

# Illustrated Key to Wyoming's Freshwater Mussels

By  
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**COVER:** The **giant floater** mussel with cyprinid fishes, symbolic of the dependence of most mussels on fish hosts during their larval stage. Light areas at rear (upper) end of mussel are siphons for water intake (wider one at right) and outgo (narrower one at left). Cover photograph and other illustrations in this key are by Alan M. Cvancara.

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**INTRODUCTION**

Freshwater mussels are the larger clams native to Wyoming's streams, lakes, and reservoirs. As for all clams, they are also called bivalves because their shell—up to several inches long—is made up of two valves hinged together. Their smaller relatives, the pill or fingernail clams, have shells less than an inch long and differ internally.

As of 2005, seven species of freshwater mussels are known for Wyoming from relatively few localities, and live occurrences are confirmed for only three species. Further searching should produce more localities and live occurrences and perhaps additional species.

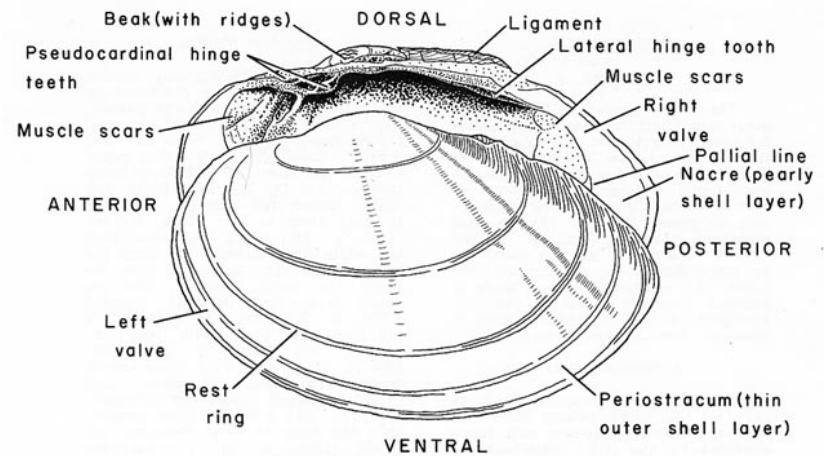
In the mussel photographs, the right valve is uppermost and shows the hinge, whereas the left valve is lowermost and shows the exterior. Each photograph, therefore, depicts the anterior end to the left.

Numbers in parentheses refer to those places in the key where a set of

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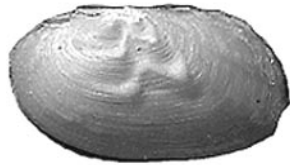


characters originate. One can, therefore, begin anywhere in the key and work backward.

Mussel shell parts as depicted for **plain pocketbook**.  
 (Drawing by Alan M. Cvancara)

**KEY**

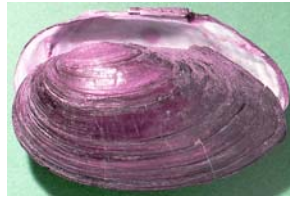
- |       |                               |   |
|-------|-------------------------------|---|
| 1     | Hinge teeth absent            | 2 |
|       | Hinge teeth present           | 5 |
| 2 (1) | Beak ridges double-looped     | 3 |
|       | Beak ridges not double-looped | 4 |



Double-looped beak ridges in the **giant floater**.

- 3 (2) Shell relatively thick, no winglike extension at upper rear  
**Giant floater.** Shell elongate-subovate; beaks considerably above hinge; beak ridges distinctly double-looped, fine to moderate; nacre white, bluish white, greenish yellow to orange pink. *Belle Fourche and Little Missouri River drainages in Crook County.*

**Giant floater.** Shell is 13 cm long.



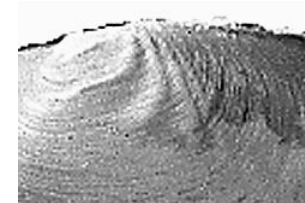
- Shell very thin, usually with winglike extension at upper rear  
**California floater.** Shell subelliptical to subovate; beaks barely above hinge; beak ridges irregularly double-looped; nacre white. *Bear River drainage in Uinta County.*



**California floater.** Shell is 6 cm long.

- 4 (2) Beak ridges concentric  
**Cylindrical paper shell.** Shell elongate-subelliptical; usually smaller, thinner, and more inflated than **giant floater**; beaks inconspicuous above hinge; beak ridges clearly concentric, fine; nacre bluish-white. *North and South Platte River drainages in Platte, Goshen, and Laramie Counties.*

Shell of **cylindrical paper shell** (above) and concentric beak ridges (above) of the same. Shell is 8.6 cm long.



