



INVASIVE SPECIES ACTIVITY

Nutria are damaging to North Carolina's wetlands

Objective: Students will understand the damage to NC wetlands caused by nutria, an invasive rodent species; students will observe that invasive species are a result of human impact.

Age Group: Any

Materials:

- ✓ 3 different collections of 15 items, can be natural or manmade
 - Example: 15 acorns, 15 sweet gum balls, 15 pine cones
 - Example: 15 blue marbles, 15 red marbles, 15 purple marbles
- ✓ This activity requires a large space (at least 10x10 feet)
- ✓ If playing outdoors, larger items and/or a tarp or groundcover may be desired

Curriculum Connection:

EEn.2.7.3: Explain how human activities impact the biosphere

Bio2.2: Understand the impact of human activities on the environment (one generation affects the next)

What you need to know:

Invasive species are plant or animal species that are not native to their current location and cause severe damage to ecosystems. They are often brought to other countries through human introduction. Fire ants, for example, came to the U.S. from Mexico on a cargo delivery. Aside from being a nuisance to humans, they also displace native ants and have been known to wipe out songbird nests and kill dispersing frogs. Japanese stilt grass (*Microstegium vimineum*) is a plant species that was used as packing material for items being sent to the U.S. It spreads quickly in shaded wetland areas and outcompetes native species for sunlight. Many invasive species have been introduced purposefully. Nutria, the invasive animal this activity will focus on, was introduced initially for fur, and then in the southern states as a method of keeping weeds cut. Unfortunately, their fur lost value quickly, and the animals did much more than cut weeds.

Nutria are medium-sized aquatic rodents, larger than muskrats but smaller than beavers, with large incisors to cut and eat wetland plants. They currently reside in North Carolina's coastal marshes and their diet does not discriminate. They eat all matter of wetland plants, and they eat a LOT. It is estimated that they eat 25% of their weight *every day*. Because they are such voracious eaters, they outcompete the native muskrats and even some waterfowl for food. Additionally, their constant eating severely decreases vegetation cover along coastal marshes, eradicating habitat for many animals. Nutria are also at odds with otters, eating and reproducing at such a rate that otters are being driven out of their habitats.

For this activity, we will focus on nutria's eating habits versus the eating habits of muskrats and the American black duck. While nutria can eat a lot of different plants, the diets of muskrats and American black ducks are not as diverse. They depend on specific plants for their primary food source.

The activity:

- ❖ Split students into 3 groups, with 1 group larger than the others by at least two students. The larger group will be the nutria. The other 2 groups will be American black ducks and muskrats, respectively.
- ❖ Dump all items you've collected into the middle of the game space
- ❖ The items represent food sources for the 3 groups. The black ducks can only eat one type, muskrats can only eat two types, and the nutria can eat all 3 types.
- ❖ Rules for collection:
 - Nutria: walk on all fours facing forward; collect one food item at a time (collect one, bring it to the edge of the area, then go back for more)
 - Muskrats: crab walk on all fours; collect one food item at a time
 - American black ducks: sit cross legged and scoot around to collect one food item at a time
**remember to only collect the food items you are allowed to eat

ADAPTATION FOR INDOOR SPACE OR DIFFERENTLY ABLED STUDENTS

- Nutria: move forward across the room at normal pace; collect one food item at a time (collect one, bring it to the other side of the room, then go back for more)
- Muskrats: move backward across the room, pausing every 3 seconds; collect one food item at a time
- American black ducks: move across the room 1 step at a time, spinning in a circle after every 2 steps; collect one food item at a time
- ❖ Start the first round with all the muskrats and ducks, but only 2 nutria. Once all the food has been collected, observe who collected the most. Each individual needs at least 2 food items to survive. If they do not collect at least 2, they die. Return all food items to the center.
- ❖ For the second round, the nutria reproduced! Remember that they have a very high rate of reproduction compared to the other animals. Add 2 more nutria. All other animals who died in the first round do not compete in this round. At the end of the round, observe again who has collected the most. Those animals that did not collect at least 2 food items do not participate in the third round. Return all items to the center.
- ❖ For the third round, the nutria reproduced again! Add the remaining nutria in this round. All other animals who died in the second round do not compete in this round. Once all the food is gone, observe who has collected the most and who has died.
- ❖ If there are still ducks or muskrats left after the third round, continue as described until the only animals left are the nutria.

Follow Up:

Which animal ran out of food source(s) the fastest? Why?

What made it easy for the nutria to get food?

Besides affecting muskrat and duck populations, what are some other ways nutria can damage the wetland ecosystem?