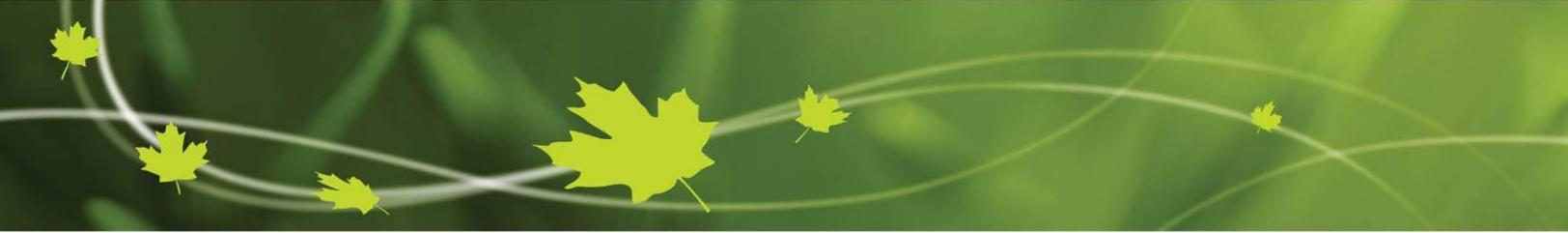




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Bird Conservation Strategy for Bird Conservation Region 3 in Newfoundland and Labrador: Arctic Plains and Mountains

- Abridged Version -

October 2013



Preface

Environment Canada (EC) 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 EC'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.

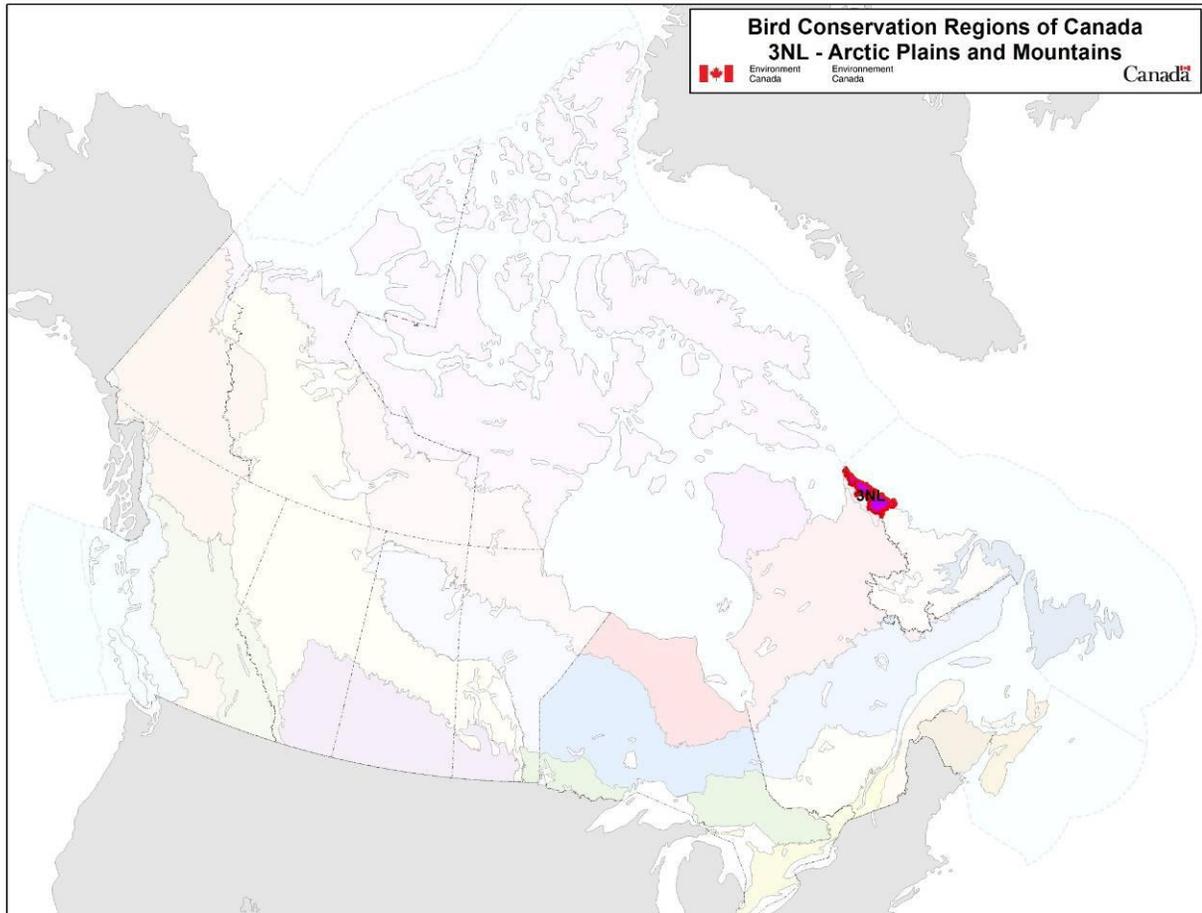
Conservation objectives and recommended actions from the conservation strategies will be used as the biological basis to develop guidelines and beneficial management practices that support compliance with regulations under the *Migratory Birds Convention Act, 1994*.

Acknowledgements

This document follows templates developed by Alaine Camfield, Judith Kennedy and Elsie Krebs with the help of the BCR planners in each of the Canadian Wildlife Service regions throughout Canada. However, 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. We would like to extend a sincere thanks to the following people: Karyne Bellehumeur, Doug Bliss, Andrew Boyne, Paul Chamberland, Kevin Davidson, Michael Elliott, Carina Gjerdrum, Alan Hanson, Christie MacDonald, Paul MacDonald, Bryan Martin, Bruce Pollard, Martin Raillard, Isabelle Robichaud, Dane Stuckel, Peter Thomas, Kyle Wellband, Becky Whittam, and other reviewers.

