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## Egg Clutch Collection

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### Introduction

The egg clutches (masses) of *Biomphalaria glabrata* and *Bulinus truncatus* typically contain a variable number of embryos. From the time the egg clutches are deposited by the adult snails, embryos begin to emerge in 1-2 weeks. Hatching time depends on a variety of factors such as the quality and temperature of the artificial pond water.

Snails prefer to deposit egg clutches on any solid surface, including the shells of other snails. Plastic strips, or pieces of Styrofoam ("floats"), placed in an aquarium or shallow pan containing adult snails serve as convenient materials on which to collect and manipulate the egg clutches (pictured).



### Equipment

Shallow pan or aquarium (~1.5 L)  
Featherweight forceps  
Deck sprayer

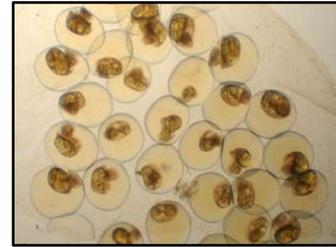
### Materials

Small pieces of Styrofoam (~10 cm x 4 cm)  
Artificial pond H<sub>2</sub>O ("water")  
Pulverized limestone (0.5 g lime/1.5 L water)

### Procedure

1. Breeder: Place the floats on the surface of the pond water holding 20-25 *B. truncatus* and 17-20 *B. glabrata* adult snails.
2. FOOD: ¼ algae plate plus leaves of romaine lettuce. Avoid adding lettuce ribs- the snails cannot consume, and the uneaten food will breakdown and foul the water. Feed as needed. (e.g. Fridays)
3. Change the water once per week: gently remove the snails and spray down with deck sprayer capturing the snails in a sieve; place the snails in a new pan of fresh water. Add limestone, ¼ algae plate and a leaf of romaine.

4. Change the pan on ~day 7; remove the floats and place them in a clean tub with water and lime to allow hatching in the absence of adults (adult breeders will eat the clutches thereby reducing the number of snail offspring).
5. Put the tub holding multiple floats into warm room 233.
6. Once a majority of the eggs have hatched you may gently wash the remaining egg clutches off the float with a deck sprayer and rinse them into the water.
7. Allow the hatchlings to emerge over 7-14 days. Minimize manipulation during this time.
8. FOOD: Add multiple small pieces of algae to the tub holding the hatchlings 1-2 wk after egg collection. You may also add very small pieces of clean romaine (later, once they are  $\geq 14$ d) as needed.



### Comments

Periodically check the pans for stagnant water which can cause bacterial or another contaminant overgrowth. If this problem occurs, change out the stagnant water with fresh water. To avoid frequent changing consider aerating the pans with air stones and an aquarium pump. Refer to the SRC SOPs “Artificial Pond Water” and “Changing Containers of Snails” for more information.

- Breeder status: the age of the breeders in a single pan should be similar. Treat each breeder pan as a single community and monitor the clutch production over-time.
- Young breeders will yield few and small clutches. A pan of 20-25 optimal breeders will yield >50 clutches per week.
- The aging process will result in fewer clutches overtime (8-10 months) If you observe fewer than ~20 clutches 3 weeks in a row, mark the pan and group low yield breeders into a single pan.
- Do not add young snails to a pan of older breeders to try and boost clutch production.

### References

1. Chernin, E. 1957. A method of securing bacteriologically sterile snails (*Australorbis glabratus*). Proceedings of the Society for Experimental Biology and Medicine 96: 204-210.
2. Olivier, L. and W.T. Haskins. 1960. The effects of low concentrations of sodium pentachlorophenate on the fecundity and egg viability of *Australorbis glabratus*. American Journal of Tropical Medicine and Hygiene 9: 199-205.
3. Pimental, D. 1957. Life history of *Australorbis glabratus*, the intermediate snail host of *Schistosoma mansoni* in Puerto Rico. Ecology 38: 576-580.
4. Standen, O.D. 1951. Some observations upon the maintenance of *Australorbis glabratus* in the laboratory. Annals of Tropical Medicine and Parasitology 45: 80-83.

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