

Sample Lesson #3

A Highly Successful Invasive Mammal

Rattus norvegicus—also known as the Norway rat, brown rat, sewer rat, ship rat, and just plain “rat”—is native to central Asia but lives all over the world. This highly invasive species competes for food, preys on native animals, and spreads disease. It endangers native plants and birds and, in some places, has helped to cause extinctions. Rats damage crops and invade food stores; they chew through electrical wires, water pipes, and insulation.

What makes *Rattus norvegicus* so successful as an invasive species? Rats are quick, agile, and mobile. They are expert hitchhikers that easily stow away in ships, railroad cars, trucks, and automobiles. Rats travel in other ways too; they run, jump, swim, and can even tread water. The highly adaptable and aggressive species flourishes in a variety of habitats, including garbage dumps and sewers. Rats live in fields, marshes, and along streams. They reside in barns, warehouses, restaurants, and the basements and attics of people’s homes. Rats are nocturnal, hiding out in holes, pipes, or other little nooks and crannies by day. They burrow and take shelter underground. Rats are omnivorous, meaning they can survive by eating both plants and animals. They like to forage in crop fields, food bins, and trash dumpsters, and they prey upon eggs, chicks, mice, birds, fish, insects, and small lizards.

Above all, rats are extremely prolific. They breed multiple times per year with as many as ten offspring in each litter. Their offspring can begin breeding after only two or three months, and rats live for as long as three or four years. As long as food and shelter are readily available, rats will keep having babies. It is easy to see why an estimated 150 million rats live in the United States today.

Although rats succeed in all kinds of habitats, they prefer living near humans. People and their buildings provide warmth, shelter, and foraging opportunities. But most humans despise rats. With their powerful teeth, rats can be very destructive. They gnaw through wood, build nests in walls, and contaminate food. They burrow beneath buildings, causing structural damage. Rats transmit disease through their feces, urine, and saliva. Being bitten or scratched by a rat can lead to a serious illness called rat-bite fever.

Ever since rats first traveled by ship to North America in the 1700s, people have used poisons, traps, and natural remedies to get rid of them. Rats live in colonies, however, and when the population of their colony declines, rats intensify their reproduction rate to restore their numbers. According to ecologists, it is best to control rats by preventing them from making a home where they are not wanted and by limiting their food supply. This includes sealing any openings where rats can enter and keeping food stores and garbage well-contained.



Rats damage and contaminate foodstuffs. They thrive when nourishment is readily available.

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- RI.8.3 1. The author informs the reader about rats as an invasive species by _____.
- A) describing the traits that make rats so successful
 - B) listing the various kinds of rats in North America
 - C) explaining how rats invaded islands and caused extinctions
 - D) all of these
- RI.8.2 2. **How do rats directly harm the environment?**
- A) Rats can live in any habitat, but they prefer living near humans.
 - B) Ships carrying passengers and cargo bring rats to other places.
 - C) Rats contribute to the reduction and extinction of native species.
 - D) Rats are mobile, omnivorous, and nocturnal.
- RI.8.2 3. **How do rats directly threaten human health?**
- A) Rats flourish in garbage dumps and sewers since they eat just about anything.
 - B) Rats contaminate food and transmit disease through their feces and urine.
 - C) Rats breed multiple times per year with as many as ten offspring in each litter.
 - D) Rats prey upon eggs, chicks, mice, birds, fish, insects, and small lizards.
- RI.8.2 4. **How do rats directly harm the US economy?**
- A) Rats are filthy, creepy, and repulsive.
 - B) Rats sleep or hide out during the day and are active at night.
 - C) Rats damage and destroy crops, food stores, and buildings.
 - D) People use traps, poisons, and home remedies to get rid of rats.
- RI.8.1 5. It may be impossible to eradicate rats because rats _____.
- A) are native to Asia and have no natural enemies in the United States
 - B) have powerful teeth and can gnaw through wood
 - C) reside in barns, warehouses, restaurants, and people's homes
 - D) intensify their reproduction rate when their population declines
- L.8.4 6. From the context clues, you can tell that *extremely prolific* means _____.
- A) expert at running and swimming
 - B) able to produce numerous offspring
 - C) eats almost anything
 - D) able to live in any habitat
- RI.8.1 7. **What makes rats extremely successful as an invasive species?**
- A) They are quick, agile, and mobile.
 - B) They are highly adaptable and aggressive.
 - C) They are extremely prolific.
 - D) all of these
- RI.8.1 8. **Explain why removing food sources is more effective than using poisons or traps to control a colony of rats. Use evidence from the text.**