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

Bird Conservation Strategy for Bird Conservation Region 3 in Newfoundland and Labrador: Arctic Plains and Mountains



Executive Summary

This strategy pulls together the best available information from the literature on bird conservation in Newfoundland and Labrador. It identifies priority species for conservation, the key threats affecting them and the major conservation actions required to protect them. Its goal is to become a tool for future conservation planning, a one-stop shop where important information on bird conservation is conveniently pulled together and displayed. It builds on existing bird conservation strategies and complements those created for the other Bird Conservation Regions (BCR) across Canada using the best available information extracted from a national database. Collectively, the strategies will serve as a framework for implementing bird conservation nationally, and also identify international conservation issues for Canada's priority birds. Strategies are not highly prescriptive, but rather are intended to guide future implementation efforts undertaken by various partners and stakeholders. Below is an outline of the priority species groups and the main threats and conservation actions identified.

Bird Conservation Region 3 (BCR 3: Arctic Plains and Mountains) in the province of Newfoundland and Labrador extends into the Torngat Mountains region of northern Labrador and covers an area of approximately 18 500 km² or 7% of the province. This region contains both tundra and alpine landscapes found within arctic plains and mountains, which are characterized by bare soil, rocky outcrops, lichens, as well as limited vegetation such as mosses, sedges and woody shrubs.

In BCR 3 NL, there are 17 priority bird species. The habitats used by the greatest number of priority bird species are shrubs and early successional habitat (65%), coastal (above high tide; 59%), riparian (41%) and wetlands (41%). As this region is mostly contained within the Torngat Mountains National Park Reserve, few localized threats are anticipated. The major threat to priority bird species in BCR 3 NL is climate change, but there are also large gaps in our knowledge of species distribution, abundance and population trends in this northern and isolated region. Less severe threats to priority bird species in this area include hunting, disturbance from human recreation, competition with similar species for resources, and, to a lesser extent, heavy metal contamination.

The most frequently identified conservation objective in BCR 3 NL is to manage climate change, followed by improving our understanding of priority bird species. Recommended actions to address climate change are to support efforts in order to reduce greenhouse gas emissions; manage for habitat resilience to allow ecosystems to adapt despite disturbances and changing conditions; minimize anthropogenic stressors (such as development or pollution) to help maintain resilience; manage buffer areas and the habitat between protected areas to enhance movement of species across the landscape; manage ecosystems to maximize carbon storage and sequestration while simultaneously enhancing bird habitat; and incorporate predicted shifts in habitat into landscape-level plans. Many of these actions would need to be implemented at scales greater than the BCR. The development and implementation of monitoring programs is recommended to address knowledge gaps regarding the distribution, abundance and population trends of priority bird species.

We hope that the information in this strategy will become a useful tool for future conservation planning, especially in terms of habitat conservation, as it presents relevant information on priority species, threats and conservation actions in a convenient summary format.

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 priorities 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" (waterfowl¹, waterbirds², shorebirds³, 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 Committee 2004.

² Milko et al. 2003.

³ Donaldson et al. 2000.

⁴ Rich et al. 2004.

Strategy Structure

This strategy includes one planning unit: Bird Conservation Region 3 in Newfoundland and Labrador (BCR 3 NL). The geographic boundaries of this unit include the terrestrial portion of northern Labrador and extend to the high-tide line. The Bird Conservation Strategy for Bird Conservation Region 7 and Marine Biogeographic Unit 10 in Newfoundland and Labrador (Taiga Shield and Hudson Plains, and Newfoundland-Labrador Shelves; Environment Canada 2013) provides bird conservation priorities in the marine waters and intertidal coast of the Newfoundland and Labrador Shelves (MBU 10 NL).

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 subregional 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 included in the full version of the 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 for Priority Species; Element 5 –Conservation Objectives; Element 6 – Recommended Actions.

Characteristics of Bird Conservation Region 3: Arctic Plains and Mountains in Newfoundland and Labrador

BCR 3 (Arctic Plains and Mountains) is an extensive region that covers almost 308 000 km² across the Canadian Arctic and northern Alaska, which encompasses northern Yukon, Northwest Territories, Quebec, Labrador and most of Nunavut (Environment Canada 2011). The region is characterized by low-lying, coastal tundra and drier uplands of the rocky Arctic mountains. The freezing and thawing of the thick and continuous permafrost form a patterned mosaic of polygonal ridges and ponds. Many rivers bisect the plains and flow into the Arctic Ocean. The ocean surface is generally frozen 9 to 10 months of the year, and the ice pack is never far from shore (North American Bird Conservation Initiative 2013).

The portion of BCR 3 in the province of Newfoundland and Labrador extends into the Torngat Mountains region of northern Labrador and covers an area of approximately 18 500 km² or 7% of the province. This area contains tundra and alpine landscapes found within the Arctic plains and mountains (Fig. 1). The region is characterized by bare soil, rocky outcrops and lichens. Vegetation is sparse and limited to mosses, sedges and woody shrubs.

The population of Newfoundland and Labrador is an estimated 512 659 people; however only 6% (30 760) reside in Labrador (Newfoundland and Labrador Statistics Agency 2013). The north coast is the most isolated region in the province, where snowmobiles, boats, and planes are the only current modes of transportation. In addition, there are no longer any communities or permanent human residents in this area (Encyclopedia Britannica Online 2013).

