



**Manitoba  
First Nations  
Species at Risk  
Lesson Plans**



CIER, the Centre for Indigenous Environmental Resources, is a national First Nation directed environmental non-profit organisation. We offer research, advisory, education and training services to Indigenous communities, governments and private companies through our four program areas: Taking Action On Climate Change, Building Sustainable Communities, Protecting Lands and Waters, and Conserving Biodiversity.

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## WHO DEVELOPED THIS KIT?

The Manitoba First Nations Species at Risk Teaching Kit was developed by the Centre for Indigenous Environmental Resources (CIER), a national First Nations directed non-profit environmental organisation. Our mission is to help First Nations build their capacity to address environmental issues that they are facing.

## SPECIAL THANKS

Thank you to all of those who provided the beautiful photos included in this Kit.

This project was undertaken with the financial support of the Government of Canada through the Federal Department of the Environment. Funding was accessed through the Aboriginal Funds for Species at Risk (AFSAR).

We were inspired to create this Teaching Kit by the numerous First Nations youth who have shown interest in taking action towards protecting their lands, waters, and the wildlife within. The original version of the Teaching Kit was created in 2008 with valuable input from First Nations Teachers from Manitoba and Saskatchewan. The original Kit was so well received that CIER decided to update the Kit in 2012. This current version is relevant to Manitoba, and other First Nations in Canada, and contains updated lesson plans.

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*Honor all with whom we share the earth...*

*Four-leggeds, two-leggeds, winged ones,*

*Swimmers, crawlers, plant and rock people.*

*Walk in balance and beauty.*

Plains Bison (Photo: Parks Canada/W. Lynch)

*- Native American Elder*



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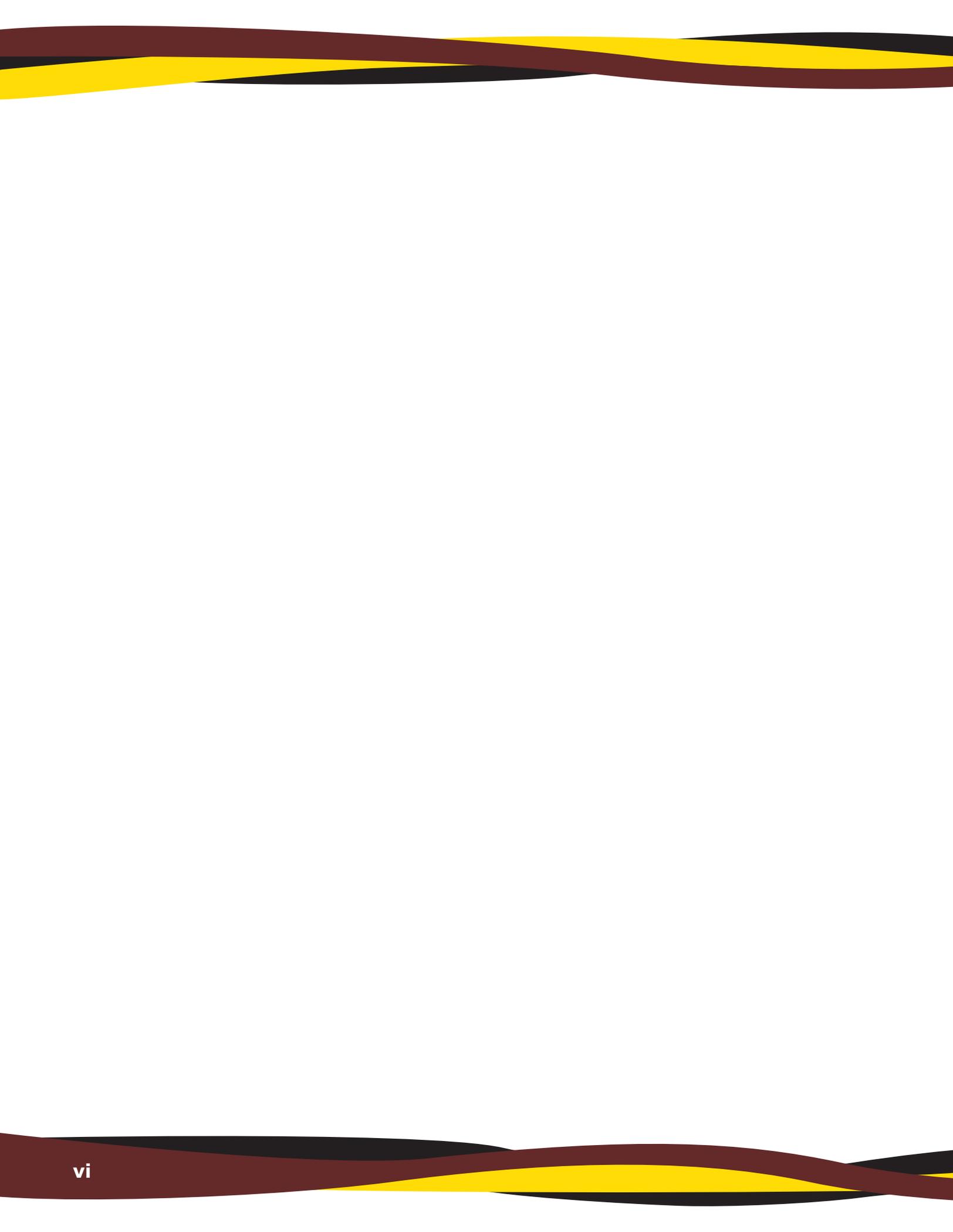
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# Guide to the Teaching Kit

## PURPOSE OF THE TEACHING KIT

The Manitoba First Nations Species at Risk Teaching Kit is designed for use in classrooms (K-12) in First Nations schools in Manitoba.

The Kit aims to help teachers engage First Nations students in learning about the role of biodiversity, threats to and loss of species at risk, and the importance of healthy habitats. The Kit also allows students and teachers to explore means for protecting and recovering species at risk and habitat within First Nations territories using tools such as the *Species at Risk Act (SARA)* and other systems such as First Nations' own natural laws.

The Kit focuses on themes that are relevant to First Nations in Manitoba and other prairie provinces, and provides examples of First Nation communities that are actively involved in protecting species at risk.

## COMPONENTS OF THE TEACHING KIT

The Teaching Kit is comprised of three components, as listed below.

### 1. Introduction to Concepts

The introduction provides background information that teachers can use to engage students in learning about biodiversity, species at risk and their threats, and links between First Nations ways of protecting species and the federal *Species at Risk Act (SARA)*.

### 2. Lesson Plans

The nine lesson plans and their associated extensions will deepen students understanding

about species at risk. The lesson plans will allow students to explore themes that are unique to First Nations, and engage them in thinking about ways that their community can become involved in stewardship of species at risk and other important plants and animals found within their territories.

### 3. Other Resources

#### 1) *Species at Risk Brain-teasers*

These games and activities include a word-find, true or false, what fits?, and cross-word puzzle to help students solidify their understanding of the basic terms and concepts about species at risk.

#### 2) *Manitoba Species at Risk List*

A list of the SARA listed species at risk that occur in Manitoba.

#### 3) *SARA and First Nations Fact Sheet*

This fact sheet describes the process through which species are protected and recovered through SARA, First Nations involvement in the SARA process, and opportunities for stewardship of species at risk.

#### 4) *Additional Resources*

This list includes websites and other species at risk teaching resources.

#### 5) *Glossary*

The glossary provides further explanations of several terms used in this Kit.

#### 6) *References*

References used in researching this Kit.



## Manitoba First Nations Species at Risk Teaching Kit

### USE OF SYMBOLS

To make this Teaching Kit user-friendly for teachers, a series of symbols accompanies each lesson plan to indicate the types of activities that will be undertaken.



The **Person Standing in Front of a Group** indicates that a presentation is required.



The **Pencil** indicates there is a written assignment.



The **Landscape** indicates that there is an outdoor activity.



The **Group of People Standing in a Circle** indicates that there is a group discussion.



The **Tree** indicates that the lesson includes talking with community Elders.



The **Drum** indicates that there is an opportunity for a traditional activity to be incorporated into the lesson.



The **House** indicates homework.

### ACTIVITY AND OTHER INFORMATION

The Activity Information section associated with each lesson plan outlines the targeted grade level, subjects, duration, and materials. The activities in this Teaching Kit are designed to integrate with existing subject areas. Given the breadth of the lesson plans, we have specified broad grade level ranges and subject area categories. Lesson plans can be tailored to meet the needs of individual classrooms. The materials needed for the lesson plan are described. The lesson plan outlines the expected learning outcomes for students from the activity. The Teacher Background section is also provided to help teachers prepare themselves and students for the lesson.

Photo: T. Ruta Fuchs



# Introduction to Concepts

This introduction provides background that teachers can use to teach students about biodiversity, species at risk and their threats, and links between First Nations ways of protecting species and the federal Species at Risk Act (SARA).

## BIODIVERSITY

Biological diversity, or biodiversity, is the variety of species and ecosystems on Earth. Biodiversity is so important because it sustains life through maintaining air, water and nutrients. Human needs are met through the diversity of species and ecosystems that provide medicines and food, as well as resources that employ many people. The diversity of life provides a source of emotional, artistic and spiritual inspiration and cultural identity to many Canadians. First Nations peoples of Canada, in particular, have an intimate cultural relationship with nature.

*'First Nations peoples have long identified themselves and each other by their cultural and economic affiliations with particular species of plants and animals.'*

*Garibaldi and Turner, 2004.*

## LOSS OF BIODIVERSITY

First Nations, scientists, and others with an interest in the natural world have noticed for some time that plants and animals are disappearing. Furthermore, First Nations have described decreases in the number of and access to other species that they rely upon for food and medicine (e.g. wild game, medicinal plants and berries). At the present

time, species are disappearing at 50-100 times the natural rate. This decline in biodiversity threatens the ecological, economic, spiritual, and cultural connections that First Nations and other Canadians have with the Earth's biodiversity (Canadian Biodiversity Strategy, 1995).

If one species disappears, it has the potential to impact many other species in an ecosystem. For example, decreases in numbers of the plains bison and prairie dogs have had a negative impact on the biodiversity of prairie ecosystems in Canada. Bison herds created disturbance and nutrients that was intimately linked with the growth of many native prairie plants. Less bison means less diversity of plants. Prairie dogs have the important function of creating burrows, that are later used by other species, such as the burrowing owl. Less prairie dogs mean less burrowing owls. So it is clear that species, including humans, depend on the well being of other species. And biodiversity is important for its own sake. When a species goes extinct, it never returns. Future generations will never know it!

Plains Bison (Photo: Parks Canada/W.Lynch)



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Impacts of the loss of species (biodiversity) are felt by all life within an ecosystem, including humans.

Elders have told us that 'We are all connected...Whatever happens in the natural world, happens to us and our children.'

### SPECIES AT RISK

All plants and animals have their own niches (places they live and roles they play) within ecosystems. If their environment is altered, some species cannot adapt fast enough and their numbers decline to the point that their long-term survival in the wild is threatened – that is, they become **species at risk**. At the present time, humans are the main cause of extinction and the principal threat to species at risk. Specific threats to species are varied, but some of the main ones include habitat loss and fragmentation. Examples include urban and agricultural development, pollution and water-taking from cities or industry, invasive species that are introduced from elsewhere but outcompete native species, climate change (e.g. including warmer temperatures and extreme weather events such as droughts and storms), disease, and over-harvesting of species.

Have a discussion in your classroom about which species are declining in number around your First Nation. Ask students what they think is responsible for this loss. Ask how they think that the loss of specific species will impact them and their families.

Have an elder share a story from your culture that relates to the interconnectedness of species with each other, and with humans.

### PROTECTION OF SPECIES AT RISK

Many First Nation's territories have landscapes that are rich in greenspace, compared with surrounding urban or agricultural areas, and provide precious habitat for plants and animals, particularly those that are species at risk. As a result, First Nations can play an important role in protecting species at risk and other wildlife.

First Nations youth are the future stewards of the lands and waters in their territories. They are important contributors to finding solutions for protecting species at risk. When First Nations youth participate in stewardship, they increase knowledge about species at risk in their communities and empower themselves and other community members to take action to protect species.

#### First Nation Youth Involvement

Youth in Poplar River First Nation are involved in a Species at Risk Education program. They are learning about local species, including the threatened Woodland Caribou, and training to collect data on species at risk. As future leaders, they will contribute information to Poplar Rivers' land use plan.



Photo: CIER

## Introduction to Concepts

### FIRST NATIONS' ENVIRONMENTAL LAWS

First Nations have always played an active role in protecting biodiversity. First Nations' own governing systems (i.e. those outside of federal, provincial, or other governing bodies) such as Chief and Council, and other groups or councils (e.g. Elders, women, and youth) often have laws specifically related to the environment. First Nations' environmental laws may not be defined by the concept of 'law' in the western world. However, there is an understanding within First Nations that these policies constitute environmental law, also known as 'Natural Law' or 'Great Law'.

#### **Menominee Nation charter for sustainable forest harvesting that they have maintained for the last 125 years:**

"Start with the rising sun and work toward the setting sun, but take only the mature trees, the sick trees, and the trees that have fallen. When you reach the end of the reservation, turn and cut from the setting sun to the rising sun and the trees will last forever" (Pecore et al. 1993).

Have a discussion in your classroom about what types of 'laws' your First Nation uses to protect its lands, waters, and species within. Invite a community Elder or resource user to help lead this discussion. If your First Nation follows a clan system, discuss the role that different clans play in the protection of lands, water, and wildlife.

### SPECIES AT RISK ACT (SARA)

The *Species at Risk Act*, or SARA, is a Canadian federal law that aims to prevent plants and animals from becoming extinct, to help in their recovery, and to protect their habitat. SARA arose as part of Canada's commitment to the United Nations Convention on Biological Diversity (for more information see <http://www.cbd.int/convention/>). The SARA is administered by the Government of Canada and applies to species and habitat on all federal lands, including First Nations reserves. The SARA provides legal protection to species at risk and their habitat.

The goal of the SARA is closely aligned with the goal of many First Nations' environmental laws - to ensure that plant and animal species are around for future generations.

SARA recognizes that First Nations and other Aboriginal peoples of Canada, due to their strong spiritual, cultural, and economic ties with the natural environment, have a unique role to play with respect to protecting species at risk. For this reason, the Act asserts the need for their involvement throughout the SARA process.

For more information about how the SARA process works and how First Nations can be involved, please see the fact sheet entitled SARA and First Nations in this booklet on page 84-85.

Photo: CIER



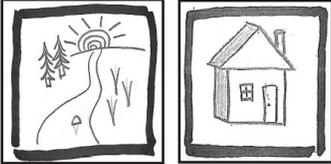




# **Lesson Plans**

## Lesson Plan # 1

# Species at Risk Survivor



**SUMMARY:** Students will learn about species at risk in their community and the importance of habitat through playing a matching card game, creating artwork that represents species that will need to survive (as part of the next activity), and doing an outdoor 'Species at Risk Survivor' activity (using the created artwork).

## ACTIVITY INFORMATION

**Level:** Grades K-3. Activities can be adjusted for grade level.

**Subjects:** Species at Risk, Habitats, Art, Language Arts, Science.

### Estimated Duration:

Three class periods, or approximately 2.5 hours.

1. Introduce the topics of species, species at risk, and habitat by playing a matching game using pictures of species at risk and their habitats (30 min).
2. Create artwork representing species at risk habitat for the Species at Risk Survivor game (homework as needed to finish creating items for the game) (45 min - 1 hr)
3. Play Species at Risk Survivor outdoors (45 min - 1 hr).

**Materials:** Whiteboard or chalkboard, markers/chalk, flashcards or recipe cards (at least 8, all the same colour), pictures of four species at risk (2 of each), pictures of habitat, ice cream pails or buckets (enough for teams or groups, number dependent on class size), art supplies for habitat items (e.g. paper plates, crayons, markers, branches, cotton balls, rocks, paint, glue, stapler, construction paper, scrap wood blocks with smooth surface to paint on, and name tags (enough for the entire class)).

## LEARNING OUTCOMES

Students will learn about:

- Species and species at risk.
- Habitat and what species need to survive.

## TEACHER BACKGROUND

Habitat is the place or environment where an organism lives; the place where it grows, feeds, rests, and has offspring. Species are unique living organisms and often, species have unique habitat needs. Species can easily become 'species at risk' if they no longer have habitat that provides them what they need to survive.

First Nations lands often provide important habitat for species at risk and other plants and animals because large tracts of undeveloped land exist. As such, First Nations provide a pivotal role in protecting and recovering these species. Games, artistic activity, and getting outdoors are all fun ways to capture the imagination of children and introduce the topics of species, species at risk, and habitat.

## TEACHER PREPARATION

Find out which species at risk might be in/nearby your community. See the list of Species at Risk in Manitoba provided in this lesson plan booklet (pg 78-82). You can also visit the Environment Canada website on species at risk in Canada at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) to explore the range maps for these species. If there are no federally listed species at risk that may live nearby, ask an elder or someone familiar with the area about culturally significant species that are of concern.

For the matching game, choose four species (species at risk if possible) that may live in your local area: a plant, a mammal, a reptile, an amphibian or fish, and a bird. Next, create the matching game cards. Younger grades can match the species to the same species. Older grades can match the species to their habitat. For younger grades, print off 2 copies of coloured pictures of each species. For older grades, print off a coloured picture of the species and a picture of habitat to match. For example, a picture of a woodland caribou could be matched to a picture of the boreal forest. Size pictures for flashcards or recipe cards. Glue the pictures onto the cards that will become your flashcards for the matching game.

For the Species at Risk Survivor game, research the habitat needs of your chosen species. Choose four habitat items for each species. Ask yourself questions such as:

1. Where does the species have or raise their young?
2. What do they eat?
3. What eats this species?
4. What other habitat features do the species need to survive?



Examples of habitat items:

Red-headed Woodpecker (bird):  
a nest cavity, an insect or an acorn, an eagle, and a tree.

Woodland Caribou (mammal):  
an island, lichen, a wolf, and a forest.

Small-White Lady's-slipper (plant):  
a meadow, soil, deer, and sunshine or a pollinator (e.g. a bee).

Northern Leopard Frog (amphibian): a marsh, an insect, a heron, and a lily pad

Collect art supplies for students to create the habitat items.

Choose an outdoor area, around the school to hide the different species' habitat items in preparation for the Species at Risk Survivor game.

## METHODS

### Step 1. Introduction

Using the flashcards you made, introduce the class to local species at risk. Discuss what a species at risk is, and how a species can become at risk. Then talk about the habitat needs for each species. You can get students to brainstorm what the species would need to survive, and keep a list on a chalkboard or whiteboard. The list can be used as a class reference during the next activities.

### Step 2. Play the Species at Risk Matching Game

The matching game will help to familiarize students with local species at risk and their habitats. Younger grades can match the species to the same species. Older grades can match the species to their habitat.

Ask the students to sit in a circle to play the matching game. Shuffle the flashcards

## Manitoba First Nations Species at Risk Teaching Kit

and lay them in rows, upside down, then ask students to select cards and find two of a kind. If students guess wrong, the cards are then flipped over and the next student guesses. Cards that are guessed correctly remain upright until all cards are played. You may want to play a few rounds of this for students to familiarize themselves with the species at risk.

### Step 3. Create Habitat Items for Species at Risk Survivor

Students will create artwork that represents what species need to survive (e.g. food, shelter) for the Species at Risk Survivor game. Using the brainstorming list or previous research, provide students with ideas for four habitat items and the art supplies. Some ideas may be painting rocks to look like bugs (lady bugs, spiders, flies, etc) that species at risk birds, fish, amphibians and reptiles eat, or building nests using branches, straw, and cotton balls. Paper plates and scrap pieces of wood blocks with a smooth surface may be used to draw images or words of habitat characteristics such as water, sunlight, soil, trees, or other animals and plants that species at risk eat (smaller mammals, fish, etc.).

Allow students time to create their four items. If they need extra time, homework can be assigned to them to finish their items.

### Step 4. Species at Risk Survivor Game

Prepare for the survivor game before the class period by hiding or placing the habitat items that the class created in an outdoor setting. You can enlist the assistance of a teacher's aid or volunteer parent for this task. Remind students to dress for the weather since this activity is outdoors.

For the Survivor game, student groups will be designated a species at risk and search to find and collect the habitat items that represent what they need to survive.

Divide students into four groups and designate each a species at risk that was discussed in class (name tags can help to designate the groups e.g. the caribou group, the leopard frog group etc). Give each group a pail/ bucket and ask them to search for items that they would need to survive. Once all items have been gathered, each group would show the class what they collected and explain why they would need those habitat items to survive.

### Matching Game Extension

For older grades, you can increase the number of cards and the difficulty by incorporating images of specific habitat features that relate to the species.

Example:

Initially, you could match a picture of the monarch butterfly with a picture of a wildflower meadow (the habitat). To increase difficulty, delve deeper into specific habitat needs. For example, the monarch butterfly depends on the milkweed plant for survival. The mother butterfly seeks out milkweed plants to lay her eggs on, and the caterpillars feed on the plants until they become butterflies. In this case, a picture of the monarch adult butterfly or a picture of the monarch caterpillar can be matched with a picture of the milkweed plant (either match would be correct).



Photo: CIER

**EXTENSIONS****Extension 1. Species at Risk Survivor Showcase**

Students can combine all the artwork items collected from Species at Risk Survivor to create a display collage entitled "Species at Risk Survivor: (insert name of your First Nation)". Items can be stapled or glued down in a medium sized box as a group collaborative art project to showcase their efforts for their class and to the school. This could also be used as a submission for a school science project or fair!



Photo: CIER

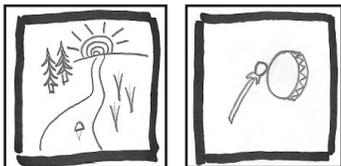
**Extension 2. Snapshot Species at Risk Survivor**

Materials: Digital cameras (enough for each group), computer, printer, paper suitable for printing photographs, poster paper, glue, and a stapler.

