

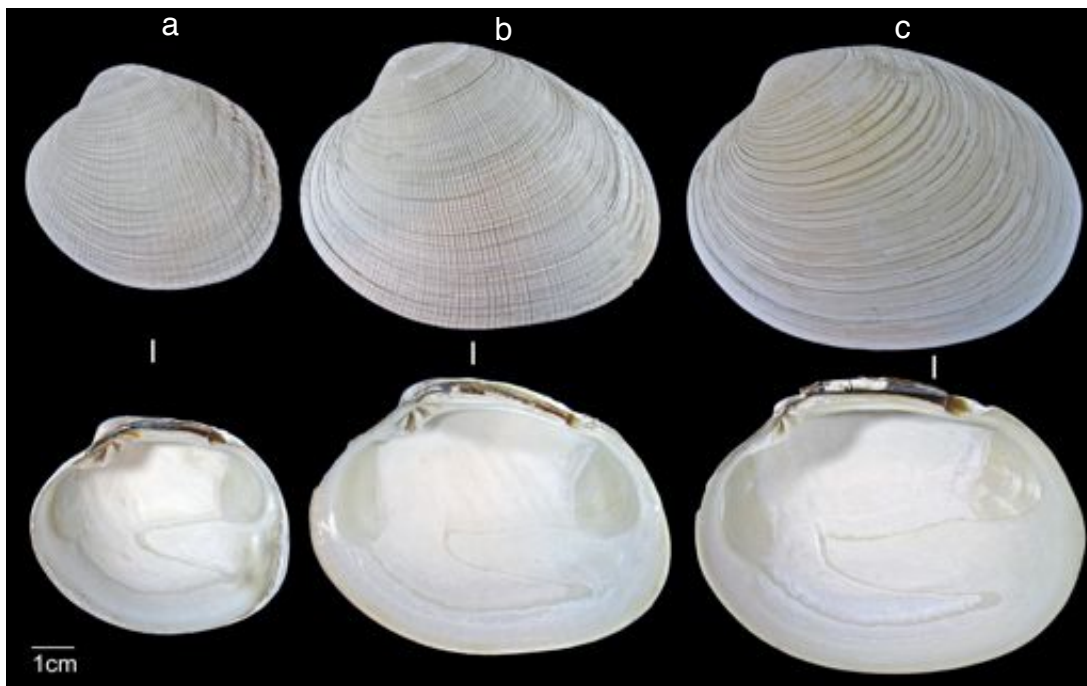
Identifying our Large Intertidal Veneridae

By Linda Schroeder Photos by Linda Schroeder

Our Veneridae clams are some of the most common clams found on our northwest beaches. They are a popular food source and even non-shellers can often identify the Butter Clam. We actually have six species of large Veneridae on our beaches, although a couple of the species are far less common than the others. Since all of these clams are more often seen as dead shells on the beach, and various stages of wear and decay have set in, they can occasionally be a challenge to identify.

We have discussed three of the species in previous issues of the Dredgings [Vol. 46 No. 6, Vol. 47 No. 3 & 4] and we'll revisit them here - *Leukoma staminea* (Conrad, 1837), *Callithaca tenerrima* (Carpenter, 1857), and *Protothaca restorationensis* Frizzell, 1930. While all three species were still under the genus *Protothaca* at the time, recent genetic research has separated them into different genera. *P. restorationensis* is still under study but will likely undergo a name change in the future. When it was only known as a fossil, it was postulated to be a hybrid between *staminea* and *tenerrima*, which is easy to understand since it shares characteristics with both species. Now that live populations have been discovered and the other two species are no longer in the same genus, that hypothesis is becoming implausible.

Leukoma staminea is the most common of these three species and can be found on most beaches. It is also the smallest



All shells photographed for the article are of average adult size. They are also shown to scale with relation to one another to show comparative size.

a - *Leukoma staminea*; b - *Protothaca restorationensis*; c - *Callithaca tenerrima*



of the three. *L. staminea* and *P. restorationensis* share an inflated, sturdy shell with cancellate sculpturing on the shell and numerous, fine teeth on the inner margin. *C. tenerrima* has a thinner shell which is less inflated. Its predominant sculpture consists of thin, raised concentric ridges and its interior margin is smooth. It also has a thin periostracum which flakes off easily. The other two species do not exhibit this characteristic. *C. tenerrima* shares a larger, elliptical shape with *P. restorationensis*. When wet, these two species have a shiny, light copper hinge color, reminiscent of a new penny. The hinge color of *L. staminea* is duller, more like an aged copper penny.

