



PENNSYLVANIA GAME COMMISSION SUPPLEMENTS

By Emma Hamaker

The following content supplements the ***Wings Over Water Prairie Pit Stop*** lesson² created by Discovery Place Education Studio, which accompanies the *Wings Over Water* IMAX film³. The film tells the compelling story of the epic journey of three amazing bird families with extraordinary footage of their fascinating behaviors.

PRAIRIE PIT STOP ATLANTIC FLYWAY ADAPTATION

Follow the **Prairie Pit Stop** lesson, created by Discovery Place Education Studio, with these adaptations.

ADDITIONAL MATERIALS

- Additional printed bird cards
- Printed task cards
- Dice

ADAPTED LESSON OVERVIEW

While the Central Flyway has prairie potholes, the Atlantic Flyway has stopover sites. Students will determine the importance of stopover sites in relation to migration and consider how the impact of human activities on stopover sites could make migration more difficult. Students will then brainstorm strategies to help protect these important sites.

ADDITIONAL VOCABULARY

Stopover Site — Places for birds to rest, refuel, and seek shelter during their migration.¹ [Audubon Great Lakes]

ADAPTED EDUCATOR PREP

In addition to the Mallard and Yellow Warbler bird cards, print the Snow Goose and Canada Goose cards included in the supplemental materials from the Pennsylvania Game Commission.

Print the task cards in the supplemental materials.

Build your Atlantic Flyway game board. This can be done on the floor with tape or as an actual game board.

ADAPTED EDUCATOR GUIDE

1. **Follow Step 1 in the Prairie Pit Stop Lesson** adding the Snow Goose and/or Canada Goose bird cards.
2. **Follow Step 2** substituting the Atlantic Flyway for the Central Flyway. Describe how different birds take different paths

Canada geese by Jake Dingel



during migration. Present the map of the Atlantic Flyway to your class and allow them to list the states it covers. Mention the total distance of the flyway (3,000 miles). Compare this distance to the distance between school and a student's favorite vacation destination.

Introduce the idea of **stopover sites**. Use the comparison of needing a drink or rest after running at recess, or a rest stop on a long car trip. Allow students to brainstorm ideas of what they believe would be characteristics of good stopover sites along the Atlantic Flyway and how stopover sites might differ for different species.

3. Have students line up at the START of your Atlantic Flyway. Students will migrate "north" leaving their wintering grounds and traveling to their breeding grounds at the END of the flyway. Students will then travel back to the START to complete their migration.

Travel like a bird. Snow Geese and Canada Geese will travel in groups because geese migrate together in flocks. Canada Geese can travel in a v-shape. Yellow Warblers will need to flap faster than the larger birds to stay aloft.

Be on time. The flock of Snow Geese will be first to roll the die and travel as a group that number of spaces. Yellow Warblers will roll second...

- 1st to Roll: Snow Geese (Migration is late May- Mid August)
- 2nd to Roll: Yellow Warblers (Their migration begins in July)
- 3rd to Roll: Canada Geese (Late August)
- 4th to Roll: Mallards (August-December)

TASK space — Draw a Task Card and follow its directions.

STOPOVER space — Skip a turn to eat and rest.

4. Follow Step 4 allowing the class to complete their migrations to their northern breeding grounds and back.

5. Follow Step 5 with a discussion of how stopover sites are in trouble. Many threats are the same as they are for prairie potholes. Information on additional threats (purple loosestrife and rising sea levels) can be found in the supplemental materials.

