

IDENTIFICATION AND DESIGNATION OF SPECIES AT RISK IN BRITISH COLUMBIA – PART 1

Greg Jones¹ and Ben van Drimmelen²

¹3042 Larkdowne Road, Victoria, BC V8R 5N2

²876 Linkeas Avenue, Victoria, BC V8S 5C3

This paper summarizes the key steps in identification and legal designation of species at risk in British Columbia (BC). A subsequent issue of *Wildlife Afield* will present an analysis of the legislation, recovery planning process, social context, history, and future needs for conservation of species at risk. Currently the BC government is revising the *Wildlife Act* and improvements to species at risk legislation may occur. Part 2 will also discuss any such legislation changes proclaimed at that time.

Introduction

Many people perceive that processes for identifying and legally designating species at risk are complicated and hard to understand – and they are right. It is complicated. Only those directly involved understand all the details. Within any province or territory, there is a mix of federal, provincial / territorial, and local government laws and policies. This paper deals with federal and provincial instruments that apply directly to identification and designation of species at risk in BC.

What are species at risk?

For this paper, species at risk are those species having a biological assessment showing them to be one of: extinct, extirpated, endangered, threatened, or vulnerable/special concern. Rare species may or may not be at risk, as some may be naturally scarce but not in danger or declining. As extinct species are totally lost, they are really beyond “at risk”, but are worth recording to track success or failure of conservation.

Federal and provincial legislation provides for legal designation of species at risk. For this paper, ‘designated’ or ‘designation’ refer to species legally defined as one of the at risk categories, under the

relevant federal or provincial legislation (Figure 1).

As you see, even the seemingly simple question of what is a species at risk has a complicated answer.

Why are species at risk?

Species become at risk because human activities affect them to the point where continued existence is in doubt. The 2002 BC State of Environment report shows the relative magnitude of various threats on species at risk (Table 1). The top five, starting with the one affecting the most potentially endangered or threatened species, are: urban development, environmental contamination, agriculture, timber harvesting, and alien species introduction (Figure 2). Thus, while most management attention for several decades has been on improving forestry practices, successful conservation of all species at risk requires increased attention to the other activities, while continuing to improve forestry as necessary.

Thumbnail process

The various federal and provincial processes for identifying and designating species at risk each have distinct steps involving many participants within, and consulted by, governments. This paper summarizes

the key steps - readers needing more detail should consult the various websites listed in Table 2.



Figure 1. Wildlife on the species at risk lists also includes subspecies. The Blue-listed “Pacific” Great Blue Heron (*Ardea herodias fannini*) is confined to the Pacific coast of North America, from Alaska to Washington, the population breeding around the Strait of George is threatened by human disturbance, predation of eggs and nestlings by Bald Eagles (*Haliaeetus leucocephalus*), chemical contamination, and loss of breeding habitat. Coquitlam, BC. 25 May 1972 (R. Wayne Campbell).

Table 1. Threats to species at risk in British Columbia, in order of relative importance based on number of taxa with “red-listed” status.

Source of Threat	Number of Taxa Affected		
	Red Listed	Blue Listed	Total
Urban Development	62	60	122
Environmental Contamination	53	82	135
Agriculture	50	52	102
Timber Harvesting	46	60	106
Alien Species Introductions	42	27	69
Intentional and Accidental Mortality	40	50	90
Human Disturbance	27	34	61
Livestock Grazing	25	39	64
Water Development	22	24	46
Disruption of Fire Regimes	17	21	38
Mining, Oil and Gas Exploration and Development	15	17	32
Tourism/Recreational Development	11	9	20
Other	5	3	8



Figure 2. Oftentimes it is a combination of threats that impact a species at risk. In the Fraser River valley, the introduced Eastern Gray Squirrel (*Sciurus carolinensis*), along with urbanization, fragmentation of habitat, and road mortality threaten the future of the endangered and once widely-distributed Western Screech-Owl (*Megascops kennicotti macfarlanei*). Swan Lake, BC. 3 September 2000 (R. Wayne Campbell).

Regardless of the specific process concerning species at risk, there are typically three main elements:

1. Determining the biological status of species (extinct, extirpated, endangered, threatened, vulnerable / special concern, or not at risk) through an assessment by a qualified and officially approved agency.
2. Providing recommendations to government for legally designating species into one of the at-risk categories, based on the biological assessments (see pages 95-160 for suggested land protection and forest

management strategies for the blue-listed Canada Warbler in British Columbia).

3. Designating species into an at-risk category, under specific legislation via a cabinet level political decision. The political process considers conservation, economic, and social factors, and as a result there are usually more species at risk determined by assessments than are legally designated.

