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Bird Conservation Strategy for Bird Conservation Region 7 Prairie and Northern Region: Taiga Shield and Hudson Plains

- Abridged Version -

March 2013



Canada

Preface

Environment Canada led the development of all-bird conservation strategies in each of Canada's Bird Conservation Regions (BCRs) by drafting new strategies and integrating new and existing strategies into an all-bird framework. These integrated all-bird conservation strategies will serve as a basis for implementing bird conservation across Canada, and will also guide Canadian support for conservation work in other countries important to Canada's migrant birds. Input to the strategies from Environment Canada's conservation partners is as essential as their collaboration in implementing their recommendations.

Environment Canada has developed national standards for strategies to ensure consistency of approach across BCRs. Bird Conservation Strategies will provide the context from which specific implementation plans can be developed for each BCR, building on the programs currently in place through Joint Ventures or other partnerships. Landowners including Aboriginal peoples will be consulted prior to implementation.

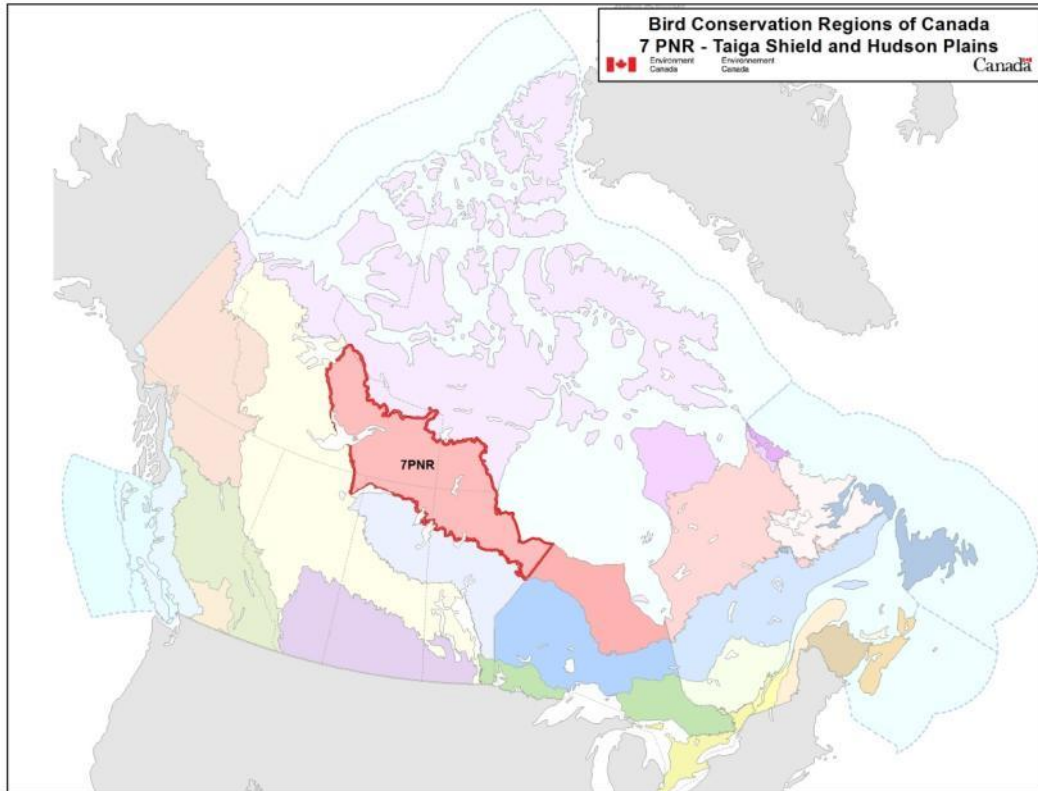
Conservation objectives and recommended actions from the conservation strategies will be used as the biological basis to develop guidelines and beneficial management practices that support compliance with regulations under the *Migratory Birds Convention Act, 1994*.

Acknowledgements

Craig S. Machtans was the primary author of this document, following templates developed by Elaine Camfield, Judith Kennedy and Elsie Krebs with the help of the BCR planners in each of the Canadian Wildlife Service regions throughout Canada. K. Calon, W. Fleming, T.J. Habib, K.C. Hannah, E. Kuczynski, C.L. Mahon and K. St. Laurent did all of the initial work to refine species priority lists, assess objectives and threats, research habitat associations as well as producing the first draft of the strategy and populating the database. However, our thanks are extended to everyone who helped with this strategy, as work of this scope cannot be accomplished without the contribution of other colleagues who provided or validated technical information, commented on earlier draft versions of the strategy, and supported the planning process.

To obtain a copy of the complete version of this strategy, please contact us at migratorybirds_oiseauxmigrateurs@ec.gc.ca.

Conservation Strategy for Bird Conservation Region 7, Prairie and Northern Region: Taiga Shield and Hudson Plains



Executive Summary

The Prairie and Northern Region (PNR) portion of BCR 7 consists of the western portion of two Ecozones: the Taiga Shield and the Hudson Plains. This subregion of the Bird Conservation Region (BCR) stretches northwest from the Hudson Bay coast of Manitoba, through the Northwest Territories (N.W.T.) as far west as Great Bear Lake. Nearly half (49%) of the BCR area of about 700,000 km² is in the N.W.T., with 28% in Manitoba, 15% in Nunavut, 7% in Saskatchewan, and 1% of the strategy area in the extreme northeast corner of Alberta.

This conservation strategy for BCR 7-PNR builds on existing bird conservation strategies and complements those created for the other BCRs across Canada. BCR strategies will serve as a framework for implementing bird conservation nationally, and also identify international conservation issues for Canada's priority birds. This strategy is not intended to be highly prescriptive, but rather is intended to guide future implementation efforts undertaken by various partners and stakeholders.

The vast majority of BCR 7-PNR is Crown land, although the western portion of the BCR lies within the Tlicho land claim. This land claim area includes private lands where the Tlicho exercise self-government status and a larger area that has a regime of co-management for wildlife issues. The northern margin of the BCR runs along the Arctic Plains, mostly following the treeline and with the southern fringes bordering much of the Boreal Shield and Boreal Plains Ecozones. Northern continental portions of the BCR mainly have stunted conifer forests with interspersed ponds and peatlands overlaying the granite bedrock of the Canadian Shield. Numerous lakes and ponds dot the landscape. Within the Hudson Bay Plains, coastal flood plains and marshland become dominant, as does a milder climate that plays a large role in flora and fauna composition. The principal river and drainage systems include the North Hudson Bay (Thelon) and the Mackenzie River catchment, with linkages to the Peace and Athabasca rivers.

Human disturbance is very limited in BCR 7-PNR. Nearly all settlements are on or near the boundary of the BCR, and industrial development is local and restricted in nature. The area with by far the most anthropogenic activity is near Yellowknife in the N.W.T. The main economic activity in the BCR is mining, but currently there is only one operating mine of any kind – the Snap Lake Diamond Mine of DeBeers Canada. There are many small, abandoned mines, several locations with potential mines in some stage of development, and mineral potential is high throughout the Taiga Shield. There is no forestry activity and fire suppression is usually limited to protecting “values at risk” such as industrial areas and settlements. Fires regularly burn large areas in the southern two-thirds of the BCR.

Sixty-two of the 195 species (32%) in BCR 7-PNR were assigned a priority ranking. Landbirds had the most priority species (22 of 106 species), followed by waterbirds (15 of 30), waterfowl (13 of 30) and shorebirds (12 of 29). Nine species are priorities because they were assessed as “at risk” by COSEWIC, 7 are listed on Schedule 1 of the federal *Species at Risk Act*, while 5 are listed provincially. Wetlands and waterbodies were the most often-used habitats when considering all priority species.

There is one significant conservation issue in BCR 7-PNR, the overabundance of the Lesser Snow Goose and rapidly growing populations of Ross's Goose. These birds have become extremely numerous in the past few decades, primarily as a result of agricultural practices along migration routes and in wintering areas, which provides a limitless food source for them. Massive flocks of these birds are having devastating effects on natural coastal grass and tundra habitat during the breeding season and migration, which in turn affects large numbers of other birds. This effect is limited in BCR 7-PNR to the coastal areas along Hudson Bay, in and near the white goose colonies, and in their nearby staging areas. While severe, it is a localized effect at the scale of the BCR. Because this and other threats to priority species are of low magnitude, conservation objectives and recommended actions have not been developed in this strategy.

The only widespread issue that clearly applies to BCR 7-PNR is climate change. The impact of pollution, bird-structure collisions and predation by cats were considered minor threats. Additional threats may be located outside the BCR, particularly for long-distance migrants that may be impacted in their wintering habitat or important staging areas in the United States, Central/South America or the Caribbean islands. Major international threats include coastal development, deforestation, and agricultural expansion and intensification.

Population objectives and conservation needs are difficult to determine accurately because there is very little bird monitoring in BCR 7-PNR. Monitoring is restricted to two localized surveys for landbirds, a local, long-term waterfowl productivity study and annual spring waterfowl aerial transects. All this monitoring is in the western edge of BCR 7-PNR. Therefore, no good BCR-wide breeding season data exist for any species. The net result of this lack of comprehensive monitoring is that many population objectives are set as assess or maintain because the BCR population trend is not known.

