ENVIRONMENTAL ASSESSMENT BEST PRACTICE GUIDE FOR

Wildlife at Risk in Canada

FIRST EDITION: 27 February 2004

Canadian Wildlife Service
Environment Canada

Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada

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Foreword

This guide emphasizes best practice in environmental assessment. It is not specific to any one piece of legislation, such as the federal *Species at Risk Act*, or to one environmental assessment regime, such as that related to the *Canadian Environmental Assessment Act*. Rather, the guide outlines a national approach on how to gather and assess information necessary for understanding the consequences of proposed actions on wildlife at risk and for making sound project decisions that contribute, in the long run, to sustainable development.

This guide highlights solely the wildlife at risk component that an environmental assessment would address. More general guides for the implementation of environmental assessment processes, such as the *Responsible Authority's Guide* (Canadian Environmental Assessment Agency 1994), should also be consulted. Those who are preparing environmental assessments should also refer to guides concerning the implementation of federal, provincial and territorial laws relating to wildlife at risk.

The guide is entitled "first edition" because it is expected to be an evolving document that will be strengthened and modified with use and improved understanding of the effects of human activities on wildlife and the process required to adequately describe and mitigate these effects.

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The Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada *is intended solely for training and educational purposes. It does not take the place of the* Canadian Environmental Assessment Act *or the* Species at Risk Act. *In the event of any inconsistency between this guide and these two Acts, the Acts would prevail. Questions concerning the application or interpretation of these Acts should be referred to qualified legal advisors.*

Table of Contents

Section 1

Introduction

The case for considering wildlife at risk in environmental assessment

One of Canada's strategies to protect biological diversity is to pay special attention to "wildlife at risk": native wildlife species that are—or have become—most sensitive to human activity due to their rare occurrence, restricted range in Canada, dependence on specialized habitats or declining population or distribution.

By endorsing the *Accord for the Protection of Species at Risk*, the federal, provincial and territorial governments committed to work cooperatively to prevent species in Canada from becoming extinct as a consequence of human activity. Environmental assessment is an important means for protecting biological diversity—or the variety of life—in Canada and for ensuring that development projects and activities live up to Canada's legal and public policy commitments to biodiversity conservation.

One of Canada's strategies to protect biological diversity is to pay special attention to "wildlife at risk": native wildlife species[1] that are—or have become—most sensitive to human activity due to their rare occurrence, restricted range in Canada, dependence on specialized habitats or declining population or distribution. National, provincial and territorial lists of wildlife at risk currently name hundreds of plant and animal species, and these lists are widely acknowledged to be incomplete. For the majority of listed species, their abundance or distribution has suffered due to unsustainable human activity that has:

- **Converted natural habitats to urban, agricultural, transportation and other uses and severely diminished the amount of some ecosystem types in the landscape**. For example, the loss of native prairie grasslands was a major

[1] In this guide, the term "species" is used to mean "any indigenous species, subspecies, variety, or geographically or genetically distinct population of wild fauna and flora" (COSEWIC 2002).

factor in the extirpation of the Swift Fox from the Canadian prairie. Wetland drainage and conversion in southern Canada have been factors in the decline of at least one-third of the species nationally listed as endangered or threatened.

- **Fragmented large blocks of habitat and isolated wildlife into remnant patches that cannot provide all the resources to meet species needs.** For example, the cumulative loss of forest interior habitat in southern Ontario due to linear development has stressed forest birds such as Cerulean Warblers, Red-shouldered Hawks and Wood Thrushes. In other cases, fragmentation reduces habitat effectiveness—for example, for Grizzly Bears, which do not use trails that receive heavy human use.

- **Introduced exotic species that prey on or out-compete native species.** For example, Canary Grass that choked wetland habitat and an imported predator bullfrog both contributed to the decline of the endangered Oregon Spotted Frog in British Columbia.

- **Provided easier access to natural habitats, resulting in overhunting, increased predation, harassment of sensitive species and vehicle–wildlife collisions.** For example, development in Canada's boreal forests has been accompanied by roads and pipelines that have led to intensified hunting, increased predation and disturbance of Woodland Caribou. Ship strikes and entanglement in fishing gear cause two-thirds of all non-calf mortalities of Right Whales.

- **Polluted water and air, making habitats inhospitable for endemic species.** For example, runoff of pesticides and fertilizers is believed to have contributed to the decline and disappearance of amphibians, such as the Northern Cricket Frog. Contaminants from industrial sources have threatened some fish species in the Great Lakes, such as the Deepwater Sculpin. Acid rain can kill aquatic life in ponds and lakes, and scientists are working to predict the effects of climate change on species and habitats.

It is most important to note that the conservation of biodiversity requires maintenance of viable populations of native wild flora and fauna in their natural habitats, ecosystems, landscapes and waterscapes. It is not the intent of conservation to increase biodiversity through the introduction of species that are not endemic to a habitat.

The conservation of biodiversity requires major shifts in the way in which natural habitats and species are used and managed. It requires the elimination or reduction of adverse effects on biodiversity that result from human activity. It is most important to note that the conservation of biodiversity requires maintenance of viable populations of native wild flora and fauna in their natural habitats, ecosystems, landscapes and waterscapes. It is not the intent of conservation to increase biodiversity through the introduction of species that are not endemic to a habitat (Government of Canada 1995b).

The presence of wildlife at risk in environmental assessment is an important issue. It often signals that the project is planned in an area or habitat type already threatened by human activity, with heightened potential for serious and irreversible consequences to

wildlife. It also can be among the most challenging of issues due to the cumulative nature of threats, the number of stakeholders involved, the high-profile nature of the issue and the complexity of the science underlying population dynamics. Appendix D details six good reasons for paying attention to wildlife at risk in environmental assessment.

On a practical level, the environmental assessment process provides an opportunity for identifying potential conflicts with rare and imperilled species and other wildlife early in project planning, when all options for avoiding or minimizing environmental effects are still open. It links the people responsible for undertaking the assessment with strategies for species and habitat that can guide development planning and with experts and specialists that can help with the assessment. Implementing best practice in environmental assessment can assist proponents in their efforts to meet federal, provincial and territorial laws related to wildlife at risk. Environmental assessment also provides a structured context for involving stakeholders and the public at large in a consultative process of making decisions that can satisfy a range of interests from the outset. Experience has shown that early consideration of environmental effects, and of the views of the public, saves time and money in the long run.

How this guide can help

This guide is primarily targeted to project proponents or those individuals who are preparing environmental assessments. It outlines general responsibilities of proponents or practitioners for considering wildlife at risk in environmental assessment. The guide is designed to promote more thorough, efficient and consistent gathering and assessment of information regarding wildlife at risk. It provides the following main resources:

- **Best practice guidelines** (Section 2)—Recommends the research to be undertaken and the information to be provided relative to considering wildlife at risk, within the step-by-step process of an environmental assessment.
- **Key sources of information** (Appendix A)—Describes who does what for wildlife at risk in Canada, how they can help in an environmental assessment and how to access information.
- **Policy commitments and laws** (Appendix B)—Reviews the obligations for handling wildlife at risk issues in environmental assessment.
- **Implications of the federal *Species at Risk Act* for environmental assessment** (Appendix C)—Outlines the general obligations of the *Species at Risk Act*, as well as its specific implications for environmental assessment.

The guide also includes a glossary of terms (Section 4) related to the consideration of wildlife at risk in environmental assessment.

Note that the guide emphasizes best practice in environmental assessment. Except for Appendix C and some text boxes in Section 2, the guide is not specific to any one piece of legislation, such as the *Species at Risk Act*, or to one environmental assessment regime, such as that related to the *Canadian Environmental Assessment Act.* Rather, the guide outlines a national approach on how to gather and assess information necessary for understanding the consequences of proposed actions to wildlife at risk and for making sound project decisions that contribute, in the long run, to sustainable development. Appendices B and C discuss policies and laws related to wildlife at risk, although the original text of these policies and laws should be consulted for accurate wording, and legal advice should be sought concerning their application.

…the guide emphasizes best practice in environmental assessment… how to gather and assess information necessary for understanding the consequences of proposed actions to wildlife at risk and for making sound project decisions…

This guide highlights solely the wildlife at risk component that an environmental assessment would address. More general guides for the implementation of environmental assessment processes, such as the *Responsible Authority's Guide* (Canadian Environmental Assessment Agency 1994), should also be consulted. Those who are preparing environmental assessments should also refer to guides concerning the implementation of federal, provincial and territorial laws relating to wildlife at risk.

What the guide covers

While legislation concerning wildlife at risk at the federal and provincial or territorial levels pertains to certain lists, risk categories and habitats, best practice requires that consideration be given to all wildlife that are rare or imperilled in Canada, as well as the habitat and residences that are essential to their survival or recovery. Accordingly, the guide uses the term "wildlife at risk" to include all rare or imperilled species designated, or identified as candidates for designation, on lists established by:

…best practice requires that consideration be given to all wildlife that are rare or imperilled in Canada, as well as the habitat and residences that are essential to their survival or recovery.

- Federal, provincial and territorial legislation or local or regional governments
- Wildlife management boards established under land claims agreements that are authorized by those agreements to perform functions in respect of wildlife species
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
- Provincial, territorial and regional Conservation Data Centres and Natural Heritage Information Centres
- Canadian Endangered Species Conservation Council's *General Status of Species in Canada*
- World Conservation Union (IUCN) Species Survival Commission
- *Convention on International Trade in Endangered Species of Wild Fauna and Flora*

Appendix A further describes and provides sources for these lists.

Why does this guide cover such a broad range of wildlife?

- Under the *Accord for the Protection of Species at Risk*, the federal, provincial and territorial governments committed to work cooperatively to prevent species in Canada from becoming extinct as a consequence of human activity.

- The presence of any wildlife species at risk is often an indication that the ecosystem is already threatened. Environmental assessment provides an opportunity to address the factors that are limiting species populations and to influence the overall health of the environment.

- Rare species and species not yet designated but showing early signs of trouble are still of concern from an environmental assessment perspective. Environmental assessment can contribute to maintaining biodiversity in two ways: by contributing to the protection and recovery of designated species and by preventing species from becoming "at risk."

- By looking at species identified as being rare or imperilled regionally or within a province or territory, environmental assessments can consider conservation efforts to address habitat and residence needs early on and perhaps avoid increasingly difficult and expensive recovery efforts in the future.

The guidance outlined here must also be considered in the context of an ecological approach to assessing project effects that encompasses the whole range of wildlife and the maintenance of healthy habitats. It should be integrated with effects assessment at the landscape, ecosystem, community and species levels and with established objectives, standards and guidelines for sustainability at those levels. In this way, environmental assessment can most effectively contribute to the maintenance of biological diversity in Canada.

Section 2

Best practice guidelines

How to incorporate wildlife at risk considerations in the step-by-step approach to environmental assessment

Introduction

This section explains how to consider wildlife at risk within six key steps[2] of project planning and environmental assessment:

- Initiating the project and assessment
- Scoping the assessment
- Assessing environmental effects
- Mitigating adverse environmental effects
- Determining the significance of residual adverse environmental effects
- Follow-up: Verifying accuracy of predictions and ensuring success of mitigation

While the "active" language of the guidelines is aimed at practitioners who are preparing assessments, this section provides government experts, regulators and decision-makers with a general checklist of appropriate action.

For each of these six steps, best practice guidelines are recommended and summarized in Table 1. While the "active" language of the guidelines is aimed at practitioners who are preparing assessments, this section provides government experts, regulators and decision-makers with a general checklist of appropriate action.

Prior to initiating an environmental assessment and throughout the assessment process, practitioners should consider restrictions imposed on the project by federal, provincial and territorial legislation that prohibit activities that harm individuals of wildlife species at risk, or their habitats or residences (see Appendix B), and their

[2] These steps are consistent with the terminology of the self-directed environmental assessment process as described in the *Responsible Authority's Guide* (Canadian Environmental Assessment Agency 1994), but are designed to be useful to other environmental assessment processes in Canada.

Table 1: A summary of best practice guidelines

For considering wildlife at risk in environmental assessment

Initiating the project and assessment

1. Consider relevant plans and strategies for conservation and sustainable development at the landscape, ecosystem, community and species levels. In this way, project siting, design and timing can be tailored to the habitat and residence requirements of all wildlife, including wildlife at risk.
2. When considering site or design alternatives, direct projects and physical activities away from biodiversity or extinction hotspots, rare ecosystems and other areas identified as conservation priorities.

Scoping the assessment

3. Investigate whether wildlife at risk—or their survival or recovery habitat or residences—are located within the project study area by referring to existing information sources, including wildlife experts, specialists and local and Aboriginal communities. Conduct field surveys if it is likely that wildlife species at risk are present in the study area or if wildlife data for the site are lacking or outdated. Document as part of the assessment all efforts to identify wildlife at risk.
4. Involve the appropriate government departments and specialists if wildlife at risk are an issue in the assessment or in the case of any uncertainty about whether they are an issue. Work through environmental assessment coordinators to make appropriate contacts.

