

Aliens of Kamayca

a newsletter on non-indigenous species in Jamaica

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**SUCKERMOUTH CATFISH
(PTERYGOLICHTHYS PARDALIS)**

Native to the freshwaters of South America, Panama and Costa Rica, the Suckermouth Catfish has been introduced to many countries as an ornamental fish species. The genus *Pterygoplichthys* is characterized by bony scutes covering the body, a ventral sucking mouth, a dorso-ventrally depressed body and a spine in front of the adipose fin.

The fish was first observed in Jamaica in the mid-1990s from the Black River, St Elizabeth, where it is known among fishermen as pond cleaner or taliban. The species subsequently became very abundant in the Upper and Lower Black River Morass.

The high fecundity, detritivo-

rous nature and auxiliary breathing ability of *P. pardalis* gives it a competitive advantage over existing ichthyofauna, which includes tilapia (*Oreochromis niloticus* and *O. mossambicus*); an important food fish. The hard scutes damage fish traps incurring costs to fishermen. This fish burrows in riverbanks to create nests for reproduction; this may contribute to the physical degradation of the river.

The Department of Life Sciences, University of the West Indies (UWI) is currently studying the population abundance, distribution and ecological interaction of *P. pardalis* with tilapia and other fish species in the Black River system.

Contributor: Aisha D. Jones, UWI
Photo © Aisha D. Jones



Suckermouth catfish



Nests created in riverbank by Suckermouth catfish

WATER HYACINTH - AN AQUATIC ALIEN

Water Hyacinth (*Eichhornia crassipes*) is a native of South America and is considered a major weed species in more than 50 countries. It is a fast growing plant with populations known to double in as little as 12 days.

The plant has become naturalized in many warm areas of the world including Central

America, North America, Africa, India, Asia, Australia, New Zealand and Jamaica. It grows in shallow temporary ponds, wetlands and marshes, sluggish flowing waters, lakes, reservoirs and rivers.

Water Hyacinth can tolerate extremes of water level fluctuation and seasonal variations in flow velocity and

extremes of nutrient availability, pH, temperature and toxic substances. Excessive growth is caused by nutrient rich waters, especially those rich in nitrogen, phosphorus and potassium. It is sensitive to frost; however, salinity can limit or modify its distribution.

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WATER HYACINTH - AN AQUATIC ALIEN CONT'D.

In Jamaica it has been observed in aquatic environments, seasonal and permanent as well as in wetlands. Sites include Black River Lower Morass Ramsar Site, Black River Upper Morass, Royal Palm Reserve in Negril, Portland Bight Protected Area and Portland Bight Wetlands and Cays Ramsar Site.

The Water Hyacinth is a floating plant that has clusters of leaves arranged in a rosette with spongy stalks arising from a base of dark purple feathery roots. The leaf clusters are often linked by smooth horizontal stems called stolons. The linked plants form dense mats in the water and mud.

The flowers (8-15) arise from a single spike above the rosette and are lavender blue with a yellow blotch in the centre. The fruit is contained within a 3-celled capsule with many minute, ribbed seeds (approximately 450/capsule when mature), which are formed in the submerged, withered flowers.

Water Hyacinth may block waterways and limit boat traffic, recreation (swimming and fishing), flood control and wildlife use. The presence of dense mats on the water surface, allows this alien plant pest to shade out native submersed plant species, compete with other aquatic plants for nutrients and uproot native emergent species that are important to wildlife.

In addition, the mats of the Water Hyacinth lowers light and dissolved oxygen concentrations of the water, impacting fish populations and other plant and animal communities.

Other impacts include the reduction of fish spawning areas; damaged waterfowl habitats; increased flooding in rivers and canals by the formation of dams; reduction in water flow; clogged intake pipes used for irrigation and disrupted water patterns in cooling reservoirs. It also provides an ideal breeding environment for mosquitoes.

The Water Hyacinth is also used as fodder for animals, in the removal of nutrients and heavy metals from sewage and sludge ponds (bioremediation), ornamentals in home-made ponds and as an organic fertilizer.

Documented pathways for the spread of the plant include ornamental purposes (ornamental ponds/botanical gardens); seeds transferred by machinery or carried in water flow, mud or by birds; plant material discarded into waterways; plant dispersed by contaminated boating and waterway equipment, hiker's clothes/boots, vehicles and animals; pet/aquarium trade (used in ponds or dams or aquariums) and high water flows and floods which can move stolons, solitary plants and drifting mats to new locations via water currents, winds and boat traffic.

