

Freshwater Gastropod 101

Conservation status of the ~700 United States & Canada gastropod species

What is a gastropod?

Mollusks with one shell (like snails or limpets) or no shell (like slugs) are **gastropods**. There are around ~4,000 species of freshwater gastropods around the world. They can be found from small ponds to large rivers and lakes.

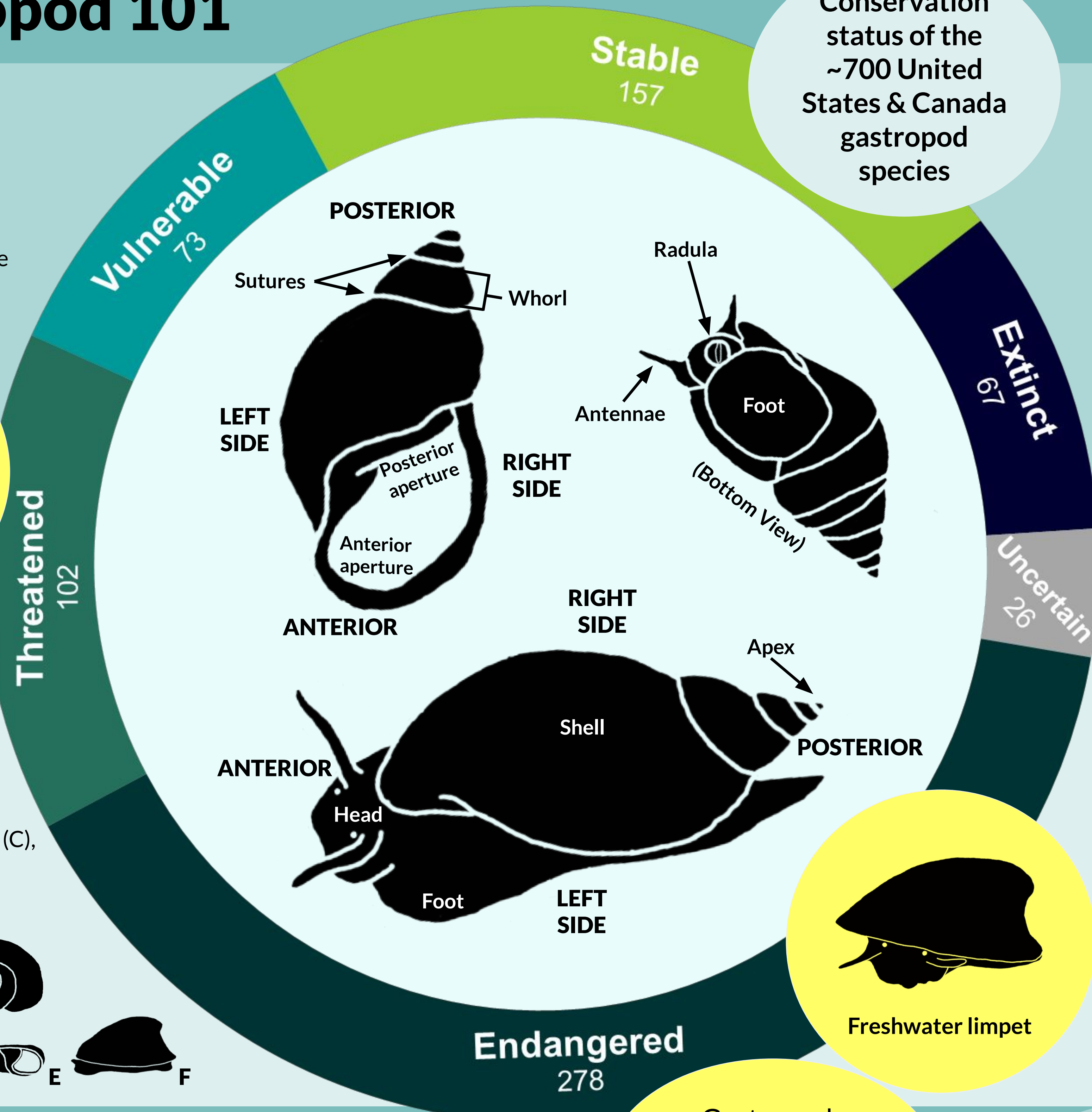
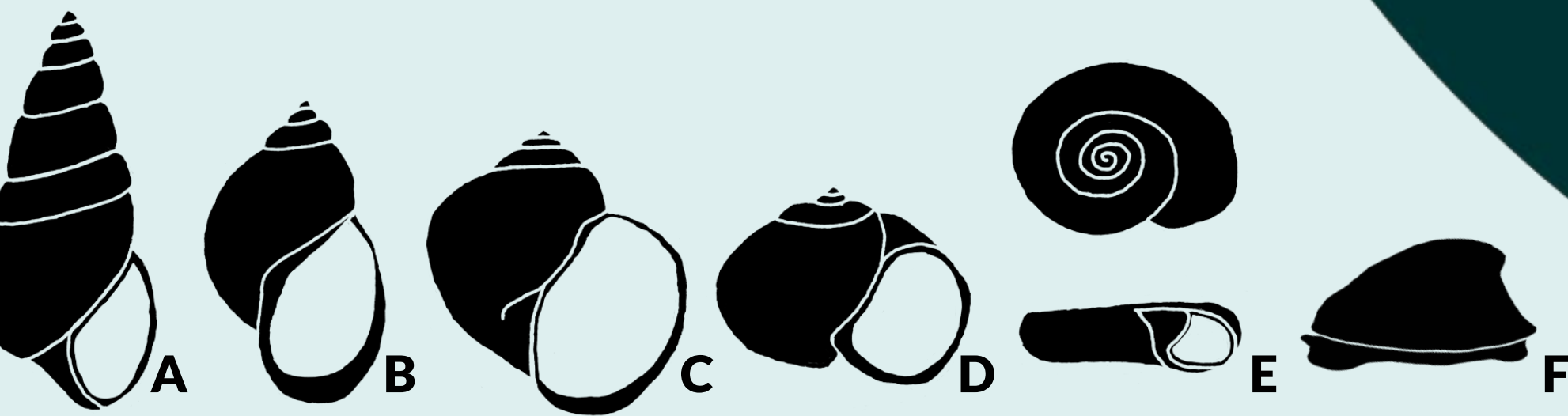
Some species spend their entire lives in small ranges, making them vulnerable to habitat degradation.



