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[BERLAND SMOKY RECLAMATION PLAN]

PHASE ONE: ACCESS REDUNDANCIES

The Berland Smoky Reclamation plan is a landscape level plan that outlines a process to manage access within caribou and grizzly bear ranges over time and space to meet recovery goals. This is Phase One which deals with access redundancies to fulfill obligations resulting from a review of the Regional Access Development plan of 2011. The plan reports on metrics for open route densities and anthropogenic footprint within the planning area. This is the first of its kind in Alberta and is the result of a seven year collaborative effort from energy and forestry sectors working jointly with government to advance Integrated Land Management and management of cumulative effects.

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Acknowledgments

The Foothills Landscape Management Forum (FLMF) would like to express its gratitude to the member companies and their representatives for providing support and knowledge over the past seven years. None of the progressive work in advancing Integrated Land Management (ILM) would have been possible without the ongoing support of these companies.

The FLMF operates under the Foothills Research Institute (FRI). Gratitude is also extended to the FRI for providing accounting, administration, Geographic Information Systems (GIS), and communications and extension support.

Acknowledgement and thanks is also extended to the Government of Alberta (GOA) and their staff who felt this project was important enough to provide joint collaboration and management in addition to funding support and advice along the way.

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1.0 Preface

The FLMF is a progressive forum consisting of industrial companies who have recognized the importance of ILM and are committed to practicing environmental stewardship. This innovative partnership provides a working example of how cumulative effects management and solutions are necessary to protect environmental values such as water, fisheries, and species at risk recovery (i.e. caribou and grizzly bear). Current FLMF members include:

- ANC Timber
- Aseniwuche Winewak Nation of Canada (Grande Cache)
- Canadian Natural Resources
- Canadian Forest Products
- ConocoPhillips
- Devon Canada Corporation
- Encana Corporation
- Foothills Forest Products
- Hinton Wood Products
- Husky Oil
- Shell Canada
- Talisman Energy
- Tourmaline Oil
- Paramount Resources
- Weyerhaeuser Canada

In 2006, the FLMF initiated a unique integrated access planning process. The process resulted in the development of an Integrated Industrial Access Plan (IIAP) for the Berland Smoky area which was approved through Information Letter 2008-05. The IIAP identified primary corridors that would be used by the forestry and energy industries to access resources in the Berland Smoky area.

Soon after the IIAP was approved, the FLMF, with government support, sought to test the ability to advance ILM planning beyond primary corridors. In June, 2009, a Terms of Reference **(Appendix 1)** was established between government and the FLMF that outlined the governance structure, objectives and desired outcomes of the planning process referred to as the Regional Access Development (RAD) Plan for the Berland Smoky. The specific objectives of this work were to:

1. Use and assess the feasibility of the disturbance thresholds recommended by Alberta Sustainable Resource Development (ASRD, now Alberta Environment and Sustainable Resource Development or AESRD) in its "Action Plan Recommendations for West-Central Alberta Caribou Recovery" (March 2009). That is to:
   - maintain the open route density targets for grizzly bear management within +/-10% of current values, and
   - reduce the percentage of the area within 250 meters of anthropogenic disturbance by 15% from current values, and
   - show demonstrable progress toward targets within 5 years, and project progress over 20 year intervals.

2. Identify the opportunities, challenges, risks and benefits to industry and government of a target-based management approach.

3. Inform and provide input into the Land Use Framework (LUF) processes.

As a new Alberta ILM prototype project, this initiative was led by government and jointly developed by government and industry. There has been significant investment and cooperation over a period of seven years from government (AESRD) and the forest and energy industrial sectors operating in the foothills region of Alberta.

A significant outcome of this collaborative work is the Berland Smoky RAD Plan **(Appendix 2)**, which identifies the permanent industrial primary and secondary corridor routing (EAP Class I and II) required by industry. These RAD corridors are expected to support both the energy and forestry sectors long term needs in this one million hectare area over the next 30 years.

The RAD plan was completed in August, 2011 by the FLMF and subsequently reviewed by AESRD. This government review resulted in approval of some of the corridors as outlined in a letter dated December 19, 2011 (**Appendix 3**) which was later amended on April 16, 2012 (**Appendix 4**)**.**

The government required further effort before re-evaluating the remaining RAD corridors ("not permitted" upgrades to existing access and new construction of EAP Class II corridors), namely:

1. Establish a task team to develop a Terms of Reference (TOR) for a Reclamation plan – completed and approved (**Appendix 5**);
2. The FLMF to propose innovative strategies (**Appendix 6**) to protect caribou – completed and submitted to AESRD on May 18, 2012 and;
3. The GOA to complete Aboriginal consultation – currently ongoing.

This document completes the FLMF requirements and the expectation is that AESRD will, upon receipt of this reclamation plan, conduct the re-evaluation of the remaining RAD corridors in a timely manner (**Appendix 7**).

2.0 Executive Summary

In 2008, the West Central Alberta Caribou Landscape Planning Team (WCCLPT) noted that coordinated recovery actions targeting both habitat and populations are necessary and provide the best chance for success for caribou recovery. Habitat actions should focus on prevention, mitigation, and recovery over both the short and long term.

The Berland Smoky RAD Plan focuses on the prevention and mitigation of habitat loss. It is anticipated that with integration of the two primary sectors (energy and forestry) that fewer roads will be built as compared to business as usual.

This Reclamation Plan, considered Phase One, focuses on long term habitat recovery actions for the Berland Smoky area and addresses access redundancies. Upon completion of an assessment of current vegetation state (**Appendix 8**) and a subsequent research project to address wildlife use/avoidance (**Appendix 9**) of the historical footprint, primarily seismic lines, *Phase Two: Historical Footprint* will be submitted to AESRD for review.

