



Invasive Species Fact Sheet

Golden mussel, *Limnoperna fortunei*

General Description

Golden mussel (*Limnoperna fortunei*) is an invasive bivalve that ranges in color from dark brown to gold. It can reach up to 1 3/4 inches long. Adult mussels form byssal threads that enable them to attach to surfaces. Adult mussels spawn multiple times each year and have the potential to produce thousands of planktonic offspring, called veligers.



Golden mussels, San Joaquin County
Photo: Jeb Bjerke, CDFW

Current Distribution

In October 2024, golden mussels were discovered in the Sacramento – San Joaquin Delta and O’Neill Forebay (Merced County). This discovery was the first known occurrence of golden mussel in North America. Originally from China and Southeast Asia, they have invaded waters of Japan, Taiwan, Brazil, Uruguay, Paraguay, Bolivia, and Argentina.

Habitat Suitability

Golden mussel can inhabit fresh and brackish-water lakes, rivers, creeks, wetlands, bays, and canals with water temperatures ranging from 41-95°F. They can establish in waters with a constant salinity of less than 3 parts per thousand (ppt) and can survive fluctuations of higher salinities. They attach to a wide variety of substrates, both man-made and natural, and at various water depths. Golden mussels are not restricted to hard surfaces and have been found colonizing soft substrates and attached to aquatic plants.

Pathways

Pathways are the mechanisms and processes by which invasive species are moved, intentionally or unintentionally, into a new ecosystem. Golden mussel can be carried in ballast water of ocean-going ships and released with that water. Adult golden mussel can be moved overland attached to watercraft and in-water equipment, and veligers and adults can be moved overland in water contained within watercraft and equipment.

Within interconnected waters, golden mussels can expand their range via the flow of water, and attached to, or entrapped within, watercraft and in-water structures moved within that waterway.

Impacts

Golden mussels are highly efficient filter feeders and form dense colonies. They consume large quantities of aquatic microscopic plants and animals that native species and sport fish depend on for food. Their colonization of hard surfaces impedes water flow, clogs pipes, and fouls watercraft motors, and necessitates ongoing, costly removal to maintain operational function. These costs result in economic impacts to water conveyances, energy production, recreation, agriculture, and ultimately the public.

Actions Taken if Found

If you observe golden mussel in California immediately report your sighting to the CDFW Invasive Species Program at <https://arcg.is/1oD4G8>, or by email to Invasives@wildlife.ca.gov, or by telephone to (866) 440-9530. Please take clear, close-up photos that include something (such as a pencil or hand) to show size.

Invasive Species Fact Sheet – Golden mussel, *Limnoperna fortunei*

References

Correa, N., Sardiña, P., Perepelizin, P., Boltovskoy, D. (2015). Limnoperna Fortunei Colonies: Structure, Distribution and Dynamics. In: Boltovskoy, D. (eds) *Limnoperna Fortunei*. Invading Nature - Springer Series in Invasion Ecology, vol 10. Springer, Cham. https://doi.org/10.1007/978-3-319-13494-9_7

Boltovskoy, D., Xu, M., Nakano, D. (2015). Impacts of Limnoperna Fortunei on Man-Made Structures and Control Strategies: General Overview. In: Boltovskoy, D. (eds) *Limnoperna Fortunei*. Invading Nature - Springer Series in Invasion Ecology, vol 10. Springer, Cham. https://doi.org/10.1007/978-3-319-13494-9_21

Fernandes De Oliveira, P.R.F., C.C. Rodrigues, M.I. Grano-Maldonado, and T.L. Rocha. 2023. The golden mussel *Limnoperna fortunei* (Dunker, 1857) as an emerging concern for biodiversity in the Brazilian cerrado. *Folia Malacologica* 31(4):211-221.

Karatayev, A., L.E. Burlakova, V.A. Karatayev, and D. Boltovskoy. 2010. *Limnoperna fortunei* versus *Dreissena polymorpha*: population densities and benthic community impacts of two invasive freshwater bivalves. *Journal of Shellfish Research* 29(4):975-984.

Karatayev, Alexander & Boltovskoy, Demetrio & Burlakova, Lyubov & Padilla, Dianna. (2015). Parallels and Contrasts Between *Limnoperna fortunei* and Species of *Dreissena*. 261-297. https://doi.org/10.1007/978-3-319-13494-9_15.

Liu, Y., He, X., Yang, Y., Bai, X., & Yuan, C. (2024). Distribution, tolerance, growth, behaviour and control methods of *Limnoperna fortunei* (Dunker, 1857) (Bivalvia: Mytilidae): A review. In *Aquatic Conservation: Marine and Freshwater Ecosystems* (Vol. 34, Issue 7). John Wiley and Sons Ltd. <https://doi.org/10.1002/aqc.4217>

Molina, F., S. José de Paggi, and D. Frau. 2012. Impacts of the invading golden mussel *Limnoperna fortunei* on zooplankton: a mesocosm experiment. *Zoological Studies* 51(6):733-744.

Morton, B. (2015). The Biology and Anatomy of *Limnoperna fortunei*, a Significant Freshwater Bioinvader: Blueprints for Success. In: Boltovskoy, D. (eds) *Limnoperna Fortunei*. Invading Nature - Springer Series in Invasion Ecology, vol 10. Springer, Cham. https://doi.org/10.1007/978-3-319-13494-9_1

Musin, G.E., F. Rojas Molina, F. Giri, and V. Williner. 2015. Structure and density population of the invasive mollusc *Limnoperna fortunei* associated with *Eichhornia crassipes* in lakes of the Middle Paraná floodplain. *Journal of Limnology* 74(3):537-548.

Sylvester, F., D. Cataldo and, D. Boltovskoy. 2013. Fluctuating salinity improves survival of the invasive freshwater golden mussel at high salinity: implications for the introduction of aquatic species through estuarine ports. *Biological Invasions* 15:1355-1366.

Xu, M., Z. Wang, C.C. Lin, B. Pan, and N. Zhao. 2013. Experimental study of invasion and biofouling of freshwater mussel *Limnoperna fortunei*. *International Journal of Geosciences* 4:1-7.