

# Turning Parks into Islands

Students review recent studies by conservation biologists that tell disquieting stories of what happens to parks that become isolated islands of habitat. They then view the effects of incremental development around a park, and then assume the role of park managers as they grapple with some developments proposed for the area.

## Materials

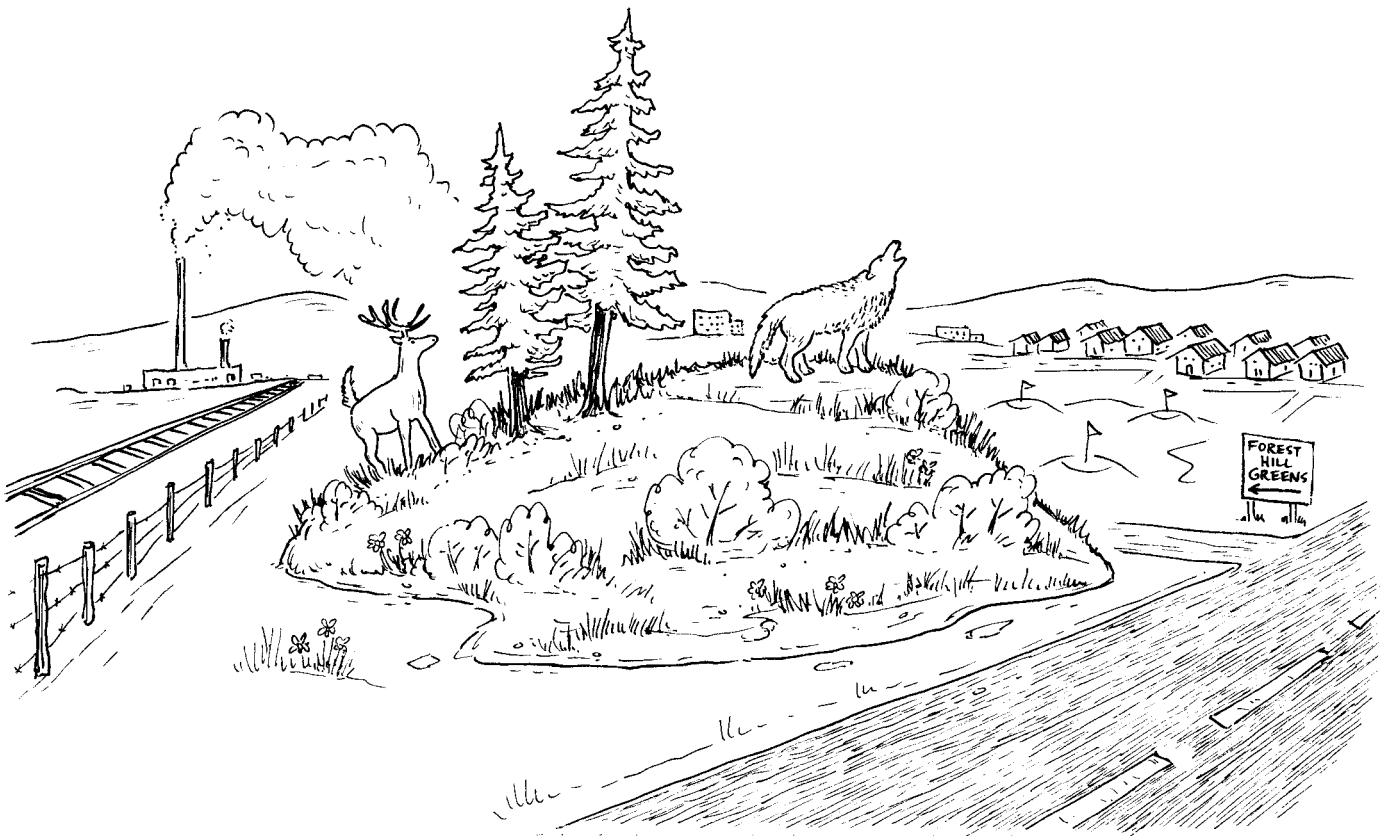
Overheads, overhead projector, screen.