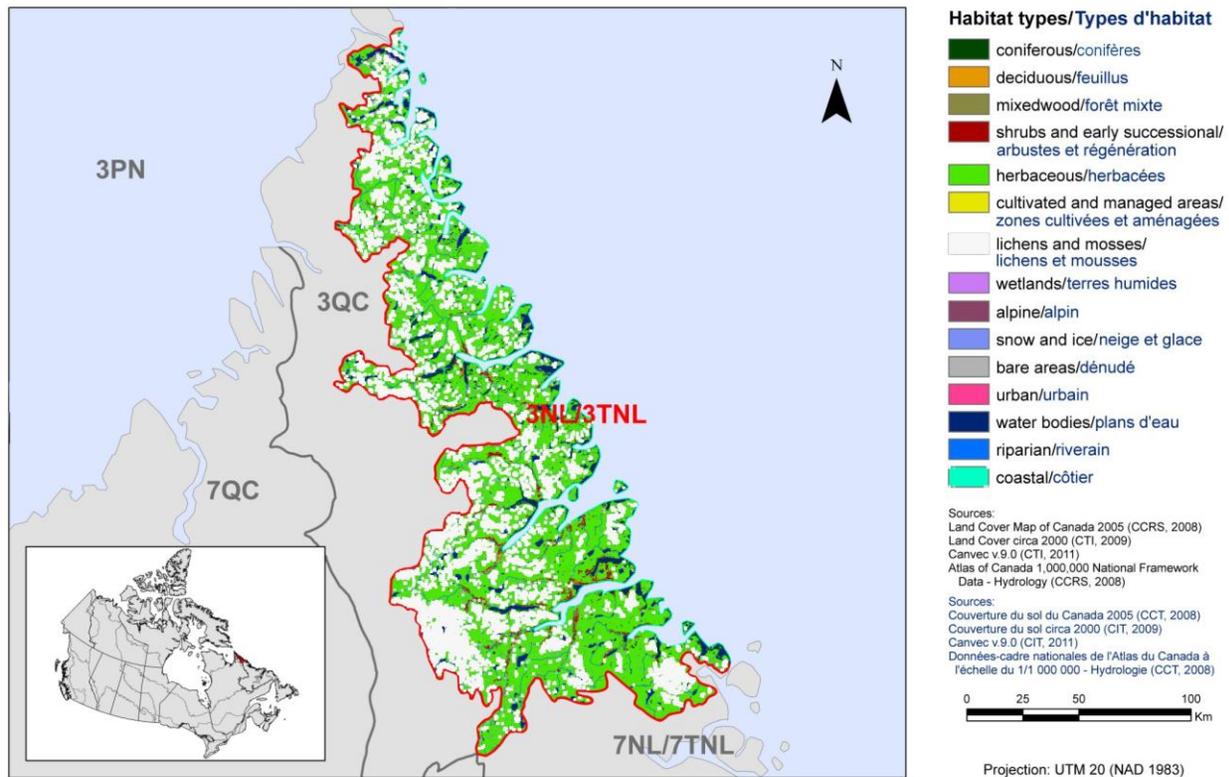


Figure 1. Land cover in BCR 3 NL.

The red line delineates the geographic boundaries established by the North American Bird Conservation Initiative for the BCRs. The boundaries of BCR 3 NL extend to the high-tide line.

Northern Labrador has a polar tundra climate. The region is dry and cold, with short summers (mean temperature of 4°C) and long winters (mean temperature of -16.5°C). Precipitation is lower than elsewhere in the province and mostly falls as snow over the higher peaks of the central region (Encyclopedia Britannica Online 2013).

There are few current and potential threats to the region's avifauna. As this portion of BCR 3 is mostly contained within the Torngat Mountains National Park Reserve, few localized threats are anticipated. The major threat in this region is climate change, but there are also large gaps in our knowledge of species' distribution, abundance and population trends in this northern and isolated region. Less severe threats to priority bird species in this area include hunting, disturbance from human recreation, competition with similar species for resources, and, to a lesser extent, lethal or sublethal toxic effects due to heavy metal contamination.

The Labrador portion of the province of Newfoundland and Labrador has nearly 3.5% of its surface area (terrestrial: 9 893 km²; marine: 83 km²) protected either as provincially or federally administered areas (Canadian Council on Ecological Areas 2011; Fig. 2). There are no National Wildlife Areas or Migratory Bird Sanctuaries in Labrador. The largest protected area is the Torngat Mountains National Park, which covers more than half of the BCR 3 region in Labrador

(9 700 km²) and is managed by the Parks Canada Agency. In addition, some areas have designations that recognize ecological uniqueness (but do not formally protect habitat), elevate public awareness and promote the conservation of ecologically significant habitats. In this region, these include two Important Bird Areas (IBA) at Seven Islands Bay (787 km²) and on Galvano Island⁶ (45 km²).