Students can be divided into four groups. Each group will be designated a species at risk that was discussed in class and receive a name tag of their species. Rather than create the items using art supplies, students can use digital cameras to capture the image of the habitat feature (tree, rock, soil, nest, water, sunlight, bugs) during pursuit for items that they would need to survive in the wild. Pictures can then be printed off, cut, and pasted onto a poster for each species.

## Lesson Plan # 2

# Migration Madness



**SUMMARY:** Students will learn about migration and threats to species at risk in a physical activity game that involves the entire class.

### ACTIVITY INFORMATION

**Level:** Grades 4-6.

Extension 2. of this lesson plan describes an activity for older grades, e.g. 7-12, that allows students to create their own migration game.

**Subjects:** Species at Risk, Habitats, Migration, Language Arts, Science, Social Studies.

**Estimated Duration:** One class period, or approximately 1 hour.

- Discuss migration, threats, local species at risk and play the Migration Madness game.

**Materials:** Hoops (e.g. Hoola Hoops), whistle or other noise maker, and a stop watch.

### LEARNING OUTCOMES

Students will learn about:

- Migration and how it affects species at risk
- Threats to species at risk

### TEACHER BACKGROUND

Migration can be defined as the seasonal or periodic movement of animals from one area to another. Animals migrate in order to stay alive – they do it in response to changes in climate, in order to access food, or to get to a safe place to raise their young.

Although species at risk migrate in order to survive, they also face a number of threats along the way. Some risks that animals face during migration are natural threats such as predators. Other threats are human-induced. Humans contribute greatly to the loss and alteration of habitat, such as loss of wetlands or woodlands that can impact the ability of migrating species to find food and shelter. Humans also create structures such as dams and buildings that can limit the movement and survival of migrating species.

In Canada, loss of habitat impacts a number of migrating species at risk, including the woodland caribou, monarch butterfly, polar bear, lake sturgeon, and burrowing owl. This game allows the students to experience the variety of pressures that migrating birds, mammals, fish and insects experience during their seasonal treks.



Photo: M. Gillespie

### TEACHER PREPARATION

Choose one of the species at risk highlighted in the text boxes at the end of this lesson plan: burrowing owl, monarch, polar bear, or lake sturgeon. Each species has different challenges and threats during migration that will affect the game play.

#### Migration Madness Game Set-up:

Select a space with plenty of room for students to run, such as an outdoor field or gym. One side of the space represents the summering grounds and the other side represents the wintering grounds for the species at risk. Each hoop represents suitable habitat. Lay out hoops at opposing ends of the chosen space. The number of hoops set up will be dependent upon the number of students playing the game – each hoop can likely fit up to 2 students. So, if you have a class of 20 students, start out by setting up 10 to 12 hoops at both ends of the space.

### METHODS

To explain the lesson, we will use the burrowing owl as an example species.

#### Step 1. Introduction

Before starting the game, briefly describe the species at risk you will be focusing on (e.g. the burrowing owl) and some of the fascination facts about the species (see text boxes at the end of the lesson plan). Introduce the topic of migration.

Suggested discussion points:

- What do burrowing owls do when they are here in the Canadian prairies for the summer?

- Why do they travel south for the winter?
- What are some challenges species will face while migrating?

#### Step 2. Play the Migration Madness Game

Explain to the students that they will be playing a game where they pretend to be migrating burrowing owls.

#### Game Play Guidelines

##### Summering Ground

Have the students find a place in a habitat in the summering ground (maximum of two students per habitat). Each student will be a burrowing owl that has hatched and is emerging from its burrow, but the winter is coming and they have to fly south.

##### Wintering Ground

Blow the whistle to signal the end of summer. Students must make their way (migrate) across the field or gym to the wintering grounds at the other end. At this initial stage of the game, all students should be able to find habitat to over winter in (remember that each hoop can hold two students). For the burrowing owl, the hoops will represent abandoned burrows that they can take shelter in.

##### Predators

Now introduce predators to the game. For burrowing owls, a common predator is the hawk. Burrowing owls are protected in their burrows (i.e. the hoops) from the hawk. But when the burrowing owl leaves the wintering ground and migrates to the summering grounds the hawk can tag the students out. Ask for 1 - 2 volunteers to play the hawks.



Burrowing Owl (Photo Geoff Holyoak)

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Explain to the hawks that they will try to tag as many burrowing owls as they can during the migration, but once the owls have one foot in a hoop they are safe.

Blow the whistle to signal the end of winter. Students must now get to the other side without being tagged by a hawk. Tagged students must go to the sidelines.

Once students are in the summering ground, tagged students can be brought back into the game as newly hatched burrowing owls.

Let the students migrate south and north again with the hawks trying to tag them.

### *Threats to Habitat*

Remove a quarter of the hoops. Explain that while the owls were enjoying their habitat in the Canadian prairies (i.e. the summering grounds), some of their habitat in the wintering grounds has been lost. This happened because some badgers and ground squirrels were trapped, and so they were not able to dig the burrows that burrowing owls rely on.

Blow the whistle to signal another migration. Students must now try to find habitat. As there will not be enough hoops for the number of students that are migrating, students who do not find a suitable habitat will go to the sidelines.

See text boxes about species at the end of this lesson plan for suggested scenarios that demonstrate the loss of habitat.

### *Other Scenarios*

From here, explore other scenarios between migrations as students migrate back and forth to demonstrate the challenges of migration for species at risk.

After trying a few scenarios or even other species at risk (see text boxes for ideas), discuss the implications of migration and threats to species at risk such as those demonstrating in this activity.

Suggested discussion points:

- What happens when habitat is removed?
- How is migrating difficult for species at risk?
- What are some ways we can help species at risk?
- Why do different countries and peoples need to work together to protect migrating species at risk?

## EXTENSIONS

### Extension 1. Migration Pen Pals

Have your class write letters or create artwork about a migrating species to send to pen pals in another classroom within Canada or another country. For example, monarch butterflies migrate from Canada to Mexico, so your classroom could correspond with students in Mexico to share monarch-themed artwork or stories about how your class is learning about monarchs. Check out the Monarch Teacher Network pen pal project at [www.monarchteacher.ca](http://www.monarchteacher.ca).

### Extension 2. Create A Migration Game

Older grades can learn about species at risk and migration through creating their own game.

**Level:** Grades 7-12.

**Materials:** Materials from nature (e.g. sticks, rocks, wood, etc.).

#### **Guidelines:**

- Class discussion about migration.
- Elder visit to the class to describe and/or play some traditional games and discuss the role that games play in the culture of your First Nation.
- Students groups work to create a game or alter an existing game so that it can teach a lesson about migration and species at risk.

## Lesson Plan # 2

## Migration Madness

- Each group will develop the objective and rules of their game.

Example objectives: Migrate successfully from a summering ground to a wintering ground and back again. The first player to complete a full migration wins the game. OR, the highest number of animals to successfully make it to the wintering grounds wins.

The rules of the game should integrate some of the threats that animals face while migrating. The rules should also incorporate actions that would reduce risks to species (e.g. landowner sets aside habitat for a species at risk).

- Create game pieces from natural materials (e.g. rocks, sticks, cones, wood, etc.). Students may also need to create the game 'surface' (e.g. wood or cardboard). Alternately, the 'surface' can be an open field - if the game is played outdoors.
- Class time and homework to develop the game and test out functionality on friends and family.
- Introduce the games at your next school or community event (e.g. powwow, cultural days). Older students could play the game with younger students that they mentor.

## REFERENCES

- Canadian Wildlife Service, Hinterland Who's Who website:  
<http://www.hww.ca/en/species/birds/burrowing-owl.html>  
<http://www.hww.ca/en/species/mammals/polar-bear.html>
- COSEWIC Assessment and Update Status Report on the Sturgeon, *Acipenser fulvescens* in Canada (2006)', retrieved from: [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)
- Department of Fisheries and Oceans website: <http://www.dfo-mpo.gc.ca/species-especies/species-especies/sturgeon3-esturgeon-eng.htm>
- Monarch Watch website: [www.monarchwatch.org](http://www.monarchwatch.org)
- Species at Risk Public Registry website: <http://www.sararegistry.gc.ca/species>

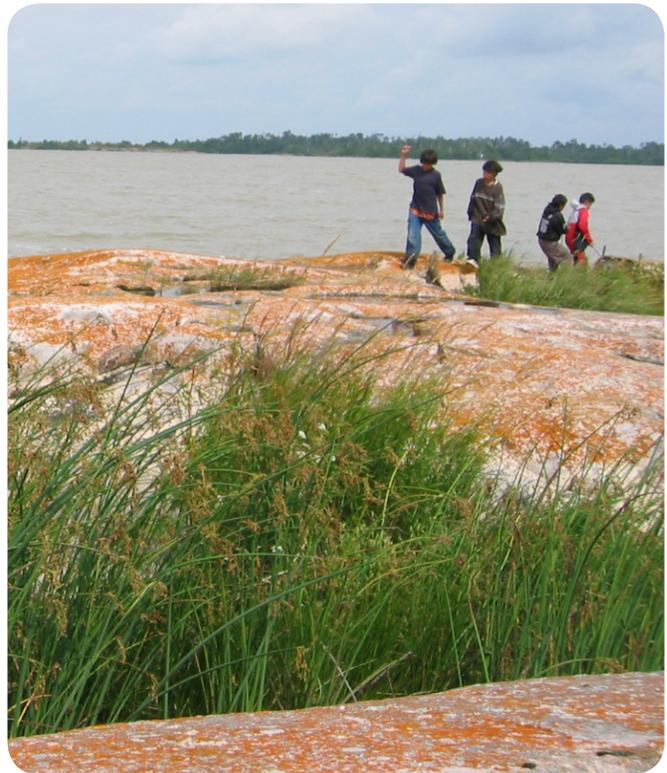


Photo: Poplar River First Nation/T. Ruta Fuchs

## Burrowing Owl (Endangered)

### Fascinating Facts:

- Burrowing owls are small, weighing less than 185 grams, and standing about 20 centimeters high.
- They remain in their breeding grounds in the Canadian prairies from April to September. In September, burrowing owls migrate up to 3,500 km south to Texas and central Mexico. Less than 1,000 breeding pairs return to Canada every year.
- They don't dig their own burrows, but use abandoned burrows for breeding and shelter, often made by ground squirrels, prairie dogs, and badgers.
- The owl can make numerous sounds including a hiss, similar to a rattle snake, for warding off predators.

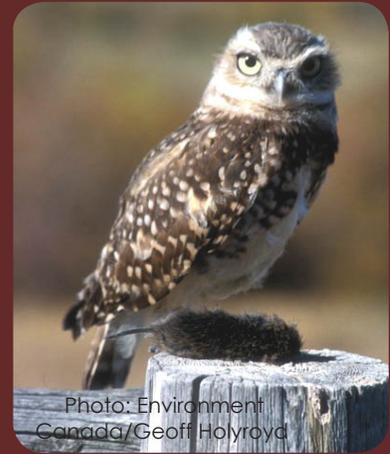


Photo: Environment Canada/Geoff Holyroyd

### Habitat

- Summering grounds: Abandoned burrows on open short grass fields in southern Canadian prairies
- Wintering grounds: Abandoned burrows southwestern USA and Mexico

### Threats

- Limited burrows. Animals that create burrows are often considered to be pests by farmers and other landowners, so they are often actively displaced or trapped. As a result, burrows become increasingly rare, effectively limiting habitat for the burrowing owl.
- Pesticides. The use of pesticides decreases insect food sources for the burrowing owl.
- Loss of suitable habitat from development in both summering and wintering grounds.

### Additional Migration Madness Game Play Ideas:

- Pesticides can eliminate suitable habitat because it reduces the amount of available food (remove more hoops).
- Building roads and tilling soil also removes suitable habitat (remove more hoops).
- Reduce habitat only in the summering ground in the Canadian prairie to demonstrate that species at risk need their habitat to be healthy in both the summering grounds and wintering grounds. Alternately, even if the summering habitat is ideal, animals will be at risk if wintering habitat has been lost.

### Monarch Butterfly (Special Concern)

#### Fascinating Facts:

- The monarch is a large butterfly (wingspan of about 10 cm).
- Monarchs travel up to 5,000 km to the south to roosting grounds, farther than any other insect on the planet! They do this because they cannot survive our long, cold winters.
- Incredibly, monarchs travel to the same roosting grounds, and even the same trees, that their great-great grandparents used.
- Upon their return to the north in the summer, monarchs must find milkweed plants upon which to lay their eggs for the emerging caterpillars to eat. Milkweed is essential to monarchs as it contains a bitter poison that is stored in their bodies. While the poison doesn't harm the monarch, they become less palatable to predators such as birds.

Photo: T. Ruta Fuchs



#### Habitat

- Summering grounds: Milkweed plants and meadows in southern Canada.
- Wintering grounds: Trees in California and northern Mexico.

#### Threats

- Predators such as birds.
- Herbicides and pesticides. Particularly the use of herbicides on milkweed, their food source. And pesticides that can harm Monarch caterpillars.
- Loss of winter roosting habitat due to deforestation in California and Mexico.

#### Migration Madness Game Play Ideas:

- When students (i.e. the monarchs) travel south to wintering grounds, eating milkweed can protect them from being eaten by predators.
- The monarchs must return to the same location in their wintering grounds. Identify each hoop with a masking tape and a number or symbol. Give each student a piece paper that matches the symbol on the hoop (i.e. their roosting tree) - they must return to the same tree each winter.
- Habitat is destroyed in the wintering grounds due to deforestation (remove hoops).
- Pesticides kill milkweed plants in the summering grounds (remove hoops).

### Polar Bear (Special Concern)

#### Fascinating Facts:

- Polar bears have fur made of long, hollow hairs that provide insulation and make them well-suited for cold weather, snow, and ice. Polar bears are able to live on the frozen sea when the winter arrives.
- Once on the ice, polar bears can hunt seals at breathing holes, providing them with a bountiful source of nutrition.
- As the sea ice recedes, the bears return to the main land. Pregnant mothers move to denning grounds. The males remain near the coast awaiting the winter and surviving from their fat stores.

#### Habitat

- Summering grounds: Denning grounds on the mainland in northern Canada.
- Wintering grounds: Sea ice.

#### Threats

- Predators. Humans hunt polar bears. Polar bears don't have many other predators, but wolves occasionally take a polar bear cub.
- Climate change. Warmer weather in the north, resulting in later freeze up and earlier break up of sea ice, is a considerable threat to polar bears. These conditions mean that their time to hunt seals, the major food source for these bears, is much less.

#### Migration Madness Game Play Ideas:

- Instead of hoops, set up the wintering ground with containers (such as a hat or box), each representing holes in the sea ice. Place a dozen folded pieces of paper in the container: half blank and the other half with a picture of a seal. When students (i.e. the polar bears) arrive at the wintering grounds, they must find 3 seals and return back to the summering grounds. Collect seals from the students upon their return. Students without enough seals will not survive. Explain that sea ice is disappearing sooner each year due to the effects of climate change. Polar bears will have less time on the ice to hunt all the seals they need to survive over the summer.
- Another round: Return the seals to the containers. This time, set a timer to 60 seconds and count down the last ten seconds signalling that students have to be back at the summering grounds. Give the students less time on each additional round (50, 40, 30, 20 and so on).

Photo: D. Gladu



**Lake Sturgeon (COSEWIC status Endangered, not currently listed under SARA, but being considered)**

**Fascinating Facts:**

- Lake sturgeon are valued by many First Nations as food, medicine, and for materials (e.g. drum coverings made of the skin).
- These fish are a long-lived, some older than 125 years! They can be as large as 180 kilograms and up to 3 metres in length.
- They migrate seasonally to spawning rivers every spring when the ice thaws. Spawning rivers generally have swift moving currents where eggs are laid. Summers are spent in shallow waters before returning to the deeper waters of lakes and larger rivers.

Photo: Department of Fisheries and Oceans



**Habitat**

Summering grounds: Shallow spawning sites in fast-moving rivers.

Wintering grounds: Deep lakes such as Lake Winnipeg.

**Threats**

- Over fishing was the main historical threat to this species.
- The largest current threat to lake sturgeon is hydroelectric dams. Dams can impact movement during spawning, disrupt seasonal habitat, and affect timing of spawning.
- Pollution of waterways from human practices such as forestry or farming are also threats.

**Migration Madness Game Play Ideas:**

- Lake sturgeons travel along rivers to arrive at spawning areas. Use a long rope or other border to create winding river banks that students must travel between.
- Fishers are over exploiting the lake sturgeon. Choose 1-2 students to fish for lake sturgeon and tag out students (similar to other predators). With successive rounds, add new fishers from students on the sidelines.
- A hydro dam is built in the river. Have some of the students play as parts of the dam, these students will link hands and stretch out across a river from bank to bank (alternatively, students can hold up a ropes or hoops). The students playing as the sturgeon must past between legs and arms of the chain of students representing the dam without using their hands or falling down. Students acting as the dam can actively stop the sturgeon, but they cannot move their feet or disconnect hands.

## Lesson Plan # 3

# Story-telling and Creating a Species at Risk Book



**SUMMARY:** Students will learn about species at risk and/or culturally important plants and animals in their community through local Aboriginal Traditional Knowledge, and create a book about plants and animals to share local teachings with other students and the larger community.

### ACTIVITY INFORMATION

**Level:** Grades K – 6, 7-12. Activities can be adjusted for grade level.

**Subjects:** Aboriginal Traditional Knowledge, Art, Species at Risk, Habitats, Science, Social Studies, Language Arts, First Nations Languages.

#### Grades K-3, 4-6

Estimated duration - 3 class periods or approximately 3 hours.

1. Tell/read a story about a local plant or animal at risk.
2. Students listen, write and draw the story. Homework as necessary.
3. Share the stories.

#### Grades 7-12

Estimated duration - 4-5 class periods or approximately 4-5 hours.

1. Introduce the project, prepare questions to ask a local expert.
2. Have an invited local storyteller (e.g. Elder/ other) come in to talk about local plants

or animals at risk. Students listen and ask questions.

3. Write and draw a book about local plants/ animals inspired by the local storyteller. Homework as necessary.
4. Share the stories.

**Materials:** Notebooks, pens, paper, and art supplies (e.g. pencil crayons, paints, pastels, etc.).

### LEARNING OUTCOMES

Students will learn that:

- Species at risk and/or culturally important species exist in their own community
- Aboriginal Traditional Knowledge exists in their own community
- Youth can contribute to this knowledge base to inform others
- Stories and artwork are an important way to share thoughts and information

### DEFINITIONS

'Culturally Important Species' may be defined as any plants and animals that are important to your community. These species may be a part of your community's diet, used in medicines, as materials, or have a special place in the culture of your people (e.g. part of your language, ceremonies or stories).

**Aboriginal Traditional Knowledge** can be defined as 'the knowledge that Aboriginal people in a given community have developed over time, and continue to develop. It is based on experience, often tested over centuries of use, adapted to local culture and environment, and is dynamic and changing' (IIRR 1996).

### TEACHER BACKGROUND

Storytelling is an integral part of many First Nations cultures, and stories have traditionally been passed down orally, from one generation to the next. This exercise combines the oral tradition of listening to stories to learn about the environment, with documenting these stories and creating artwork in a book. This can help youth to connect with the teachings. The conservation messages in their stories and artwork could also inspire other community members.

Individuals from your community such as Elders and resource users (e.g. hunters, trappers, gatherers) that have spent extensive time observing plants and animals in the local environment have a great depth of 'Aboriginal Traditional Knowledge' (see text box above), that can be shared with youth.

Hearing stories about species at risk and culturally important species from local experts with real life experience can inspire community youth to spend more time exploring their environment in order to gain their own knowledge.

### TEACHER PREPARATION

Select a story or local storyteller that can help introduce the concept of species at risk or culturally important species.

For the younger grades (K-6), an existing story can be used. Ideally, select a story about a species that is within or near your First Nation, or one that occurs in your province, and that incorporates Aboriginal Traditional Knowledge. See 'Suggested Stories' at the end of this lesson plan for story options.

Alternately, invite an interested local storyteller into the classroom to tell their stories about local plants and animals and concepts of conservation. Ask someone in your community, such as an Elder or other community member that is familiar with the lands, waters, and plants and animals in your territory.

To help you select a story/local expert for the class, you may want to find out what species at risk are within/near your First Nation or province. See the Species at Risk in Manitoba list in this booklet (pg 78-82), and visit the Environment Canada website on species at risk in Canada at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca).

Monarch Butterfly (Photo: Robertvk5)



## Manitoba First Nations Species at Risk Teaching Kit

### METHODS - Younger Grades (K-6)

#### Step 1. Introduction through Storytelling

Introduce concepts of species at risk, culturally important species, and Aboriginal Traditional Knowledge through a story about a local plant or animal at risk. Inform the students that they will be creating their own book based on the story that they hear. You can read the story aloud yourself, or invite a guest storyteller in to read the story or tell their own story. Have the students listen to the story, then ask any questions they might have about the story.

#### Step 2. Creating the Books

You can choose to create the story book as a class (this may work best for younger grades e.g. K-1), or have each student create their own books.

To get started, review the story:

- Which species at risk or culturally important species was the story about?
- How did the story start?
- What challenges did the species face along the way?
- How did people harm or help the species?
- How did the story end?

A suggested guideline that students can follow for writing and illustrating their book is:

1. Beginning (1 page) - Describe how the story began. Draw the plant/animal that the story is about.
2. Middle (1-2 pages) - Describe and draw the main sequence of events of the story.
3. End (1 page) - Describe how the story ended and draw a picture to illustrate this. Add students' own thoughts about how people can help plants/animals, and what they liked about the story or why the story was important.



#### Step 3. Finishing the Book

Gather the students' pages and bind them together into books (e.g. laminate front and back covers and use a coil ring to bind together). Print several copies as budget allows.

#### Step 4. Sharing and Storing the Book

Once books are completed, students can share them with their class. The teacher can read the stories, or excerpts from them, aloud to the rest of the class. The books can also be put on display for a wider audience such as at a school or community event.