## Instructions for the Teacher

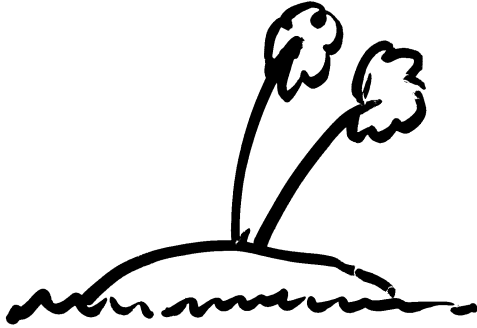
1. Begin this activity by asking students if they have visited any islands lately. Tell them that you'll be studying the relationship between island and extinction.
2. Show them the first two pages of overheads that are provided (i.e. beginning with "Some fact about Islands," and ending with the quote from the New York Times.

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Emphasize to students that island are special places: in his book on this topic (entitled "Song of the Dodo"), David Quammen calls them "crucibles of evolution". In fact, it was the fascinating ecology of the Galapagos Islands that gave Charles Darwin the insights into evolution that lead to the publication of his book "On the Origin of Species" in 1859.



# ***Some facts about islands...***



**The probability of a species going extinct is higher if it lives on an island.**

**(AND the smaller the island is, or the further it is from other land, the higher the probability of extinction - due to The Area Effect and The Distance Effect).**

***(Song of the Dodo, David Quammen, 1996)***

## ***Extinction in Parks***

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National Park	species lost
Bryce Canyon	red fox, spotted skunk, white-tailed jackrabbit
Crater Lake	river otter, spotted skunk, mink, ermine
Mt. Rainier	four fisher, striped skunk

3. The series of illustrations that follow are designed to show students how the “islandization” of a fictional park takes place.

## Overhead #1: Park Established (Year: 1910)

This overhead shows a park being established almost a century ago. Ask the students:

- Does this look like it was densely populated in 1910?
- What rules do you think would apply inside the park?

Of course, this varies hugely. Examples of rules that might apply to this park include no hunting, no building of residences, no firearms, etc.

“Mammals are disappearing from North America’s National Parks solely because

the parks - even those covering hundreds of thousands of square miles - are too

small to support them”.

Probably not. There would almost certainly be no fence, and the ecosystem would be identical on either side of the border.

(New York Times editorial, 1987)

## Headline: Species

## Vanishing from many parks

3. The series of four illustrations that follow are designed to show students how the “islandization” of a fictional park takes place.

### ***Overhead #1: Park Established (Year: 1910)***

This overhead shows a park being established almost a century ago. Ask the students:

- **Does this look like it was a densely populated area in 1910?**
- **What rules do you think would apply inside the park?**  
Of course, this varies hugely. Examples of rules that might apply to this park include no hunting, no building of residences, no firearms, etc.
- **Why do you think this park was established?**  
Very few Canadian parks existed in 1910. A few, such as Banff National Park, were set up to preserve unique features such as the Banff Hotsprings, and to act as reserves for animals that were being hunted outside parks.
- **Do you think the animals realized they were inside a park?**  
Probably not. There would almost certainly be no fence, and the ecosystem would be identical on either side of the border.

### ***Overhead #2 Year: 1950***

Ask the students:

- **What has changed in the forty years between 1910 and 1950?**  
Students should notice the increased number of homes outside the park, the railway, road and railway clearances, a new road through the park, and forestry to the north-west of the park.
- **Why do you think these changes have occurred?**  
Students should recognize that increasing human population has driven many of these changes. A growing human population in areas not shown on the map has created the need for transportation corridors. Also, an increasing demand on forest resources has resulted in the cutting of trees visible on this map.
- **Does the ecosystem in the park still function as it did in 1910?**  
No. The road and the proximity of the deforested area will both have an "edge" effect, driving shy species deeper into the park and possibly introducing exotic species of plants and animals that might compete with native species.

### ***Overhead #3: Present***

Ask the students:

- **What has changed, a factory is now found just south of the park, and a number of different types of farming activities have sprung up to the west of the area.**

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This activity downloaded from the CPAWS Education website: [www.rockies.ca/cpaws/education/new-resources.html](http://www.rockies.ca/cpaws/education/new-resources.html)

- **What have been the effects of development on the park?**

broadened, a factory is now found just south of the park, and a number of different types of farming activities have sprung up to the west of the area.