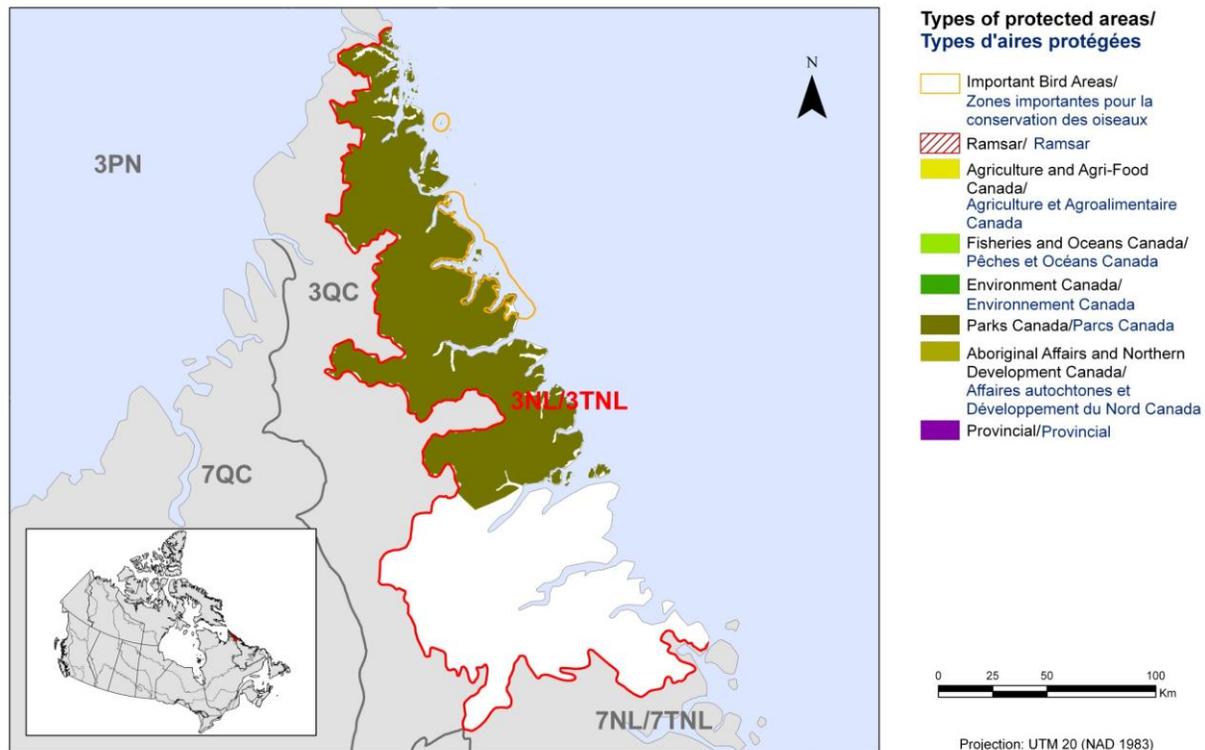


Figure 2. Map of protected and designated areas in BCR 3 NL.

⁶ The IBA is located in Marine Biogeographic Unit 10 NL; please see Environment Canada 2013 for additional information.

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 in BCR 3 NL. Tables 2 and 3 summarize the number of priority species in BCR 3 NL by bird group and by the reason for priority status.

In BCR 3 NL, there are 17 priority species (Table 1), about half of which are landbirds (9 species). The priority species list also includes 3 shorebirds, 2 waterbirds and 3 waterfowl species. Overall, 38% of waterfowl are priority species, compared to 32% of landbirds, 30% of shorebirds and 20% of waterbirds (Table 2). Three of the priority species are formally protected under the Government of Canada’s *Species at Risk Act* (SARA; Species at Risk Public Registry 2012): Harlequin Duck (Eastern), Peregrine Falcon (*anatum/tundrius*), and Short-eared Owl (Table 3).

The most frequent reasons that the inclusion of landbirds on the priority species list for BCR 3 and MBU 10 NL are related to regional concerns or stewardship whereas the reasons for considering shorebirds or waterbirds as priority species are typically related to national or continental concerns (Table 3). The main explanation for this difference is due to a lack of information at the regional level for many of the shorebird and waterbird species. As for waterfowl, the main reason for their inclusion as priority species is due either to their inclusion as a “key species” in the Eastern Habitat Joint Venture (EHJV) Implementation Plan (EHJV 2010) or their status rank of moderate-high, high or higher under the North American Waterfowl Management Plan (NAWMP Committee 2004; Table 3).

Table 1. Priority bird species in BCR 3 NL, population objective, and the reason for priority status.

Priority Species	Bird Group	Population Objective	SARA ¹	COSEWIC ²	Provincial Listing ³	National/Continental Concern	National/Continental Stewardship	Regional/Subregional Concern	Regional/Subregional Stewardship	Waterfowl ⁴	Expert Review ⁵
Golden Eagle	Landbirds	Maintain current							Y		
Gray-cheeked Thrush	Landbirds	Assess/Maintain			VU						
Gyr Falcon	Landbirds	Maintain current					Y		Y		
Northern Wheatear	Landbirds	Maintain current					Y		Y		
Peregrine Falcon (<i>anatum/tundrius</i>)	Landbirds	Assess/Maintain ⁶	SC	SC	VU				Y		
Rough-legged Hawk	Landbirds	Maintain current					Y		Y		
Short-eared Owl	Landbirds	Assess/Maintain ⁶	SC	SC	VU						
Snow Bunting	Landbirds	Maintain current					Y				
Snowy Owl	Landbirds	Maintain current							Y		
American Golden-Plover	Shorebirds	Assess/Maintain				Y					

¹ Species listed on Schedule 1 under the *Species at Risk Act* as Endangered (EN), Threatened (TH) or Special Concern (SC) (Species at Risk Public Registry 2012).

² Species assessed by the Committee on the Status of Endangered Wildlife in Canada as Endangered (EN), Threatened (TH), or Special Concern (SC) (COSEWIC 2012).

³ Species listed under Newfoundland and Labrador's *Endangered Species Act* as Endangered (EN), Threatened (TH), or Vulnerable (VU) (Newfoundland and Labrador Department of Environment and Conservation 2013).

⁴ Waterfowl identified as “key species” for Newfoundland and Labrador in the Eastern Habitat Joint Venture Implementation Plan (EHJV 2010), or scored as “Moderately-High”, “High” or “Highest” in either the breeding or non-breeding conservation and/or monitoring needs for waterfowl conservation region 3 (analogous to BCR 3) of NAWMP (NAWMP Plan Committee 2004).