To address access redundancies, FLMF member companies reviewed their operational plans with the assumption that the RAD plan corridors will be approved to support development. In short, *Phase One* is a summary of access features, owned by member companies that are, or will be with RAD plan approval, no longer needed or redundant. As the Plan becomes more resilient and mature over time, it is expected that additional reclamation opportunities will be identified.

Current projections of open route densities, measured for each grizzly bear watershed unit (GBWU) within the Berland Smoky area, remain well below the stated thresholds when accounting for the development of all RAD corridors. Projections for the next year, concerning anthropogenic footprint, suggest a net change of -1.6%, when accounting for the construction of 1/30 of all RAD corridors and the reclamation of all candidate sites. This reclamation plan, the first of its kind in Alberta, outlines a landscape level “process” for management of anthropogenic footprint which will be improved upon over time. The processes and methodology used in the development of the RAD Plan (2011) and this Reclamation Plan (2013) will undoubtedly prove invaluable in the quest to effectively manage cumulative effects.

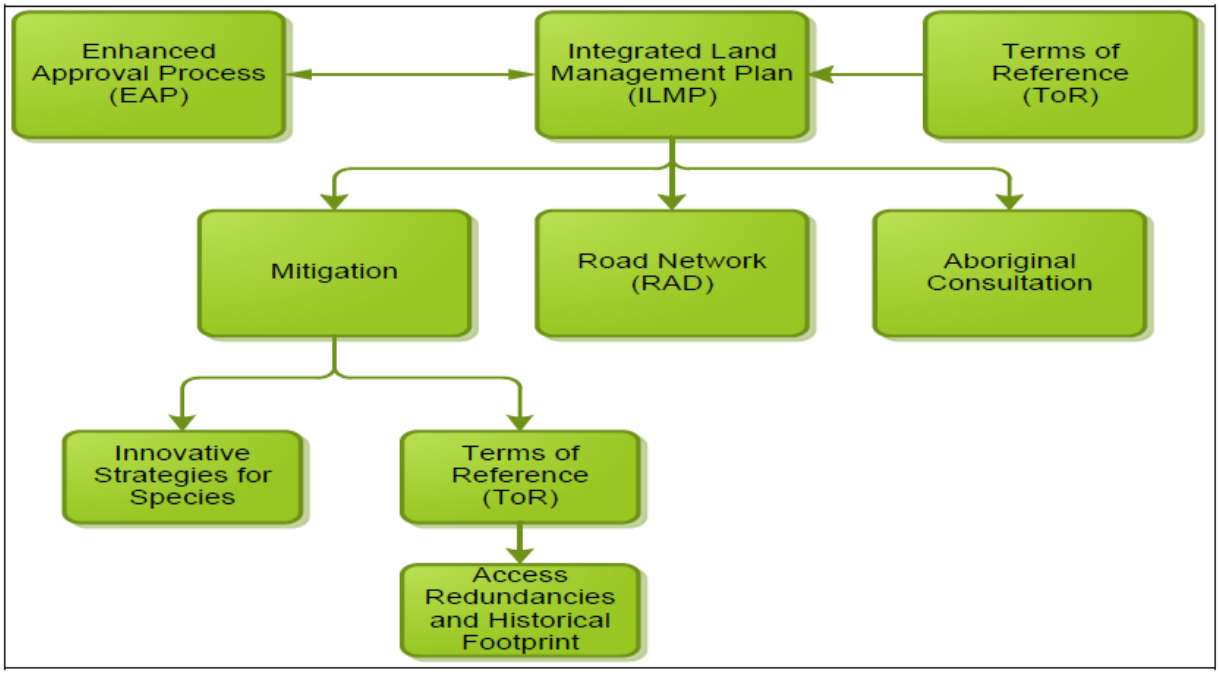
3.0 Goals, objectives, and deliverables of the Reclamation plan

3.1 Objectives

1. Develop strategic and implementation plans to address current access redundancies and historical footprint in the RAD plan area (**Appendix 5**). These plans will be focussed to achieve the greatest positive effect on wildlife (caribou, grizzly bear) and fish species (bull trout, Arctic grayling, Athabasca rainbow trout) and their respective habitats.

2. AESRD is developing an Integrated Land Management Plan (ILMP) for the Berland Smoky resource area (Figure 1). This reclamation plan (Phase One) is one component of the ILMP and will trigger the re-evaluation of the remaining RAD corridors as referenced by AESRD on December 19, 2011.

Figure 1. Components of an ILMP.



3.2 Assumptions

The following assumptions will direct this work:

1. The reference point for assessing changes to anthropogenic footprint is circa 2013 (e.g. roads, pipelines, transmission lines, recreation corridors, seismic lines >5m) and human development (e.g. well sites, cutblocks).
2. Resource development will continue to occur in the area, and currently deferred RAD plan corridors will be approved and implemented.

3. The Berland Smoky RAD Plan will guide access to the area as outlined in the AESRD update/approval letter of Dec 19, 2011 and IL2012-03.
4. Resource tenure is not within the project scope.
5. The most current data available was used. Data collection is not within the scope of this project and completion of the work will not be delayed from expectations for imminent new information. However, new information will be addressed as it becomes available and plan reviews occur.
6. Phase One includes a review of approved Licence of Occupation (LOC) and other disposition types that have not been built (No Entry) to determine if they are still needed.
7. This Reclamation Plan may require amendments to adhere to and be compliant with changes to federal and provincial policy and/or legislation.

