

# **Management and Monitoring Strategies for High Conservation Values in the Alberta-Pacific Forest Industries Inc. Forest Management Agreement Area (2015 - 2020)**

(Results updated November, 2019)





## Executive Summary

This report is designed to summarize management and monitoring strategies for High Conservation Values (HCV) in the Alberta-Pacific Forest Industries Inc. (AI-Pac) Forest Management Agreement (FMA) area for the 2015-2020 FSC certification period. The outlined monitoring and management strategies address the management and resource development activities occurring within the FSC certified area. **AI-Pac's adaptive management feedback mechanism processes are presented and** are to be used when there is a change in status to an HCV. For each HCV designated, there are tables included which outline the management and monitoring strategies.

This version of the report has been revised to update management strategies and associated monitoring for identified High Conservation Values (HCVs). As part of the update process, we have aligned this report and **AI-Pac's identified HCVs with the new definition for HCVs resulting from the** review of the International FSC Principals and Criteria completed in 2011. As such, the HCVs identified for the AI-Pac FMA area have been assigned to one of 6 types of HCVs:

- HCV1 Species diversity
- HCV2 Landscape level ecosystems and mosaics
- HCV3 Ecosystems and habitats
- HCV4 Critical ecosystem services
- HCV5 Community needs
- HCV6 Cultural values

In this update of the HCV management and monitoring (M&M) strategies, 2019, no new HCVs have been added. In 2018 the section pertaining to HCV1 was revised to reflect recent collaborative work and draft recommendations on boreal caribou (including Alberta Provincial Range planning initiatives, the Canadian Boreal Forest Agreement (CBFA) and other projects). In the 2011-12 update, the management and monitoring strategies associated with the HCV elements identified within Environmentally Significant Areas (ESAs) (as outlined in previous versions of this document) were modified. The result was that rather than treat the entire group of ESAs as a HCV, the various ESAs were divided into related groups based on specific features (Table 3). The management and monitoring strategies associated with the different groups of ESAs are now based on high conservation values associated with these specific sites (e.g. riparian ESAs are managed with operating practices designed to maintain values associated with riparian systems). The 2019 AI-Pac FSC external audit will be the final audit for this version of the HCV M&M prior to a comprehensive review and update relative to the new FSC Canada National Forest Management Standard.



## High Conservation Values

environmental, social and/or cultural forest values that make a particular area outstandingly significant

<b>HCV1</b> Species Diversity	caribou habitat  Protected Areas
<b>HCV2</b> Landscape level mosaics	large landscape level forests  riparian & wetland ESAs
<b>HCV3</b> Ecosystems & Habitats	old forest habitat  unique & enduring feature ESAs
<b>HCV4</b> Ecosystem services	none currently identified
<b>HCV5</b> Community needs	special consultation zones near water & communities
<b>HCV6</b> Cultural values	special consultation zones near water & communities

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# Introduction

The concept of High Conservation Value Forests (HCVF) was developed by the Forest Stewardship Council (FSC) in 1999, with a focus on the environmental, social and/or cultural values that make a particular forest area of outstanding significance (FSC Canada 2004). The intent, under Principle 9, is to manage HCV forests in order to maintain or enhance the identified High Conservation values.

Following the International FSC Principles and Criterion review completed in 2011, the definition of HCVF was revised to avoid confusion around the HCVF term and focus on the High Conservation **Values themselves rather than a specific HCV area or forest. There is no single 'HCV area'.** The revised definition now designates HCVs into 6 specific groups, based on specific High Conservation Values, as outlined below:

A HCV includes any of the following values:

- HCV 1    Species Diversity:** Concentrations of *biological diversity*\* including endemic species, or *rare, threatened or endangered*\* species, that are significant at global, regional or national levels.
- HCV 2    Landscape-level ecosystems and mosaics:** Large landscape-level *ecosystems*\* and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.
- HCV 3    Ecosystems and habitats:** Rare, threatened, or endangered ecosystems, *habitats*\* or *refugia*\*.
- HCV 4    Critical ecosystem services:** Basic *ecosystem services*\* in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.
- HCV 5    Community needs:** Sites and resources fundamental for satisfying the basic necessities of local communities or *indigenous peoples*\* (for example for livelihoods, health, nutrition, water), identified through engagement with these communities or indigenous peoples.
- HCV 6    Cultural values:** Sites, resources, habitats and *landscapes*\* of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.

\* definitions for terms are provided in FSC Canada 2004

Following the identification of HCVs, management strategies must be designed to maintain or enhance the identified high conservation values that make the forest significant. The concept of HCVs has been instrumental in moving the debate away from definitions of particular forest types (e.g., primary, old forest) or methods of timber harvest, to focus instead on the values that make a forest important, allowing for a range of management decisions consistent with the conservation of these values.

Identification and management of High Conservation Values is an important component of certification of the Forest Stewardship Council. Principle 9 of the National Boreal Standard states **"Management activities in High Conservation Value Forests shall maintain or enhance the attributes which define such forests. Decisions regarding the High Conservation Value Forests shall always be considered in the context of the precautionary approach"** (FSC Canada 2004).

Management activities appropriate for the maintenance of HCVs can range from strict protection to the maintenance of existing practices. Management of **HCV's** is based on a coarse filter approach applied at the landscape level, combined with a fine filter approach where necessary to conserve specific HCVs. The coarse and fine filter approach is a management concept designed to conserve biological diversity and is a fundamental concept for the implementation of ecosystem-based management on **AI-Pac's** Forest Management Agreement (FMA) area. A coarse-filter approach is based on the hypothesis that the maintenance of naturally occurring vegetative communities, as well as the associated historic landscape patterns and processes, within the natural range of variability (NRV) will provide suitable conditions for the maintenance of a full complement of native plant and animal species (biodiversity).



(L) Steam-assisted gravity drainage development site south of Conklin, AB; (R) AI-Pac harvested area in boreal mixedwood forest.

The interplay of forestry and energy sector development in northeastern Alberta presents a rapidly changing, dynamic landscape with many associated challenges and opportunities (Schneider et al. 2003). National and global attention has been directed towards the adverse environmental effects associated with energy sector activities in Northeastern Alberta, as well as raising environmental and social concerns on a local and provincial scale. While there is little doubt the NE Alberta landscape will continue to change in the next 40 years, (based on economic, environmental and social drivers), the recent attention from the media, environmental organizations and politicians

has resulted in an increased social and political pressure to address the cumulative adverse environmental effects associated with energy sector development.

This impetus to address environmental concerns provides opportunities for innovation and the development of alternative approaches to planning and practices. An adaptive management approach, based on science and collaboratively developed through partnerships, with multiple stakeholders, is needed to minimize cumulative effects. AI-Pac is well positioned to provide leadership and strategic resources to integrated land management (ILM)<sup>1</sup> activities across the FMA area. The **management strategies and monitoring of HCV's on the AI-Pac FMA area** outlined in this report are designed to promote ILM activities to minimize the industrial footprint and the long-term maintenance of high conservation values.

## AI-Pac's Adaptive Management Feedback Mechanism

Continuous improvement is a core business philosophy in all of AI-Pac's operations. Ideas for change are encouraged from all team members and contractors. Table 1 outlines the adaptive management feedback process<sup>2</sup> for changes in status of designated HCVs and roles and responsibilities of respective teams or business units within the corporate structure of AI-Pac.

Table 1. AI-Pac's Adaptive Management Feedback Mechanism for Managed HCVs.

<b>Status Reporting and Recommendations for Change (If needed)</b>	<b>Approval of Recommendations for Change (If needed)</b>	<b>Planning / Operational Changes and Implementation (If needed)</b>
Issue- specific cross-functional teams  (cross-divisional, multi-business unit teams including biologists, foresters, operations coordinators, Aboriginal engagement staff)	Woodlands Core Team  (consists of the Woodlands Manager and business unit leaders and the director of Aboriginal Affairs)	Woodlands Operations and Forest Resources Business Unit

<sup>1</sup> Integrated land management (ILM) is a strategic, planned approach to the way land and resources are used and developed, which results in efficient use of land through informed land management planning, decision-making, actions and evaluation over the full life cycle of activities on the landscape (Government of Alberta 2010).

