



# Research the Research

## Curriculum Connections

- *Grade 9 Science – Biological Diversity*
- *Science 20, Unit D: Changes in Living Systems (2006 Implementation)*
  - *20–D1.1sts, 20–B1.2sts, 20–B1.2s, 20–B1.4s*
- *Biology 20, Unit B: Ecosystems and Population Change (2007 Implementation)*
  - *20–B1.1k, 20–B1.4k, 20–B1.1sts, 20–B1.2s, 20–B1.4s*
- *Biology 30, Unit D: Population and Community Dynamics (2007 Implementation)*
  - *30–D1.1sts, 30–D2.1k, 30–D2.1sts*

## Objectives

*Students will be expected to:*

- *investigate the processes through which wildlife research is undertaken in Alberta;*
- *research the science and technology employed in wildlife research;*
- *discover how scientific research relates to real-world applications in ecosystems and natural resource development.*

## Lesson/Activity Duration

- One introductory lesson (60-80 minutes)
- Two class-time group research periods (60-80 mins each)
- One-two periods for student presentations

## Materials Needed

Access to internet

*Research the Research Outline worksheet(s)*

*Research the Research web quest information*

*Research the Research Evaluation Rubric*

AV materials for presentations (potential)

## Classroom Arrangement

Small group work – five students per group recommended

Presentation set up (possibly including LCD projection)

## Background Information

*Setting the Scene*

Alberta is a natural resources-rich province – and as we know the development of these resources is the basis for the economy of the province, and the country for that matter. Industrial development in Alberta's forest, prairie, and mountain ecosystems often results in significant change to the ecosystem composition – especially during the development stages and early *reclamation* stages of development.

While Alberta is certainly rich in natural resources, it is also diverse in terms of wildlife species that inhabit these 'wild' spaces. Impacts on wildlife either directly or indirectly are almost certain as the ecosystems that they inhabit are changed, sometimes permanently. This reality is understood by a variety of key stakeholders – industries, government at all levels, research organizations, non-government organizations, universities and others. To help better



# Research the Research

understand the effects on wildlife species and to help better plan to reduce these impacts, a significant amount of research is carried out by scientists representing these and other organizations and groups. Building on the scientific data, decision makers in the province can make these critical landscape-level decisions with as much information as possible.

New technology, an ever-growing demand for data and an increasing stress on wildlife species means wildlife research is more important, and more detailed than ever. This activity will lead students to study the 'what's', 'why's' and 'how's' of wildlife research and to begin to formulate ideas as to how to manage natural resources with consideration to impacts on wildlife species.

## Important Vocabulary

*Baseline data* – Information gathered before a study begins. It gives researchers the opportunity to compare data to an original state.

*Geographic Information Systems (GIS)* – Complex, (usually) computer-generated maps that consider a series of studies on the same land base though comparing different topics. Individual maps are created then laid on top of one another to study more complex, interconnected information.

*Global Positioning Systems (GPS)* – Using satellite-technology to investigate precise locations (within metres) and to map this information. Sometimes referred to as 'remote sensing'.

*Habitat Suitability (Index)* – A relative measurement of appropriate habitat conditions for a specific wildlife species.

*Radio telemetry* – The process of finding (or tracking) wildlife, usually equipped with radio collars or some other form of transmitter. Researchers triangulate the location of the wildlife species, meaning their paths can be studied, often without disturbing the animal (and thus skewing the research).

*Neotropical migratory birds (neotropical migrants)* – Birds that spend their summers in North America, but their winters in the tropics.

## Procedure

### *Introduce the Activity*

1. Discuss with students the following:
  - If you were studying Alberta's wildlife in their natural environment:
    - a. What species might you study? [Compile list]
    - b. Where would you do the studying?  
*You may wish to introduce the natural regions of Alberta – Canadian Shield, Boreal Forest, Aspen Parkland, Foothills, Grasslands, Rocky Mountains*
    - c. Who would you work for? (Students may need to make educated guesses about this.)
2. Introduce the above information (background) to students and inform them they will be conducting a group research project *about* wildlife research in Alberta.

# Research the Research

3. Divide students into groups of 4-5, letting them know that they will be studying and reporting on wildlife research in Alberta.
4. Each group should be assigned a specific wildlife species to investigate – recommendation is to choose from the following list of animals as there should be sufficient internet information available related to the research being done on these species.

### ***Species Research to study***

Grizzly bear  
Woodland caribou  
Pileated woodpecker  
Bull trout  
Bats (Little Brown or Boreal bat; or bats in general)  
Wolf  
Beaver  
Northern flying squirrel  
Mountain pine beetle  
*Neotropical migrant birds*

### 5. *Project Description*

Introduce the idea that groups will be *researching the research*. Their focus will be the process of the research – who does the research, how they perform it, and what their research is finding. Groups will perform internet research on the wildlife research projects and will present an oral or written report on their findings.

#### *Presentation Options*

- A MS PowerPoint template is available for students to adapt – groups would use the template to develop their own presentation and deliver it to their classmates.
  - Teachers may wish to consider having students develop a research report poster and present the poster to the class and display the material in the hallway upon completion of the project.
6. Distribute *Research the Research Outline* worksheet, along with evaluation rubric and web quest materials. Discuss each of these with students, pointing out especially the ‘requirements’ on the outline sheet, and the “Tips” on the web quest sheet.
  7. Students will then require internet time to conduct their research and group planning time to develop their information and presentation.
  8. Upon completion of the research and presentation, have each group present their findings to their classmates – consider inviting younger students into the class to share in what is surely to be a topic of interest, not only in terms of the wildlife being studied, but also the “cool” technology used to carry out the research.