⁵ Species added by the Newfoundland and Labrador Technical Working Group.

⁶ The interim population objective for this species will be replaced with the official recovery objectives when recovery documents are published under the *Species at Risk Act*.

Table 1 continued

Priority Species	Bird Group	Population Objective	SARA ¹	COSEWIC ²	Provincial Listing ³	National/Continental Concern	National/Continental Stewardship	Regional/Subregional Concern	Regional/Subregional Stewardship	Waterfowl ⁴	Expert Review ⁵
Least Sandpiper ⁷	Shorebirds	Assess/Maintain				Y					
Semipalmated Sandpiper	Shorebirds	Assess/Maintain				Y					
Common Loon	Waterbirds	Assess/Maintain				Y					
Red-throated Loon	Waterbirds	Assess/Maintain							Y		
Canada Goose (North Atlantic)	Waterfowl	Increase 50%								EHJV, NAWMP	
Harlequin Duck (Eastern)	Waterfowl	Assess /Maintain	SC	SC	VU					EHJV, NAWMP	
Long-tailed Duck	Waterfowl	Assess/Maintain								EHJV, NAWMP	

⁷ The shorebird priority species were selected based on Andres 2009. A recent assessment (Andres et al. 2012) now suggests that the populations of the Least Sandpiper are stable. Subsequent database versions will be modified to account for this new information.

Table 2. Summary of priority species by bird group in BCR 3 NL.

Bird Group	Total Species (% of avifauna)	Total Priority Species	Percent Listed as Priority	Percent of Priority List
Landbirds	28 (50%)	9	32%	53%
Shorebirds	10 (18%)	3	30%	17.5%
Waterbirds	10 (18%)	2	20%	12%
Waterfowl	8 (14%)	3	37%	17.5%
Total	56	17	30%	100%

Table 3. Number of priority species in BCR 3 NL by reason for priority status.

Reasons for Priority Listing ¹	Landbirds	Shorebirds	Waterbirds	Waterfowl
Total	9	3	2	3
COSEWIC ²	2	0	0	1
Federal SARA listed ³	2	0	0	1
Provincial listed ⁴	3	0	0	1
NAWMP ⁵	-	-	-	3
National/Continental Concern	0	3	1	-
National/Continental Stewardship	4	-	-	-
Regional/Subregional Concern	0	-	-	-
Regional/Subregional Stewardship	6	0	1	-
Added during expert reviews ⁶	0	0	0	0

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 (COSEWIC 2012).

³ Species listed on Schedule 1 of the *Species at Risk Act* as Endangered, Threatened or Special Concern (Species at Risk Public Registry 2012).

⁴ Species listed under Newfoundland and Labrador's *Endangered Species Act* as Endangered, Threatened or Vulnerable (Newfoundland and Labrador Department of Environment and Conservation 2013).

⁵ Waterfowl identified as "key species" for Newfoundland and Labrador in the EHJV Implementation Plan (2007-2012), or scored as "Moderately-High", "High" or "Highest" in either the breeding or non-breeding conservation and/or monitoring needs for waterfowl conservation region 3 (analogous to BCR 3) of the NAWMP (NAWMP Committee 2004).

⁶ Species added by the Newfoundland and Labrador Technical Working Group.

Element 2: Habitats Important to Priority Species

Identifying the broad habitat requirements for each priority species within the BCR and the MBU 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.

The assignment of habitat associations for priority bird species was done through literature review and expert consultation. For each priority bird species in BCR 3 NL, all of its known habitat associations were considered, not just the primary habitat associations. Because of variability in the quality and availability of information related to species-habitat associations, quantifying the relative importance of any given habitat was not possible. In this document, statements regarding the importance of habitat types for priority bird species are related to the number of priority bird species associated with each habitat and may not reflect the overall importance of a given habitat to all bird species in the planning unit. For instance, while herbaceous habitats cover a large portion of the BCR 3 NL (Fig. 1), no priority bird species were associated with this habitat.

In BCR 3 NL, shrub/early successional habitats are used by the greatest number of priority bird species (11 species; Fig. 3). Coastal (above high tide) habitats are also important as they are used by 10 species, while both the riparian and wetland habitats are used by 7 species. Bare areas and lichens/mosses habitats are used by the fewest priority bird species (4 species; Fig. 3).