### METHODS - Older Grades (7-12)

#### Step 1. Introduction

Introduce the book project and concepts of species at risk, culturally important species, and Aboriginal Traditional Knowledge. Inform the students that there are many stories in their own community that can teach about local species.

Tell them you will be inviting knowledgeable storyteller in to talk to the class to inspire and inform them for creating their own stories.

Work with the students to prepare questions that they will ask the storyteller. For example,

- Why do you think plants/animals are important to our community?
- Are these plants/animals decreasing or disappearing? If so, why? If not, what protects them?
- What do you think our community can do to protect species or their habitats?

In addition to the stories they will hear, these questions will provide information for the student's books. You may want to assign certain students the prepared questions to ask once the storyteller is done.

### Step 2. Storytelling

Have the guest storyteller tell their stories and thoughts about local plants and animals at risk. When they are finished, the students can ask their questions and take notes as needed. Encourage the students to ask additional questions and tell their own stories about local species in preparation for creating their books.

### Step 3. Creating the Books

#### A) Writing

Help the students get started by reviewing what was discussed with the storyteller. For example,

- Which species at risk or culturally important species did they talk about?
- How did they learn about these species (e.g. spending time in nature, etc.)?
- Are there common concerns about these species?
- What general types of activities can the community do to improve conditions for these species?
- What did you enjoy about talking with the 'local expert' storyteller?

Notes on these discussion points can be put on chart paper for the class to refer to while they work on their books.

Suggested guideline for writing the book:

Introduction (1 page) - Overview of the book topic. This may include: what species their book is about, and reasons for concern for the species in their community. A thank you to the storyteller or others who inspired the book is a nice addition.

Main Pages (2-3 pages) - A story, experience, or lesson about species at risk or a culturally important species. This can be inspired by the guest storyteller, or come from a student's own personal experience.

Conclusion (1 page)- Students' own thoughts about the importance of plant/animal species to their community and/or how they are inspired to help protect species and their habitats. Title - Each student should write a creative title for their book to include on the cover page (see B) Illustrating).

#### B) Illustrating

1. Cover Page (1 page) - The cover page should include the book title and an illustration that represents the book topic. Cover illustrations might reflect interconnections between humans and other species, species at risk, or ecosystems.

2. Main Pages - Tell students that when they are writing, they should plan where they want illustrations for their book. Students can illustrate the main pages to reflect their writing. Students may also feel more comfortable starting with a series of illustrations that they can then add words to.

### Step 4. Finishing the Book

Same as in Methods - Younger Grades (K-6).

### Step 5. Sharing and Storing the Book

Same as in Methods - Younger Grades (K-6).

### EXTENSIONS

#### Extension 1. Translate the Book

Once all of the text for the book has been completed, have the class work with a language teacher to translate the text of the book into their local language.

#### Extension 2. Book Launch

Hold a 'Book Launch' to share the Species at Risk Book and increase awareness about species at risk and culturally important species in the school and in the larger community. Make the book launch a public event at a location (e.g. school gym, community hall) where the book can be displayed and discussed.

Organize the book launch by creating posters to advertise the event, and having refreshments and door prizes to draw people in. Invite parents, other family members, and the storytellers that visited the classroom, to the event. Have students volunteer to give brief descriptions of the books at the event.

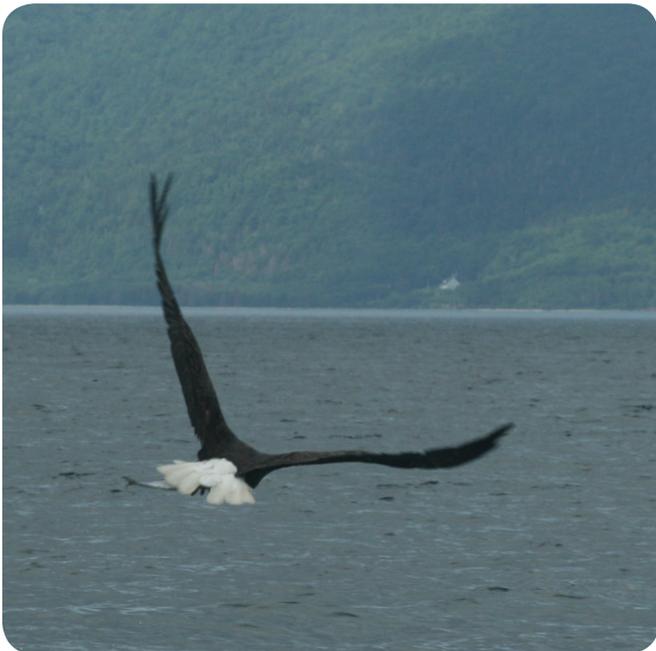


Photo: T. Ruta Fuchs

### SUGGESTED STORIES

#### **Nanabosho: Soaring Eagle and the Great Sturgeon**, by Joe McLellan, illustrated by Rhian Brynjolson.

Pemmican Publications; ISBN 0-921827-23-7; 1993. pp. 48. Ages 6-11 (grades 1-6). In this Ojibwa legend, Soaring Eagle is left with no food for his family for the winter. Trout takes pity on him and shows him how to catch as many fish as he needs. When Soaring Eagle grows greedy, however, the results are nearly disastrous. Note: On the last page of the book, there is some information for the reader on the history and current status on the sturgeon, described as a "vulnerable" species.

**Isabel's House of Butterflies**, by Tony Johnston, illustrated by Susan Geuvara. Sierra Club; ISBN 0871564092; 2003. pp. 32. Ages 4-8 (preschool to grade 3). Set in rural Mexico, this is the story of a young girl who enjoys the sight of thousands of Monarch butterflies (a species at risk) roosting in her favourite tree. A dry year and cold winter will mean having to cut down the tree – unless Isabel can think of another way to save both her family and the 'House of Butterflies'.

#### **Keepers of the Animals: Native American Stories and Wildlife Activities for Children**,

by Michael J. Caduto & Joseph Bruchac. Fulcrum Publishers; ISBN 1-55591-088-2; ISBN-1-55591-107-2; 1991. pp. 266. Grades K-12. This book is a compilation of twenty-four stories from a variety of Native American traditions. Each story has associated background information on culture and animals, discussion questions, and activities.

### REFERENCES

IIRR. (1996). *Recording and Using Indigenous Knowledge: A Manual*. Silang, Cavite, Philippines: REPPKA, International Institute of Rural Reconstruction and Pact Publications, 777 United Nations Plaza, New York, NY 10017 USA.



## Lesson Plan # 4

# Save a Species at Risk Campaign



**SUMMARY:** Students will create a campaign poster to motivate others to protect and recover local species at risk. Students will conduct research on local species and use artwork to communicate their message.

### ACTIVITY INFORMATION

**Level:** Grades 4-12

**Subjects:** Science, Social Studies, English Language Arts, Habitat, Communications, Species at Risk, Conservation Biology.

**Estimated duration:** Four class periods, or approximately 4 hours

1. Learn about action for conservation of species and identify species to be used in students campaigns.
2. Conduct research on the species (homework as needed).
3. Create campaign materials and artwork (homework as needed).
4. Present the campaign posters to the school or community.

**Materials:** Poster paper, art supplies (pencil crayons, pastels, paints etc.), images of species at risk, glue, scissors.

### LEARNING OUTCOMES

Students will learn:

- About local species at risk in their area

- Ways people can take action for species at risk
- How to develop a campaign to motivate others
- Communication through artwork

### TEACHER BACKGROUND

Scientists and governments do research and work to conserve species. However, meaningful conservation action can also come from community members working together. This is a successful way to make a difference for species at risk. For example community clean-ups, habitat restoration, monitoring, and outreach events.

First Nation youth can be an important catalyst for conservation action in a community. They can inspire others with their energy and creativity. A key step in motivating people to take action involves developing a campaign to raise awareness and knowledge in order to engage the wider community.

Species at Risk poster display (Photo: CIER)



## PROCEDURE

### Step 1. Introduction

Begin with a discussion on conservation of species and habitats and why it is important.

Suggested discussion points:

- What happens if certain species were to disappear from the wild?
- How does this impact the ecosystem and your First Nation?
- What can individuals and communities do to help?

### Step 2. Researching Species

Assign or have students select a local species at risk or culturally important species they would like to focus on. Encourage a variety of species types (e.g. mammals, birds, reptiles, insects, etc.) across the class.

Students can work individually or in small groups to conduct their research for their campaign. They should gather:

- A description of the species and its habitat
- Why the species and habitat is threatened
- Why community members should be concerned. In other words, what is the importance of the species to your community.
- Specific actions that people can take to help this species (e.g. putting up nesting boxes, monitoring populations, planting gardens or trees, etc.)

Students can conduct their research on the Internet or by talking to community members who know about the species. See Additional Resources on pg 86-87 of this booklet for useful websites.

### Step 3. Create Campaign Materials

Have students use their research to create a campaign poster featuring their chosen species. Students can draw/paint or create

### Youth Led Action for Species at Swan Lake First Nation

Swan Lake First Nation reserve near Spruce Woods Provincial Park has habitat that supports the endangered prairie skink - the only lizard in Manitoba! Swan Lake First Nation youth have been involved in surveying for these lizards in a portion of their reserve. Youth are leaders in motivating Swan Lake First Nation to work on ways to protect and restore habitat for this species at risk and other plants and animals within their reserve.

Prairie Skink (Photo: CIER)



a collage of pictures on poster paper. The poster should feature:

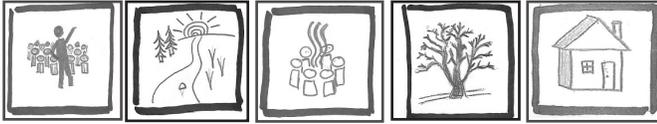
- Images of the species, the environment where it grows/lives, and threats to the species or its habitat.
- Words or short sentences to grab attention. Words can describe the species, interesting facts about its behaviour, threats to the species or habitat, and actions to conserve the species.

### Step 4. Deliver the Campaign

Displaying all of the students' campaign posters together in one area will be a powerful visual. Display the posters at a school event, or even a community event, where lots of people will be reached. The students should be present to talk about the species at risk that they focused on, and answer questions about their campaign posters.

## Lesson Plan # 5

# A Place for All of Us: Mapping Species at Risk



**SUMMARY:** The goal of this activity is for students to use maps as a tool for learning new information, for identifying areas in their community that provide important habitat for species at risk, culturally important species, and other plants and animals, and for planning how these areas can be managed for the future.

### ACTIVITY INFORMATION

**Level:** Grades 5-12.

**Subjects:** Community Profiles, Governance, Language Arts, Mapping, Native Studies, Planning, Science, Social Studies, Species at Risk and Habitats.

**Estimated Duration:** Four class periods, or approximately four hours

1. Introduce topics, become familiar with a map of your community, and place the features of the community on the map.
2. Map species at risk, culturally important species, other plants/ animals, and habitat.
3. Continue mapping.
4. Have a discussion about what the mapping process revealed and complete the planning.

**Materials:** Map of your First Nations' territory (one map for every 4 to 8 students), Mylar plastic covering (if map needs to be reused), masking tape, different coloured markers, and pencils.

### LEARNING OUTCOMES

Students will learn:

- About species at risk and/or culturally important species in/near their community
- That maps can be useful tools for their community
- Mapping skills
- To recognize the habitat needs of species at risk
- About community planning, and finding a balance between human activities and the habitat needs of plants and animals

### TEACHER BACKGROUND

Are species at risk and their habitat found in or near your First Nation? Mapping can help to answer this question.

Many First Nations have begun to map their lands and resources as a way to document traditional land use or to assist in planning for future land use (Tobias, 2000). Maps of human use and habitat areas can ultimately inform community planning and assist protection and recovery of species at risk.



The mapping process can be a beneficial learning experience for First Nations youth. When youth begin to identify places that are important to themselves and their community, they realize their connection to the lands and waters of their territory. In addition, mapping habitat for species at risk and culturally important species can help communities to think about ways to balance human activities with the habitat needs of plants and animals.

### TEACHER PREPARATION

1. Find out which species at risk are potentially within or near your First Nations' territory. See the list of Species at Risk in Manitoba in this booklet (pg 78-82). Visit the Environment Canada website on species at risk in Canada [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) for more information.

You may conduct the research on species yourself or, depending on your grade level, have students do it.

You can also talk to local Elders or resource users to identify culturally important species,

particularly those of which are a concern (e.g. their numbers or habitat is decreasing).

2. Get a large map of your community that will serve as your base map:

- An aerial or orthophoto map (1:10,000) is good to have as it shows detail like vegetation.
- NTS map sheet (1:50,000) is also a helpful low cost solution that can cover larger areas including traditional territories.
- Topographic software can be used to print small maps for groups of two to four.
- Maps printed from an online service (Google Earth, [maps.google.ca](http://maps.google.ca) or [maps.yahoo.com](http://maps.yahoo.com)).

You can get a map from your Band Office, provincial government map store, or order one from the Canada Centre for Cadastral Management at [http://cccm.nrcan.gc.ca/english/contact\\_e.asp](http://cccm.nrcan.gc.ca/english/contact_e.asp).

### Piapot First Nation

Several First Nations across Canada are using maps to identify the location and habitat of species at risk; so that these special areas can be included in the future plans of their community. Piapot First Nation in Saskatchewan, with the assistance of CIER, has created maps of their First Nation, focusing on species at risk and their habitat.

During community mapping sessions, different groups (including First Nation leadership, youth, women, Elders, and resource users) shared their knowledge about plant and animal species, resource use, cultural use, and infrastructure within their territory. The resulting maps were used to create a Community Atlas that will help Piapot continue to support species at risk, and plan for other land uses, to support their community's vision.



Photo: CIER

## Manitoba First Nations Species at Risk Teaching Kit

### DEFINITIONS

**Orthophoto** - an aerial photograph that has been corrected so that the scale is the same across the entire photo. On these maps, distance can be measured accurately.

**Topographic map** - is a drawn or printed map that uses contour lines to show changes in elevation or hills. Contour lines are curving lines that join all the areas with the same elevation.

**NTS map sheet** - a map system developed by the Canadian government to map all of Canada with 1:50,000 and 1:250,000 topographic maps. These maps show roads, rivers, buildings and other features. They have a wide variety of uses. NTS stands for National Topographic System.

**Scale** - ratio between the distance on the map and on the ground. For example, 1:50,000 means that one centimetre on the map will equal 50,000 centimetres or 500 metres on the ground. This map will cover an area of about 1000 square kilometres.

### PROCEDURE

#### Step 1. Introduction

Introduce the topics of mapping and planning, and explain why these types of activities are important in their community.

Introduce the various species at risk and/or culturally important species found in your area and talk about the habitat needs of each. You may want to put a photo of each species, and notes about their habitat, up around the classroom or near your mapping area to use as a reference.

Explain to students that there will be three layers of maps, once mapping is complete:

1. **Base Map Layer** that is the aerial photo/orthophoto or topographic map of your community.
2. **Community Use Map Layer** that shows general community use of the lands and waters. For example, travel routes, houses, pow wow grounds, and similar areas. Also, places where your community uses plants/animals, such as berry-picking areas, traplines, and similar areas.
3. **Species and Habitat Map Layer** that shows how plants and animals are using the lands and waters. This layer will identify names and locations of species at risk, culturally important species, other plants and animals, and their habitat. For example, migration routes, breeding areas/calving grounds, where/when plants are flowering, and similar information.

#### Step 2. Mapping

Lay out the base layer map of your community in a large space (e.g. a table or floor) where students can gather around. If possible, have more than one copy of the map, so that students can break into smaller groups.

Cover the base map with a sheet of mylar and tape it down to hold it in place. Mark the corners of the map on the mylar so that if it can be realigned if it moves. Label each piece of mylar that you use with a distinct name or number so that you know which layer it is (in the end, you will have several mylar maps to keep track of).

Give students coloured markers to map locations on the mylar. Make notes (e.g. important area for berry picking, good habitat for species, etc.) about each mapped item directly onto the mylar itself, or number each item on the mylar and keep associated notes that correspond to that number.

*Community Use Map Layer*

Begin mapping by asking students to locate and mark items on the map such as:

- The school and/or where they live – this will help them to orientate themselves and to gain perspective for where other features are located on the map.
- Places where they and their families like to be outdoors (e.g. hunting, fishing, gathering, camping, etc.)
- Places where they gather for events (e.g. pow wow grounds, other cultural areas, recreational activities done in different seasons, etc.)
- Travel routes (e.g. to/from school, etc.)
- Developed areas (e.g. farmland, housing, places where new development will occur)
- Polluted/disturbed areas (e.g. garbage dumps, abandoned buildings, etc.)

*Species and Habitat Map Layer*

Replace the mylar sheet used in 'Mapping Our Community' with a second sheet of unused mylar placed over the base map of your community. Again, tape the map and mylar in place and mark the corners of the map.

Designate one or two colours of marker that will only be used for species at risk and their habitat. Use different colours than in the previous map layer, so that these areas are easily identifiable later.

Continue mapping by asking students (and any participating Elders or resource users):

**Class Discussion:**

Take a moment while mapping to ask students what they observe about how much of the lands and waters are being used by people. Is it a large percentage?

**Tip 1)** If you choose to keep the mylar map overlays for future reference, use permanent markers. If you want to reuse the mylar for future classes, use non-permanent markers.

**Tip 2)** Depending on the knowledge level of the students of their species, lands and waters, you may wish to invite Elders or resource users from the community to help students with the various map layers.

- Have they or their family seen any of the species at risk or culturally important species in their territory? What about other plants and animals?

Have students mark these areas on the map. And add notes about other information such as:

- What time of year did you see the species?
- What was the species doing (e.g. feeding, moving, nesting, etc.)?

*Continue mapping habitat:*

- Where does habitat for species at risk (e.g. grasslands, a certain forest type, sandy areas, etc.) occur in the territory?

Mark these areas on the map, and make corresponding notes.

Young Red-headed Woodpecker (Photo: CIER)



## Manitoba First Nations Species at Risk Teaching Kit

### *Combining Species, Habitat, and Our Community*

Place both the 'Our Community' map layer and the 'Species and Habitat' map layer over top of the base map of your community.

Ask students what they notice about their community. For example,

- Do some areas that people use overlap with areas that species at risk or other plants/animals use?
- What does this mean for the species? For example, if a housing development is located in an area of important species habitat, this may affect the species.
- What human activities (e.g. disturbance, pollution, etc.) negatively affect species at risk and other plants and animals in the community?
- What human activities have a positive effect (e.g. planting trees or other plants, putting protective fences around species at risk habitat, etc.)?
- Are there any species 'hotspots'? For example, is there an area where more than one species at risk or other plants and animals live? Should these areas be protected?
- Are there any areas that need to be improved for species at risk? For example, could a garbage dump be moved away from plant/animal habitat?
- What do students notice about what is outside the boundary of their First Nation territory, and what is inside the boundary?
- Outside areas may be more developed land (e.g. agricultural land,

forestry activities, or other industry) than their First Nations reserves.

- What do students think this means for species at risk (e.g. there is habitat for them within First Nations territories)?
- What does this mean for First Nations (e.g. they have an important role to play in protecting species at risk)?

### **Step 3. Planning for Species at Risk**

Have students form small groups (e.g. 3-5 students) for this activity. Assign each group an area of habitat from the previous mapping exercise. These groups will each act as Chief and Council and will be developing management plans for the habitat in question.

Have students make a 'habitat management plan' for this area by answering the following questions:

1. What makes this habitat area special – what kinds of species at risk, culturally important species, and other plants and animals live there? Is there a history of human use of this area?
2. What human activities will you allow in this area? Why? What human activities will not be allowed in this area? Why?
3. What will be done to improve this habitat area for species at risk, other wildlife, and for your community as a whole?



Least Bittern (Photo: Benoit Jobin)

Allow students class time as well as homework time to complete their habitat management plans. Students can then present their individual management plans to the rest of the class. As a class, use ideas from individual plans to answer the same three questions for the entire area (e.g. your First Nation reserve or territory). This will result in a final habitat management plan for your area.

## EXTENSIONS

### Extension 1. Fieldtrip to Habitat

Go on a fieldtrip to explore one of the mapped habitat areas in your community. The timing of this fieldtrip would be most appropriate after 'Step 2. Mapping' and before 'Step 3. Planning for Species at Risk'. This will help students describe the habitat for their 'habitat management plan'. If available, bring a camera and have students take pictures of the habitat area for later reference when they are developing their 'habitat management plan'.

### Extension 2. Present Maps and Plan to Chief and Council

With the final habitat management plans completed, students could present their maps and plan ideas to Chief and Council. Decide with Chief and Council beforehand a time and format (e.g. a presentation within a formal Chief and Council meeting or a separate meeting). Ask leadership to provide feedback to the students on their ideas (e.g. pros and cons), and to indicate whether any of their ideas could be put into action in the community.

Discuss with Chief and Council the possibility of storing the class maps at the Band Office. The maps could then be available for future reference, or for other community members to contribute to.

### Extension 3. Present Maps at a School Science Fair

Maps created by students could be presented at school science fairs. To compliment the maps, photographs could be included that show students conducting the mapping and planning exercises, and meeting with Chief and Council.

## REFERENCES

Tobias, Terry. 2000. *Chief Kerry's Moose: A Guidebook to Land Use and Occupancy Mapping, Research Design and Data Collection*. 64 pages. ©2000 Union of BC Indian Chiefs and Ecotrust Canada.

### Displaying Maps

Before displaying maps publicly, check with Chief, Council, or other community members, such as any Elders or resource users that helped to create the maps, to see if there is any sensitive information (e.g. sacred sites, etc.) that should not be shown on the maps.

## Lesson Plan # 6

# Be a Species at Risk Biologist



**SUMMARY:** Students will become familiar with scientific methods used in biology while on a fieldtrip to a local habitat area. Students will record their observations in a log book that they have created. By spending time in a natural space, they will learn about habitat for species at risk and species/habitat interactions.