3.3 Limitations

One of the main limitations of this Reclamation Plan and subsequent reporting of actual industrial footprint over time is that the RAD Plan was only able to project permanent access requirements at EAP Classes I and II to support resource development for the next 30 years. To supplement this, the FLMF did some forecasting of other road footprint (EAP Classes III – V) using baseline data (May, 2010) and modeling "business as usual" over 30 years.

Additionally, not all FLMF member companies are at the same stage of progress in their development plans; some companies are currently quite active in the RAD Plan area, whereas others do not have activity plans within the next few years. Therefore, it is difficult for those companies that are not currently active to put forward potential reclamation candidate sites for inclusion in this version of the plan. However, as the Reclamation Plan is intended to be a "living document", these sites will be incorporated in future versions/updates of the Plan. Given this, it is important that the reader recognize that the candidate sites included in this initial version of the Reclamation Plan do not represent a finite snapshot of what will be reclaimed over the life of the RAD Plan and this associated Reclamation Plan.

3.4 Deliverables and Processes

1. This reclamation implementation plan delivers:
    a. A process to identify candidate sites for reclamation focusing on access redundancies and historical footprint within the planning area.
    b. Criteria to prioritise candidate sites as an input to reclamation scheduling within the planning area. Reclamation activities will be targeted to achieve:
        i. the highest reclamation value for previously identified fish and wildlife species,
        ii. return to pre-disturbance vegetative state (e.g., trees)
        iii. quick wins
        iv. reduction in footprint

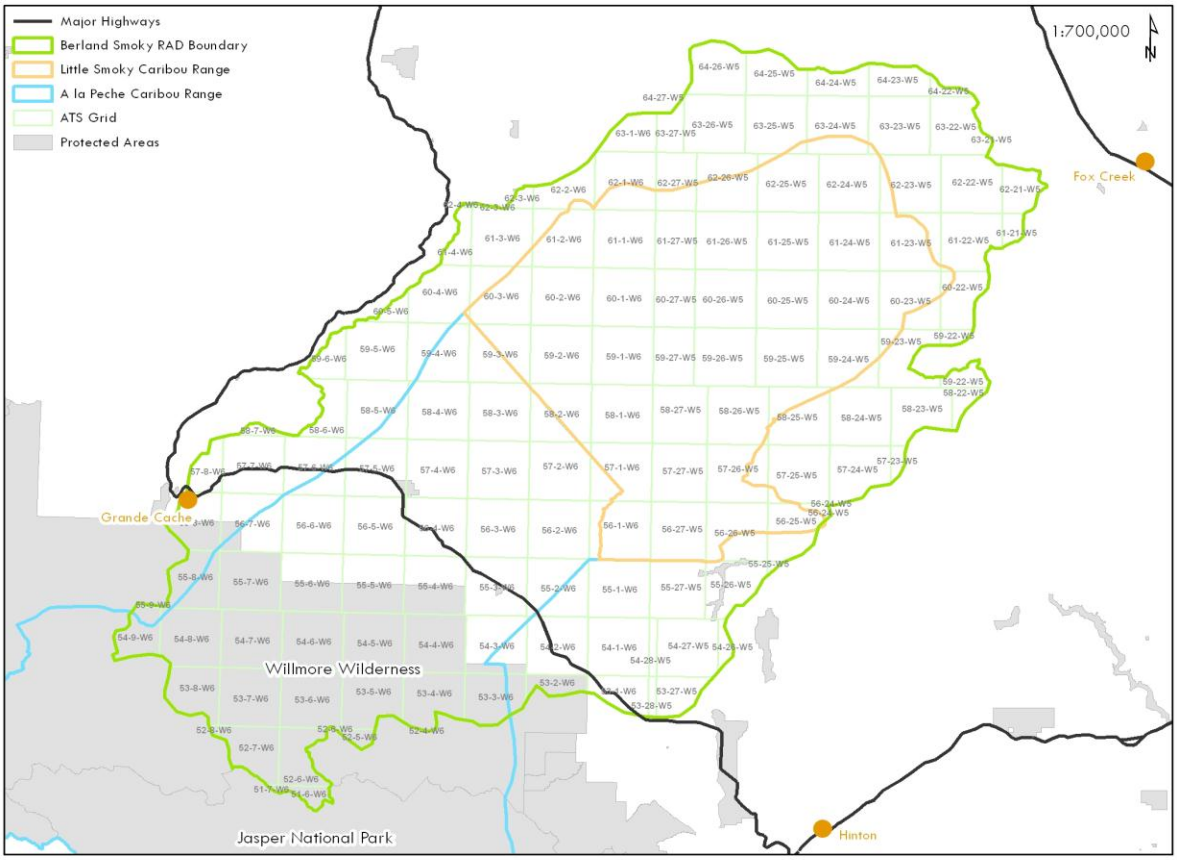
c. A process to identify policy barriers and enabling mechanisms for both government and industry.
d. A footprint monitoring and reporting plan for performance assurance that includes:
    i. open route density (km/km^2),
    ii. area of anthropogenic footprint (buffered, and un-buffered) in hectares
e. An outreach plan for directly affected stakeholders.
    i. Identify other stakeholders that need to be consulted
    ii. Define consultation plan

4.0 Scope/Study area

The study area for the Berland Smoky Reclamation Plan is the RAD Plan 2011 boundary which includes the A la Peche and Little Smoky caribou ranges and extends approximately 20 kilometres out to include the GBWU boundaries (Figure 2).

The priority caribou range both for Alberta and nationally is the Little Smoky caribou range. Due to this, reporting will be done for the Little Smoky and the whole RAD Plan area.

Figure 2. Berland Smoky ILMP area.