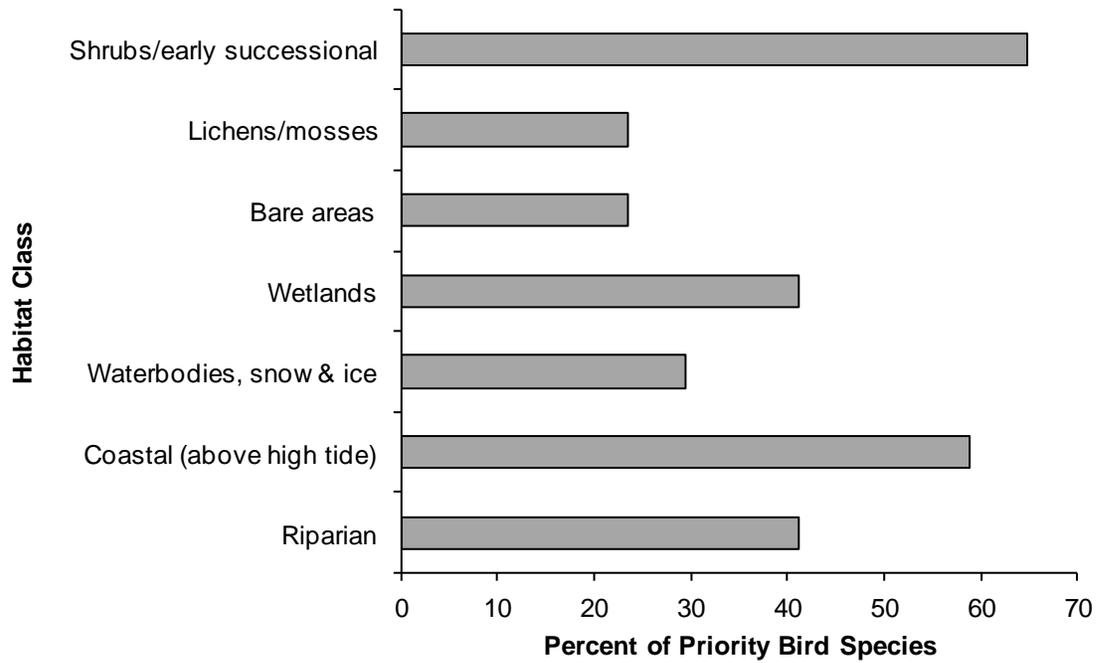


Figure 3. Percent of priority species that are associated with each habitat class in BCR 3 NL.
Note: The total exceeds 100% because each species may be assigned to more than one habitat.

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.

In BCR 3 NL, the population objective for six priority bird species is to maintain current levels, an indication that population trends for these species are stable (Fig. 4). These species are, however, still considered priorities due to other factors such as national/continental and regional/subregional concern or stewardship status (Table 1). Ten priority bird species have a population objective of "assess/maintain", indicating that there are insufficient data to reliably assess a trend, therefore additional monitoring is required for these species (Fig. 4). There is only one priority bird species with identified population declines: the Canada Goose (North Atlantic), which has a population objective of increase by 50% (Table 1; Fig. 4).

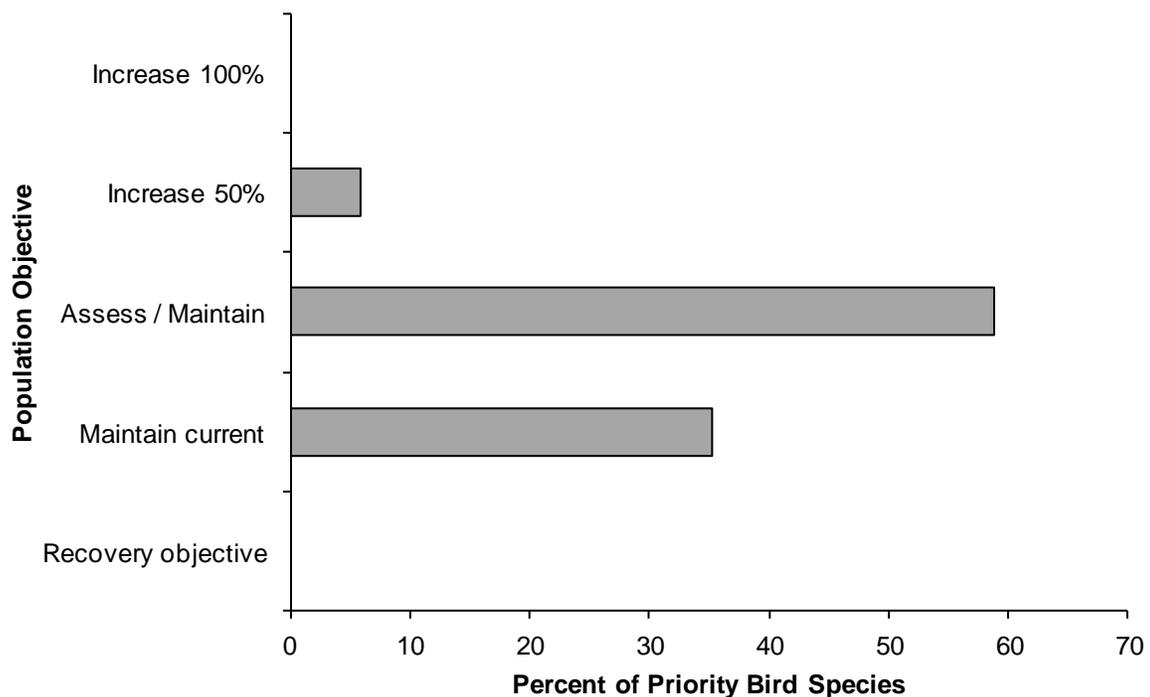


Figure 4. Percent of priority species that are associated with each population objective category in BCR 3 NL.

Element 4: Threat Assessment for Priority Species

The threat 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 version of the strategy), but, unlike other threats, they are not ranked. In BCR 3 NL, a category was added to the threats classification scheme to allow for the inclusion of inadequate monitoring or research information (category 12 "Other direct threats" and sub-category 12.1 "Information lacking"). The following discussion focuses mainly on the highest-ranked threats and notes a few medium and low-ranked threats where appropriate.

A complete list of threats for all priority bird species in BCR 3 NL is included in Appendix 1 of the full strategy. Some of the threats identified are not unique to a particular habitat (for example, legal hunting and incidental take by poachers/trappers) while others are specific (for example, habitat degradation due to sea-level rise and increasing severity or frequency of storms in coastal habitats). These threats are categorized as per Salafsky et al. 2008.

Once individually ranked threats are rolled up for each habitat class in BCR 3 NL, the overall threat magnitude is high in the shrub/early successional, wetland, coastal (above high tide) and riparian habitats. The remaining habitat classes have an overall threat magnitude of medium (Table 4).