Assessing environmental effects

5. Identify wildlife species at risk as valued ecosystem components, and include them among the species selected to focus the assessment.
6. Describe project effects on wildlife at risk with rigour and detail, reflecting the current understanding of the ecology of species. Use status reports, recovery strategies, action plans and species management plans as main information sources where available, and consult with wildlife experts, specialists and local and Aboriginal communities. Consider all direct, indirect and cumulative effects in the analysis.

Mitigating adverse environmental effects

7. Plan the project to avoid or minimize effects on all species designated as being at risk anywhere in Canada, as well as the habitat and residences that are essential to their survival or recovery.
8. Work out the best approach to mitigation on a case-by-case basis. Pay particular attention to recognized threats that negatively affect species populations and habitat requirements. The mitigation plan should be aimed at ensuring the survival of wildlife at risk and contributing to their recovery.

Determining the significance of residual adverse environmental effects

9. Residual effects that will prevent the achievement of self-sustaining population objectives or recovery goals should be deemed significant.
10. Apply the precautionary approach/principle when making decisions concerning significance of effects on wildlife species at risk.

Follow-up: Verifying accuracy of predictions and ensuring success of mitigation

11. Verify the accuracy of predictions and ensure the success of mitigation measures for wildlife at risk through follow-up programs; plan contingencies and implement midcourse corrections if necessary to protect species.

consequential permitting conditions or criteria. It is the responsibility of the project proponent to ensure compliance with laws and regulations. The environmental assessment does not override other laws and does not absolve a proponent from legal responsibilities. Further, the likelihood of a project causing significant adverse effects on wildlife (as described in Guideline 9) may result in a decision by the responsible government agency not to proceed with the project or not to take any action that will enable the project to proceed.

Initiating the project and assessment

Guideline 1: Consider relevant plans and strategies for conservation and sustainable development at the landscape, ecosystem, community and species levels. In this way, project siting, design and timing can be tailored to the habitat and residence requirements of all wildlife, including wildlife at risk.

> "Individual species are distributed across landscapes, not just within communities. These communities and the ecosystems of which they are a part are linked across landscapes in ways that are important to species. The ability of a species to survive and prosper in a landscape is determined by the availability of resources in these ecosystems, which in turn depends on how these systems are linked and how easily species can move among them." (Wildlife Habitat Canada 1995)

A hierarchical approach to development planning makes sense, because some of the major threats to species, as identified in Section 1, operate at the landscape level. Project-specific and cumulative environmental effects assessments should coordinate actions with plans and strategies for conservation and sustainable development in the region. Assessments should recognize and address factors that are causing population declines and measure success in influencing the protection or recovery of wildlife at risk.

Guideline 2: When considering site or design alternatives, direct projects and physical activities away from biodiversity or extinction hotspots, rare ecosystems and other areas identified as conservation priorities.

The maintenance of species diversity requires the protection of natural areas interconnected by corridors, as well as the conservation of broader landscapes, by applying development and land or water use practices that maintain habitat functions. Environmental assessment can contribute to this approach first and foremost by directing development away from geographic areas that have conservation priority, such as areas that:

- Support high numbers of endemic species and a high degree of threat, as indicated by the percentage of remaining habitat in a region[3]
- Support a disproportionate number of wildlife species at risk
- Are recognized as rare or specialized ecosystems

Ecosystem or habitat types recognized nationally as conservation priorities[4] include wetlands, old-growth forests, prairie grasslands, southern forest interior habitat and salmon spawning habitat. There are also some places that are recognized as conservation priorities, including the Garry Oak landscape in southwestern British Columbia, parts of the South Okanagan–Similkameen Region in south-central British Columbia, the Carolinian Canada zone in southern Ontario and Sable Gully on the east coast. A number of resources identify such important focal points for conservation—in addition to designated and candidate protected areas—where development is discouraged, including, for example:

- *Sensitive Ecosystems Inventory* (Environment Canada and Province of British Columbia 2000), which provides information on remnant ecosystems in selected regions of British Columbia
- *Biodiversity Investment Areas: Coastal Wetland Ecosystems* (Chow-Fraser *et al.* 1999), which identifies ecoreaches on the Great Lakes shoreline that support extensive use by birds for breeding habitat and by fish for spawning or nursery habitat
- Ecologically rare communities identified by Conservation Data Centres and Natural Heritage Information Centres
- Provincial or territorial inventories of environmentally significant areas

If it is impossible to avoid these areas, the risk of adverse effects increases, as does the likelihood of significant adverse effects. The assessment of adverse effects,

[3] For more information regarding the hotspot strategy to protecting species, see Myers *et al.* (2000).

[4] This list of "conservation priorities" was developed by the wildlife at risk and environmental assessment specialists advising this project. It is meant to provide examples only; it is not a definitive list.

design of mitigation and implementation of the follow-up program will require more time, effort and financial resources. In some circumstances, the likelihood of significant adverse effects on wildlife at risk will prevent the proposed project from going ahead.

Scoping the assessment

Guideline 3: Investigate whether wildlife at risk—or their survival or recovery habitat or residences—are located within the project study area by referring to existing information sources, including wildlife experts, specialists and local and Aboriginal communities. Conduct field surveys if it is likely that wildlife species at risk are present in the study area or if wildlife data for the site are lacking or outdated. Document as part of the assessment all efforts to identify wildlife at risk.

It is best practice to determine at the scoping stage whether wildlife at risk are an issue in the project assessment. Relevant government departments have provided publicly accessible information to help in this determination, and it is incumbent on proponents and individuals preparing project assessments to make full use of these and other available information resources to determine the presence of wildlife at risk and their habitat in the study area. Instructions on where to access these information resources are contained in Appendix A.

Figure 1 outlines three main steps in the determination of whether wildlife at risk are an issue in the project assessment, which focus on:

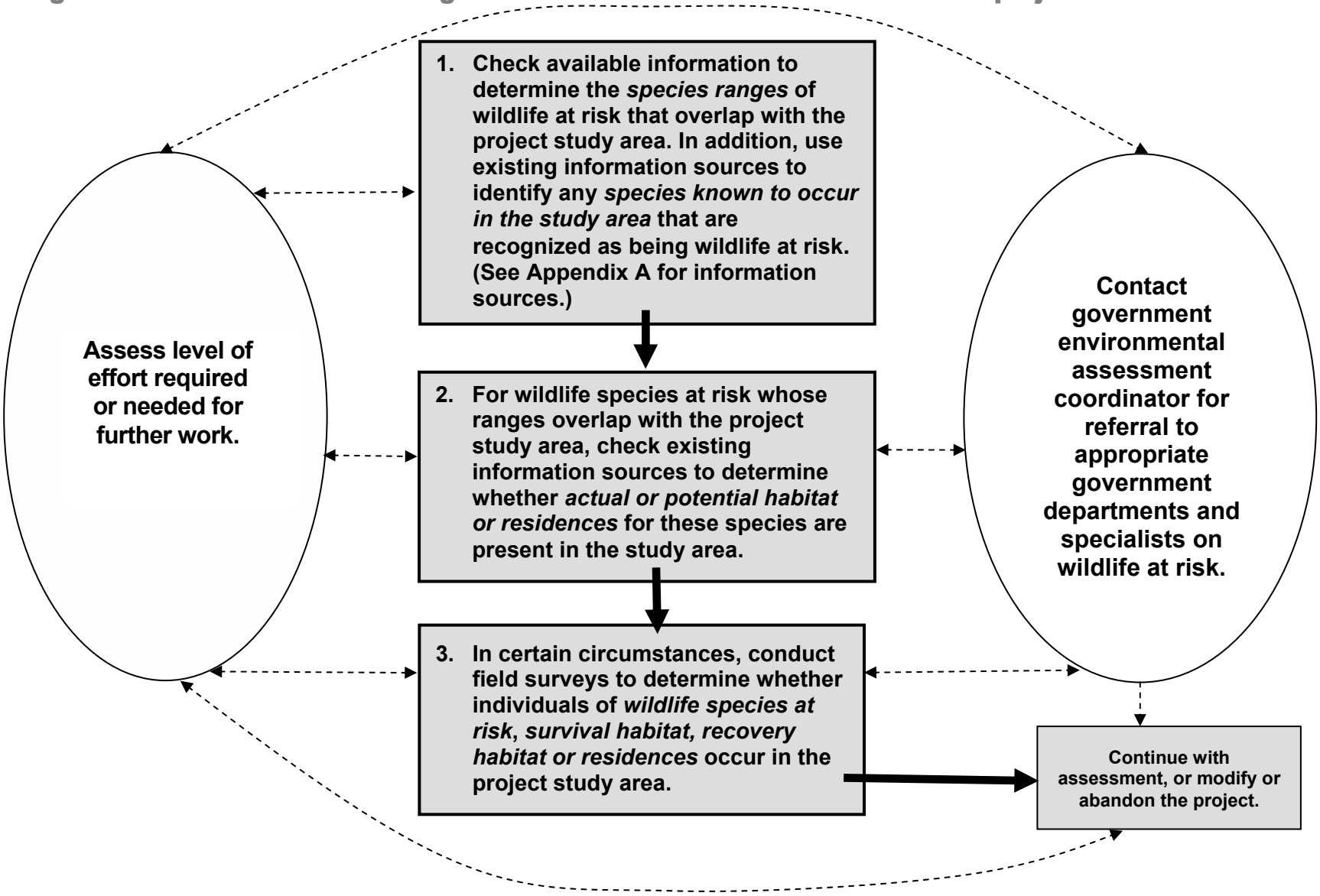
1. The likelihood of wildlife at risk in the study area, using lists, range maps and other existing information on species known to occur in the project area

2. Existing information on actual or potential habitat or residences in the project area

3. Field surveys to establish actual occurrence of wildlife species at risk or of survival habitat, recovery habitat or residences

Figure 1 also features two other activities: assessing the level of effort required at various points in the process; and contacting the government environmental assessment coordinator once steps 1 and 2 have been taken by proponents.

Figure 1: Process for determining whether wildlife at risk is an issue in the project assessment



As indicated by Figure 1, all projects will not require the same degree of effort in determining whether wildlife at risk is an issue. The following factors should influence the level of effort:

- Nature of the study area
  - Level of development
  - Recognition or designation as a valuable natural area or conservation priority
  - Level of endangerment of species in the area
- Location of the project
  - Proximity or relationship to biodiversity hotspots and other conservation priorities
  - Potential for cumulative effects
- Nature of the project
  - Potential for biophysical changes that could affect wildlife
  - Size of the project and size of the study area

Key sources of lists and range maps:

- Conservation Data Centres and Natural Heritage Information Centres, accessible through NatureServe Canada http://www.natureserve-canada.ca

- Committee on the Status of Endangered Wildlife in Canada http://www.cosewic.gc.ca

- Species at Risk Act Public Registry http://www.sararegistry.gc.ca

- Species at Risk in Canada web site http://www.speciesatrisk.gc.ca

- Canadian Endangered Species Council's Wild Species 2000 http://www.wildspecies.ca

Details on these and other sources of information or advice may be found in Appendix A.

A word about defining the project "study area"

The scope of the environmental assessment needs to set appropriate spatial boundaries to include potential effects on wildlife that may be beyond the immediate footprint of the project. That may mean, for example, considering upstream or downstream effects of a bridge crossing or surrounding habitat containing wildlife that could be disturbed by the noise of construction.

Three key steps for determining whether wildlife at risk is an issue in the project assessment

The following text provides further detail for steps 1–3 in Figure 1. These steps make clear the responsibility on the part of the environmental assessment practitioner to access publicly available information as the first step in environmental assessment. Note that Appendix A provides details on how to access the information sources referred to below.

1. Check available information to determine the *species ranges* of wildlife at risk that overlap with the project study area. In addition, use existing information sources to identify any *species known to occur in the study area* that are recognized as being wildlife at risk.

   (a) Consult with the local Conservation Data Centre or Natural Heritage Information Centre to identify federally or provincially listed wildlife at risk whose ranges are known to overlap with the

study area or species that the Conservation Data Centre or Natural Habitat Information Centre is tracking.

(b) Note that some wildlife species at risk will not be identified by range maps, and therefore it is important to check the status of species known to be present in the area using the lists of wildlife species designated as being at risk (identified on page 4).

(c) Check local reports, maps and databases for wildlife species at risk known to occur in the area. Consult with wildlife experts or specialists, local naturalist and conservation groups and local and Aboriginal communities.

2. For wildlife species at risk whose ranges overlap with the project study area, check existing information sources to determine whether *actual or potential habitat or residences* for these species are present in the study area.