6. Follow Step 6. Place Round 2 Task Cards on several of the Stopover spaces, rendering those Stopovers unusable.

7. Follow Step 7. Students will attempt to migrate again, with fewer stopover sites available.

8. Follow Step 8. Additional ways to help migratory birds and their habitat include:

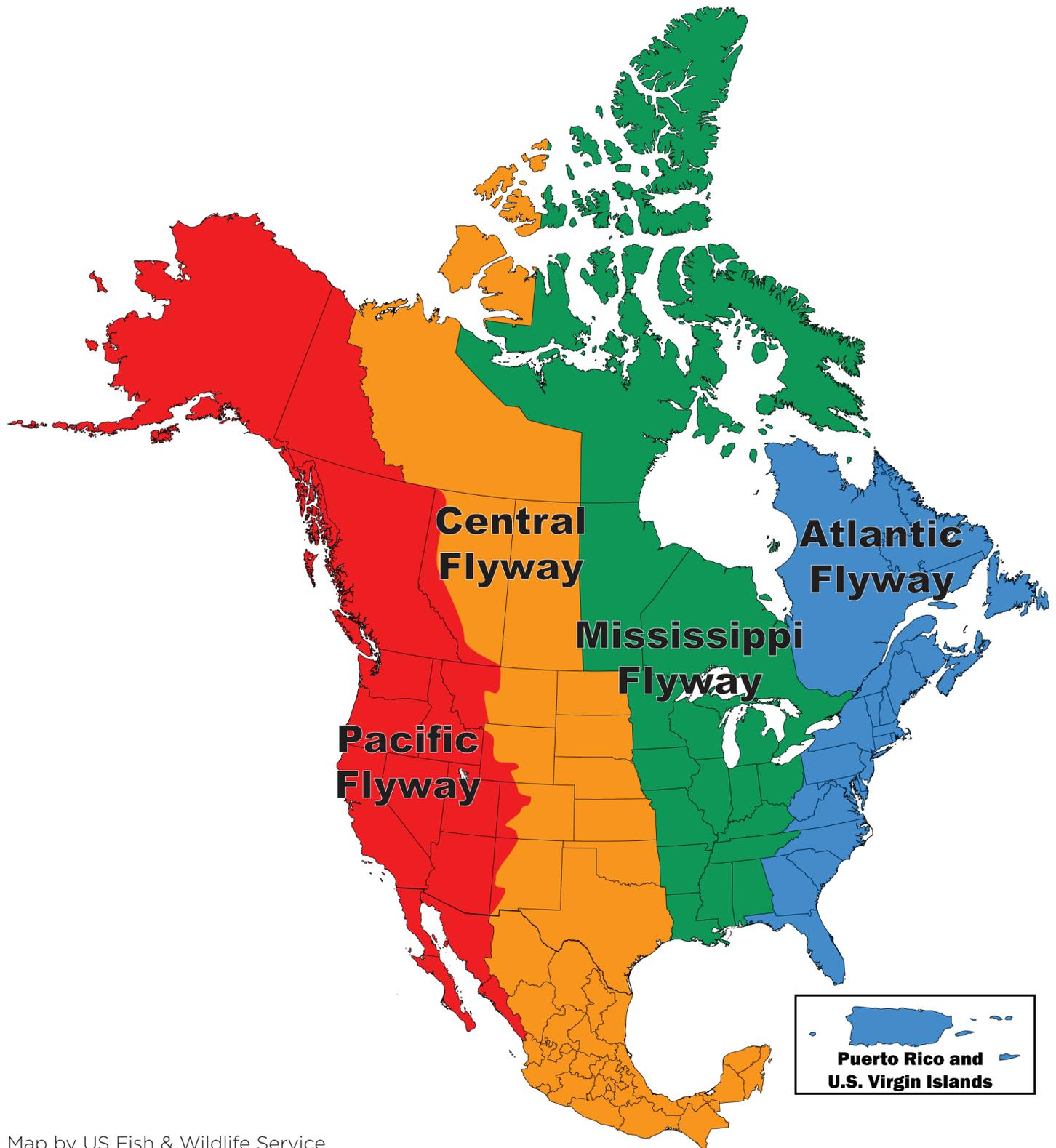
- Plant native plants
- Reduce introduction and spread of invasive species
- Protect important lands from development

