



NSW Freshwater **Pest Fish** Identification Guide



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NSW Freshwater Pest Fish Identification Guide

Freshwater pest threats to NSW

Freshwater pest fish include any species of fish that have been unlawfully introduced into waterways outside their natural range. These may be species introduced into Australia from other parts of the world or species that have entered NSW from other states and territories. Since European settlement many non-native fish have been accidentally or deliberately introduced into NSW waterways, and have become widespread.

Freshwater ecosystems are very vulnerable to invasion by aquatic pests and weeds. Freshwater pest species can reproduce quickly and spread into new areas and can have devastating impacts on the environment and native species. Once established it is very difficult and expensive to remove pest fish, so prevention and early detection is key to stopping the introduction, establishment and spread of freshwater pests.



Photo by Murdoch University

Cute in a tank, not so much in a river.

Don't be gill-ty of illegal sh umping.

Releasing a store bought fish into Australian waters can affect aquatic environments and damage local fish populations.

Protect Australia's natural waterways and aquatic species while treating your pet humanely by:

- rehoming your sh with a friend
- returning your sh t o your local aquarium, or
- advertising your sh t o the local online community and rehoming it responsibly.



Help protect NSW waterways

Keep an eye out for pest fish in your local waterway.

Early detection of aquatic pests is critical. Once a pest species has established in an area, it is very difficult, if not impossible to eradicate.



Note the exact location

If you have a phone handy, open the maps application and screenshot your location.



Take a photo

Take several clear, high resolution photos of the suspect species. It is useful to include something for size reference like a ruler or coin.



Report to NSW DPI

- Call the 24-hour **Emergency Animal Disease Hotline: 1800 675 888**
- **Complete** the online form: dpi.nsw.gov.au/shipping/aquatic-biosecurity/reporting
- **Email** aquatic.biosecurity@dpi.nsw.gov.au



Submit a sample

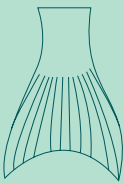
Let us know if you have a sample. We may ask you to place it in a plastic bag and freeze it for identification purposes and submit for further analysis.

Contents

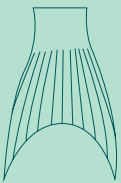
Freshwater pest threats to NSW	1
Help protect NSW waterways	3
Fish features	5
Native sh vs pest sh	7
Nile tilapia	8
Red n perch	9
Grass carp	10
Redbelly tilapia	11
Clown knifesh or Indian featherback	12
Convict cichlid	13
Mozambique tilapia or mouthbrooder	14
Texas cichlid	15
Snakeheads	16
Green swordtail	17
Sail n molly	18
Spotted tilapia	19
Pearlscale cichlid	20
Three-spot gourami	21
Oriental weatherloach	22
Mayan cichlid	23
Oscar	24
Platy	25
Climbing perch	26
Pearl cichlid	27
Jack Dempsey	28
Glossary	29
Acknowledgments	30



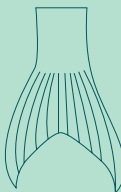
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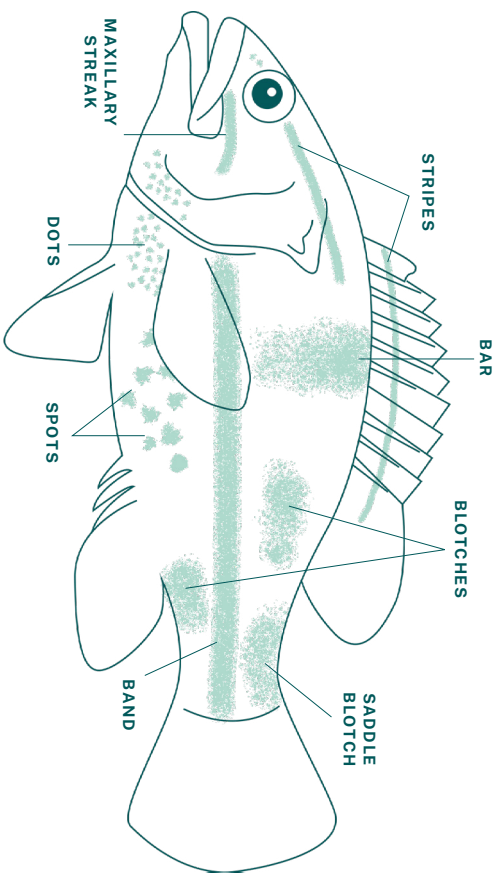
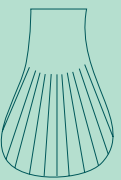
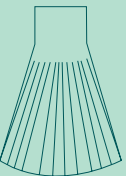