Extracted from Fact Sheet produced by the Florida Department of Environmental Protection (www.dep.state.fl.us/lands/invaspec/index.htm) and the Global Invasive Species Database (www.issg.org/database)

Photos © Marsha Mason (NEPA); Orlando Robinson (Hope Zoo); L. Neville (GISP Archive); University of Florida; Andrea Donaldson (NEPA); Protected Areas Branch (NEPA)



Water Hyacinth showing roots



Water Hyacinth in flower



Water Hyacinth mat in a canal at Hope Zoo



Close-up of Water Hyacinth flower



Water Hyacinth on the South Negril River, Royal Palm Reserve



Water Hyacinth along the banks of the Black River

INVASION OF THE GREEN MUSSEL (*PERNA VIRIDIS*) IN KINGSTON HARBOUR

The first documented sighting of *Perna viridis* in Jamaica was in 1998 from the Port Royal mangroves. Since this time, significant attention has been paid to the establishment and proliferation of this invasive species.

The mussel demonstrated significant tenacity and resilience during its establishment, colonizing a wide variety of substrata including wharf pilings, pier walls, mangrove prop roots, seagrass beds and muddy bottoms, submerged rocks and several other hard submerged substrata.

The mussel colonized as much as 98% of the substrata in most cases during the initial 'boom' of the population. The wide distribution within the Kingston Harbour demonstrated its wide environmental tolerances which did not seem to affect the high densities achieved by the mussel (>8000 individuals/m²). The mussel also showed an immense capacity to colonize new substrate achieving over 90% coverage in 122 days.

The year-round presence of juveniles and the presence of mature adults demonstrated one of the key elements of any successful invasive species which is prolonged and sustained reproduction. This trait and the high feeding rate accounted for the mussel out-competing native sedentary species for food and space, especially on wharf pilings, seagrass beds and mangrove prop roots.

The mussel however, showed the capacity to feed and accumulate potentially toxic microalgae which would pose a risk to human health if consumed at high levels. Bacterial coliforms also showed high levels at some stations. Naturally, these aspects have to be carefully considered if harvesting and consumption of the mussel is to be explored.

The preference of the spat of the mussel for rubber tyre material can be of significant benefit for early detection systems as well as early

action systems in sensitive areas such as mangroves. These collectors can be used to absorb the influx of mussels to new and sensitive areas which can then be easily removed until the population upsurge has dissipated. It is of special note that the presence of any marine invasive species such as the Green Mussel is cause for constant attention, as the environmental opportunity may present itself and the population may then explode and cause significant ecological damage.

Perna viridis has demonstrated its immense strength as an invasive species and the problem of introduction of new invasive alien species, especially via ballast water must be dealt with efficiently and effectively.

Contributor: Dayne Buddo, UWI

Photos © Dayne Buddo, UWI

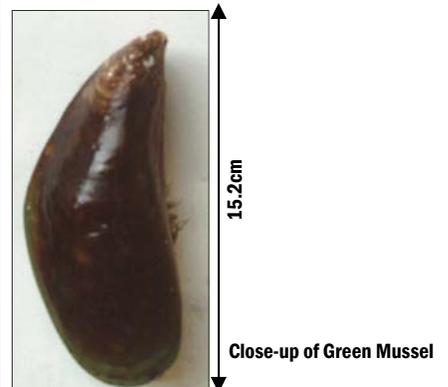


Green Mussel (*Perna viridis*) on mangrove prop roots

Green Mussel on submerged rocks (above) and wharf pilings (below)