<sup>2</sup> Management feedback mechanisms for several of the identified HCVs differ from those outlined in Table 1. Detailed descriptions of the feedback mechanism process will be described for these HCVs in association with that HCV.

# 2015-2020 Identified High Conservation Values

## Overview

A previous version of **AI-Pac's HCV Management and Monitoring Strategy (HCV M&M)** (2009) identified a suite of HCVs within **AI-Pac's Forest Management Agreement (FMA) area based on the** questions in Appendix 4: High Conservation Value Forest National Framework of the FSC National Boreal Standard (FSC Canada 2004). The report also outlined the associated management and monitoring strategies for the long-term maintenance of these values through time. The HCVs identified in the 2009 version of the HCV M&M Strategy included: woodland caribou habitat, legislated protected areas, large landscape-level forests, provincially designated Environmentally Significant Areas (ESAs), Aboriginal Traditional Land-Use Sites and Consultation Zones around Lakes and Rivers.

As described in more detail under HCV 1.1, ongoing activities to develop and improve caribou habitat conservation and management strategies in northeastern Alberta have been added to this document as part of the annual HCV M&M reporting process (i.e. Table 4). AI-Pac participates/has participated in several collaborative woodland caribou research and monitoring initiatives such as the Canadian Boreal Forest Agreement (CBFA), the Alberta Biodiversity Chairs Program and the Regional Industry Caribou Collaboration (RICC). These projects combine strategic planning, implementation and monitoring to address knowledge gaps, develop innovative practices and monitor effectiveness. Results from the scenario planning work by the CBFA BC/AB Regional Working Group (RWG), including rationale and recommendations for boreal caribou conservation in northeastern Alberta, were used to update **AI-Pac's Caribou Conservation Strategy** (AI-Pac 2014) and to establish dialogue and seek land use solutions of common interest between CBFA signatory forest companies (including AI-Pac), the Government of Alberta, energy sector companies and Aboriginal communities.

The recommendations and zonation strategy resulting from the CBFA process were integrated into **AI-Pac's new forest management plan and the development of the preferred forest management** scenario submitted to the GoA for review and approval. The AI-Pac FMP (2015-2025) was approved by the GoA in June 2018 and contains a 20-year harvest sequence designed to minimize disturbance in caribou range, as well as identify areas of harvest deferral (minimum 20 years) to promote caribou habitat conservation and restoration of industrial footprint.

Since 2012, the HCVs were re-organized into revised HCV categories designated by the International FSC Principal and Criterion Review Process in 2011 (Table 2). As part of that process, we refined the management and monitoring strategies associated with provincially-designated ESAs as outlined in previous versions of this document. Rather than treat the ESAs on a whole as an HCV, we have divided the various ESAs into groups based on function or specific features (Table 3). Details on the assignment of the various ESAs to functional groups and HCV types are provided in Appendix 1.

Further information on Alberta's ESA program can be found at <http://albertaparks.ca/albertaparksca/library/environmentally-significant-areas-report.aspx>.

Table 2: Overview of HCV classes and identified HCVs in AI-Pac FMA area.

Types of HCVs	Description	AI-Pac HCVs
HCV 1	Species Diversity	Woodland Caribou Habitat Legislatively protected areas and conservation areas
HCV 2	Landscape-level ecosystems and mosaics	Large landscape level forests Large riparian/wetland associated mosaics (listed as Environmentally Significant Areas - ESAs)
HCV 3	Ecosystems and habitats	Old forest habitats ESAs with unique, enduring and/or topographical feature Water-associated ESAs (bogs, fens, lakes, flowing water systems) (Table 3)
HCV 4	Critical ecosystem services	None currently identified
HCV 5	Community needs	Community consultation zones Aboriginal traditional land-use sites
HCV 6	Cultural values	Community consultation zones Aboriginal traditional land-use sites

Table 3. Provincially designated Environmentally Significant Areas (ESAs) (identification numbers according to Government of Alberta 2009) divided into groups based on function or specific features.

	Provincial Parks or Recreational areas	Caribou habitat	Water-associated features				Enduring or significant features
			Bogs	Fens	Lakes &/or Bird Areas	Riparian including creek & river systems	
1	548	567	543	555	551	605	632
2	595	575	546	575	568	625	635
3	703	579	558	623	585	627	638
4	704	590	590	679	594	632	679
5	718	594	593	692	626	692	692
6	734	595	607	693	680	740	
7	735	619	618	704	692		
8	737	621	628				
9	740	623	629				
10		680	630				
11		692	633				
12		693					



## HCV 1 – Species Diversity

These HCVs include areas with concentrations of biological diversity including endemic species, or rare, threatened or endangered species that are significant at global, regional or national levels. There are two values designated as Type 1 HCVs including woodland caribou habitat and legislated protected or conservation areas.

### HCV 1.1 Woodland Caribou habitat

Woodland caribou are distributed broadly throughout the boreal forest region and were listed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2002. **Environment Canada's Recovery Strategy for Woodland Caribou, Boreal population, in Canada** released in 2012 provides direction for the subsequent development of caribou range and action plans at provincial and/or regional scales. The long-term recovery goal for caribou is to achieve self-sustaining local populations throughout their distribution in Canada to the extent possible (Environment Canada, 2012).

AI-Pac's FMA area has extensive areas of black spruce bogs and wetland complexes that provide good quality caribou habitat, and there are 6 known local populations of caribou within it including Red Earth, West Side Athabasca River (WSAR), East Side Athabasca River (ESAR), Richardson, Cold Lake Air Weapons Range (CLAWR) and Nipisi. Details relative to caribou habitat conservation and management are provided in **AI-Pac's Woodland Caribou management strategies** (AI-Pac, 2015 FMP Chpt 7, Appdx 1). There are 12 provincially designated ESAs that contain caribou habitat included in this HCV category (Table 3).

Provincially, there are several documents that provide direction for caribou planning and management activities including **Alberta's Woodland Caribou Recovery Plan for 2004-2014** (Alberta Woodland Caribou Recovery Team, 2005), **the Status of Woodland Caribou in Alberta: update 2010** (ASRD, 2010), and **A woodland caribou policy for Alberta** (Government of Alberta 2011). There have been several initiatives related to caribou range planning under guidance of the GoA from 2010-2015. AI-Pac participated in many of these initiatives, in addition to other industry sponsored projects. The GoA released a draft provincial caribou range plan in 2017. Currently AI-Pac is participating in the GoA-led caribou range planning processes for the Cold Lake and Nipisi ranges. The GoA established 3 regional planning committees in 2019, including the Cold Lake Sub-Regional Caribou Planning Task Force which encompasses part of the AI-Pac FMA area, to provide recommendations to the province on caribou management and other landscape-level land use and values. These recommendations will be used to develop a Sub-Regional Landscape Management Plan and ultimately a caribou range plan submission to Canada for the Cold Lake Range and the Christina herd (a component of the East Side Athabasca Range) in 2020.

The caribou herds located in northeastern Alberta have been the subject of research and monitoring activities since 1993 providing a scientific foundation and data for use in planning and analysis activities. Those activities were the result of collaborations between academia and industry, or partnerships with government, industry and environmental non-government organizations, who collectively were concerned with the long-term viability of caribou in NE Alberta. **The Athabasca Caribou Landscape Management Options Report** (Athabasca Landscape Team (ALT), 2009) was produced as a result of this type of collaboration. The ALT report examined management options designed to recover and sustain local boreal caribou populations in the Athabasca Landscape Study Area consistent with the direction provided in the provincial **Woodland Caribou Recovery Plan** (Alberta Woodland Caribou Recovery Team 2005). AI-Pac was actively engaged in those activities, in many different ways, with a variety of collaborators. Those activities both directly and indirectly strived to minimize the cumulative effects of resource development on

caribou and their habitat, through integrated planning to minimize the industrial footprint, and reclamation and reforestation activities to restore caribou habitat.