## Research the Research

*\*\* For more information on Alberta-Pacific's current research projects and results, click [here](#).*

## ***Research the Research -- Project Outline***

Your group will be responsible for investigating the research being done in Alberta about one of the wildlife species native to our province. As the title of the project suggests, you will be *researching the research*. This outline is meant to help guide you through your research, but it will be up to you to investigate, discover, analyze and report your findings. You will find out shortly that completing those tasks is almost exactly the process Alberta wildlife researchers go through in their studies.

You have two options for reporting your findings. Your group may decide to develop a research *poster* highlighting your findings. You may decide instead to develop a Powerpoint presentation to deliver to your classmates.

In both cases your research will involve group discussion, planning, report development and oral presentation of your findings – again *just like wildlife researchers* do in their work.

### **Project Description**

- 1) Your group will have been assigned a wildlife species to study. Your task will be to research the research processes, people and findings and report these to your class. The attached outline will help guide your research, make sure you answer all the questions and cover all the topic areas (feel free to add more if you like).
- 2) Your research will mainly entail using the internet to learn about the wildlife research projects. Make sure to visit *several* websites to find out as much as you can. Compile information, collect images, video etc. (but make sure to cite all your sources!)
- 3) A 'web quest and tips' worksheet has been developed to help guide you – again these sites are meant to be a good place to *start*. You will want to find out more – visit many sites, consider emailing or phoning key researchers to interview them (they will have the *best* stories).
- 4) Once your research is complete, your group will be responsible for reporting back to your class on your findings. To do this you have two options (or more if you get permission from your teacher to do something else!)
  - a. **Poster presentation** – This is one of the most common tools researchers use to report the findings of their studies. Using a large poster board, compile your findings into neat groupings with clear headings. Take care to make your poster detailed as well as attractive - include pictures, diagrams, etc. Make sure to include all group members names as well as all references used.
  - b. **Powerpoint presentation** – Wildlife researchers are often asked to present their findings to large groups of people. Powerpoint presentations allow for information to be presented to large groups in visual way. A Powerpoint template is available for download – or you may wish to create your own. In either case, ensure that the powerpoint show visually captures your KEY points only. Include key bullets, then you'll need to illustrate the rest of your findings orally. Your teacher will want to see a written script or report, however.
- 5) Your group mark will come from you and from your teacher using the rubric provided.
- 6) Have fun!

# Research the Research -- Outline

**Wildlife Species** \_\_\_\_\_

## Group Members

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Your project will address the following:

<p><b>Who</b></p> <ul style="list-style-type: none"> <li>• ...are the researchers?</li> <li>• Describe their background(s)</li> <li>• What is their education?</li> <li>• Who do they work for? [Try to find more than one research project about your species.]</li> </ul>	<p><b>What</b></p> <ul style="list-style-type: none"> <li>• ...<i>specifically</i> are they studying (not just 'about the animal')</li> <li>• ...are the concerns related to this species? (Is it species population concerns? Habitat? Reproduction issues? Be as specific as possible.)</li> </ul>
<p><b>Why</b></p> <ul style="list-style-type: none"> <li>• ...are they studying this animal?</li> <li>• What is so important about it?</li> <li>• What does this species tell us about the ecosystem?</li> </ul>	<p><b>How</b></p> <ul style="list-style-type: none"> <li>• ...is the research carried out?</li> <li>• What are the techniques used?</li> <li>• What is the technology used (remember technology need not only be 'high tech')?</li> <li>• What special precautions are taken to ensure safety of wildlife?</li> </ul>
<p><b>When</b></p> <ul style="list-style-type: none"> <li>• ..specifically is the research done?</li> <li>• What time of year?</li> <li>• For how long does the research go? Or, for <i>how much longer</i>?</li> <li>• Why does the research take the time it does?</li> </ul>	<p><b>Where</b></p> <ul style="list-style-type: none"> <li>• ...specifically does the research take place?</li> <li>• What is important about this part of Alberta?</li> </ul>
<p><b>“So What?”</b></p> <ul style="list-style-type: none"> <li>• What have the findings of this research been to date?</li> <li>• What are the recommendations this research makes for decision makers?</li> <li>• What do <i>you</i> think ought to be done to manage our ecosystems with this species and its habitat in mind?</li> </ul>	

## **Research the Research -- Web Quest & Tips**

### **Tips for Internet Research**

#### *Using Search Engines*

Search engines like Google and Yahoo will be very helpful for your research on this topic. When you type in the name of the wildlife species research you are studying, make sure:

1. To spell the name of the species properly;
2. Use the word “research” (i.e. “*Woodland caribou research*”) in your query. Just entering the species name will not be enough;
3. To consider adding “...in Alberta” to your query – this way, you’ll find Alberta-specific information;
4. Remember to *record the URL and site name* of all websites you use in your presentation and cite them in your presentation.

### **Web Quest Suggestions**

Alberta Conservation Association – <http://www.ab-conservation.com>

Canadian Boreal Initiative - <http://www.borealcanada.ca>

Canadian Forests Research Site – <http://www.canadian-forests.com/research.htm>

Canadian Wildlife Service – <http://www.cws-scf.ec.gc.ca>

Foothills Model Forest – <http://www.fmf.ca>

Government of Alberta – Sustainable Resource Development – <http://www3.gov.ab.ca/srd>

Innovation Alberta – <http://www.innovationalberta.com>

– Search *programs/archives*

Sustainable Forest Management Network – <http://sfm-1.biology.ualberta.ca>

University of Alberta Renewable Resources – <http://www.rr.ualberta.ca>

‘Deer Net’ - <http://www.deer.rr.ualberta.ca>

Tips for creating research posters - <http://www.mitacs.math.ca/AC2003/index.php?section=poster>