CARIBOU LANDSCAPE MANAGEMENT ASSOCIATION
5 YEAR PLAN 2007-2012

SUBMITTED TO: FOOTHILLS MODEL FOREST

PREPARED BY: WAYNE THORP DIRECTOR

JULY 26, 2007
EXECUTIVE SUMMARY

The Caribou Landscape Management Association (CLMA) represents 12 energy and forest industry companies operating in the Little Smoky and A la Peche caribou ranges in the West Central region of Alberta. The CLMA operates under the “umbrella” of the FtMF and is self-funded. Recently the CLMA agreed to provide support and management of the Caribou Range Restoration Project (CRRP) which will complement the CLMA in its efforts to implement strategies to ensure industrial development and caribou can co-exist. Specific strategies and recommendations are anticipated in the first year of this plan from the Minister of Sustainable Resource Development (SRD) caribou recovery plan.

Since May 2005, the CLMA has completed an iterative integrated industrial access plan and monitoring program, an audit of mitigation practices and produced an Integrated Landscape Management review, and was instrumental in developing an adaptive management plan for the west central caribou region of the province.

Objectives for the term of this plan will be to support the FtMF vision and goals, provide ongoing support to its industrial partners, and support efforts of SRD and industry to recovery caribou in the Little Smoky and A La Peche caribou ranges.

In addition, a key deliverable for the CLMA will be to provide and/or support government over the time frame of this plan the implementation of effective tactical and operational level strategies as developed and recommended by government processes. This will be accomplished by development of a landscape level range restoration program, monitoring, and an up to date inventory of vegetation (caribou habitat) and industrial footprint.

While the CLMA is self-funded, ongoing support from the FtMF is key to the continuation and development of the CLMA as an integrated Landscape Management model that will undoubtedly be used in other areas of Alberta and beyond.

The value in the CLMA is that it is becoming a credible and strongly supported working example of landscape level ILM with a commitment to continuous improvement.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION AND BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td>2. CURRENT PROGRAM AND STATUS</td>
<td>3</td>
</tr>
<tr>
<td>2.1 Integrated Industrial Access Plan (IIAP)</td>
<td>3</td>
</tr>
<tr>
<td>2.2 Mitigation Audit</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Adaptive management</td>
<td>6</td>
</tr>
<tr>
<td>2.4 Report: Integrated Land Management &quot;moving forward&quot;</td>
<td>7</td>
</tr>
<tr>
<td>2.5 Caribou Calf Survival project</td>
<td>7</td>
</tr>
<tr>
<td>3. OBJECTIVES AND KEY STRATEGIES</td>
<td>8</td>
</tr>
<tr>
<td>4. PROGRAM DELIVERABLES</td>
<td>9</td>
</tr>
<tr>
<td>5. PROGRAM SUPPORT REQUIREMENTS</td>
<td>10</td>
</tr>
<tr>
<td>6. MANAGEMENT AND ADMINISTRATION</td>
<td>11</td>
</tr>
<tr>
<td>7. FINANCAIL PROJECTIONS</td>
<td>11</td>
</tr>
<tr>
<td>8. FUNDING REQUIREMENTS AND PROPOSALS</td>
<td>12</td>
</tr>
<tr>
<td>9. IMPLEMENTATION</td>
<td>12</td>
</tr>
<tr>
<td>10. PROGRAM RISK ASSESSMENT</td>
<td>13</td>
</tr>
<tr>
<td>11. CONCLUSION</td>
<td>13</td>
</tr>
</tbody>
</table>
LIST OF APPENDICES

APPENDIX 1
AUDIT OF OPERATING PRACTICES AND MITIGATION MEASURES
EMPLOYED WITHIN WOODLAND CARIBOU RANGES

APPENDIX 2
Executive summary of "Integrated Landscape Management Moving Forward 2003-2007"

APPENDIX 3
A MANAGEMENT FRAMEWORK FOR THE WEST CENTRAL CARIBOU HERDS
2007 – 2012
1. Introduction and background

Several industrial companies operating in the Hinton, Alberta area discussed the concept of developing a caribou management association in November of 2004 to proactively manage their operations within the Little Smoky and A la Peche caribou ranges. In May 2005 the concept came to fruition as the Caribou Landscape Management Association (CLMA) and included one aboriginal representative. The FTMF agreed to provide administrative support for the association as a pilot project for Integrated Land Management (ILM). Since May 2005, the Caribou Landscape Management Association CLMA is a not-for-profit partnership operating under the umbrella of the Foothills Model Forest to facilitate implementation of proposals for integrated landscape management and conservation actions for the Little Smoky and A La Peche caribou herds in west central Alberta.

CLMA 2007 membership:

- Foothills Forest Products Inc.
- Canfor (Canadian Forest Products Ltd.)
- Hinton Wood Products, a division of West Fraser Mills Ltd.
- Alberta Newsprint Company (ANC),
- ConocoPhillips Canada Resources Ltd.
- Suncor Energy Inc.
- Encana Corporation
- TransCanada Pipelines Limited
- Devon Canada Corporation
- Talisman Energy Inc.
- Canadian Natural Resources Ltd.
- Husky Energy
- Aseniwuche Winewak Nation of Canada (Grande Cache)

The CLMA mandate is to: develop and promote industrial activities that mitigate the impact on caribou habitat focusing on integrated landscape management and opportunities to cooperate and enter into partnerships with the Alberta government regarding population management. The Association will operate on behalf of Members within the existing resource planning and approval processes. Plans and programs developed by the Association must receive approval from the appropriate government authorities prior to implementation. It is anticipated that the Association will be able to rapidly develop plans, implement necessary actions, and coordinate industrial and commercial activities related to caribou conservation in the identified caribou ranges. As first priority the CLMA will promote and support practices consistent with concurrent caribou conservation and industrial development. Working together to develop and apply innovative solutions is considered the best alternative to simultaneously achieve the Association mandate.

Shortly after the CLMA was formed in 2005 the government announced their caribou recovery strategy for the province which included the establishment of the Alberta Caribou Committee (ACC). The first task of the ACC was to establish landscape planning teams for each of the caribou range areas. The West Central Caribou Landscape Planning Team (WCCPLT) officially began its task of developing a caribou recovery plan in March of 2006. The CLMA had already completed its first Integrated Industrial Access Plan (IIAP) and was well established to provide meaningful industrial input into the WCCPLT plan. To provide industrial input the CLMA formed the “West Central Industrial Working Team” which included the Red Rock- Prairie Creek and Narraway Caribou herds to provide this input and hired Dr. Daryll Hebert to lead the development of an adaptive management model.