Who determines, and what are, species at risk?

There are two primary bodies officially authorized to determine the biological status of species, place them in at risk categories, and recommend candidates for legal designation.

Within British Columbia

The BC Conservation Data Centre (CDC) is a department of the provincial Ministry of Environment, with the expertise to determine the conservation status of species and plant communities within BC. The CDC uses an internationally standardized methodology developed by NatureServe to assign conservation status ranks to species and plant communities. This method is technically detailed, and determines conservation status globally and within the relevant political jurisdiction, BC in this case. The CDC reviews the conservation status ranks regularly and as new information becomes available, although ranks are not revised more than once annually.

The CDC uses information on key topics including occurrences and their viability, trends, estimated population, distribution, existing protections, and threats to assess species and plant communities and put them into one of the following categories for their status within BC. Where there is uncertainty over status, a species or community may span more than one category.

- **Presumed extirpated:** Species or community not located despite intensive searches and no expectation that it will be rediscovered; or Extinct.
- **Historical:** Species or community not located in the last 50 years, but some expectation that it may be rediscovered.

Table 2. Websites related to species at risk in British Columbia.

Organization	Website Address
Canadian Species At Risk Act (SARA)	www.speciesatrisk.gc.ca
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	www.cosewic.gc.ca
BC Wildlife Act Wildlife Amendment Act	http://qp.gov.bc.ca/statreg/stat/W/96488_01.htm www.leg.bc.ca/37th5th/3rd_read/gov51-3.htm
Provincial Forest and Range Practices Act (FRPA) Identified Wildlife Management Strategy (IWMS)	www.for.gov.bc.ca/code www.env.gov.bc.ca/wld/frpa/iwms
BC Conservation Data Centre (CDC)	www.env.gov.bc.ca/cdc
BC State of Environment Reporting; Ministry of Environment	www.env.gov.bc.ca/soe
Capital Regional District – Natural Areas Atlas NatureServe	www.crd.bc.ca/maps/natural/atlas.htm www.natureserve.org

- **Critically imperiled:** Extreme rarity or some factor(s) making the species or community especially susceptible to extirpation or extinction.

- **Imperiled:** Rare or some factor(s) making the species or community very susceptible to extirpation or extinction.

- **Vulnerable:** Species or community is rare and local, found only in a restricted range (even if abundant at some locations), or some factor(s) making it susceptible to extirpation or extinction.

- **Apparently secure:** Uncommon but not rare, and usually widespread in the province. Possible cause for long-term concern.

- **Secure:** Common to very common, typically widespread and abundant, and not susceptible to extirpation or extinction under present conditions.

- **Unrankable:** Lack of available information.

To simplify communication, the province uses the conservation status ranks to assign species or plant communities to one of three colour-coded categories:

- **Red list:** Species that have been legally listed

as endangered or threatened under the *Wildlife Act*, are extirpated, or are candidates for endangered or threatened designation. Generally includes critically imperiled or imperiled species or communities.

- **Blue list:** Species not immediately threatened, but of concern because they may be sensitive to human activities or natural events. Generally includes vulnerable species or communities (Figure 3).



Figure 3. The Barn Swallow (*Hirundo rustica*) is one of the most familiar and widely distributed birds in British Columbia. It is Blue-listed and there is widespread concern in British Columbia that numbers are declining in certain regions of the province. Tatogga Lake, BC. 9 June 1999 (R. Wayne Campbell).

- **Yellow list:** Uncommon, common, declining and increasing species – all those not on the Red or Blue lists. Generally includes apparently secure and secure species or communities.

- Species may also be designated as exotic or accidental in BC.

Nationally

The Committee on the Status of Wildlife in Canada (COSEWIC) is legally mandated under the national *Species at Risk Act* (SARA) to determine the Canada-wide status of species. COSEWIC is a committee of federal and provincial agencies, university academics, independent specialists, and aboriginal people, with expertise in the biology and assessment of species. COSEWIC assesses all species groups, but does not assess plant communities, as these are not covered under SARA (see Table 2 for COSEWIC and SARA websites).

COSEWIC uses available information on species inventory, trends, biology and human caused impacts, along with standardized criteria, to assess species and assign them to one of the following categories:

- **Extinct:** A wildlife species that no longer exists anywhere.

- **Extirpated:** A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.

- **Endangered:** A wildlife species facing imminent extirpation or extinction.

- **Threatened:** A wildlife species likely to become endangered if limiting factors are not reversed.

