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# Educating About Species at Risk in Alberta

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**Abstract:** Alberta has taken a number of approaches to educating the public about species at risk. In the early 1990s, a series of fact sheets on species at risk were produced. While these publications were useful for those wanting to know more about species at risk, they were not as useful for the classroom teacher who wanted lesson plans and age-targeted information. In 1995, the Province began to develop teacher guides on a number of species, starting with the peregrine falcon. The education program has since grown, and while the Alberta school curriculum seldom mentions species at risk, teachers of all grade levels are attracted to the topic area and find ways to incorporate it into their teaching. This paper outlines the process used to develop the teacher guides, and discusses how topics and grade levels are matched up and how teachers are made aware of the program's existence. Information about other agencies that have taken Alberta's material and adapted it for their own educational purposes is also presented. Other government and nongovernment approaches to educating about species at risk in Alberta are also outlined.

**Key Words:** education, teacher guides, teaching aids, species at risk, Alberta

## The Beginning

Alberta's Species at Risk Education Program began as a result of work that was done by some key Fish and Wildlife Division staff in the Department of Alberta Environmental Protection (AEP) in the early 1990s. They developed fact sheets about species at risk in the province, but the teaching community wanted more than information, so the Fish and Wildlife Division called upon the Education and Outreach Section of AEP to develop educational guides and activities to accompany the fact sheets. Any number of approaches could have been taken for the program, but we decided on species-specific teacher guides, which have been very successful.

We sometimes get criticized for not getting youth or adults out in the field to give them a taste of the environment, but there are agencies such as national, provincial, and municipal parks and nature centers that do that, and do it well. Other agencies like the Canadian Parks and Wilderness Society (CPAWS) and local natural history clubs, Scouts Canada, and Junior Forest Wardens also provide field experiences. Additionally, programs like Cows and Fish and Operation Grassland Community work directly with landowners to share information and garner support for conservation. The niche we fill is in providing teachers with lesson plans that can be used before, after, or in place of field trip activities. Teachers whose students never leave the school for formal learning also appreciate these indoor resources. Teachers have expressed that

with increasing pressures on the education system, such as less time to teach more, increased class sizes, and reduced funding, opportunities for field experiences have been declining. The Alberta Species at Risk Education Program helps bring Alberta-based information to the indoor classroom, to the student at the desk.

### Overview of the Education Program

Because the species at risk fact sheets were created first, we narrowed our focus to those species and discussed such things as the issues, threats, and limiting factors that were affecting them. Then we thought about the grade level of our intended audience. Will a Grade 1 child understand the concepts? Will a Grade 12 student be better equipped to understand the information?

While we produce materials based on issues and the needs of AEP, we also consider the school curriculum. Because the Alberta Education curriculum dictates what teachers have to teach, we tried to reduce barriers for those teachers who want to use our resources. We did this by developing the teacher guides to suit a range of grade levels, and included activities that are cross-curricular. For example, in Grade 6 science, students study ‘Trees and Forests’; therefore, Grade 6 science is not the best target audience for an education program on the burrowing owl (*Athene cunicularia*). Nevertheless, teachers have been able to use the *Burrowing Owl Teacher’s Guide* in Grade 6 language arts, social studies, mathematics, and art classes.

Although we are concerned about a number of migratory bird species, we did not want to produce guide after guide on birds. We looked at the spectrum of species at risk and opted for variety. The species-specific teacher guides developed to date are

- Northern Leopard Frog (Kindergarten to Grade 3)
- Burrowing Owl (Grades 1–6)
- Peregrine Falcon (Grades 4–9)
- Bull Trout (Grades 5–9)
- Trumpeter Swan (Grades 7–9)

The trumpeter swan (*Cygnus buccinator*) guide is also used in high school biology where students study population dynamics and statistics. Additionally, a draft *Swift Fox Teacher’s Guide* has been developed for Grades 5–7.