On the surface, *P. restorationensis* would seem to have more in common with *L. staminea* than *C. tenerrima*. But even juvenile *P. restorationensis* show the

same elliptical shell shape and proportionately longer pallial sinus line as the adult, rather than the more ovate shape of *L. staminea*. Also, an early genetic test showed it to be more closely related to *C. tenerrima*.



Saxidomus gigantea



Venerupis philippinarum

Sculpture can vary somewhat among the species. *L. staminea* may also have raised, concentric ridges (Fig.1). They can be quite pronounced when the shell resides in a pholad burrow or soft shale. The specimens tend to be smaller in this situation. We have yet to find significant raised ridges on any *P. restorationensis* specimens. In contrast, a beach-worn *C. tenerrima* may have its ridges worn down. The normally faint radial lines might then appear more prominent than they really are and the overall effect might resemble cancellate sculpture. Usually the shell would seem pretty obviously worn by this point and it would be hard to confuse it with the robust *P. restorationensis*.

Saxidomus gigantea (Deshayes, 1839) is the very common Butter Clam, and is widely harvested for food. In some areas it grows to be very large and robust where even a dead shell could weigh over a pound. The surface sculpture is generally smooth and limited to a few raised growth lines. However, in some habitats, those growth lines can become fairly prominent and close together. Also, very beach-worn specimens can sometimes erode in such a way that the concentric lines become more obvious. With its elliptical shape it would then start to resemble *C. tenerrima*. In this situation, look to the pallial sinus line which is more rounded at the end and often does not extend as far into the shell. The hinge ligament is also very different on the *S. gigantea*. It is dull brown in color and protrudes from the shell. The ligaments of most of our venerid species are rather sunken between the shell halves.

Humilaria kennerleyi (Reeve, 1863) is a medium-sized species that we don't often see intertidally, but in some areas, dead shells can be found. It is a robust shell with prominent, concentric ridges which are closely spaced. Because what we normally find are dead shells, these ridges have often started to erode away. The shell could then be confused with *S. gigantea*. The pallial sinus line is strikingly different though. It is very short and pointed which is quite unique from our other venerid species. Even if this shell were worn perfectly smooth, the distinct pallial sinus line would allow you to identify it. This species also exhibits a finely toothed inner margin, while the shell margin of *S. gigantea* is smooth.

Venerupis philippinarum (A.Adams & Reeve, 1850) is a common, introduced species which has naturalized itself on our beaches. It is similar in size to *L. staminea*. *V. philippinarum* has a slightly more elongated shape and less pronounced sculpturing on the shell. The interior often has purple staining, but not always. When lacking the purple coloration, the most obvious difference is its rounded, shallow pallial sinus line and its smooth shell margin. This shell has a protruding ligament, like that of *S. gigantea*,

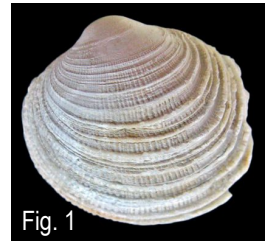


Fig. 1



Left - protruding ligament of *S. gigantea*; Right - sunken ligament of *P. restorationensis* (also typical of *L. staminea*, *C. tenerrima*, and *H. kennerleyi*)

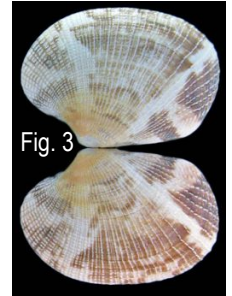


Humilaria kennerleyi



although it doesn't protrude quite as dramatically. When comparing a very young *S. gigantea* to a similarly sized *V. philippinarum*, the latter will have a stubbier pallial sinus line and some sculpturing on the shell. A young *S. gigantea* will usually be very smooth.

Generally, all of these species are off-white to light gray in color. They may also pick up color staining from the substrate in which they are living. But *L. staminea* and *V. philippinarum* can exhibit inherent color patterns on their shells. A lucky beachcomber may find *L. staminea* (Fig. 2) with the well-known basketweave pattern. *V. philippinarum* (Fig. 3) often displays random color splotches in various shades of brown, especially in very young shells.