Overall the key messages for bird conservation in BCR 7-PNR are:

- Development pressure is currently low, is mostly at the margins of the BCR, and, for the foreseeable future, is expected to remain best managed as site-specific concerns that are dealt with through the existing environmental assessment regulatory system.
- The existing conservation concern is related to overabundant white geese near Hudson Bay; this concern has international attention for management approaches.
- Monitoring data are so limited that BCR subregion-specific information on population trends cannot be generated; this is a primary need for determining the regional status of populations.

Introduction: Bird Conservation Strategies

Context

This document is one of a suite of Bird Conservation Region Strategies (BCR strategies) that have been drafted by Environment Canada for all regions of Canada. These strategies respond to Environment Canada's need for integrated and clearly articulated bird conservation needs to support the implementation of Canada's migratory birds program, both domestically and internationally. This suite of strategies builds on existing conservation plans for the four "bird groups" (waterfowl,¹ waterbirds,² shorebirds,³ and landbirds⁴) in most regions of Canada, as well as on national and continental plans, and includes birds under provincial/territorial jurisdiction. These new strategies also establish standard conservation planning methods across Canada, and fill gaps, as previous regional plans do not cover all areas of Canada or all bird groups.

These strategies present a compendium of required actions based on the general philosophy of achieving scientifically based desired population levels as promoted by the four pillar initiatives of bird conservation. Desired population levels are not necessarily the same as minimum viable or sustainable populations, but represent the state of the habitat/landscape at a time prior to recent dramatic population declines in many species from threats known and unknown. The threats identified in these strategies were compiled using currently available scientific information and expert opinion. The corresponding conservation objectives and actions will contribute to stabilizing populations at desired levels.

The BCR strategies are not highly prescriptive. In most cases, practitioners will need to consult additional information sources at local scales to provide sufficient detail to implement the recommendations of the strategies. Tools such as beneficial management practices will also be helpful in guiding implementation. Partners interested in participating in the implementation of these strategies, such as those involved in the habitat Joint Ventures established under the North American Waterfowl Management Plan (NAWMP), are familiar with the type of detailed implementation planning required to coordinate and undertake on-the-ground activities.

¹ NAWMP Plan Committee 2004

² Milko et al. 2003

³ Donaldson et al. 2000

⁴ Rich et al. 2004

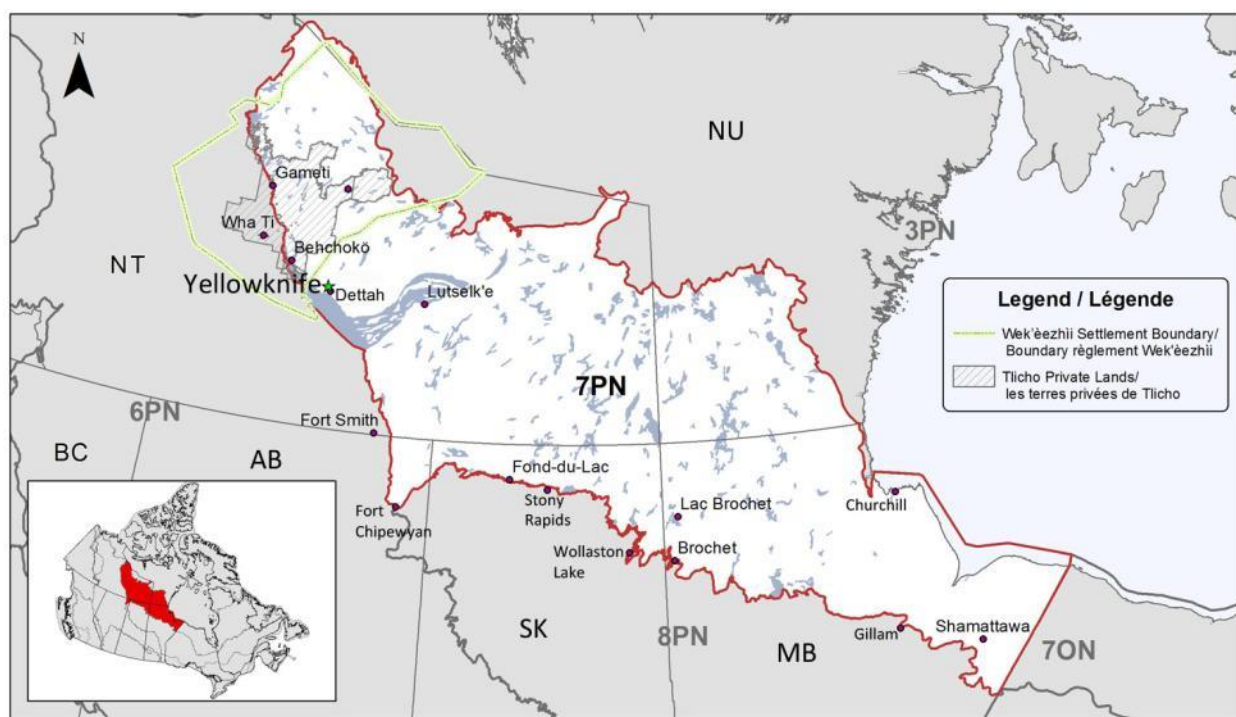
Strategy Structure

Section 1 of this strategy, published here, presents general information about the BCR and the subregion, with an overview of the six elements⁵ that provide a summary of the state of bird conservation at the sub-regional level. Section 2, included in the full version of the strategy, provides more detail on the threats, objectives and actions for priority species grouped by each of the broad habitat types in the subregion. Section 3, also part of the full strategy, presents additional widespread conservation issues that are not specific to a particular habitat or were not captured by the threat assessment for individual species, as well as research and monitoring needs, and threats to migratory birds while they are outside of Canada. The approach and methodology are summarized in the appendices of the full strategy, but details are available in a separate document (Kennedy et al. 2012). A national database houses all the underlying information summarized in this strategy and is available from [Environment Canada](#).

⁵ The six elements are: Element 1 – priority species assessment; Element 2 – habitats important to priority species; Element 3 – population objectives; Element 4 – threat assessment; Element 5 – conservation objectives; Element 6 – recommended actions.

Characteristics of Bird Conservation Region 7 Prairie and Northern Region

The Prairie and Northern Region (PNR) portion of BCR 7 is comprised of portions of two Canadian Ecozones: the western half of the Taiga Shield, and the western portion of the Hudson Plains. The PNR subregion of BCR 7 is approximately 700,710 km², or 40% of the total BCR 7 area in Canada. It borders the waters of Hudson Bay and the Arctic Plains of Nunavut and Northwest Territories to the north, by the Boreal Softwood Shield to the south, and on the west by the Boreal Taiga Plains in Alberta and the Northwest Territories (Figure 1). The portion of BCR 7-PNR that consists of Coastal Hudson Bay Lowland is primarily salt marsh containing eel grass and other salt-tolerant species that follow along coastal regions. These ocean-influenced habitats transition into fens, bogs and areas of tundra farther inland. The continental inland portion of BCR 7-PNR is in the Taiga Shield Ecozone. The western portion of the BCR subregion stretches through southern Nunavut (15% of the subregion) and then into the Northwest Territories (49% of the subregion), bordering the Arctic Ecozone near Great Bear Lake. The remaining 36% of the subregion is in the northern Prairie provinces, with Manitoba having the second-largest portion of the area (28%), followed by Saskatchewan (7%), and a tiny portion of Alberta (1% of the subregion).



Geopolitical information / de l'information géopolitiques

Sources: Wek'èezhii Renewable Resources Board
Wek'èezhii Renewable Resources Board

Projection: UTM 13 (NAD 1983)

Figure 1. Map of BCR 7 showing the location of First Nations settled land claims, communities and provincial/territorial boundaries relative to the BCR boundary.

Habitat in BCR 7-PNR is dominated by black spruce or jack pine forests of the [Taiga Shield](#), which is interwoven with a network of peatlands, rivers, and innumerable ponds and lakes

(Figure 2). General land cover is summarized in Figure 3 & Figure 4. Interested readers should consult Ecosystem Classification Group (2008) for detailed descriptions and images of all aspects of the geography, vegetation and other features of the Taiga Shield ecozone in the Northwest Territories. Willow and birch are important deciduous habitats in many shoreline and low-lying areas with soil development. Lowland areas have organic soils laid upon a foundation of Canadian Shield granite bedrock established during the Precambrian period. These saturated lowlands transition into shrublands as elevation increases, then into exposed upland areas that consist of tundra barrens colonized by small vascular plants, lichen and moss. Substantial areas have no continuous soil covering the exposed bedrock. The cold inland climate warms and transitions into a temperate coastal climate moving eastward toward Hudson Bay. This diverse landscape of the western extent of the [Hudson Plains Ecozone](#) is influenced greatly by oceanic influences from the east transitioning to freshwater ponds, tundra, and stunted forest from the west, and is important for many bird species that inhabit this large zone both seasonally and throughout the year.

Natural disturbances in BCR 7-PNR are similar to those in the boreal region to the south but often without the restrictions imposed by humans such as fire suppression. Fire, insect outbreaks and extreme weather events (e.g., windstorms, heavy snow) impact regional vegetation as does grazing and browsing from mammals (e.g., caribou herds). Fires regularly burn extensive portions of the southern two-thirds of the BCR



Figure 2. An aerial view of habitat typical of BCR 7 in the Northwest Territories.

© Environment Canada – Photo: Craig Machtans

(Figure 5). Global climate change will impact these natural disturbance regimes (IPCC 2007).