5.0 Planning steps for the development of the Reclamation Plan

5.1 Identify candidate sites

The FLMF and AESRD spent the summer and fall of 2012 going through the latest data sets available and conducting a series of interviews with local experts within government and industry to identify potential reclamation sites with an emphasis on access roads. The primary criterion was the identification of redundant roads. Once the access redundancies were tagged in a spatial database, each member company was provided with a list of dispositions that they own to be reviewed. The FLMF developed an outline of the criteria **(Appendix 10)** to help companies at the "office level" with this review.

The companies were further asked to provide any local level knowledge of access or other disturbances (e.g. pipe lines) that should be considered for reclamation. The office verification exercise would be followed up with field verification to determine final status or treatment level required, including:

- Criteria to identify potential reclamation candidates; and
- Prioritization of treatments (caribou-centric)

A detailed list of the FLMF member company's candidates for reclamation and/or cancellation for 2013 is provided in **Appendix 11**.

The RAD plan and this reclamation plan are driven by caribou recovery goals and objectives.

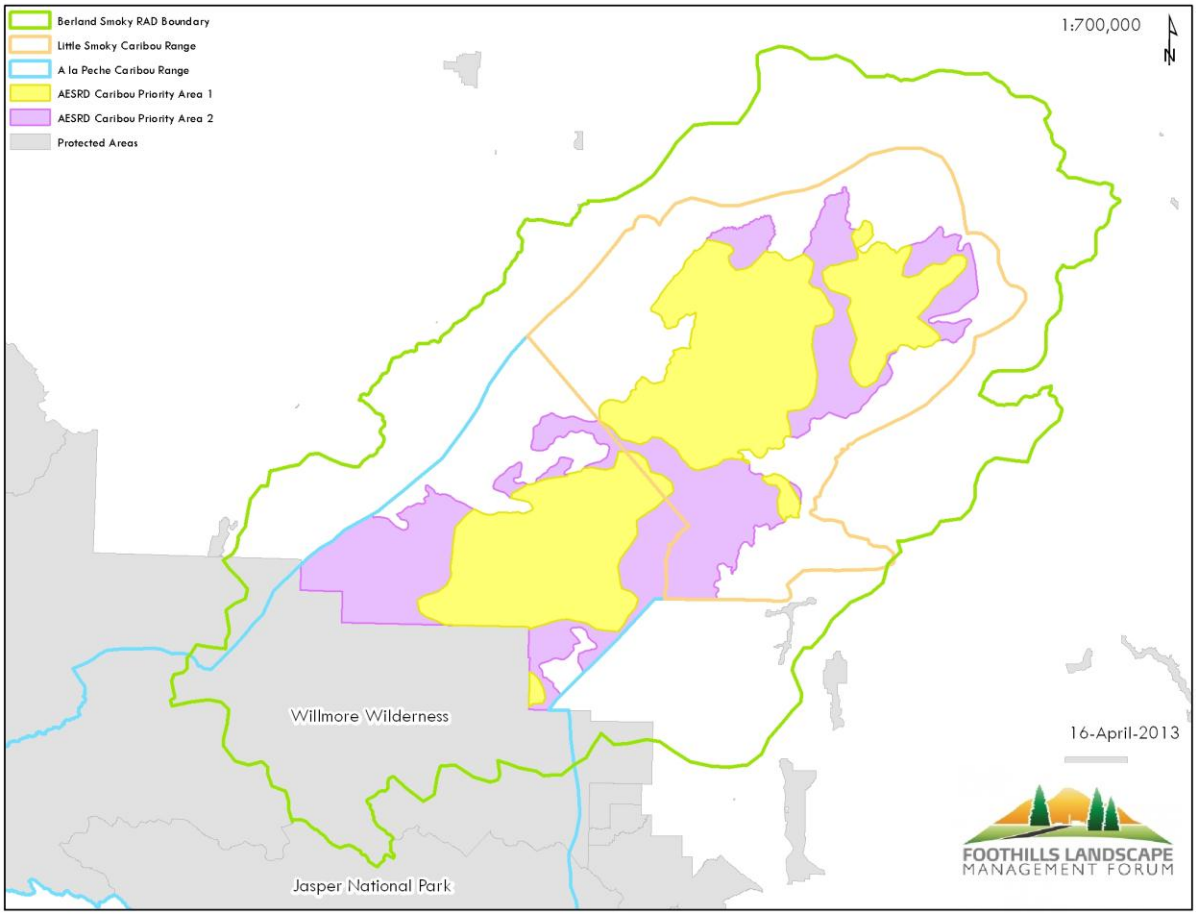
> *The recovery goal for boreal caribou is to achieve self-sustaining local populations in all boreal caribou ranges throughout their current distribution in Canada, to the extent possible.* [1]
>
> *To achieve self-sustaining woodland caribou herds in west central Alberta within their current distribution. This will be accomplished by reducing high predation rates when and where necessary to maintain individual herds and meeting habitat requirements over the short and long-term.* [2]
>
> *The Principles*
>
> *This goal can be achieved by adhering to these five basic principles:*
>
> 1. *Maintain Older Forests,*
> 2. *Maintain Large Patches of Intact Forest > 80 years old,*
> 3. *Maintain High Intactness,*

[1]Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada.
[2]West Central Alberta Caribou Landscape Planning TeamMay 6, 2008

4. *Manage Predator and Primary Prey Populations, and*
5. *Reduce Industrial Footprint*

AESRD provided the FLMF with "Caribou Priority Areas (CPA)" for reclamation to guide the FLMF reclamation planning exercise (Figure 3). Caribou Priority Area 1 is considered the highest priority area where reclamation and vegetation control might be the most beneficial for caribou.

Figure 3. AESRD Caribou Priority Areas.