A key initiative of the CLMA will now be to provide its industrial members with a mechanism to implement the recommendations of the Minister of Sustainable Resource Development (SRD) as shown in figure 1.
The CLMA has now been in operation for two years and has gained support from the Alberta government and successfully established itself as a credible integrated land use model.

In 2001, the Caribou Range Restoration Project (CRRP) was launched, with the goal of restoring linear features, so that their negative effects on woodland Caribou are lessened and eventually eliminated. The project arose in response to the Boreal Caribou Committee's strategic Plan and guidelines (BCC 2001), which emphasized the importance of restoring lineal features within caribou ranges. A full time project manager administers the CRRP in conjunction with a team of representatives from Alberta sustainable development, and the West Central Alberta Petroleum Producers group. Restoration activities were carried out over five years in the Redrock- Prairie creek, Little Smoky Red Earth, and East side Athabasca caribou ranges. Although the primary initial CLMA emphasis was to develop an Integrated Industrial Access Plan (IIAP) the association has been instrumental in developing an adaptive management planning approach for the West Central. An important component of the adaptive management plan is the development of a landscape level restoration program to support future caribou habitat.

In early 2007 as the WCCLP was developing its recovery plan the CLMA recognized that the restoration of caribou habitat would be an important part of long-term caribou recovery strategies. This necessitated the need for the two programs (CRRP and CLMA) to collaborate and consider a merger. Once again the FtMF recognized the value of this and offered to provide both programs administrative support. The CRRP project will now be managed under the CLMA program going forward.
The CLMA recognizes the importance of partnerships not only between industries companies and sectors but also with government as the land manager. The management and operating structure of the CLMA is through steering and technical committees, which has government representation from the department of Energy and Sustainable Resource Development in an advisory role.

The government members play a valuable role in providing advice and insight into government objectives and needs.

In addition the CLMA executive meets regularly with the three Assistant Deputy Ministers of SRD to update seek clarification and provide advice back to government on issues such as communications and Integrated Land Management.

This work plan was written by Wayne Thorp (Managing director of the CLMA) which outlines the projects and budget requirements to meet CLMA objectives over the next five years.

Contact information: CLMA Wayne Thorp Phone (780) – 625-1732 fax (780) – 624-3489 e-mail wthorp@telus.net CRRP Brian Coupal (780)-539-3007 ext. 241

2. Current Programs and status

A description and status report of the primary programs the CLMA is currently working on are as follows:

2.1 Integrated Industrial Access Plan (IIAP):

Increasing road access in the ranges of these two caribou herds is needed to support allocated resource extraction and associated economic and social benefits. The government endorsed the 2006 access plan as a guiding tool on June 23, 2006, which reinforced the need to integrate and coordinate the access requirements of the forest and oil and gas sectors, and to develop a monitoring and reclamation plan.

The CLMA believes that upfront road planning will reduce the road footprint resulting from the current "plan as you go" approach. Minimizing the footprint from long-term access through a coordinated approach will benefit the caribou herds, other species, sustainable forest management, and the environment.

The first road (Route 506 Upgrade) under the IIAP was submitted for approval on March 5, 2007 (although it was in the works in various forms for almost two years). Subsequent negotiations to "get to approval" resulted in a unique process that will undoubtedly set the stage for the future and most importantly will provide member companies with clear direction how future LOC's will be dealt with for the CLMA area.

The approval is a first step in moving away from past "one off" comprehensive LOC conditions and to a system that deals with appropriate landscape management conditions under the IIAP and the LOC conditions are specific to the road itself.

This is a significant improvement over past approval in that there were attempts to include conditions on individual dispositions that were not appropriate in time or in scale to the project. The conditions now in LOC's should only be as it relates to the standard, use, and construction of the road itself. Other more management level conditions will be included in the CLMA IIAP approval at the landscape level such as monitoring effectiveness, reclamation and management. This will allow for adaptive management for the benefit of caribou to truly work along with a continuous improvement program based on monitoring.

Provided the adaptive management commitments are followed through by the CLMA partners the LOC applications should become more stream lined and easier to SRD to approve.
**Project status:** Submitted annually (last submission September 2006), continual update of disturbances

**Products:** IIAP written text and map products, up to date road layer, web based mapping tool linked through the FtMF website.

**Partners:** All CLMA members

### 2.2 Mitigation Audit:

Golder Associates Ltd. (Golder) was retained by the Caribou Landscape Management Association (CLMA) and the Forest Products Association of Canada (FPAC) to complete an audit of industrial operating practices and mitigation measures with respect to woodland caribou. Of particular interest, was gaining an understanding of the effectiveness of current mitigation measures employed by the oil and gas and forest industries when operating within woodland caribou ranges in Alberta and across Canada. This report builds from an existing draft document entitled “Audit of Oil and Gas Mitigation Measures Employed within Woodland Caribou Ranges”, which was prepared by Golder Associates for the Canadian Association of Petroleum Producers Caribou Working Group in April 2005 (CAPP 2005).

The objectives of this report are to: 1) conduct an audit of current mitigation measures and operating practices specific to the oil and gas and forest industries employed within Alberta and surrounding jurisdictions for woodland caribou; 2) based on a literature review and expert opinions from industry, academic and government respondents, develop a preliminary effectiveness assessment of mitigation measures and operating guidelines for woodland caribou; and 3) as this report is a valuable first step in forming the basis to conduct further analysis and refinement of mitigation measures, the effectiveness of measures provides direct input into an adaptive management model for woodland caribou. An adaptive management model will subsequently become part of the CLMA’s recommendations for input into the Alberta Caribou Recovery Planning process within the West-central Caribou Landscape Planning Team.