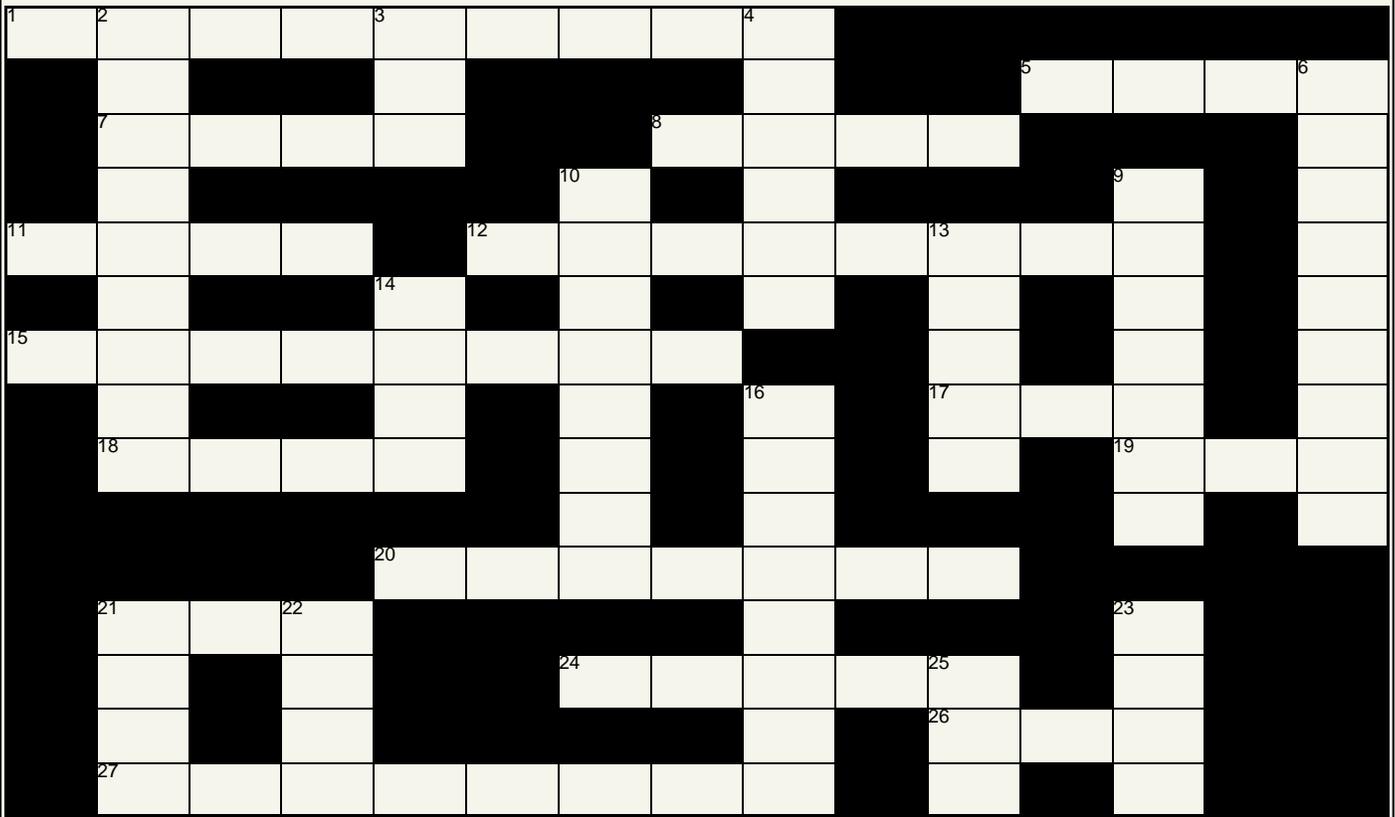


Green Mussel in a seagrass bed



Close-up of Green Mussel

CHILDRENS' CORNER



Across

1. These trees grow in salty water in the tropics
5. These animals damage wetlands by grazing on young plants
7. This body of water is not connected to the sea
8. This animal walks sideways
11. This animal has fins
12. This a type of palm tree
15. This insect can be very annoying
17. This household pet kills birds in wetlands
18. A ____ away is a type of toilet that can be a source of water pollution
19. This fish looks like a snake
20. A _____ crab waves its large claw in the air
21. A fishing ____ is a mammal that catches fish in wetlands at night
24. This tasty mollusc has a large shell
26. If this fuel/lubricant is spilt in a wetland, it will kill animals and plants
27. These large mammals feed on seagrass

Down

2. These animals look somewhat like shrimps
3. You might use this to catch fish with a hook and line
4. These animals feed on detritus in wetlands
6. These ancient reptiles nest on sandy beaches
9. These animals turn red when they are boiled
10. A ____ may be more salty than the sea
13. A large vehicle used to transport lumber
14. West Indian Whistling-_____
16. Mangroves, marshes and swamps are all _____
21. A mound of sand between a beach and a wetland
22. A Royal ____ is a common seabird
23. Washed off agricultural land by rain and can kill corals
25. Shallow water often gets very _____

- Answers
- | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|--------|-----------|---------|----------------|---------|---------|------------|--------------|----------|-------------|--------------|----------|--------------|--------------|---------|----------|---------|-------------|---------|----------|----------|-----------|---------|---------|--------------|
| 1. Mangroves | 2. Amphipods | 3. Rod | 4. Shrimp | 5. Cows | 6. Sea Turtles | 7. Pond | 8. Crab | 9. Lobster | 10. Saltpond | 11. Fish | 12. Fiddler | 13. Palmetto | 14. Duck | 15. Mosquito | 16. Wetlands | 17. Cat | 18. Soak | 19. Eel | 20. Fiddler | 21. Bat | 22. Tern | 23. Silt | 24. Conch | 25. Hot | 26. Oil | 27. Manatees |
|--------------|--------------|--------|-----------|---------|----------------|---------|---------|------------|--------------|----------|-------------|--------------|----------|--------------|--------------|---------|----------|---------|-------------|---------|----------|----------|-----------|---------|---------|--------------|

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The Aliens of Xamayca is a quarterly newsletter that features non-native species in Jamaica.
Persons interested in writing articles for the newsletter may submit them to the editor at sazan@nepa.gov.jm.