More recently (2010-14) AI-Pac contributed substantively to work by the BC/AB Regional Working Group (RWG) of the Canadian Boreal Forest Agreement (CBFA)<sup>3</sup> and helped draft the ***CBFA recommendations and proposed contributions towards caribou action planning in northeastern Alberta*** (CBFA BC/AB RWG 2014). The draft action plan includes recommended measures for implementation by CBFA forest industry signatories, as well as recommendations related to habitat- and population-based caribou conservation measures for designated caribou ranges including ESAR, WSAR, and CLAWR. An emphasis for the RWG was to identify candidate sites for deferral of forestry activities to reduce the forestry footprint within designated caribou ranges<sup>4</sup> over multiple decades and to also identify areas to conduct coordinated restoration of caribou habitat through industry collaborations and government-led caribou range and action planning processes. AI-Pac ecologist, Dr. Elston Dzus, also served as co-author on the **CBFA “Methodological framework for caribou action planning”** (Antoniuk et al. 2015); this document provided guidance to caribou conservation planning across Canada.

Recommendations in the draft CBFA action plan for northeastern Alberta provided a strong foundation for engagement with the energy sector, the Government of Alberta, Aboriginal communities, non-CBFA signatory forestry companies (e.g., Northland Forest Products Ltd.) **ENGO’s, and others**. The CBFA scenario planning results were expanded to those portions of all caribou ranges that overlap the AI-Pac FMA area, and subsequently integrated into AI-Pac’s **FMP** (2015-2025)<sup>5</sup> and the 20-year spatial harvest sequence (SHS) that was developed. Ultimately, implementation of caribou conservation measures will be guided by government-led range and action plans, and further refinement of zones and management strategies/priorities that occur as the Lower Athabasca Regional Plan (LARP), **the Government of Alberta’s Land-use Framework**, and the provincial caribou range and action planning processes unfold. The 2019 established Cold Lake Sub-Regional Caribou Planning Task Force will provide recommendations on caribou and other land use/values for incorporation into a sub-regional plan under the LARP.

Forestry-related measures for AI-Pac that may occur as a result of range planning activities would be incorporated into applicable forest management plans and operating ground rules as needed. In November 2019, the Alberta forest industry announced the development and funding of the Alberta Caribou Knowledge Network. The Network, with \$5 million funding over the next five years, will conduct research to address knowledge gaps related to caribou and their management, promote cross-regional, cross sector exchange of information and a discussion forum to facilitate implementation of research results into planning and operational practices. An inaugural workshop was held in October 2019 to identify existing knowledge gaps and identify topics for research synthesis, translation or implementation into practice.

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<sup>3</sup> The Canadian Boreal Forest Agreement (CBFA) was established in 2010 as a collaborative conservation initiative between the Forest Products Association of Canada (FPAC), its 19 member organizations, and seven leading non-governmental environmental organizations (ENGOS). The CBFA provides signatories with a plan to work towards a stronger, more competitive forestry industry and a better protected, more sustainably managed boreal forest. The CBFA sponsored development and completion of a Methodological Framework for Caribou Action Planning (Antoniuk et al 2012, 2015) that provided a structure for (a) collating the current understanding of the known or likely causes of decline in boreal caribou, and (b) recommending suites of current and emerging management tools to achieve caribou conservation in a given region. The framework is a guiding document for CBFA RWG members and planning practitioners.

<sup>4</sup> For updating its Woodland Caribou management strategies (AI-Pac, 2014), AI-Pac has also applied the CBFA-inspired methodology and criteria for identifying candidate sites for timber harvest and deferral zones in the Red Earth, Richardson and Nipisi caribou ranges (E. Dzus, pers. comm.).

<sup>5</sup> The forest management plan applies to all forestry companies operating within the AI-Pac FMA area.

Table 4. HCV 1.1: Management strategies and monitoring for Woodland Caribou Habitat.

<b>HCV 1.1 Woodland Caribou habitat</b> <b>Goal:</b> Conserve and restore boreal caribou habitat within designated caribou ranges to support the local population objective; the 35% disturbance management threshold (or 65% undisturbed habitat) identified by Environment Canada (2012) is established as a target to be achieved in caribou ranges over the next 50 to 100 years.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.1.1 Identify & delineate candidate zones for priority timber harvest and forestry deferral by 2015, and minimize overlap of forestry activities in caribou range and within defined caribou habitat restoration areas (i.e., areas of Class 1 habitat - predominantly bogs and fens - with known occupancy by caribou) through strategic multi-decadal sequencing of timber harvesting and/or deferrals (as per draft report by BC/AB Regional Working Group, Canadian Boreal Forest Agreement (CBFA))	<ul style="list-style-type: none"> <li>• AI-Pac/NFPL have integrated the northeast Alberta CBFA caribou conservation plan into the newly approved 2015-25 AI-Pac Forest Management Plan. Caribou habitat deferral areas and integrated management areas identified via CBFA zonation strategies incorporated in the 20-year Spatial Harvest Sequence</li> <li>• At the scale of the AI-Pac FMA area and designated caribou ranges, annually map and calculate area (ha) affected by logging activities (i.e., timber harvest areas and others data) by AI-Pac and other forest tenure holders in the FMA area to track trend in % disturbance and size of class 1 caribou habitat areas (ha).</li> </ul>	<ul style="list-style-type: none"> <li>• Within designated caribou ranges, compare trend in % disturbance and % area within 500 m of industrial footprint (and contribution of forestry footprint)</li> </ul>	<ul style="list-style-type: none"> <li>• % disturbance</li> <li>• % area within 500 m of forestry footprint</li> <li>• % contribution of natural and forestry footprint within Caribou ranges</li> </ul>	<b>All ranges over 35% disturbed</b>	RED – % human disturbance (500 m buffer) over the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy  GREEN - % human disturbance (500 m buffer) under the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy

### HCV 1.1 Woodland Caribou habitat

**Goal:** Conserve and restore boreal caribou habitat within designated caribou ranges to support the local population objective; the 35% disturbance management threshold (or 65% undisturbed habitat) identified by Environment Canada (2012) is established as a target to be achieved in caribou ranges over the next 50 to 100 years.

Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.1.2 Minimize total timber harvest footprint by using an aggregated harvest design and applying principles of ecosystem-based management (EBM) and natural range of variation (NRV) to harvest practices.	<ul style="list-style-type: none"> <li>At the scale of the AI-Pac FMA area and designated caribou ranges, report on size distribution of timber harvest areas</li> </ul>	<ul style="list-style-type: none"> <li>stable or increasing trend in deciduous and coniferous timber harvest volume per forestry footprint area relative to (m<sup>3</sup>/ha)</li> </ul>	<ul style="list-style-type: none"> <li>ratio of timber harvest volume to forestry footprint area to (m<sup>3</sup>/ha)</li> </ul>	<p>Stable</p> <p>2016 (last available annual averages) saw a decrease in m<sup>3</sup>/ha likely due to fire salvage of the Horse River Fire. That being said the trend line for both coniferous and deciduous harvests remain stable.</p>	<p>RED – trend line showing decrease in harvest volume (M<sup>3</sup>) per hectare</p> <p>YELLOW -trend line stable in harvest volume (M<sup>3</sup>) per hectare</p> <p>GREEN - trend line showing increasing harvest volume (M<sup>3</sup>) per hectare</p>
1.1.3 Within designated caribou ranges, collaborate in coordinated restoration of historical (legacy) industrial footprint and existing roads and linear features.	<ul style="list-style-type: none"> <li>Within designated caribou ranges, track area (ha) of historic industrial footprint, and area (ha) of roads and other linear features receiving restoration treatment (by AI-Pac and others were data available).</li> </ul>	<ul style="list-style-type: none"> <li>treated area (ha)</li> </ul>	<ul style="list-style-type: none"> <li>area of footprint (ha) treated and/or restored</li> </ul>	<p>2911 ha footprint treated and/or restored</p> <p>1180 ha footprint treated and/or restored within caribou range</p>	<p>RED – no footprint (ha) treated and/or restored within caribou range</p> <p>GREEN - footprint (ha) treated and/or restored within caribou range</p>

### HCV 1.1 Woodland Caribou habitat

**Goal:** Conserve and restore boreal caribou habitat within designated caribou ranges to support the local population objective; the 35% disturbance management threshold (or 65% undisturbed habitat) identified by Environment Canada (2012) is established as a target to be achieved in caribou ranges over the next 50 to 100 years.

Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.1.4 Contribute to a collaborative cumulative effects and Integrated Land Management (ILM) strategy for managing habitat disturbance in designated caribou ranges by establishing an ILM project with overlapping tenure holders in the forestry and/or energy sectors.	<ul style="list-style-type: none"> <li>Track the annual number of formalized ILM projects established and completed between AI-Pac and other forest product companies (non-CBFA signatories) and/or energy sector companies within the AI-Pac FMA area</li> </ul>	<ul style="list-style-type: none"> <li>1 ILM project initiated annually by AI-Pac and industry partners.</li> </ul>	<ul style="list-style-type: none"> <li>number of ILM projects completed</li> </ul>	<p>3 ILM projects initiated</p> <p>ILM Projects initiated = RICC (ESAR restoration project Twp 80-Rq 1-W4), COSIA Seismic Line Restoration Innovation project; GoA-led Sub-Regional Task Force (Cold Lake &amp; Christina area)</p>	<p>RED – no ILM projects initiated annually by AI-Pac and industry partners.</p> <p>GREEN - 1 or more ILM projects initiated annually by AI-Pac and industry partners.</p>

### HCV 1.1 Woodland Caribou habitat

**Goal:** Conserve and restore boreal caribou habitat within designated caribou ranges to support the local population objective; the 35% disturbance management threshold (or 65% undisturbed habitat) identified by Environment Canada (2012) is established as a target to be achieved in caribou ranges over the next 50 to 100 years.

Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.1.5 Increase the number of strategic partnerships with government, industry, ENGOs, and Aboriginal communities in order to develop and/or implement recommendations and actions for effective management of cumulative effects within the AI-Pac FMA area.	<ul style="list-style-type: none"> <li>Completion and implementation of northeast Alberta CBFA caribou conservation plan as a basis for consultation and strategic engagement with GoA, industry, ENGOs, Aboriginal groups and other stakeholders.</li> <li>Annually track the consultation effort (i.e., formal meetings and workshops) and number of strategic ILM partnerships, agreements, or MOUs, which are led or supported by government, industry, ENGOs, and/or Aboriginal communities.</li> </ul>	<ul style="list-style-type: none"> <li>Track the number of recommendations and management actions developed and/or implemented to address cumulative effects of land use through ILM within the AI-Pac FMA area.</li> </ul>	<ul style="list-style-type: none"> <li>Number of collaborative recommendations and management action plans implemented</li> </ul>	<p>8 collaborative projects initiated by AI-Pac and industry partners</p> <p>Strategic research projects initiated = 2 Avian (Validation of Avian IT Risk Matrix, Bayne CRD program), 2 BERA (BERA 2 proposal, BERA – RICC Vegetation monitoring), 3 RICC (Camera Trap program, Moose Density, Wolves &amp; Seismic lines), Protected Areas Gap analysis – Phase 3</p>	<p>RED – no ILM projects initiated annually by AI-Pac and industry partners.</p> <p>GREEN - 1 or more ILM projects initiated annually by AI-Pac and industry partners.</p>

## HCV 1.2 Legislatively Protected or Designated Conservation Areas

The legislatively protected or designated conservation areas located in/near the AI-Pac FMA area are listed in Appendix 2 and illustrated within the evidence package accompanying this document. AI-Pac/NFPL do not conduct forest management activities in Protected Areas and recently completed a revised representation analysis resulting in candidate protected areas as described in AI-Pac's Candidate Protected Area Report (2012). A current collaborative project, initiated in 2017, is conducting a protected area gap analysis including AI-Pac's FMA area as well as the Mistik Forest Management Area to the east, in Saskatchewan.

Table 5: Management strategies and monitoring for Legislatively Protected or Designated Conservation Areas.

<b>HCV 1.2 Legislatively Protected or Conservation Areas</b> <u>Goal:</u> Maintain legislatively protected areas and increase areas where caribou conservation is the highest land management priority as per GoA's caribou policy.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.2.1 AI-Pac will not harvest trees in legislatively protected areas	<ul style="list-style-type: none"> <li>Annually map forest harvest areas and overlay with protected areas</li> </ul>	<ul style="list-style-type: none"> <li>No spatial overlap of forest harvest areas and legislatively protected areas in AI-Pac FMA</li> </ul>	<ul style="list-style-type: none"> <li>Area of spatial overlap of AI-Pac's forest harvest areas and legislatively protected areas in AI-Pac FMA</li> </ul>	NO spatial overlap of forest harvest areas and legislatively protected areas in AI-Pac FMA	RED – any spatial overlap of AI-Pac's forest harvest areas and legislatively protected areas in AI-Pac FMA.  GREEN - no spatial overlap of forest harvest areas and legislatively protected areas in AI-Pac FMA

## HCV 1.2 Legislatively Protected or Conservation Areas

**Goal:** Maintain legislatively protected areas and increase areas where caribou conservation is the highest land management priority as per GoA's caribou policy.

Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
1.2.2 AI-Pac has removed new protected areas from road and harvest planning, and Annual Allowable Cut (AAC) calculations. These areas are part of the <b>"passive" landbase and can contribute to non-timber value metrics.</b>	<ul style="list-style-type: none"> <li>Measure area (ha) of new protected areas removed from road and harvest planning in AI-Pac FMA, and report on adjustments to AAC calculations</li> </ul>	<ul style="list-style-type: none"> <li>Annual Operating Plans (AOP) submitted to and approved by ESRD annually. New TSA (2015) to be submitted and approved by ESRD.</li> </ul>	<ul style="list-style-type: none"> <li>Adjusted AAC calculations based on removal of new protected areas. Track trend in area of existing and new Protected Areas in AI-Pac FMA</li> </ul>	Complete - adjusted AAC calculations	<p>RED – not complete adjusted AAC calculations based on removal of new protected areas.</p> <p>GREEN - complete adjusted AAC calculations based on removal of new protected areas.</p>
1.2.3 AI-Pac supports development and implementation of new conservation areas as proposed in the Lower Athabasca Regional Plan of the Landuse Framework (LUF) (Government of Alberta 2012)	<ul style="list-style-type: none"> <li>Summarize number and size (ha) of new conservation areas in AI-Pac FMA and at a regional scale (i.e., Gipsy-Gordon Wildlife Provincial Park, Dillon River Conservation Area)</li> </ul>	<ul style="list-style-type: none"> <li>Measure spatial overlap of new LARP protected areas with designated provincial caribou ranges in AI-Pac FMA to determine ha's of caribou range, and ha's of suitable caribou habitat (i.e., Class 1 habitat), Old Forest, and Large Landscape Level Forests within wildland parks or other designated protected areas.</li> </ul>	<ul style="list-style-type: none"> <li>Track trend in number and size (ha) of new conservation and other legislatively protected areas in AI-Pac FMA and region. (reference to 2012, pre-LARP, as baseline)</li> </ul>	<p>Protected area network increasing.</p> <p>5,752,947 - Cumulative Area (Ha) of Protected area intersecting RAA.</p> <p>1,227,983 - Cumulative Area (Ha) of Protected area within RAA.</p> <p>464,558 - Cumulative Area (Ha) of Protected area within MAX FMA.</p>	<p>RED – not completed tracking trend in number and size (ha) of new conservation and other legislatively protected areas in AI-Pac FMA and region.</p> <p>GREEN – Completed tracking trend in number and size (ha) of new conservation and other legislatively protected areas in AI-Pac FMA and region.</p>

## HCV 2 Landscape-level ecosystems and mosaics

Al-Pac's Type 2 HCVs include large landscape-level ecosystems and ecosystem mosaics that are significant at regional, national or global levels that contain viable populations of most naturally occurring species in natural patterns of distribution and abundance. Al-Pac's FMA is a diverse landscape, located in the Boreal Plains Ecoregion, with extensive boreal wetland and riparian systems intertwined with deciduous, mixedwood and coniferous forest types.

