

Summary:

Students role-play the Maritime Ringlet Butterfly's response to the human pressures on salt marsh habitat.

Learning Objective:

Students will:

1. learn about the Maritime Ringlet Butterfly and what threatens its' habitat.
2. consider what effects continued human disturbance and development will have on the Maritime Ringlet Butterfly.
3. discuss what can be done to help protect the habitat of this endangered species.

Don't Crowd Me

Activity 7



Photo: Reginald Webster

Materials: Hula-hoops, or strings of a similar measurement, for each student; habitat boundary markers; Maritime Ringlet Butterfly fact sheet;

Location: Indoors (with plenty of open floor space) or outside

Time required: 1 hour, plus homework



Background Information:

Habitat loss or changes to habitat are the main threats to the Maritime Ringlet Butterfly. The Maritime Ringlet is strictly limited to a salt marsh habitat. Its distribution and abundance within the marsh vary, depending on the presence of its larval host plant (Saltmeadow Cordgrass) and its main adult food (Sea Lavender nectar). Saltmeadow Cordgrass and Sea Lavender occur in portion of the marsh that are not flooded daily, but rather only during the highest tides, as those associated with the new moon and full moon. These specific habitat requirements limit where the butterfly is found.

It is not clear why the Maritime Ringlet is not found at more sites, since there are a number of coastal marshes with both sea lavender and salt meadow grass. However, this butterfly is restricted to very few sites within New Brunswick and Quebec, despite having a great deal of potential habitat. Habitat damage, either by housing and cottage development along the marsh edges, or by water-borne pollution, are currently the main threats to this species. Climate change and rising sea levels may also affect the habitat of this species in the future.

Human development in adjacent areas threatens the marsh habitat both directly, by intruding into the marsh area, and indirectly, by adversely affecting the hydrology of the marsh. Sea-borne pollutants, such as oil and detergents, can be harmful because all the life stages of the butterfly are affected by the ocean tides. Other pollutants, such as lawn fertilizers and other home pesticides, can reach the salt marsh from fresh water sources. Other human disturbances to the Maritime Ringlet habitat may be caused by illegal ATV traffic that damages the marsh habitat and destroys the butterflies.



Curriculum Links:

Predict what an ecosystem will look like in the future, based on the characteristics of the area and the long-term changes observed in the site.

Propose and defend a course of action to protect the local habitat of a particular organism.

State a prediction and a hypothesis based on background information or an observed pattern of events

In summary, protecting the salt marsh habitat is essential for the Maritime Ringlet Butterfly to survive. Without a suitable place to live, this species will remain at-risk, or worse.

Activity:

1. Copy the Maritime Ringlet Butterfly Fact Sheet for students.
2. Set up clear boundaries for the "salt marsh habitat" in an open area, inside or outside. The area should be slightly too small to accommodate all the students with their hula-hoops.

3. Instructions

- a. Review the concept of habitat and its importance to wildlife. Explain the background information on this activity to students.
- b. Familiarize students with the Maritime Ringlet using the fact sheet.
- c. Inform students that they will participate in a simulation of the circumstances that may be causing the Maritime Ringlet Butterfly to be at risk.
- d. Show students the salt marsh habitat of the butterfly, using the overhead transparency and habitat notes in an earlier section of this kit.



4. Divide the class into four roughly equal groups. The groups will represent the Maritime Ringlet Butterfly, the house and cottage builders, the ocean polluters and the fresh water polluters.
5. Give each Maritime Ringlet a hula-hoop and give others either a hula-hoop or a loop made of string. This will represent the space they occupy.
6. Have students line up in their groups, just outside the salt marsh habitat. Explain that this activity illustrates some of the past and potential disturbances to the Maritime Ringlet Butterfly habitat.
7. On a signal, tell the Maritime Ringlets to fly within their habitat, but not to leave the salt marsh. Tell them they must keep moving and they can wander freely as long as the salt marsh that they are in will accommodate them and their hula-hoops (which must be held horizontally). State that this is what it was like for the Maritime Ringlet before humans started to have a major impact on their salt marsh habitat.
8. On a second signal, send in the people who built houses and cottages along the marsh edges. For the purposes of this activity, not all the buildings need to be at the edge of the marsh. When they find a spot to build, have them set their hoop (or loop) on the floor and sit in it.
9. Next, the ocean polluters, who have contaminated or will contaminate the salt water with oils and detergents, come to the salt marsh. The ocean pollution sources can range from individual people to tanker ships. These pollutants can flow anywhere within the salt marsh and pose a threat to the Maritime Ringlet larvae and pupae. When the ocean polluters find a spot to accumulate, have them set their hoop on the floor and sit in it.

10. Finally, the fresh water polluters, who have dumped pollutants into the watersheds feeding into the salt marshes, or who have faulty septic systems that seep into the salt marsh, move in. They, like the others, will find an individual spot to sit down with hoop horizontal. **Note that the hoops, or changes affecting the Maritime Ringlet habitat, must not overlap. If a Maritime Ringlet does not have enough space to fit, then it must move without touching the other hoop, or must leave the game.**

11. Announce that it's late in July, and to ensure the survival of the species, the Maritime Ringlets must find a mate. A mate is acknowledged when the rings of two hula-hoops are touching. Any butterflies that cannot find a mate or cannot fit with the hula-hoop must leave the game.

12. Discussion:

- a. How many Maritime Ringlets survived? How does human activity affect the remaining Maritime Ringlets' ability to move around, locate a mate and find new habitat? Was the habitat fragmented?
- b. What pressures were there on the butterflies' habitat? Are the pressures abiotic or biotic? What are the major potential threats? What pressures do you and your family place on wildlife habitat?
- c. What is the effect of human disturbance and developments?
- d. How could the habitat be improved? What could you do to help?

13. Have students write a short story about loss of a habitat, from another species' point of view. The fact sheet and the sequence of habitat changes in this activity can provide the background information.

Variations:

1. An oil spill that directly affected the salt marsh would probably kill most of the Maritime Ringlets. To simulate the effects of an oil spill, much larger hoops could be used to represent the impact of the spill. Alternatively, more students could be assigned to the role of the oil spill hoop bearers.
2. Using the fact sheets, have the students research another plant or animal species that is affected by habitat loss.
3. Have students design and run a computer simulation for plant species that are threatened with habitat loss.