- **What have been the effects of development on the park?**

Effects of development are numerous, and might include any or all of the following:

- direct road mortality within the park
  - loss of habitat within the park
  - increase hunting in proximity to the park, killing park animals who venture past park boundaries
  - increased usage of the park by people
  - air and water pollution by human activities outside the park
  - the park may “feel smaller” to animals now than it did in 1910 or 1950.
  - animals may have started to disappear from the park: wolverine/ marten, wolves, and grizzly bear might be among the first to go.
- **If you were an wolf in this park, would you feel like you were on an island? Would you answer this question differently if you were a sparrow?**  
Students should realize that not all animals “feel” islandization. The sparrow can easily leave when it comes time to fly south for the winter.

Wolves, who shun human activity, would no longer visit the fragmented piece of park habitat in the south-east corner of the park. For such animals the park has effectively become smaller and - worse yet - runs the risk of becoming an island that they cannot leave.

Alert students may also realize that there is still a narrow corridor of undeveloped land to the north of the park that they might use if they wanted to leave. The park is not yet a complete island.

- **Do you think the park is still run the same way as it always was? What changes may have occurred?**

Park managers may well have had to act to stop people from “loving the park to death,” sine they don’t want any animal species to become extirpated from the park. Restrictions might include imposing quotas on trails, asking people to camp only in designated campsites, etc. They might also have to work with adjacent landowners whose land is visited by park animals.

- **Do you think people living here like having the park close by**

**Overhead #4: Present**  
Ask the students to imagine that they are the manager (perhaps the park superintendent) whose job it is to run the park properly. One day a developer and the local politician walk into your office and show you some ideas they have for the future of this area (at this stage, show students the overhead). Ask students:

- *Identify each of the proposed changes to this area.*

Use the table below to elaborate on the details of each item.

- *Which of these proposed changes would you be in support of? How would you explain your reasoning to the developer and to the local politician?*

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### Overhead #4: Present

Ask the students to imagine that they are the manager (perhaps the park superintendent) whose job it is to run the park properly. One day a developer and the local politician walk into your office and show you some ideas they have for the future of this area (at this stage, show students the overhead). Ask students:

- **Identify each of the proposed changes to this area.**  
Use the table below to elaborate on the details of each item.
- **Which of these proposals, the table below elaborates on one possible approach a responsible park manager might take.**

<i>Item</i>	<i>Description</i>	<i>A possible park manager response</i>
hog processing plant	This is a state of the art plant that will take hogs from within 50 kilometers around, and employ 40 people.	Concern about odour, groundwater pollution by nitrogen, surface water by fecal coliform. Mitigate impact if it cannot be stopped.
Scenic ring road and visitor centre, and parking lot	The developer would own the visitor center and change admission, and sell food and retail items.	Mixed reactions: they would like to increased visitation to the park, but have concerns about this increased impact to the parks' ecosystem.
Another proposed park	This park would allow some hunting and selective logging of trees, but would be protected from other types of development.	Although this will mean less funding, another park might mean a pool of local animals that could help animal populations in the original park.
A special management zone and wildlife corridor	This is an area which is not a park - but has certain rules that are designed to ensure that animals will use this area to travel between the two parks.	This seems like a good idea - but is this zone wide enough to be used by all animals? Is it in the best place? Perhaps it too should be a park...
Rifle range	This small area will just be for target practice during the day.	This is a small area, but might scare some of the animals who are trying to use the wildlife corridor (but since wildlife travel more at night, maybe it's okay). Try to delay while your biologists do some research into this.

- *Do you think it might be difficult for the park manager or superintendent to express his/*

Again, the table below elaborates on one possible approach a responsible park manager might take.

- **Do you think it might be difficult for the park manager or superintendent to express his/her true opinion on these issues? Do you think he/she might have a different opinions from the Park biologist?**

Sometimes this can occur. The park manager may be employed by the politician may be (directly or indirectly) their boss; or they may be influenced by some of the business owners who already run some of their operations within the park.

