



# Community Science

## Urban Wildlife

45

minutes

### Lesson 6: Community Scientist Game

#### Location:

Outdoor/Indoor

#### Overview

In this lesson students will play a game where they use their knowledge of local urban wildlife species and understand how these species are related through the symbiotic relationships of parasitism, commensalism, and mutualism. Then, role play how these species together will face extirpation/extinction due to human impacts.

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#### Learning objectives

By the end of the session, students will have:

- Role played the urban wildlife species through a game;
- Brainstormed various human impacts on urban wildlife species; and
- Commented on different solutions to overcome human impacts in urban environments.

#### Curriculum links

Grade: 9

Science, Biological Diversity

- Investigate and interpret dependencies among species that link the survival of one species to the survival of others.
  - Identify examples of symbiotic relationships.
  - Classify symbiotic relationships as mutualism, commensalism or parasitism.

#### Equipment required

- An equal number of bean bags for the number of teams.  
E.g., 30 students will be split into 10 teams of 3. You will need 10 bean bags.

#### Additional information

Participants should have an understanding of citizen science, it's importance and the project iNaturalist. This game can be played inside a gym or outside in the field. Examples of urban wildlife symbiotic relationships are as follows.



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Parasitic: ticks & ungulates (hooved animals such as moose or deer) , fleas & haired animals (coyotes), coyotes & rabbits, etc.

Commensalistic: vine plants (orchids) and trees, milkweed & monarch butterflies, [badgers and coyotes](#), etc.

Mutualistic: lichen (bacteria, fungus and algae), flowers & bumble bees, flowers & hummingbirds, etc.



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#### Lesson plan

Time	Activity	Equipment Needed
15 minutes	<p>Game Prep</p> <p>Bring your group to an open and safe playing field (e.g., soccer field or gymnasium). Separate the class into groups of three, if there isn't enough, a teacher or volunteer can be added to a team. These are the symbiotic groups.</p> <p>Have one member from each group raise their hand. Identify these members as the foundation of the food web, producers! Ask the producers to come and create a circle in the middle of the playing field. Ensure that there is at least 1 m between the participants (they cannot touch fingers when extending their arms). Once they have created the small circle in the middle, have each producer provide an example of a local producer species. (It needs to be more specific than a tree, we are looking for spruce tree or raspberry bush.)</p> <p>Have one of the two remaining members in each group raise their hand. Identify these members as primary consumers. Have the consumers stand behind the producer member of their food chain group, facing toward the circle (they should be facing the back of their partners head). Then, one at a time, have the consumers give an example of a local herbivore/omnivore species in their area. E.g., white-tailed jackrabbit, black-billed magpie, bumble bee, white-tailed deer, etc. The consumer species students provide needs to be an animal that actually eats/uses the producer species they are team members with! Then, the primary consumer will cite what type of symbiotic relationship they have.</p>	



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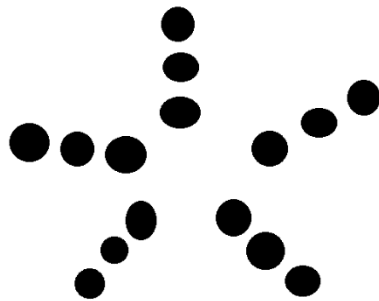
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E.g., A primary consumer may say white-tailed deer because they are partnered with a producer that said trembling aspen tree, deer eat the bark of trembling aspens. This is an example of the symbiotic relationship, commensalism!

Identify the remaining members of each group as the secondary consumers. Allow them to join their team's line. Then, one at a time, have each secondary consumer provide an example of the urban wildlife species they represent, and the symbiotic relationship they have with the primary consumer. E.g., This student may say coyote. This is an example of parasitic relationship with the deer, because it will die.

At this time, members of each food chain group should be standing one behind the other, facing toward the inside of the circle with producer being first, primary consumer second and secondary consumer last.



