

# An introduction to the pearly mussels of the middle Hudson River (Corinth to Troy)



*M. C. Barnhart*

David L. Strayer

Cary Institute of Ecosystem Studies

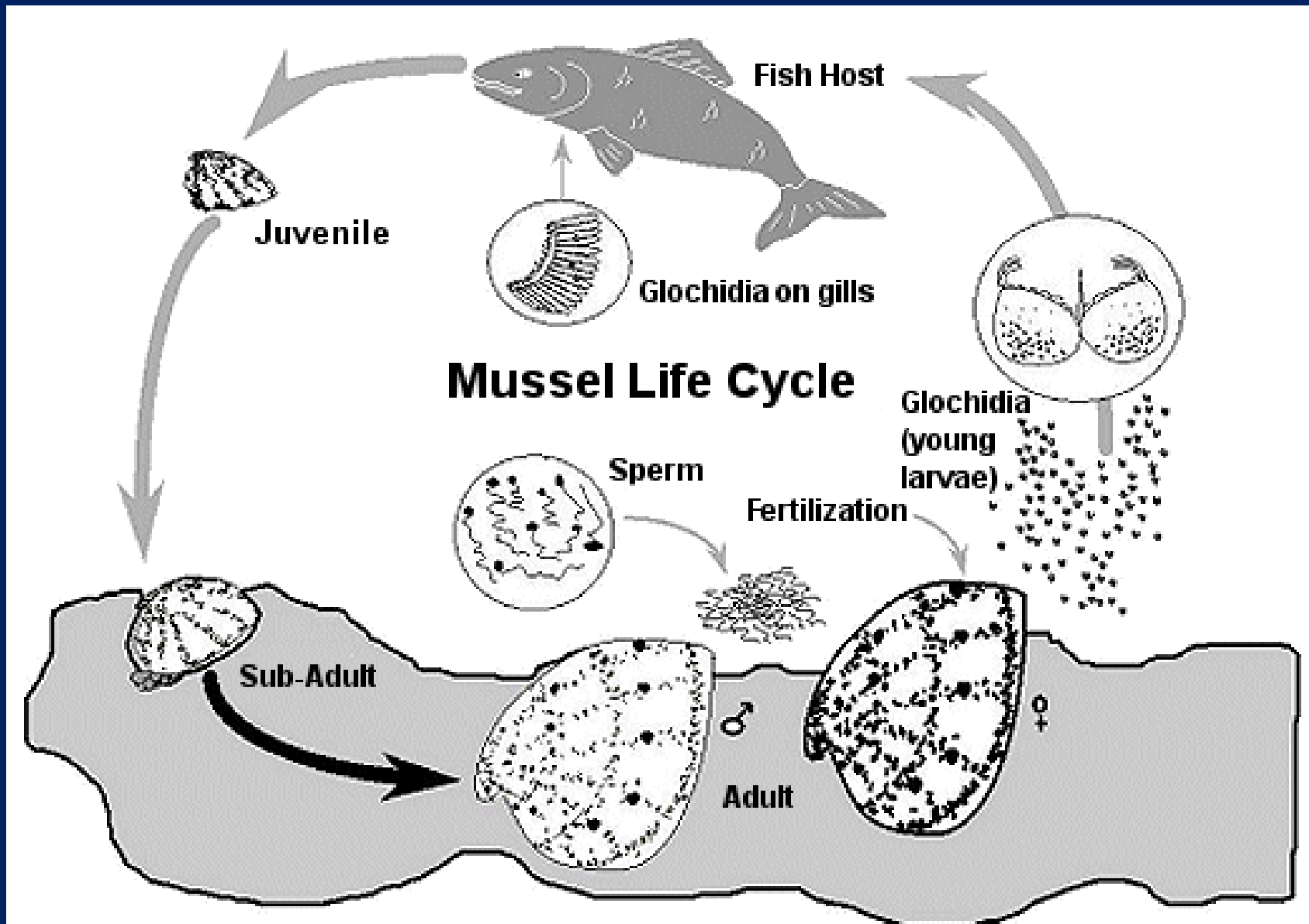
[www.caryinstitute.org/people\\_sci\\_strayer.html](http://www.caryinstitute.org/people_sci_strayer.html)

- Highly diverse and imperiled in US
  - 300 species, 40 already extinct
- Historically important fisheries for pearls and mother-of-pearl (buttons)
- Can play important roles in ecosystems



FIG. 2.—Barges loaded with shells and two shellers' house-boats, in Arkansas. (See p. 59.)