(a) Check on the location of survival or recovery habitat and residences for those species whose ranges overlap with the project study area, using:

- Status reports
- Recovery strategies and action plans[5]

For those wildlife species at risk for which these documents are not available, such as species of special concern or candidate species, alternative sources of information include:

- Species management plans
- Area-wide management and conservation plans

Key sources of status reports, recovery strategies and action plans, and species management plans:

- Committee on the Status of Endangered Wildlife in Canada http://www.cosewic.gc.ca

- Species at Risk Act Public Registry http://www.sararegistry.gc.ca

- Recovery of Nationally Endangered Wildlife http://www.speciesatrisk.gc.ca/recovery/default_e.cfm

Details on these and other sources of information or advice may be found in Appendix A.

[5] "Recovery strategy" and "action plan" are the two parts of a national recovery plan required for endangered, threatened and extirpated species as assessed by COSEWIC. The recovery strategy is based solely on biological considerations, whereas the action plan takes socioeconomic considerations into account. The strategy identifies the primary goals, objectives and approaches for recovery, and the action plan identifies projects and actions required to meet the goals and objectives. In the transition phase following the proclamation of the *Species at Risk Act* (SARA), there are two sources for national recovery plans: 1) the Secretariat and web site of the national recovery program known as RENEW (Recovery of Nationally Endangered Wildlife), established in 1988, and 2) the SARA Public Registry, launched in 2003. Note that SARA requires elements in a recovery strategy and action plan that may not be contained in the RENEW documents. Of most relevance to environmental assessment practitioners is the SARA requirement that critical habitat be identified and protected. SARA requires all recovery plans (and management plans for special concern species) to be on the SARA Public Registry within specific time frames. Finally, note that the provinces and territories also produce recovery and management plans, independently of the RENEW and SARA processes, for species listed only by provincial or territorial legislation. Appendix A provides details on how to access RENEW, the SARA Public Registry and provincial and territorial government departments.

(b) Check local or regional information sources, including wildlife experts, specialists, local naturalist and conservation groups and local and Aboriginal communities.

(c) Check habitat requirements of wildlife species whose ranges overlap with the project study area to determine if there could be species at risk located in the project area that have not yet been identified or if the study area contains potential recovery habitat.

- If the study area contains potential recovery habitat, contact the environmental assessment coordinator in your region, who may link practitioners with the recovery team[6] or other relevant experts (see Guideline 4). These experts will be able to identify whether the habitat has been designated as recovery habitat or whether a habitat inventory exists for the study area.

3. In certain circumstances (identified in 3(a)), conduct field surveys to determine whether individuals of wildlife species at risk—or survival habitat, recovery habitat or residences—occur in the project study area.

(a) Surveys by professional biologists or highly trained naturalists at the appropriate time of the year may be required if:

- Information gathered thus far in the assessment indicates that any wildlife species at risk inhabit the study area
- Factors (as listed in Figure 1) indicate a likelihood of wildlife at risk in the study area
- Data on the presence or absence of wildlife at risk at the site are inadequate or outdated
- Experts, specialists or Aboriginal or local communities indicate a likelihood of wildlife at risk in the study area

(b) Field survey design could benefit from Aboriginal groups' traditional knowledge in geographic areas where this is appropriate.

(c) Survey methodologies should be prepared in consultation with wildlife experts. Detailed information on survey methodology as well as survey results should be provided for review. It is particularly important that surveys that focus on wildlife at risk be conducted in

[6] The "recovery team" refers to the individual or group of individuals charged with effecting the recovery of an endangered, threatened or extirpated species, including the development of a recovery strategy.

a manner that does not stress or otherwise impact on the species. In such a case, it should be noted that a permit may be required.

The presence of wildlife at risk usually means that the study area is located in an ecosystem that is already under threat. For the environmental assessment, this fact has important implications for the potential seriousness of project-specific and cumulative effects on the environment, for the special efforts required to protect and recover wildlife species at risk and, most importantly, for the determination of significant adverse effects.

Guideline 4: Involve the appropriate government departments and specialists if wildlife at risk are an issue in the assessment or in the case of any uncertainty about whether they are an issue. Work through environmental assessment coordinators to make appropriate contacts.

Some legislation on wildlife at risk requires notification of responsible government departments in the event that a project is likely to affect a listed wildlife species or its critical habitat (see sidebar and Appendix C). However, it is best practice to always contact appropriate government departments and specialists if wildlife at risk are an issue in the assessment or in the case of any uncertainty about whether they are an issue.

Appendix A outlines the myriad of federal, provincial, territorial and local government and other offices and individuals with information or responsibility for wildlife at risk in Canada. Figure 1 emphasizes that—in the context of an environmental assessment—the best way to involve the appropriate government departments and wildlife at risk specialists is to work through regular single-window channels for environmental assessment: the environmental assessment coordinators. (For example, in the case of Environment Canada, this would be the Regional Environmental Assessment Coordinator.) Environmental assessment coordinators can provide general guidance on best practice and legal obligations, notify government departments with an interest in the wildlife species at risk and link practitioners with other appropriate specialists, including the recovery team for a wildlife species at risk.[7]

In cases where the range of a potentially affected species crosses jurisdictions, environmental assessment coordinators can ensure that all range jurisdictions (i.e., any jurisdiction with authority for the species) are made aware that a project is being assessed that may affect a particular species.

Attention! Related requirement under the federal *Species at Risk Act*:

79. (1) Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat.

See Appendix C for more information about the implications of the federal *Species at Risk Act* for environmental assessment.

[7] "Recovery team" refers to the group charged with overseeing the recovery of a species under the *Accord for the Protection of Species at Risk*. The team may include species or habitat specialists from jurisdictions responsible for the species, stakeholders and species or issue experts from other agencies—for example, universities, conservation groups and Aboriginal groups.

Assessing environmental effects

Guideline 5: Identify wildlife species at risk as valued ecosystem components, and include them among the species selected to focus the assessment.

Wildlife species at risk in the project study area should be identified as valued ecosystem components based on the level of public and scientific concern. They should be included among the species[8] that serve to focus the assessment of project effects on ecosystem structure and function and the design and mitigation measures and follow-up activities.

Attention! Related requirement under the federal *Species at Risk Act*:

79. (2) The person (required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted) *must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.*

See Appendix C for more information about the implications of the federal *Species at Risk Act* for environmental assessment.

The use of wildlife at risk as valued ecosystem components and indicator species benefits the assessment in two ways. First, they may act as an early warning indicator of project-induced changes in the ecosystem, because they are sometimes more sensitive to disturbance by human activity. Second, predicted changes to wildlife at risk are more likely to be significant and therefore influence project decisions.

Guideline 6: Describe project effects on wildlife at risk with rigour and detail, reflecting the current understanding of the ecology of species. Use status reports, recovery strategies, action plans and species management plans as main information sources where available, and consult with wildlife experts, specialists and local and Aboriginal communities. Consider all direct, indirect and cumulative effects in the analysis.

Table 2 outlines the criteria and questions that should be considered in an assessment of project effects on wildlife species at risk. The description of wildlife at risk requires this level of detail and rigour due to the potential for serious and irreversible consequences on species already in trouble. Environmental assessments should apply the best information available for meeting the information requirements of Table 2 as fully as possible.

The status report, recovery strategy, action plan and species management plans are key sources of information for assessing project effects on some species. Taken collectively, these guiding documents will provide most of the information for the

[8] In addition to wildlife species at risk, it is important to select species that are representative of that type of ecosystem and that occur in sufficient numbers to be monitored. Prey species of wildlife at risk should also be included. Peters *et al.* (1997) advises that species should be selected from the following groups: species endemic to the area; species sensitive to environmental change; top carnivores, area-sensitive forest interior birds and other species that require large blocks of habitat; keystone species known or suspected to have major influences on community structure or ecosystem function; species that are economically important, such as sport fish or game species, etc. The use of only "at risk" species as indicators of project-induced ecosystem changes may lead to erroneous conclusions due to their rarity, atypical behaviour, highly specific habitat requirements, etc.

"Environment description: characterization of wildlife at risk and their vulnerabilities" column on the left side of Table 2. The status report, recovery strategy and action plan are valuable resources because they:

- Inform the assessment with the best information available on the species
- Identify information gaps for the collection of additional information
- Identify threats to the survival of the species
- Guide mitigation design by identifying activities likely to affect individuals or populations and the ecological conditions essential for establishing and maintaining self-sustaining populations
- Establish species-specific goals, objectives, projects and activities for recovery, which are useful in determining the significance of project effects on wildlife species at risk

Supplementary or alternative sources of information include:

- Area-wide management plans (prepared for geographic regions, parks, etc.)
- Scientific journal articles
- Aboriginal traditional knowledge
- University theses
- Species researchers and managers in government departments
- Local and Aboriginal communities
- Other wildlife species experts and specialists in universities, industry, museums and environmental and naturalist groups
- Other environmental assessments

It is important to document all information sources, including consultations with experts and specialists.

As with the assessment of effects on other aspects of the environment, potential interactions should consider the effects of project activities and accident scenarios, cumulative effects of project activities within each phase and for all phases of the project and cumulative effects of combined projects on wildlife at risk, including whether such combined effects may intensify or aggravate known threats to the species. Potential interactions should also consider additional stress on wildlife at risk during severe environmental conditions (i.e., severe climatic events such as floods, droughts, blizzards and abnormal ice and snow accumulation). Under these phenomena, certain types of projects may exacerbate direct stress on species or indirect stress on species through changes to habitat—for example, related to inundation, availability of water sources utilized by wildlife and wildlife access to

Table 2: Considerations for assessing effects on wildlife at risk

Environment description: characterization of wildlife at risk and their vulnerabilities	**Proposed project/environment interactions**
Status/rank: global, national, provincial/territorial	
Population size and extent of occurrence ▪ Size of area used ▪ Percentage of range in Canada/province?	What is the proportion of the population that uses the project study area?
Trend in population	How can the project influence these trends? What is the quantitative or qualitative assessment of population viability? How might the project affect this viability model?
Geographic distribution	What is the proportion of the extent of occurrence or area of occupancy represented by the study area?
Natural or human-induced threats that are thought to be negatively affecting species population viability	How can the project contribute to/affect these threats?
Potentially limiting intrinsic attributes: key characteristics of the species' life history or ecology that may make it particularly susceptible to disturbance and/or influence its recovery potential	How can the project affect these attributes?
Activities likely to affect individuals or populations	Does the project involve any of these activities? How many individuals or what proportion of the population might be affected? To what degree? Will other projects or activities intensify these effects?
Seasonality ▪ Also, climate extremes	Which project activities could interfere with seasonal activity? How? Which project activities and design features could contribute to increased stresses on species if climate extremes considered?
Species interrelationships ▪ Significance of the ecological/ecosystem role where the species occurs in significant numbers (keystone? ecologically dominant? significant role in ecosystem?) ▪ Species that share the same threats and/or would benefit from recovery activities?	How might the project affect predator/prey and other species relationships?
Habitats and residences ▪ Occupied habitats and areas that potentially may be utilized ▪ Critical, survival or recovery habitat ▪ Residences ▪ Key habitat attributes ▪ Trends in habitat	What types of habitat occur in the project study area? What proportion of the total survival or recovery habitat occurs in the study area? How might the project directly or indirectly influence these habitats/key habitat attributes? What effect might this have on individuals or populations?
Ecological processes and functions critical to the maintenance of habitats	How might the project influence these processes and functions?
Relevant policies or legal requirements	What are the requirements for species protection?
Goals, objectives, approaches for recovery	How can the project influence recovery of the species?
Ongoing recovery activities	How can the project influence ongoing recovery activities?

food in winter. Transboundary environmental effects may also be particularly important to wildlife at risk, such as effects on protected areas (e.g., National Parks, National Wildlife Areas) that may support imperilled species from projects outside protected area boundaries.

Mitigating adverse environmental effects

Guideline 7: Plan the project to avoid or minimize effects on all species designated as being at risk anywhere in Canada, as well as the habitat or residences that are essential to their survival or recovery.

Attention! Related requirement under the federal *Species at Risk Act*:

79. (2) The person (required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted) *must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.*

See Appendix C for more information about the implications of the federal *Species at Risk Act* for environmental assessment.

The mitigation sequence comprises three hierarchical options[9]:

1. Avoidance, meaning the elimination of adverse effects (e.g., by siting, timing or design of a project)
2. Minimization, meaning the reduction or control of adverse effects through project modification or implementation under special conditions
3. Compensatory mitigation, meaning the replacement of unavoidably lost habitat or residences, plants or plant communities, ecological functions, etc.

The term "compensatory mitigation" is used here rather than the term "compensation," because the latter term can be used in the context of wildlife at risk in reference to potential financial payment to any person for losses suffered as a result of any extraordinary impact of the application of measures to protect the critical habitat of species at risk. "Compensatory mitigation" refers to the actions—often required by legislation such as the *Canadian Environmental Assessment Act*—that make up for a project's environmental effects, such as replacement of lost habitat.