*Alternatively, you can create teams of 4. Each member of the team will represent an extended version of the food chain:*



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	<i>producer, primary consumer, secondary consumer, decomposer.</i>	
15 minutes	<p>Game Play</p> <p>Place 1 fewer bean bags than groups in the centre of the circle (e.g., if there are 10 groups, you only need 9 bean bags). Tell participants that each of these bean bags represents a citizen scientist.</p> <p>Explain that urban wildlife populations around the world are declining and some are at risk of extinction. Identify that many of the species they have chosen in their symbiotic groups are included in this population decline. Citizen scientists are one way to help protect our important urban species, because data provided by citizen scientists informs government policy which can protect species and their habitats.</p> <p>Tell students that the goal of this game is to try and get a citizen scientist every round. However, every round there will be one fewer citizen scientists than groups – so they will have to work hard to ensure they get one!</p> <p>If a group does not have a citizen scientist at the end of the round, they, unfortunately have gone extirpated/extinct because there were no citizens collecting data to notify scientists that one (or more) of the species in their symbiotic group were at risk. So, nothing was done to save them. As a result of one species in a symbiotic relationship going extirpated/extinct, that impacts the rest of the species. This is why ALL species</p> <p>Each round will contain the following steps.</p>	<ul style="list-style-type: none"><li>• Bean bags</li></ul>



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	<ul style="list-style-type: none"><li>• The instructor will either yell, 'producer', 'primary consumer' or 'secondary consumer' Add 'decomposer' to this list if playing with 4 players.</li><li>• That member of the group will run (crabwalk, skip, hop, or walk) clockwise on the outside of the circle until they reach their group again.</li></ul>  <ul style="list-style-type: none"><li>• When the running member reaches their group, the remaining members of the group will open their legs wide OR create an arch with their bodies/arms for their group member to pass through, crawling between their legs OR running through their arch. <i>Pick one of the options depending on what best fits the needs of your group.</i></li><li>• The running member will then attempt to grab one of the citizen scientist bean bags in the middle of the circle. If they do grab a bean bag, they will run back to their spot in their group line and have all group members sit down (this signifies they are safe).</li><li>• If the member is unable to collect a citizen scientist, their group is eliminated and will sit down for the rest of the game.</li></ul>	
10 minutes	Game Play Continued  Play one round. At the end of the round, identify one threat to urban wildlife species ( <i>habitat loss due to residential development/commercial development, climate change impacts such as hail storms/drought/floods/tornadoes, hunting, pesticides, off leash dogs, off leash cats, etc.</i> ). Feel free to have participants give you an example of a threat to species survival as a way to make this more of a brainstorming activity.	<ul style="list-style-type: none"><li>• Bean bags</li></ul>



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	<p>When you identify the threat for that round, take one citizen scientist (bean bag) away. Play another round.</p> <p>Repeat this process until there is a winner (one group left standing).</p>	
5 minutes	<p>Game Conclusion</p> <p>Explain that citizen scientists are an incredibly important part of protecting urban wildlife species both locally and globally. Because many of these threats you identified are not just happening where you live but also around the world. This is a common environmental problem not just in Canada, but in all other countries around the world. By practicing citizen science and logging urban species into citizen science projects, like iNaturalist, we are all making a positive change for our environment.</p> <p>Have groups give you examples of how they/our communities can help urban wildlife species (<i>plant gardens, protect nature by creating parks, put out bird feeders and bird baths, participate in citizen science, clean up litter, reduce our greenhouse gas emissions/carbon footprint, etc.</i>)</p> <p>Every time a group gives you an example of actions they/their community can take, that group can re-enter the game and stand up. Repeat this process until all groups are standing again. Then, put an equal amount of bean bags to groups in the middle (e.g., 10 bean bags for 10 groups). Play 1+ more round(s) to conclude the game on a positive note, explaining to participants that when we take positive actions we make positive changes in the environment – like saving urban wildlife species!</p>	