As further guidance, Environment Canada states:

> *The primary threat to most boreal caribou local populations is unnaturally high predation rates as a result of human-caused and natural habitat loss, degradation, and fragmentation. These habitat alterations support conditions that favour higher alternate prey densities (e.g. moose (Alces alces), deer (Odocoileus spp.)), resulting in increased predator populations (e.g. wolf (Canis lupus), bear (Ursus spp.)) that in turn increase the risk of predation to boreal caribou.* ***This threat can be mitigated through coordinated land and/or resource planning, and habitat restoration and management,*** *in*

conjunction with predator and alternate prey management where local population conditions warrant such action. [3]

5.2 Reclamation Strategies

The FLMF will utilize a treatment matrix[4] to guide FLMF companies in applying treatments to their reclamation plans.

- Treatment prescriptions by Eco site (**Appendix 12**) and other attributes such as:
  - List of adjacent forest cover types and numbers that includes Eco site, density
  - Identify timber usage, coarse woody application, tree selection, application strategies
  - Includes site preparation
  - Slash roll back
  - Planting
  - Proposed treatments list
  - Timelines
  - Treatment options/eco site along the lineal disturbance
  - seed zones

5.3 Cost Estimates & Schedule

- Total reclamation cost estimate: 227 ha (Table 1) x $4,000/ha (based on past experience of the Caribou Range Restoration Project) = **$908,000**
- A cost schedule by year has not been determined at this time
- Source of funds is FLMF members - except 17.76 ha where there is no owner (see Next Steps)

5.4 Reclamation Priorities

As stated in the Alberta Woodland Caribou Policy:

Efforts will be undertaken to stabilize, recover and sustain woodland caribou populations in Alberta. Actions will be undertaken to address caribou habitat needs, including achievement of these requirements in land-use planning and approvals. Areas within caribou ranges will be identified and established where caribou conservation is the highest land management priority and other activities/uses minimized.

• Maintaining caribou habitat is the immediate priority.

• Restoring disturbed habitat is a critical component of caribou habitat management.

[3] Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada.

[4] Source Tim Vinge AESRD 2012.

• Management efforts will recognize habitat changes naturally in type and location over time.

• Prudent management of the land base and associated development will be required to reduce the impact on and facilitate the restoration of caribou habitat.[5]

6.0 Reclamation Plan Results

6.1 FLMF members submission of reclamation and cancellation of dispositions

The FLMF member companies submitted candidate sites in three categories:

- Proposed for reclamation (FLMF member and no identified owner)
- Proposed for deactivation
- Dispositions that were approved but not built (ie. No Entry) and could be, or have recently been, cancelled.

Table 1. Summary of FLMF member company reclamation candidate submissions.

Type	# of entries	# hectares	Reclamation only (by disposition type)		
1.Non FLMF member owned sites proposed for reclamation	9	17.76	LOC	MSL	other
			n/a	1.44	16.32
2.FLMF member owned and proposed for reclamation (subject to field verification)	9	56.69	53.69	3.00	n/a
3.Reclamation planned	59	115.17	41.41	50.96	22.80
4.Reclaimed & further inspections required (e.g. vegetation establishment)	14	22.91	10.82	12.09	n/a
5.Reclamation Certificate received in 2012	4	14.11	1.90	2.88	9.33
6.No entry - disposition to be cancelled in 2013	82	202.84	n/a		
7.No entry - disposition cancelled in 2012-13	9	15.92	n/a		
Totals	**186**	**445.4**	**226.64**		

[5] A woodland caribou policy for Alberta June 2011

The table above represents a significant commitment from FLMF members in the ILM process and it is expected to be added to on an annual basis as the process matures (**Appendix 11**).

The details regarding timing, impacts to targets, etc. are dealt with in other sections of this plan. Maps of reclamation candidates (spatial representation by various areas of interest) are attached in **Appendix 13** (maps 3, 6 and 9).

6.2 Footprint management and reporting on thresholds

In keeping with the RAD plan submission of August 2011, the two metrics reported on for this plan are:

a) For Grizzly Bear - thresholds of open route density (lineal disturbances that are driveable by a 4x4 truck during summer driving conditions). Density thresholds for core GBWU are 0.6 km/km^2 and 1.2 km/km^2 for secondary units.

b) For Caribou - overall anthropogenic footprint (area in hectares).

6.2.1 Open Route Densities

The following tables are a summary of the effect if all the RAD corridors are built without the reclamation and without the physical barriers (e.g. gates) being effective in restricting access to public. An FLMF effectiveness assessment of physical barriers is planned for 2013 to determine if physical barriers are effective and have a positive impact on managing open route densities.

Table 2. Open Route Density by Core GBWU (threshold = 0.6 km/km^2)

Core Grizzly Bear Watershed Unit	May 2010 Baseline Density	A) March 2013 Current Density (km/km2)	B) Year 2020 Current + 20% new corridors (RAD Plan) Density	Year 2020 % Change Calc: (B-A)/A	C) Year 2043 Current + 100% new corridors (RAD Plan) Density	Year 2043 % Change Calc: (C-A)/A
G32	0.29	0.29	0.31	5%	0.36	24%
G38	0.21	0.21	0.24	14%	0.36	68%
G39	0.33	0.33	0.34	3%	0.39	16%
G43	0.02	0.02	0.08	268%	0.32	1336%
G44	0.45	0.44	0.44	2%	0.47	8%
G46	0.13	0.13	0.14	4%	0.16	18%

Table 3. Open route density by secondary GBWU (threshold = 1.2 km/km^2)