Figure 1: Main features used to identify fish
(based on concept © The State Of Queensland)

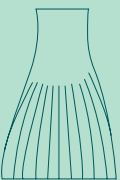
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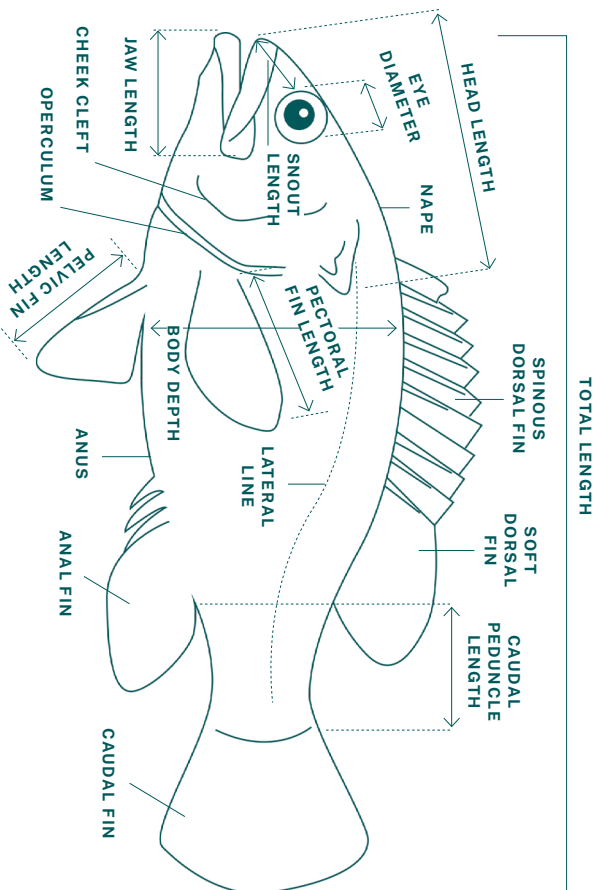
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Native fish vs pest fish

An easy way to distinguish most pest fish from a native fish is by looking at the dorsal fin on the upper part of the body. Pest fish usually have a continuous dorsal fin with no breaks, while native fish usually have a dent or gap separating the front of the dorsal fin from the rear section.