Legislation concerning wildlife at risk that prohibits adverse effects, such as disturbing certain individuals or destroying their habitat or residence, effectively limits mitigation in those circumstances to avoidance. Where permits are obtained to allow otherwise prohibited activities to occur, all feasible measures to minimize the adverse effects should be taken. For species and habitats not covered by legislation, best practice requires the avoidance or minimization of environmental effects, due to the inherent difficulties and uncertainties in replacing habitat or reintroducing species and the potential for serious consequences to wildlife at risk. From an environmental assessment perspective, compensatory mitigation is the last choice in the mitigation sequence, primarily because of the difficulties inherent in creating

[9] For additional information about the mitigation sequence, refer to Lynch-Stewart *et al.* (1996) or Cox and Grose (2000).

habitat. For species and habitats not covered by legislation, compensatory mitigation may be acceptable as a last resort in those circumstances where harm to individuals or habitat is not prohibited by law and where success is assured, defined and monitored. Compensation can constitute mitigation for effects on wildlife at risk in limited circumstances where success is assured. For example, tree planting to replace forest interior habitat is acceptable in some circumstances, because effects are potentially reversible in the long term (provided that tree species and understory as well as structure, age class and forest mosaic are replaced) if planting sites are protected in perpetuity from development.

Attention! Related requirements under the federal *Species at Risk Act*:

32. (1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species…

33. No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

See Appendix C for further detail about applications and conditions pertaining to these sections of the federal *Species at Risk Act*.

Guideline 8: Work out the best approach to mitigation on a case-by-case basis. Pay particular attention to recognized threats that negatively affect species populations and habitat requirements. The mitigation plan should be aimed at ensuring the survival of wildlife at risk and contributing to their recovery.

While the potential for serious and irreversible harm plus the prohibitions of federal, provincial and territorial legislation impose strict requirements on the outcome of mitigation, there is flexibility in how project proponents achieve these requirements. Mitigation is best worked out on a case-by-case basis in consultation with species experts and specialists, to address the potential for:

- Direct injury to or killing of individual plants or animals
- Indirect effects of the project, through modification or destruction of habitat or residences, on the health of individual plants or animals or species reproduction, population or distribution

Mitigation design should seek to avoid or minimize all effects on wildlife at risk, regardless of their overall importance, but should pay particular attention to:

- **Threats that negatively affect the species population viability**. Identified in status reports, recovery strategies and action plans, these threats describe factors or processes to which a species is particularly vulnerable. They can be natural or human-induced and may differ among populations and over time (i.e., current threats to a species' viability may not be the same as those that historically contributed to its decline). Contributing factors to species decline include habitat loss, overhunting, exposure to contaminants and competition from alien species.
- **Species habitat requirements, including key habitat and residence attributes.** An important element of wildlife at risk protection and recovery efforts is considering the habitat that is essential for survival and the habitat that is required to restore a species to healthy population levels. These are identified in recovery strategies, action plans and species management plans and are closely tied to the recovery goal and objectives for the species. Habitat attributes are key physical and biological features that provide for

the survival or recovery of a species, such as space (territory, staging, migration sites), food and cover. Maintaining, restoring or enhancing these features should be a central focus of mitigation efforts; destruction of any part of these habitats may be prohibited by law.

When considering habitat, it is important to keep in mind that[10]:

- Species may require an area of habitat not currently occupied in order to attain a self-sustaining population level. Many wildlife species at risk are absent from large portions of their range, including habitats that will potentially be occupied by a recovered population or habitats that must be restored to allow the species to recover. Natural disturbance such as fire and flooding will cause species to move to alternative habitats until succession restores essential habitat features.
- Survival or recovery habitats will not necessarily include all of the areas of habitat that are occupied by the species. The species' habitat may occur outside the identified areas of survival or recovery habitat.

The text box "Preserving forest interior habitat for the Cerulean Warbler" demonstrates how species habitat requirements can drive mitigation design.

Example of mitigation to preserve species requirements:

Preserving forest interior habitat for the Cerulean Warbler

A company proposed to install a pipeline within an existing right-of-way in southwestern Ontario. The proposal involved tree clearing along the northern edge of one of the largest blocks of Carolinian forest that provides forest interior habitat within a region that contains less than 3% forest cover. The forest block is an Area of Natural and Scientific Interest (ANSI).

The ANSI has been identified as an important breeding site for Cerulean Warblers (a species of special concern nationally), which has no other known breeding sites within 60 km. Field surveys by the proponent confirmed that breeding pairs were likely nesting in the northern portion of the forest block. In Canada, the breeding range of Cerulean Warblers is confined mostly to southern Ontario. The species is highly area-sensitive throughout its breeding range, preferring large forests to small, isolated forests. Territories are established in mature and second-growth mixed and deciduous forests having tall, large-diameter trees and closed or semi-closed canopies. Cerulean Warblers often occur in loose "colonies," which, in Ontario, may number from several to more than 50 pairs.

The project proposal was modified to preserve forest interior habitat required by the Cerulean Warbler. The additional pipeline was constructed north of the existing pipelines to avoid the cumulative effect of forest removal within the largest block of forest. This involved some construction challenges, as the new route required two

[10] Adapted from National Recovery Working Group (2003).

crossings of the existing pipeline in order to run on the north side of the right-of-way in this sensitive area. Some clearing was still required in less significant habitat north of the right-of-way, so buffers and timing restrictions on vegetation clearing activities were recommended to avoid disturbing the Cerulean Warblers in their nesting sites located nearby in the forest block to the south.

Evaluating success is an essential component of recovery efforts for wildlife at risk. Mitigation plans for wildlife at risk in environmental assessments should also enable the evaluation of success by setting measurable objectives related to habitat quantity, habitat quality or population size.

Design of mitigation should draw from the wealth of techniques for avoiding, minimizing and compensating for effects on wildlife. A number of resources exist that recommend restrictions for development activities, including set-back distances from nests or dens and timing of disturbances for specific wildlife species at risk:

- Wildlife at risk status reports, recovery strategies, action plans and species management plans
- Provincial, territorial and regional reports, such as *Development of Standardized Guidelines for Setback Distance, Project Timing and Mitigation Strategies for Activities that Affect COSEWIC Prairie and Northern Region Vertebrate Species at Risk* (Scobie and Faminow 2000)
- Other environmental assessments—for example, the Hibernia, Terra Nova and White Rose oil development assessments, which provide information on several listed marine mammals and sea turtles

Determining the significance of residual adverse environmental effects

Guideline 9: Residual effects that will prevent the achievement of self-sustaining population objectives or recovery goals should be deemed significant.

The Canadian Environmental Assessment Agency's guide for determining significance (Federal Environmental Assessment and Review Office 1994) suggests a three-step framework:

1. Decide whether the environmental effects are adverse.
2. Decide whether the adverse environmental effects are significant.
3. Decide whether the significant adverse environmental effects are likely after mitigation.

Attention! Related requirements under the federal *Species at Risk Act*:

32. (1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species…

33. No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

See Appendix C for further detail about applications and conditions pertaining to these sections of the federal *Species at Risk Act*.

For wildlife at risk, "deciding whether effects are adverse" can be guided by the factors in determining adverse environmental effects (Federal Environmental Assessment and Review Office 1994), such as negative effects on the health of biota, threat to rare or endangered species, loss of or damage to habitats, including habitat fragmentation, population declines, etc.

"Deciding whether the adverse environmental effects are significant" can be guided by an examination of whether project activities would contravene environmental thresholds as defined by laws, policy commitments, recovery strategies and management plans or experts. In particular, self-sustaining population objectives as defined by recovery or management plans or appropriate wildlife experts provide an important standard for determining significance of effects on wildlife at risk. Residual effects that will diminish the potential for achieving self-sustaining populations should be deemed significant. In addition, any residual effects that are likely to cause a species to be listed as "at risk" or up-listed should also be deemed significant. Finally, there may be cases where any adverse effect on wildlife species at risk will be considered significant.

Prior to determining the significance of adverse environmental effects, one should consider and apply any restrictions imposed on the project by federal, provincial and territorial Acts that prohibit activities that harm individuals of wildlife species at risk, or their habitats or residences (see Appendix B), and their consequential permitting conditions or criteria. It is the responsibility of the project proponent to ensure compliance with laws and regulations; the environmental assessment does not override other laws and does not absolve a proponent from legal responsibilities.

Legal prohibitions do not provide the only standard for assessing significance. The following list of serious consequences should be avoided (developed using key policy objectives related to biodiversity and wildlife at risk described in Appendix B) and may help in the determination of significant adverse effects:

- Effects that threaten the long-term persistence or viability of wildlife populations, including any effects that will lead to species extinction, extirpation or up-listing to special concern, threatened or endangered status
- Effects that diminish the potential for species recovery, such as those effects that are contrary to or inconsistent with the goals, objectives or activities of recovery strategies and action plans
- Effects that promote or prolong those threats identified in recovery strategies, action plans and species management plans as contributing factors in population decline
- Effects that diminish the capacity of critical habitat to provide for the recovery and survival of wildlife at risk
- Effects that *may* result in any of the above

Guideline 10: Apply the precautionary approach/principle[11] when making decisions concerning significance of effects on wildlife species at risk.[12]

Tolerance for risk of impacts should be lower for wildlife at risk than for other species. Uncertainty should not be used to allow a project to proceed but rather should require further work to demonstrate that the project will not affect the species before it is allowed to proceed. For example, where the likelihood of a significant adverse effect as characterized under Guideline 9 is uncertain or where the predicted adverse effect is considered likely, but the consequences are unclear, action should not be taken to allow the project to be carried out. Further work should be accomplished to reduce the uncertainty to an acceptable level, or the project should not proceed or should be referred to panel review.

Residual effects can be significant even if they are not prohibited or discouraged by legislation, policy or recovery management objectives. When wildlife at risk are involved in a project assessment, it is important to demonstrate that the wildlife at risk will not be significantly affected by the project. Where there is a threat of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

Key documents concerning wildlife at risk highlight the importance of applying the precautionary approach to decisions concerning wildlife at risk:

- *United Nations Convention on Biological Diversity* (1992) (preamble): "where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat."
- *Accord for the Protection of Species at Risk* (1996): recognizes "lack of full scientific certainty must not be used as a reason to delay measures to avoid or minimize threats to species at risk."

The preamble of the federal *Species at Risk Act* recognizes that *"the Government of Canada is committed to conserving biological diversity and to the principle that, if there are threats of serious or irreversible damage to a wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty."*

See Appendix C for more information about the implications of the federal *Species at Risk Act* for environmental assessment.

[11] The precautionary approach/principle is a distinctive approach to managing threats of serious or irreversible harm where there is scientific uncertainty. The *Rio Declaration on Environment and Development* (United Nations 1992a) states "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." The *Bergen Ministerial Declaration on Sustainable Development in the ECE Region* (United Nations 1990), cited by the Supreme Court of Canada in *114957 Canada Ltée (Spraytech, Société d'arrosage) v. Hudson (Town), [2001] 2 S.C.R., at s. 31*, states "Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for… postponing measures to prevent environmental degradation."

[12] While the precautionary approach/principle is explicitly discussed only in the context of determining significance, it should be applied throughout the environmental assessment.

Where there is a threat of serious or irreversible harm (i.e., significant adverse effects) to wildlife at risk or a threat of significant reduction or loss of biological diversity, the precautionary approach should be applied, which means:

1. Lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

2. Adaptive management[13] is not a solution where harm may be irreversible.

3. The onus of proof should be on the proponent to demonstrate to the satisfaction of the decision-maker that adverse effects on wildlife at risk or biological diversity are not significant.

4. The level of caution should be proportional to the level of threat, recognizing that in some situations no risk is acceptable, determined by factors such as the following:

    - Species' level of endangerment or risk category, including consideration of global responsibility for the species (e.g., endemic or peripheral species);

    - Importance of the site to the species, as identified by the recovery team or by the application of criteria for priority sites developed by National Recovery Working Group (2003):

        - Population present (proportion of a species' regional, provincial, territorial or national population, or number of individuals)

        - Proportion of potentially affected site area relative to the area of the species' range (breeding, staging or wintering habitat) or identified survival or recovery habitat

        - History of use (relative to the life history of the species)

[13] "Adaptive management," also referred to as "adaptive resource management," is a management and learning process developed to meet the challenges of managing resources in the face of uncertainty, with a focus on monitoring and assessing the outcomes of decisions to reduce uncertainty in the future (Bailey 2000). It can be applied only in those cases where harm is reversible, since it implies that midcourse corrections should be made where required. A commitment to follow-up and adaptive management should be secured prior to project approval, using mechanisms such as bonds, holdbacks and revocation of permits.