Secondary Grizzly Bear Watershed Unit	May 2010 Baseline Density	A) March 2013 Current Density (km/km2)	B) Year 2020 Current + 20% new corridors (RAD Plan) Density	Year 2020 % Change Calc: (B-A)/A	C) Year 2043 Current + 100% new corridors (RAD Plan) Density	Year 2043 % Change Calc: (C-A)/A
G15	0.55	0.54	0.56	4%	0.64	19%
G20	0.32	0.35	0.38	8%	0.49	42%
G22	0.33	0.33	0.34	3%	0.38	16%
G30	0.46	0.47	0.48	1%	0.49	3%
G36	0.73	0.74	0.74	0%	0.75	2%

The tables show that all grizzly bear watershed units are well under the thresholds set for core and secondary without mitigation such as physical barriers. Regardless, restrictions of public access may still provide other benefits in critical areas; however it is believed that physical barriers may not be the most effective measure to manage this so a review is planned. This is consistent with the energy sector Enhanced Approval Process standards under which effectiveness is to be addressed.

6.2.2 Anthropogenic Footprint

In west central Alberta, woodland caribou are typically associated with large contiguous stands of mature (i.e. > 80 years old) coniferous forest. On provincially administered lands, these types of landscapes have been changing through timber harvest, oil and gas development and fire suppression. The progressive alteration of these large contiguous coniferous forests to a younger, more fragmented forest, along with short and long term climate conditions, are thought to have facilitated an increase in primary prey species other than woodland caribou (e.g. moose, elk and deer). [6]

Anthropogenic footprint is therefore a metric that has been used on caribou ranges to determine the effect on caribou population dynamics and used to determine a target habitat: Environment Canada critical habitat target[7].

[6] West Central Caribou Recovery Planning Team report May 2008.

[7] Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. xi + 138pp. This recovery strategy identifies 65% undisturbed habitat in a range as the disturbance management threshold, which provides a measurable probability (60%) for a local population to be self-sustaining.

For the purpose of understanding the anthropogenic footprint and the ability to meet Environment Canada's threshold of 65% undisturbed habitat, the FLMF produced GIS statistics for the Little Smoky range (even though this is outside of the scope for this project). All anthropogenic disturbances are buffered by 500 meters (Table 4).

Table 4. Statistics of anthropogenic disturbances using federal buffers of 500 meters.

	% disturbed (using 500 meter buffer on all anthropogenic disturbances)				**% disturbed (using 500 meter buffer) without seismic lines, fires or cutblocks. (in 50 years)**			
	LS	**CPA 1 (LS)**	**CPA 2 (LS)**	**Whole RAD**	**LS**	**CPA 1 (LS)**	**CPA 2 (LS)**	**Whole RAD**
Current state 2013?	99.1%	98.8%	98.1%	81.9%	56.7%	51.8%	47%	44.7%
Add RAD plan roads	99.1%	98.9%	98.2%	82.5%	60.4%	56.1%	52.4%	49.1%
Reclamation of all candidate sites identified by industry	99.0%	98.6%	97.9%	82.4%	60.1%	55.6%	51.8%	49.0%
% change (net)	**-0.1%**	**-0.2%**	**-0.2%**	**+0.5%**	**+3.4%**	**+3.8%**	**+4.8%**	**+4.3%**
Map attached								

The use of the Environment Canada target of 65% undisturbed habitat will be tracked over time using the FLMF databases and subsequent annual reports on these metrics.

Tables 5 and 6 show the anthropogenic footprint values for the Little Smoky and A la Peche caribou ranges respectively. Table 7 represents the whole RAD Plan area. For this Plan, the FLMF chose to report on the actual footprint change in hectares as opposed to applying a buffer of 500 meters on all anthropogenic features. The reason for this is that both caribou ranges within the RAD Plan area are dominated by the legacy of historical seismic lines. When these lines are buffered the resulting area masks the effects of any individual reclamation project.

Table 5. Summary of impacts of reclamation on access footprint for the Little Smoky caribou range.

Area of Interest	Total Area (hectares)	Road Footprint Area (hectares)		
		Current state (March, 2013)	Year 2020	Year 2043 (add 100% of RAD roads)
Little Smoky (LS) caribou herd range	308,386	2,788	2,888*	3,218*
AESRD Caribou Priority Area (CPA) 1 in LS	105,423	716	742*	826*
AESRD Caribou Priority Area (CPA) 2 in LS	64,455	447	501*	677*
Add all RAD corridors (new construction) and permitted upgrade of existing roads (EAP Classes I and II)	959	0	224**	959
Minus LOC reclamation candidates***			238	1,020
Net			2,874	3,157
% change			**+3.1%**	**+13.2%**
Map number	1	2		

* Total area of footprint was projected by determining the one year rate of change for EAP Classes III-V multiplied by the appropriate number of years. The one year rate of change calculation: (current (March 2013) – baseline (May 2010) / 3). See **Appendix 14**.

** Total area of RAD corridor footprint was projected by taking the total area, dividing it by 30 and multiplying the result by 7.

*** Total area of reclamation was projected by multiplying the Year 1 reclamation candidate site area of LOC dispositions within the LS (34 ha) by the appropriate number of years.

Table 6.Summary of impacts of reclamation on access footprint for the A la Peche caribou range.

Area of Interest	Total Area (hectares)	Road Footprint Area (hectares)		
		Current state (March, 2013)	Year 2020	Year 2043 (add 100% of RAD roads)
A La Peche (ALP) caribou herd range	166,425	1,443	1,466*	1,543*
AESRD CPA1 in ALP	65,561	442	475*	582*
AESRD CPA2 in ALP	58,509	336	334*	326*
Add all RAD corridors (new construction) and permitted upgrade of existing roads (EAP Classes I and II)	928	0	217**	928
Minus LOC reclamation candidates***			42	180
Net			1,641	2,291
% change			**+ 13.7%**	**+ 58.8%**
Map number	4	5		

* Total area of footprint was projected by determining the one year rate of change for EAP Classes III-V multiplied by the appropriate number of years. The one year rate of change calculation: (current (March 2013) – baseline (May 2010) / 3). See **Appendix 14**.