A general *Introductory Guide* about species at risk, which includes conservation status categories and an introduction to habitats, threats, and limiting factors, has been developed for the elementary school level. A similar guide for junior-senior high school has not been developed yet, but is recognized as being necessary. Also missing is a species-specific guide for a plant and an insect species. All of this is work that needs attention.

The program is currently named ‘Alberta’s Threatened Wildlife Education Program’, but the name is out of date. It was developed while Alberta was using the color-coded system to

designate species for protection, and the term ‘Threatened’ had no legal meaning in the province. With the change of the species designation system, the program will be appropriately renamed ‘Alberta’s Species at Risk Education Program’.

### **Program Launch**

The first unit released was the *Peregrine Falcon Teacher’s Guide*. The guide was created in partnership with Petro-Canada, a major sponsor of the species’ recovery in Alberta, and was released in November 1995 at a teacher’s workshop hosted by Petro-Canada. Over 40 teachers participated in the workshop, which proved to be very successful. The Canadian Wildlife Service (CWS) also attended and brought a live peregrine falcon (*Falco peregrinus*). It was an exciting launch for an exciting program.

### **Other Educational Products**

Since the program began, other educational products besides the teacher guides have been developed for the teaching community and the general public. Some products serve communications purposes, some are more entertaining, but all have some educational value in terms of providing awareness and some knowledge about species at risk.

### ***Postcards and Articles***

In May 2000, the Minister of AEP announced that CDN\$2+ million in funding would be provided over two years (2000 and 2001), for research on, and for designating and protecting, species at risk. To accompany the announcement, AEP produced a series of postcards, and an article that became part of our ‘Focus On’ series. *Focus On Species at Risk* describes the process used in Alberta to designate species at risk, and it highlights some of the at-risk species and threats to their populations. Both the postcards and the Focus On article remain in circulation. The Focus On article is posted on our web site as a PDF that can be viewed or downloaded.

### ***Videos***

In 1995, Alberta declared the bull trout (*Salvelinus confluentus*) as its provincial fish. The fact that the bull trout was also a species of Special Concern brought it a lot of attention. We developed a teacher’s guide, and two videos were produced: one was produced in-house by Fish and Wildlife staff, the other was produced by the Waterton Natural History Society. These have been wonderful tools for increasing awareness about fish stocks in the province, and they provide a nice accompaniment to the *Bull Trout Teacher’s Guide*. The videos are used in classrooms and by fishing clubs. Anglers and fishing clubs showed a lot of interest when these videos were

released. A walleye (*Stizostedion vitreum*) video, which has a user's guide tucked into the video case, was also produced. The walleye video was created in partnership with the Alberta Fish and Game Association, the Alberta Conservation Association, and the Western Walleye Council.

### ***Special Events***

A poster is produced each year for Environment Week. The latest poster series recognizes Alberta's provincial emblems. In 2003, the feature emblem was the bull trout—Alberta's provincial fish—and a poster, teacher's guide, and newspaper articles were produced and distributed for Environment Week that year.

### ***Other Tools***

Provincial and national parks, nature centers, and science networks help to communicate messages about species at risk. They welcome materials like our postcards, which they can hand out to visitors. Some parks have adapted activities from our teacher guides to use in their programs. We have also developed other support material with parks. For example, a set of 12 foam 'hats' was constructed over the course of a weekend by education staff, and has been used for community and park interpretive events. We use the hats to stage a species at risk version of the old TV show, Hollywood Squares, which we call 'Gone WILD!'

### **Measuring Success**

Teacher response to Alberta's Species at Risk Education Program has been overwhelmingly positive. A French immersion teacher in Calgary wrote the following:

I have used both the peregrine falcon and the burrowing owl teaching units and they were a big success with my students. I really think most of the activities were very well done and easy to understand. I also liked the step-by-step approach, which meant it was easier for the kids to understand these two animals. I used these two units as part of my English language arts classes. All in all, I believe these are two very well done units.

The program was also recognized as being credible, "clear and encouraging", in a review of biodiversity resources for educators called The Biodiversity Collection, which was produced by the North American Association for Environmental Education.