There are two types of landscape-level ecosystems and mosaics identified as HCV 2 in Al-Pac's FMA area including:

- HCV 2.1 Large landscape-level forests (As defined by Global Forest Watch 2014) [www.intactforestlandscapes.org](http://www.intactforestlandscapes.org)
- HCV 2.2 Large riparian and wetland mosaics contained in provincially designated Environmentally Significant Areas



## HCV 2.1 Large landscape-level forests

Table 6: Management strategies and monitoring for Large Landscape-Level Forests.

<b>HCV 2.1 Large landscape level forests (LLLFs)</b>					
<u>Goal:</u> Maintain intactness and avoid fragmentation of large landscape level forests.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
2.1.1 Develop an efficient road network for log deliveries throughout the AI-Pac FMA area that minimizes the amount, distribution and duration of the roading footprint	Adherence to Operating Ground Rules for NE Alberta (Alberta-Pacific Forest Industries Inc., and Alberta Environment and Sustainable Resource Development 2015)	Monitor trend in road density within each Intact Forest Landscape (IFL).	stable or declining trend in average density of primary roads within IFL at township sampling unit	All IFLs have 0 % disturbance, by primary roads within IFL	RED – increasing trend in average density of primary roads within IFL  YELLOW - stable trend in average density of primary roads within IFL  GREEN - declining trend in average density of primary roads within IFL

<b>HCV 2.1 Large landscape level forests (LLFs)</b>					
Goal: Maintain intactness and avoid fragmentation of large landscape level forests.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
2.1.2 Manage the cumulative area, and average density and duration of industrial footprints within IFLs in the AI-Pac FMA area by coordinating footprint growth and restoration through the Integrated Landscape Management (ILM) program.	Within IFL s, track area (ha) of historic and current industrial footprint, treated and/or restored (by AI-Pac and all other parties)	% disturbance within IFL	% disturbance area of footprint (ha) treated &/or restored	4 ILFs have 0 % disturbance, and 1 ILF has 2% disturbance	RED – % disturbance over the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy  GREEN - % disturbance under the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy

Table 7. Adaptive Management Feedback Mechanism for Large Landscape Level Forests.

<b>Status Reporting and Recommendations for Change (If needed)</b>	<b>Approval of Recommendations for Change (If needed)</b>	<b>Planning Operational Changes and Implementation (If needed)</b>
Landscape Level Harvest Team  Integrated Land Services Business Unit (business unit team including planners, and land managers who interact with oil and gas companies working on the FMA).	Woodlands Core Team	Woodlands Operations  Integrated Land Services Business Unit

## HCV 2.2 Large riparian and wetland associated mosaics

This HCV contains sites that are composed primarily of riparian or wetland areas (Table 3), are designated as Environmentally Significant Areas (ESAs) and are over 50,000 ha in size.

The two interior patterned saline marshes, located at 56E 40'30"N, 110E 55'W, and 56E 44'30"N, 110E 30'W that fall within the provincial ESA 740 are also included in this HCV.



Table 8: Management strategies and monitoring for Large Riparian and Wetland-associated Mosaics

<b>HCV 2.2 Large riparian/wetland-associated mosaics (listed as Environmentally Sensitive Areas – ESAs)</b>					
<u>Goal:</u> Maintain riparian and wetland complexes in the landscape.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
2.2.1 All timber harvesting operations by AI-Pac that are adjacent to riparian areas and wetlands will adhere to the NE Alberta Operating Ground Rules	<ul style="list-style-type: none"> <li>Annual reporting of AI-Pac's internal compliance system is conducted through a dedicated staff position, who conducts regular reviews of harvest planning units and contractor performance.</li> <li>External compliance of timber harvesting operations is done according to Annual Operating Plans and final harvest plans that are approved by Alberta Agriculture and Forestry (AAF) and subsequently monitored through its Forest Operation Monitoring Management Program (FOMP).</li> </ul>	<ul style="list-style-type: none"> <li>Official report and compliance review is completed through Government of Alberta's FOMP</li> </ul>	<ul style="list-style-type: none"> <li>No occurrences of noncompliance under FOMP</li> </ul>	<b>0 Variances (non-penalty)</b>  (see FOM Action Plan November 2018)	RED – more than 3 occurrences  YELLOW – 1 to 3 occurrences  GREEN – 0 occurrences

## HCV 3 – Ecosystems and Habitats

This group of high conservation values includes values associated with specific ecosystem types or habitats that may be rare, threatened, or endangered within **AI-Pac's Forest Management Agreement area**. There are three types of HCVs identified as type 3 HCVs including:

- HCV 3.1 Old forest habitat
- HCV 3.2 Environmentally significant areas with unique, enduring and/or topographic features
- HCV 3.3 Water-associated environmentally significant areas

### HCV 3.1 Old forest habitat

Although there are no ecosystems currently in decline within the AI-Pac FMA area, AI-Pac has developed several operation practices and planning strategies to maintain old forest habitats across the landscape through time. **AI-Pac's old forest strategy is based on the natural disturbance model**, with old forest retention targets based on historic disturbance patterns (and the associated natural range of variation (NRV) through time) in the boreal plain ecoregion of northeastern Alberta and northwestern Saskatchewan. Old forest targets are developed based on the historic range of variability in old forest patch size and distribution (Andison 2003, 2015), and are input into **AI-Pac's forest planning process** via the Patchworks Spatial Planning Model and forest management scenario development process. Old forest retention indicators are met through a combination of fixed areas (including legislated protected areas, the river breaks along the Athabasca and Clearwater Rivers, non-operable areas (including non-merchantable forests) and OGR buffers) as well as roving old forest areas, which move across the landscape through time and could include areas of productive forest sites with extended rotation ages, caribou deferral areas or older forests on the merchantable landbase that have not yet been harvested.

Table 9. Management strategies and monitoring for old forest habitat.

<b>HCV 3.1 Old forest habitats</b> <b>Goal:</b> Retain old forest habitats across the landscape through time.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
3.1.1 Within the AI-Pac FMA area, retain old-forest areas (mature and over-mature forest stands) for each of the four main forest cover types (Aw, Pj, Sb, Sw Mixedwood) within +/- 25 per cent of the mean of the Natural Range of Variability (NRV), as defined utilizing a landscape NRV model. (Andison 2003, 2015) as stated in the 2006 FMP.	<ul style="list-style-type: none"> <li>• Every 10 years, occurrence of old forest and distribution for all four major strata is recalculated for the AI-Pac FMA area. Amount of old forest by strata and where it occurs within the NRV is assessed.</li> <li>• Within the FMA area, Alberta Vegetation Inventory (AVI-II) polygon data are updated every 12 years, while the forest company land use footprints are updated annually; these data are used to adjust for decline or removal of old growth forests due to forest company activities and fire. Fire areas (gross perimeter area) are removed from the AVI the year after an event and remain out of the AVI until a new inventory (AVI-II). The ongoing AVI data provide the basis for recalculation (every 10 years) of the AAC in the timber supply analysis (TSA).</li> </ul>	<ul style="list-style-type: none"> <li>• Compilation every 10 years of old forest occurrence and distribution for all four major strata for the entire FMA area</li> </ul>	<ul style="list-style-type: none"> <li>• Comparison of old forest occurrence and distribution to NRV ranges from landscape simulation model (Andison 2003, 2015 – model recalibration)</li> <li>• The four main strata have % of stratum targets for min/max/avg/medium/25<sup>th</sup>/75<sup>th</sup> percentiles</li> </ul>	Modeled the distribution and amount of juvenile, immature and mature seral stages in each of the 4 major stratum at 10, 50, 100 and 200 years.  Completed for 3 FMA area zones (S14, S11, S18, S22) & (S23, L2, L8 L1) & (A14, A15, L3, L11)  Model met 25 <sup>th</sup> percentile for old forest / stratum /zone within modelling horizon. See 2015 FMP-Timber Supply Analysis (TSA) section.	RED – no old forests outside riparian areas. No strata within NRV  YELLOW – 4 strata within NRV and reduced old forest distribution in Southern FMU's  GREEN – 4 strata within NRV and old forest well distributed within each FMU