- Productivity (relative to the productivity estimated to be required to maintain a stable population, i.e., site acts as a source of individuals rather than a sink)
- Availability of habitat type (e.g., alternative sites for occupancy)

- Nature of the project activities relative to the predominant and contributing threats that have resulted in population decline to date.

5. All precautionary measures are provisional and subject to re-evaluation.

Examples of applying the precautionary approach to wildlife at risk decisions

A company proposes a new industrial development near wintering habitat sites used by an endangered population of sea ducks. While the population is poorly understood, scientific evidence indicates that even a slight increase in adult mortality could lead to population declines and possibly regional extirpation of the species. Therefore, the threat of serious or irreversible harm to the ducks is quite high. Federal authorities direct proponents to avoid adverse effects on the endangered sea ducks or demonstrate that increased boat traffic associated with the operation will not harm the birds. The project is delayed until there is more certainty that mitigation measures will be effective.

Dredging of a channel is proposed to improve inshore navigation between two estuaries. The existing environment comprised lagoons contained by barrier beaches. The beaches are used as a breeding habitat by several pairs of endangered Piping Plovers. While there is not full scientific certainty that the dredging of the channel will affect the Piping Plovers, there is a threat of serious or irreversible effects on the Piping Plovers. Therefore, federal approval for the channel is granted only on condition that work should occur off-season while the birds are not present.

Follow-up: Verifying accuracy of predictions and ensuring success of mitigation

Guideline 11: Verify the accuracy of predictions and ensure the success of mitigation measures for wildlife at risk through follow-up programs; plan

contingencies and implement midcourse corrections if necessary to protect species.

The potentially serious consequences of effects on wildlife at risk underline the importance of follow-up to track the accuracy of the assessment and the effectiveness of mitigation design in achieving predicted outcomes and stated objectives. Legislation may require that monitoring be undertaken for regulated species, and indeed best practice requires that follow-up activities verify the assessment and the results of all mitigation plans.

As a priority, mitigation measures designed to protect wildlife at risk should be monitored to verify their effectiveness, and actual effects on species should be monitored to verify the accuracy of predictions and warn of impending harm to individuals or populations, community degradation or loss of ecosystem function. Contingency plans should be developed in the event that any of these effects is detected (see text box below: "What happens if…"). Where appropriate, monitoring should be sustained over the long term to detect slow or incremental change to habitat attributes essential to the persistence of individuals and populations. Midcourse corrections should be taken to achieve mitigation objectives and to assure species protection or to contribute to their recovery.

As with all ecosystems and ecosystem components, there is still much to learn about wildlife at risk and the effects of development on wildlife at risk. Adaptive management in environmental assessment offers benefits beyond the achievement of the mitigation objectives of one particular project. Through the testing of alternative hypotheses or models of impact prediction, the adaptive management process determines or assesses the best or most accurate alternative and invests this learning into the long-term management process (Bailey 2000).

Adaptive management should be applied to wildlife at risk issues in environmental assessment whenever practical, for projects where there is no risk of serious or irreversible harm. Bailey (2000) notes that adaptive management may be cost effective where the potential gains in information are high and the investments in time, money and human resources needed in the follow-up stages are offset by future savings. In this regard, recovery teams and government departments may have an interest in participating in adaptive management applications to accelerate learning and guide future decision-making.

Regardless of whether adaptive management or other approaches are applied, project information related to wildlife at risk should be submitted to recovery teams to inform other project assessments or recovery efforts.

Attention! Related requirement under the federal *Species at Risk Act*:

79. (2) The person (required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted) *must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.*

See Appendix C for further detail about the federal *Species at Risk Act*.

What happens if a regulated species is harmed in the course of the project?

Causing harm to wildlife at risk protected by federal, provincial or territorial legislation—whether due to an accident, the failure of mitigation or intentional actions—carries the risk of penalties, such as fines, imprisonment or community service.

It is important to note that a decision to accept an environmental assessment and proceed with a project does not constitute a permit to contravene legislation at the federal and provincial or territorial levels. Project proponents must still exercise due diligence to avoid accidental harm to wildlife at risk or their habitat or residence and to minimize risk of prosecution.

Section 3

Appendices

Appendix A:

Key information sources

A directory of "who does what" for wildlife at risk in Canada, and where to get information for a project assessment.

ENVIRONMENT CANADA GREEN LANE

http://www.ec.gc.ca

- Contact details for Regional Environmental Assessment Coordinators

CANADIAN WILDLIFE SERVICE NATIONAL WEB SITE

http://www.cws-scf.ec.gc.ca

- Contact details for Headquarters and Regional Offices

Government of Canada

The Government of Canada plays a leadership and coordinating role in wildlife at risk. The federal government exercises regulatory authority for most migratory birds, freshwater and marine aquatic species, including fish and marine mammals, and federal lands, including protected areas such as National Wildlife Areas and National Parks.

ENVIRONMENT CANADA, PARKS CANADA and FISHERIES AND OCEANS CANADA all act as "expert federal authorities" under the *Canadian Environmental Assessment Act* (CEAA), as a source of baseline data, information, knowledge or expertise related to the above responsibilities and relevant to an environmental assessment.

ENVIRONMENT CANADA administers the *Species at Risk Act* (SARA), *Migratory Birds Convention Act, 1994* and the *Canada Wildlife Act* and acts as the administrative authority for the implementation of *The Federal Policy on Wetland Conservation*, all of which have important provisions that can help in the protection of wildlife at risk or their habitat or residence (see Appendix B).

ENVIRONMENT CANADA REGIONAL ENVIRONMENTAL ASSESSMENT COORDINATORS provide the one-window point of contact for environmental assessment inquiries to that department, including those related to wildlife at risk. These offices will coordinate the involvement of other branches of the department, including the Canadian Wildlife Service (CWS), in providing advice on a particular environmental assessment. Contact details for Regional Environmental Assessment Coordinators are available on the **Environment Canada Green Lane**.

The CANADIAN WILDLIFE SERVICE OF ENVIRONMENT CANADA provides information on national species at risk, protection strategies and recovery efforts. CWS Headquarters will provide general information on these topics, while CWS Regional offices will provide advice on specific project assessments. Access the **Canadian Wildlife Service National Web Site** for information on wildlife at risk resources. Contact with CWS Regional officers regarding wildlife at risk issues in a

project assessment should be arranged through the Environment Canada Regional Environmental Assessment Coordinator.

SPECIES AT RISK IN CANADA WEB SITE

http://www.speciesatrisk.gc.ca

- Profiles Canada's strategy
- Recovery efforts
- Searchable database of COSEWIC designated species at risk
- Map search tool

CWS maintains the **Species at Risk in Canada Web Site**, featuring a "species search" on species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as endangered, threatened or of special concern. The species search feature can be used to find species by taxonomic group, risk category, range, Latin name and common name. There is also a map search tool that is useful to find species that occur in a given area in Canada. Map queries link users to species range maps and information on the status of species and recovery efforts.

SARA PUBLIC REGISTRY

http://www.sararegistry.gc.ca/

- The Act and Species List
- Species assessments; recovery strategies and action plans
- Public consultations

ENVIRONMENT CANADA has established the SARA Public Registry, as required by the Act, to facilitate access to documents. The Public Registry contains regulations and orders made under the Act; COSEWIC's criteria for the classification of wildlife species; status reports on wildlife species that COSEWIC has had prepared or has received with an application; the List of Wildlife Species at Risk; and codes of practice, national standards or guidelines established under the Act. Environment Canada, on the advice of COSEWIC, may restrict the release of information in the best interests of the species.

PARKS CANADA WEB SITE

http://parkscanada.gc.ca

- Contact details for Headquarters and Regional Offices

http://parkscanada.gc.ca/nature/eep-sar/itm1-/index_e.asp

- Species at Risk web page describes the Parks Canada Species at Risk program, priority sites, priority species, recovery actions, assessments and inventories

THE PARKS CANADA AGENCY manages wildlife in National Parks, National Historic Sites and National Marine Conservation Areas. In particular, two Acts provide the legislative direction to manage wildlife (including wildlife at risk) in the Parks Canada system of protected heritage areas: the *Canada National Parks Act*, which identifies maintenance and restoration of ecological integrity as the first priority in park management, and the *Canada National Marine Conservation Areas Act*, which provides for the management of National Marine Conservation Areas in an ecologically sustainable way. Ecological integrity concerns may also lead to involvement in projects occurring outside of National Parks, if they have the potential for adverse effects on park ecosystems.

Parks Canada has 32 field units, which are groupings of National Parks, National Historic Sites and National Marine Conservation Areas whose proximity to each other allows them to share management and administrative resources. There are four Service Centres, located in Halifax, Quebec City, Cornwall/Ottawa and Winnipeg/Calgary/Vancouver. Most field units have an Environmental Assessment Coordinator, and there are also Environmental Assessment Specialists in each of the Service Centre offices. The Environmental Assessment Coordinators and Specialists are the primary contacts for environmental assessments.

The Parks Canada Species at Risk Program focuses on managing wildlife at risk in the Parks Canada system of protected heritage areas, working with partners to develop and implement recovery strategies to help them recover and educating Canadians on species at risk issues. Parks Canada maintains a database of species at risk found in lands and waters managed by Parks Canada. There are many

documents outlining management of wildlife species that are available from both the parks and the National Office. Parks Canada is participating in recovery teams for species that occur in National Parks and National Historic Sites, as well as leading on species at risk whose range lies mostly in National Parks or National Historic Sites. A Parks Canada Species at Risk Team has been set up across the country, with nine team members in the national office, six Species at Risk Coordinators in Service Centres and four Species at Risk Specialists located in field units. In addition, many National Parks have staff with expertise on wildlife at risk. They are a good source of information about species found in those areas, both inside and outside of the parks. Contact details for the National Office may be found on the Parks Canada web site.

FISHERIES AND OCEANS CANADA WEB SITE

http://www.dfo-mpo.gc.ca

- Contact details for Headquarters and Regional Offices

FISHERIES AND OCEANS CANADA (DFO) administers the *Fisheries Act*, which includes provisions for fish, marine mammals and fish habitat. The fish and fish habitat protection provisions of the *Fisheries Act* provide mechanisms that may allow development projects to occur while providing for the protection of fish and fish habitat (see Appendix B). A number of provisions under the *Fisheries Act* trigger the need for an environmental assessment under CEAA before approvals are given. DFO also administers the *Navigable Waters Protection Act*, which also contains certain provisions that trigger CEAA assessments, and the *Oceans Act*, which includes provisions for marine protected areas, integrated management plans and marine ecosystem quality.

Regional DFO biologists can direct environmental assessments to relevant integrated management plans, fish management plans and recovery strategies and management plans for aquatic species at risk and can advise on specific project assessments. Contact details can be found on the **DFO web site**.

OTHER FEDERAL GOVERNMENT DEPARTMENTS have responsibility for managing their lands and programs in a sustainable manner. Each federal department is required by the *Auditor General Act* to prepare a Sustainable Development Strategy and to update it every three years. Progress towards objectives set out in each Strategy—which often refer to wildlife species at risk and the maintenance of biological diversity—is audited by the Commissioner of the Environment and Sustainable Development in the Office of the Auditor General.

PROVINCES AND TERRITORIES OF CANADA

http://canada.gc.ca/othergov/prov_e.html

- Provides access to provincial and territorial government sites
- These sites provide information on provincial legislation and programs as well as data for wildlife at risk protection and recovery

Provincial and territorial governments

Provincial and territorial government authority over natural resources and public lands confers substantial responsibility for wildlife species, including those species that are of concern due to declining numbers or restricted habitat.

The majority of provinces have passed specific legislation to protect species at risk of extinction. Other provinces have amended existing laws to deal explicitly with endangered species. These laws are described in more detail in Appendix B.

Conservation Data Centres and Natural Heritage Information Centres

Conservation Data Centres (CDCs) and Natural Heritage Information Centres (NHICs) distribute information on rare and endangered plants, animals and ecological communities. Each CDC or NHIC applies an internationally standardized methodology developed by The Nature Conservancy to evaluate and rank species as to their global and provincial or territorial conservation status. For each of these levels, wild species are assigned a numeric rank ranging from one (very rare) to five (demonstrably secure). All CDCs and NHICs have web sites through which the information is directly accessible or inquiries can be made that are processed usually within seven business days. All CDCs and NHICs in Canada are accessible through the **NatureServe Canada web site**.

NATURESERVE CANADA

http://www.natureserve-canada.ca

- Provides access to Canadian CDC/NHIC web sites
- CDC/NHIC web sites provide access to information on provincially designated species and communities at risk
- CDC/NHIC web sites sometimes provide searchable databases for provincially designated species or communities

NatureServe Canada

NatureServe Canada advances the goals of the CDCs, NHICs, Natural Heritage Programs and associated organizations whose mission is to provide information on the distribution, abundance and conservation needs of rare species and natural communities to governments, industries, researchers, nongovernmental organizations and individuals. NatureServe Canada assists its members to operate as a network by sharing technologies, facilitating the exchange of knowledge and experiences and facilitating the development of multijurisdictional information products and services.