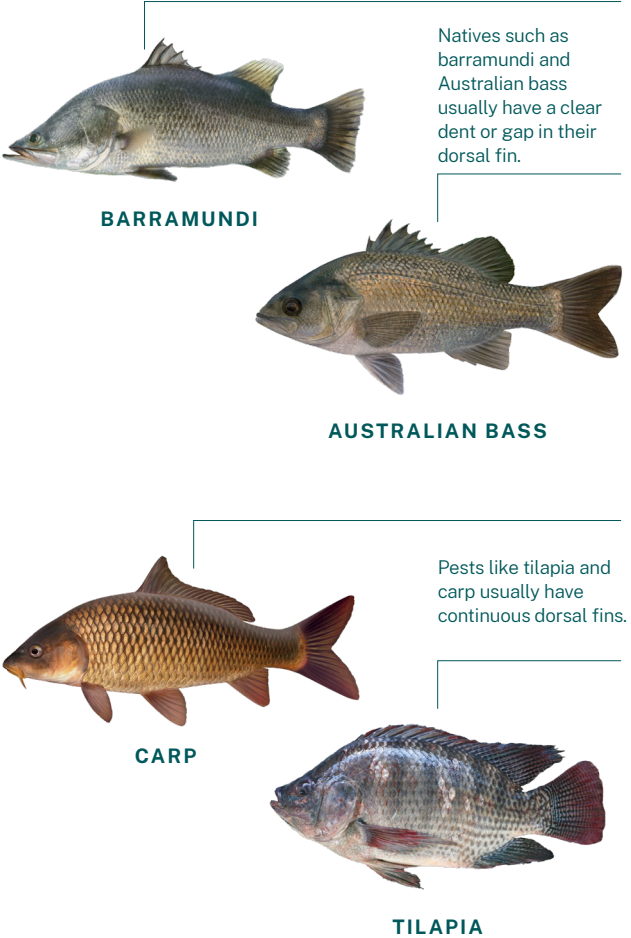


Figure 2: Native fish species dorsal fins compared to pest species.



Key features

1. Laterally compressed bodied with relatively small head.
2. Adults reach 60cm standard length and up to 4.3kg.
3. Distinctive, regular vertical stripes across body with variable colouration.
4. Caudal and tail fin marked with numerous thin vertical stripes.
5. Males bluish pink, sometimes with dark throat, belly, anal and pelvic fins.
6. Females brownish, silvery/white beneath with around 10 thin vertical bars.

Habitat

- Shallow parts of lakes, ponds, streams, coastal plains.
- Fresh to fully marine.
- Wide environmental tolerance.

Range

Native range: Tropical and subtropical Africa, Middle East.

Australian populations: Not in Australia.

Impacts

- High reproductive rate results in rapid population growth.
- Outcompetes native species for food and space.
- Preys on eggs and young of native species.
- Reduces abundance of planktonic microcrustaceans.
- Lowers water transparency.
- Increases abundance of microalgae.
- Changes native community structure.
- Destroys waterway vegetation.



Redfin perch

Perca fluviatilis



Key features

1. Deep body and a slightly forked tail.
2. Unlike most pest sh species, two distinctly separate dorsal fins, the first with 12-17 strong spines and a distinct black blotch at the rear.
3. Pattern of five or more broad black vertical bands across the back, tapering on the sides (more prominent in younger sh).
4. Bright reddish-orange pelvic and anal fins and tail.
5. Standard length up to 60cm but commonly much smaller, max reported weight 4.8kg.

Habitat

- Preference for still or slow-flowing waters: lakes, dams, billabongs, swamps and slower moving streams and rivers.
- Rarely fast flowing conditions.
- Prefer areas with good shelter such as snags, vegetation, or rocks.

Range

Native range: Freshwater basins all over Europe.

Australian populations: NSW, WA, SA, TAS

Impacts

- Voracious predators and consume small native species and the eggs and fry of larger native sh.
- Rapid reproduction and form very dense populations, depleting food supplies.
- Outcompete most other sh species.
- Can introduce the viral disease Epizootic Haematopoietic Necrosis (EHN).

Important information

It is illegal to be in possession of LIVE Red fin perch.



Grass carp

Ctenopharyngodon idella



Key features

1. Elongated, chubby body that is torpedo shaped.
2. Dark olive shading to brownish yellow on the sides, with white belly.
3. Large, slightly outlined scales, sometimes with a reddish tint.
4. Seven branched rays on dorsal fin.
5. Dorsal mouths without whiskers surrounding them.
6. Maximum total length 150cm and up to 45kg.

Impacts

- Aggressive feeding and removal of aquatic vegetation.
- Habitat loss and degradation of vegetative matter negatively affects wetland fish, invertebrate and bird species who rely on it for food, shelter, and spawning sites.
- Vegetation removal - can increase shore erosion and impact water quality or remove the most palatable plants from the community.