This audit of operating practices and mitigation highlights four key messages:

1. Despite having a large number (over 70+) of operating practices and mitigation measures applied within woodland caribou ranges over the past 10 to 15 years, woodland caribou population numbers are still declining. Blanket prescriptive operating practices are applied on an individual basis, rather than integrated into an overall landscape plan or adaptive management plan.
2. Even though operating practices and mitigation measures have been used for a long time, there has been no monitoring to evaluate the effectiveness of these measures in terms of their value for achieving caribou recovery goals. The results of the mitigation effectiveness rating indicate that the majority of mitigation measures applied by resource use industries provide an overall moderate benefit to caribou recovery. This ranking is most likely a result of the lack of monitoring and empirical data to push these measures into either a low or high rating. Another explanation is that there is an underlying assumption that current practices have been employed for the right reasons.
3. Given the lack of monitoring and the importance of monitoring, this audit was inconclusive when ranking the effectiveness of mitigation and operating practices. As a result, implementation of an adaptive management plan with experimental trials to test mitigation is identified as a next step to be implemented by caribou managers and resource industry managers. The need to monitor responses of caribou, primary prey and predators to land management experiments is stressed. Additionally, a recommended landscape plan is discussed and involves an active adaptive management planning approach where intact habitat areas would become temporal and spatial caribou refuge areas, surrounded by areas which would be recruited as future intact habitat areas. This land use plan could also be used to focus restoration efforts and site-specific access control measures.
4. Although the ranking of effectiveness of mitigation and operating practices was inconclusive, it is suggested that with limited time and resources, managers should focus the adaptive management plan and experimental trials around those measures rated as being highly effective. Examples include minimizing development footprints and subsequently reducing the need for future restoration work, as well as coordination and integration of resource sectors to minimize cumulative effects. It is also recommended that measures rated as providing only low effectiveness for caribou recovery at a high cost, including reducing traffic and road standards, become less of a priority. This would allow time and resources to be redirected to those measures most likely to be effective for caribou conservation. Shortcomings and research gaps in rating effectiveness of the current measures were identified and include: a lack of managing cumulative effects, a lack of monitoring and a lack of systematic implementation of mitigation measures to understand effectiveness of mitigation, a lack of an adaptive management approach, ad hoc nature of mitigation implementation, the need to manage not only the industrial footprint but wildlife populations, such as predators and primary prey at the same time, the need for regional planning, unclear goals for caribou conservation, unwillingness by Alberta government to close the door on future development within caribou ranges, First Nations and Métis not involved in the process, and lastly, an imbalanced focus on 'perceived' higher priority herds while other herds unduly await any collaborative or integrated actions.

A number of next steps are identified and include: moving away from blanket prescriptive operating practices with the implementation of prioritized and effective guidelines under a broader landscape plan, have a critical expert panel review this document and rank mitigation based on critical pathways for caribou recovery, manage the pace of development, take inventories of primary prey and predators and implementing wildlife management controls to bring these numbers down to a density that will maintain caribou populations, implementing public awareness programs on the ecological need to manage wildlife populations through direct and indirect measures, continual growth of collaborative planning processes both within and between resource use industries using a revised caribou protection planning process, engagement of Aboriginal communities in caribou recovery, development of a research based habitat restoration program that has a long term objective of replacing habitat that has been lost to industrial disturbance, developing standards for reclamation within caribou ranges, advancement of resource extraction technologies that minimize project footprints, completing a risk management model for climate change impacts on caribou, and lastly to theoretically test and assess if certain mitigation and management measures are working (e.g., habitat manipulation to increase caribou forage and decrease primary prey forage).

It is identified that the majority of the next steps recommended must be implemented and supported by government agencies (the land managers) as they go beyond the role of industrial operators. However, several obstacles facing both government and industry are recognized including a lack of available mapping and caribou data for industries to make effective planning decisions for reducing the impacts from developments, contradictory government policies and hard decisions which must be made on trade-offs between economic costs of lost opportunities and woodland caribou management options. Lastly, it is stressed that the success of management actions and mitigation / operating practice strategies will ultimately be determined by the presence or absence of woodland caribou populations.

**Project status:** Complete May 2007 (in circulation within government, industry and WCCLPT)

**Products/Tools:** Report and recommendations

**Project partners:** Led by Golder (Paula Bentham)
CLMA member companies, Forest Products Association of Canada (Andrew DeVries)
2.3 Adaptive management:
The caribou management problem suffers from a historical record of silo management, where various agencies have addressed the issue in isolation without integration of other agencies and stakeholders. This situation has lead to few effective solutions. Populations continue to decline and forest management activities continue to be hampered. Most agree that the solution to the problem lies in a multi-agency, multi-stakeholder approach with integration and cooperation among all parties involved, and in particular government, forestry, and oil and gas. The simultaneous application of management plans for each limiting factor for each herd requires a high level of integration among agencies.

This project will provide a forest habitat management framework as the basis of an adaptive management plan for the west-central woodland caribou herds. The objective of the project is to develop such a plan in a cooperative and integrative atmosphere where government, the forest industry, and oil and gas industry feed into one common plan and objective: conservation of the west-central herds while maintaining the trade-offs associated with socio-economic benefits from the forest and other associated industries.

Restoration can play an important role in the management and recovery of caribou habitat. However, it must also be integrated with the limiting factor conceptual model and the intactness priority map and plan.

To date, restoration planning has not been focused on objectives or a planning framework. Thus, the process has been a random, more homogeneous approach to recovery planning. Restoration planning must focus on funding, planning and implementation around intactness planning and priorities.

Development of a restoration program and a set of operational guidelines will be addressed through the implementation plan of the WCCLMP recovery plan. In each case, both objectives and priorities must be identified, developed and addressed in order to make these programs effective.

The WCCLMP will provide the context for restoration and guideline planning, through a set of strategic, tactical and operational assessments. These cross scale assessments and options will provide a range of outputs using modeling scenarios, assumptions and GIS comparisons of ecological and anthropogenic data.

Implementation strategies will be developed and assessed during the Phase I analysis of age and size class distribution, leading to a description of intact habitat. GIS analysis of ecological and disturbance overlays and a modeling analysis of variation & sensitivity in several limiting factors will identify outcomes and options. The prioritization of a range of intact habitat patterns and size classes will allow restoration programs and guidelines to be focused on the most important habitat components. Spatial and temporal refugia dynamics will be examined to see if habitat can be maintained.

An important consideration in the development of the adaptive management approach is to have an up to date and accurate data set for planning purposes. One of the key information gaps is the recovery rates of lineal disturbances (natural and artificial) which is being addressed by the CRRP program under the CLMA. The CRRP is currently conducting a pilot study of the effectiveness of remote sensing for inventorying lineal disturbances which if successful will reduce the cost of future inventories.

Project status:
This project will be complete in late July 2007 and will be sent to the Alberta Caribou Committee as recommendations for caribou recovery for the West Central.