To conclude this activity, ask students:

- **Do you think that this problem is as big in Alberta as it is in many parts of the United States?**

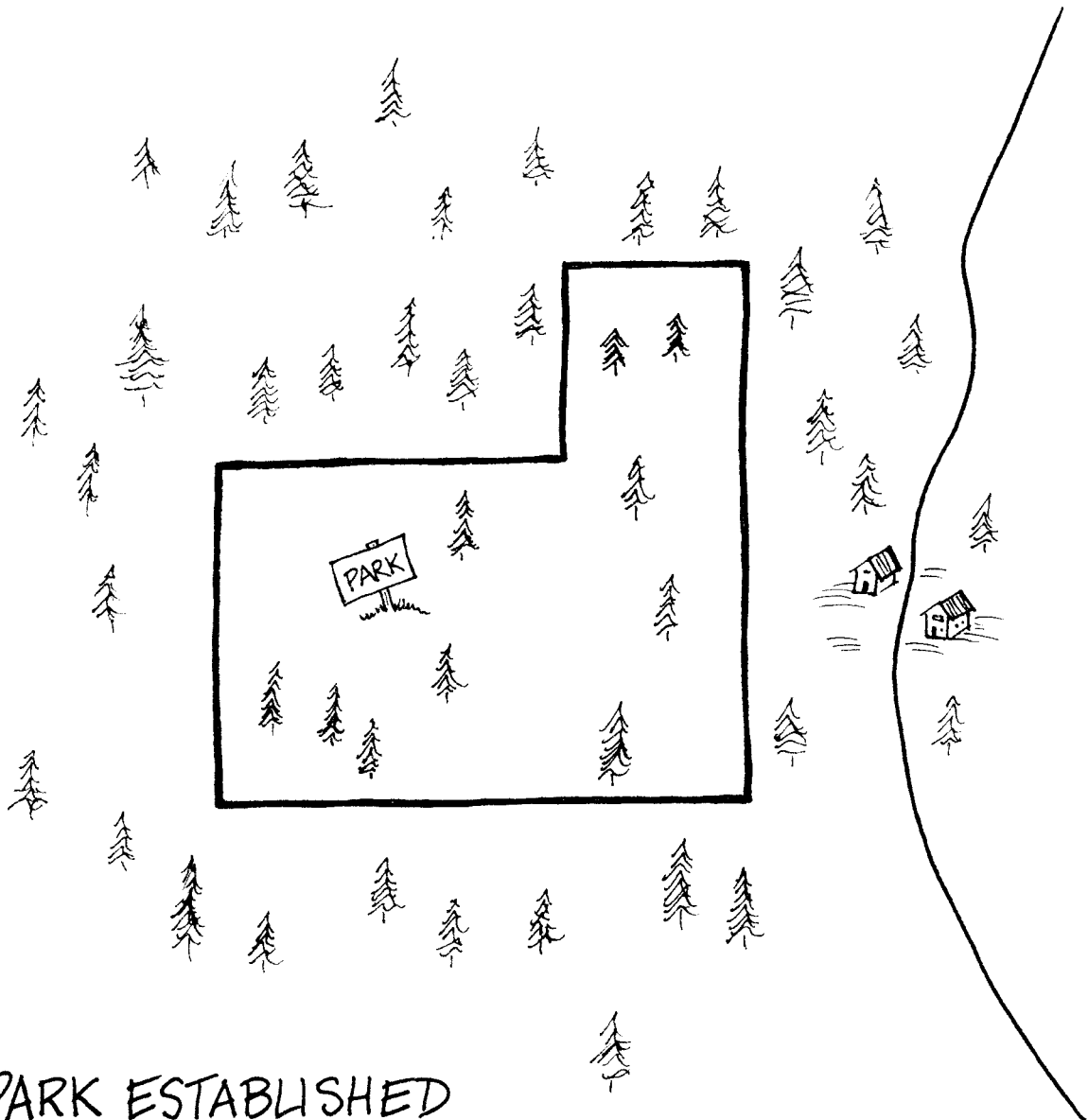
The answer is “probably not,” Many parts of Alberta and Canada are not yet as densely populated as in the States.