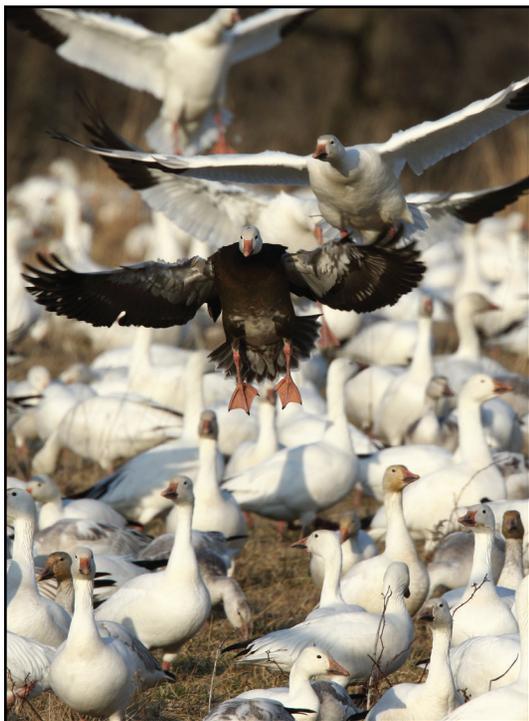
9. Complete Steps 9 and 10. As students find ways to help protect stopover sites, they can remove the Round 2 Task Cards from the Stopover spaces, reopening them for use.

FOOTNOTES

- 1 Great Lakes Audubon, <https://gl.audubon.org/landing/migratory-stopover-habitat>
- 2 *Wings Over Water* Educator Guide, <https://wingsoverwaterfilm.com/education>
- 3 *Wings Over Water* Homepage, <https://wingsoverwaterfilm.com>
- 4 Ducks Unlimited, <https://www.ducks.org/conservation/where-ducks-unlimited-works/waterfowl-migration-flyways/du-projects-atlantic-flyway>

The Atlantic Flyway covers Puerto Rico, the US Virgin Islands, 17 states (Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Maryland, Delaware, New Jersey, Pennsylvania, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine), and six Canadian provinces. It covers a distance of more than 3,000 miles.⁴ [Ducks Unlimited]





Snow Goose

Wingspan: about 4.5 feet

Weight: 3.5-7 pounds

Diet: Herbivore

Migration: Winter in inland and coastal areas, including Pennsylvania. Geese that migrate through Pennsylvania primarily breed on Bylot Island, but may breed across the arctic regions of North America and Russia during summer and spring.

Fun Fact: Has a blue color phase.

Snow geese are classified as medium-distance migrants, making long flights broken up by long stopovers at staging areas. They fly quickly and at high altitudes in narrow flight lanes, heading due south from the breeding grounds to a wintering site at roughly the same longitude. Migration is different each year. Snow geese typically migrate inland during the fall and spring, and spend winter in coastal salt marshes.

During migration, snow geese fly both day and night and often travel in flocks of 1,000 birds or more. Migrating snow geese take advantage of predominant winds, good visibility, and periods of no precipitation.

Much of the Atlantic Flyway population overwinters in the Chesapeake Bay area. Some overwinter as far south as the northern coast of North Carolina.

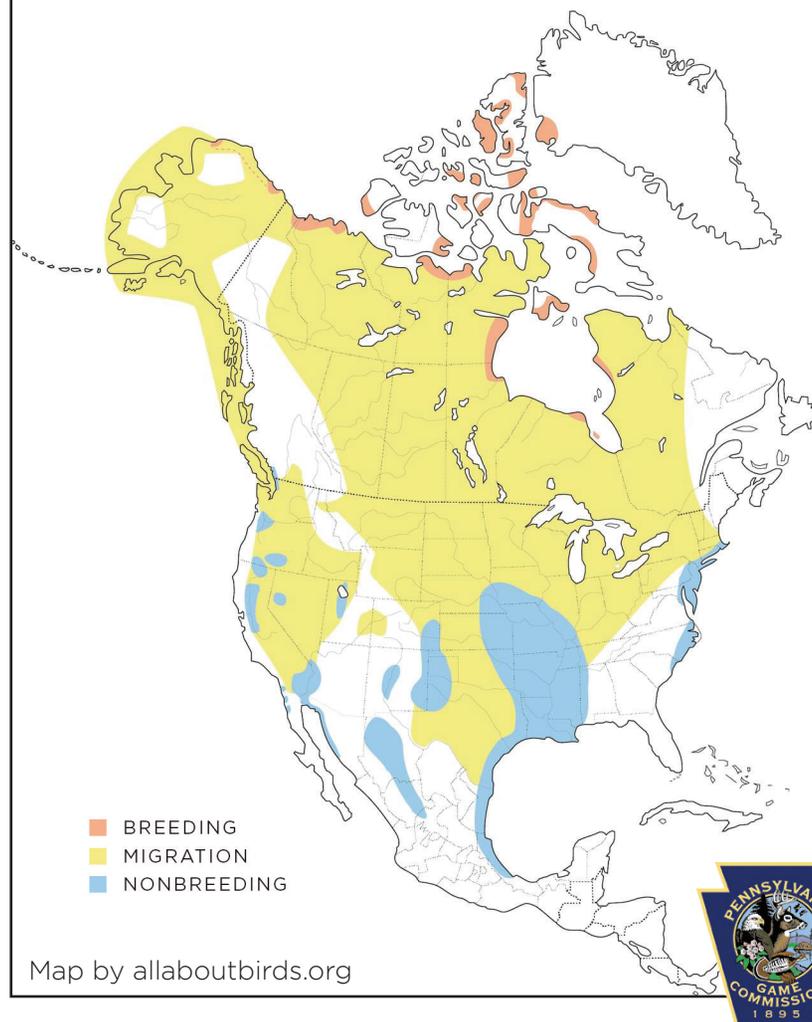
After staging at Middle Creek in southeastern Pennsylvania, the next major northward stopover is the Finger Lakes region in northern New York. However, many will stop in fields or smaller bodies of water along the way. Some leaving Middle Creek will return the same day and feed in nearby fields.