- **Special Concern:** A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

- **Not at Risk:** A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

- **Data Deficient:** A wildlife species for which

there is inadequate information to assess its risk of extinction.

Since the CDC assesses provincial status of species while COSEWIC is national, and they use different categories, their lists are not exactly comparable. The BC red list most closely resembles the combined COSEWIC endangered and threatened lists plus plant communities; and the BC blue list is most similar to the COSEWIC special concern list plus plant communities.

How many species at risk are there?

This is another seemingly easy question with a familiar hard answer – it depends, in this case on which list is being used. Table 3 shows the number of species on the various provincial and federal lists as of August 2007. The numbers change often as biological assessments continue, and as governments add or remove species from legal designations. For current information at any time, an essential tool is ‘BC Species and Ecosystems Explorer’ on the CDC website (Table 2).

How are the lists used for conservation?

Possibly the greatest source of uncertainty regarding the various CDC and COSEWIC lists - is how can, and are, they used for species conservation? The answer is not simple, but starts with the nature of the CDC and COSEWIC as objective, science-based organizations that provide technically sound advice on the biological status of species in BC and Canada respectively.

Resource management uses

An important use of the COSEWIC and CDC assessments is to provide information on the status and biology of a species (and plant communities on CDC lists) that may be used to support management actions, for example:

- A certification body may decide to use the information to develop its standards.

- A company may decide to use the assessments for good stewardship or to meet certification standards to assist with product marketing.

Table 3. Numbers of species at risk in British Columbia.

Numbers of species and plant communities in status categories in British Columbia.

Numbers are the total number of species in the category under the column headings.

Legal prohibitions: The Act prohibits certain activities damaging to the listed species.

Information: There are no legally required resource management actions for conservation of the listed species. Actions will be required once governments place the species on a legal list under an Act.

Status information from the BC Species and Ecosystem Explorer <http://www.env.gov.bc.ca/cdc/index.html>
 Status of species is updated often so it is necessary to check the Species Explorer for current information.

Species Status Category	National Species at Risk Act	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	British Columbia Wildlife Act	Forest and Range Practices Act - Managing Identified Wildlife Strategy	British Columbia Conservation Data Centre
Extinct					
Extirpated	6	4			5
Endangered	83	104	3		
Threatened	38	45	1	37 *	583 *
Special concern	39	68		32	794
Data deficient		9			
Secure / Not At Risk	1	70		Potentially Endangered & Threatened (BC Red list)	2,887
Plant Community Status Category					
Endangered					159 *
Threatened				16 *	156
Special concern					296
Secure					

- A government agency may decide to put conditions on legal resource use approvals in the interest of conservation.
- Land use planning processes may use the information. For example, the red and blue lists were used in the early 1990's to develop protected area recommendations for the Vancouver Island Land Use Plan process. The CDC information led directly to several protected area proposals for red-listed species, and several of the proposals were accepted and designated as Ecological Reserves.
- Local governments may use the information in various processes; for example, the Natural Areas Atlas of the Capital Regional District includes some species at risk information to help inform anyone involved in responsible development.
- Government agencies may use the information to help manage various activities that directly kill animals, such as fishing, trapping or hunting, or activities such as commercial recreation that may have indirect effects.
- Government agencies may use the information to help develop guidelines or regulations to reduce risk to the species for a wide range of activities such as urban development.

It is important to consider that COSEWIC and CDC ranks are one important information source, to be considered along with other factors, in setting species priorities for conservation programs. Even so there is no end to the potential for CDC or COSEWIC information to be used to advance conservation within planning and management processes. These are important because the status ranks in CDC or COSEWIC lists do not provide legal protection for the species, communities or habitats (Figure 4). Such protections occur only if species are designated under legislation.

Federal designation of species at risk

CDC and COSEWIC assessments may be used to inform government decisions on legal designation of species at risk.



Figure 4. Some of the most endangered habitats for plants and animals in British Columbia occur in the Okanagan valley, many of which are being absorbed by urban sprawl, recreational developments, orchards, and recently vineyards. North of Osoyoos, BC. 11 March 2002 (R. Wayne Campbell).

Table 4 summarizes the federal SARA process for deciding whether or not to designate species recommended by COSEWIC (see the SARA website for more detailed information) Once a species is designated under SARA as extirpated, endangered or threatened, species and their residences have:

- Immediate protection on all federal lands, such as national parks, military bases, and Indian Reserves.
- No protection on provincial or private land unless the species is federally regulated: an aquatic species under the federal *Fisheries Act* or a migratory bird under the *Migratory Birds Convention Act*.