In BCR 3 NL, the highest-ranked and most frequently identified threats were gaps in knowledge of priority bird species' distribution, abundance and population trends (12.1 Information lacking; ranked very high); as well as habitat loss or degradation from changes in habitat structure (e.g., drying, thawing of tundra), species' ranges, changes to food webs and altered timing of seasonal cues (e.g., egg laying, migration) due to climate change (11.1 Habitat shifting and alteration; ranked high; Fig. 5). Hunting, poaching and incidental take was also a frequently identified threat (5.1 Hunting and collecting of terrestrial animals; ranked low; Fig. 5).

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

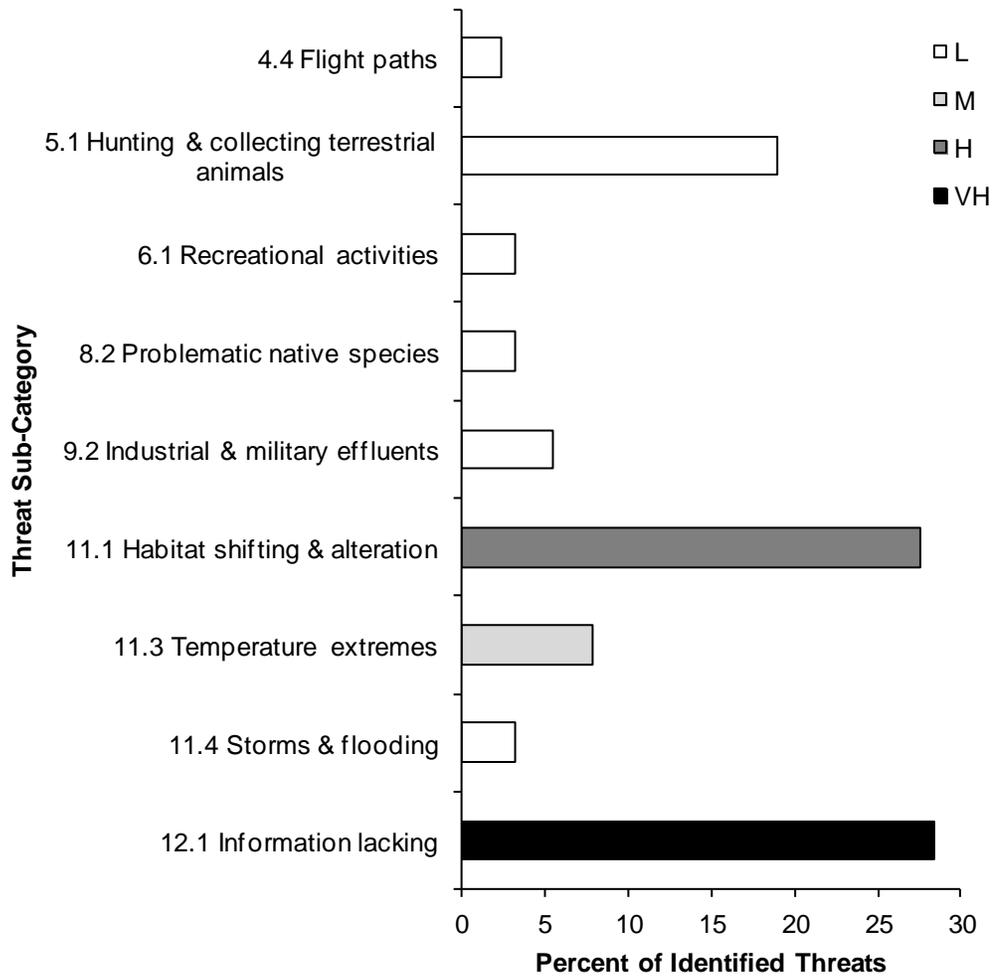


Figure 5. Percent of identified threats to priority species within BCR 3 NL by threat sub-category.

Each bar represents the percent of the total number of threats identified in each sub-category of BCR 3 NL (for example, if 100 threats were identified in total for all priority species in BCR 3 NL, and 10 of those threats were in the sub-category 1.1 Housing and 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 sub-category in the BCR.

Table 4. Relative magnitude of identified threats to priority bird species within BCR 3 NL 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
	Shrub/early successional	Lichens/mosses	Bare areas	Wetlands	Riparian	Waterbodies, snow and ice	Coastal (above high tide)	
Overall	H	M	M	H	H	M	H	
1. Residential and commercial development								
2. Agriculture and aquaculture								
3. Energy production and mining								
4. Transportation and service corridors	L			L	L			L
5. Biological resource use	L	L	L	L	L	L	L	L
6. Human intrusions and disturbance	L		L		L		L	L
7. Natural system modifications								
8. Invasive and other problematic species and genes	L			L		L	L	L
9. Pollution				L	L	L	L	L
11. Climate change and severe weather	H	M	M	H	H	M	H	H
12. Other direct threats	VH	H	M	H	H	M	VH	VH

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.

In BCR 3 NL, aside from managing climate change, which is discussed in Section 3 of the full version of this strategy, there were only three categories of conservation objectives identified for priority bird species. The most common conservation objective was improving our understanding of priority bird species, followed by reducing mortality or increasing productivity. There were also a few conservation objectives related to reducing disturbance in sensitive areas (Fig. 6).