- **Do you think this is a problem that may occur in the future in our parks?**

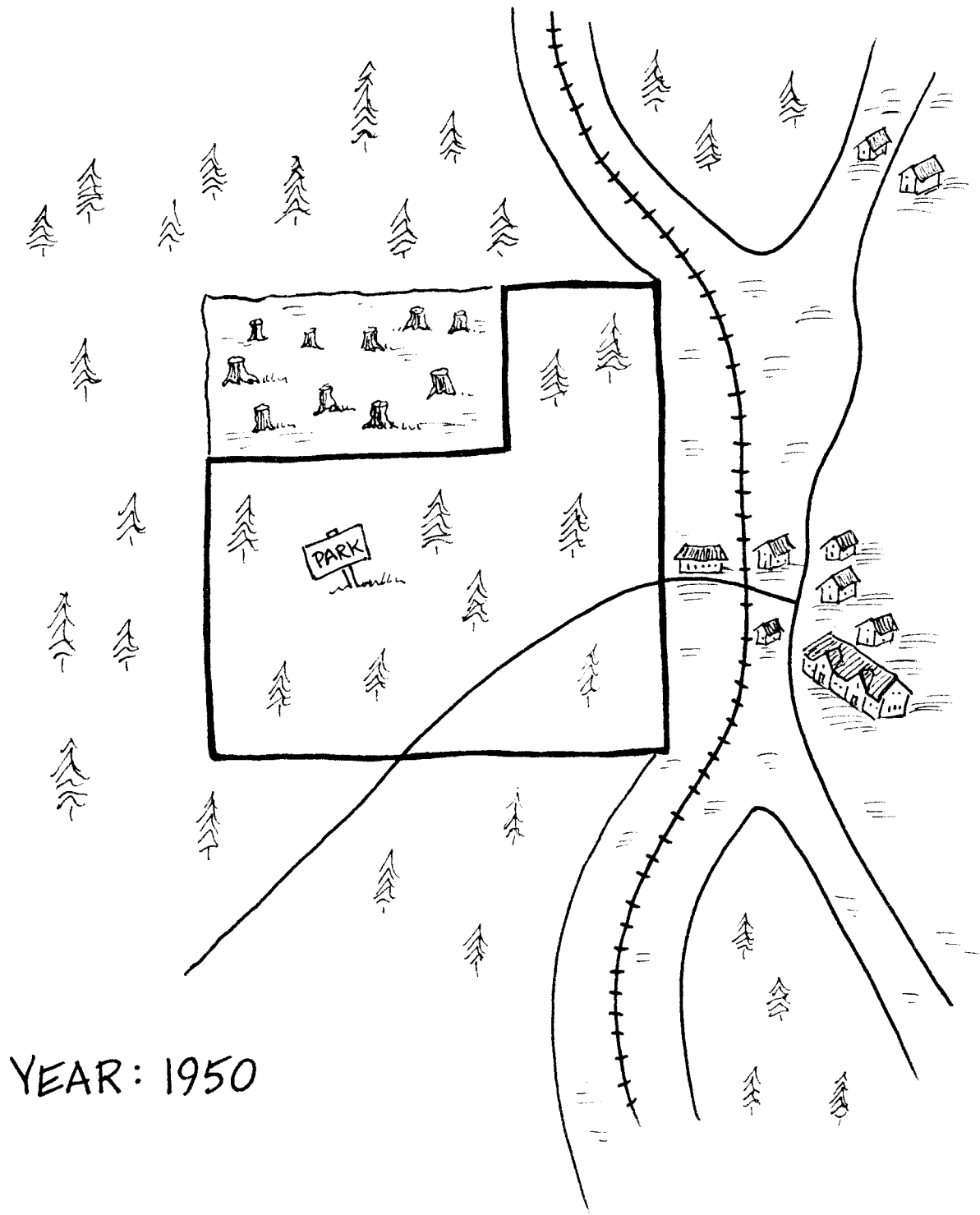
If human population or use of resources increases in Canada - as seems likely - the answer is “yes”. In Canada we have a huge advantage over more areas with more troubled parks: we still have intact ecosystems in many of our parks, particularly the Four Mountain Park area of Banff, Jasper, Kootenay, and Yoho National Parks.

### ***About Florida...***

Tell students about the state of Florida. The people of Florida care so much about preserving their many endangered species that they recently voted in a plebescite to spend \$3,000,000,000.00 (3 billion dollars US) to restore natural areas, turn farmland back into parks, and reconnect existing parkland. Many environmental groups here in Canada believe that we have the opportunity to avoid this sort of costly expenditure in the future; but we have to act now to preserve our parks, establish new ones, and ensure connectivity between them - through the Y2Y network! (See following activities).



PARK ESTABLISHED  
YEAR: 1910



YEAR: 1950