Since 1995, attendance at the workshops has always been surprisingly high. While there are few places that specifically reference 'species at risk' or 'endangered species' in the Alberta Education curriculum, attendance and interest remains high, even now, close to 10 years after the

program was launched. Seventy or more teachers will pack into a room, and even stand along the walls for two hours to learn about wildlife. In fact, any workshop that involves wildlife has appeal. At teacher conventions, the first materials to go are those about species at risk. Comments from teachers include, "These are just great!" and "My kids love these activities!" Somehow, teachers find ways to fit the materials into their teaching. The teacher guides and support materials serve as a wonderful resource.

## **Marketing**

Mass mail outs of the program's materials are not used for fear that they will sit on a shelf, and those who might be inclined to use them may never know they are there. Instead, we send out invitations that advertise a free workshop with free materials. We are often invited to present sessions at events such as teacher conventions and professional development days. We also occasionally advertise through articles in magazines. When any requested educational resource is mailed from our warehouse, it includes a complete list of our environmental education materials. Materials are also marketed through a network of nature centers and parks, and through word of mouth.

Demand for our program materials is steady, and the most recorded hits on our web site are for species at risk information. We produce up to 1000 teacher guides at a time. This gives us the opportunity to change information and mailing addresses when needed. While a print of 5000 or 10,000 may have a reduced monetary cost, there is an environmental cost when outdated materials are sent for recycling or to the landfill. Copies are produced according to what will move off the shelf within one or two years.

## **Other Agencies Involved in Species at Risk Education**

Species at risk education and interpretation programs are available through the Canadian Wildlife Service, national and provincial parks, and many local and municipal nature centers. Other agencies involved in species at risk education in Alberta include the following:

- Operation Grassland Community is focused on garnering long-term protection of wildlife habitat in Alberta's grasslands. Originally, it focused on the burrowing owl, but it has since expanded to include numerous grassland species. The program involves holding one-on-one discussions with landowners and making presentations to schools and community groups.
- Cows and Fish is a voluntary stewardship program that was developed in partnership with government, nongovernment organizations, landowners, farmers, ranchers, and communities. Its focus is on increasing awareness and understanding about how riparian areas work and how they can be restored. Protection of riparian areas results in habitat improvement, which helps support wildlife, at risk or not. Through this program and the

Operation Grassland Community program, landowners begin asking questions and want to learn more about the environment around them and the wildlife they encounter. This increase in awareness of the natural environment translates into a better-informed public, and ultimately, conservation actions on the land.

- Alberta Sustainable Resource Development<sup>1</sup> (ASRD) and the Alberta Conservation Association are involved in MULTISAR, a process for multi-species conservation of species at risk at the landscape level. The program promotes stewardship activities through voluntary participation of residents. The Milk River Basin is the target of Alberta's first MULTISAR project, and its voluntary, cooperative approach is making the project a success story. Response has been good, and as word spreads about the fair and reasonable approach used by the agencies involved, a relationship of trust with the landowners is building, and local people are calling to see how they can get involved.
- Another big success story for ASRD is the Maintenance and Recovery Plan for Western Blue Flag. The emphasis of the western blue flag (*Iris missouriensis*) recovery process is to maintain existing populations of the blue flag through a cooperative effort with landowners.
- Part of the ASRD web site is dedicated to species at risk. The web site includes status reports, fact sheets, and other information, and is a great resource for both scientists and the nonscientific community.
- The Calgary chapter of CPAWS has on-line and print materials about endangered species. The chapter services southern Alberta by making classroom visits and leading mountain field trips.

What each of these agencies has in common is a labor-intensive approach to education. We have taken a different approach in an attempt to maximize our outreach. When 30 teachers attend one of our workshop sessions, they in turn have the ability to reach over 700 students.

