

# Riffle Beetle

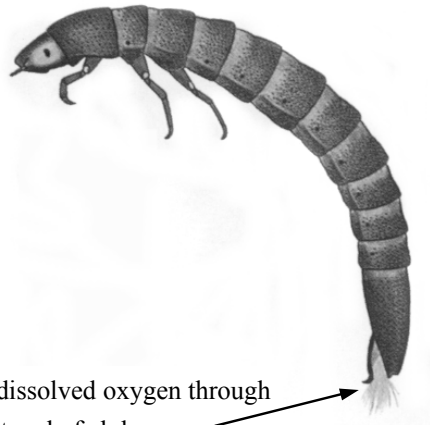
Order: Coleoptera Family: Elmidae

Number of species in North America: 80



CREEK CONNECTIONS,  
Allegheny College

Size: 1-8mm (adult)



Breathe dissolved oxygen through  
gills at end of abdomen

RIFFLE BEETLE LARVAE



Gills protrude and  
wave to collect water

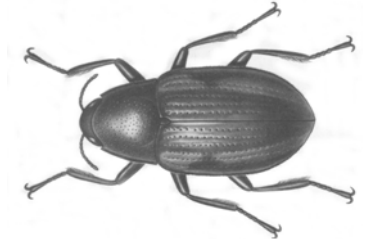
2 prominent claws



Pocket with door protects  
abdomen from sediment abrasion

ADULT RIFFLE BEETLES

So efficient with breathing,  
adults do not need to resurface af-  
ter diving... Breathe via a **plastron**  
( a thin film of air held by tiny unwet-  
table hairs)



Credits: McCafferty, W. Patrick. *Aquatic Entomology*, 1981.

**Diet:** Scrapers, collector-gatherers. Periphyton, detritus.  
**Food for:** Game fish, predaceous water insects.  
**Habitat:** Swift portions of stream, on stones or pebbles.  
**Movement:** Clingers, climbers– slow movers.  
**Breathing:** Through pocket door (larva) and plastron (adults).  
**Water Quality Indicator:** Group I– generally sensitive to pollution; a large number indicates GOOD water quality.

## Life Cycle Corner

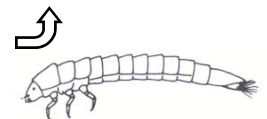
### Complete metamorphosis

Fly immediately after  
emergence, then lose ability  
after entering water. Hind  
wings fall off.

Pupae crawl into terrestrial  
chambers in moist soil, under  
rocks, or inside of rotting wood

Eggs are laid either singly or in  
small groups on submerged rocks,  
organic debris, or vegetation.

Six larval in-  
stars; can take  
up to three  
years.



Larval riffle beetle