Habitat

- Prefers large, slow-flowing or standing water bodies lakes, ponds, pools, and backwaters of large rivers, with vegetation.
- In the wild spawns in fast-moving rivers.

Range

Native range: Eastern China and Russia in eastern Siberia, Amur River system.

Australian populations:
Not in Australia.



Redbelly tilapia

Coptodon zillii



Key features

1. Deep, elongate, laterally compressed body with the head wider than the rest of the body.
2. Nearly horizontal mouth.
3. Normally dark olive on top and light olive to yellow-brown on sides, often with blue sheen. Chest pinkish and lips are bright green.
4. Spawning sh bec ome shiny dark green on top and side, red and black on throat and belly.
5. Sides often have an iridescent sheen and 6-7 poorly de ned vertical bars.
6. Up to 40cm standard length and 300g weight.

Habitat

- Sheltered waters over rock, sand or mud, including shallow pools, lagoons and the margins of rivers.

Range

Native range: tropical and subtropical Africa, and southwest Asia.

Australian populations: eradicated following detection in Perth, WA.

Impacts

- Aggressive towards other species and outcompetes natives for food, habitat, and spawning sites.
- Voracious plant eater impacting plant density, abundance, and composition-impacts native species reliant on plants for spawning, protection, and foraging.
- Modie s substrate through burrowing, feeding on vegetation, foraging for invertebrates, and excavating nests for spawning.



Clown knifefish/ Indian featherback

Chitala chitala



Key features

1. Standard length up to 122cm but commonly around 75cm.
2. Long anal fin is continuous with the caudal fin.
3. Silvery in colour with series of golden or silvery bars along the back resulting in faint stripes.
4. Sometimes indistinct, dark spots towards the tail.

Impacts

- A voracious carnivore, feeds on slow moving native sh.
- Outcompetes native species.

Habitat

- Rivers, reservoirs, canals, and ponds.
- Generally, more tropical distribution.

Range

Native range: Asia – Bangladesh, India, Nepal and Pakistan.

Australian populations:
Not in Australia.



Convict cichlid

Amatitlania nigrofasciata



Key features

1. Also known as the “zebra cichlid” has 8 or 9 black vertical bars on a blue-grey body, along with a dark blotch near the gills.
2. Females have more intense black bands with pink to orange colouration in the ventral region and on the dorsal fin.
3. Grow to 10cm standard length but commonly 8.5cm total length.
4. Older males often develop fatty lump on their nape.

Habitat

- Flowing waters of rivers to ponds and lakes.
- Not generally found in open waters.
- Prefers rocky habitats and inhabits cracks and crevices.

Range

Native range: Central American rivers and lakes on the Pacific and Atlantic slopes.

Australian populations:

Mackay, QLD. Previously found in WA (Greater Perth Region) and VIC (Hazelwood Cooling Pond) though populations no longer thought to exist.

Impacts

- Territorial and omnivorous –outcompetes native species, resulting in their decline.
- Fast growing with high reproductive potential which can lead to dominance in species assemblages, both in terms of number and biomass.
- Aggressive when spawning –actively defends nests for 4-6 weeks and may compete with natives for spawning sites.



Mozambique tilapia/ mouthbrooder

Oreochromis Mossambicus



Key features

1. Dark olive to silver-grey/black.
2. Deep bodied with thin profile and grow up to 40cm standard length.
3. Long snout with pronounced lips/jaws.
4. Dorsal fin continuous and ends in a point.
5. Pelvic fins long and almost touch anal fin.
6. Tail fin rounded.
7. Fins can have red border.

Habitat

- Prefer slow-flowing rivers and streams and still-water habitats.
- Mud-bottomed, well-vegetated areas, often seen in loose aggregation or small schools.

Range

Native range: Tropical and subtropical Africa.

Australian populations: Established in QLD and WA with one population in Cudgen Lake, NSW.