Table 4. Summary of actions triggered under the Canadian Species At Risk Act (SARA).

COSEWIC assesses and classifies a wildlife species: extinct; extirpated; endangered; threatened; special concern; data deficient; or not at risk.

COSEWIC provides its report to the Minister of the Environment and the Canadian Endangered Species Conservation Council, and a copy is included in the Public Registry.

Minister of the Environment indicates how he or she intends to respond to a COSEWIC assessment within 90 days.

Within nine months of receiving the COSEWIC assessment, the Governor in Council makes a decision about whether or not to add the species to the List of Wildlife Species at Risk. If no government action is taken, the species is automatically added.

When a species is on or added to the List of Wildlife Species at Risk extirpated, endangered or threatened - species and their residences have:

- Immediate protection on federal lands (except for those species in the territories that go through the safety net process described below)
 - Immediate protection if they are an aquatic species under the Fisheries Act
 - Immediate protection if they are a migratory bird under the Migratory Birds Convention Act
 - Protection through a safety net process if they are any other species in a province or territory.
-

For all species included on the List of Wildlife Species at Risk on June 5, 2003:

- A recovery strategy must be prepared within three years for endangered species and within four years for threatened species or extirpated species
- A management plan must be prepared within five years for a special concern species.

For all species added to the List of Wildlife Species at Risk after June 5, 2003:

- A recovery strategy must be prepared within one year for endangered species and within two years for threatened or extirpated species
 - A management plan must be prepared within three years for a special concern species.
-

Recovery strategies and action plans, which must include the identification of critical habitat for the species, if possible, and management plans are published in the Public Registry. The public has 60 days to comment on these documents.

Five years after a recovery strategy, action plan or management plan comes into effect, the competent minister must report on the implementation and the progress toward meeting objectives.

- Potential protection on provincial and private lands through a safety net process.

The immediate protections of SARA therefore do not apply to:

- Provincially regulated species on private land.
- Provincially regulated species on provincial Crown land such as provincial forests.

One percent of BC is federally owned land (Crown Land Factsheet, BC Ministry of Agriculture and Lands), thus provincially regulated species have no immediate SARA protections on 99% of land in BC.

Instead of imposing protection for provincial species on provincial lands, SARA contains “safety net” provisions that allow the federal government to step in and provide protection if the federal cabinet decides that a province is not doing enough to protect extirpated, endangered or threatened species. The federal government has not used the SARA safety net in BC, and is unlikely to do so. Such encroachment on the power of any provincial or territorial government would likely only happen in extreme situations. Nevertheless, the legal potential for federal interference may be one factor encouraging provincial governments to deal effectively with species at risk. Non-governmental organizations have filed court challenges seeking to require the federal government to implement the safety net in some provinces including BC. See Table 4 for more detailed information on the actions triggered under SARA.

There are no automatic protections for species designated as special concern under SARA. SARA requires that management plans be prepared for these species. Sound implementation of such plans will hopefully prevent special concern species becoming extinct, extirpated, endangered or threatened.

If the federal government decides to not legally designate the species, there are no further legal management responses.

British Columbia legal programs for species at risk

Successive BC governments have maintained that stand-alone species at risk legislation is not required, as the same result can be achieved with several coordinated Acts. There is no legal requirement that CDC lists be considered in designation of species in BC. The BC *Wildlife Act* currently provides for legal designation of bird, mammal, reptile or amphibian species as provincially endangered or threatened. Fish, plants, invertebrate species and vulnerable or special concern species are not covered. Of the 583 CDC red-listed species, or the 83 bird, mammal, reptile or amphibian red-listed species that are eligible for legal designation, four have been designated under the *Wildlife Act*. The Sea Otter (*Enhydra lutris*) is threatened, and the Burrowing Owl (*Athene cunicularia*), American White Pelican (*Pelecanus erythrorhynchos*) (Figure 5), and Vancouver Island Marmot (*Marmota vancouverensis*) are endangered. For comparison, under SARA there are 121 designated endangered or threatened, and 166 total designated, species at risk in BC (Table 3). Since the species at risk components of the *Wildlife Act* exclude fish, invertebrates and plants, it is very important for conservation in BC that the CDC provides status information on plant communities, and all taxonomic groups.



Figure 5. The American White Pelican is considered endangered in British Columbia because of a single nesting site in the Cariboo and the necessity to forage daily in shallow lakes away from the colony. Stum Lake, BC. 25 May 1993 (R. Wayne Campbell).