HCV 3.1 Old forest habitats					
Goal: Retain old forest habitats across the landscape through time.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
3.1.2 Refine AI-Pac's old forest strategy using wood supply models in the 2015 FMP to forecast old-forest occurrence and distribution for the four major strata (Aw, Pj, Sb, Sw mixedwood) for the FMA area. Examine predicted old forest amount through the planning horizon in terms of the Natural Range of Variability (NRV).	<ul style="list-style-type: none"> <li>the preferred forest management scenario included in the 2015 FMP was developed using a spatial zonation strategy to address concerns for caribou habitat maintenance and/or restoration. Caribou require extensive areas of undisturbed, older forest. AI-Pac's zonation strategy was designed to retain older, undisturbed habitat in caribou ranges while the provincially led caribou range planning process is completed. The strategy considers 2 key land uses: a timber harvest zone where forest harvest and energy sector activities will occur, and caribou habitat deferral areas to minimize new forest harvest disturbances within caribou range and facilitate restoration of disturbed habitat.</li> <li>The timber harvest areas will continue to be managed to achieve old forest targets for all four major strata (Pj, Sb, Aw, Mixedwood) as stated in the 2006 FMP: maintain old forest habitats within <math>\pm 25\%</math> of the NRV for old forest and interior forest patches.</li> <li>caribou habitat deferral areas will not be scheduled for harvest for a minimum of 20 years (will be re-examined during development of the next FMP) or unless otherwise directed as a result of the GoA caribou range planning process.</li> </ul>	<ul style="list-style-type: none"> <li>Biodiversity metrics related to old forest from ABMI surveys at regional and local scales.</li> <li>2015 Timber Supply Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Amount of old forest (ha) by target stratum and proportion (%) of forested land cover.</li> <li>Current old forest amounts by stratum / zone and within FMA area (3 zones) has been prepared and included in the 2015 FMP.</li> </ul>	<p><b>2015 FMP's Timber supply analysis complete with NRV targets (Andison 2015)</b></p> <p>Details and a map of AI-Pac's Woodland Caribou Habitat Strategy are in the 2015 FMP. Chapter 7, section 3.1.1 pg. 7-12.</p>	<p>RED – % and Amount of old forest fall NOT within NRV</p> <p>GREEN – % and Amount of old forest fall within NRV</p>

## HCV 3.2 Environmentally significant areas with unique, enduring and/or topographic features

The inclusion of several of the provincially designated Environmentally Significant Areas (ESAs) as a HCV 3 relative to areas with unique, enduring and/or topographic features contributes to ecosystem and habitat diversity and representation of non-forested sites. Northeastern Alberta has a varied landscape with unique features including sand dunes, deltas and karst topography. Definitions of these features are included in Appendix 3.

Includes ESAs:

- 1) 632 Chelsea Creek area flutings
- 2) 635 Fort MacKay area dolines
- 3) 638 McClelland Lake area dolines
- 4) 679 Fort Hills area kames, kame delta
- 5) 692 Algar River Sandhills dunes, Grand Rapids area rapids, Lake Athabasca area dunes

Table 10: Management strategies and monitoring for ESAs with Unique, Enduring &/or Topographical Features.

<b>HCV 3.2 Environmentally Significant Areas (ESAs) with unique, enduring and/or topographical feature</b> <b>Goal:</b> Management and conservation of ESAs with unique features including sand dunes, deltas and karst topography in northeastern Alberta.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
3.2.1 Minimize disturbance from industrial footprint within ESAs. This will be achieved through integration of industrial activities on the AI-Pac FMA area, and managing industrial footprint in terms of its cumulative area, and average density and duration on the landbase through the Integrated Landscape Management (ILM) program.	<ul style="list-style-type: none"> <li>Within HCV 3.2 ESAs, track area (ha) of current industrial footprint, and area (ha) of roads and other linear features treated and restored (by AI-Pac and all other parties)</li> </ul>	<ul style="list-style-type: none"> <li>% disturbance within ESAs</li> </ul>	<ul style="list-style-type: none"> <li>% disturbance</li> <li>area (ha) of footprint</li> <li>area (ha) treated and/or restored</li> </ul>	For the portions of ESAs within the FMA MAX area. The % area disturbed is under the 65% undisturbed threshold.	RED – % disturbance over the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy  GREEN - % disturbance under the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy

### HCV 3.3 Water-Associated Environmentally Significant Areas

Water-associated ESAs have been grouped in this HCV3 category. Al-Pac's preferred strategy for water-associated ESAs is to avoid activities in or near wet areas. Where activities are necessary proximal to water, Al-Pac's planning and operational practices, as outlined in the Northeast Alberta Operating Ground Rules (Alberta-Pacific Forest Industries Inc., and Alberta Environment and Sustainable Resource Development 2018), are applied to minimize adverse effects and maintain healthy aquatic ecosystems.

This HCV includes ESAs:

- 1) Bogs: 543, 546, 590, 593, 607
- 2) Fens: 555, 575, 623, 692, 693, 704
- 3) Lakes: 551, 568, 585, 594, 626, 680, 692
- 4) Riparian: 605, 625, 627, 632, 692, 740 (incl. creeks, rivers)

The two interior patterned saline marshes, located at 56E 40'30"N, 110E 55'W, and 56E 44'30"N, 110E 30'W that fall within the provincial ESA 740 are also included in this HCV.



Table 11: Management strategies and implementation monitoring for Water-associated Environmentally Significant Areas.

<b>HCV 3.3 Water-associated ESAs (bogs, fens, lakes, flowing water systems)</b> <b>Goal:</b> Minimize adverse effects from industrial activities and maintain healthy aquatic ecosystems.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
3.3.1 Management of all activities around riparian zones and wetlands is based upon adherence to the NE Alberta Operating Ground Rules. Continue to work with research partners to synthesize and implement research results to enhance understanding of hydrology.	<ul style="list-style-type: none"> <li>Annual Operating Plans (AOP) and Final harvest plans that are compliant with Operating Ground Rules approved by Alberta Environment and Sustainable Resource Development (AESRD), annually.</li> </ul>	<ul style="list-style-type: none"> <li>Minimize forestry disturbance within water-associated ESAs</li> </ul>	<ul style="list-style-type: none"> <li>Area (ha) Forestry footprint</li> </ul>	For portions of ESAs within the FMA MAX area the % disturbance is well under the 65% undisturbed threshold.	RED – % disturbance over the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy  GREEN - % disturbance under the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy

<b>HCV 3.3 Water-associated ESAs (bogs, fens, lakes, flowing water systems)</b>					
Goal: Minimize adverse effects from industrial activities and maintain healthy aquatic ecosystems.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
3.3.2 Minimize, through integration of industrial activities on the FMA area, the industrial footprint in terms of its cumulative area, and average density and duration on the landbase through the Integrated Landscape Management (ILM) program	<ul style="list-style-type: none"> <li>Within water-associated ESAs, track area (ha) of current industrial footprint, and area (ha) of roads and other linear features treated and restored (by AI-Pac and all other parties)</li> </ul>	<ul style="list-style-type: none"> <li>% disturbance within water-associated ESAs</li> </ul>	<ul style="list-style-type: none"> <li>% disturbance</li> <li>area (ha) of footprint</li> <li>area (ha) treated and/or restored</li> </ul>	For portions of ESAs within the FMA MAX area the % disturbance is well under the 65% undisturbed threshold.	<p>RED – % disturbance over the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy</p> <p>GREEN - % disturbance under the 65 % undisturbed threshold as per Environment Canada caribou recovery strategy</p>

#### HCV 4: Ecosystem services

Values for inclusion under Type 4 HCVs includes forest features or values associated with the provision of basic *ecosystem services*\* in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes. There are currently no Type 4 HCVs identified on the AI-Pac FMA area.