### ACTIVITY INFORMATION

**Level:** Grades 6-12.

**Subjects:** Species at Risk, Habitats, Art, Language Arts, Science.

**Estimated Duration:** Three class periods, or approximately 5 hours.

1. Learn about habitat for species at risk/ other species and create a log book to record observations about habitat (homework as needed to finish the log book) (1 hr)
2. Field trip to a local habitat (2-3 hrs)
3. Share and discuss log book observations (.45 min - 1hr)

**Materials:** Permission slips for fieldtrip(s), three-ring binders or 'duo-tangs' (one for each student), hole-punch, paper, pens/pencils, glue-sticks or tape, scissors, a hoop or flagging tape to mark an observation area, binoculars and/or magnifying glasses (optional), cameras (optional), Global Positioning System (GPS) unit (optional; one unit should serve the entire class, inquire with your local land manager).

### LEARNING OUTCOMES

Students will learn:

- The importance of habitat for species at risk and other species.
- Ways of recording information about habitat used by biologists.
- Reasons for observing and monitoring habitat/species.
- Linkages between changing environment/habitat and changing species.

### TEACHER BACKGROUND

Our environment is constantly changing. Our awareness of our environment and the species that live there will be sharpened by more time we spent outdoors observing our surroundings. First Nations' leaders and Elders have noted that this is a skill that many of their youth need to regain. Getting youth actively involved in observing and collecting their own information about the environment can help prepare them for future stewardship of their lands and waters in their First Nation.

Collecting information about species and habitats and monitoring them over time can provide valuable records. It can tell us about what plants and animals are decreasing or increasing, why these changes are happening, and help us find solutions to recover populations of species at risk. This kind of information can be useful for future land use planning and management.

### TEACHER PREPARATION

1. Locate a habitat area to monitor. This can be any natural space where students can observe plants and animals. For example, a woodland, meadow, or wetland area.

It can even be a natural area of the schoolyard, if available. Ideally, it would be a nearby location that teachers and students can easily get to so that it can be visited multiple times. It should also be safe for students to move around in.

2. Photocopy the data sheets provided at the end of this lesson plan, at least four copies for each student to use in their log book. You may want to modify this data sheet based on what students will encounter in their local area.
3. Find out which species at risk might be in/nearby your community. See the list of Species at Risk in Manitoba provided in this booklet (pg 78-82). You can also visit the Environment Canada website on species at risk to explore the range maps for these species ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)). If there are no federally listed species at risk that might live nearby, ask an elder or someone familiar with the area about culturally significant species that are of concern.

## METHODS

### Step 1. Introduction

Prior to the fieldtrip, have a class discussion about some local species at risk and habitats that they rely on. Discuss how humans impact habitats and how habitats also change naturally over time.

Describe how documenting information is one way to keep track of changes in the environment, habitats, and species. Tell the students that they will be creating their own log books as a way to record their observations about species and habitats in their own community.

### Step 2. Creating the Log Book

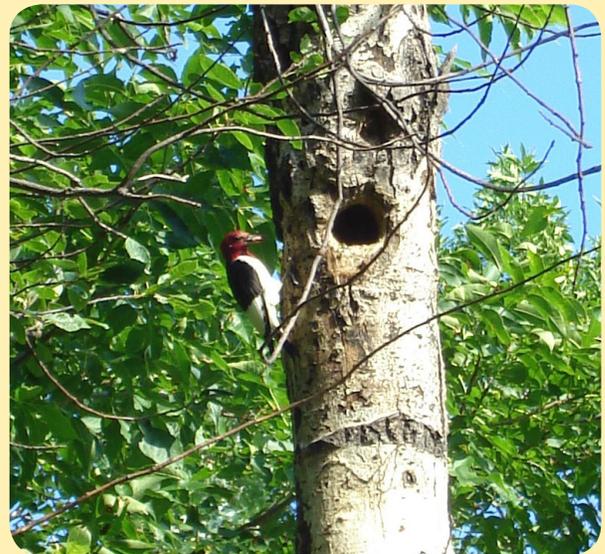
Provide each student with at least six sheets of blank or graph paper and four photocopied data sheets.

### A Home for Red-headed Woodpeckers

A First Nation on Lake Manitoba has been monitoring a population of threatened red-headed woodpeckers for years. Nesting pairs of these birds and their young found a home in standing dead trees on a cattle farm, and would return year after year.

Recently, the habitat for the red-headed woodpeckers has changed drastically because of a windstorm that knocked down dead trees and flooding on Lake Manitoba. The Elder who lived on the farm has reported that the woodpeckers have not returned this year. They may have had to move on to a better habitat.

This shows how changes in the environment can affect changes in species. The First Nations' observations of these changes have informed others about the type of habitat that these birds rely on. This situation also highlights the importance of protecting enough habitat, so that if changes do happen, species like the red-headed woodpecker will have other places to live.



Red-headed Woodpecker (Photo: CIER)

### Changing Habitats

If humans disturb a habitat by tilling up a meadow or cutting down a stand of trees, the species that lived there before may not continue to survive in this area. Or, if an area gets flooded, then some species would move on, while others would be able to thrive in the wet conditions. Large environmental factors like climate change can make changes happen more suddenly, and we are not yet aware how species will adapt to these changes.



Poweshiek Skipperling (Photo: Sarah Semmler)

The following outlines the log book pages that each student will put together, hole-punch, and place into their binders/duo-tangs.

#### Log Book Pages:

- 1) Cover page/front page
  - a. Title
  - b. Student's Name
  - c. School and grade
  - d. Name of habitat
  - e. Picture or sketch (optional)
- 2) Map
  - a. Sketch a map of the habitat area, or glue in a printed map from Google Earth/other online resource of the habitat area.
- 3) Data Sheets
- 4) Field Guide

Have students create a simple 'Field Guide' of four local species at risk or other plants and animals that they might be likely to see in the habitat they will be visiting. Give students a list of species they might encounter, and have them use the internet to find pictures of the species. They can create the field guide by pasting pictures of local species and short descriptions of their characteristics onto pages to put into their log books.

Information about each species in the field guide should include:

  - a. A picture.
  - b. A common name, the name in your local language (if known), and Latin name (used by biologists to identify species).
  - c. Description including two to three key features (to help identify the species)
  - d. Habitat description (general).
  - e. One to two threats to the species.
  - f. Other information could include important cultural or medicinal uses, history, or similar species.
- 5) Blank pages to keep notes, sketches, photos and journal reflections.
- 6) Coloured tabs at the beginning of each section, can help students quickly find their map, data sheets, or field guide.

**Step 3. Fieldtrip**

*Before you Leave*

Divide students into groups of two to four students. Each group will collect information together, but each student should keep their own log book. Explain to the students that they should try to move quietly so as not to disturb wildlife.

*Marking Survey Sites*

When you arrive at the habitat area, give students about 5 minutes to explore and get familiar with the habitat.

Ask students to select and mark a spot within the habitat that will be their 'survey site'. This site should be unique for each group. Students can mark four corners to identify their survey sites by tying flagging tape to trees/shrubs, or by using markers like wooden or metal stakes that they can stick into the ground at each corner.

The size of the survey sites will depend on the size of your habitat area and whether you are focusing on observing a certain species.

*Table 1. Suggested Survey Site Size*

<b>Suggested Size</b>	<b>Habitat Area</b>	<b>Species Focus</b>
5 x 5 feet (steps), or use a hoola hoop or other prepared frame	Small	Plants, insects
10 x 10 feet (steps)	Large - treed	birds, mammals, other
25 x 25 feet (steps)	Large - open	birds, mammals, other

*Observing and Recording Data*

Each student should mark the location on their maps and write it on their data sheets

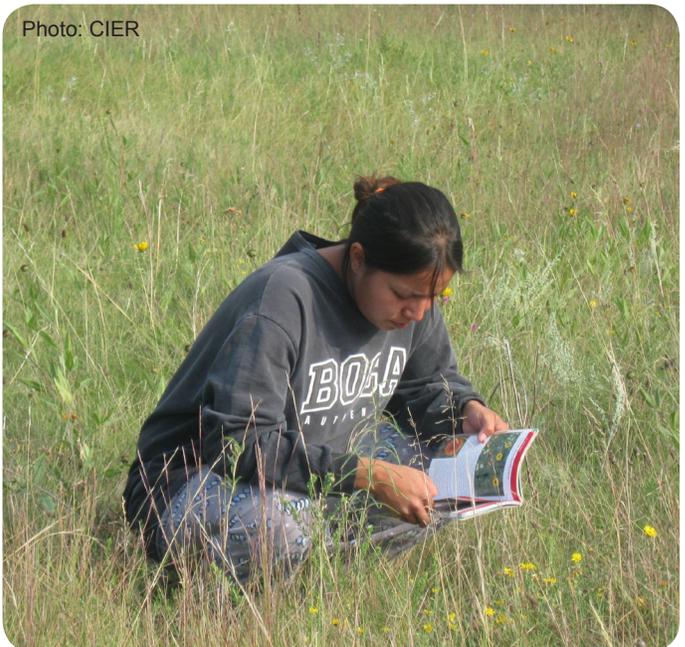
in their log book. If GPS units are available, students can mark their survey site locations.

Once each group has marked their sites, instruct the students to fill out their log books section by section. Students should feel free to make other observations and use as much detail as possible. If cameras are available, students can take pictures of their survey site, plants and wildlife. They can use tools such as binoculars or magnifying glasses to explore the area. Give students time to fill out information and make sketches.

**Second Survey Site**

If time allows, ask the students to place a second site that is away from their first site (20 big steps in a forested area and 50 in an open field).

They can then fill out their data sheets for this site as well, and compare it to the first site.



### Step 4. Follow-up Discussion

Give each student two minutes to share:

- One interesting observation that they made in the habitat.
- One or two species they observed, and whether they observed any from their 'Field Guides'.
- One difference they saw between two different survey sites, and describe how this difference could affect species.

Ask the students to write a reflection about the field trip and the discussion. If the students are comfortable with this, they can also exchange their log books with other students/teams to see the similarities and differences between sites. Have students compare pictures of their sites from field trip one and field trip two.

#### *Further Discussion Points*

- Their survey site is only a small piece of the whole ecosystem, so how would larger factors influence their site?
- How useful was the log book in keeping track of changes in their survey sites? How might the type of information recorded in the log book be useful in the future?
- If they re-visited their site over many years, what changes might they observe?
- How do environmental changes affect species at risk?

### EXTENSIONS

#### **Extension 1. A Second Fieldtrip to the Same Habitat**

The purpose of a second field trip is to show that changes in the environment can affect changes in species or their behaviour. It also demonstrates that recording information is useful to keep track of changes over time.

On the second field trip, return to the same habitat area, and have students re-visit their survey sites. Ideally, this visit would happen when some changes can be observed. For example, after several weeks have passed, or even in a different season. Have students note any changes by filling out their log books for the site under a new date. If cameras are available, have students take a second set of pictures of their site, so that they can compare any changes.

#### **Extension 2. Long-term Monitoring**

You may want to create a long-term monitoring project by continuing to visit and record information about the habitat each year with your students. In the first year, create a computer spread sheet that can store the information collected by your students. Each column will be based on categories included in the data sheet. Each row will be the group/site number. Ask each group to input their data into the spread

Photo: CIER



sheet. Once all the information is added to the spread sheet you will be able to share this information with later classes, and they can add their own data to the spread sheet. Look for any trends, or changes over time to discuss with the class. This extension can increase students' motivation and interest through knowing that their work is part of a long term project.

Additional materials: GPS unit to keep track of site locations.

### **Extension 3. Invite Along a Local Expert**

Invite an Elder or someone else in your community that is knowledgeable about wildlife, and in particular about the habitat that you will be visiting (i.e. a local expert), to come along on the field trip (s). If you are visiting a private property, your local expert might be someone who lives there. If you are visiting a public space, like a park, your local expert could be someone who works there. During the field trip, the local expert can talk about what the area looked like in the past compared with today, and discuss with the students about how the area could be preserved for future generations.

### **Extension 4. Join a Monitoring Network**

There are existing species monitoring networks that welcome classroom participation. This is great way to show students that they can contribute to a larger body of information (databases) about species and their habitat.

*Suggested monitoring networks:*

NatureWatch ([www.naturewatch.ca](http://www.naturewatch.ca)) is series of volunteer monitoring programs designed to help identify ecological changes that may be affecting our environment. The series includes PlantWatch, FrogWatch, WormWatch, and IceWatch.

Bird Studies Canada, Manitoba Region, is running the Manitoba Breeding Bird Atlas ([www.birdatlas.mb.ca/](http://www.birdatlas.mb.ca/)). The Manitoba

Breeding Bird Atlas is an ambitious five-year project to engage citizens in documenting the distribution and abundance of all breeding birds throughout the entire province of Manitoba.

Nature North ([www.naturenorth.com](http://www.naturenorth.com)) celebrates biodiversity in Manitoba. They host the Manitoba Herps Atlas that encourages citizens to keep track of where they sight Manitoba's reptiles and amphibians ([www.naturenorth.com/Herps/Manitoba\\_Herps\\_Atlas.html](http://www.naturenorth.com/Herps/Manitoba_Herps_Atlas.html)).

## Species at Risk Data Collection Sheet

Site Name/Number: \_\_\_\_\_

Observer 1) \_\_\_\_\_ Observer 2) \_\_\_\_\_

Observer 3) \_\_\_\_\_ Observer 4) \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Weather: \_\_\_\_\_

### Location:

- 1) Mark location on your map
- 2) Describe location (any unique features, nearby roads or waterbodies)
- 3) GPS location (optional)
  - a. Location/waypoint name: \_\_\_\_\_
  - b. Latitude (N): \_\_\_\_\_
  - c. Longitude (W): \_\_\_\_\_

### Habitat:

The overall type of habitat is:

- Open field/meadow
- Forest/woodland
- Marsh/bog/wetland
- Shoreline/beach
- Other \_\_\_\_\_

**Habitat** *continued*

Ground/exposed earth is mainly:

- Rocky
- Sandy
- Muddy/soil
- Other \_\_\_\_\_

Moisture of the ground is mainly:

- Dry – earth is dry, no water on the ground
- Moist – the earth is damp, but still no water on the ground
- Wet – the earth is water-logged, water sitting on the ground (e.g. puddles)

Vegetation covering the ground is mainly:

- Lichens
- Mosses
- Grasses
- Herbs (plants without wood/bark on their stems)
- Shrubs (plants with wood/bark on their stems)

Trees are mainly:

- Evergreen (trees with needles like jack pine, spruce etc.)
- Deciduous (leafy trees like poplar, birch etc.)
- Mix of evergreen/deciduous
- There are no trees

Habitat is disturbed by:

- Fire
- Roadway or trails
- Garbage or other pollution
- Other \_\_\_\_\_

**Species:**

Species signs present:

- Tracks or trails
- Scat/droppings
- Hair/feathers/skin/scales
- Beds/nests etc
- Other \_\_\_\_\_

Species observed:

List name and number of known plants/birds/fish/insects/mammals observed at the site (e.g. 1 woodpecker, 2 squirrels, 1 monarch butterfly, 3 lady's-slipper plants etc.)

*Sketch species/habitat on blank sheets in your log book*

**Comments** (any additional observations or local knowledge):

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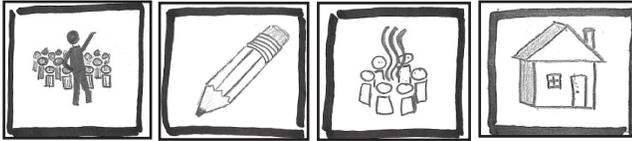
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## Lesson Plan # 7

# Role-Playing the SARA



**SUMMARY:** Students will learn about the Species at Risk Act (*SARA*) through role-playing the different players in the process of 'listing' (or legally protecting) a species at risk. They will discover how First Nations are involved in the *SARA*.

### ACTIVITY INFORMATION

**Level:** Grades 9 – 12.

**Subjects:** Communications, Debate, Governance, Language Arts, Social Studies, and Species at Risk.

**Estimated Duration:** Four class periods, or approximately four hours

1. Learn about the *Species at Risk Act (SARA)*, and First Nations involvement in the listing of species at risk under the *SARA*. Introduce the role-play exercise (45 min - 1 hr).
2. Choose a species to focus on, assign and understand the roles of the different groups being played. Begin to conduct research (homework as needed) (45 min - 1 hr).
3. Prepare presentations (homework as needed) (45 min - 1 hr).
4. Presentations and class discussion (1 hr)

**Materials:** Copies of Team Descriptions (see the end of this lesson plan), paper and pens for taking notes, access to Internet for research, space/table to present and for 'round-table' discussions.

### LEARNING OUTCOMES

Students will learn:

- How the *SARA* process works
- The importance of First Nations' involvement in the *SARA* process
- The potential benefits and adverse effects to First Nations of *SARA* protection of species at risk.

### TEACHER BACKGROUND

Review the sections on ways to protect biodiversity through using First Nation's environmental laws and *SARA* (see Introduction to Concepts).

Each year, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) reviews species and assesses their risk of disappearing from the wild. Once COSEWIC assessments have been made, the Government of Canada must consider the species for 'listing' or legal protection under *SARA*. The Government will consult with First Nations and others about listing the species.

In this exercise, students will enact the listing process for a species designated as 'at risk' by COSEWIC. Students will need to understand the role and information provided by various groups (e.g. COSEWIC, government, First Nations, etc.) in making a decision regarding the listing of a species. This decision will take into consideration scientific evidence, Aboriginal Traditional Knowledge (ATK), and the potential benefits and adverse effects of listing the species on First Nations and other Canadians (review fact sheet on First Nations and *SARA*, pg 84-85 of this booklet).

### Choosing a Species to Use in the Role Play

Choose a species from the list of Species at Risk in Manitoba in this booklet (pg 78-82) to use in the role-play. Ideally, the species chosen would be one that is found within or near your First Nation territory, and has some significance to your community. You can explore whether the species occur in your area by going to the SARA registry ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) to view information about the species. From here, you can also view the COSEWIC Status Report for more details about the species.

Depending on the grade level you are teaching, you may wish to choose the species yourself, or work with the class to choose the species.

### PROCEDURE

#### Step 1. Introduction

Discuss the *Species at Risk Act (SARA)*, the steps by which species become listed under SARA, and how First Nations are involved at each step of the process. Talk about how certain groups of people may see listing of a specific species as beneficial, whereas others may be concerned about potential adverse effects. Explain that First Nations and other Canadians can impact the Government of Canada's decision whether or not to list a species.

#### Choosing Species - Lake Sturgeon Example

Lake sturgeon would be an interesting species to role-play with, as a decision has not yet been made about whether to list or legally protect this species. It is a fish of cultural importance to many First Nations. Lake sturgeon have undergone a serious decline since the turn of the century. Various populations of lake sturgeon have been assessed by COSEWIC as endangered or threatened. Consultations are now underway to understand the benefits and potential adverse effects of listing lake sturgeon populations under SARA. Your class could model the SARA process for lake sturgeon and make its own decision.



Lake Sturgeon (Photo: U.S. Fish and Wildlife Service)

Explain that students will be participating in an enactment of the SARA process through a role-play exercise.

Tell the class about the species that they will be using to model the SARA process. Even though the species you choose may already be listed under SARA, conduct the role-play as though the species hasn't yet been listed.

#### Step 2. Assigning Roles

Divide students into five teams, including:

1. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
2. First Nations in Favour of Listing
3. First Nations Not in Favour of Listing
4. Government of Canada (Fisheries and Oceans, Parks, or Environment Canada)
5. The Minister of the Environment

Photocopy the Team Descriptions (at the end of this lesson plan) and provide to the appropriate teams. The team descriptions provide the groups with their role in the SARA process. Have each team read their role to the class so that they are aware of how they are connected with each other in the SARA process.

## Manitoba First Nations Species at Risk Teaching Kit

### Step 3. Research

Teams will need time to conduct research and create presentations relevant to their group. The Team Descriptions (at the end of this lesson plan) describe the research that each team needs to do and what they will need to present to the class.

### Step 4. Presentations

Each team will present their information in front of the class. Presentations will occur as follows:

1. **The COSEWIC Team** will present their information about the species at risk (i.e. their 'assessment'). In addition, this presentation team includes the Aboriginal Traditional Knowledge (ATK) Subcommittee that will present any traditional knowledge about the species.
2. **The Government of Canada Team** will identify the department that they represent (e.g. Environment Canada, Fisheries and Oceans Canada, or Parks Canada) and will indicate that they are now undertaking consultations with First Nations (and other Canadians) to determine potential benefits and adverse effects of listing the species for legal protection under SARA. They will briefly indicate the type of information that they are planning to gather. Finally, they will ask the First Nations teams to make their presentations.
3. **The First Nations in Favour of Listing Team** will present their information explaining why they support listing (legal protection) of the species under SARA.
4. **The First Nations NOT in Favour of Listing Team** will present their information explaining why they do NOT support listing of the species under SARA.
5. **The Government of Canada Team** will present a brief summary of what they

learned from the First Nations in Favour of Listing Team and the First Nations NOT in Favour of Listing Team. This is to help the Minister of the Environment make their listing decision.

- **The Minister of the Environment Team** will be responsible for listening to and weighing the information presented by all of the other teams. They will then go to a separate corner or leave the classroom briefly to deliberate for 10 – 15 minutes in order to make their recommendation. Their recommendation could be: a) To list the species with full protection under SARA; b) Not to list the species for protection at this time.

When they return, The Minister of the Environment Team should announce their decision and describe the reasoning behind their recommendation.

The last step is for the Governor in Council (i.e. the Governor General of Canada) to announce the final listing decision (made based on the recommendation from the Minister of the Environment). The teacher can act as the Governor in Council.

### Step 6. Round Table Discussion

Following the presentations, the class should discuss the final listing decision as a round table. This discussion may be done at a table or as a Sharing Circle (see text box below).