Project collaborators:
Led by: Dr. Daryll Hebert Encompass Strategic Resources Inc., CLMA member companies, Weyerhaeuser Canada, Shell, West Central Landscape Planning Team, Silvacom consulting, Canadian Association of Petroleum Producers.

Tools available: Blue print for limiting factors for caribou, adaptive management model, implementation/restoration plan, Planning and Management framework.

2.4 Report: Integrated Land Management “moving forward”

The program manager of Alberta Chamber of Resources ILM and the managing director of the CLMA collaborated to produce a report on ILM. The original intent of this was to review and make recommendations for improvement to ILM in the province.

The objectives of the paper was to:

- Demonstrate industries leadership in developing practical solutions for ILM;
- Identify key attributes that contribute to the success or failure of ILM and consolidate our findings and learning’s;
- Document the evolution of ILM and ultimately define its relationship to the governments resource management system and current policy initiatives;
- Develop a suite of recommendations that can be used by industry and / or government to further develop ILM as a practice on the landscape; and
- Provide a common reference document to assist the resource industry in influencing the development of the resource management system and relevant public policy.

Project status: The project is complete (June 2007) and is under review by the industrial associations Alberta Chamber of Resources (ACR), Alberta Forest Products Association (AFPA) and Canadian Association of Petroleum Producers (CAPP).

Project authors: Bob Demulder, ACR Integrated landscape Management Program Manager
Wayne Thorp, Caribou Landscape Management Association Manager

Tools Available: Review of existing practices, recommendations for successful ILM, the report and recommendations to “move forward”.

2.5 Caribou Calf Survival project

The Little Smoky Caribou Calf Project (LSCCP) is a woodland caribou calf survival project that was implemented for the Little Smoky woodland caribou herd in the winter of 2006. The methods guiding the project were in large part based on those developed and successfully implemented for the Chisana caribou herd. In March 2006, 10 pregnant cows from the Little Smoky caribou herd were captured and transported to a large enclosure within their range. The cows were kept secure in the enclosure while their calves were born in late May and early June 2006. Cows and calves were released from the enclosure on June 19, 2006 when all calves were approximately three to four weeks old.

The Little Smoky herd has declined steadily over the past 10 years and is currently thought to number between 60 and 100 animals. Factors contributing to the herds decline appear related to elevated predator-caused mortality rates driven by changes in land use. At current rates of decline, the herd is at risk of extirpation, potentially within the next 10 years. The LSCCP provides a means to have an immediate positive impact on calf survival, while other longer-term approaches are implemented. The program also provides the opportunity to obtain important and accurate information on calf survival during the first weeks and months following calving.

ASRD conducted post-release monitoring. Aerial surveys were conducted on June 27, July 5, August 25 and September 22, 2006. Based on a sample size of 10 calves for the LSCCP and 7 calves for the wild population, the calf survival rate was 50% and 71% respectively. At least 2 of the 3 captive collared calves appeared to have been killed by bears (grizzly or black).
Project status: This project was completed in the summer of 2006 and because there was population control of wolves at the same time the results may be skewed. The CLMA and government have not determined whether another project will be contemplated in the future.

Project collaborators:
Led by SRD F&W and funding was provided by: Devon Canada Corporation ConocoPhillips Canada Foothills Forest Products Burlington Resources Suncor Energy Inc. BP Canada Canadian Natural Resources Limited Canadian Forest Products TransCanada Pipelines, EnCana Corporation, Alberta Newspaper Corporation, Canadian Association of Petroleum Producers, Husky Energy, ConocoPhillips Canada Producers, Talisman Energy, West Fraser Timber Co. Ltd., Alberta Caribou Committee

Project and final Report completed by:
The day to day implementation of the LSCCP was the responsibility of TERA Environmental Consultants (TERA) with oversight by the LSCCP Steering Committee who in turn reported to the Caribou Landscape Management Association (CLMA). Alberta Sustainable Resource Development (ASRD) was responsible for all animal capture and collaring, as well as obtaining permits related to temporary holding of caribou and land use. Project funding was held and administered by the Foothills Model Forest.

3. Objectives and key Strategies

The CLMA has the following objectives for the next five years:

a) The CLMA will adopt a continuous improvement model to ensure ongoing business value for its members.

b) The CLMA will submit an annual integrated access plan and “stewardship report” by September 30 of each year which will include:
   i. An up to date digital road layer by class
   ii. A monitoring report for all key initiatives (i.e. Tracking disturbance for effectiveness of the IIAP in reducing footprint, restoration, natural and artificial recovery rates of lineal and harvest disturbances, .
   iii. Restoration plan (CRRP)

c) The CLMA will provide the mechanism for member companies operating in the A La Peche and Little Smoky caribou ranges to implement operational and tactical landscape and operating plans as directed by SRD.

d. The CLMA will have completed a statistically valid inventory and vegetation response trajectories by ecotype for lineal disturbances by 2009.

e. The CLMA programs will provide ongoing support for landscape planning objectives within the member companies existing planning hierarchy (i.e. DFMP, AOA’s).

f. The CLMA will implement the caribou recovery plan recommendations that are directed and relevant to the industrial sector by the Minster of SRD over the time frame of this plan.

g. The CLMA will submit an annual work plan and budget that support the Foothills Model Forest in meeting its vision: as below:
"The Foothills Model Forest is a unique community of partners tied to the land and its people through a common concern for the welfare of the land and its resources. We will achieve our vision by:

. Building a community of diverse and active partners who are working in or are concerned about natural resource management.

. Identifying natural resource management issues at the landscape level that are common to our partnership, recognizing the necessity of integrated resource management.

. Providing science-based tools and knowledge that is understandable and available to natural resource managers, policy makers, and the public.

. Broadly disseminating our knowledge."

4. Program Deliverables

As the CLMA matures it is anticipated that the most significant value it can offer to its members over the next five years will be to assist in the implementation of the pending caribou recovery strategy. The CLMA offers a unique structure and opportunity for industrial collaboration and sharing of resources to accomplish landscape level objectives for operational and tactical strategies. Based on work to date the following key deliverables are anticipated to ensure successful caribou recovery in the West Central

The CLMA will provide and/or support government over the time frame of this plan implementation of tactical and operational level strategies as follows:

1. The simultaneous, consistent achievement of targets for each limiting factor for caribou.
   a. Wolf population control - < 2 wolves/1000 km² for the medium to long term, changing from annual control to less frequent control at lower levels (government lead)
   b. Primary prey management - <100 moose/1000 km² to a level and time period that will aid in the natural regulation of wolf populations. The establishment of targets for elk, white tailed deer and mule deer (government lead)
   c. Continuous management and recruitment of forested habitat over 80 years of age within the following goals:
      - A reduction in fragmentation, in order to maintain intactness at % of the caribou range (to be determined).
      - Prioritization of intact areas based on specific ranking criteria.
      - A reduction in seismic density to 2.5 – 3.0 km / km² or less on the highest priority intact areas.