** Total area of RAD corridor footprint was projected by taking the total area, dividing it by 30 and multiplying the result by 7.

*** Total area of reclamation was projected by multiplying the Year 1 reclamation candidate site area of LOC dispositions within the ALP (6 ha) by the appropriate number of years.

Table 7. Summary of impacts of reclamation on access footprint for the Berland Smoky RAD area.

Area of Interest	Total Area (hectares)	Road Footprint Area (hectares)		
		Current state (March, 2013)	Year 2020	Year 2043 (add 100% of RAD roads)*
Berland Smoky RAD area	992,013	8,624	8,703*	8,964*
AESRD CPA1 in RAD	170,983	1,157	1,215*	1,407*
AESRD CPA2 in RAD	122,971	783	837*	1,013*
Add all RAD corridors (new construction) and permitted upgrade of existing roads (EAP Classes I and II)	2,667	0	622**	2,677
Minus LOC reclamation candidates***			379	1,624
Net			8,946	10,017
% change			**+3.7%**	**+16.2%**
Map number	7	8		

* Total area of footprint was projected by determining the one year rate of change for EAP Classes III-V multiplied by the appropriate number of years (one year rate of change calculation: current (March 2013) – baseline (May 2010) / 3). See **Appendix 14**.

** Total area of RAD corridor footprint was projected by taking the total area, dividing it by 30 and multiplying the result by 7.

*** Total area of reclamation was projected by multiplying the Year 1 reclamation candidate site area (54.12 ha) by the appropriate number of years.

The impact of the member company reclamation candidate submissions (Table 1) is reflected in Tables 5, 6, and 7. The assumption is that the proposed RAD plan corridors are approved creating a new footprint (new clearing and additional clearing for upgrades of existing right of way) of 2,667 hectares. However, as the RAD plan is a 30 year projection of primary and secondary access, not all will be built immediately upon approval.

To demonstrate this, column “Year 2020” assumes a constant rate of construction of the RAD plan corridors over the 30 year period. It is impossible at this time to project which, and at what time, RAD corridors will be built as this is primarily subject to the energy sector plans, market conditions, and many other factors that are unpredictable. It is expected that there will be an overall decrease in anthropogenic footprint in the next 7-30 year timeframe. This will be accomplished with natural and artificial recovery of historical seismic lines, new reclamation

sites and older cutblocks (e.g. >40 years) progressing to useable caribou habitat. While this assumption is not fully proven, it is currently being pursued as a research project by the FRI (**Appendix 9**).

This further illustrates that the RAD access projection and reclamation planning is an iterative and living process as opposed to a one time plan.

When considering the state of the current anthropogenic footprint (**Appendix 14**), if the removal of both the reclamation outlined within this plan and the natural recovery of seismic lines (without buffering) is accounted for, the overall area of the footprint is reduced by an estimated 12%. The legacy of the historical seismic line provides the biggest opportunity for reducing the anthropogenic footprint. The FLMF has one project underway while the FRI has an additional project in the planning stages to address this. The FLMF's project, *2012HSP6267 Develop a landscape level caribou habitat restoration plan for the Little Smoky and A la Peche caribou herds* (**Appendix 8**) is nearing completion and is a current state assessment of vegetation. The FRI's project, *2013HSP6617 Analysis and restoration of seismic cutlines in southern mountain and boreal caribou range in west-central Alberta* (**Appendix 9**) is designed to address the question of what features are required on lineal disturbances in order to reduce the influence of the disturbance on caribou, primary prey and predators. Upon completion of these two projects, *Phase Two: Historical Footprint* will be submitted to AESRD for review.

7.0 Reclamation Plan Next Steps

7.1 Operating Principles

This submission is intended to be an initial step in reclamation only as it is important for the RAD planning process and ILM to be a "living" process of adaptive management and continuous improvement. It is believed that this process will prove to be invaluable as the government develops its caribou range plans that may provide further guidance to the industry when completed.
In lieu of that guidance, the FLMF members commit to abide by the following principles for reclamation when operating in the Berland Smoky area:

a) When a FLMF member company proposes to build a new road in the RAD Plan area, and that new road results in the creation of redundant License of Occupations (LOCs) (within 250m) also owned by the company, restoration of the redundant road will be commenced within a year of the construction of the new access road.
b) When a FLMF member company proposes to build a new RAD road, and that road results in the creation of a redundant road that is NOT owned by the company, the company will work with the existing owner of the redundant road to factor its restoration into the landscape level restoration plan. Given that not all companies with tenure in the RAD Plan area are members of the FLMF, the FLMF has recognized the need for a Dispute Resolution Process, and has initiated

discussions with AESRD on the topic.

c) An ongoing Landscape Level Restoration Plan task team (including the GOA) will assess, prioritize resources, and restore historical industrial footprint, and address future redundancies in the RAD Plan area.

Through the FLMF, restoration and deactivation will be tracked, monitored, and reported annually against the following footprint metrics:

- change in open route density
- density expressed in km/km^2 for primary and secondary grizzly bear watershed units
- change in anthropogenic footprint un-buffered
    - monitoring of tree growth/productivity
    - testing of modeling assumptions
    - research wildlife usage
        - (When do reclamation activities result in caribou habitat? **Appendix 9**)

In the future, as caribou range planning efforts get underway, the FLMF will offer, assist and collaborate with AESRD in the development of recovery plans and reporting on critical habitat disturbance thresholds.