The human population of all settlements in BCR 7-PNR is about 28,000, with the vast majority in the N.W.T. and Yellowknife in particular (20,000). The largest settlements in the provinces in the southern portion of the BCR contain a thousand or fewer inhabitants each. Nearly all settlements are actually on or near the border of the BCR (Figure 1), making it one of the more sparsely populated BCRs in Canada. There are numerous protected areas in the BCR (Figure 6). Most are in the three provinces and are protected under provincial laws. Proposals for two new federally protected areas exist for areas over parts of Great Slave Lake.

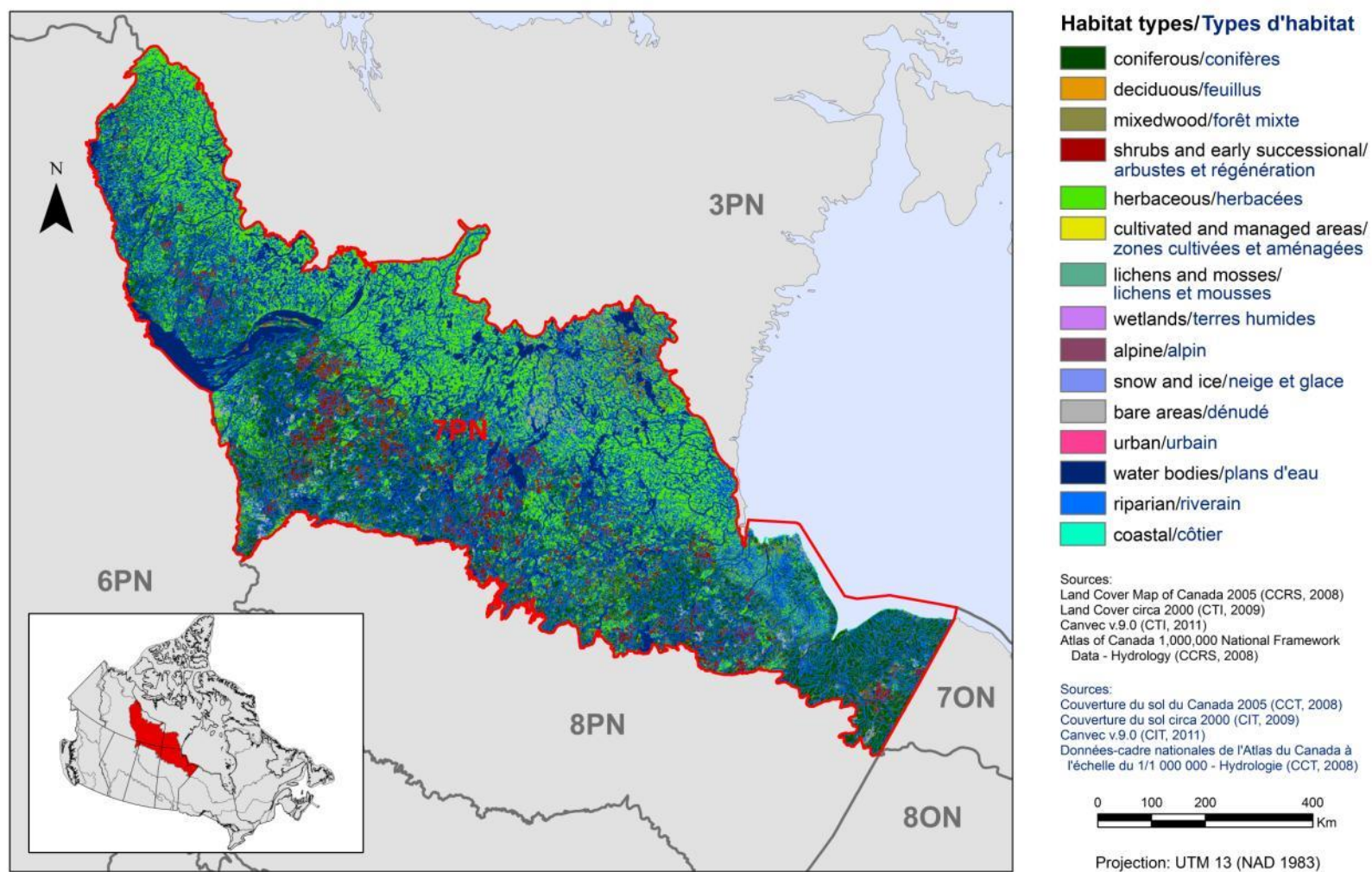


Figure 3. Landcover in BCR 7 Prairie and Northern Region.

Wetlands are difficult to separate without dominating the image; Figure 4 displays them preferentially.

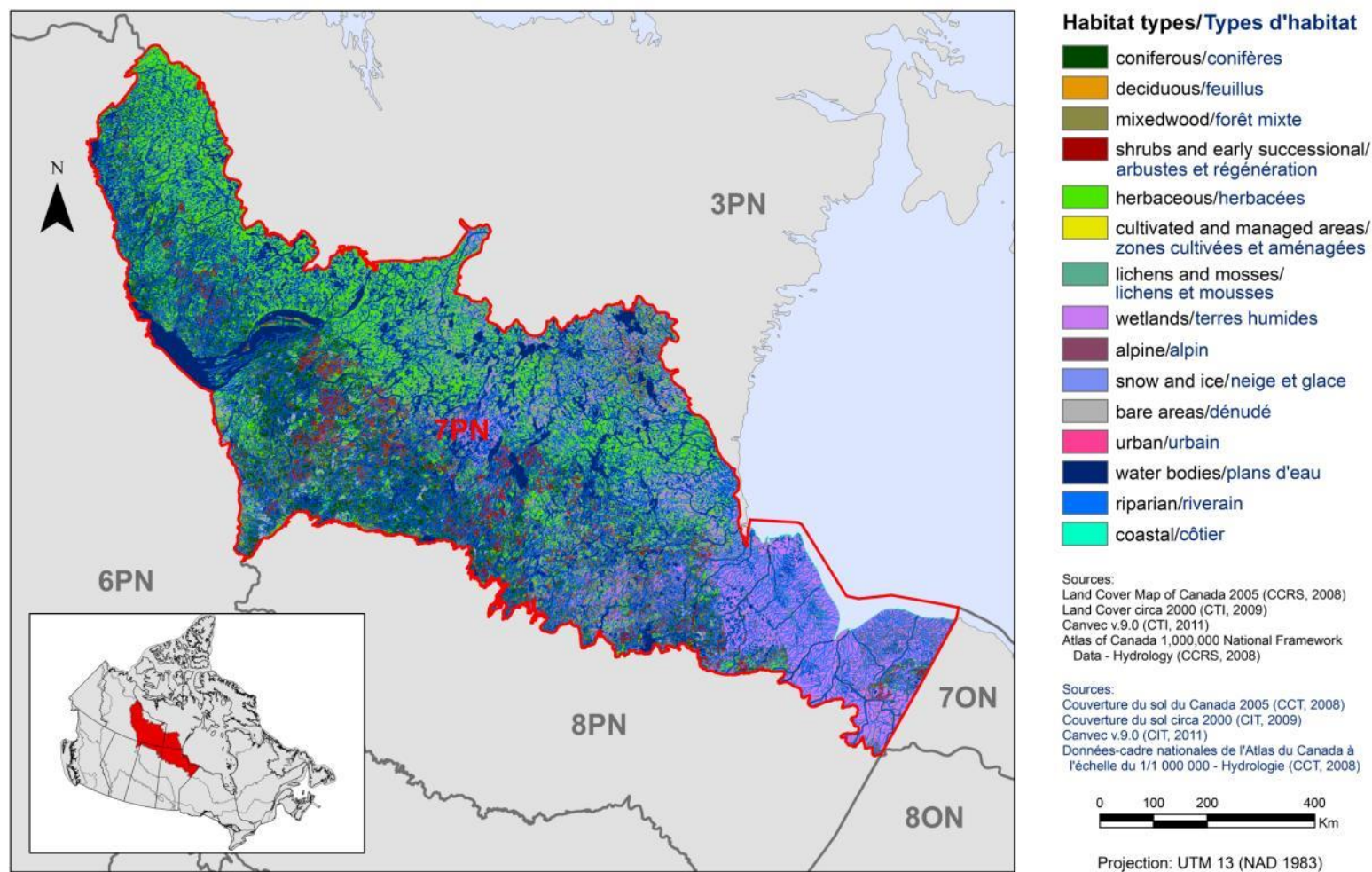


Figure 4. Landcover in BCR 7 Prairie and Northern Region with wetlands displayed preferentially.