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The Rest of Our Veneridae Clams by Linda Schroeder

In the last issue I discussed the large, intertidal veneridae clams in the Pacific Northwest. Space and time precluded me from including all of our venerid species. The following article will continue with the remaining species.

Compsomyax subdiaphana (Carpenter, 1864), commonly called the Milky Venus, is strictly found subtidally. It has a much different appearance than our intertidal veneridae. The shell is much thinner and the exterior is a gray-white color and is almost smooth. The pallial sinus is short and pointed like that of *Humilaria kennerleyi* (Reeve, 1863). It is also similar in size to that species. The *Humilaria* is more commonly found subtidally than intertidally, but the two could never be confused with each other.



Left - *Nutricola lordi* (W. Baird, 1863)
Right - *Nutricola tantilla* (Gould, 1853)

Two of our intertidal venerids are so small they are easily overlooked, or are mistaken for juveniles of larger species. These species are each less than 1 cm in length at maturity. *Nutricola lordi* (W. Baird, 1863), Lord Dwarf-Venus, is probably the most commonly found of the two in the northwest. It is usually a glossy yellowish-brown with a fairly smooth surface, and is rather symmetrically shaped. *Nutricola tantilla* (Gould, 1853), Purple Dwarf-Venus, is very similar in shape, but has a sculpture of low commarginal ribs. It has a light, glossy base color, but it also exhibits a brown to purple stain on its posterior slope. This color patch is also present on the interior. Both species have shallow pallial sinus lines.

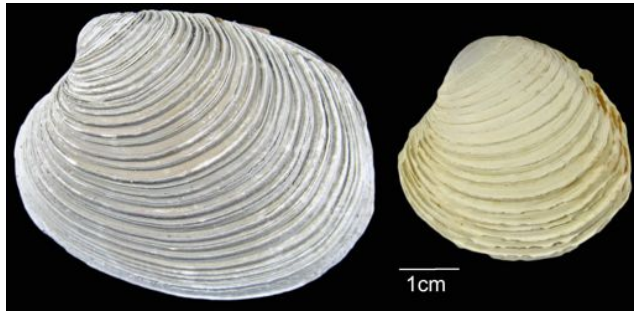


Compsomyax subdiaphana (Carpenter, 1864)

There is another intertidal venus clam in the northwest that is rarely seen. Its range is in the most northern reaches of what is traditionally considered the Pacific Northwest. *Liocyma fluctuosum* (Gould, 1841), the Varnished Liocyma, is somewhat similar in appearance to *N. tantilla*, but it grows larger and lacks the purple stain. It has medium-sized commarginal ribs and a short pallial sinus. Unfortunately, I could not locate a specimen to photograph.

Another intertidal species I have yet to see is *Irusella lamellifera* (Conrad, 1837), the Lamellar Venus. This one is in the southernmost reaches of the Pacific Northwest. It is similar to *Leukoma staminea* (Conrad, 1837) in size and shape, but it has irregular, widely-spaced commarginal ribs.

Our final species is another rarely seen one. *Mercenaria mercenaria* (Linnaeus, 1758), the Northern Quahog, is an Atlantic species which was introduced to the west coast.



Left - *Humilaria kennerleyi* (Reeve, 1863), Right - *Mercenaria mercenaria* (Linnaeus, 1758), juvenile

There is a report of an established population in Puget Sound, although no one from our club has ever seen one there themselves. It is a very common, large, intertidal species on the Atlantic coast. It is reported to attain a size of less than 50mm on the Pacific Coast. The shell is generally grayish in color and may sometimes have purple staining on the interior. It has fine commarginal ribs which may although it doesn't protrude quite as dramatically. When comparing a very young *S.*

gigantea to a similarly sized *V. philippinarum*, the latter will have a stubbier pallial sinus line and some sculpturing on the shell. A young *S. gigantea* will usually be very smooth.

Generally, all of these species are off-white to light gray in color. They may also pick up color staining from the substrate in which they are living. But *L. staminea* and *V. philippinarum* can exhibit inherent color patterns on their shells. A lucky beachcomber may find *L. staminea* (Fig. 2) with the well-known basketweave pattern. *V. philippinarum* (Fig. 3) often displays random color splotches in various shades of brown, especially in very young shells.



Mercenaria mercenaria (Linnaeus, 1758) [The photographed specimen comes from Virginia].