NatureServe Canada, formerly known as the Association for Biodiversity Information (or ABI-Canada), was incorporated in 1994 as a private nonprofit association. It is governed by a Board of Directors elected from among the directors of the CDCs, NHICs and Natural Heritage Programs. Members include six provincial CDC or NHIC programs and one regional CDC program: the British Columbia Conservation Data Centre, the Alberta Natural Heritage Information Centre, the Saskatchewan Conservation Data Centre, the Manitoba Conservation Data Centre, the Ontario Natural Heritage Information Centre, the Quebec Natural Heritage Data Centre and the Atlantic Canada Conservation Data Centre.

Wildlife Management Boards

WILDLIFE MANAGEMENT BOARDS

http://www.cosewic.gc.ca/eng/sct4/sct4_2_e.htm

- Provides access to information from Wildlife Management Boards

Wildlife Management Boards (WMBs) are established under land claims agreements in northern Quebec, Yukon, Northwest Territories and Nunavut as the "main instruments of wildlife management" within their settlement areas. Typically, the Boards are composed of appointees nominated by government and beneficiaries of the claim. A chairperson acceptable to both parties is also appointed and may vote to break a tie in a decision by the Board. In practice, recommendations and decisions of the WMBs are in most case reached by consensus.

In addition to setting levels of total allowable harvest, WMBs participate in research activities and approve the designation of species at risk in their settlement areas. The WMBs have access to the best available information on wildlife in their settlement areas and can provide direction on procedures for consulting with hunters and

trappers who live on the land and know a lot about wildlife populations in their region (COSEWIC 2002). Eight WMBs that have expressed an interest in COSEWIC's activities can be contacted through the COSEWIC web site.

Aboriginal communities

Aboriginal groups—including First Nations, Inuit and Métis—have acquired, over thousands of years, an encyclopedic understanding of the rhythm of the land, its natural cycles and process and the relationship between plants and animals (Sadler and Boothroyd 1994). This understanding—also referred to as "Aboriginal Traditional Knowledge" (ATK)—can enhance our capacity to predict, mitigate and monitor project effects on wildlife at risk. At the national level, ATK is incorporated into the process of designating wildlife at risk through:

- The Aboriginal Traditional Knowledge Sub-Committee of COSEWIC
- Lines of communication with WMBs
- The Coordinator for Aboriginal Traditional Knowledge, in the COSEWIC Secretariat

These mechanisms may also provide a way to incorporate ATK into environmental assessments involving wildlife at risk. For more information, contact COSEWIC/COSEPAC@ec.gc.ca.

COSEWIC

http://www.cosewic.gc.ca

- Lists of species at risk nationally, including five risk categories
- List of candidate species

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

COSEWIC was established in 1977 by the Federal-Provincial Wildlife Committee to provide impartial advice to governments on the status of wildlife species in Canada. COSEWIC determines the national status of wild species, subspecies, varieties and nationally significant populations that are considered to be at risk in Canada. Designations are made on all native species for the following taxonomic groups: mammals, birds, amphibians, reptiles, fish, molluscs, lepidopterans, vascular plants, lichens and mosses. COSEWIC is composed of representatives from each provincial and territorial government wildlife agency, four federal agencies (CWS, Parks Canada Agency, DFO and the Federal Biosystematic Partnership), three national nongovernmental organizations (Canadian Nature Federation, Canadian Wildlife Federation and World Wildlife Fund Canada) and the co-chairs of the species specialist groups. The committee meets at least once per year to consider status reports on candidate species.

COSEWIC publishes the scientific list of species at risk nationally in Canada that, along with other lists, provides guidance for best practice in an environmental assessment. The **COSEWIC web site** features lists of species designated in the five "risk" categories, species examined and designated in the not at risk category and species examined and designated in the data deficient category. A list of candidate species for future status assessments is also available on the site. The COSEWIC Secretariat may be contacted by email at COSEWIC/COSEPAC@ec.gc.ca.

WILD SPECIES WEB SITE

http://www.wildspecies.ca

- Five-year general status report
- Searchable database of more than 1700 wild species assessed in Canada

Canadian Endangered Species Conservation Council (CESCC)

CESCC was formed in 1998 under the *Accord for the Protection of Species at Risk* by Ministers responsible for wildlife and wildlife species at risk from the Government of Canada, provinces and territories. The Council is made up of federal, provincial and territorial ministers with responsibilities for wildlife species. This includes Canada's ministers of Environment and Fisheries and Oceans and the minister responsible for the Parks Canada Agency. The Council's mandate includes specific responsibilities for the listing and recovery of species at risk, as well as a role in resolving disputes under the Accord.

The CESCC is responsible for reporting every five years on the general status of all species in Canada and for communicating the progress on programs to the public. CWS maintains the **Wild Species web site**, which features the 2000 report on the general status of species in Canada and a searchable database of more than 1700 wild species from all provinces, territories and ocean regions. Some data are shared with CDCs/NHICs.

Recovery of Nationally Endangered Wildlife (RENEW)

RENEW, the national recovery program for species at risk, was launched in 1988 and is being revamped under the Accord. All provinces and territories and three federal authorities (Environment Canada, DFO and the Parks Canada Agency) participate in the program, which is under the general direction of the CESCC. The Canadian Wildlife Directors Committee coordinates and directs the program, with support from the Recovery Secretariat provided by CWS of Environment Canada.

RENEW WEB SITE

http://www.speciesatrisk.gc.ca/recovery/default_e.cfm

- Recovery strategies and action plans for nationally endangered, threatened and some extirpated species
- Plans identify recovery objectives and recovery/survival habitats
- Management plans are developed for species of special concern
- Recovery team chair or species contacts

RENEW's National Recovery Teams are charged with effecting the recovery of a nationally endangered or threatened (or sometimes extirpated) species. Team membership comprises representation from all jurisdictions responsible for the species in Canada, Aboriginal groups, species or issue experts from other agencies, universities, conservation groups and stakeholder groups. Recovery Teams develop a recovery strategy that sets the goals, objectives and approaches for the recovery of one or more species and identifies the recovery or survival habitat; and an action plan that outlines actions that will be taken to meet the objectives outlined in the strategy.

The **RENEW web site** describes conservation efforts for endangered, threatened or extirpated species and provides access to information that may be of value to the project assessment, including the recovery strategies and action plans, species management plans and identification of survival or recovery habitats. The site also includes a list of recovery team chairs and other species-at-risk contacts. The Recovery Secretariat may be contacted by email at RENEW-RESCAPE@ec.gc.ca.

IUCN Species Survival Commission

IUCN RED LIST OF THREATENED SPECIES

http://www.redlist.org

- Searchable databases of globally threatened species
- List of recovery team chairs and other species-at-risk contacts

The IUCN (World Conservation Union) Species Survival Commission provides scientifically based information on the current status of globally threatened biodiversity. The Commission annually produces the **Red List of Threatened**

Species™, an assessment of the global conservation status of species, subspecies, varieties and selected subpopulations. The Red List highlights taxonomic, conservation status and distribution information on taxa threatened with extinction, as a foundation for making informed decisions about preserving biodiversity at local to global levels.

The IUCN Red List categories identify those taxa that are extinct, extinct in the wild, critically endangered, endangered, vulnerable, lower risk, data deficient or not evaluated. The web site currently provides a searchable database of the Red List, which will eventually be linked to other sources of biodiversity information, such as that held by the CDC/NHIC network in Canada.

NATURESERVE™

http://www.natureserve.org

- Searchable database for 50 000 plants, animals and ecological communities in the United States and Canada

NatureServe™

NatureServe™, "an online encyclopedia of life," provides a searchable database containing information on conservation status, taxonomy, and distribution for over 50 000 plants, animals and ecological communities in the United States and Canada. It provides in-depth information on rare and endangered species, but also includes common plants and animals. NatureServe™ represents a "snapshot" of data that are continually being refined by the input of hundreds of natural heritage scientists and collaborators into the central databases (e.g., see NatureServe Canada above).

Appendix B:

Policy commitments and laws relating to wildlife at risk

This appendix identifies policies and laws that may be of use in directing environmental assessment decisions involving wildlife at risk. While this appendix contains general characterizations of these documents, their original text should be consulted for accurate wording. Legal advice should be sought concerning the application of any applicable laws.

Key obligations related to wildlife at risk

***United Nations Convention on Biological Diversity* (1992)**
http://www.biodiv.org/convention/articles.asp

Canada made a commitment to the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The Convention requires Contracting Parties to develop legislation for the protection of threatened species and populations and to develop appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity, with a view to avoiding or minimizing such effects.

***Accord for the Protection of Species at Risk* (1996)**
http://www.speciesatrisk.gc.ca/recovery/accord_e.cfm

Federal, provincial and territorial ministers responsible for wildlife agreed to prevent species in Canada from becoming extinct as a consequence of human activity. The Accord commits ministers to a national approach for the protection of species at risk and to develop complementary legislation, regulations, policies and programs to identify and protect threatened and endangered species and their habitats.

***Species at Risk Act* of Canada**
http://www.sararegistry.gc.ca/the_act/default_e.cfm

A summary of the *Species at Risk Act* is contained in the Act itself:

"The purposes of this enactment are to prevent Canadian indigenous species, subspecies and distinct populations of wildlife from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, to encourage the management of other species to prevent them from becoming at risk."

This enactment establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk. It provides that COSEWIC's assessments are to be reported to the Minister of the Environment and to the Canadian Endangered Species Conservation Council, and it authorizes the Governor in Council to establish the official list of species at risk based on that process.

It requires that the best available knowledge be used to define long- and short-term objectives in a recovery strategy for endangered and threatened species, and it provides for action plans to identify specific actions.

It creates prohibitions to protect listed threatened and endangered species and their critical habitat. The Act provides for the provision of fair and reasonable compensation, at the discretion of the Minister of the Environment, to any person for losses suffered as a result of any extraordinary impact of the application of the critical habitat prohibitions.

It creates a public registry to assist in making documents under the Act more accessible to the public. It is consistent with Aboriginal and treaty rights and respects the authority of other federal ministers and provincial/territorial governments.

The *Species at Risk Act* has three particular requirements or provisions for environmental assessment:

1. Notification of competent ministers

2. Mitigation and monitoring requirements

3. Changes to definition of "environmental effect"

These requirements are further discussed in Appendix C.

Provincial and territorial legislation
http://canada.gc.ca/othergov/prov_e.html

Most of Canada's provincial/territorial governments have adopted legislation that deals specifically with wildlife species at risk. The Acts generally:

- Prohibit the killing, disturbance or trade of regulated species
- Prohibit the destruction or interference of the habitat or critical habitat of regulated species
- Provide for the development of recovery strategies and action plans

Other Acts allow provinces and territories to preserve ecosystems and habitats for endangered or threatened species. Other mechanisms provide objectives, standards and guidelines for wildlife at risk, such as the B.C. Identified Wildlife Management Strategy (British Columbia Ministry of Water, Land and Air Protection 1999). Directions for accessing provincial and territorial web sites are provided in Appendix A.

Recovery objectives

http://www.speciesatrisk.gc.ca/recovery/default_e.cfm

The Recovery of Nationally Endangered Wildlife (RENEW) program has the following objectives:

- No endangered species in Canada will be allowed to become extirpated or extinct
- No new species will be allowed to become threatened or up-listed to endangered
- When and where possible, extirpated species will be reintroduced to Canada

Recovery strategies, action plans and species management plans contain the essential requirements for establishing and maintaining self-sustaining populations related to factors such as population size, number of occurrences, geographic distribution and threats to populations and habitats.

Other laws and policies that may be useful for wildlife at risk issues

Migratory Birds Convention Act, 1994

http://laws.justice.gc.ca/en/m-7.01/text.html

Prohibitions contained in the *Migratory Birds Convention Act, 1994* also protect certain wildlife species at risk. Section 5 of the Act prohibits possession or buying, selling, exchanging or giving a migratory bird or nest except where authorized by regulation. The Act is the enabling statute for the *Migratory Birds Regulations*, described below.

Migratory Birds Regulations

http://laws.justice.gc.ca/en/m-7.01/c.r.c.-c.1035/text.html

Section 6 of the *Migratory Birds Regulations* prohibits the disturbance, destruction, taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or possessing a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit. Section 35 of the *Migratory Birds Regulations* prohibits, with some exceptions, deposit of harmful substances in waters frequented by migratory birds anywhere in Canada.

