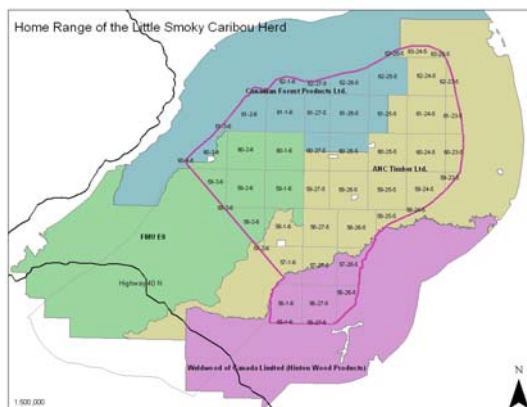
## Objectives

The primary objective will be to determine the vegetation status of each lineal disturbance using aerial photography loaded into a softcopy system. This will be conducted in such a way as to maximize benefits in a cost-effective manner. The benefits include:

- Provide a foundation for the development of a landscape level restoration plan;
- Manage operational re-vegetation initiatives;
- Development of a re-vegetation decision support system;
- Development of long-term monitoring programs;
- Enable effective management of access routes used recreationally by the general public;
- Enable effective management of new oil and gas developments, which require re-clearing of existing lineal features, most commonly seismic lines;
- Identification of other regions of preferred habitat not currently utilized by caribou herds.

## Inventory Area

Although the long-term objective will be to inventory lineal disturbances across the entire known ranges of woodland caribou in Alberta, current fiscal realities will restrict the inventory for this project to the Little Smoky Caribou range (Figure 1). The Little Smoky Caribou range is one of the most sensitive ranges here in Alberta. The inventory area is 292,710 hectares in size and overlaps 4 forest management units. These are operated by Canadian Forest Products (CanFor), ANC Timber Ltd., Hinton Wood Products and Foothills Forest Products.



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### **Methods**

The inventory will be conducted using Softcopy technology. Softcopy is a photogrammetric technology that takes conventional “hardcopy” aerial photography (uncontrolled / unrectified), and through a series of advanced computer manipulations, converts them into digital models that are geometrically correct. Using a specialized software package, these digital photographs can be viewed in 3D on screen in a MicroStation/ARC environment. This application allows all classification and digitizing to be completed on screen. All digital data is projected in a NAD 83 media.

The project was initiated and developed with photography provided by CanFor, Grande Prairie and funding from the Canadian Association of Petroleum Producers (CAPP) and FLMF budgets. Recent digital aerial photography (2008) exists for the remainder of the Little Smoky range which the FLMF will acquire to complete this project.

Interpretation will be conducted on 2 levels (1 – utilization, and 2 – structure), each having its own unique spatial deliverable.

#### **Level of Utilization (Use)**

Utilization involves the surveying of lineal usage, following the initial clearing, by humans and ungulates. This level will use the “hotkey” system of surveying employed in an earlier FLMF lineal inventory pilot. The system will be based on combinations of 2 variables: 1) type (truck, quad, game), and 2) degree (low, moderate, high).

#### **Structure**

A number of biotic and a-biotic variables will be surveyed using a classification system developed specifically for this project. This classification system has been reviewed and endorsed by a subgroup of the FLMF Steering Committee, the FLMF Managing Director, and the Alberta Caribou Committee Research and Monitoring committee chair. The classification framework will use a multiple attribute system to collect various vegetation information. Each lineal feature will be subdivided based on recurring homogeneous features within the constraint of multiple attributes collected distinctly from another. The system, while designed to meet FLMF objectives, will enable a broader base of users and researchers outside the original scope of the inventory since each variable will stand alone from the other; hence, different combinations of any number of variables represent a value-added classification unit that could be used for other research projects outside the initial inventory.

Vegetation structures are often expressed in a spatially complex way on the landscape. Therefore, the classification system must allow for structures to be homogeneously represented either spatially or a-spatially. This will provide important efficacies, and hence cost savings, to the project without compromising the quality of the final product. Some refinement to the classification system may be made based on new information realized during the early stages of the project.

### **Quality Control**

Quality control is conducted at 6 points along the process. In summary, these are: field calibration, continual corroboration during the interpretation phase, access database, SAS screening programs, interpretation audit, and, finally, ground checks.