#### **Meanwhile...**

*While the Minister of the Environment Team is deliberating, the rest of the students can review how the presentations went and try to guess what the Minister of the Environment Team will decide. Or, you can review a case study about species at risk, see 'Not Listed' or 'Permits for Species at Risk' text boxes in this lesson plan.*

Suggested discussion points:

- Are you satisfied/not satisfied with the listing decision?
- What would you change, if anything, about the decision?
- What impacts (positive and negative) will the listing decision have for the species?
- What impacts will the listing decision have for First Nations (positive or negative)?
- Have a discussion with the class about what consultations would involve in your community.
  - Who would need to be consulted?
  - How long would it take?
  - Would everyone have the same opinion?

## EXTENSIONS

### Extension 1. First Nations' Charter

Have students write a 'charter' (see Menominee Nation example in Introduction to Concepts, pg 5) to describe the way that their First Nation currently protects or could protect species at risk, and other plants and animals.

Before writing the charter, have a class discussion about what would happen if a species at risk does not get listed for protection under SARA. Even if a species is listed under SARA, is this sufficient to protect them?

Does their First Nation have any of their own environmental laws that would protect species at risk, or other plants and animals, and their habitat?

If yes, discuss how these laws protect species at risk and their habitat. How are they carried out?

If not, is there a need for these types of laws in your community?

### Sharing Circle

The Round Table Discussion can be held as a sharing circle by having students sit in a circle and taking turns to speak using an object to signify who is speaking. Some generally agreed upon viewpoints of participants in a Sharing Circle include: new ideas are welcome, issues are responded to, there is no need for consensus, opinions are respected, and the Sharing Circle is a trusting environment. You may want to look into your own First Nation's protocols for holding a sharing circle.

### Not Listed

The Government of Canada can decide not to list a species based on information in the COSEWIC assessment or feedback provided during consultations. In 2005, the Government of Canada decided not to list the Cultus and Sakinaw Lake populations of Pacific sockeye salmon under SARA due to the significant social and economic impacts on Aboriginal and non-Aboriginal sockeye fishers and coastal communities in British Columbia's Fraser Valley.

### Permits for Species at Risk

SARA also allows for permits to catch or handle species at risk, if the survival or recovery of the species is not jeopardized. In 2004, the Minister of Fisheries and Oceans issued SARA permits for two species, the northern and spotted wolffish and the leatherback turtle, to commercial fishers who are at risk of accidentally catching these species at risk while fishing for other species. Permits may also be given to those doing research on species at risk.

## **Team 1.COSEWIC** (Committee on the Status of Endangered Wildlife in Canada)

### **Background**

You are the COSEWIC biologists who have studied this species throughout your career. Your research indicates that the species in question is 'at risk'.

In addition, a part of your team is the Aboriginal Traditional Knowledge (ATK) Subcommittee, experts who are responsible for making sure that knowledge about the species from an Aboriginal perspective is included in COSEWIC assessments.

### **Research**

As the COSEWIC Team, you will need to provide scientific information about the status of the species, including population health/size, habitat, threats, and COSEWIC designation (e.g. 'Endangered' or 'Threatened').

As part of this team, the ATK Subcommittee will present any Aboriginal knowledge about the

species. This would include why the species is important in Aboriginal culture (as food, medicine etc.).

This information can be found by doing a search for your species at the SARA registry ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) website. COSEWIC Status Reports for the species can be found at [www.cosewic.gc.ca](http://www.cosewic.gc.ca). Other Internet websites such as Hinterland Who's Who ([www.hww.ca](http://www.hww.ca)) can be helpful as well.

Some ATK information can be found in the COSEWIC Status Report for your species, or by doing a general on-line search. You can also discuss the importance of the species with people in your community who are knowledgeable about the species.

### **Presentation**

You will need to report your species assessment to the class so that the Minister of the Environment can consider this information in their listing recommendation. Present both scientific and traditional knowledge information that you found about the species.

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## **Team 4. Government of Canada**

### **Background**

You are responsible for ensuring that the concerns of First Nations are considered before decisions are made in regards to species at risk. The Government of Canada consults with First Nations (and other Canadians) then provides the Minister of the Environment with information about the potential benefits and adverse effects that would result from listing this species.

### **Research**

Determine which government department you represent. Fisheries and Oceans Canada is responsible for species within our oceans, rivers, lakes, and streams, Parks Canada is responsible for species at risk within our national parks, national historic sites, and national marine conservation area, and Environment Canada is responsible for all other species, including migratory birds.

Conduct research on the questions that the Government of Canada asks during consultations. Check out the consultation

workbooks on the SARA registry ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)). Listen carefully to the presentations made by the First Nations in favour of listing and NOT in favour of listing Teams so that you can summarize their information for the Minister of the Environment.

### **Presentations (two presentations)**

In your initial presentation, you will indicate the type of information that you are planning to gather during consultations. You will ask the First Nations in Favour and NOT in Favour of Listing Teams to make their presentations so that you can understand the potential benefits / adverse effects of listing (this will be your consultation process).

During your second presentation, you will summarize the information provided by the First Nations in Favour of Listing Team and the First Nations NOT in Favour of Listing Team so that the Minister of the Environment (and advisors) can consider this information in their listing recommendation.

## Team 3. First Nations NOT in Favour of Listing

### Background

You see the potential adverse effects of listing this species under the SARA. You are concerned that listing of this species may adversely impact your First Nation through:

Decreasing your access to the species in question (especially if you hunt or fish or gather this species); and,

Decreasing your opportunities to develop and use lands and waters considered to be habitat for the species

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## Team 2. First Nations in Favour of Listing

### Background

You see the potential benefits of listing this species under the SARA. For generations, this species has been an important part of your life (e.g. cultural, spiritual, economic, recreational, environmental) or you simply value the species for its intrinsic value (i.e. for its own sake – once a species is lost it is gone forever), and you are concerned that without legal protection, this species won't be around for future generations to enjoy. You believe that listing this species for protection under SARA will limit the threats (e.g. pollution, habitat loss or degradation, etc.) that this species is facing. You need to provide information about:

Why this species is important to First Nations communities (see above)

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## Team 5. Minister of the Environment (and advisors)

### Background

Following consultations with First Nations people and other Canadians, the Minister of the Environment makes a recommendation to the Governor General of Canada about whether or not to list the species under SARA.

### Research

Determine the name of the current Minister of the Environment in Canada and the Governor General of Canada. You can also research real life examples of species that were listed under SARA or not listed and why.

### Research

Conduct research (by Internet, by examining the COSEWIC report, and by talking with community members) to determine how the listing of this species might adversely impact First Nations (consider the above to guide you).

### Presentations

You will present to the class so that the Government of Canada can learn about the potential adverse effects to First Nations of listing this species for protection under SARA. Normally, this information would be shared with the government during a consultation process.

The benefits to First Nations that would result from legal protection of this species

### Research

Conduct research (by Internet, by examining the COSEWIC report, and by talking with community members) to determine why this species is important to First Nations and why it should be listed under SARA.

### Presentation

You will present to the class so that the Government of Canada can learn about the potential positive effects for you as a First Nation of listing this species for protection under SARA. Normally, this information would be shared with the government of Canada during a consultation process.

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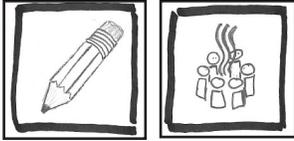
### Presentation

You will present your listing recommendation and the reason behind it so that Governor General can announce the final listing decision. To make your recommendation, you will need to carefully weigh all of the information that you gain from presentations by the other teams, including the COSEWIC Team, and the First Nations in Favour and NOT in Favour of Listing Teams.

Your recommendation may be to: a) list the species with full protection under SARA; b) or not list the species at this time. Make sure you keep notes on the views of each group, so that you can explain the reasons for your recommendation.

## Lesson Plan # 8

# Hinterland Who's Who Wildlife Videos



**SUMMARY:** Students will learn about species at risk from memorable vignettes created by the Canadian Wildlife Service, *Hinterland Who's Who*. Students will reinforce their knowledge of species at risk by playing a word association BINGO game.

### ACTIVITY INFORMATION

**Level:** Grades 4 – 8

**Subjects:** Science, Social Studies, English Language Arts, Habitats, Communities, Species at Risk.

**Estimated Duration:** Two classes, or approximately two hours.

1. Discuss general concepts of species at risk, habitat, and threats. Watch *Hinterland Who's Who* videos (.45 min - 1 hr)
2. One class to answer questions about the videos and play Species at Risk BINGO (.45 min - 1 hr).

**Materials:** *Hinterland Who's Who* Wildlife vignettes (downloaded from [www.hww.ca](http://www.hww.ca)), computer screen or television for viewing vignettes, BINGO sheets (provided at end of this lesson), and tokens or dabbers to play bingo with.

### LEARNING OUTCOMES

Students will learn that:

- Habitat plays a key role in species survival
- Human activities impact species at risk

### TEACHER BACKGROUND

Originally launched in 1962, these short *Hinterland Who's Who* vignettes were produced to get Canadians more interested in wildlife. In 2003, the vignettes were reintroduced for a new generation. Newer video clips were produced (with a younger audience in mind), using livelier music and a visible narrator.

Each video lasts approximately 60 seconds, highlighting an animal and its behaviour or a habitat. A narrator discusses the animal's biology and problems they are facing, usually concluding by telling the viewer that more information is available from the Canadian Wildlife Service.

This lesson uses *Hinterland Who's Who* vignettes to teach about species at risk, habitats, and actions to conserve species. The following page describes vignettes that you can use in this lesson.

Swift Fox (Photo: Parks Canada/W. Lynch)



**SUMMARY OF SUGGESTED VIGNETTES**

1. 'The Boreal Forest' video shows some boreal forest inhabitants: the moose, lynx, wolves, martens, and songbirds. Along with a rich diversity of insects, animals and plants, the forest supports rural and Aboriginal communities.
2. 'The Burrowing Owl' live in burrows abandoned by other animals and migrate to Texas or Mexico in the winter. Researchers and landowners are cooperating to help protect the owl.
3. 'The Monarch Butterfly' make a great migration to Mexico every year. These butterflies need nectar from plants that humans consider weeds. People are encouraged to plant butterfly friendly plants to help their survival.
4. 'The Polar Bear' is a large mammal that is threatened by climate change and long-range pollutant transport. Walking and riding bicycles instead of driving will do a lot to help the polar bear and the environment.
5. 'The Caribou' are adapted to living in the forest and can survive on lichen during the winter. However, half of Canada's woodland caribou are at risk.
6. 'Cougar' is largest north american cat weighing 150 lbs. They were driven away by over hunting, but are still found in almost every province.
7. 'The Grizzly Bear' has long fur varies from white to almost black fur. They feed on vegetation, fish as well as elk and ground squirrels.
8. 'The North American Bison' are the largest land animal in North America. Many millions of bison once roamed the prairie. The video shows the bison taking dust baths, raising young calves, and feeding in the winter on sedges.
9. Peregrine Falcon have telescopic eyes larger then a humans. These birds can perform aerial dives with speeds of 150 miles per hour. Indiscriminate use of pesticides harmful to their eggs.
10. Piping Plover is a small bird that builds nests scraped out of sand on lakeshores. Chicks emerge ready to feed on their own. Humans are their greatest threat because they disturb the nests.
11. 'The Swift Fox' is named for its speed. It became extinct in Canada due to trapping (Swift Fox was often accidentally caught in traps meant for other animals). Restoration efforts are underway to use American populations of swift fox and reintroduce them to Canadian habitat.
12. 'The Trumpeter Swan' is the largest waterfowl in the world and was almost extinct due to demand for their feathers. They are all white, with a black beak, and live on a platform nest in marshes. They get their name from their trumpet-like call.
13. 'The Whooping Crane' was considered an early symbol of endangered species. Canada and the United States are cooperating to help the whooping crane to recover. *Please note: 'The Whooping Crane' video is not available at this time, but a full fact sheet is available here: <http://www.hww.ca/en/species/birds/whooping-crane.html>.*
14. 'Species at Risk includes the barn owl, swift fox and Newfoundland marten. The vignette discusses how many animals are threatened by human activities and ways we can make a difference: habitat projects, cloth shopping bags, and staying on the trails in parks.
15. 'Take Another Look' discusses the value of wetlands.
16. 'Behind the Scenes' shows how the videos are made from conception to production.

## Manitoba First Nations Species at Risk Teaching Kit

### TEACHER PREPARATION

Get the Hinterland Who's Who videos from <http://www.hww.ca/en/media-gallery/>. The video clips can be downloaded using Real Player. Real Player is available for free download from <http://www.real.com>.

Review discussion questions at the end of this lesson plan. Print off enough copies for each student in the class.

- Intermediate questions: grades 3-5
- Advanced questions: grades 6 – 8

*BINGO preparation:*

Photocopy the provided bingo game sheets at the end of this lesson. Copy the provided bingo call wordlist, then cut out the words which can then be drawn from a hat or container. Gather bingo game 'dabbers' to mark squares. For example, stamps of plants/animals, coins, or other tokens. Also gather small prizes for students who win the bingo game (e.g. stickers, pens, etc.), or give students classroom privileges.

### METHODS

#### Step 1. Introduction

Start the lesson by introducing concepts of species at risk, habitats, and threats (see Introduction to Concepts at the beginning of this booklet).

Describe the Canadian Wildlife Service, Hinterland Who's Who vignettes, and their goal to make Canadians more aware of the wilderness, species at risk, and the role that humans play.

Explain that they will be watching some of these videos and answering questions about them to learn more about species at risk and how we can help them.

#### Step 2. Watch the Videos.

Hand-out the discussion questions (pg. 52) to each student.

View the 'Hinterland Who's Who' films as a class. Suggested viewing:

1. View the 'Species at Risk' and 'Boreal Forest' vignettes first to introduce concepts of species at risk and habitat.
2. Show the videos on various species (view those that you feel are most relevant to your First Nation or view them all).

#### Step 3. Discussion Questions

After the videos, discuss the questions provided at the end of this lesson. Suggested answers are also provided.

#### Step 4. Species at Risk BINGO

Play 'Species at Risk Bingo'. Distribute the BINGO cards to the students. Call out the species or other terms that are drawn, and have students 'dab' the matching squares on their bingo cards. For instance, when 'Eats lichens' is drawn, students can dab the squares that read 'Eats lichens'. To increase difficulty, students could also dab the species at risk that matches with the term. For example, when 'Eats Lichen' is called, students can also dab the square that says 'Woodland Caribou'.

Winning patterns could include a 'full house', a 'ring', a 'diagonal line', a 'cross' or a 'straight line' etc. The first student that fills in a pattern wins a prize.

### EXTENSIONS

#### Extension 1. Create Artwork

Ask students to draw or paint a picture that shows species at risk and their habitat. Another theme could be humans helping species.

**Extension 2. Create Your Own HWW Video**

Have students create their own Hinterland Who's Who video! The HWW website has step-by-step instructions for youth to create their own nature videos. The website also supplies a script guideline and a list of materials that you will need such as a camera with video capabilities and movie-editing software. For instructions, see <http://www.hww.ca/en/things-you-can-do/make-your-own-nature-video/>.

With your class, view the HWW video entitled 'Behind the Scenes' for inspiration and to learn about the key components of HWW species at risk vignettes.



Polar Bear (Photo: D. Gladu)

## Manitoba First Nations Species at Risk Teaching Kit

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### DISCUSSION QUESTIONS - Intermediate

- 1) What are all of these videos about?
- 2) Which animals are in danger in these videos?
- 3) Pick two animals and describe what makes them special. Why are these animals having trouble surviving?
- 4) What is a 'species at risk'?
- 5) Who can help species at risk? What kind of things can you do to help species at risk?
- 6) The boreal forest video says balance is important to support the needs of nature and people. What is balance?

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### DISCUSSION QUESTIONS - Advanced

- 1) What is a 'species at risk'?
- 2) Pick three animals and describe what makes these animals special. Why are they having trouble surviving?
- 3) Which, if any, of the species at risk highlighted in the videos are found close to your community? What relationship do First Nations people have with these species at risk?
- 4) What kind of things can you do to help species at risk?
- 5) The boreal forest video talks about balance as an important to support the needs of nature and people. What does balance mean to you?
- 6) Some of the videos were created many years ago and some were created more recently. Can you tell the difference? What message were the newer videos trying to emphasize?

**ANSWERS TO DISCUSSION QUESTIONS - Intermediate**

1) What are all of these videos about?

Canadian wildlife and how we can protect and enjoy it responsibly

2) Which animals are in danger in these videos?

Species at risk (all of the animals featured in the videos).

3) Pick two animals and describe what makes them special. Why are these animals having trouble surviving?

Discussion and research

4) What is a 'species at risk'?

A species at risk is an animal, plant, or other living organism that people have a reason to believe is in danger of becoming extinct. Either because there are not many of them, or they do not have much habitat to live in, or they are facing another threat.

5) Who can help species at risk? What kind of things can you do to help species at risk?

We can all help species at risk through our everyday actions such as recycling, using cloth shopping bags, not contributing to pollution, and learning about wilderness. We can also help by getting ourselves and our communities involved in actions to protect wildlife, such as participating in a clean-up of habitat or planting native plants to restore habitat.

6) The boreal forest video says balance is important to support the needs of nature and people. What is balance?

Balance is a careful consideration and compromise between two different and often-conflicting perspectives or wants. For example, we should balance our need for wood from a forest with the need for a forest to remain intact and long-lived so that it provides habitat for species.

### ANSWERS TO DISCUSSION QUESTIONS - Advanced

1) What is a 'species at risk'?

A species at risk is an animal, plant, or other living organism that people have a reason to believe is in danger of becoming extinct. Either because there are not many of them, or they do not have much habitat to live in, or they are facing another threat.

2) Pick three animals and describe what makes these animals special. Why are they having trouble surviving?

Research

3) Which, if any, of the species at risk highlighted in the videos are found close to your community? What relationship do First Nations people have with these species at risk?

Discussion and research

4) What kind of things can you do to help species at risk?

We can all help species at risk through our everyday actions such as recycling, using cloth shopping bags, not contributing to pollution, and learning about wilderness. We can also help by getting ourselves and our communities involved in actions to protect wildlife, such as participating in a clean-up of habitat or planting native plants to restore habitat. Discuss other ways to help species at risk.

5) The boreal forest video talks about balance as an important to support the needs of nature and people. What does balance mean to you?

Balance is a careful consideration and compromise between two different and often-conflicting perspectives or wants. For example, we should balance our need for wood from a forest with the need for a forest to remain intact and long-lived so that it provides habitat for species. Discuss what balance means to you.

6) Some of the videos were created many years ago and some were created more recently. Can you tell the difference? What message were the newer videos trying to emphasize?

The newer videos emphasize direct actions and show the hosts speaking where as the older video tend to focus on characteristics of the animals. The newer videos are trying to relate to the viewer and show them that they to can make a difference.

## BINGO Call Word List

Woodland Caribou	Eats lichens
Burrowing Owl	Live in abandoned burrows
Swift Fox	Once Extirpated from Canada
Peregrine Falcon	150 miles per hour
Boreal Forest	Home to 30% of Canadian songbirds
Polar Bear	Need sea ice to catch prey
Wood Bison	Largest land mammal in North America
Piping Plover	Nests in beaches
Whooping Crane	2-meter wingspan
Trumpeter Swan	Largest waterfowl
Monarch Butterfly	Migration from Mexico
Pesticide Use	Ride your bicycle
Wolves	Restoration
Landowner Cooperation	Butterfly Garden
Clothe Shopping Bag	Recycling
Staying on the Trail	Barn owl
Planting Flowers	Ritual mating dance
Recovery	Newfoundland Marten
Threatened Animal	

### Hinterland's Who's Who Species at Risk BINGO

Ritual mating dance	Recycling	Peregrine Falcon	Monarch Butterfly	Ride your bicycle
Butterfly Garden	Staying on the Trail	Once Extirpated from Canada	Barn owl	Threatened Animal
Wood Bison	Pesticide Use	FREE	Wolves	Landowner Cooperation
Migration from Mexico	Clothe Shopping Bag	Woodland Caribou	Polar Bear	Piping Plover
150 miles per hour	Largest waterfowl	Need sea ice to catch prey	Planting Flowers	Newfound-land Marten

### Hinterland's Who's Who Species at Risk BINGO

Largest waterfowl	Woodland Caribou	Wood Bison	Ride your bicycle	Butterfly Garden
Boreal Forest	Live in abandoned burrows	Monarch Butterfly	Eats lichens	Once Extirpated from Canada
Clothe Shopping Bag	Staying on the Trail	FREE	Planting Flowers	Newfound-land Marten
Threatened Animal	Polar Bear	Burrowing Owl	Recovery	Swift Fox
Home to 30% of Canadian songbirds	Barn owl	150 miles per hour	2-meter wingspan	Trumpeter Swan

### Hinterland's Who's Who Species at Risk BINGO

Monarch Butterfly	Wolves	Nests in beaches	Restoration	Swift Fox
Ritual mating dance	Eats lichens	Butterfly Garden	Whooping Crane	Boreal Forest
Landowner Cooperation	Trumpeter Swan	FREE	Need sea ice to catch prey	Pesticide Use
Barn owl	Clothe Shopping Bag	Burrowing Owl	Recovery	Recycling
Migration from Mexico	Once Extirpated from Canada	150 miles per hour	2-meter wingspan	Newfound-land Marten

### Hinterland's Who's Who Species at Risk BINGO

Monarch Butterfly	Threatened Animal	Clothe Shopping Bag	Staying on the Trail	Live in abandoned burrows
Barn owl	Polar Bear	Ride your bicycle	Wolves	Woodland Caribou
Newfound-land Marten	Largest land mammal in North America	FREE	Ritual mating dance	Peregrine Falcon
Trumpeter Swan	Whooping Crane	Boreal Forest	Home to 30% of Canadian songbirds	Nests in beaches
Landowner Cooperation	Piping Plover	Migration from Mexico	Recycling	Planting Flowers

### Hinterland's Who's Who Species at Risk BINGO

Pesticide Use	150 miles per hour	Recycling	Restoration	Whooping Crane
Landowner Cooperation	Burrowing Owl	Need sea ice to catch prey	Boreal Forest	Nests in beaches
Newfoundland Marten	Wood Bison	FREE	2-meter wingspan	Swift Fox
Polar Bear	Woodland Caribou	Recovery	Ride your bicycle	Peregrine Falcon
Largest waterfowl	Ritual mating dance	Wolves	Clothe Shopping Bag	Piping Plover