# The pearly mussel life cycle



# Interesting details

- Females have elaborate tricks to seduce fish
- Different species of mussel use different species of fish as hosts
- Some mussel species use just one fish species, others use dozens
- Adult mussels can live for 10-100 years

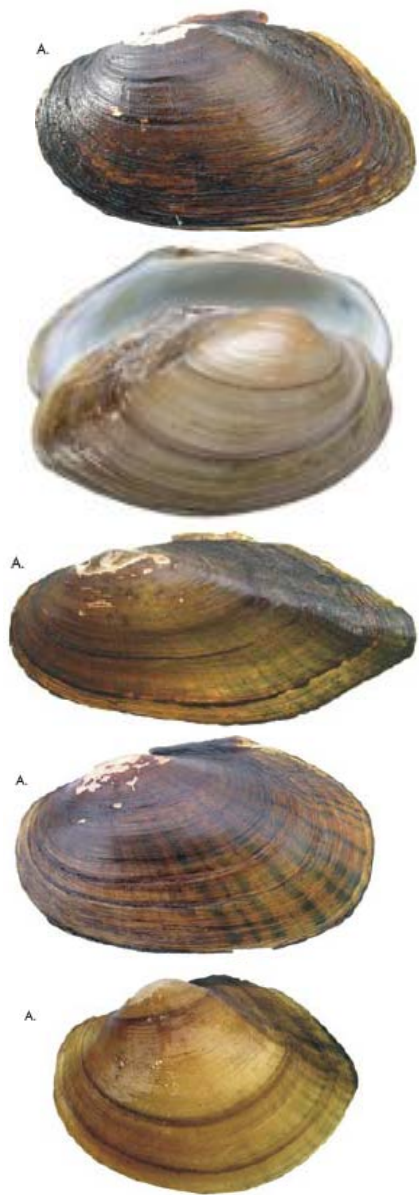


# Pearly mussels in the middle Hudson

- Poorly studied
- We don't know *how many* mussels live in the middle Hudson, but it looks like they may be very abundant, at least in places
- We don't know *what species* of mussels live in the middle Hudson, although we have a partial species list