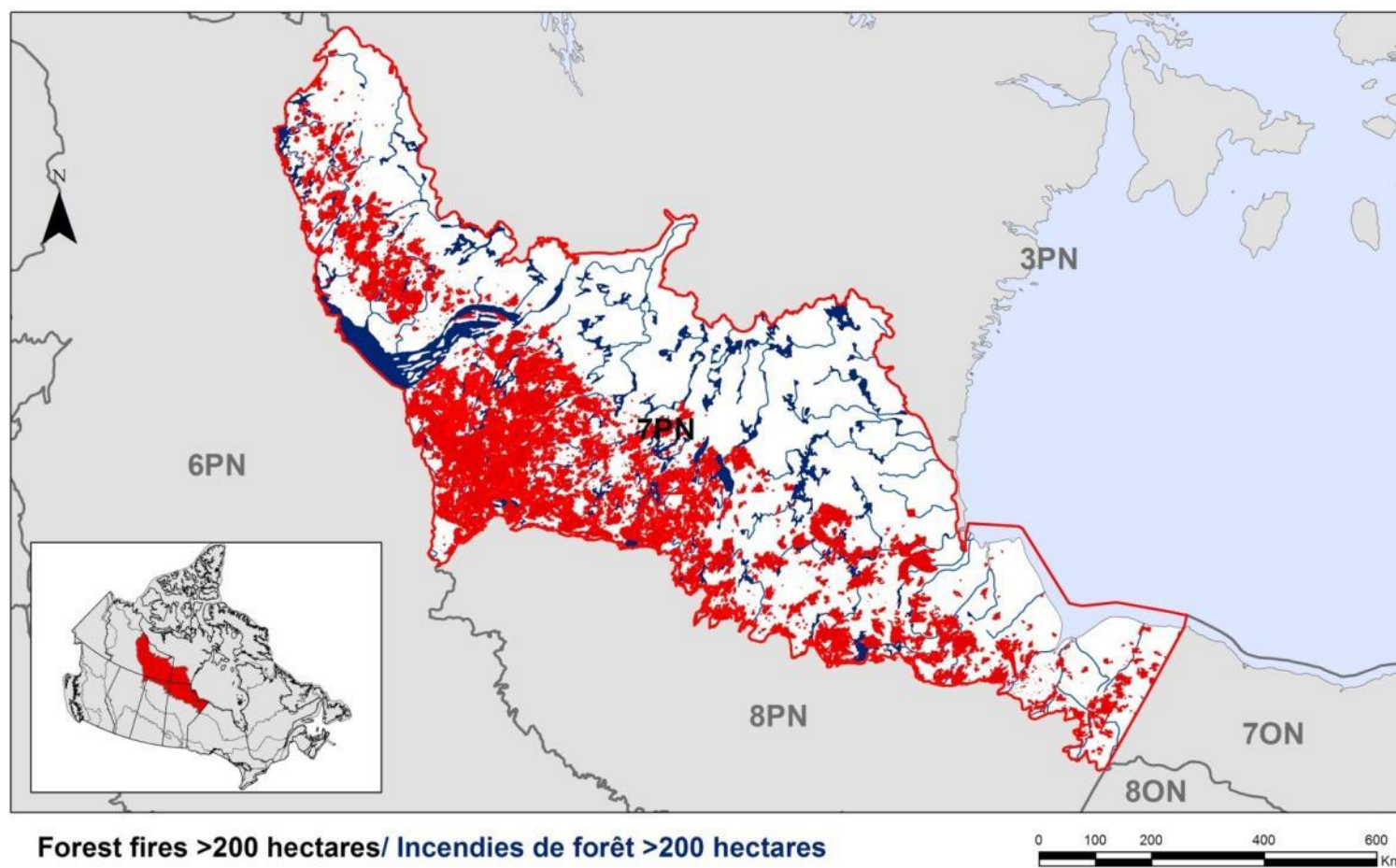


Figure 5. The area of BCR 7 Prairie and Northern Region burned by forest fires (red areas) in the past 30–80 years.
Coverage is from 1965–2010 for Northwest Territories, 1931–2009 for Alberta, 1945–2010 for Saskatchewan, 1980–2008 for Manitoba.

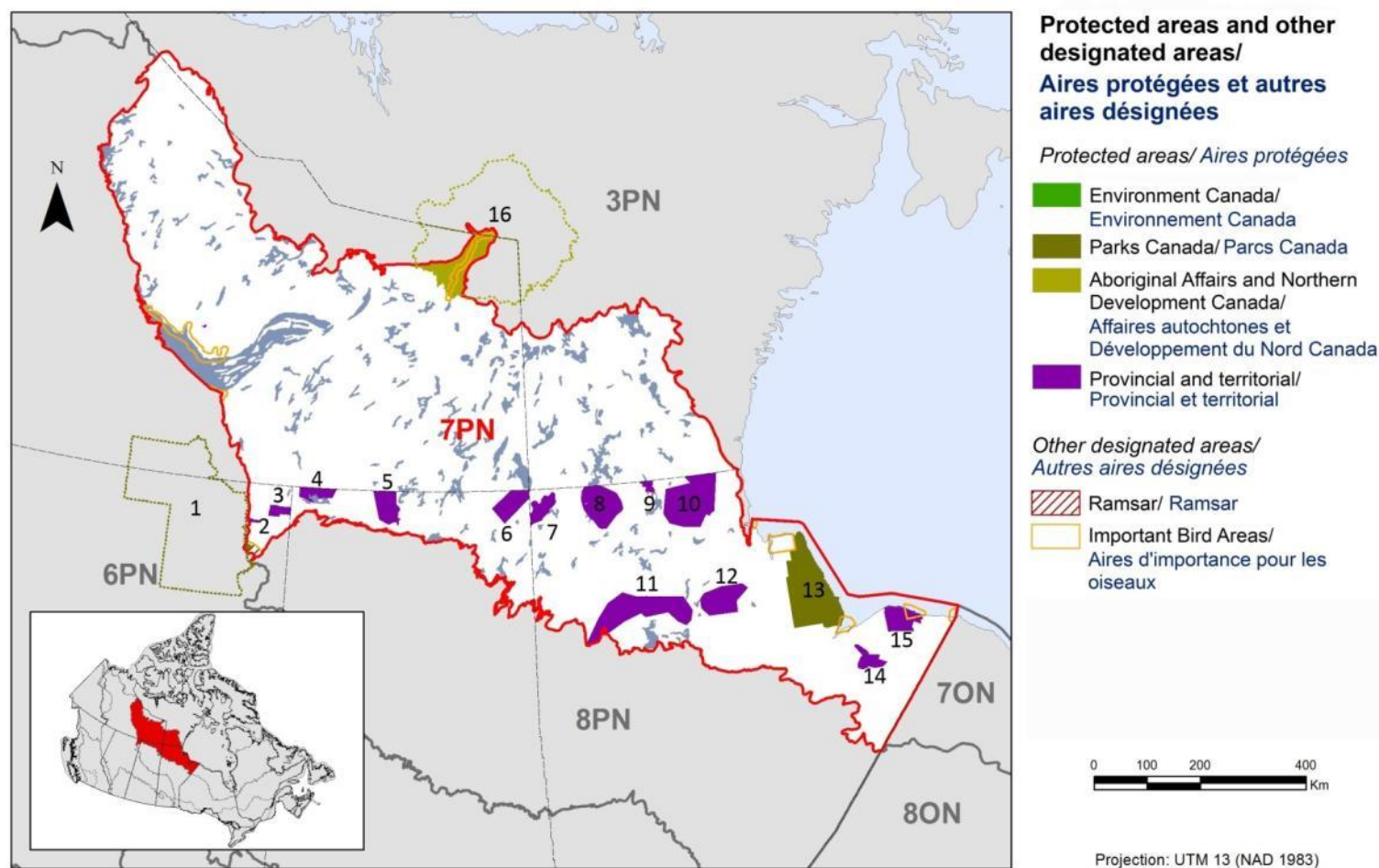


Figure 6. Protected and designated areas in and adjacent to BCR 7 Prairie and Northern Region.

The Ramsar site is the Peace-Athabasca Delta at the southwest tip of the BCR. Information on Important Bird Areas is available at www.ibacanada.ca. The numbered protected areas are: 1. Wood Buffalo National Park, 2. La Butte Creed Wildland Provincial Park, 3. Colin-Cornwall Lakes Wildland Provincial Park, 4. Tazin Lake Special Management Area, 5. Chappuis-Fontaine Lakes Special Management Area, 6. Misaw Lake Special Management Area, 7. Colvin Lake Provincial Park, 8. Nueltn Lake Provincial Park, 9. Baralzon Lake Ecological Reserve, 10. Caribou River Provincial Park, 11. Sand Lakes Provincial Park Reserve, 12. Numaykoos Lake Provincial Park, 13. Wapusk National Park, 14. Kaskatamagan Sipi Wildlife Management Area, 15. Kaskatamagan Wildlife Management Area, 16. Thelon Game Sanctuary. Not shown: Three territorial parks near Yellowknife, a proposal for Thaidene Nene National Park Reserve that covers part of the east arm of Great Slave Lake, and a candidate National Wildlife Area in the north arm of Great Slave Lake.