### Hinterland's Who's Who Species at Risk BINGO

Recycling	Clothe Shopping Bag	Whooping Crane	Recovery	Eats lichens
Nests in beaches	Pesticide Use	Largest waterfowl	Boreal Forest	Wood Bison
Butterfly Garden	Ride your bicycle	FREE	Home to 30% of Canadian songbirds	Swift Fox
Ritual mating dance	Live in abandoned burrows	Barn owl	Woodland Caribou	Polar Bear
Planting Flowers	Piping Plover	Staying on the Trail	Need sea ice to catch prey	150 miles per hour

### Hinterland's Who's Who Species at Risk BINGO

Swift Fox	Barn owl	Butterfly Garden	Eats lichens	Pesticide Use
Ride your bicycle	Woodland Caribou	Boreal Forest	Migration from Mexico	Planting Flowers
Ritual mating dance	2-meter wingspan	FREE	Largest waterfowl	Trumpeter Swan
Live in abandoned burrows	Polar Bear	Newfoundland Marten	Recovery	Monarch Butterfly
150 miles per hour	Whooping Crane	Nests in beaches	Restoration	Need sea ice to catch prey

### Hinterland's Who's Who Species at Risk BINGO

Restoration	Trumpeter Swan	Swift Fox	Monarch Butterfly	Boreal Forest
Recycling	Woodland Caribou	Need sea ice to catch prey	Ride your bicycle	Newfoundland Marten
2-meter wingspan	Barn owl	FREE	Eats lichens	Live in abandoned burrows
Ritual mating dance	Migration from Mexico	Largest land mammal in North America	Pesticide Use	Burrowing Owl
Wolves	Landowner Cooperation	Polar Bear	Recovery	Piping Plover

### Hinterland's Who's Who Species at Risk BINGO

2-meter wingspan	Live in abandoned burrows	Landowner Cooperation	Clothe Shopping Bag	Peregrine Falcon
Recovery	Ride your bicycle	Nests in beaches	Planting Flowers	Home to 30% of Canadian songbirds
Ritual mating dance	Boreal Forest	FREE	Newfound-land Marten	150 miles per hour
Eats lichens	Wolves	Burrowing Owl	Butterfly Garden	Migration from Mexico
Largest land mammal in North America	Threatened Animal	Wood Bison	Need sea ice to catch prey	Restoration

### Hinterland's Who's Who Species at Risk BINGO

Wolves	Staying on the Trail	Ritual mating dance	Butterfly Garden	Whooping Crane
Trumpeter Swan	Ride your bicycle	Live in abandoned burrows	Woodland Caribou	Wood Bison
Clothe Shopping Bag	Restoration	FREE	Barn owl	Migration from Mexico
Swift Fox	Once Extirpated from Canada	Planting Flowers	Burrowing Owl	Boreal Forest
Eats lichens	Nests in beaches	Polar Bear	150 miles per hour	Piping Plover

### Hinterland's Who's Who Species at Risk BINGO

Burrowing Owl	Barn owl	Wolves	2-meter wingspan	Ritual mating dance
150 miles per hour	Trumpeter Swan	Migration from Mexico	Wood Bison	Home to 30% of Canadian songbirds
Piping Plover	Recovery	FREE	Threatened Animal	Eats lichens
Recycling	Woodland Caribou	Nests in beaches	Restoration	Pesticide Use
Need sea ice to catch prey	Clothe Shopping Bag	Whooping Crane	Once Extirpated from Canada	Polar Bear

### Hinterland's Who's Who Species at Risk BINGO

Pesticide Use	Largest waterfowl	Largest land mammal in North America	Woodland Caribou	Landowner Cooperation
Trumpeter Swan	Wolves	Boreal Forest	Nests in beaches	Recovery
Once Extirpated from Canada	Burrowing Owl	FREE	Swift Fox	Eats lichens
Live in abandoned burrows	Butterfly Garden	Staying on the Trail	Newfound-land Marten	Monarch Butterfly
Migration from Mexico	Ritual mating dance	Restoration	Recycling	Wood Bison

### Hinterland's Who's Who Species at Risk BINGO

Burrowing Owl	Once Extirpated from Canada	Largest waterfowl	Clothe Shopping Bag	Live in abandoned burrows
Swift Fox	Pesticide Use	Peregrine Falcon	Piping Plover	Migration from Mexico
Ritual mating dance	Planting Flowers	FREE	Recycling	Woodland Caribou
Wolves	Monarch Butterfly	Restoration	Boreal Forest	Polar Bear
Ride your bicycle	Barn owl	Nests in beaches	2-meter wingspan	Wood Bison

### Hinterland's Who's Who Species at Risk BINGO

Pesticide Use	Woodland Caribou	2-meter wingspan	Butterfly Garden	Need sea ice to catch prey
Staying on the Trail	Threatened Animal	Swift Fox	Planting Flowers	Clothe Shopping Bag
Landowner Cooperation	Boreal Forest	FREE	Burrowing Owl	Polar Bear
Once Extirpated from Canada	Ride your bicycle	Trumpeter Swan	Ritual mating dance	Largest land mammal in North America
Newfound-land Marten	Barn owl	Monarch Butterfly	Piping Plover	150 miles per hour

### Hinterland's Who's Who Species at Risk BINGO

Recycling	Trumpeter Swan	150 miles per hour	Staying on the Trail	Whooping Crane
Burrowing Owl	Largest waterfowl	Live in abandoned burrows	Clothe Shopping Bag	Threatened Animal
Ride your bicycle	Butterfly Garden	FREE	Pesticide Use	2-meter wingspan
Wood Bison	Newfound-land Marten	Largest land mammal in North America	Landowner Cooperation	Swift Fox
Planting Flowers	Barn owl	Restoration	Peregrine Falcon	Monarch Butterfly

### Hinterland's Who's Who Species at Risk BINGO

Wolves	Pesticide Use	Need sea ice to catch prey	Barn owl	Nests in beaches
Newfound-land Marten	Swift Fox	Staying on the Trail	Woodland Caribou	Burrowing Owl
Boreal Forest	Eats lichens	FREE	Home to 30% of Canadian songbirds	Butterfly Garden
Whooping Crane	150 miles per hour	Polar Bear	Migration from Mexico	Once Extirpated from Canada
Ritual mating dance	Ride your bicycle	Recycling	Clothe Shopping Bag	Largest land mammal in North America

### Hinterland's Who's Who Species at Risk BINGO

Staying on the Trail	Pesticide Use	150 miles per hour	Barn owl	Home to 30% of Canadian songbirds
Wood Bison	Largest waterfowl	Landowner Cooperation	Burrowing Owl	Largest land mammal in North America
Ritual mating dance	Live in abandoned burrows	FREE	Boreal Forest	Monarch Butterfly
Woodland Caribou	Newfound-land Marten	Nests in beaches	Migration from Mexico	Swift Fox
Ride your bicycle	Once Extirpated from Canada	Clothe Shopping Bag	Trumpeter Swan	Need sea ice to catch prey

### Hinterland's Who's Who Species at Risk BINGO

Swift Fox	Ritual mating dance	Nests in beaches	Woodland Caribou	Burrowing Owl
Live in abandoned burrows	Eats lichens	Monarch Butterfly	2-meter wingspan	Largest waterfowl
Staying on the Trail	Ride your bicycle	FREE	Migration from Mexico	Piping Plover
Need sea ice to catch prey	Recovery	Wood Bison	Pesticide Use	Planting Flowers
Whooping Crane	Clothe Shopping Bag	Once Extirpated from Canada	Threatened Animal	Restoration

### Hinterland's Who's Who Species at Risk BINGO

Home to 30% of Canadian songbirds	Restoration	Piping Plover	Barn owl	Trumpeter Swan
Ride your bicycle	Woodland Caribou	Recovery	Eats lichens	Wood Bison
Threatened Animal	Clothe Shopping Bag	FREE	Live in abandoned burrows	Staying on the Trail
Burrowing Owl	2-meter wingspan	Monarch Butterfly	Polar Bear	Largest land mammal in North America
Largest waterfowl	Whooping Crane	Planting Flowers	Wolves	Migration from Mexico

### Hinterland's Who's Who Species at Risk BINGO

Staying on the Trail	Wolves	Clothe Shopping Bag	Nests in beaches	Planting Flowers
Recovery	Need sea ice to catch prey	Once Extirpated from Canada	150 miles per hour	Recycling
Largest waterfowl	Threatened Animal	FREE	Monarch Butterfly	Ride your bicycle
2-meter wingspan	Barn owl	Largest land mammal in North America	Piping Plover	Polar Bear
Whooping Crane	Burrowing Owl	Landowner Cooperation	Pesticide Use	Woodland Caribou

### Hinterland's Who's Who Species at Risk BINGO

150 miles per hour	Trumpeter Swan	Boreal Forest	Piping Plover	Monarch Butterfly
Clothe Shopping Bag	Wood Bison	Migration from Mexico	Need sea ice to catch prey	Recycling
Whooping Crane	Restoration	FREE	Planting Flowers	Wolves
Nests in beaches	Newfound-land Marten	Pesticide Use	Polar Bear	Once Extirpated from Canada
Ritual mating dance	Staying on the Trail	Eats lichens	Threatened Animal	Barn owl

### Hinterland's Who's Who Species at Risk BINGO

Landowner Cooperation	2-meter wingspan	Live in abandoned burrows	Threatened Animal	Restoration
Once Extirpated from Canada	Clothe Shopping Bag	Trumpeter Swan	Largest land mammal in North America	Polar Bear
Need sea ice to catch prey	Largest waterfowl	FREE	Eats lichens	Butterfly Garden
Piping Plover	Boreal Forest	150 miles per hour	Woodland Caribou	Nests in beaches
Recovery	Peregrine Falcon	Barn owl	Swift Fox	Newfound-land Marten

### Hinterland's Who's Who Species at Risk BINGO

Staying on the Trail	Live in abandoned burrows	Burrowing Owl	Newfound-land Marten	Butterfly Garden
Home to 30% of Canadian songbirds	Pesticide Use	Migration from Mexico	Restoration	Polar Bear
Planting Flowers	Peregrine Falcon	FREE	Whooping Crane	Barn owl
Nests in beaches	Once Extirpated from Canada	2-meter wingspan	Monarch Butterfly	Recovery
Threatened Animal	Recycling	Piping Plover	Wood Bison	Ride your bicycle

### Hinterland's Who's Who Species at Risk BINGO

Butterfly Garden	Threatened Animal	Newfound-land Marten	150 miles per hour	Live in abandoned burrows
Boreal Forest	Ride your bicycle	Largest land mammal in North America	Need sea ice to catch prey	Swift Fox
Monarch Butterfly	Eats lichens	FREE	Burrowing Owl	Whooping Crane
Restoration	Home to 30% of Canadian songbirds	2-meter wingspan	Recycling	Wood Bison
Ritual mating dance	Peregrine Falcon	Pesticide Use	Once Extirpated from Canada	Planting Flowers

### Hinterland's Who's Who Species at Risk BINGO

Woodland Caribou	Need sea ice to catch prey	Butterfly Garden	Recycling	Threatened Animal
Newfoundland Marten	Monarch Butterfly	2-meter wingspan	Largest land mammal in North America	Staying on the Trail
Home to 30% of Canadian songbirds	Wood Bison	FREE	Clothe Shopping Bag	Recovery
Planting Flowers	Barn owl	Once Extirpated from Canada	Peregrine Falcon	150 miles per hour
Polar Bear	Swift Fox	Piping Plover	Migration from Mexico	Nests in beaches

### Hinterland's Who's Who Species at Risk BINGO

Peregrine Falcon	Migration from Mexico	Threatened Animal	Recycling	Landowner Cooperation
Whooping Crane	Pesticide Use	Once Extirpated from Canada	Nests in beaches	Planting Flowers
150 miles per hour	Recovery	FREE	Restoration	Clothe Shopping Bag
Live in abandoned burrows	Boreal Forest	Piping Plover	Woodland Caribou	Eats lichens
Butterfly Garden	Largest waterfowl	Barn owl	Wolves	Wood Bison

### Hinterland's Who's Who Species at Risk BINGO

Whooping Crane	Landowner Cooperation	Staying on the Trail	Recycling	Once Extirpated from Canada
Ride your bicycle	Woodland Caribou	Eats lichens	Trumpeter Swan	Newfoundland Marten
Monarch Butterfly	Migration from Mexico	FREE	Burrowing Owl	Boreal Forest
Ritual mating dance	2-meter wingspan	Need sea ice to catch prey	Wolves	Piping Plover
Clothe Shopping Bag	Planting Flowers	Polar Bear	Peregrine Falcon	Swift Fox

### Hinterland's Who's Who Species at Risk BINGO

Trumpeter Swan	Polar Bear	Staying on the Trail	Home to 30% of Canadian songbirds	Barn owl
Boreal Forest	Restoration	Swift Fox	Largest waterfowl	Newfoundland Marten
Recycling	Once Extirpated from Canada	FREE	Recovery	Pesticide Use
Landowner Cooperation	2-meter wingspan	Monarch Butterfly	Wood Bison	Ritual mating dance
Ride your bicycle	Wolves	Eats lichens	Need sea ice to catch prey	Live in abandoned burrows

### Hinterland's Who's Who Species at Risk BINGO

Landowner Cooperation	Restoration	Ride your bicycle	Clothe Shopping Bag	Monarch Butterfly
Eats lichens	Nests in beaches	Threatened Animal	Recycling	Burrowing Owl
Piping Plover	Largest waterfowl	FREE	Woodland Caribou	Recovery
Peregrine Falcon	Polar Bear	Migration from Mexico	Ritual mating dance	Wood Bison
Swift Fox	Live in abandoned burrows	150 miles per hour	Trumpeter Swan	Pesticide Use

### Hinterland's Who's Who Species at Risk BINGO

Largest land mammal in North America	Barn owl	Newfound-land Marten	Recovery	2-meter wingspan
Migration from Mexico	Swift Fox	Woodland Caribou	Largest waterfowl	Staying on the Trail
Once Extirpated from Canada	Live in abandoned burrows	FREE	Home to 30% of Canadian songbirds	Clothe Shopping Bag
Trumpeter Swan	Burrowing Owl	Restoration	Need sea ice to catch prey	Eats lichens
Boreal Forest	Wood Bison	150 miles per hour	Ride your bicycle	Butterfly Garden

### Hinterland's Who's Who Species at Risk BINGO

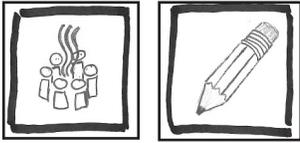
Migration from Mexico	Recycling	Wolves	Burrowing Owl	Swift Fox
Monarch Butterfly	Home to 30% of Canadian songbirds	Threatened Animal	Live in abandoned burrows	Butterfly Garden
2-meter wingspan	Staying on the Trail	FREE	Newfound-land Marten	Restoration
Ride your bicycle	Largest waterfowl	Eats lichens	Planting Flowers	Whooping Crane
150 miles per hour	Recovery	Piping Plover	Landowner Cooperation	Nests in beaches

### Hinterland's Who's Who Species at Risk BINGO

Need sea ice to catch prey	Live in abandoned burrows	Recovery	Swift Fox	Clothe Shopping Bag
Largest land mammal in North America	Woodland Caribou	Monarch Butterfly	Nests in beaches	Newfound-land Marten
Threatened Animal	2-meter wingspan	FREE	Wolves	Staying on the Trail
Landowner Cooperation	Eats lichens	Butterfly Garden	Whooping Crane	Ritual mating dance
150 miles per hour	Burrowing Owl	Migration from Mexico	Recycling	Planting Flowers

## Lesson Plan # 9

# Shadows of the Forest: Managing Woodland Caribou



**SUMMARY:** This lesson plan uses the 'Shadows of the Forest: Managing Woodland Caribou' video to stimulate discussion and interest in different approaches for monitoring and managing woodland caribou populations.

### ACTIVITY INFORMATION

**Level:** Grades 6-12

**Subjects:** Science, Social Studies, English Language Arts, Forestry, Species at Risk, Adaptation, Aboriginal Traditional Knowledge, Boreal Forest, Conservation Biology

**Duration:** Two class periods, or approximately 2 hours.

1. Introduction, review discussion questions, and view video.
2. Class discussion led by questions about the video.

**Materials:** 'Shadows of the Forest: Managing Woodland Caribou' video on DVD, DVD player, television, copy of questions for students (at the end of this lesson plan).

### LEARNING OUTCOMES

Students will learn:

- About the biology of the woodland caribou
- Ways that humans have impacted woodland caribou
- About different conservation practices

- How Traditional Ecological Knowledge (TEK) is being used to help manage woodland caribou populations

### Traditional Knowledge

There are many different terms, including Aboriginal Traditional Knowledge (ATK), Indigenous Knowledge (IK), and Traditional Ecological Knowledge (TEK) that refer to the knowledge that Aboriginal people have developed over many generations through time spent on the land. The 'Shadows of the Forest: Managing Woodland Caribou' video uses the term TEK.

### TEACHER BACKGROUND

This lesson is made up of the film, 'Shadows of the Forest' (approximately 26 minutes), and a set of questions to answer after watching the film. The questions are aimed at getting students to think about ways to conserve the woodland caribou and other species at risk.

*Film Overview:*

The film 'Shadows of the Forest: Managing Woodland Caribou', introduces caribou biology and threats to their habitat. The film explains the activities of the Eastern Manitoba Woodland Caribou Management Committee (EMWCMC), a partnership formed to address caribou conservation issues. The goal of the committee is "to maintain or enhance caribou populations on their current ranges ." The committee encourages two approaches in the conservation of caribou:

- a) Use of Traditional Ecological Knowledge (TEK) and,

b) Use of scientific studies and technology.

This video explores local stories (TEK), tracking populations with radio collars, and the protection efforts of Tembec.

The video was produced by the EMWCMC and is distributed by the Manitoba Model Forest.

### TEACHER PREPARATION

Get a copy of the 'Shadows of the Forest' DVD.

Review discussion questions at the end of this lesson plan. Print off enough copies for each student in the class.

- Intermediate questions for grades 6-8
- Advanced questions for grades 9-12

#### Where can I get the DVD?

Contact the Manitoba Model Forest at  
Phone: (204) 367-4541 or  
E-mail: [education@manitobamodelforest.net](mailto:education@manitobamodelforest.net)

CIER also has copies of the DVD (limited quantities). Contact us to request a DVD, with your mailing address, at <http://www.cier.ca/about-us/contact-us.aspx?id=1736>

### PROCEDURE

#### Step 1. INTRODUCTION

Begin the class with a discussion of woodland caribou and some interesting facts about their biology. Explain to them that this species is considered a threatened species. Discuss that many people and industries have an interest in the boreal forest where woodland caribou live.

Suggested discussion:

Has anyone ever seen a woodland caribou?

What adaptations do woodland caribou have to help them survive?

Who has an interest in the boreal forest, and why would these interests affect woodland caribou?

#### Step 2. VIEW THE FILM

Hand-out the discussion questions at the end of this lesson to each student, and tell them that they will be answering the questions based on a film about woodland caribou. View the 'Shadows of the Forest' film as a class.

#### Step 3. DISCUSSION

After the film, review the provided questions, understanding that there are multiple answers to most of the questions. Give students some time to answer questions on their own. Then discuss answers to the questions as a group.

Woodland Caribou (Photo: Parks Canada/W.Lynch)



## Manitoba First Nations Species at Risk Teaching Kit

### DISCUSSION QUESTIONS – Intermediate

1. What kinds of adaptations do woodland caribou have?
2. What are the threats to the survival of woodland caribou?
3. What do you think is meant by Traditional Ecological Knowledge (TEK)? How is it used in woodland caribou conservation? Do you know of any other examples of TEK?
4. How do you think the woodland caribou should be protected? What resources are needed to ensure that conservation measures are successful?
5. How is the radio collar used? What can it accomplish? What kinds of limitations does it have?
6. What First Nations activities have an effect on the woodland caribou? Are these activities beneficial or detrimental to caribou survival?
7. What First Nations traditions have allowed sustainable hunting and coexistence for generations? Compare and contrast modern conservation measures to First Nations traditions.
8. What problems can forestry cause for the woodland caribou? What countermeasures are outlined? Can changes in forestry practice alter the outcome of woodland caribou protection? Explain.
9. What can you do to help species at risk like the woodland caribou?

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### DISCUSSION QUESTIONS – Advanced

1. What are the differences between woodland and barren land caribou? Why might they be important? Consider the differences in habitat.
2. What are the threats to the survival of woodland caribou?
3. If woodland caribou have always had low numbers, why might they need protection under the *Species at Risk Act (SARA)*?
4. What is Traditional Ecological Knowledge (TEK)? How is it different from science? How is it used in woodland caribou conservation? Do you know of any other examples of TEK?
5. The film describes a number of the methods that Tembec employs to help minimize population declines. How effective are each of these methods?
6. Aside from forestry, what other types of industry (e.g. mining, pipelines, etc) in the north might impact woodland caribou?
7. What First Nations activities have an effect on the woodland caribou? Are these activities beneficial or detrimental to caribou survival?
8. What First Nations traditions have allowed sustainable hunting and coexistence for generations? Compare and contrast modern conservation measures to First Nations traditions.
9. Compare the following two sentences and their depiction in the film. (1) "Caribou Clan is considered protectors of the forest." (2) "Ecologists view the caribou as an indicator of forest health." What shared values do the Caribou Clan and some Ecologists have in common?
10. Who are the main contributors to the production of the film? What are the most important messages for each one of the contributors? Are they different?

**ANSWERS TO DISCUSSION QUESTIONS – Intermediate**

1. What kinds of adaptations do woodland caribou have?

Wide hooves for snow travel and digging for lichens, and the ability to survive on a lichen diet.

2. What are the threats to the survival of woodland caribou?

Increased predation, introduction of parasites, building of roads and other development.