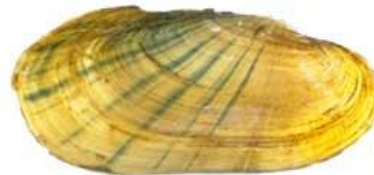


# The pearly mussels of the middle Hudson



•5 species known

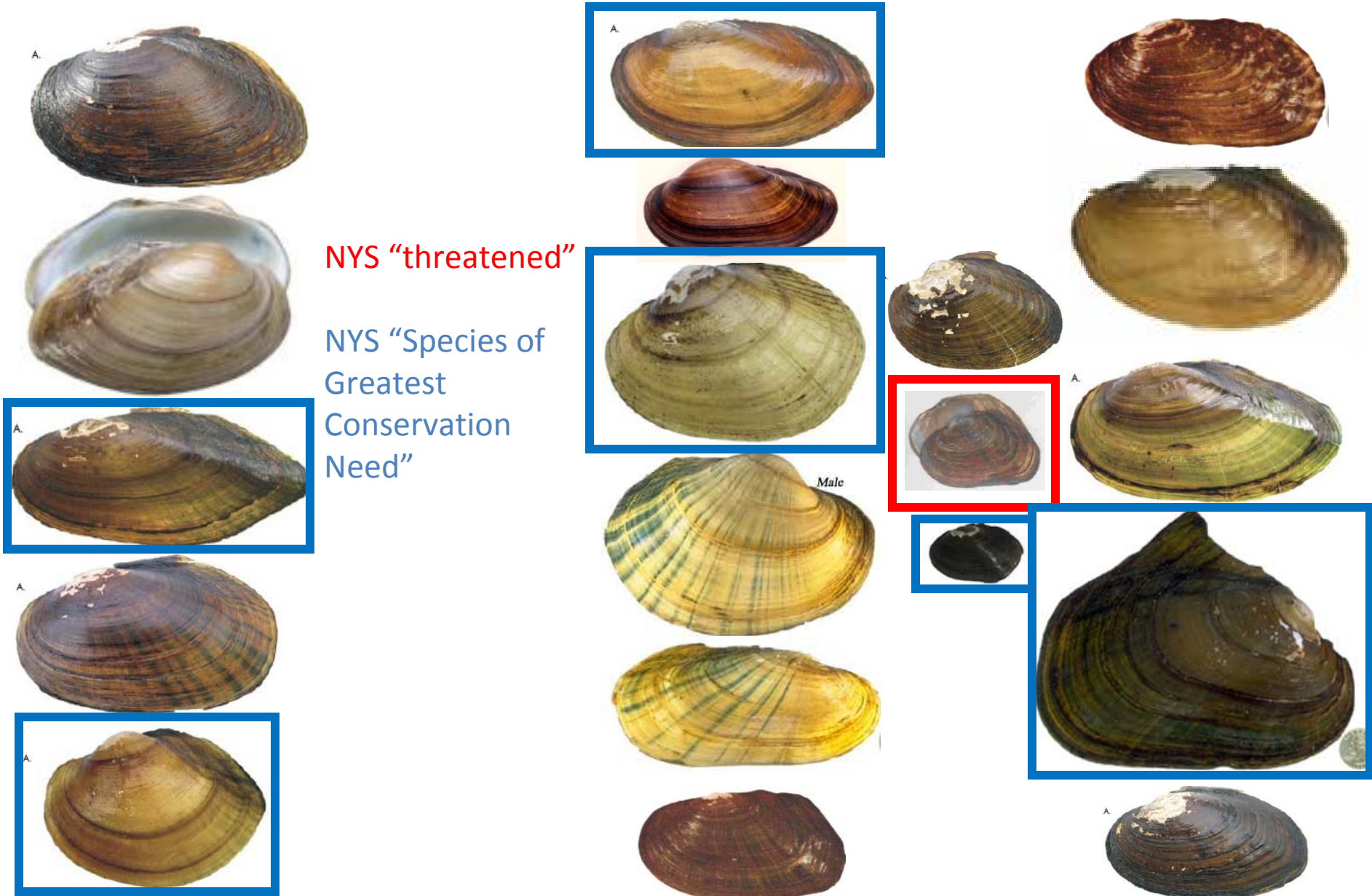
•14 more species likely or possible



# The pearly mussels of the middle Hudson

NYS "threatened"

NYS "Species of  
Greatest  
Conservation  
Need"



# Roles in the ecosystem

- Filter water
- Provide food and shelter to sediment-dwelling animals
- Provide nutrients to algae and plants
  - Probably not important In the nutrient-rich Hudson
- Mix sediments
- Stabilize sediments



# Water filtration

- In the Hudson below Troy, there were 1.1 billion pearly mussels in 1992 (before zebra mussels)
- These animals filtered 5 billion gallons of water per day (about the same as the entire freshwater flow of the Hudson during the summer)
- *If large enough*, this filtration activity can clarify water, improve habitat for rooted plants, and affect the kinds of plankton in the water

# Sediment mixing and stabilization



©W. N. Roston 2000

# Summary of roles in the middle Hudson

- Don't know enough about numbers, species, and locations of mussels in the middle Hudson to be at all sure about their roles
- Filtration and sediment mixing/stabilization *could* be very important

# How many pearly mussels are in the middle Hudson?

- Question is answerable
- Requires careful survey design
- Samples taken by divers (best), dredges, or grabs



# Can we restore mussels to dredged areas?

- Two aspects: stocking (may be feasible, probably not terrifically useful), and habitat construction (hard)
- Habitat construction would be cutting-edge, experimental work
- Some research on mussel habitat exists to guide such work (sediment *stability* may be very important) , but there is no guarantee that it would be successful
- Could expect mussels to naturally recolonize suitable habitat in a few decades, if source populations are nearby