Snow geese nest on arctic tundra near river mouths and on islands in lakes and rivers, usually within five miles of the coast. Some that winter along the Atlantic coast breed in Greenland. They gather in colonies that vary greatly in the numbers and densities of pairs.

They eat leafy parts of grasses, sedges, rushes, and other aquatic

plants, berries, grains from harvested fields, and grub for roots and tubers of a variety of land plants. They are voracious feeders and their booming populations can create landscape-level damage, especially on subarctic staging areas. Biologists were once concerned the birds could eat themselves out of house and home, however populations are being successfully limited with liberalized hunting seasons and bag limits.

Snow Goose Range Map





Canada Goose

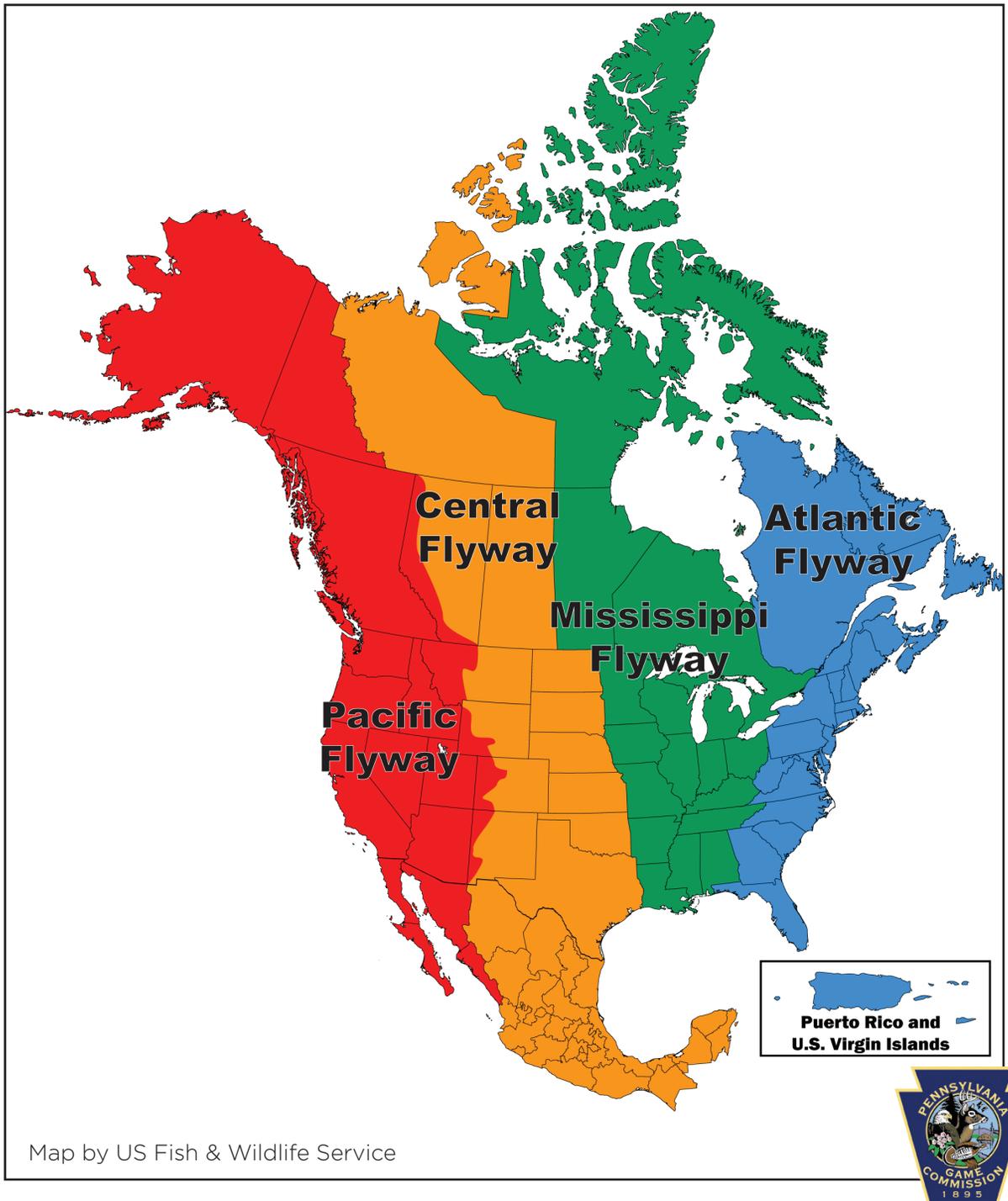
Wingspan: 4 to 6 feet

Weight: 6 to 14 pounds

Diet: Herbivore

Migration: Some are resident, others migrate to subarctic breeding grounds. They typically fly in vees.

Fun Fact: Artificial nesting structures such as tubs, old tires, or platforms over water often attract resident honkers.





Invasive Purple Loosestrife

Is loosestrife a threat?

Purple loosestrife's beauty is deceptive: it is killing our nation's wetlands. A wetland with lots of purple loosestrife is soon a wetland with little wildlife. Growing in dense thickets, loosestrife crowds out native plants that wildlife use for food, nesting, and hiding places, while having little or no value for wildlife itself.

For example, songbirds will not eat the small hard seed. Waterfowl, especially ducks, shun wetlands that have become dominated by loosestrife. The plant's growth is generally too compact to offer cover.