7.2 Establishment of protection measures for reclaimed sites

A key consideration for successful implementation of a reclamation plan is to encourage all operators to consider both natural and artificial regeneration on all historical footprints. This is outlined within the Enhanced Approval Process standards as *"Use existing unoccupied linear disturbances (>4 metres wide), unless doing so results in greater disturbance, and/or negative environmental impacts."*[8]

A task force made up of industry and AESRD should be struck immediately to develop standards to "protect" reclaimed sites from future destruction. This could include mechanisms for:

- referrals when applying for dispositions (e.g. notations, Landscape Analysis Tool)
- potential compensation mechanisms that reflect investments made
- Control of human use (e.g. all terrain vehicle traffic)

7.3 Other Considerations

For wildlife and environmental concerns such as water courses, soil, vegetation, and historical resources, all applicable regulations, ground rules, and best practises will be adhered to for all construction and reclamation projects.

[8] Approval Standards EAP 2011

7.4 Stakeholder Consultation

For the purposes of this plan, no consultation is contemplated as necessary to reclaim any of the sites shown in Table 1 because they all are part of normal practises to receive reclamation certification as part of each company's ongoing obligations.

At a broader scale, if and when any routes currently open to public or other use are to be closed or no longer available for public use (e.g. Forest Land Use Zones, designated trails, barriers etc.) it may require stakeholder consultation in the future.

The FLMF understands that the GOA is consulting with potentially affected First Nations regarding the potential reclamation candidate sites identified by FLMF members. FLMF anticipates that in the future, when this planning and reporting effort becomes part of an overall land management planning system, further aboriginal and public outreach will be required by GOA to deal with land use and restrictions on public use of lineal disturbances (e.g. to protect reclamation efforts).

7.5 Future Outreach & Communications

Industrial access route planning at an operational scale, as demonstrated through the RAD Plan, has been recognized by industry and government as a significant contribution to ILM. In support of future RAD planning and reclamation, FLMF member companies will work with AESRD to develop and implement a communications and education outreach strategy aimed at industry and government.

8.0 Recommendations

The FLMF believes this plan is only a first step in the full implementation of the RAD plan and ILMP for the Berland Smoky area. In order to realize the benefits for industry and government, and ultimately other values, for putting this level of effort into this exercise it is best described as a process as opposed to a plan.

When planning and operating within the Berland Smoky RAD area, certain principles will be followed, tracked and reported on towards targets on an annual basis. This is the primary reason that this reclamation plan is considered a start in the process which will ultimately increase over time.

The FLMF recommends that AESRD and the FLMF strike a task force immediately to:

a) Confirm Operating Principles (section 7.1);
b) Develop an effective and timely dispute resolution process;
c) Develop protection measures for reclaimed sites;

d) Select a pilot area within the Berland Smoky RAD plan area to conduct a life cycle analysis of road access from "cradle to grave" (i.e. keep, deactivate, reclaim);
e) Establish "effective mitigation" measures to support development (including a review of existing practises and the planned effective physical barriers assessment project);
f) Establish reporting metrics for annual reporting on managing anthropogenic footprint;
g) Identify barriers and/or potential incentives to promote reclamation;
h) Develop a process for streamlining and revising of the GOA as-built submission process requirements by utilizing new technologies available instead of the current as-built requirements;
i) Implementation of the FLSP project (innovative measures);
j) Immediately establish the governance structure for a collaborative approach to range planning.

The task force would be led by both the FLMF industry and AESRD staff to develop work plans and governance structure(s) to complete the work outlined above.

List of Appendices (available on the GOA ftp site for download)

Appendix 1. Terms of Reference for a Regional Access Development plan dated June, 2009

Appendix 2. Berland Smoky RAD Plan dated August, 2011

Appendix 3. AESRD approval letter dated December 19, 2011

Appendix 4. AESRD amendment of December 19, 2011 approval letter dated April, 2012

Appendix 5. Access Redundancies and Historical Footprint Terms of Reference dated April 25, 2012

Appendix 6. FLMF innovative strategies (letter outlining FLSP project)

Appendix 7. AESRD re-evaluation of corridors timeline letter dated February 14, 2013

Appendix 8. Future Planning progress report and 2012HSP6267

Appendix 9. 2013HSP6617

Appendix 10. Criteria to select candidate sites for reclamation

Appendix 11. Detailed listing of FLMF member reclamation and/or cancellations

Appendix 12. Reclamation treatment matrix

Appendix 13. Maps

Appendix 14. Summary of total anthropogenic footprint

GOA ftp site: ftp://ftp.env.gov.ab.ca/pub
Follow the instructions at the top of the window on how to view the page in Windows Explorer
Once in Windows Explorer, click on the "in.coming" folder
Click on "FLMF" folder
Click on “Berland Smoky Reclamation Plan” folder

List of Acronyms

In alphabetical order

Alberta Environment and Sustainable Resource Development	AESRD
Alberta Sustainable Resource Development	ASRD
Caribou Priority Areas	CPA
Enhanced Approval Process	EAP
Foothills Landscape Management Forum	FLMF
Foothills Research Institute	FRI
Geographic Information Systems	GIS
Government of Alberta	GOA
Grizzly Bear Watershed Units	GBWU
Habitat Stewardship Program	HSP
Information Letter	IL
Integrated Industrial Access Plan	IIAP
Integrated Land Management	ILM
Land Use Framework	LUF
License of Occupation	LOC
Mineral Surface Lease	MSL
Regional Access Development	RAD
Terms of Reference	TOR
West Central Alberta Caribou Landscape Planning Team	WCCLPT