Shell Shapes

Identifying gastropods can be difficult! The shell can be coiled in different directions: **dextral** if it opens to the right and **sinistral** if it opens to the left. Limpets can be dextral or sinistral as embryos but adults have shallow pan-like shells (F).

The shells below are examples of: Elongate conic (A), Elongate cylindrical (B), Globose (C), Depressed (D), Discoidal (E), and Patelliform (F).



Lunged

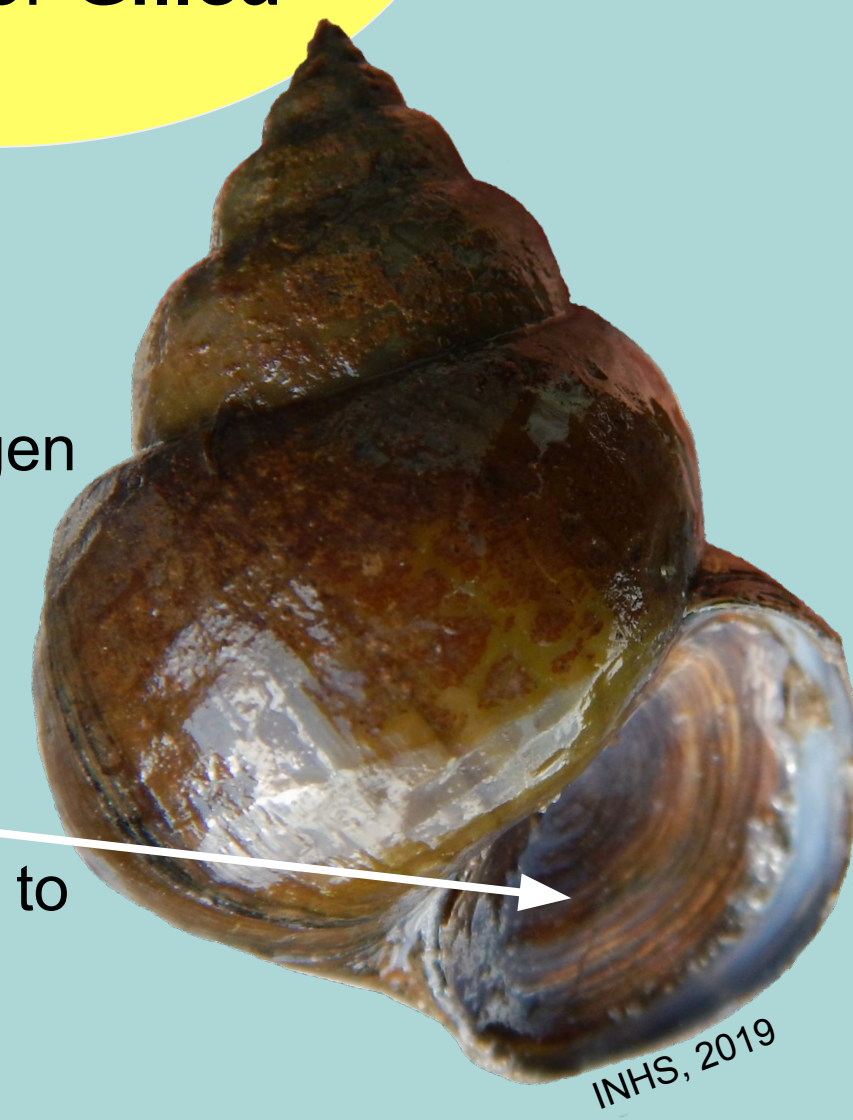
Lunged gastropods breathe oxygen in the air through a structure (pseudobranch) that acts like a lung. Freshwater limpets also fall in this category as, unlike most marine limpets, they have a specialized lung.