Canada National Parks Act
http://laws.justice.gc.ca/en/N-14.01/text.html

The *Canada National Parks Act* protects the National Parks of Canada for the benefit, education and enjoyment of the public, today and for future generations. The first priority in National Park management is to maintain and restore ecological integrity. All species are protected under the *Canada National Parks Act*, and activities such as hunting and plant harvesting are generally not allowed in National Parks. The *Canada National Parks Act* also provides for the protection of habitat. Certain provisions of regulations made under the *Canada National Parks Act* trigger the need for an environmental assessment under the *Canadian Environmental Assessment Act* before approvals are given.

Fisheries Act
http://laws.justice.gc.ca/en/f-14/text.html

Under the *Fisheries Act*, the Minister of Fisheries and Oceans has decision-making authority for the conservation and protection of fish and fish habitat supporting Canadian fisheries. Under the *Fisheries Act*, fish are defined as all parts and life stages of finfish, shellfish, crustaceans and marine mammals. Section 32 prohibits the killing of fish by any means other than fishing. Subsection 35(1) of the Act prohibits the harmful alteration, disruption or destruction of fish habitat. Subsection 35(2) provides the Minister with the power to authorize terms and conditions that would allow projects to proceed in compliance with the Act. This provision as well as a number of others under the *Fisheries Act* trigger the need for an environmental assessment under the *Canadian Environmental Assessment Act* before approvals are given. Section 36 (administered by Environment Canada) prohibits the deposit of a deleterious substance in water frequented by fish or in any place under any conditions that may enter waters frequented by fish, except as authorized by regulation.

Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act
http://laws.justice.gc.ca/en/w-8.5/text.html

This is an Act respecting the protection of certain species of wild animals and plants and the regulation of international and interprovincial trade in those species. It is the legislative means by which Canada meets its obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The Federal Policy on Wetland Conservation
http://www.cws-scf.ec.gc.ca/publications/abstractTemplate.cfm?lang=e&id=1023

About one-third of wildlife species at risk designated by COSEWIC are dependent on wetland habitat. Therefore, *The Federal Policy on Wetland Conservation* is relevant to the protection of habitat of wildlife at risk, particularly in circumstances not covered

by legislation. The Policy commits federal departments to the goal of no net loss of wetland functions:

(i) On federal lands and waters

(ii) In areas affected by the implementation of federal programs where the continuing loss or degradation of wetlands has reached critical levels

(iii) Where federal activities affect wetlands designated as ecologically or socioeconomically important to a region

The Policy also directs that, due to local circumstances where wetland losses have been severe, no further loss of any remaining wetland area may be deemed essential.

Appendix C:

Implications of the federal *Species at Risk Act* for federal environmental assessment

Introduction

This appendix outlines the ways in which the federal *Species at Risk Act* (SARA) influences environmental assessment (EA). It is not a legal interpretation of SARA, nor does it convey the full range of mechanisms that SARA uses to protect species at risk, which include listing, stewardship, recovery initiatives, prohibitions, permits and agreements. To better understand the framework created by SARA, readers are encouraged to consult the legal text of SARA and guidance material provided on the SARA Public Registry (http://www.sararegistry.gc.ca).

It is also important to remember that federal, provincial and territorial governments agreed, through the *Accord for the Protection of Species at Risk*, to develop complementary legislation, regulations, policies and programs. Thus, relevant provincial or territorial legislation on species at risk should also be consulted.

To help EA practitioners understand the implications of SARA, this appendix contains five key sections:

1. How does SARA directly affect the EA process?
    - Amended definition of "environmental effect"
    - Notification of competent ministers
        - Who has the responsibility for notification?
        - What is required?
        - Who is to be notified?
    - Mitigation and monitoring requirements
2. Is SARA a law list trigger under the *Canadian Environmental Assessment Act*?

- SARA permits or agreements
- Permits or agreements issued under other legislation

3. Does SARA apply to the species in my project study area?
   - The List of Wildlife Species at Risk
   - What are the implications to EA of a species being on the List?
   - What if the List changes?
4. How do I know if and when prohibitions apply?
   - What are the general prohibitions?
   - When do the general prohibitions apply?
   - How is critical habitat protected?
   - What are the critical habitat prohibitions?
   - When do the critical habitat prohibitions apply?
   - Emergency orders
   - Permits
5. Where can I obtain more information on SARA?
   - The SARA Public Registry

How does SARA directly affect the EA process?

SARA makes three changes to the EA process:

1. s. 137: Amended definition of "environmental effect"
2. s. 79 (1): Notification of competent ministers
3. s. 79 (2): Mitigation and monitoring requirements

Amended definition of "environmental effect"

Paragraph (a) of the definition of "environmental effect" in the *Canadian Environmental Assessment Act* (CEAA) is amended as follows:

> *137. The definition "environmental effect" in subsection 2(1) of the Canadian Environmental Assessment Act is replaced by the following:*
>
> *"environmental effect" means, in respect of a project,*
>
> *a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species at Risk Act…*

Section 137 amends the CEAA to clarify, for greater certainty, that EAs must always consider impacts on a listed wildlife species, its critical habitat or the residences of individuals of that species. This serves to reinforce the obligation to consider species at risk in EAs.

Notification of competent ministers

The obligation for notification in SARA states:

> *79. (1) Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat.*
>
> *(3) The definitions in this subsection apply in this section.*
>
> *"person" includes an association or organization, and a responsible authority as defined in subsection 2(1) of the Canadian Environmental Assessment Act.*
>
> *"project" means a project as defined in subsection 2(1) of the Canadian Environmental Assessment Act.*

Subsection 79 (1) of SARA creates an obligation to notify competent ministers when, in the course of a federal EA, it becomes evident that a listed species or its critical habitat will likely be affected by the proposed project.

WHO HAS THE RESPONSIBILITY FOR NOTIFICATION?

Anybody who is responsible for an EA under federal legislation has the obligation to notify the competent minister or ministers. In the context of the CEAA, the person responsible for the EA is the Responsible Authority (RA).

The obligation to notify extends to all persons responsible for an EA. In other words, the requirement can extend to more than one person for a given EA. In the context of the CEAA, in the case of an assessment that involves multiple RAs, each RA must sign the letter of notification. Should it become clear in the course of the EA that another listed species is likely to be affected by the project, another notification letter would be required.

Definitions from the Species at Risk Act*:*

"Critical habitat" means the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species. (Refers to recovery strategies or action plans posted on the Public Registry.)

"Habitat" means
(a) in respect of aquatic species, spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced; and

(b) in respect of other wildlife species, the area or type of site where an individual or wildlife species naturally occurs or depends on directly or indirectly in order to carry out its life processes or formerly occurred and has the potential to be reintroduced.

WHAT IS REQUIRED?

Notification is required as soon as possible when it is learned that a species on the List of Wildlife Species at Risk ("the List") under SARA—also referred to as "listed species" in this guide—may be affected by a project for which a federal EA has been triggered. The List is described under a later section of this appendix entitled "Does SARA apply to the species in my project study area?"

Notification will often be made in the scoping phase of the assessment; however, it may be required at any time in the process if new information becomes available, for example:

- The presence of a listed species becomes known
- A species present in the study area is added to the List
- It only becomes clear later in the EA process that a listed species will be affected by the project

Notification must be in writing.

WHO IS TO BE NOTIFIED?

Subsection 79 (1) states that the competent minister must be notified, who is defined by SARA as follows:

> *2. (1) The definitions in this subsection apply in this Act...*
>
> *"competent minister" means*
>
> *(a) the Minister of Canadian Heritage with respect to individuals in or on federal lands that are administered by that Minister and that are national parks, national historic sites, national marine conservation areas or other protected heritage areas as those expressions are defined in subsection 2(1) of the Parks Canada Agency Act (as amended by s.141.1)[14];*
>
> *(b) the Minister of Fisheries and Oceans with respect to aquatic species, other than individuals mentioned in paragraph (a); and*
>
> *(c) the Minister of the Environment with respect to all other individuals.*

All three departments/agencies have indicated that this notification should follow existing EA channels; thus, notification letters should be sent to the regional EA

[14] As of December 12, 2003, the Parks Canada Agency reports to Parliament through the Minister of the Environment. However, it remains an agency that is separate from Environment Canada and continues to exercise the powers, duties and functions relating to the species at risk within the protected areas it manages. Where individuals of species at risk are located in protected areas managed by Parks Canada, notifications should be sent to the Parks Canada Agency.

departmental contacts who would normally be contacted under the *Federal Coordination Regulations*.

Notification of more than one department/agency would be required when the species affected is under joint responsibility; however, notification within a department/agency is not required when the responsibility for the EA lies within that department/agency.

Definitions from the Species at Risk Act*:*

"Residence" means a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.

"Wildlife species" means a species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and

(a) is native to Canada; or

(b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

Mitigation and monitoring requirements

The requirement for mitigation and monitoring in SARA is:

> *79. (2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.*

Where a federal EA is being carried out on a project that may affect a listed species or its critical habitat, s. 79 (2) requires that a person responsible for an EA:

- Identify potential adverse effects on the listed species and its critical habitat.
- By implication, identify measures to avoid or lessen these effects. Ensure these measures are consistent with recovery strategies and action plans.
- If the project is implemented, ensure these measures are taken.
- Ensure that the effects on the listed species are monitored.
    - Monitoring should be carried out for both compliance and follow-up purposes. Note that while monitoring may be discretionary in screenings under the CEAA, SARA requires monitoring for listed species. If follow-up shows unanticipated effects on listed species, SARA requires that measures be taken to avoid or lessen these effects. Monitoring is an important tool to ensure ongoing compliance with SARA and its regulations.

Is SARA a law list trigger under the *Canadian Environmental Assessment Act*?

SARA permits or agreements

Permits issued or agreements entered into under the authority of s. 73 of SARA are not prescribed on the *Canadian Environmental Assessment Act Law List Regulations* and hence do not trigger an EA under CEAA.

Permits or agreements issued under other legislation

Section 74 allows a competent minister to use existing mechanisms to authorize activities affecting a listed wildlife species, provided the conditions of SARA permits or agreements are met. For example, Environment Canada may use the *Migratory Birds Convention Act, 1994* for scientific research activities, Fisheries and Oceans Canada may use the *Fisheries Act* and Parks Canada may use the *Canada National Parks Act*. In some cases, these mechanisms may trigger an EA under CEAA.

Does SARA apply to the species in my project study area?

The List of Wildlife Species at Risk

SARA applies to all species on the List of Wildlife Species at Risk, established as Schedule 1 of the Act. The List is amended on a regular basis. The Governor in Council will follow the process established in SARA to add, remove or change the status of a species on the List. It is important to refer to the latest version of the List posted on the Public Registry (http://www.sararegistry.gc.ca). The List includes listed species of special concern, as well as extirpated, endangered and threatened species. Schedules 2 and 3 of SARA identify species that were designated at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.

What are the implications to EA of a species being on the List?

If your species is included on the List, it means that:

- **Special attention is required in EA**: Your assessment must consider the impacts on listed wildlife species, their critical habitat or residences (s. 137). Notification of competent ministers (s. 79 (1)) and mitigation and monitoring (s. 79 (2)), as described above, are also required. Recovery strategies and action plans, where available, must be consulted to identify measures that must be taken to avoid or lessen adverse effects and to monitor them (s. 79 (2)).

- **Additional sources of information are available for the EA**: The SARA Public Registry (http://www.sararegistry.gc.ca), recovery strategies, action plans and management plans provide valuable sources of information for your project assessment

- **Prohibitions may apply**: See the next section for information on if and when SARA prohibitions apply.

What if the List changes?

EAs are completed before work on a project starts, and in some cases one or several years may elapse before the project is carried out. In the interim period between the completion of the EA and the start of the project, additional species may have been added to the List or the status of species on the List may have changed. Notwithstanding the EA, proponents have a responsibility to comply with the provisions of SARA.

How do I know if and when prohibitions apply?

What are the general prohibitions?

General prohibitions under SARA come into effect on June 1, 2004. It is important to note that these prohibitions do not apply to species of special concern and that additional prohibitions may have been developed under provincial or territorial legislation.

SARA establishes prohibitions protecting individuals of a species and their residences. Under s. 32 and s. 33, SARA makes it an offence to:

- Kill, harm, harass, capture or take an individual of a listed endangered, threatened or extirpated species
- Possess, collect, buy, sell or trade an individual of a listed endangered, threatened or extirpated species, or its parts or derivatives
- Damage or destroy the residence of one or more individuals of a listed endangered or threatened species or a listed extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada

When do the general prohibitions apply?