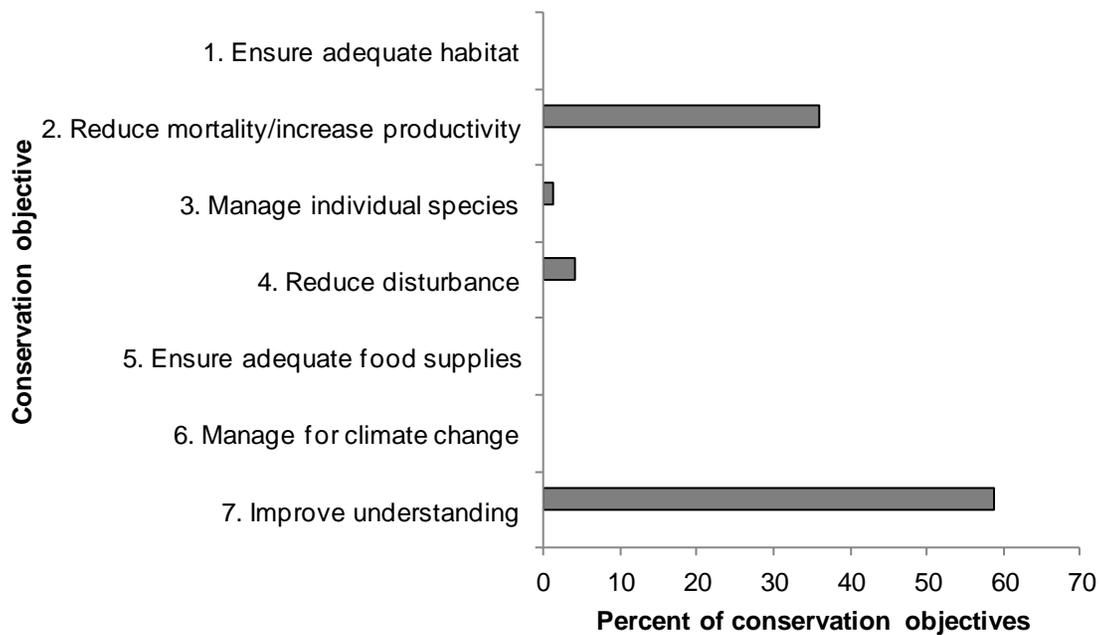


Figure 6. Percent of all conservation objectives assigned to each conservation objective category in BCR 3 NL.

Note: Widespread issues (including climate change) were excluded from this calculation as these are detailed in Section 3 of the full strategy..

Element 6: Recommended Actions

Recommended actions indicate on-the-ground activities that will help to achieve the conservation objectives (Fig. 7). 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.

The recommended conservation actions are classified following the categories developed by the International Union for Conservation of Nature – Conservation Measures Partnership (IUCN-CMP) with the addition of categories for research and monitoring. In BCR 3 NL, aside from the conservation actions addressing threats related to climate change (which outnumbered those associated with any other threat and are discussed in Section 3 of the full strategy), the most frequently identified recommended conservation actions fell under the sub-category 4.3 Awareness and communications (Fig. 7). Examples of these actions include raising general public awareness through education programs on issues such as hunting and/or the vulnerability of species to human disturbance at breeding, foraging, moulting and/or staging sites.

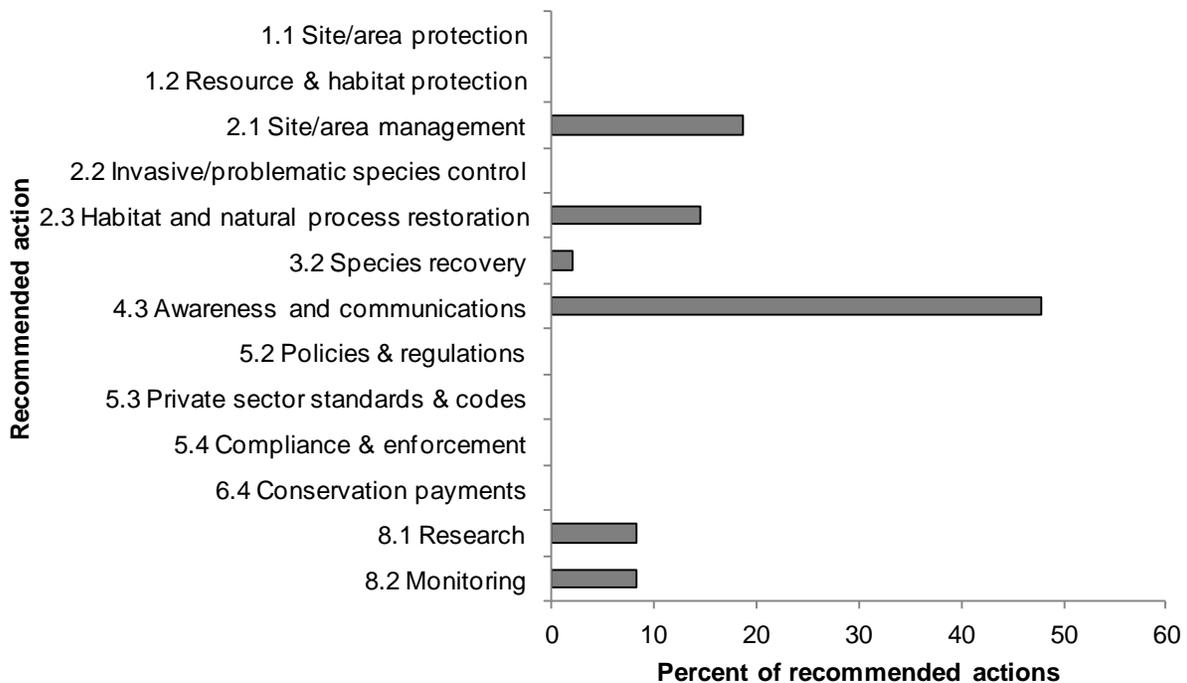


Figure 7. Percent of recommended conservation actions assigned to each sub-category in BCR 3 NL.

Note: 8.1 Research and 8.2 Monitoring sub-categories refer to specific species where additional information is required. For a discussion of broad-scale research and monitoring requirements, see Research and Population Monitoring Needs in Section 3 of the full strategy.

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