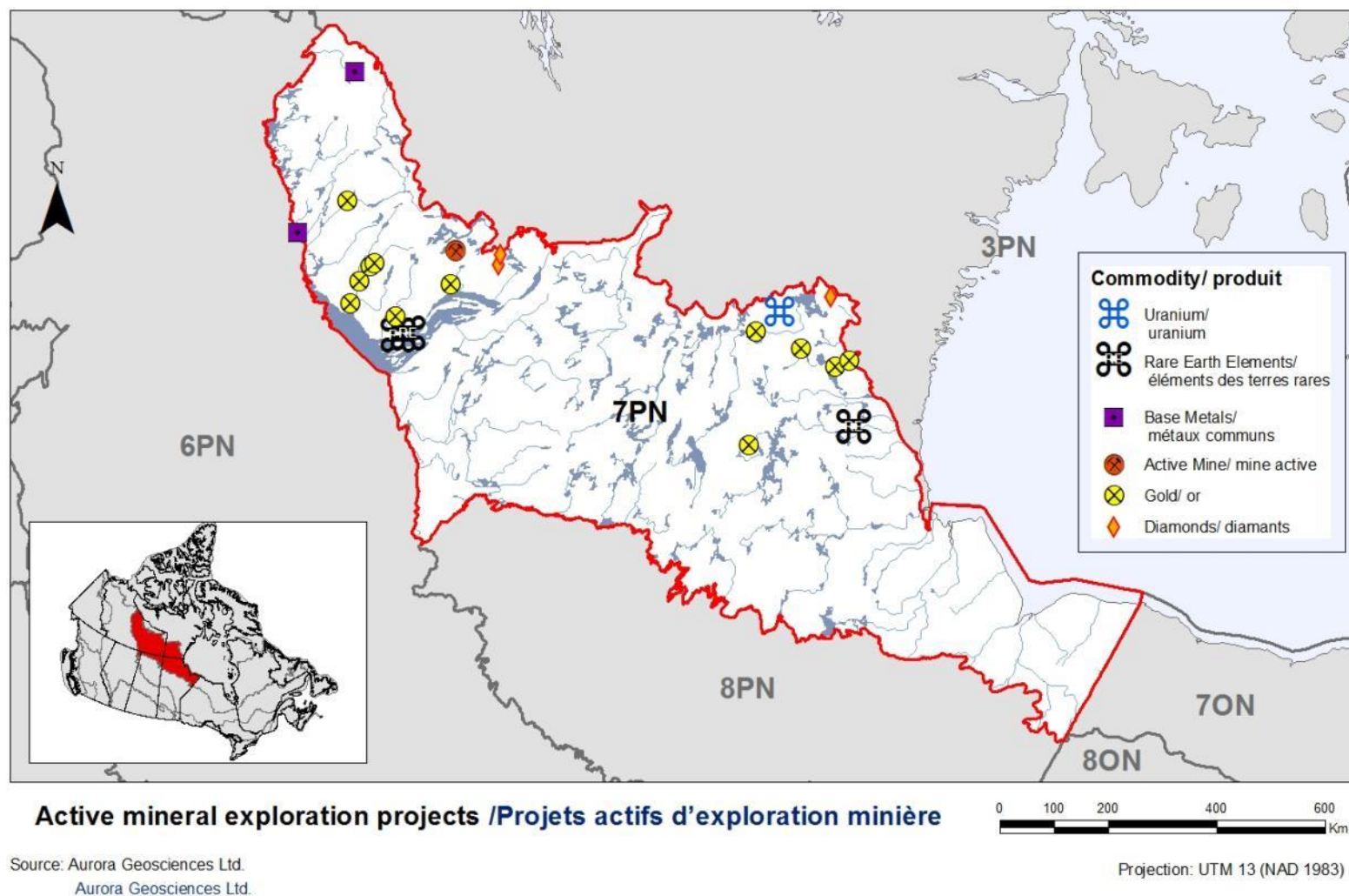


Figure 7. Active mineral exploration projects in the northern part of BCR 7 Prairie and Northern Region as of 2012.

The Snap Lake Diamond mine owned by DeBeers Canada is the only active mine. Several mines are in the environmental assessment phase while other active properties are not as advanced.

The one settled land claim in the BCR is the Tłı̨cho, found at the western end (see Figure 1). The significance of this land claim for bird conservation can be summarized as:

- The [Tłı̨cho](#) have a self-government claim, so they have the same status and management responsibilities as a province on their private lands.
- In the larger settlement boundary, there is a formal wildlife co-management regime with the [Wek'èezhìi Renewable Resources Board](#). The board has legal jurisdiction to set a total harvest limit for species in its management area (if ever an upper cap was needed on harvest, as opposed to individual bag limits). The Canadian Wildlife Service has one member on the board and consults them on issues of wildlife management, including BCR strategies.
- The Wek'èezhìi board must be consulted on proposed listings under the *Species at Risk Act* and makes a recommendation to the Minister of the Environment.

In both the Taiga Shield and Hudson Plains portions of BCR 7-PNR, direct human impact on the surrounding landscape is still low compared to southern regions of the country where industry and human population exists at a much larger scale. Mining developments have been a part of the landscape for decades in the mineral rich Taiga Shield, where the mining of gold, nickel, and iron ore deposits used to lead the economy. More recently, there is one operating diamond mine, the Snap Lake Diamond Mine, and potential for various new mines as rare earth elements and uranium deposits are sought by developers (Figure 7). The Snap Lake Diamond Mine is an underground mine, and its entire infrastructure, including an airstrip, covers less than 500 ha of land. This is in contrast to the larger, combined open-pit and underground operations at the other two diamond mines nearby in BCR 3.

Three mines are currently in or entering the environmental assessment phase, all in the N.W.T. portion of the BCR. These industrial-scale mining activities typically have local impacts on the northern landscape, through mineral leaching and other toxic by-products of mining, habitat destruction while the mine is operating, and the creation of tailings ponds by some types of mines. Reclamation and financial deposits for that purpose are held by the federal government after project approval and are a requirement for modern mines.

Some portions of BCR 7-PNR, particularly in the coastal regions, but more recently in the tundra areas of the Hudson Plains, are under high pressure from overabundant Lesser Snow Geese and rapidly growing populations of Ross's Geese. The term "overabundant" is legally defined in the *Migratory Bird Regulations* (S. 23.1) as "...a species of migratory game bird that, as a result of the rate of increase of the population of that species or its overabundance, is injurious to or threatens agricultural, environmental or other similar interests". The populations of geese have become extremely large due primarily to the vast agricultural areas along their migration routes which offer a virtually limitless food

supply. This food supply dramatically increases over-winter survival and also allows geese to arrive on the breeding grounds in excellent physical condition. Impacts to the delicate ecosystems where these geese breed and stage can be devastating. At present this is the only pressing conservation issue involving birds directly within the BCR subregion.



Figure 8. Greater Yellowlegs is a priority species in BCR 7 Prairie and Northern Region because of national and regional concern. It is found in the western and southwestern portions of the BCR where it can easily be confused with the similar and more common Lesser Yellowlegs (also a priority species).

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Section 1: Summary of Results – All Birds, All Habitats

Element 1: Priority Species Assessment

These Bird Conservation Strategies identify “priority species” from all regularly occurring bird species in each BCR subregion. Species that are vulnerable due to population size, distribution, population trend, abundance and threats are included because of their “conservation concern.” Some widely distributed and abundant “stewardship” species are also included. Stewardship species are included because they typify the national or regional avifauna and/or because they have a large proportion of their range and/or continental population in the subregion; many of these species have some conservation concern, while others may not require specific conservation effort at this time. Species of management concern are also included as priority species when they are at (or above) their desired population objectives but require ongoing management because of their socio-economic importance as game species or because of their impacts on other species or habitats.

The purpose of the prioritization exercise is to focus implementation efforts on the issues of greatest significance for Canadian avifauna. Table 1 provides a full list of all priority species and their reason for inclusion. Tables 2 and 3 summarize the number of priority species in BCR 7 Prairie and Northern Region by bird group and by the reason for priority status.

Table 1. Priority species in BCR 7, Prairie and Northern Region, population objective, and the reason for priority status.

Priority species	Bird group	Population objective	COSEWIC ¹	SARA ²	Provincial listing ³	National/continental concern (landbirds, shorebirds, waterbirds)	Regional concern	Continental stewardship (landbirds only)	Regional stewardship (landbirds, shorebirds, waterbirds)	NAWMP ⁴ priority (waterfowl only)	NAWMP rank ⁵ (waterfowl only)	General Status Rank ⁶	Expert review ⁷ (changes to priority list)
American Pipit	Landbird	Assess/Maintain										Yes	
American Tree Sparrow	Landbird	Increase 50%				Yes		Yes				Yes	
Barn Swallow	Landbird	Increase 50%	T										
Belted Kingfisher	Landbird	Assess/Maintain							Yes				
Black-backed Woodpecker	Landbird	Assess/Maintain						Yes	Yes			Yes	
Blackpoll Warbler	Landbird	Assess/Maintain							Yes				
Boreal Chickadee	Landbird	Assess/Maintain						Yes				Yes	
Common Nighthawk	Landbird	Recovery Objective	T	T	T (MB)	Yes							
Eastern Phoebe	Landbird	Assess/Maintain										Yes	
Harris's Sparrow	Landbird	Increase 100%				Yes						Yes	
Merlin	Landbird	Assess/Maintain							Yes				

¹ Assessed by COSEWIC ([Committee on the Status of Endangered Wildlife in Canada](#)) as: E, Endangered; T, Threatened; SC, Special Concern

² Species listed on Schedule 1 of the *Species at Risk Act* as E, Endangered; T, Threatened; SC, Special Concern ([Species at Risk Public Registry](#)).

³ Provincially Listed indicates species listed by:

Alberta's *Wildlife Act* www.srd.alberta.ca/fishwildlife/speciesatrisk/SpeciesSummaries/SpeciesAtRiskFactSheets.aspx,

Saskatchewan's *The Wildlife Act* www.environment.gov.sk.ca/wildspeciesatrisk,

Manitoba's *The Endangered Species Act* www.gov.mb.ca/conservation/wildlife/sar/sarlist.html, or the

Northwest Territories' *Species at Risk (N.W.T.) Act* <http://N.W.T.speciesatrisk.ca/tiki/tiki-index.php?page=SpeciesAtRisk#birds>.

⁴ NAWMP: North American Waterfowl Management Plan (North American Waterfowl Management Plan, Plan Committee, 2004)

⁵ From Waterfowl Conservation Region 7.1 and 7.2 in Table B-2 of the North American Waterfowl Management Plan 2004 Implementation Framework (where multiple values are available, the highest is noted in the table here).

⁶ [General Status Rank](#) of ≤3 in any province or territory overlapping with the BCR.