These general prohibitions apply to the following listed endangered, threatened or extirpated species:

- Aquatic species (as defined in SARA, an "aquatic species" means a wildlife species that is a fish (as defined in s. 2 of the *Fisheries Act*, which includes crustaceans and marine animals) or a marine plant (as defined in s. 47 of the *Fisheries Act*)
- Migratory birds protected by the *Migratory Birds Convention Act, 1994* (listed in *Birds Protected in Canada under the Migratory Birds Convention Act*; Environment Canada 1991)

- All individuals and residences of endangered, threatened and extirpated species[15] on the List, which occur on federal lands (Listed species in the territories, except for aquatic species, migratory birds or species on land under the authority of the competent ministers, are covered only to the extent that the Governor in Council makes an order, as described below)

The general prohibitions may apply to other species by order of the Governor in Council (s. 34, s. 35 and s. 36). A record of all orders will be included in the SARA Public Registry (http://www.sararegistry.gc.ca). Orders may apply to the following:

- Species on the List other than aquatic species or migratory birds protected by the *Migratory Birds Convention Act, 1994*, where they occur on lands in a province that are not federal lands

- Species on the List where they occur in the territories, except for aquatic species, migratory birds protected under the *Migratory Birds Convention Act, 1994* or species on land under the authority of the Minister of the Environment or the Parks Canada Agency

- Species not on the List, but classified as endangered or threatened by a provincial or territorial minister, where they occur on federal lands in the province or territory

The first two provisions have been termed the "safety net."

How is critical habitat protected?

Critical habitat is by definition the habitat that is necessary for the survival or recovery of the listed species in question. Critical habitat will be identified in recovery strategies and action plans that are included in the SARA Public Registry (http://www.sararegistry.gc.ca). There is a range of possible mechanisms to protect critical habitat, including stewardship or conservation agreements, other legislation or regulations or prohibitions.

What are the critical habitat prohibitions?

Under s. 58 of SARA, it is an offence to destroy any part of the critical habitat of any listed endangered or threatened species, or of a listed extirpated species (if a recovery strategy included in the SARA Public Registry (http://www.sararegistry.gc.ca) has recommended its reintroduction into the wild in Canada) if the following conditions apply.

When do the critical habitat prohibitions apply?

Critical habitat prohibitions apply to the following:

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[15] Prohibitions apply to residences of extirpated species only when a recovery strategy has recommended reintroduction of the species into the wild in Canada.

- Federal protected areas,[16] described in the *Canada Gazette*
- Other federal lands by Ministerial order
- By order of the Governor in Council, habitat of provincially recognized species on federal lands (s. 60)
- By order of the Governor in Council, critical habitat on provincial, territorial or private lands. That is, the Governor in Council can, by order, make it an offence to destroy any part of critical habitat on provincial, territorial or private lands, if such habitat is not protected by other mechanisms. This provision has been termed the "critical habitat safety net" (s. 61).

Emergency orders

Note that the Governor in Council may, on the recommendation of the competent Minister, make an emergency order to provide for the protection of a species that faces imminent threats to its survival or recovery (s. 80). Such provisions may prohibit activities that adversely affect the species or habitat deemed necessary for the survival or recovery of that species.

Permits

Under s. 73 of SARA, agreements or permits may be entered into or issued for an activity that would otherwise be prohibited. Agreements or permits can be made or issued only for one of the following three purposes:

(a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons

(b) the activity benefits the species or is required to enhance its chance of survival in the wild

(c) affecting the species is incidental to the carrying out of the activity

For an agreement or permit to be issued, the following three pre-conditions must be met:

(a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered, and the best solution has been adopted

(b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals

[16] Federal protected areas identified in s. 58 (2) are National Parks of Canada named and described in Schedule 1 to the *Canada National Parks Act*, marine protected areas under the *Oceans Act*, Migratory Bird Sanctuaries under the *Migratory Birds Convention Act, 1994* or National Wildlife Areas under the *Canada Wildlife Act*.

(c) the activity will not jeopardize the survival or recovery of the species

Where can I obtain more information on SARA?

The SARA Public Registry

The SARA Public Registry (http://www.sararegistry.gc.ca), maintained by Environment Canada, will provide a key source of information for EA and online access to information and documents about SARA. It will include the List of Wildlife Species at Risk, recovery strategies, action plans and management plans, including any amendments and progress reports. It will also include regulations and orders made under SARA, assessment reports, species status reports and updates, as well as explanations of permits or special agreements.

The SARA Public Registry should not be confused with the Canadian Environmental Assessment Registry maintained by the Canadian Environmental Assessment Agency.

Appendix D:

Six good reasons for paying attention to wildlife at risk in environmental assessment

1. **The World Conservation Union (IUCN) identifies the loss of species as one of the world's most pressing crises.** If nature takes its course, one species would disappear about every 1000 years. Estimates suggest that at least 10 percent of species now living on the globe, and perhaps as many as 20 percent, will be driven to extinction in the next 20 to 50 years.

2. **Human activity has resulted in extinction for some species in Canada and population declines for others.** Scientists have concluded over the past 20 years that at least 10 animal species and one caribou population have become extinct, an additional 15 species or populations are no longer found in this country and hundreds more have experienced severe declines in their populations. This is just the tip of the iceberg, as the list grows every year—partly because increased scientific effort reveals more wildlife species at risk. As of the year 2000, more than 370 wild plants and animals were designated as nationally extinct, extirpated, endangered, threatened or of special concern.

3. **Species extinction matters because we have a moral responsibility for the Earth's biological heritage and because biological diversity supports human life, the quality of human life and economic prosperity.**

    - Wild plants and animals are important sources of the basic ingredients of pharmaceuticals and traditional medicines.

    - The gene pool of the world's wild species supplies the raw material for improving livestock and crops.

    - Many Canadians, especially Aboriginal groups, rely on renewable resources such as wildlife for food, clothing and shelter.

    - Others depend on income generated from wildlife-related activities such as hunting, fishing, trapping, lumbering, bird watching and whale watching. Canadians spend an estimated $10 billion a year on a variety of nature-related activities.

- Plants, animals and microorganisms play an essential role in the ecological processes that maintain the Earth's atmosphere, climate, landscapes and water.

- Recovery initiatives usually attack the threats to species survival, and those are often the same threats that put human survival at risk. Wildlife species at risk act as miners' canaries—alerting scientists to threats to human survival. Therefore, there is cumulative benefit to humans from recovery actions.

4. **Canadian governments have committed to the world and to Canadians to maintain biological diversity.**

   - By signing the *United Nations Convention on Biological Diversity* in 1992, Canada made a commitment to the conservation of biological diversity. Specifically, the Convention requires the development of legislation for the protection of threatened species and populations and the development of appropriate procedures requiring environmental impact assessment of proposed projects that are likely to have significant adverse effects on biological diversity, with a view to avoiding or minimizing such effects.

   - In October 1996, federal, provincial and territorial ministers responsible for wildlife agreed in principle to the *Accord for the Protection of Species at Risk* to prevent species in Canada from becoming extinct as a consequence of human activity. The Accord commits ministers to a national approach for the protection of species at risk and to develop complementary legislation, regulations, policies and programs to identify and protect threatened and endangered species and their critical habitats.

   - Most Canadian provinces have specific legislation to protect wildlife at risk from extinction or have amended existing laws to deal explicitly with endangered species.

   - The federal *Species at Risk Act* came into force in June 2003 (although some provisions will come into force only in June 2004) to help prevent wildlife in Canada from becoming extinct and to provide for the recovery of species at risk. The Act provides the authority to prohibit the killing of endangered or threatened species and the destruction of their critical habitats on all lands in Canada and provides authority to protect species in imminent danger in emergencies. The Act contains specific requirements about environmental assessment, detailed in Appendix C.

5. **Canadians want to protect wild species.** In a 1999 survey, 98 percent of Canadians agreed that nature in all its variety is essential to human survival. Their commitment to species at risk is evidenced by the high level of interest and involvement in the development of legislation and in project assessments.

6. **Efforts to protect endangered species can be successful, and environmental assessment of projects can make a difference.** Every year, thousands of projects are assessed under federal and provincial/territorial environmental assessment legislation in Canada, providing an opportunity to ensure that development does not proceed at the expense of the long-term survival of wild plant and animal species. Moreover, Canadians have made it clear that they are looking to the Government of Canada for leadership in turning wildlife trends around.

Section 4

Glossary

The terms in this glossary are for use only in this guide and do not purport to interpret any legislative term or represent any legal obligations.

Aboriginal Traditional Knowledge: Accumulated wisdom of native communities about natural processes (from the definition of traditional ecological knowledge in Sadler and Boothroyd 1994).

Aquatic species: A wildlife species that is a fish (including marine mammals) as defined by the *Fisheries Act* or a marine plant.

Biological diversity or biodiversity: The variability among living organisms from all sources, including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems (United Nations 1992b). Note that biological diversity is a function of the distribution and abundance of species populations, species and habitats.

Critical habitat: As used in this guide, critical habitat refers to the term as defined in the *Species at Risk Act* and means the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or the action plan for the species. However, survival habitat and recovery habitat, as used in this guide, are broader terms, not limited to critical habitat as defined by the *Species at Risk Act*, because they include the habitat of species that may not be listed under Schedule 1 of the *Species at Risk Act*.

Endemic: Native to, and restricted to, a particular geographical region (Canadian Endangered Species Conservation Council 2001).

Environment: The components of the Earth, and includes:

(a) land, water and air, including all layers of the atmosphere,

(b) all organic and inorganic matter and living organisms, and,

(c) the interacting natural systems that include components referred to in paragraphs (a) and (b) (*Canadian Environmental Assessment Act* s. 2)

Fish: Includes (a) parts of fish, (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals and (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals (*Fisheries Act* s. 2).

Habitat: All the elements of Earth that are used by wildlife species to sustain themselves throughout their life cycles. This includes the spaces (i.e., terrestrial and aquatic) that they require as well as the properties of those places (e.g., biota, climate, soils, ecological processes and relationships). Habitats function in providing such needs as food, shelter and a home place. Habitats can be thought of as distinctive places or ecosystems, such as prairie habitats or Arctic habitats (Wildlife Habitat Canada 2001).

Mitigation: The elimination, reduction or control of the adverse environmental effects of the project; includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means (*Canadian Environmental Assessment Act* s. 2). Three mitigation options are generally recognized:

1. Avoidance: elimination of adverse effects, through siting or design

2. Minimization: reduction or control of adverse effects through modification or implementation under special conditions (e.g., timing of activities, buffers around nesting areas)

3. Compensatory mitigation: replacement of unavoidably lost species or habitat

Potential habitat: Historically occupied habitat that is still available for use or which could be restored to its historical state, or habitat not known to be historically occupied that would be or could be rendered suitable for the species (National Recovery Working Group 2001.

Range jurisdiction: A federal, provincial or territorial wildlife agency with management responsibility and public accountability for a species at risk found within its jurisdictional borders.

Recovery habitat: For the purposes of this guide, recovery habitat means the habitat needed for a species of wildlife at risk to maintain a self-sustaining population size and distribution. Recovery habitat is usually more than what is currently available to the species (i.e., includes historical and/or potential habitat).

Recovery strategy and action plan: The two parts of a national recovery plan required for endangered, threatened and some extirpated species. The recovery strategy identifies the primary goals, objectives and approaches, and the action plan identifies projects and actions required to meet the goals and objectives.

Recovery team: The group charged with overseeing the recovery of a species under the *Accord for the Protection of Species at Risk*. The team may include species or habitat specialists from jurisdictions responsible for the species, stakeholders and species or issue experts from other agencies—for example, universities, conservation groups and Aboriginal groups.

Residence: A dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating (*Species at Risk Act* s. 2).

Species: Any indigenous species, subspecies, variety or geographically or genetically distinct population of wild fauna or flora (COSEWIC 2002).

Species at risk: Often used in legislation to refer to certain designated species that are the subject of prohibitions and regulations. For example, the proposed federal *Species at Risk Act* uses the term "species at risk" to mean an extirpated, endangered or threatened species or a species of special concern.

Survival habitat: For the purposes of this guide, survival habitat means the habitat needed to maintain the current population distribution or size of a species of wildlife at risk (i.e., survival habitat is usually the occupied habitat). Habitat needs of species at risk should be viewed as a continuum from survival habitat to full recovery habitat.

Valued ecosystem components: Any part of the environment that is considered important by the proponent, public, scientists and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern (Canadian Environmental Assessment Agency 1999).

Wildlife: Any species of wild organism, including mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae and bacteria (Wildlife Ministers' Council of Canada 1990).

Wildlife at risk: All rare or imperilled species designated, or identified as candidates for designation, on lists established by:

- Federal, provincial and territorial legislation, or local or regional governments
- Wildlife Management Boards established under land claims agreements that are authorized by those agreements to perform functions in respect of wildlife species
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

- Provincial, territorial and regional Conservation Data Centres (CDCs) and Natural Heritage Information Centres (NHICs)
- Canadian Endangered Species Conservation Council (CESCC) *General Status of Species in Canada*
- World Conservation Union (IUCN) Species Survival Commission
- *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES)

Section 5

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