#### HCV 5 and 6: Community needs and cultural values

High conservation values associated with local and/or Aboriginal communities are addressed through values identified under HCV Type 5 (community needs) and HCV Type 6 (cultural values). Type 5 HCVs contain sites and resources that are fundamental for satisfying the basic necessities for local communities and indigenous peoples as identified through engagement with the affected local communities and/or peoples. Type 6 HCVs include sites, resources and landscapes of global or national significance (from a cultural, archaeological or historical perspective) and/or critical cultural, ecological, economic or sacred/religious importance for the traditional cultures of local communities

and/or indigenous peoples, as identified through engagement in participatory activities including community meetings, Elders tours and workshops.



Lakes are an important community resource providing a variety of types of food and are important travel routes in winter and summer.



Rivers and wetland systems are seasonally important sites, especially for hunting waterfowl and moose, as well as providing medicinal plants.

To maintain cultural interests in the forest land base, AI-Pac has engaged Aboriginal communities within and around the FMA boundary to identify and manage traditional land use sites and areas. These efforts are designed to increase AI-Pac's ability to utilize location-specific traditional land-use information held by local Aboriginal communities within the AI-Pac forest management planning process. The end goal is to either protect and maintain, or minimize impacts on the community needs or cultural values associated with these locations to ensure Aboriginal people and communities have the continued ability to use these sites and areas for traditional activities.

These methods have allowed AI-Pac to collect the following site- and area-specific Aboriginal traditional land use information:

- Big game hunting locations
- Fur bearer trapping locations
- Fishing locations
- Medicinal plants, trees & herbs
- Settlement sites and trap lines
- Spiritual sites, grave sites & historical sites
- Treaty Land Entitlement (TLE) Areas – *legal areas removed from FMA area in 2011*

Each category of sites has been identified as significant to local Aboriginal communities, for reasons related to subsistence needs, as well as to the maintenance of traditional Aboriginal culture. Moreover, the methods through which this information is collected are developed in consultation with Aboriginal communities. Through such consultation, these traditional site- and area-specific locations are most often identified around major lakes and river systems located within the FMA area. As such, AI-Pac has instituted unique Aboriginal community consultation zones around these water systems.

Table 12: Waterbodies included in the Community Consultation Zones

	Lakes	Rivers
1	Bohn Lake	Athabasca River
2	Calling Lake	Clearwater River
3	Chipewyan Lake	Christina River
4	Christina Lake	Wabasca River
5	Cowper Lake	
6	Heart Lake	
7	Muskwa Lake	
8	Peerless Lake	
9	Sandy Lake	
10	Tee Pee Lake	
11	Rock Island Lake	
12	Winefred Lake	
13	Willow Lake	

Table 13. Management Strategies and Implementation Monitoring for Community Consultation Zones and Aboriginal Traditional land-use sites.

<b>HCV 5.1 and 6.1 Community consultation zones and Aboriginal Traditional land use sites</b> <b>Goal:</b> Maintain and improve relationships with the six Aboriginal communities within the AI-Pac FMA through regular and directed communication and consultation.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
5/6.1.1 Consult with Aboriginal communities within the FMA when planned harvesting activities are adjacent to lakes and rivers that are near these communities to address and mitigate impacts to cultural and community values.	<ul style="list-style-type: none"> <li>Number of Open House and community meetings to discuss AI-Pac Annual Operating Plans</li> </ul>	<ul style="list-style-type: none"> <li>Map harvest activities and calculate area (ha) of planned and /or actual forest cutblocks that occur adjacent to lakes and rivers near Aboriginal communities within the FMA area</li> </ul>	<ul style="list-style-type: none"> <li>Maps with areas of cultural and community values identified and shared with communities; maintenance and updates to cultural &amp; community values database</li> </ul>	HCVs discussed at community consultation and engagement meetings. Cultural and community values identified and incorporated in forest plans.	RED – no maps produced  GREEN – Identified cultural areas present area mapped, and shared

<b>HCV 5.1 and 6.1 Community consultation zones and Aboriginal Traditional land use sites</b> <b>Goal:</b> Maintain and improve relationships with the six Aboriginal communities within the AI-Pac FMA through regular and directed communication and consultation.					
Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
5/6.1.2 Confirm that existing Memorandums of Understanding (MOU) with Aboriginal Communities (Heart Lake First Nation, Bigstone Cree Nation, Chipewyan Prairie First Nation, Fort McKay First Nation) within the FMA area are addressing community needs and concerns, and achieving MOU objectives (i.e., effective consultation, economic and community development and shared learning).	<ul style="list-style-type: none"> <li>Annual number of meetings (by community and/or attendance of community representatives) related to existing MOUs and/or forest harvest activities adjacent to communities with MOUs.</li> </ul>	<ul style="list-style-type: none"> <li>Annual summary of cutblock design modifications and/or revisions to forest harvest plans based on community input; number and nature of revisions to current MOUs</li> </ul>	<ul style="list-style-type: none"> <li>Positive feedback from communities with signed MOUs; direct economic value of AI-Pac sponsored contracts with and / or contributions to communities; number of community development projects</li> </ul>	Seven MOUs being maintained. Positive feedback received.	RED – Negative feedback  GREEN – neutral or positive feedback
5/6.1.3 Maintain and develop Memorandums of Understanding with Aboriginal communities (within the FMA area to identify community needs and concerns, forest values and cultural sites.	<ul style="list-style-type: none"> <li>Annual number of meetings with respective Aboriginal communities to develop new MOUs</li> </ul>	<ul style="list-style-type: none"> <li>Development and sign-off of new and maintained MOUs with Aboriginal communities in FMA</li> </ul>	<ul style="list-style-type: none"> <li>Number of MOUs with Aboriginal communities in FMA</li> </ul>	MOUs with: <ul style="list-style-type: none"> <li>Fort McKay First Nation</li> <li>Heart Lake First Nation</li> <li>Chipewyan Prairie Dene First Nation</li> <li>Bigstone Cree Nation</li> <li>Fort McMurray First Nation</li> <li>Peerless Trout First Nation</li> <li>Mikisew Cree First Nation</li> </ul>	RED – No MOU's in place  YELLOW – Decreasing number of MOU's  GREEN – Maintain or increase number of MOU's

**HCV 5.1 and 6.1 Community consultation zones and Aboriginal Traditional land use sites**

Goal: Maintain and improve relationships with the six Aboriginal communities within the AI-Pac FMA through regular and directed communication and consultation.

Management Objective and Strategy <i>"what is the desired outcome?"</i>	Implementation Monitoring <i>"did you do what you said or thought you would?"</i>	Effectiveness Monitoring <i>"did our actions achieve our objectives?"</i>	Effectiveness Measure <i>"what are the specific indicators or measures of performance?"</i>	Results 2019	Scoring
5/6.1.4 Minimize harvest-related effects to registered trap lines during the development of forest harvest plans through consultation with Aboriginal and non-Aboriginal trappers.	<ul style="list-style-type: none"><li>Number of registered traplines that are affected directly by forest harvesting activities in AI-Pac's Annual Operating Plan</li></ul>	<ul style="list-style-type: none"><li>Examples of agreements between AI-Pac and affected registered trappers</li></ul>	<ul style="list-style-type: none"><li>Number of affected trappers AI-Pac's Trapping Coordinator met with regarding harvest activities.</li></ul>	Trappers affected by harvests are consulted.	RED – No trappers consulted  GREEN – Trappers effected by harvest consulted

Table 14. Adaptive Management Feedback Mechanism for Community Consultation zones and Aboriginal Traditional land-use sites.