⁷ Expert review indicates that a species was added to the priority list as a result of expert opinion.

Table 1 continued

Priority species	Bird group	Population objective	COSEWIC ¹	SARA ²	Provincial listing ³	National/continental concern (landbirds, shorebirds, waterbirds)	Regional concern	Continental stewardship (landbirds only)	Regional stewardship (landbirds, shorebirds, waterbirds)	NAWMP ⁴ priority (waterfowl only)	NAWMP rank ⁵ (waterfowl only)	General Status Rank ⁶	Expert review ⁷ (changes to priority list)
Northern Shrike	Landbird	Assess/Maintain						Yes	Yes				
Olive-sided Flycatcher	Landbird	Recovery Objective	T	T		Yes							
Palm Warbler	Landbird	Assess/Maintain				Yes		Yes	Yes				
Peregrine Falcon <i>anatum/tundrius</i>	Landbird	Assess/Maintain	SC	SC	E (MB); T (AB)			Yes					
Pine Grosbeak	Landbird	Assess/Maintain				Yes		Yes	Yes			Yes	
Rusty Blackbird	Landbird	Increase 100%	SC	SC		Yes			Yes			Yes	
Short-eared Owl	Landbird	Increase 100%	SC	SC	T (MB)	Yes						Yes	
Smith's Longspur	Landbird	Assess/Maintain				Yes			Yes				
Swamp Sparrow	Landbird	Assess/Maintain				Yes		Yes	Yes				
White-crowned Sparrow	Landbird	Assess/Maintain										Yes	
White-throated Sparrow	Landbird	Assess/Maintain				Yes		Yes				Yes	
American Golden-Plover	Shorebird	Assess/Maintain				Yes	Yes		Yes				
Dunlin	Shorebird	Assess/Maintain				Yes	Yes						
Greater Yellowlegs	Shorebird	Assess/Maintain				Yes	Yes						
Hudsonian Godwit	Shorebird	Assess/Maintain				Yes	Yes		Yes				
Killdeer	Shorebird	Increase 50%				Yes	Yes						
Lesser Yellowlegs	Shorebird	Assess/Maintain					Yes		Yes				
Red-necked Phalarope	Shorebird	Increase 50%				Yes	Yes						
Semipalmated Sandpiper	Shorebird	Increase 100%				Yes	Yes		Yes				
Short-billed Dowitcher	Shorebird	Assess/Maintain				Yes	Yes		Yes				
Solitary Sandpiper	Shorebird	Assess/Maintain				Yes	Yes						

Table 1 continued

Priority species	Bird group	Population objective	COSEWIC ¹	SARA ²	Provincial listing ³	National/continental concern (landbirds, shorebirds, waterbirds)	Regional concern	Continental stewardship (landbirds only)	Regional stewardship (landbirds, shorebirds, waterbirds)	NAWMP ⁴ priority (waterfowl only)	NAWMP rank ⁵ (waterfowl only)	General Status Rank ⁶	Expert review ⁷ (changes to priority list)
Whimbrel	Shorebird	Assess/Maintain				Yes	Yes		Yes				
Wilson's Snipe	Shorebird	Assess/Maintain					Yes						
American Bittern	Waterbird	Assess/Maintain				Yes	Yes						
Arctic Tern	Waterbird	Increase 50%				Yes	Yes		Yes				
Bonaparte's Gull	Waterbird	Assess/Maintain				Yes	Yes		Yes				
California Gull	Waterbird	Assess/Maintain				Yes	Yes						
Caspian Tern	Waterbird	Assess/Maintain					Yes					Yes	
Common Loon	Waterbird	Assess/Maintain				Yes	Yes		Yes				
Common Tern	Waterbird	Assess/Maintain				Yes	Yes						
Herring Gull	Waterbird	Assess/Maintain				Yes	Yes		Yes				
Horned Grebe (western)	Waterbird	Increase 50%	SC			Yes	Yes		Yes				
Little Gull	Waterbird	Assess/Maintain				Yes	Yes					Yes	
Pacific Loon	Waterbird	Assess/Maintain				Yes	Yes		Yes				
Red-throated Loon	Waterbird	Assess/Maintain										Yes	
Ross's Gull	Waterbird	Recovery Objective	T	T	E (MB)	Yes	Yes						
Sora	Waterbird	Assess/Maintain				Yes	Yes		Yes				
Yellow Rail	Waterbird	Maintain Current	SC	SC		Yes	Yes						
American Black Duck	Waterfowl	Assess/Maintain				Yes	Yes			Mod-High	High		
American Wigeon	Waterfowl	Assess/Maintain				Yes				Mod-High			Yes
Black Scoter	Waterfowl	Increase 50%				Yes	Yes		Yes	Mod-	High		

Table 1 continued

Priority species	Bird group	Population objective	COSEWIC ¹	SARA ²	Provincial listing ³	National/continental concern (landbirds, shorebirds, waterbirds)	Regional concern	Continental stewardship (landbirds only)	Regional stewardship (landbirds, shorebirds, waterbirds)	NAWMP ⁴ priority (waterfowl only)	NAWMP rank ⁵ (waterfowl only)	General Status Rank ⁶	Expert review ⁷ (changes to priority list)
										High			
Bufflehead	Waterfowl	Assess/Maintain					Yes		Yes	Mod	Mod-High		
Canada Goose	Waterfowl	Assess/Maintain					Yes				High		
Common Eider	Waterfowl	Increase 50%				Yes	Yes		Yes	High	Highest		
Greater Scaup	Waterfowl	Assess/Maintain											Yes
Lesser Scaup	Waterfowl	Increase 50%				Yes	Yes		Yes	High	High		
Lesser Snow Goose	Waterfowl	Decrease					Yes			Above Object- ive	High		
Long-tailed Duck	Waterfowl	Increase 50%				Yes	Yes		Yes	Mod-High	Mod-High		
Northern Pintail	Waterfowl	Increase 50%				Yes			Yes	High	Mod	Yes	Yes
Surf Scoter	Waterfowl	Assess/Maintain				Yes	Yes		Yes	Mod-High	High		
White-winged Scoter	Waterfowl	Increase 50%			SC (AB)	Yes	Yes		Yes	Mod-High	Mod-High		

Table 2. Summary of priority species, by bird group, in BCR 7, Prairie and Northern Region.

Bird group	Total species	Total priority species	Percent listed as priority	Percent of priority list
Landbirds	106	22	21%	36%
Shorebirds	29	12	41%	19%
Waterbirds	30	15	50%	24%
Waterfowl	30	13	43%	21%
Total	195	62	32%	100%

Table 3. Number of priority species in BCR 7, Prairie and Northern Region, by reason for priority status.

Priority listing ¹	Landbirds	Shorebirds	Waterbirds	Waterfowl
COSEWIC ²	6	0	3	0
Federal SARA listed ³	5	0	2	0
Provincially Listed ⁴	3	0	1	1
NAWMP ⁵	-	-	-	12
National/Continental Concern	11	10	13	9
Regional Concern	0	12	14	10
National/Continental Stewardship	9	-	-	-
Regional Stewardship	10	6	7	8
Management Concern ⁶	0	0	0	1

¹ A single species can be on the priority list for more than one reason. Note that not all reasons for inclusion apply to every bird group (indicated by “-”).

² COSEWIC indicates species assessed by the Committee on the Status of Endangered Wildlife in Canada as Endangered, Threatened, or Special Concern.

³ Species listed on Schedule 1 of the *Species at Risk Act* as Endangered, Threatened, or Special Concern.

⁴ *Provincially Listed* indicates species listed by Alberta’s *Wildlife Act*, Saskatchewan’s *The Wildlife Act*, Manitoba’s *The Endangered Species Act*, or the Northwest Territories’ *Species at Risk (N.W.T.) Act* “Threatened” or higher.

⁵ NAWMP indicates species ranked in the North American Waterfowl Management Plan (Plan Committee 2004) as having Highest, High or Moderately High breeding or non-breeding conservation and/or monitoring need in the BCR.

⁶ Management concern applies to species that are at or above their stated population objective and require ongoing management due to their economic importance as harvested species or to reduce overabundant populations.

Element 2: Habitats Important to Priority Species

Identifying the broad habitat requirements for each priority species within the BCR allowed species to be grouped by shared habitat-based conservation issues and actions. If many priority species associated with the same habitat face similar conservation issues, then conservation action in that habitat may support populations of several priority species. BCR strategies use a modified version of the standard land cover classes developed by the United Nations (Food and Agriculture Organization 2000) to categorize habitats and species were often assigned to more than one habitat class.

Figure 9 provides a summary of habitats used by the priority species. Habitat use for each species was not ranked, so the figure does not represent a corresponding overall importance of particular habitats in the BCR. It only shows, for example, that many priority species use wetlands or waterbodies as one of their main habitat choices.