### **Agencies Involved in Species Monitoring Programs**

The Alberta Conservation Association has produced teacher guides to accompany their successful amphibian and reptile monitoring programs. The amphibian guide is for Grade 5 and 6 teachers; the reptile guide is for Grades 7–9. Both programs include full-color posters and audio and print aids to assist with species identification. Students record sightings (and sounds) and submit them to the scientific database on amphibians and reptiles in the province. The teaching materials and related monitoring activities make field trips all the more meaningful.

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<sup>1</sup>AEP has now been split into two departments: ASRD, which manages public lands, forests, and wildlife, and AENV (Alberta Environment), which manages air, land, water, and waste.

## The Future: Partnerships

In the future, we may place more emphasis on biodiversity, may update Alberta's Species at Risk Education Program, and may develop a few more species-specific guides. Perhaps the teaching community, the public, and other agencies involved in education will express other needs.

More importantly, we are in an era of partnering and sharing. We have partnered to some extent on many of our teacher guides. The guides were reviewed by Alberta government staff, Canadian Wildlife Service staff, field researchers, and other experts to ensure their scientific accuracy, and teachers reviewed them for relevancy. The materials are available to all of these agencies and partners for distribution and use within the province. Other agencies have partnered in the production of the teacher guides. Parks Canada partnered on the trumpeter swan and bull trout guides, and Petro-Canada partnered on the peregrine falcon guide.

The Education and Outreach Section could now also be called a 'shared resource'. The Fish and Wildlife Division now 'resides' in the Department of Alberta Sustainable Resource Development (ASRD), yet Alberta Environment (AENV) 'houses' the Education and Outreach Section. When AEP separated, the Education and Outreach Section went to Environment where it had been prior to department amalgamations. Alberta Environment has remained supportive of ASRD education; we house a public lands education coordinator from ASRD, and I make some of my time available to support wildlife education. We have maintained a good, supportive working relationship.

There is another important message, and that is about sharing materials. An agreement exists among the provincial environment departments in Canada through the Canadian Council of Ministers of the Environment (CCME). This enables other provinces to take our materials, copy them using their own budgets, and distribute them within their own provincial or territorial borders. There have been a few examples where provinces have worked through the CCME to share resources; the Caring for the Land poster and the Home We Share poster produced by Alberta Environment are two examples. Jurisdictions with no mountains find creative ways to cover up the mountains in the materials produced by AENV.

Alberta's Species at Risk Education Program has also been requested by nongovernment agencies. For example, the Canadian Peregrine Foundation in Ontario has requested the *Peregrine Falcon Teacher's Guide*; Morningstar Enterprises in Kelowna has requested the *Burrowing Owl Teacher's Guide*; Trout Unlimited in Idaho and Montana have two copies of the *Bull Trout Teacher's Guide* and related videos, which they make available in kits they lend out; Moosejaw Exhibition Company used ideas from the *Burrowing Owl Teacher's Guide* for their interpretive center; and the Bell Museum of Natural History in Minnesota requested the *Peregrine Falcon Teacher's Guide* shortly after its release and has incorporated an activity about DDT and bioaccumulation in one of their exhibits.

So, the educational materials are available for you to adapt and print. The Alberta government requires a letter requesting their use and a brief description of how they will be used.

While we allow you the freedom to make changes and tailor the resources to meet your needs, your provincial or state wildlife management agency needs to be involved to ensure the scientific accuracy of the information you release. We like to be acknowledged as being the source of the materials for any resource you create. Lastly, we ask that you distribute materials as Alberta does, free of charge.

The more people who are active in conserving and monitoring species at risk, the better, whether they are involved in landowner-based conservation programs, monitoring programs, or even learning at their desk to prepare for what's 'out there'. While political boundaries do not always encourage sharing, wildlife—and the environment on the whole—knows no boundaries. In that sense, we all have a responsibility to share our knowledge, which can mean sharing materials. Budgets are stretched in every jurisdiction, so the more we can share our ideas and materials, and share in the production of wildlife education materials and on-line learning, the better it is for educators, the public, budgets, and most importantly, the wildlife we are striving to conserve.