<b>Status Reporting and Recommendations for Change (If needed)</b>	<b>Approval of Recommendations for Change (If needed)</b>	<b>Planning Operational Changes and Implementation (If needed)</b>
Woodlands Core Team  Forest Resources Team  Aboriginal Affairs Business Unit	Woodlands Core Team	Woodlands Operations  Aboriginal Affairs Business Unit  Forest Resources Team

## Appendices:

### Appendix 1: Overview of ESA functional grouping process

Environmentally significant areas are defined as areas that are vital to the long-term maintenance of biodiversity, physical landscape features and/or other natural processes at multiple scales (Jennings and Reganold, 1991). During the 2009 update process for Alberta's ESAs a scientifically rigorous, defensible and relevant methodology, using a defined set of criteria, was applied.

ESAs were designed to be a scientifically relevant and credible tool for integrating ecological values into regional planning and management activities. The ESAs help to identify and prioritize areas that may be important for conservation or that require special management consideration. Systematic conservation design principles were applied to the analysis conducted for the provincial ESA classification update process. The 7 ecological criteria used to identify ESAs include:

1. Contains 5 or more elements of conservation concern
2. Contains rare or unique landforms
3. Contains habitat for focal species
4. Contains important wildlife habitat
5. Contains riparian areas (headwater streams, intact riparian areas or contains riparian areas along the six major rivers)
6. Contains large natural areas
7. Contains sites of recognized significance

Further information on Alberta's ESA program can be found at

<http://albertaparks.ca/albertaparksca/library/environmentally-significant-areas-report.aspx>.

Each ESA was assigned a significance rating of international, national, or provincial based on the specific elements it contained. Conservation elements with the highest concern level within an ESA took precedence when assigning the overall level of significance.

ESAs were identified as HCVFs in previous versions of AI-Pac's HCVF Management and Monitoring Strategy (2004). To streamline AI-Pac's planning and operational practices, and enhance implementation of management strategies, the process for managing ESAs was reviewed in 2012 to look for possible adjustments to the process. GIS layers were combined to identify the number and location of each ESA in the AI-Pac FMA area in relationship to the other identified HCVs (caribou habitat, large landscape level forests and protected areas). There was extensive overlap with many of the HCVs and the ESAs. Unique ESAs were identified (i.e., those that did not overlap with other HCVs) and organized into functional groups as listed in Table 3 of this report.

## **Appendix 2: Existing and 2012 LARP proposed, 2018 and 2019 (new/expanded) conservation and/or protected areas in and adjacent to, AI-Pac's FMA area**

### **Existing conservation areas**

La Butte Creek  
Colin-Cornall Lakes  
Fidler-Greywillow  
Maybelle River  
Richardson Dunes  
Birch Mountains  
Margeurite River  
Whitemud Falls  
Gipsy Lake  
Stony Mountain  
Grand Rapids  
Athabasca Dunes  
Crow Lake  
Egg Island

### **2012 LARP proposed conservation areas<sup>6</sup>**

Kazan Wildland Park\*  
Richardson Wildland Park\*  
Gipsy-Gordon Wildland Park  
Birch Mountains Wildland Park\*  
Birch River Conservation Area\*  
Dillon River Conservation Area\*

### **2018 Wildland Provincial Parks**

Kazan (expansion)  
Richardson (expansion)  
Dillon River (new)  
Birch River (new)  
Birch Mountain (expansion)

### **2019 Wildland Provincial Parks**

Kitaskino Nuwenëné Wildland

### **Existing Provincial Parks for Recreation (Provincial Parks)**

Lakeland  
Sir Winston Churchill  
Cold Lake  
Moose Lake  
Gregoire Lake  
Crow Lake  
Garner Orchid Fen Natural Area  
La Saline Natural Area

### **2012 New Provincial Recreation Areas**

Slave River Rapids  
Andrew Lake  
Gardiner Lakes  
Gregoire Lake  
Christina Crossing  
Cowper Lake  
Crow Lake  
Goodwin Lake  
Clyde Lake  
Winefred Lake

### **2012 new Public Land Areas for Recreation & Tourism**

Lake Athabasca  
Richardson  
Athabasca River  
Clearwater River  
House River

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<sup>6</sup> GoA passed orders in council May 2018 to officially create new and expanded parks (those with asterisks). See May 15, 2018 press release "[Creating world's largest boreal protected forest](#)".

## Appendix 3: Unique and enduring feature descriptions\*

### Dolines

A sinkhole, also known as a sink, snake hole, swallow hole, swallet, **doline**, or cenote, is a natural depression or hole in the Earth's surface caused by karst processes — the chemical dissolution of carbonate rocks or suffosion processes for example in sandstone. Sinkholes may vary in size from 1 to 600 metres (3.3 to 2,000 ft) both in diameter and depth, and vary in form from soil-lined bowls to bedrock-edged chasms. Sinkholes may be formed gradually or suddenly, and are found worldwide. The different terms for sinkholes are often used interchangeably.

### Kames

A **kame** is a geological feature, an irregularly shaped hill or mound composed of sand, gravel and till that accumulates in a depression on a retreating glacier, and is then deposited on the land surface with further melting of the glacier. Kames are often associated with kettles, and this is referred to as **kame and kettle** topography. With the melting of the glacier, streams carry sediment to glacial lakes, building kame deltas on top of the ice. However, with the continuous melting of the glacier, the kame delta eventually collapses on to the land surface, furthering the "kame and kettle" topography.

### Flutings

**Fluting** is a process of differential weathering and erosion by which an exposed well-jointed coarse-grained rock such as granite or gneiss, develops a corrugated surface of flutes; especially the formation of small-scale ridges and depressions by wave action.

\* Definitions from Wikipedia, accessed August 13, 2012 @ 10:13 am

## **Appendix 4: Al-Pac High Conservation Value Forests documents**

The following reports were combined into a single document for the Alberta-Pacific Forest Industry Inc. (Al-Pac) 2010 Forest Stewardship Council (FSC) re-assessment relating to High Conservation Value (HCV) forests:

Dyer, S.J. 2004. High Conservation Value Forests (HCVF) within the Alberta-Pacific Forest Management Agreement Area: A Summary Report. Alberta-Pacific Forest Industries Inc., Boyle, AB.

High Conservation Value Forests Categories 1 to 6 Within the Alberta-Pacific Forest Management Agreement Area Master Locations 2005-2010 (Final Version)

Overview of Management and Monitoring Strategies for High Conservation Value Forests Categories 1 to 6 within the FSC Certified Area (Version June 23, 2009)

High Conservation Values within Forests of the Alberta-Pacific Forest Management Agreement Area (2010 – 2015)

The amalgamation was done to simplify and standardize information relating to Al-Pac's HCV's. High Conservation Values within Forests of the Alberta-Pacific Forest Management Agreement Area (2010 - 2015)

Timoney, K. 2003. An Environmental Assessment of High Conservation Value Forests in the Alberta Portion of the Mid-Continental Canadian Boreal Forest Ecoregion. Report prepared for World Wildlife Fund Canada and Alberta-Pacific Forest Industries by Treeline Ecological Research, Sherwood Park, AB.

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- Athabasca Landscape Team (ALT), 2009. The Athabasca Caribou Landscape Management Options Report. Athabasca Landscape Team, Alberta Caribou Committee. Edmonton, AB. 115 pp.
- CBFA BC/AB Regional Working Group 2014. Recommendations and proposed contributions towards caribou conservation in northeastern Alberta: west side of the Athabasca River, east side of the Athabasca River and Cold Lake caribou ranges. 26 pp. Report available upon request.
- 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. 150 pp.
- FSC (Forest Stewardship Council) Canada 2004. National Boreal Standard. Forest Stewardship Council Canada Working Group. Downloaded from [www.fsccanada.org](http://www.fsccanada.org)
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