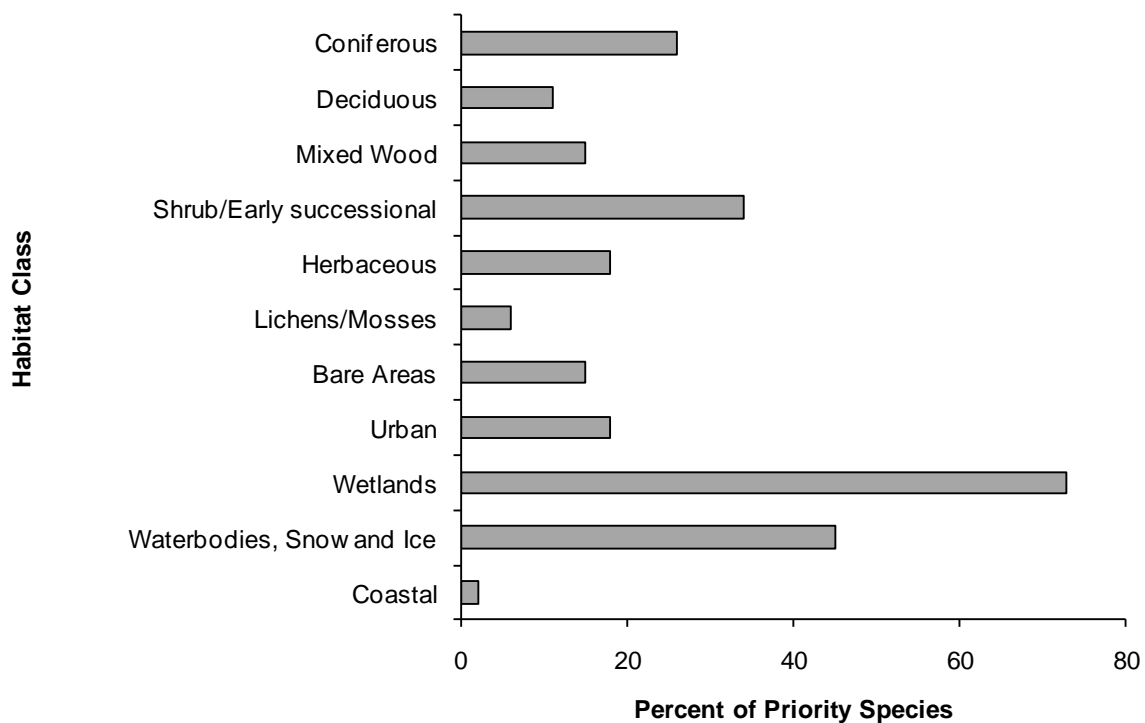


Figure 9. Percent of priority species that are associated with each habitat type in BCR 7 Prairie and Northern Region. The full habitat class name for Urban is “Urban (Artificial Surfaces and Bare Areas)”. Note: The total exceeds 100% because each species may be assigned to more than one habitat.

Element 3: Population Objectives

Population objectives allow us to measure and evaluate conservation success. The objectives in this strategy are assigned to categories and are based on a quantitative or qualitative assessment of species' population trends. If the population trend of a species is unknown, the objective is set as "assess and maintain," and a monitoring objective is given. For any species listed under the *Species at Risk Act* (SARA) or under provincial/territorial endangered species legislation, Bird Conservation Strategies defer to population objectives in available Recovery Strategies and Management Plans. The ultimate measure of conservation success will be the extent to which population objectives have been reached over the next 40 years. Population objectives do not currently factor in feasibility of achievement, but are held as a standard against which to measure progress.

Figure 10 summarizes the proportion of population objectives for priority species in BCR 7-PNR. The vast majority of the species were data deficient for regional trend information. Where no defensible alternative could be found, "assess/maintain" was assigned as the population objective. Although consistency with adjacent BCRs (especially BCR 7 - Ontario region and BCR 3 - PNR) was desirable, there are exceptions where species do not have identical objectives. For instance, Harris's Sparrow has an objective of "Increase 100%" in BCR 7 - PNR where the vast majority of its breeding range occurs. Data on trend come from Christmas Bird Counts, likely a valid representation given the high overlap of this species' range with the BCR boundaries. By contrast, BCR 7 - Ontario Region overlaps very little of the range of this species and has set "assess/maintain" as the appropriate target. Notes on these differences and the underlying reasoning are contained in the national database.

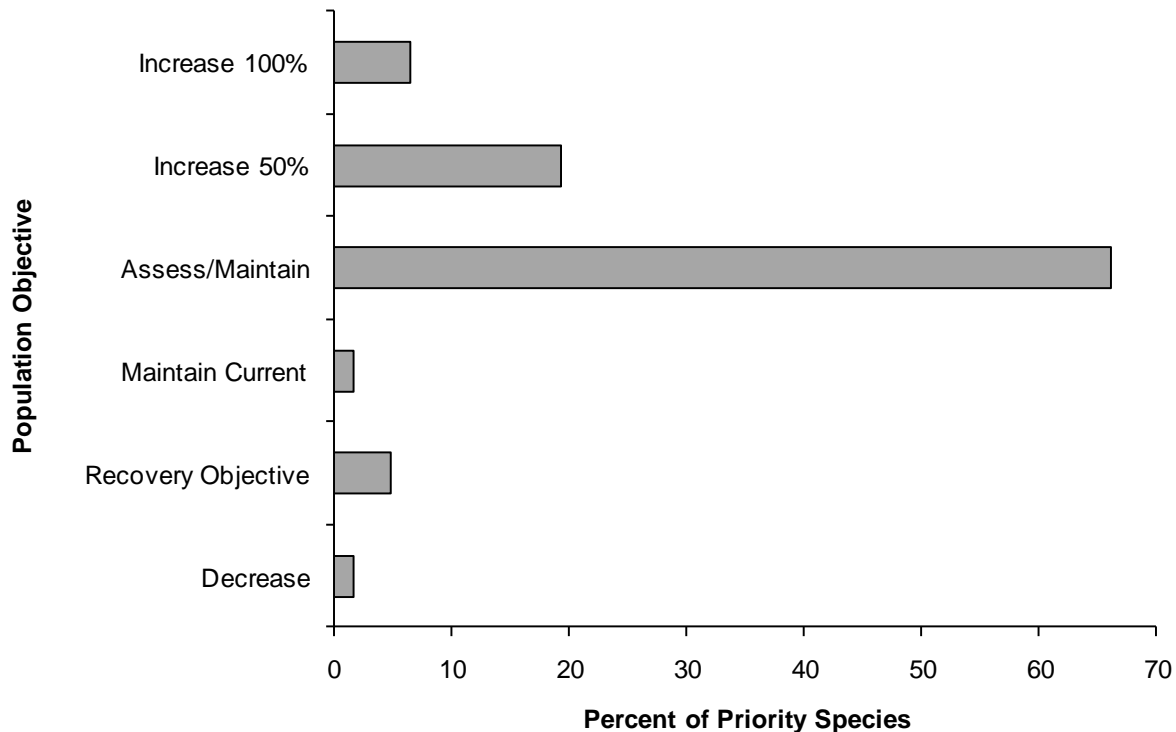


Figure 10. Percent of priority species that are associated with each population objective category in BCR 7, Prairie and Northern Region.

Many species have “Assess/Maintain” because of the paucity of monitoring data from within the BCR.

Element 4: Threat Assessment for Priority Species

The threats assessment process identifies threats believed to have a population-level effect on individual priority species. These threats are assigned a relative magnitude (Low, Medium, High, Very High), based on their scope (the proportion of the species’ range within the subregion that is impacted) and severity (the relative impact on the priority species’ population). This allows us to target conservation actions towards threats with the greatest effects on suites of species or in broad habitat classes. Some well known conservation issues (such as predation by domestic cats or climate change) may not be identified in the literature as significant threats to populations of an individual priority species and therefore may not be captured in the threat assessment. However, they merit attention in conservation strategies because of the large numbers of individual birds affected in many regions of Canada. We have incorporated them in a separate section on Widespread Issues in the full strategy, but, unlike other threats, they are not ranked.

Because development is so limited in BCR 7-PNR, no threats were identified as operating at a level that affects populations of priority species. However, the following threats were initially identified and considered:

- Urban expansion of the communities in the BCR subregion
- Mining and quarrying
- Overabundant native species

- Dams/hydro development
- Roads

Forest harvesting, salvage logging, and peat mining do not occur in the BCR so are not listed as threats. Fire suppression is mostly limited to protecting communities and industry sites or some localized timber resources. Most fires are allowed to burn extensive areas under natural conditions (Figure 5), unless coming close to human property, so no human-caused effect on bird populations from fire suppression could be identified. As per the methodology in Kennedy et al. (2012), threats identified as “Low” are not considered further for Conservation Objectives or Recommended Actions. Since all threats in BCR 7 were deemed to be “Low,” this strategy has no Element 5 or 6 results. However, there are two conservation issues in the BCR, both relatively local in scale: overpopulation of two species of goose, the Lesser Snow Goose and Ross’s Goose, and overpopulation of Common Ravens around Yellowknife and nearby settlements.

Overabundant White Geese

Ecosystems within BCR 7-PNR, particularly in the coastal regions, but more recently in the tundra areas of the Hudson Plains, are under high pressure from a large overabundance of Lesser Snow Geese (Figure 11) and rapidly growing populations of Ross's Geese. A special publication from the Arctic Goose Joint Venture (Leafloor et al. 2012) is a current and expansive review of the



Figure 11. Lesser Snow Geese are overabundant and are severely damaging their breeding habitats.