3. A) What do you think is meant by Traditional Ecological Knowledge (TEK)?

B) How is it used in woodland caribou conservation?

C) Do you know of any examples of TEK?

A) TEK represents experience acquired over thousands of years of direct human contact with the environment (IDRC, 2008). Discuss meaning of TEK.

B) TEK is gathered to give a sense of historical and observed changes in caribou behaviour, populations, and health. This can help in planning for protection of caribou and their habitat.

C) Discussion.

4. A) How do you think the woodland caribou should be protected?

B) What resources are needed to ensure that conservation measures are successful?

A) Setting aside protected areas is one method of protection. Discuss other methods.

B) More research about caribou is needed. People, time, and money are important resources.

5. A) How is the radio collar used?

B) What can it accomplish?

C) What kinds of limitations does it have?

A) Radio collars are put on captured caribou.

B) They allow researchers to track caribou movements and seasonal locations. This information is helpful for knowing how to manage caribou habitat.

C) A limitation is that the collars only give information about locations of caribou, not about the activities that caribou are doing. The possibility of undesirable effects on the caribou during capture and while wearing the collars is also a limitation.

6. A) What First Nations activities have an effect on the woodland caribou?

B) Are these activities beneficial or detrimental to caribou survival?

A) Hunting is one example. Others?

B) Hunting does kill caribou, however, hunters spend time observing caribou, which allows them to learn and share information about caribou populations. Discuss other activities and their benefits/negative impacts.

7. What First Nations traditions have allowed sustainable hunting and coexistence for generations? Compare and contrast modern conservation measures to First Nations traditions.

Discussion.

## Manitoba First Nations Species at Risk Teaching Kit

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8. A) What problems can forestry cause for the woodland caribou?

B) What countermeasures are outlined?

C) Can changes in forestry practice alter the outcome of woodland caribou protection?

A) Forestry may cause changes in forest habitat, making it more suitable for other animals like deer, and less suitable for caribou. Deer may bring parasites and/or predators that are harmful to caribou into an area.

B) Some proposed changes are selective logging, tracking caribou populations, and leaving lichen as ground cover for food in long winters.

C) Discussion.

9. What can you do to help species at risk like the woodland caribou?

You can help by being respectful of the forest habitat, wasting less, and buying less. Also, talking to community members and others about your concerns for species at risk. One way to help could be starting a campaign by writing letters and making posters to teach people about the importance of species at risk.

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### ANSWERS TO DISCUSSION QUESTIONS – Advanced

1. What are the differences between woodland and barren land caribou? Why might they be important? Consider the differences in habitat.

Woodland caribou are larger and have smaller herds than barren land caribou, and they are better suited for forest travel. Woodland caribou do not migrate the long distances that barren land caribou do, because food and shelter are available throughout the forest.

2. What are the threats to the survival of woodland caribou?

Increased predation, introduction of parasites, building of roads and other development

3. If woodland caribou have always had low numbers, why might they need protection under the *Species at Risk Act (SARA)*?

Low populations are sensitive to environmental changes such as changes in the populations of other animals (e.g. deer), climate change, industrial development, or unforeseen threats.

4. A) What is Traditional Ecological Knowledge (TEK)? B) How is it different from science? C) How is it used in woodland caribou conservation? D) Do you know of any examples of TEK?

A) TEK represents experience acquired over thousands of years of direct human contact with the environment (IDRC, 2008). Discuss meaning of TEK.

B) TEK relies on transferring knowledge orally, instead of in written reports as science does. Discuss other differences.

C) TEK is gathered to give a sense of historical and observed changes in caribou behaviour, populations, and health. TEK can help in planning for protection of caribou and their habitat.

D) Discussion.

**ANSWERS TO DISCUSSION QUESTIONS – Advanced**

5. A) The film describes a number of the methods that Tembec employs to help minimize population declines. B) How effective are each of these methods?

A) Tembec uses selective logging, and leaving lichen as ground cover for food in long winters.

B) Discuss effectiveness of these methods.

6. Aside from forestry, what other types of industry in the north might impact woodland caribou?

Mining, hydroelectric development, and pipelines.

7. A) What First Nations activities have an effect on woodland caribou?

B) Are these activities beneficial or detrimental to caribou survival?

A) Hunting is one example. Others?

B) Hunting does kill some caribou, however, hunters spend time observing caribou, which allows them to learn and share information about caribou populations. Discuss other activities and their benefits/negative impacts.

8. What First Nations traditions have allowed sustainable hunting and coexistence for generations? Compare and contrast modern conservation measures to First Nations traditions.

Discussion.

9. Compare the following two sentences and their depiction in the film. (1) "Caribou Clan is considered protectors of the forest." (2) "Ecologists view the caribou as an indicator of forest health." What shared values do the Caribou Clan and some ecologists have in common?

Discussion.

10. A) Who are the main contributors to the production of the film?

B) What are the main interests for each one of the contributors?

C) Are they different?

A) Forestry companies and conservation organizations are two of the major contributors.

B) Forestry companies have an interest in maintaining the forests, their investments, and reputation, while obeying laws such as SARA. The interests of conservation groups are mainly to preserve forests and their inhabitants, and also maintain their reputation.

C) Discussion.

### EXTENSIONS

#### Extension 1. Wonderful World of Woodland Caribou

Use the curriculum package entitled 'The Wonderful World of the Boreal Woodland Caribou' created by Manitoba Model Forest (<http://www.manitobamodelforest.net/publications>) to conduct extra activities with students. The package has games and activities to learn about caribou and their habitat.

### ADDITIONAL INFORMATION/RESOURCES ON WOODLAND CARIBOU

- Project Caribou ([www.taiga.net/projectcaribou/index.html](http://www.taiga.net/projectcaribou/index.html))
- Manitoba Model Forest ([www.manitobamodelforest.net/caribou.html](http://www.manitobamodelforest.net/caribou.html))
- "Grey Ghosts: can we save woodland caribou in Canada's boreal forest?" Canadian Parks and Wilderness Society ([www.cpaws-sask.org/common/pdfs/cpaws\\_report\\_2004.pdf](http://www.cpaws-sask.org/common/pdfs/cpaws_report_2004.pdf))
- Caribou and You Campaign ([www.caribouandyou.ca](http://www.caribouandyou.ca))
- Species for Spaces (Environment Canada and Canadian Space Agency) track different species over the Internet ([www.spaceforspecies.ca](http://www.spaceforspecies.ca))
- Being Caribou, hiking with the caribou ([www.beingcaribou.com](http://www.beingcaribou.com))

### REFERENCES

IDRC (International Development Research Centre) website ([http://www.idrc.ca/en/ev-84401-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-84401-201-1-DO_TOPIC.html)). Article by Fikret Berkes entitled: *Traditional Ecological Knowledge in Perspective*. Accessed August 2008.



# Species at Risk Brain-teasers

These activities provide an interactive way for students to solidify their understanding of the basic terms and concepts related to species at risk. Before doing these activities, students should receive an explanation of the information found in the 'Introduction to Concepts' section. These activities also allow students to become familiar with how to gather additional information from the *SARA* Registry ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) described in the 'Additional Resources' section of this booklet (pg 86).

## WORD FIND

Find the following species at risk terms in the scrambled puzzle below. Words may be forward, backward, or diagonal. Identify which of the terms are helpful to species at risk? Which pose threats to species at risk? Which concepts are part of the *SARA*?

Stewardship  
Rare  
Species at risk  
Pesticide  
Pathfinder

Threatened  
Aboriginal  
Awareness  
Traditional  
Assessment

Knowledge  
Wetland  
Ecology  
Management  
Forest

Habitat  
Pollution  
Endangered

H I G F T O Y T A T I B A H T  
 A L A N I G I R O B A G A R E  
 V D E N O E D I C I T S E P S  
 T G U L S C O F O R E S T T E  
 H R O A D N A L T E W I P N G  
 R C A P A T H F I N D E R E D  
 E S S D A W A R E N E S S M E  
 A F D P I H S D R A W E T S L  
 T K S I R T A S E I C E P S W  
 E B B G A D I R G O I R J E O  
 N O I T U L L O P E R E M S N  
 E W R A F Z T C N R H T A S K  
 D T H T N E M E G A N A M A S  
 E R S P E R I S W R L O N A D  
 F D E R E G N A D N E N I C E

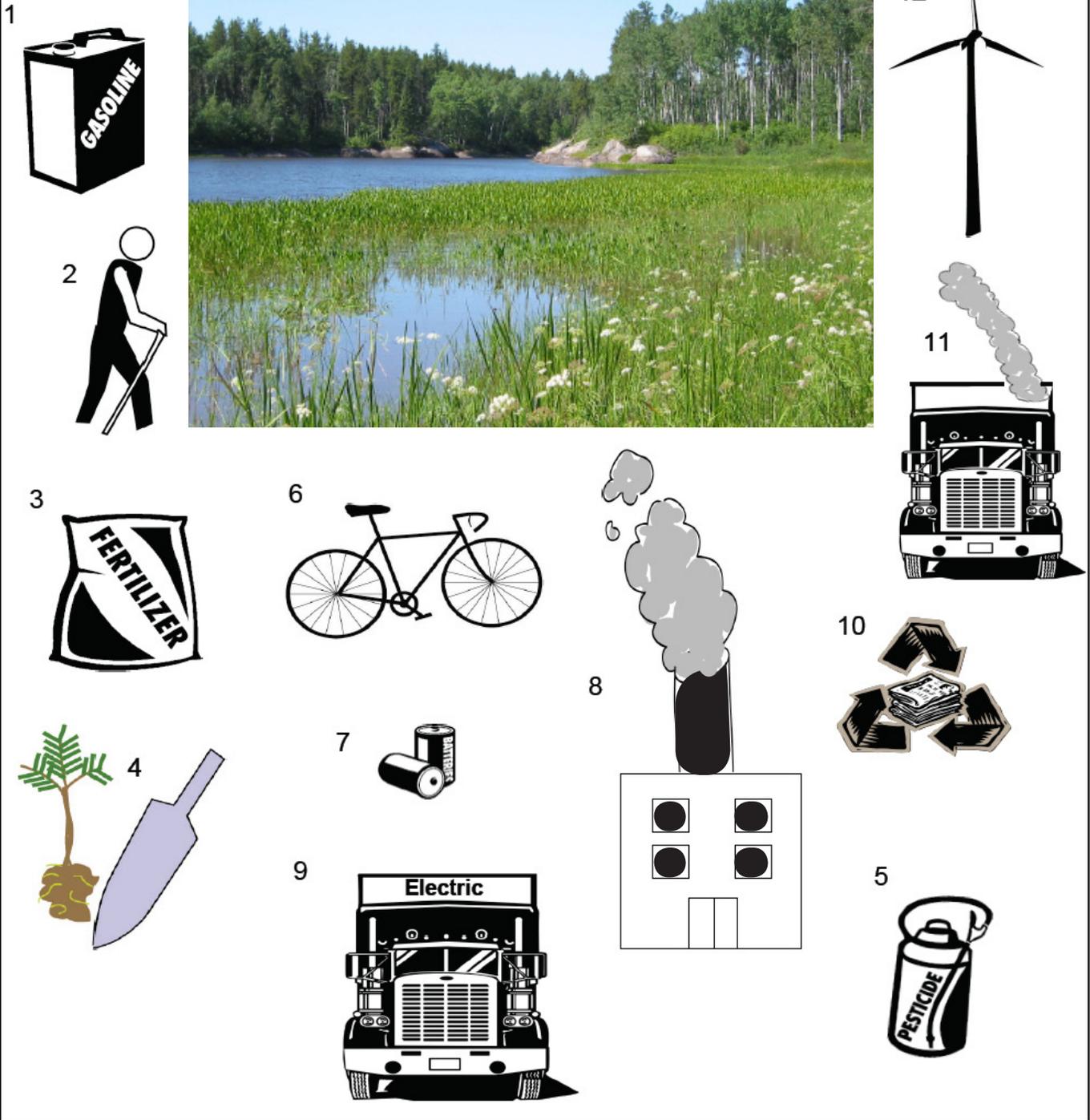
# TRUE OR FALSE

Statements	True	False
1) <i>SARA</i> will not affect Aboriginal peoples.		
2) NACOSAR is appointed by Environment Canada.		
3) The only goal of <i>SARA</i> is preserve species at risk.		
4) The internet is the only place to find out more about species at risk.		
5) Although you cannot kill a species at risk, it is okay to capture them if you let them go.		
6) Aboriginal peoples have a significant role in recovering species at risk.		
7) Not all information is available in scientific studies.		
8) Polar bears are endangered under <i>SARA</i> .		
9) Burrowing owl populations are less stable in Canada than the US.		
10) Climate change is considered the number one threat for all species at risk.		
11) Species at risk can be useful cultural resources, such as medicine or food.		
12) Grizzly bears used to live in the prairie ecosystem.		
13) Species at risk can include mosses.		
14) Species that are well adapted to their environment can still become extinct.		

# WHAT FITS?

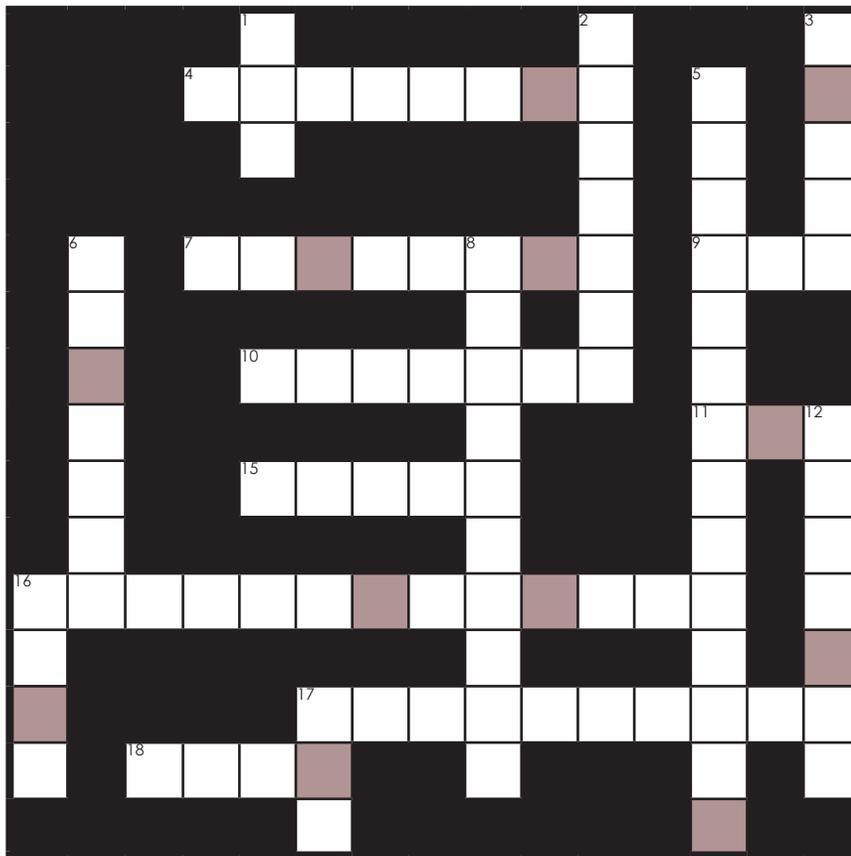
Which pictures contribute to a healthy habitat for species?  
Which pictures pose threats to habitat for species?

Photo: Poplar River First Nation/T. Ruta Fuchs



# CROSSWORD PUZZLE

Complete the crossword puzzle below. You may need to do some research on the *SARA* registry ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)) to find the answers.



Scramble the highlighted letters for 'your chance to contribute'

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## Across

- 4 Was once extirpated from Canada, but is now starting to recover
- 7 Fish species at risk that can be over 100 years old
- 9 Spend less time getting around in one of these and it will be better for the environment and your health
- 10 Home for a plant or animal
- 11 *SARA* is a federal \_\_\_\_\_
- 15 Aboriginal Fund (Abbr.)
- 16 Reduces the suitability of habitat by dividing it up
- 17 The process of determining the status of a species
- 18 There were 233 species on this \_\_\_\_ in 2004 when *SARA* was established. This number will continue to grow

## Down

- 1 Burrowing \_\_\_\_\_
- 2 'Status' if species no longer exists in wild
- 3 Somewhere to get information in your community
- 5 'Status' if species is sensitive to human activities or natural events
- 6 Ensure that the interests of Aboriginal peoples are met in the *SARA* process
- 8 'Status' if no longer exists in Canada, but is still found elsewhere
- 12 Somewhere to get information at your finger tips
- 16 May not be able to do this if a fish species is threatened
- 17 Perspective not usually found in scientific literature (Abbr.)

# ANSWERS FOR TRUE OR FALSE

Statements	True	False
1) <i>SARA</i> will not affect Aboriginal peoples. <i>False - SARA could benefit or negatively impact Aboriginal peoples, depending on what species/habitat is being protected, and the goals of Aboriginal peoples.</i>	<input type="radio"/>	<input checked="" type="radio"/>
2) NACOSAR is appointed by Environment Canada. <i>True - NACOSAR members from Aboriginal organisations across Canada are appointed by the federal government.</i>	<input checked="" type="radio"/>	<input type="radio"/>
3) The only goal of <i>SARA</i> is to preserve species at risk. <i>False - Another goal of SARA is to protect habitat for species.</i>	<input type="radio"/>	<input checked="" type="radio"/>
4) The internet is the only place to find out more about species at risk. <i>False - Other sources of information are local experts (e.g. Elders, other experts in your community or elsewhere), books/articles, or videos.</i>	<input type="radio"/>	<input checked="" type="radio"/>
5) You cannot kill a species at risk, but it is okay to capture them if you let them go. <i>False - It is also illegal to harm, harass, or capture a species at risk.</i>	<input type="radio"/>	<input checked="" type="radio"/>
6) Aboriginal peoples have a significant role in recovering species at risk. <i>True - Aboriginal territories often provide important habitat for species at risk, and Aboriginal peoples have strong spiritual, cultural, and economic ties with the natural environment that can help to protect species at risk.</i>	<input checked="" type="radio"/>	<input type="radio"/>
7) Not all information is available in scientific studies. <i>True - Scientific studies have limitations, which is why environmental management decisions increasingly incorporate Indigenous Knowledge</i>	<input checked="" type="radio"/>	<input type="radio"/>
8) Polar bears are endangered under <i>SARA</i> . <i>False - Polar bears are not listed under SARA. However, in 2008 they were listed as 'threatened' under the Endangered Species Act in the United States.</i>	<input type="radio"/>	<input checked="" type="radio"/>
9) Burrowing owl populations are less stable in Canada than the US. <i>True - Colder winters and seasonal migration bring additional threats to the owls</i>	<input checked="" type="radio"/>	<input type="radio"/>
10) Climate change is considered the number one threat for all species at risk. <i>False - The threats facing species at risk are diverse and should not be generalized.</i>	<input type="radio"/>	<input checked="" type="radio"/>
11) Species at risk can be useful cultural resources, such as medicine or food. <i>True - The loss of species at risk can mean the loss of culturally important medicines and foods.</i>	<input checked="" type="radio"/>	<input type="radio"/>
12) Grizzly bears used to live in the prairie ecosystem. <i>True - Grizzly bears once lived in the Canadian prairies, including Manitoba, but the prairie population is now 'extirpated' from Canada.</i>	<input checked="" type="radio"/>	<input type="radio"/>
13) Species at risk can include mosses. <i>True - Some SARA listed species at risk include Alkaline Wing-nerved Moss (Threatened) and Spoon-leaved Moss (Endangered).</i>	<input checked="" type="radio"/>	<input type="radio"/>
14) Even though they are well adapted to their environment, species can still become extinct. <i>True - Human activities are the primary cause of species extinctions.</i>	<input checked="" type="radio"/>	<input type="radio"/>

## ANSWERS FOR WHAT FITS?

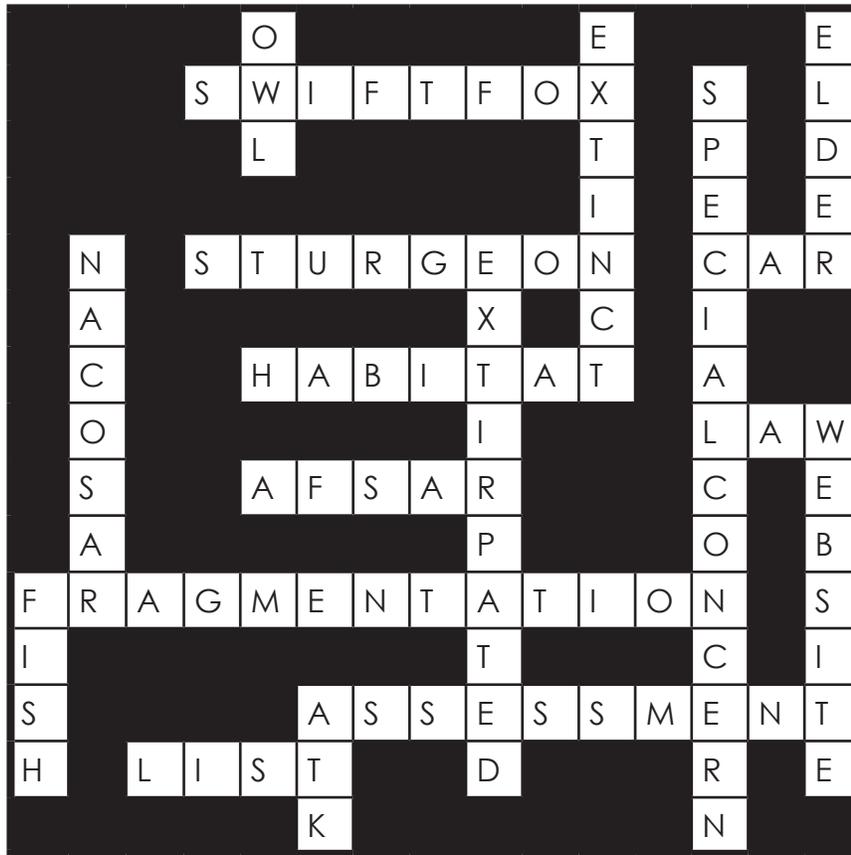
Which pictures contribute to healthy habitat for species?