THE OBJECTIVE IS TO ACCOMMODATE CARIBOU HABITAT REQUIREMENTS THROUGH A COMBINATION OF STRATEGIC, TACTICAL AND OPERATIONAL CHANGES TO OIL & GAS AND
FOREST MANAGEMENT PROGRAMS. BOTH THE LEVEL OF
ALLOCATION AND THEIR SPATIO-TEMPORAL PARAMETERS AND
DYNAMICS MUST BE ASSESSED AND ADJUSTED.

2. An inventory of disturbance of natural and artificial recovery in relation to intactness
priorities.

3. The development and implementation of a restoration program to partially compensate
for failings at other levels (based on intactness priorities).

4. The selection and application of effective guidelines to conduct operations.

5. An adaptive management plan which identifies comparisons among caribou areas, in
order to clarify cause and effect, identify applied research questions and/or assess
various responses:
   - High footprint – lower footprint among areas
   - Footprint components that vary among areas
   - Variations among populations – high wolf – low wolf, high prey – low prey, etc.
   - Variations among indicator responses – caribou population changes.
   - Variations among habitat levels and quality – age class, patch size, intactness,
   adjacency, forest dynamics (recruitment), fragmentation, industrial activity levels.
   - Variation among levels of natural recovery and restoration.

6. A monitoring program which assesses the achievement of targets, specific procedures
and indicator responses. In order to clarify the cause and effect relationship among
limiting factors, during their simultaneous application, monitoring is the key process for
successful implementation.

5. Program Support required

The CLMA is self funded however, ongoing support offered by the FtMF is critical to its success.
Support in administration (binding reports, mail outs and general administrative functions), GIS
support, data management controls and security, communications and financial management is
required. The most important factor the FtMF also provides but not measurable in financial terms
is the instant credibility that FtMF provides which could not be replaced without significant effort
and additional resources.
Without the FtMF support in these key areas would mean that the funding from partners would be
insufficient and would require a build up of overhead putting to question whether the CLMA could
continue to provide value for dollar.
The dues collected from member companies will be used to manage the core CLMA program, the
CRRP sub-program and any expenses or time required by the FtMF to support the CLMA. The
CLMA therefore is cost neutral to the FtMF.
The details of amount of "core" services required are summarized in section (5) financial
projection.
There will be a need from time to time for the CLMA to provide management of contracts or
projects beyond core services. Past examples of this are the FRIAА Adaptive management
project FOOMOD-01-05 Dr. D Hebert and the Caribou calf Survival project. These types of
projects will be reviewed and approved by the steering committee of the CLMA along with funding
sources identified.
It is anticipated that range restoration projects, surveys, monitoring and inventory of lineal
disturbances will be done over the term of this plan is this manner.

CLMA 2007-2012 work plan June 22, 2007
6. Management and Administration

The following key areas and contacts are provided as follows:

**FTMF**
- Jim Lelacheur President Foothills Model Forest - Provides strategic direction and support
- Don Podlubny Manager Foothills Model Forest – Provides overall administrative support
- Fran Hanington FTMF administrative support
- Debbie Mucha FTMF GIS manager
- Chantelle Bambrick FTMF (CLMA) Data management and special project supervision
- Melissa Pattison FTMF GIS support
- Lisa Jones Manager FTMF Communications

**CLMA**
- Wayne Thorp Managing Director CLMA - Manages the CLMA and reports to the CLMA steering committee made up of CLMA member companies.
- Brian Coupal CRRP Manager reports to CLMA Managing director.
- Rob Gibb Talisman energy Co-chair of the CLMA steering committee
- Greg Branton Alberta Newsprint Company Co-chair CLMA steering committee

**Advisory:**

**Steering committee:**
- Mark Storie SRD
- Brad Lloyd Energy

**Technical committee:**
- Wayne Johnson SRD
- Stuart Taylor SRD
- Bill Tinge SRD
- Eugene Baranski SRD
- Kirby Smith F&W SRD
- Brad Lloyd Energy (attends both)

7. Financial Projections

Most of the deliverables listed will be accomplished by the Managing Director of the CLMA and the CRRP manager within the core funding level. The deliverables provided will at times require additional support with the hiring of contractors for CLMA approved projects within the budget. Any projects not budgeted for in the annual budget projections will be considered by the CLMA steering committee and will require additional funds from members and/or non-members companies and/or government.

Detailed annual work plans and budgets will be prepared by the CLMA and CRRP managers by December 31 of each year, endorsed by the CLMA Steering committee, and submitted to the FTMF Board for approval. The detailed annual work plan will outline in detail the amount of work required in the following key areas:
- FTMF GIS support required in days
- FTMF Data management support
- FTMF communications plan and support
- FTMF General administration and accounting services
- CRRP projects and funding requirements
- Any special projects and funding requirement as directed by the CLMA steering committee.

Table 1 is an illustration of a summary of a typical year for the use of CLMA membership dues.

**Table 1: Annual financial projection**
<table>
<thead>
<tr>
<th>Activity</th>
<th>2007-10-12</th>
<th>2/24/2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLMA management and expenses</td>
<td>$135,000</td>
<td></td>
</tr>
<tr>
<td>Administration FtMF</td>
<td>$700</td>
<td></td>
</tr>
<tr>
<td>GIS FtMF (license fees computer supplies)</td>
<td>$12,100</td>
<td></td>
</tr>
<tr>
<td>FtMF Data maintenance and expenses</td>
<td>$48,200</td>
<td></td>
</tr>
<tr>
<td>FtMF Communications</td>
<td>$5,000</td>
<td></td>
</tr>
<tr>
<td>*CRRP general program admin.</td>
<td>$44,000</td>
<td></td>
</tr>
<tr>
<td>**Total</td>
<td>$240,000</td>
<td></td>
</tr>
</tbody>
</table>

- *This program will be reviewed in the fall of 2007.
- **Special projects beyond the general management of the CLMA will be funded under special requests.