Gastropods generally fall into two categories: **Lunged or Gilled**

Gilled

Gilled gastropods breathe dissolved oxygen in the water with their gills.

Unlike lunged snails, gilled snails have a trap door called an **operculum**. An important function of the operculum is to stop the gastropods from drying out.



Life Cycle

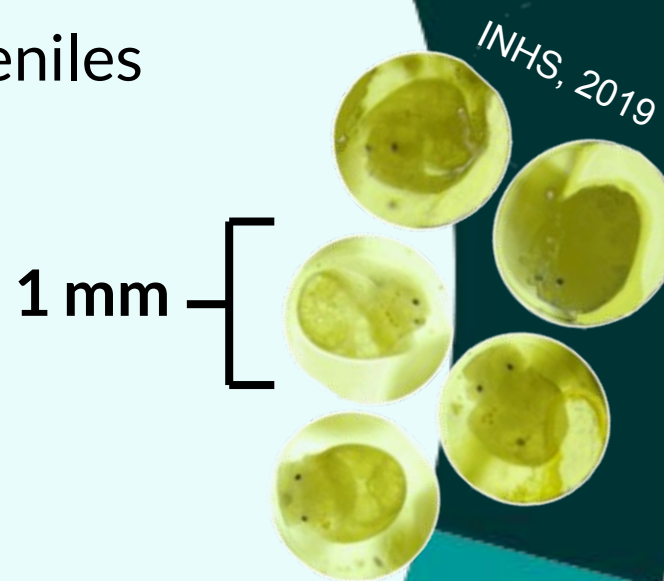
Depending on species, adults can produce several generations of young either by **live birth** or **laying eggs**. Gastropods that lay eggs usually attach the gelatinous masses to substrate. Once born or hatched, juveniles grow into adults in several weeks.

Lunged

Fast growing
Live around a year
Hermaphroditic
Lays eggs

Gilled

Slow growing
Live several years
Separate sexes
Live birth or lays eggs



Role in Ecosystem

Gastropods play a large role in algae primary productivity through nutrient cycling.

Gastropods use their **radula**, or scraping tongue, to graze algae, biofilm, detritus, and shred plants.

Some species can be suspension feeders or deposit feeders.

Causes of Decline

Gastropods face threats from habitat modification, pollution, and the introduction of invasive species.

How can you help?

1. Never release snails into waterways
2. Vote to protect your local bodies of water
3. Participate in clean-up efforts
4. Spread the word!

Gilled snails are the most diverse group, making up $\frac{2}{3}$ of North American snail species!

Predators of gastropods include crayfish, fish, turtles, and ducks. They are an important food source for many other organisms.

Discover more species in the US and Canada!



Shell anatomy drawings based on the work of Dr. John Burch (1989) and his *North American Freshwater Snails*. Photos courtesy of the Illinois Natural History Survey (INHS) and Nora Straquadine (NS).