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situation and conservation options for dealing with this issue. Lesser Snow Goose populations have increased at a remarkable rate, up to 7% per year from the early 1960s to the mid-1990s, due primarily to the agricultural food resources available throughout their migratory routes and on their wintering grounds (Abraham et al. 2005). The abundance of these herbivores on breeding areas in BCR 7-PNR is causing loss or degradation of habitat for a variety of other bird species, and may, over time, cause changes in bird communities in the affected habitats. For example, Savannah Sparrows and their grass/shrub habitat showed large declines, up to 77%, over a 25-year period from 1976 to 2001 in an area adjacent to coastal salt marshes in northern Manitoba (Rockwell et al. 2003). This is attributed to destructive foraging by snow geese causing changes in the properties of the soil, and erosion of the unvegetated soils resulting in potentially irreversible changes (Jefferies et al. 2006). Decreasing Snow and Ross's Goose numbers will likely require large-scale, intensive management efforts since recent evidence suggests that increased bag limits and the special conservation season (spring hunt) are not curtailing population growth as much as expected (Leafloor et al. 2012).

The issue of overabundant Lesser Snow Geese and similarly destructive increasing populations of Ross's Geese is a serious, but local problem in the BCR (restricted to the area near Churchill, MB). BCR 3-PNR contains many more white-geese colonies, and that strategy has both Conservation Objectives and Recommended Actions for these species that would also apply to the white geese in BCR 7-PNR.

Overabundant Ravens

Yellowknife has the highest count of Common Ravens (Figure 12) in North America on the Christmas Bird Count, with 2,613 and 2,221 individuals found in the 2010 and 2011 counts respectively. This local overpopulation has been linked to decreased nesting success in several waterbird and waterfowl species in the area, likely due to increased nest predation (Fournier and Hines 1999, 2001, Canadian Wildlife Service unpublished data). For example, scaup nesting success averages 58% where ravens are excluded, but is 18–21% on land or islands accessible to

ravens (although the latter are free of terrestrial predators). Similar effects were noted on waterfowl and waterbirds nesting in the Yellowknife area.

Mining

Mining is the main industry in the BCR subregion, as mentioned earlier. Though the threat from mining to birds in BCR 7-PNR is likely below the threshold for consideration at this regional scale, mining has historically been more active and is likely to increase with three potential new mines coming into operation. Impacts will still remain local in scope and can be dealt with by participation in the environmental assessment process and compliance with regulatory conditions of licenses and authorizations.

Figure 13 summarizes the six sub-threats that affect priority species in BCR 7-PNR. “Mining and quarrying” usually refers to the direct loss of habitat and any indirect effects from the mines on habitat such as dust and noise. “Recreational activities” are primarily those involving use of lakes and wetlands and the associated boat wakes, noise or pollution. “Problematic native species” is mostly a threat from white goose overpopulation, but it does include unusually high numbers of Common Ravens around Yellowknife and the associated depredation of nests mentioned above. The “Industrial and military effluents” sub-category covers mercury, selenium and other metals, as well as complex chemicals such as PCBs or flame retardants. They are deposited locally from industry or by long-range atmospheric transport and bioaccumulate in birds. “Garbage and solid waste” is self-explanatory and was assessed for gulls. Finally, “Air-borne pollutants” was used for aerial deposition of compounds that acidify the environment.



Figure 12. Common Ravens have become very numerous in the Yellowknife area, resulting in negative effects on local waterfowl nesting success.

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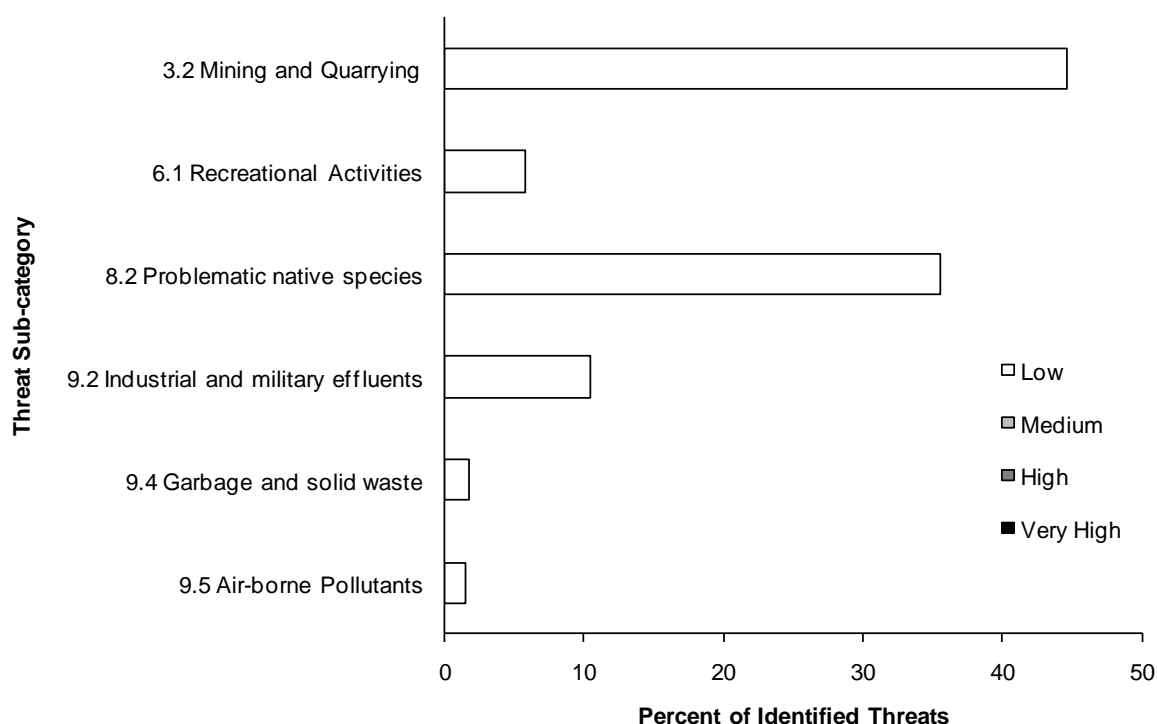


Figure 13. Percent of identified threats to priority species within BCR 7, Prairie and Northern Region, by threat sub-category.

Each bar represents the percent of the total number of threats identified in each threat sub-category in BCR X (for example, if 100 threats were identified in total for all priority species in BCR 7, and 10 of those threats were in the category 1.1 Housing & urban areas, the bar on the graph would represent this as 10%). Shading in the bars (VH = very high, H = high, M = medium and L = low) represents the rolled up magnitude of all threats in each threat subcategory in the BCR.

Overall threats were summarized for the strategy subregion in Table 4. Like the data presented above, sub-categories 2. Energy Production and Mining and 8. Invasive & Other Problematic Species & Genes are the two main threats. However, the table demonstrates that both of these low ranked threats were assessed to occur in most habitat classes. The overall threat ranking in each habitat is in the top row, while the overall threat ranking for each threat is in the last column.

Table 4. Relative magnitude of identified threats to priority species within BCR 7, Prairie and Northern Region, by threat category and broad habitat class.

Overall ranks were generated through a roll-up procedure described in Kennedy et al. (2012). L represents Low Magnitude threats; M = Medium; H = High; VH = Very High. Blank cells indicate that no priority species had threats identified in the threat category/habitat combination.

Threat Category	Habitat Class											Overall
	Coniferous	Deciduous	Mixed Wood	Shrub/Early Successional	Herbaceous	Lichens/Mosses	Bare Areas	Urban (Artificial Sur. & Bare Areas)	Wetlands	Waterbodies, Snow and Ice	Coastal	
Overall	L	L	L	L	L	L	L	L	L	L	L	
1. Residential & Commercial Development												
2. Agriculture & Aquaculture												
3. Energy Production & Mining	L	L	L	L	L	L	L		L	L	L	L
4. Transportation & Service Corridors												
5. Biological Resource Use												
6. Human Intrusions & Disturbance				L	L		L		L	L		L
7. Natural System Modifications												
8. Invasive & Other Problematic Species & Genes	L	L	L	L	L	L	L		L	L	L	L
9. Pollution	L	L		L	L		L	L	L	L		L
11. Climate Change & Severe Weather												

Threats to priority species while they are outside Canada during the non-breeding season were also assessed and are presented in the full strategy in the Threats Outside Canada section.

Element 5: Conservation Objectives

Conservation objectives were designed to address threats and information gaps that were identified for priority species. They describe the environmental conditions and research and monitoring that are thought to be necessary for progress towards population objectives and to understand underlying conservation issues for priority bird species. As conservation objectives are reached they will collectively contribute to achieving population objectives. Whenever possible, conservation objectives were developed to benefit multiple species, and/or respond to more than one threat.

For BCR 7-PNR no threats identified for individual species were assessed at a magnitude of “medium” or greater. Therefore no specific conservation objectives or associated actions were developed as per Kennedy et al. (2012). See the BCR 3-PNR strategy for conservation objectives and recommended actions for overabundant white geese.

Element 6: Recommended Actions

Recommended actions indicate on-the-ground activities that will help to achieve the conservation objectives. Actions are strategic rather than highly detailed and prescriptive. Whenever possible, recommended actions benefit multiple species, and/or respond to more than one threat. Recommended actions defer to or support those provided in recovery documents for species at risk at the federal, provincial or territorial level, but will usually be more general than those developed for individual species.

For BCR 7-PNR no threats identified for individual species were assessed at a magnitude of “medium” or greater. Therefore no specific conservation objectives or associated actions were developed as per Kennedy et al. (2012). Many of the threats facing priority bird species in BCR 7-PNR are not well understood; this may be due to inadequate monitoring for most species that leads to uncertainty in BCR population trends, or a lack of evidence establishing causative relationships between human activities and population declines. These knowledge gaps will often be best addressed using an adaptive management approach which iteratively employs management actions as scientific experiments to test specific hypotheses to inform future management decisions (Walters et al. 1992).

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