8. Funding Requirements and Proposals

The following table 2 shows the source of funding for the CLMA.

<table>
<thead>
<tr>
<th>Company</th>
<th>Payment required</th>
<th>Annual dues</th>
<th>Source of funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>FRIAA</td>
</tr>
<tr>
<td>West Fraser</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>FRIAA</td>
</tr>
<tr>
<td>Canfor</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>FRIAA</td>
</tr>
<tr>
<td>Foothills Forest</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>FRIAA</td>
</tr>
<tr>
<td>Suncor</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>Conoco Phillips</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>Husky</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>Talisman</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>Devon</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>CNRL</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>AWN</td>
<td>N/a</td>
<td>N/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Encana</td>
<td>yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>Husky</td>
<td>Yes</td>
<td>$ 20,000.00</td>
<td>Operating</td>
</tr>
<tr>
<td>SRD</td>
<td>No</td>
<td>0</td>
<td>N/a</td>
</tr>
<tr>
<td>Energy (gov't)</td>
<td>No</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td>$240,000.00</td>
<td></td>
</tr>
</tbody>
</table>

9. Implementation

The CLMA does not expect there will be any major decisions required of the board of the FtMF during the term of this plan with the exception of entering into various contracts through the FtMF and funded by the CLMA.
Any communications and potential influences on government polices or programs will be vetted first through the steering committee of the CLMA and member companies and secondly through the FTMF executive when necessary.

10. Program Risk Assessment

When dealing with a highly controversial subject of a threatened wildlife species there are always risks. As a result the two risks that rise to the top for the CLMA while supporting ongoing member company industrial development are: a) not meeting federal "Species at Risk Act" (SARA) and b) to only be seen as a "lobby group" for industry.

The following risk mitigation strategies will be undertaken by the CLMA.

a) Species at risk.
The Federal Species at risk is a statute of general provision that is applied throughout Canada. Under this application, SARA has a number of requirements which must be carried out by the government throughout the country, including:
• Analysis of the statute of species and listing and;
• Development of recovery strategies, action plans and management plans for listed species.

The CLMA is an organization that is committed to developing an implementation plan for programs the government may require for complying with SARA. The requirement to meet, therefore not a direct responsibility of the CLMA however some companies may require their own strategies which the CLMA will support. With the FTMF providing support for the CLMA to implement the provincial recovery strategy is considered a relatively low risk.

b) To be seen as a lobby group for industry
The CLMA will on occasion have to meet with senior government officials to represent the interest of the industrial partners in their resource development plans that the province allocated or sold to them. This is where the CLMA may use its industrial partner’s collective influence to bring the issues to the forefront and therefore influence new or existing policies. This will be done in proactive way where solutions will be presented rather than problems. The FTMF mandate is not consistent with the industrial need to periodically do this however the CLMA will advise the FTMF manager in advance. The communications and any related activities in this regard will be done as a distinct CLMA initiative and will not refer to or use the FTMF name.
This has been managed in this way for the past two years and has successfully managed the risk.

11. Conclusion
The CLMA is a successful model of how integration of the two primary resource industries can be done in Alberta. While this is still considered a "work in progress" the CLMA has established itself as an excellent model that could be used in other areas.
The ongoing support from the FTMF is required for this to continue.
Without the model forest providing the overhead and leadership in initiating the CLMA it would not have accomplished as much as it has in the short time of its existence.
Regardless, the CLMA has some ways to go to the next steps of delivering on the successful implementation of the recovery strategies for caribou at the tactical and operating scale. It is anticipated that with the continuation of strong support from its industrial members, support form the FTMF and with government participation in an advisory role that the CLMA is well prepared for success. This approach to implementation of ILM will be used as a model of
successful integration at the tactical and operation level and will provide an excellent example for other companies to meet ILM objectives.
Appendix 1

Executive Summary:

AUDIT OF OPERATING PRACTICES AND MITIGATION MEASURES EMPLOYED WITHIN WOODLAND CARIBOU RANGES

- FINAL REPORT -

Submitted to:
Caribou Landscape Management Association
Peace River, Alberta
Forest Products Association of Canada
Ottawa, Ontario

Report Prepared by:
Paula Bentham

Golder Associates
Edmonton, Alberta
May 2007 06-1373-019
DISCLAIMER

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EXECUTIVE SUMMARY

Golder Associates Ltd. (Golder) was retained by the Caribou Landscape Management Association (CLMA) and the Forest Products Association of Canada (FPAC) to complete an audit of industrial operating practices and mitigation measures with respect to woodland caribou. Of particular interest, was gaining an understanding of the effectiveness of current mitigation measures employed by the oil and gas and forest industries when operating within woodland caribou ranges in Alberta and across Canada. This report builds from an existing draft document entitled "Audit of Oil and Gas Mitigation Measures Employed within Woodland Caribou Ranges", which was prepared by Golder Associates for the Canadian Association of Petroleum Producers Caribou Working Group in April 2005 (CAPP 2005).

The objectives of this report are to: 1) conduct an audit of current mitigation measures and operating practices specific to the oil and gas and forest industries employed within Alberta and surrounding jurisdictions for woodland caribou; 2) based on a literature review and expert opinions from industry, academic and government respondents, develop a preliminary effectiveness assessment of mitigation measures and operating guidelines for woodland caribou; and 3) as this report is a valuable first step in forming the basis to conduct further analysis and refinement of mitigation measures, the effectiveness of measures provides direct input into an adaptive management model for woodland caribou. An adaptive management model will subsequently become part of the CLMA's recommendations for input into the Alberta Caribou Recovery Planning process within the West-central Caribou Landscape Planning Team. This report excluded the ranking of management or mitigation measures that require government implementation and strictly focused on those operating practices and measures which can be implemented by resource use industries.

Fifty-one experts from the energy sector, forestry sector across Canada, provincial government, consultants and academics were interviewed between 2004 and 2006 to obtain information regarding the use, efficacy and monitoring of caribou operating practices. Results were synthesized with the literature review and used to rate the effectiveness of mitigation measures. Operating practices and mitigation measures were assessed for effectiveness on an individual basis not as a combination of measures or within the context of measures integrated within an overall landscape plan.