- 5 (1) Pseudocardinal teeth distinct, lateral teeth generally lacking  
 Pseudocardinal and lateral teeth both distinct

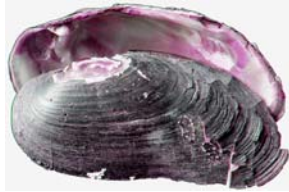
6  
7

- 6 (5) Shell high relative to length  
**White heelsplitter.** Shell subrhomboidal, usually with winglike extension in upper rear and rear margin bluntly pointed; beak ridges double-looped, distinct; nacre white. *Belle Fourche River drainage in Crook County.*

**White heelsplitter.** Shell is 16 cm long.



- Shell low relative to length  
**Western pearlshell.** Shell elongate, usually slightly arcuate; beak ridges indistinct or eroded away; nacre usually purple, also salmon or pink, rarely white; favors cold trout streams. Some place this species in the genus *Margaritopsis*. *Snake River and Missouri River drainages in Yellowstone National Park; Snake River drainage in Teton, Lincoln, and Sublette Counties; and Bear River drainage in Lincoln and Uinta Counties.*



**Western pearlshell.** Shell is 8.3 cm long.



**Plain pocketbook.** Shell is 11 cm long.

7 (5) Shell height relatively low in comparison to length

**Fatmucket.** Shell elongate-subovate to subelliptical; hinge relatively straight; beaks slightly elevated above hinge; beak ridges fine, chevron-like; periostracum yellowish to brownish, commonly with green rays; nacre white; rear end of male shells broadly pointed, those of females bluntly truncate. *Bighorn River drainage in Big Horn and Fremont Counties; Tongue River drainage in Sheridan County; and North Platte River drainage in Natrona, Converse, and Platte Counties.*



**Fatmucket.** Male (far left)

shell, female left valve (middle), and chevron-like beak ridges (far right). Male shell is 11.6 cm long, female valve is 9.3 cm long.

Shell height relatively high in comparison to length

**Plain pocketbook.** Shell subovate; hinge relatively curved; beaks more elevated above hinge than for **fatmucket**; beak ridges moderate to coarse, indistinctly double-looped; periostracum, nacre, and male and female shells as for **fatmucket**. *North Platte River drainage in Natrona, Converse, and Platte Counties.*

### SYSTEMATIC LIST OF WYOMING MUSSELS

Phylum Mollusca

Class Bivalvia

Order Unionoida

Family Margaritiferidae

**1. Western pearlshell**

*Margaritifera falcata* (Gould, 1850)

Family Unionidae

**2. California floater**

*Anodonta californiensis* I. Lea, 1852

**3. Cylindrical paper shell**

*Anodontoides ferussacianus* (I. Lea, 1834)

**4. Plain pocketbook**

*Lampsilis cardium* Rafinesque, 1820

**5. Fatmucket**

*Lampsilis siliquoidea* (Barnes, 1823)

**6. White heelsplitter**

*Lasmigona complanata* (Barnes, 1823)

**7. Giant floater**

*Pyganodon grandis* (Say, 1829)

**GLOSSARY**

- Anterior.** Front part of shell; direction toward which beaks are positioned and directed; in living animal, anterior part—from which foot extends—is in sediment and posterior part—which contains siphons for water intake and outgo—is normally above the sediment.
- Beak.** Pointed initial part of valve along hinge.
- Beak ridge.** Low ridge on beak; ridges may be concentric, double-looped, or chevron-like. Distinguish beak ridge types with a 10 power hand lens.
- Dorsal.** Upper part of shell, that part along hinge.
- Hinge.** Where valves articulate at dorsal margin; usually thickened by hinge teeth.
- Lateral hinge tooth.** Elongate, blade-like projection of hinge; posterior to beak.
- Left valve.** Left half of shell, when shell is viewed downward at dorsal margin and anterior part of shell is directed away from observer.
- Ligament.** Elastic structure at hinge that opens the valves.
- Muscle scars.** Impressions where muscles are attached on interiors of valves; largest muscles close the valves.
- Nacre.** Innermost, pearly shell layer.
- Pallial line.** Line where fleshy flap—the mantle that secretes the shell—is attached.
- Periostracum.** Outermost, thinnest shell layer; flakes when dry.
- Posterior.** Rear part of shell; direction opposite toward which beaks are positioned and directed; in living animal, siphons are at posterior part of valves.
- Pseudocardinal hinge tooth.** Short projection of hinge; anterior or ventral to beak.
- Right valve.** Right half of shell, when shell is viewed downward at dorsal margin and anterior part of shell is directed away from observer.
- Rest ring.** Dark line that records little or no growth. Counting rings approximates the age of a mussel. Also called “growth” ring.
- Shell.** Hard parts of mussels, of two valves.
- Shell height.** Greatest distance from dorsal to ventral margin of shell, measured at right angles to hinge.
- Shell length.** Greatest distance from anterior to posterior margins of shell, measured parallel to hinge.
- Subelliptical.** Shell shape approaching that of an ellipse.
- Subovate.** Shell shape approaching that of an egg.
- Subrhomboidal.** Shell shape approaching that of a rhomboid.
- Valve.** One of two parts, left and right, of a shell.
- Ventral.** Lower part of shell, that part opposite the hinge.



Dr. Kerry Lippincott, Casper, WY, critically reviewed this mussel key.