- 2 Hiking and walking
- 4 Tree planting
- 6 Bicycling
- 9 Electric trucks
- 10 Recycling
- 12 Wind power

Which pictures pose threats to habitat for species?

- 1 Gasoline
- 3 Fertilizer
- 5 Pesticide
- 7 Batteries
- 8 Air pollution
- 11 Gas powered trucks

## ANSWERS FOR CROSSWORD PUZZLE



Secret Scramble Message: Consultation

# Species at Risk in Manitoba

The following is a list of species at risk found in Manitoba (as of March 2012) sorted by their SARA status. For more details on each species, go to [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca). Please note that SARA status and COSEWIC status are not always the same.

## SARA Status: EXTIRPATED

Species (Population)	Scientific Name	Taxon	COSEWIC status	Range
Greater Prairie-Chicken	<i>Tympanuchus cupido</i>	Birds	Extirpated	AB, SK, MB, ON
Grizzly Bear (Prairie)	<i>Ursus arctos</i>	Mammals	Extirpated	AB, SK, MB

## SARA Status: ENDANGERED

Species (Population)	Scientific Name	Taxon	COSEWIC status	Range
Dusky Dune Moth	<i>Copablepharon longipenne</i>	Arthropods	Endangered	AB, SK, MB
Gold-edged Gem	<i>Schinia avemensis</i>	Arthropods	Endangered	AB, SK, MB
Ottoe Skipper	<i>Hesperia ottoe</i>	Arthropods	Endangered	MB
White Flower Moth	<i>Schinia bimatris</i>	Arthropods	Endangered	MB
Burrowing Owl	<i>Athene cunicularia</i>	Birds	Endangered	BC, AB, SK, MB
Eskimo Curlew	<i>Numenius borealis</i>	Birds	Endangered	NT, NU, AB, SK, MB, ON, QC, NB, PE, NS, NL
Loggerhead Shrike migrans subspecies	<i>Lanius ludovicianus migrans</i>	Birds	Endangered	MB, ON, QC
Piping Plover circumcinctus subspecies	<i>Charadrius melodus circumcinctus</i>	Birds	Endangered	AB, SK, MB, ON
Whooping Crane	<i>Grus americana</i>	Birds	Endangered	NT, AB, SK, MB
Prairie Skink	<i>Plestiodon septentrionalis</i>	Reptiles	Endangered	MB
Gattinger's Agalinis	<i>Agalinis gattingeri</i>	Vascular Plants	Endangered	MB, ON
Rough Agalinis	<i>Agalinis aspera</i>	Vascular Plants	Endangered	MB

Small White Lady's-slipper	<i>Cypripedium candidum</i>	Vascular Plants	Endangered	MB, ON
Western Prairie Fringed-orchid	<i>Platanthera praeclara</i>	Vascular Plants	Endangered	MB

### SARA Status: THREATENED

Species (Population)	Scientific Name	Taxon	COSEWIC status	Range
Dakota Skipper	<i>Hesperia dacotae</i>	Arthropods	Threatened	SK, MB
Verna's Flower Moth	<i>Schinia verna</i>	Arthropods	Threatened	AB, SK, MB
Poweshiek Skipperling	<i>Oarisma poweshiek</i>	Arthropods	Threatened	MB
Canada Warbler	<i>Wilsonia canadensis</i>	Birds	Threatened	YT, NT, BC, AB, SK, MB, ON, QC, NB, NS, PE
Chimney Swift	<i>Chaetura pelagica</i>	Birds	Threatened	SK, MB, ON, QC, NB, NS, NL
Common Nighthawk	<i>Chordeiles minor</i>	Birds	Threatened	YT, NT, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Ferruginous Hawk	<i>Buteo regalis</i>	Birds	Threatened	AB, SK, MB
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Birds	Threatened	MB, ON, QC
Least Bittern	<i>Ixobrychus exilis</i>	Birds	Threatened	MB, ON, QC, NB
Loggerhead Shrike excubitorides subspecies	<i>Lanius ludovicianus excubitorides</i>	Birds	Threatened	AB, SK, MB
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Birds	Threatened	YT, NT, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Peregrine Falcon anatum subspecies	<i>Falco peregrinus anatum</i>	Birds	Non-active	YT, NT, NU, BC, AB, SK, MB, ON, QC, NB, NS, NL
Ross's Gull	<i>Rhodostethia rosea</i>	Birds	Threatened	NU, MB
Sprague's Pipit	<i>Anthus spragueii</i>	Birds	Threatened	AB, SK, MB
Whip-poor-will	<i>Caprimulgus vociferus</i>	Birds	Threatened	SK, MB, ON, QC, NB, NS
Carmine Shiner	<i>Notropis percobromus</i>	Fishes	Threatened	MB
Shortjaw Cisco	<i>Coregonus zenithicus</i>	Fishes	Threatened	NT, AB, SK, MB, ON

\*Non-active status means COSEWIC is not investigating this file

Flooded Jellyskin	<i>Leptogium rivulare</i>	Lichens	Threatened	MB, ON
Grey Fox	<i>Urocyon cinereoargenteus</i>	Mammals	Threatened	MB, ON
Woodland Caribou (Boreal)	<i>Rangifer tarandus caribou</i>	Mammals	Threatened	NT, BC, AB, SK, MB, ON, QC, NL
Buffalograss	<i>Buchloë dactyloides</i>	Vascular Plants	Special Concern	SK, MB
Hairy Prairie-clover	<i>Dalea villosa</i>	Vascular Plants	Special Concern	SK, MB
Smooth Goosefoot	<i>Chenopodium subglabrum</i>	Vascular Plants	Threatened	AB, SK, MB
Western Silvery Aster	<i>Symphyotrichum sericeum</i>	Vascular Plants	Threatened	MB, ON
Western Spiderwort	<i>Tradescantia occidentalis</i>	Vascular Plants	Threatened	AB, SK, MB

### SARA Status: SPECIAL CONCERN

Species (Population)	Scientific Name	Taxon	COSEWIC status	Range
Great Plains Toad	<i>Bufo cognatus</i>	Amphibians	Special Concern	AB, SK, MB
Northern Leopard Frog (Western Boreal / Prairie)	<i>Rana pipiens</i>	Amphibians	Special Concern	NT, AB, SK, MB
Monarch	<i>Danaus plexippus</i>	Arthropods	Special Concern	BC, AB, SK, MB, ON, QC, NB, PE, NS
Pale Yellow Dune Moth	<i>Copablepharon grandis</i>	Arthropods	Special Concern	AB, SK, MB
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Birds	Threatened	SK, MB, ON, QC
Rusty Blackbird	<i>Euphagus carolinus</i>	Birds	Special Concern	YT, NT, NU, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Short-eared Owl	<i>Asio flammeus</i>	Birds	Special Concern	YT, NT, NU, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Yellow Rail	<i>Coturnicops noveboracensis</i>	Birds	Special Concern	NT, BC, AB, SK, MB, ON, QC, NB
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	Fishes	Non-active	SK, MB, ON

Bigmouth Buffalo (Saskatchewan - Nelson River populations)	<i>Ictiobus cyprinellus</i>	Fishes	Special Concern	SK, MB
Bigmouth Shiner	<i>Notropis dorsalis</i>	Fishes	Not at Risk	MB
Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>	Fishes	Special Concern	SK, MB
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Fishes	Non-active*	MB, ON, QC
Silver Chub	<i>Macrhybopsis storeriana</i>	Fishes	Special Concern	MB, ON
Polar Bear	<i>Ursus maritimus</i>	Mammals	Special Concern	YT, NT, NU, MB, ON, QC, NL, Arctic Ocean
Snapping Turtle	<i>Chelydra serpentina</i>	Reptiles	Special Concern	SK, MB, ON, QC, NB, NS
Riddell's Goldenrod	<i>Solidago riddellii</i>	Vascular Plants	Special Concern	MB, ON

### No SARA Status (currently pending or undergoing consultation)

Species (Population)	Scientific Name	Taxon	COSEWIC status	Range
Peregrine Falcon anatum/ tundrius	<i>Falco peregrinus anatum/tundrius</i>	Birds	Special Concern	YT, NT, NU, BC, AB, SK, MB, ON, QC, NB, NS, NL
Barn Swallow	<i>Hirundo rustica</i>	Birds	Threatened	YT, NT, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Bobolink	<i>Dolichonyx oryzivorus</i>	Birds	Threatened	BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	Birds	Threatened	AB, SK, MB
Horned Grebe (Western)	<i>Podiceps auritus</i>	Birds	Special Concern	YT, NT, NU, BC, AB, SK, MB, ON
Red Knot rufa subspecies	<i>Calidris canutus rufa</i>	Birds	Endangered	NT, NU, BC, AB, SK, MB, ON, QC, NB, PE, NS, NL
Lake Sturgeon (Southern Hudson Bay - James Bay)	<i>Acipenser fulvescens</i>	Fishes	Special Concern	MB, ON, QC
Lake Sturgeon (Nelson River)	<i>Acipenser fulvescens</i>	Fishes	Endangered	MB
Lake Sturgeon (Saskatchewan River)	<i>Acipenser fulvescens</i>	Fishes	Endangered	AB, SK, MB

\*Non-active status means COSEWIC is not investigating this file

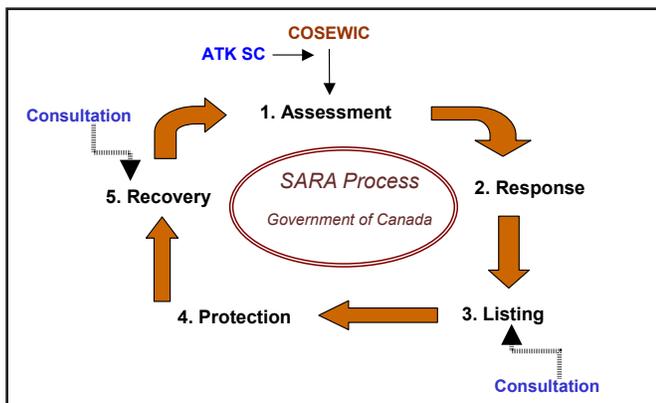
Lake Sturgeon (Red-Assiniboine Rivers - Lake Winnipeg )	Acipenser fulvescens	Fishes	Endangered	SK, MB, ON
Lake Sturgeon (Winnipeg River - English River)	Acipenser fulvescens	Fishes	Endangered	MB, ON
Lake Sturgeon (Western Hudson Bay)	Acipenser fulvescens	Fishes	Endangered	SK, MB
Atlantic Walrus	Odobenus rosmarus rosmarus	Mammals	Special Concern	NU, MB, ON, QC, NB, PE, NS, NL, Arctic Ocean
Beluga Whale (Western Hudson Bay)	Delphinapterus leucas	Mammals	Special Concern	NU, MB, ON, Arctic Ocean, Atlantic Ocean
Plains Bison	Bison bison bison	Mammals	Threatened	BC, AB, SK, MB
Wolverine Western	Gulo gulo	Mammals	Special Concern	YT, NT, NU, BC, AB, SK, MB, ON
Lake Winnipeg Physa Snail	Physa sp.	Molluscs	Endangered	MB
Mapleleaf Mussel - (Saskatchewan-Nelson )	Quadrula quadrula	Molluscs	Endangered	MB

\*Non-active status means COSEWIC is not investigating this file



# SARA and First Nations

SARA recognizes that First Nations and other Aboriginal peoples of Canada, due to their strong spiritual, cultural, and economic ties with the natural environment, have a unique role to play with respect to protecting species at risk. For this reason, the Act asserts the need for their involvement throughout the SARA process. There are five main steps of the SARA process. These include: (1) Assessment; (2) Response; (3) Legal listing; (4) Protection; and, (5) Recovery.



The SARA begins with **Step 1) Assessment**, when the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), a group of scientific experts, assesses which species of plants and animals are at risk of disappearing from the wild, and assigns them (based on their population health and the level of on-going threats) into one of the following categories: Extinct, Extirpated, Endangered, Threatened, or Special Concern.

The Aboriginal Traditional Knowledge (ATK) Subcommittee to COSEWIC was established to ensure that the best available ATK is included in the COSEWIC assessment.

## COSEWIC Designations:

**EXTINCT** - No longer exists in the wild.

**EXTIRPATED** - No longer exists in the wild in Canada.

**ENDANGERED** - Facing immediate extinction or extirpation.

**THREATENED** - Will become endangered if threats continue.

**SPECIAL CONCERN** - Sensitive to human activities or natural events.

The Minister of Environment Canada then carries out **Step 2) by issuing a Response Statement** based upon the information that has been provided by the COSEWIC (including Aboriginal Traditional Knowledge). This response statement indicates if the Government of Canada intends to proceed through a legal listing process to determine if the species should be protected under SARA.

The National Aboriginal Council on Species at Risk (NACOSAR) provides advice to the Minister of Environment Canada on the SARA process as it relates to Aboriginal peoples.

Photo: Poplar River First Nation/T. Ruta Fuchs



During **Step 3) Legal Listing**, the Minister of Environment Canada gathers additional information in order to make a recommendation as to whether the species at risk should be added to the list of species protected under SARA. The Governor in Council (the Governor General acting on the advice of the federal cabinet) then makes the decision whether or not to list a species, based upon information provided by the Minister of Environment Canada.

This information is gathered through a **consultation** process that occurs during this legal listing step (see text box p. 11). The potential benefits and adverse effects on First Nations, other Aboriginal peoples, and other Canadians needs to be considered in making this listing decision.

**SARA consultations are administered through three Government of Canada departments:**

- **Fisheries and Oceans Canada (responsible for species within our oceans, rivers, lakes, and streams)**
- **Parks Canada (responsible for species at risk within our national parks, national historic sites, and national marine conservation areas)**
- **Environment Canada (responsible for all other species, including migratory birds)**

**Step 4) Protection**, helps to fulfill the ultimate goal of the SARA process, which is to protect species and the habitat necessary for their survival. Once extirpated, endangered, or threatened species are protected, it is prohibited to:

- Kill, harm, harass, or capture the species

- Collect, buy, sell or trade a listed species, or any of its parts
- Damage or destroy its residence or its critical habitat

### **SARA Protection of Species**

Species receive legal protection once listed under SARA, but what does this mean for First Nations? Some First Nations may see the protection of species at risk under SARA as beneficial and closely aligned with their interests, such as protecting species and habitat for future generations. Other First Nations may feel that this protection has adverse effects for their community. For example, limiting economic development in areas where species at risk are living.

To find out more about the SARA process, and benefits and impacts of protecting species, see CIER's Species at Risk Newsletter Series at <http://www.cier.ca/information-and-resources/publications-and-products.aspx?id=1162>

In the final **Step 5) Recovery**, a Recovery Team (biologists and others, sometimes First Nations and other Aboriginal peoples) will draft a recovery strategy, action plans, or management plans that describe the management and/or research activities needed to protect and recover a species at risk. Once finalized, these strategies and plans come into action. A key part of the protection and recovery process includes stewardship initiatives of First Nations and other Canadians (e.g. through actions such as monitoring populations and restoring habitat).

Bigmouth Buffalo (Photo: K. Schmidt)



# Additional Resources

## INTERNET RESOURCES

A number of websites on the Internet provide information that will be needed by teachers and students in order to learn more about species at risk in their area and to complete several of the lesson plans. These websites provide information about the specific distribution of species at risk, as well as their habitat, threats, and ongoing and potential recovery actions.

### Environment Canada

[www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

This site provides a number of different ways to search for species at risk.

Under '**Species Search**', you can type in the name of a species of interest to you (refer to the list of species at risk found in Manitoba provided in the preceding section of this Teaching Kit). Once you have typed in the name, click on '**Go**'. This will provide you with a list of all species at risk with a similar name. From here, click on the species that is of specific interest to you. This will provide you with more detailed information about the species, including its range map and/or distribution information so that you can find out if the species is found within the territory of your First Nation. Scroll down the page to get additional details, including threats to the species and recovery progress and activities.

If you would like more information about conservation/recovery actions for species at risk, check out these additional websites:

### Hinterland Who's Who

[www.hww.ca](http://www.hww.ca)

This Canadian Wildlife Service website provides fact sheets for some of the species at risk found in Canada. Students can click on '**Species**' and then on '**Species at Risk Fact Sheets**'. Click the species of interest to you. The section on 'Conservation' provides insight into the actions undertaken to protect these species.

### Manitoba Conservation

<http://www.gov.mb.ca/conservation/wildlife/sar/index.html>

Click on '**Listed Species**' for a list of species under the Manitoba Endangered Species Act'. Or click on '**Fact Sheets**' for a list of fact sheets that provide user-friendly information about species at risk, including range maps. The fact sheets indicate if the species is also protected under the federal *Species at Risk Act* and describes potential ways to get involved in recovery.

## OTHER TEACHING RESOURCES

### Canadian Forestry Association Teaching Kit

[www.canadianforestry.com/html/education/cfa\\_kits\\_e.html](http://www.canadianforestry.com/html/education/cfa_kits_e.html)

### Space for Species

[www.spaceforspecies.ca](http://www.spaceforspecies.ca)

### COSEWIC

[www.cosewic.gc.ca](http://www.cosewic.gc.ca)

### Parks Canada

[www.pc.gc.ca/nature/eep-sar/index\\_e.asp](http://www.pc.gc.ca/nature/eep-sar/index_e.asp)

**Parks Canada Teacher's Resources Centre**

[www.pc.gc.ca/apprendre-learn/prof/index\\_e.asp](http://www.pc.gc.ca/apprendre-learn/prof/index_e.asp)

**Canadian Museum of Nature**

[www.nature.ca](http://www.nature.ca)

**Canadian Wildlife Federation**

[www.cwf-fcf.org/en/educate/](http://www.cwf-fcf.org/en/educate/)

**Canadian Forestry Association:** Chapter 5,  
Canada's Forests – A Fine Balance (Species at Risk)

[www.canadianforestry.com](http://www.canadianforestry.com)

**Canadian Nature Federation**

[www.cnf.ca](http://www.cnf.ca)

**Wild Species**

[www.wildspecies.ca/home.cfm?lang=e](http://www.wildspecies.ca/home.cfm?lang=e)

**Convention on International Trade of Endangered Species (CITES)**

[www.cites.ca](http://www.cites.ca)

**Ducks Unlimited Canada Teacher**

**Resources** <http://www.ducks.ca/resource/education/index.php>

**Federation of Ontario Naturalists**

[www.ontarionature.org](http://www.ontarionature.org)

**Royal Ontario Museum**

[www.rom.on.ca/ontario/risk.php](http://www.rom.on.ca/ontario/risk.php)

**World Wildlife Fund**

[www.wwfcanada.org](http://www.wwfcanada.org)

**New Brunswick Federation of Naturalists  
Species at Risk Education Kit 2003**

[www.naturenb.ca](http://www.naturenb.ca)



## WILDLIFE PROJECTS FOR THE CLASSROOM

### Nature Watch

[www.naturewatch.ca](http://www.naturewatch.ca)

Have your classroom or school participate in existing wildlife monitoring programs such as Frog Watch, Ice Watch, Plant Watch and Worm Watch. These programs encourage schools and others to engage in the monitoring of plants and animals and other aspects of environmental quality.

### Schools for a Living Planet

[www.wwf.ca/schools](http://www.wwf.ca/schools)

WWF-Canada offers Schools for a Living Planet, an educational program that provides educators and students with access to curriculum-linked, printable in-class activities for grades 3 to 8.

This program also highlights projects that schools are undertaking to protect plants and animals and wild places. You can learn about what others are doing and submit the story of the work being done by your classroom. You might be the next to be featured on the Schools for a Living Planet website!

## SPECIES AT RISK PROJECT FUNDING SOURCES

The following websites outline potential funds to support species at risk stewardship actions by First Nations.

### Federal:

#### Aboriginal Funds for Species at Risk

[www.recovery.gc.ca/afsar-faep/](http://www.recovery.gc.ca/afsar-faep/)

#### EcoAction Community Funding Program

[www.ec.gc.ca/ecoaction/](http://www.ec.gc.ca/ecoaction/)

#### Habitat Stewardship Program (HSP)

[www.recovery.gc.ca/HSP-PIH/](http://www.recovery.gc.ca/HSP-PIH/)

### Provincial:

#### Endangered Species and Biodiversity Fund

[http://www.gov.mb.ca/conservation/pdf/esbf\\_brochure\\_oct\\_2010.pdf](http://www.gov.mb.ca/conservation/pdf/esbf_brochure_oct_2010.pdf)

Photo: CIER



## GLOSSARY OF TERMS

### Species:

A unique type of living thing (e.g. plant, mammal, bird, insect, fungus etc.) that is capable of breeding together and creating fertile offspring. For example, different species of birds include mallard ducks, Canada geese, and blue herons.

### Species at Risk:

A species that is in danger of disappearing from the wild.

The term 'species at risk' refers to plants or animals designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Special Concern, Threatened, or Endangered.

### Species at Risk Act (SARA):

The *Species at Risk Act (SARA)* is a Canadian federal law (that came into full effect in June 2004) that aims to prevent plants and animals from becoming extinct, to help in their recovery, and to protect their habitat. SARA arose as part of Canada's commitment to the UN Convention on Biological Diversity. The SARA is administered by the Government of Canada and applies to species and habitat on all federal lands, including First Nations reserves. SARA provides legal protection to species at risk and their habitat.

### Ecosystem:

An ecosystem is a community of living entities (e.g. plants, animals, bacteria, algae and fungi) and non-living things (e.g. rocks, water) that interact with each other. An ecosystem may exist in a variety of sizes. Examples of ecosystems include a marsh, a forest, a ditch, a prairie or even a cow's stomach!

### Habitat:

The place or environment where a plant or animal lives (e.g. where it feeds, rests, breeds

etc.). For example, the boreal forest is the habitat of the woodland caribou.

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**Our relations are at risk.  
Let's help them together.**

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