This audit of operating practices and mitigation highlights four key messages:

1. Despite having a large number (over 70+) of operating practices and mitigation measures applied within woodland caribou ranges over the past 10 to 15 years, woodland caribou population numbers are still declining. Blanket prescriptive operating practices are applied on an individual basis, rather than integrated into an overall landscape plan or adaptive management plan.
2. Even though operating practices and mitigation measures have been used for a long time, there has been no monitoring to evaluate the effectiveness of these measures in terms of their value for achieving caribou recovery goals. The results of the mitigation effectiveness rating indicate that the majority of mitigation measures applied by resource use industries provide an overall moderate benefit to caribou recovery. This ranking is most likely a result of the lack of monitoring and empirical data to push these measures
into either a low or high rating. Another explanation is that there is an underlying assumption that current practices have been employed for the right reasons.

3. Given the lack of monitoring and the importance of monitoring, this audit was inconclusive when ranking the effectiveness of mitigation and operating practices. As a result, implementation of an adaptive management plan with experimental trials to test mitigation is identified as a next step to be implemented by caribou managers and resource industry managers. The need to monitor responses of caribou, primary prey and predators to land management experiments is stressed. Additionally, a recommended landscape plan is discussed and involves an active adaptive management planning approach where intact habitat areas would become temporal and spatial caribou refuge areas, surrounded by areas which would be recruited as future intact habitat areas. This land use plan could also be used to focus restoration efforts and site-specific access control measures.

4. Although the ranking of effectiveness of mitigation and operating practices was inconclusive, it is suggested that with limited time and resources, managers should focus the adaptive management plan and experimental trials around those measures rated as being highly effective. Examples include minimizing development footprints and subsequently reducing the need for future restoration work, as well as coordination and integration of resource sectors to minimize cumulative effects. It is also recommended that measures rated as providing only low effectiveness for caribou recovery at a high cost, including reducing traffic and road standards, become less of a priority. This would allow time and resources to be redirected to those measures most likely to be effective for caribou conservation.

Shortcomings and research gaps in rating effectiveness of the current measures were identified and include: a lack of managing cumulative effects, a lack of monitoring and a lack of systematic implementation of mitigation measures to understand effectiveness of mitigation, a lack of an adaptive management approach, ad hoc nature of mitigation implementation, the need to manage not only the industrial footprint but wildlife populations, such as predators and primary prey at the same time, the need for regional planning, unclear goals for caribou conservation, unwillingness by Alberta government to close the door on future development within caribou ranges, First Nations and Métis not involved in the process, and lastly, an imbalanced focus on 'perceived' higher priority herds while other herds unduly await any collaborative or integrated actions.

A number of next steps are identified and include: moving away from blanket prescriptive operating practices with the implementation of prioritized and effective guidelines under a broader landscape plan, have a critical expert panel review this document and rank mitigation based on critical pathways for caribou recovery, manage the pace of development, take inventories of primary prey and predators and implementing wildlife management controls to bring these numbers down to a density that will maintain caribou populations, implementing public awareness programs on the ecological need to manage wildlife populations through direct and indirect measures, continual growth of collaborative planning processes both within and between resource use industries using a revised caribou protection planning process, engagement of Aboriginal communities in caribou recovery, development of a research based habitat restoration program that has a long term objective of replacing habitat that has been lost to industrial disturbance, developing standards for reclamation within caribou ranges, advancement of resource extraction technologies that minimize project footprints, completing a risk management model for climate change impacts on caribou, and lastly to theoretically test and assess
if certain mitigation and management measures are working (e.g., habitat manipulation to increase caribou forage and decrease primary prey forage).

It is identified that the majority of the next steps recommended must be implemented and supported by government agencies (the land managers) as they go beyond the role of industrial operators. However, several obstacles facing both government and industry are recognized including a lack of available mapping and caribou data for industries to make effective planning decisions for reducing the impacts from developments, contradictory government policies and hard decisions which must be made on trade-offs between economic costs of lost opportunities and woodland caribou management options. Lastly, it is stressed that the success of management actions and mitigation / operating practice strategies will ultimately be determined by the presence or absence of woodland caribou populations.

ACKNOWLEDGEMENTS

This report was produced by Golder Associates and authored by Paula Bentham under the direction of Mr. Wayne Thorp (CLMA, Managing Director), Mr. Andrew de Vries (Forest Products Association of Canada), Mr. Rick Bonar (Hinton Wood Products a division of West Fraser Mills Ltd.), Mr. John Deal (Canadian Forest Products Ltd.) and Mr. Rob Staniland (Talisman Energy) of the Caribou Landscape Management Association. Mr. Brad Herald of the Canadian Association of Petroleum Producers provided initial direction during the completion of the CAPP 2005 draft. Senior review was provided by Corey De La Mare of Golder Associates.

This report would not have been possible without the time and effort of individuals from the oil and gas, forestry, academic, consulting and government sectors who graciously provided their expert opinions on operating practices and mitigation measures. These individuals and their respective organizations are not only committed to the operating guidelines and mitigation practices for caribou ranges, but are also committed to the multi-stakeholder process and to ensuring the conservation of woodland caribou populations.
Appendix 2.


Executive Summary

Moving Forward

For more than a decade, conflicts among land users have become increasingly common in Alberta, and there have been growing concerns about the cumulative effects of human activities on the landscape and its ecosystems. Integrated Landscape Management (ILM) is a systematic approach to resolving those conflicts and addressing those concerns. There is an urgent need to implement ILM rapidly and widely.

ILM is a means to co-ordinate and direct multiple users and uses on a given landscape so that economic, social and environmental impacts are minimized and benefits are maximized. ILM is an important methodology to facilitate sustainable development – meeting today’s needs without compromising the ability of future generations to meet their needs.

ILM can be implemented at many scales, with varying scopes, but ideally it should be comprehensive across all the lands that share common characteristics (which is, in fact, one definition of “landscapes”). This paper addresses ILM as it has evolved, and continues to evolve, in the forested Green Zone of Alberta and the overlapping areas of the petroleum-producing Western Canada Sedimentary Basin.

Although it might have been preferable to have a comprehensive systems approach to land use in place from the start, ILM has evolved in Alberta from the “bottom up” since 1999, starting with bilateral agreements between energy and forestry companies to co-ordinate planning and operations (e.g., access and reclamation) so that costs and impacts are less than if each had proceeded in isolation. Subsequently, there have also been multi-stakeholder or “tactical” ILM agreements to address issues such as water and caribou conservation. The Alberta Chamber of Resources (ARC), which represents both energy and forestry sectors, has actively supported and promoted industry-led operational and tactical ILM.