-Penn State Extension

Learn more at

<https://extension.psu.edu/purple-loosestrife-in-pennsylvania>



Sea Level Rise

Is sea level rise a threat?

Sea level rise will destroy many salt marsh habitats, especially those along the Eastern seaboard. Audubon is working to protect a network of salt marsh landscapes across the Atlantic Flyway to sustain priority bird species in the face of sea-level rise and other threats.

-Audubon

Learn more at

<https://www.audubon.org/conservation/project/saltmarsh>



Task Card

It's windy!
Spin in a circle 5 times.

Task Card

It's cold!
Tuck one leg up under your
feathers and hide your beak under
your wing until your next turn.

Task Card

Oh no!
You ate something that made you
feel funny. Rub your belly and pat
your head until your next turn.

Task Card

Injury!
Skip a turn to heal and hold your
left arm until your next turn.

Task Card

Injury!
Hop on one leg for the rest
of your migration.

Task Card

Predator!
This is the end of your migration.
(In a flock, one bird must
volunteer sit out.)

Task Card

You are SO hungry!
Fly ahead to the next Stopover
to grab some lunch.

Task Card

Wing cramp!
Find the nearest Stopover and
rest until your next turn.

Task Card

It's REALLY cold!
You froze into the icy lake
overnight. Skip a turn.

Round 2 Task Card

You're hungry! But, there is no
place to stop for food. You don't
have energy to continue. This is the
end of your journey.

Round 2 Task Card

You're tired!
But, there is no safe place to rest.
This is the end of your journey.

Round 2 Task Card

Injury!
But, there is no place to rest
and heal. This is the end of your
journey.