The BC *Wildlife Act* provides limited legal protection for the four designated species at risk noted above. It is illegal to kill or harm any of the four species. There can be protection for habitat, but only if it is first made into a “wildlife management area”. Protection of some habitat for designated species, and some other species and plant communities at risk, is also provided in protected areas such as Ecological Reserves or Parks established under other provincial legislation.

When brought into force, a BC *Wildlife Amendment Act, 2004* would allow for legal designation of all species groups (including invertebrates and plants) as extirpated, endangered or threatened, protecting any designated species and its residence anywhere on provincial lands. Plant communities or vulnerable or special concern species would not be included. A regulation is required to bring this Act into force. The regulation is expected soon but has not been passed, so the *Wildlife Amendment Act, 2004* and its improvements to species at risk conservation did not apply at time of writing. However, the BC government is reviewing the *Wildlife Act* and, as a part of this process, regulations may bring the *Wildlife Amendment Act, 2004* into force. See Table 2 for websites for the *Wildlife Act* and *Wildlife Amendment Act, 2004*. It is recommended that readers check government websites to determine any changes implemented after publication of this paper.

Although the *Wildlife Act* as it exists now provides very limited protection for species at risk, there are significant provincial management programs for some species designated under this Act and/or SARA; for example, Vancouver Island Marmot, Spotted Owl (*Strix occidentalis*), and some populations of Mountain Caribou (*Rangifer tarandus*). Recovery plan processes are also underway for many other SARA listed species in BC. The BC Ministry of Environment can provide current information on numbers and status of various recovery initiatives (Figure 6).

Under the provincial *Forest and Range Practices Act* (FRPA), an Identified Wildlife Management Strategy (IWMS) can provide habitat protection to species and ecological communities at risk, but only for activities managed under that Act. Species and plant communities that can be considered as a



Figure 6. In the Creston valley, recovery programs are presently underway to re-establish numbers of the endangered Leopard Frog (*Rana pipiens*) to former populations. Delta, MB. 29 July 1999 (R. Wayne Campbell).

“Category of Species at Risk” under FRPA include only those species that occur on Crown land and are particularly susceptible to damage from forest and range practices (Figure 7). IWMS does not apply to other species or to other development types such as agriculture, urban development or mineral exploration. The CDC red and blue lists were one of the key information sources used to develop IWMS, providing a good example of how CDC information can be used in conservation programs. However, with its restricted focus on vulnerability to impacts of forest and range practices, the list of species at risk managed through the IWMS is a subset of those on the red or blue lists. Since the red and blue lists are updated frequently, the IWMS lists should be updated using any revised ranks. The key IWMS protections apply only within Wildlife Habitat Areas, once these are legally established under FRPA. IWMS also includes other conservation processes such as protection of some ungulate (deer, elk, caribou, moose, mountain goat, mountain sheep) winter ranges. See the IWMS website for further detailed information.

Conclusion

Gaps remain in the provincial species at risk program relative to the national SARA, and relative to the provincial strategy of using several programs instead of stand-alone species at risk legislation.



Figure 7. The impact of livestock grazing, especially for grassland ground-nesting bird species on Crown land, is a sensitive issue that will require a resolution by all stakeholders in the future. Bechers Prairie near Meldrum Creek, BC. 13 October 1998 (R. Wayne Campbell).

Priorities for improvement in BC legislation should include the ability to designate all species groups, plant communities, as well as special concern or vulnerable species; actual designation of more of the priority species on the red and blue lists; protection of essential habitat as well as residences; and programs similar to FRPA/IWMS covering other development activities and threats. Also it should be a priority to develop a risk-based method of prioritizing species or plant communities for management attention and funding.

As described at the start, the question of listing and designation of species at risk is complicated. To be successful at conserving such species, anyone concerned with stewardship or responsible development should carefully determine the legal and biological status of the species or ecosystem of interest as the base for their program (Figure 8). Legal status under federal or provincial legislation can be used beneficially within the limits of the legal requirements. Where there is no legal status or requirement, success will depend on use of all available biological information along with goodwill and good negotiation reflecting that conservation of listed species is in everyone's interest and can be accommodated in successful and responsible development.

So study the situation for every species and area carefully. Best of luck in your endeavours!



Figure 8. As part of its wetland monitoring program, the Biodiversity Centre for Wildlife Studies is presently preparing a monograph on the colonial-nesting Black Tern (*Chidonias niger*) as it is a species of growing concern (yellow-listed in BC) with wildlife biologists and naturalists in the province. Dawson Creek, BC. 26 June 2007 (R. Wayne Campbell).

Acknowledgements

The authors thank the British Columbia Ministry of Environment for helpful information and comments towards this paper.