Interviews of practitioners and case studies of existing operational and tactical agreements show the inherent value of ILM, but also reveal a number of hindrances due to the separate policies, regulations and practices that have evolved in energy and forestry – the two largest users of lands in the Green Zone. Moreover, the current agreements can deal only with “how” development will occur; the broader strategic questions of “when, where, by whom and how much” to develop are still not systematically integrated.

Strategic integration of land management is a governmental and societal challenge. Unfortunately it has moved forward in a somewhat segregated fashion. One key component of a land-use strategy is watershed management, and this is addressed in part by the government’s Water for Life strategy, which is currently being renewed. However, the other components of strategic land-management integration have just started to take shape:

- The Land Use Framework, proposed in 2005 and currently going through consultative processes, is intended to provide overall policy direction for land management in Alberta. Along with Water for Life, the LUF could answer many of the questions about where, when,
by whom and how much development will occur – but this appears to be still some time away from happening.

- The government’s Integrated Land Management program meanwhile is developing or proposing a range of principles, decision-making protocols, incentives, performance measures, governance and stewardship guidelines.

In an effort to develop a consensus position for the resource industries as ILM goes forward on the various fronts, this report was commissioned by the three largest industry associations (Canadian Association of Petroleum Producers, Alberta Forest Products Association and ACR) whose members have been implementing operational and tactical ILM initiatives for the past eight years. The goal was to advance the understanding of ILM and its relation to the Land Use Framework as well as to improve the implementation of operational and tactical ILM on the ground.

This report concludes with two principal recommendations, both of which should be dealt with by an executive-level group (or two such groups) from government and the resource industries:

- Clarify the scale and scope of ILM, determine required governance and clarify respective roles and responsibilities—i.e. get everyone on the same page.
- Address the obstacles and opportunities of existing ILM approaches as revealed by this report’s findings and the case studies – i.e., improve the implementation and acceptance of integration.

In short, we need to harmonize the vision and remove the obstacles so the great potential of integrated management can be fully realized, as rapidly as possible, on Alberta’s landscapes.
Appendix 3
A MANAGEMENT FRAMEWORK
FOR THE WEST CENTRAL CARIBOU HERDS
2007 – 2012

HISTORICAL ISSUE

Habitat loss and alteration from the 1980’s to the present were ASSUMED to
be the cause of the caribou decline in the Little Smoky area.

However, during that period, the Little Smoky herd declined (lambda = .90)
(lambda = population rate of increase), the Red Rock Prairie Creek herd
decreased (lambda = 0.97), the A La Peche herd increased (lambda = 1.04) and
the Naraway herd appeared to be stable, although survey data is lacking.

CURRENT ISSUE

More recently, wolf predation has been identified as a significant cause of
decline in the Little Smoky herd (25+ wolves /1000 km²), and an increasing
problem in the remaining 3 herds.

HOWEVER, IN RETROSPECT, WOLF POPULATION NUMBERS HAVE BEEN HIGH SINCE THE MID
1980’s, IN THE LITTLE SMOKY, AND, RATHER THAN HABITAT, ARE THE MOST LIKELY CAUSE
OF THE DECLINE.

BIOLOGISTS IN GENERAL AGREE THAT HABITAT IS NOT LIMITING, K. SMITH (REG. B I O L.,
EDSON) AND P. WECLA W (B I O L. P A R K S) HAVE BOTH STATED THAT HABITAT IS NOT
LIMITING. MODELING BY WECLA W, IN THE EAST SIDE A TH A B A SCA CARIBOU POPULATIONS,
INDICATED THAT ROADS COULD BE UNLIMITED, IF WOLF POPULATIONS WERE CONTROLLED.

THE CONTROVERSY

Although wolf predation has been accepted as the short and medium
problem, and a long term problem, if left unchecked, the lengthy relationship
with assumed habitat problems, has been difficult to overcome. To date,
insufficient well designed research has been undertaken to clearly identify
the correct relationship between predation and habitat as the basis for
population decline and recovery.

THE SOLUTION

1. Habitat is not limiting caribou populations at this point.
a. 71% of the caribou habitat in the Little Smoky, A La Peche is over 80 years of age
b. 79% of the caribou habitat in the Naraway is over 80 years of age.

However, most, if not all of the caribou land base has been allocated to industrial development – forestry and oil & gas.

2. Predator control will allow caribou populations to reach habitat carrying capacity in 5± years.
   a. Wolf control in the Little Smoky in 05/06 significantly changed lambda from .90 to 1.18.
   b. A second year of wolf control, 06/07, produced a lambda value of 1.11 which dropped to .97 after wolves killed 3 adult female caribou.
      Wolf control has not yet reached the effective target of 2 wolves/1000 km² (from 25+ wolves/1000 km²) due to a lack of funding for effective monitoring.
   c. Effective wolf control (target of 2 wolves/1000 km² is required in the Little Smoky / A La Peche.
      Preliminary, preventative wolf control should be addressed for the Red Rock Prairie Creek herds over the next 2 – 3 years.

3. Wolf control will allow caribou populations to reach habitat carrying capacity. At that time a multiscale habitat program should be implemented. This will involve adjustments by the industry, over the next two years in the Little Smoky and A La Peche, at a strategic, tactical and operational level, and over the next 3 – 5 years in the Red Rock Prairie Creek and Naraway herds.
   a. At a strategic level, core portions of the intactness maps should be identified and protected (10 – 20 %?).
   b. At a tactical level, industrial development should be assessed to see if it can be adjusted temporally or spatially to maintain core habitat.
   c. At an operational level, habitat restoration planning for areas adjacent to intact areas should be funded and initiated, immediately.
      Industrial funding should be combined in order to focus on high priority intact areas.
   d. At both the operational and tactical levels industrial mitigation strategies should concentrate on vegetation control measures that reduce (or prevent) the amount of primary prey browse associated with early seral. (This is opposed to mitigation strategies that are ineffective for caribou).
e. The government should develop strategies to reduce the number of primary prey species (i.e. increase harvest levels)

Caribou protection plans should be done at a landscape level. Land use officers should incorporate the above planning procedures.

**CONCLUSION**

Effective wolf control with sequential habitat management can maintain caribou populations and allow a well managed industrial program.