Impacts

Listed in the top 100 worst invasive alien species on the planet!

- Aggressive and outcompetes natives for food and habitat.
- High levels of parental care (mouthbrooding) and high reproductive rate leads to domination of ecosystems.
- Disturbs plant beds and reduces plant biomass to build circular nests or pits.

Important information

Illegal to possess and if captured cannot be returned to the water dead or alive!

Humanely dispatch of any caught tilapia and dispose in general waste.



Texas cichlid

Herichthys cyanoguttatus



Key features

1. Dusky to olive green with 4-6 dark blotches along the rear half of the body and a black blotch on the caudal fin base.
2. Head, body and fins have iridescent blue-green spots or wavy lines.
3. Breeding adults have white head and front half of the body, and rear half of the body (particularly ventral surface) is black.
4. Breeding males have prominent hump on nape.
5. Juveniles pearly grey with white dots on the body and fins and two characteristic black spots on the centre of the body and the caudal fin base.
6. Reach up to 30cm total length but commonly much smaller averaging 11cm.

Habitat

- Ponds, lagoons, creeks, rivers (in pools and backwaters) and springs.
- Tolerates brackish/estuarine water.
- Prefers warm water and vegetation.

Range

Native range: North America: lower Rio Grande drainage in Texas, USA and south to north eastern Mexico.

Australian populations: South east QLD. Brisbane and Gold Coast

Impacts

- Varied diet - can disrupt food web by shifting diet depending on what is available.
- Aggressive - inhibits growth and reproduction in native species and can force other species to open areas increasing their risk of predation.
- Broad environmental tolerance increases invasive potential.



Snakeheads

Channa striata



Key features

1. Distinctive cylindrical, elongated body with attenuated head.
2. Snake-like large mouth with many well-developed teeth
3. Rounded tail fin, single long top and bottom fins (both more than half length of sh)
4. Brown to black in colour with mottling and faint dark banding which can extend into fins.
5. Can grow up to 1m standard length in captivity, though much smaller in wild.

Habitat

- Freshwater ponds and streams that are shallow (1m or less), stagnant and muddy.
- Also found in water reservoirs, rivers, lakes, swamps, rice paddies, mining pools, and roadside ditches.

Range

Native range: South and south-eastern Asia-Indian subcontinent, southern Nepal, Bhutan, Pakistan, Bangladesh,

Myanmar, Thailand, Cambodia, southern China, and Malay Archipelago to western Java, Vietnam, and Laos.

Australian populations:
Not in Australia.

Impacts

- Can alter conditions in aquatic ecosystems.
- Aggressive in efforts to protect their young.
- Air breathers capable of overland migration to escape extreme conditions or burrow in mud during dry periods providing advantage over native species.
- Aggressive, territorial, carnivorous ambush predator that feeds on fish, frogs, snakes, insects, worms, crustaceans and even small birds and mammals.



Green swordtail

Xiphophorus hellerii



Key features

1. Elongated, laterally compressed body with pointed head.
2. Males have elongated lower lobe on caudal fin (the “sword”) which is yellow with black edging.
3. Colour highly variable with wild populations usually olive green with red or brown mid-lateral stripes
4. Dark spots or speckles may be present on sides and on dorsal and caudal fins.
5. Up to 14cm total length but usually much smaller, commonly 2.8cm.

Habitat

- Tropical, fresh, and brackish water.
- Usually found in rapidly flowing streams and rivers.
- Prefers heavily vegetated habitats.
- Can survive in degraded waterways.

Range

Native range: North and Central America.

Australian populations: NSW -Lake Ainsworth, near Ballina and Burringbar Creek, Murwillumbah. Populations in WA, QLD, NT and SA.

Impacts

- Fast growing, high reproduction and rapid population growth - outcompetes natives, particularly surface-dwelling species.
- Aggressive towards small natives and shown to nip and displace native species.
- Consumes species eggs and juvenile native species.
- Preys on invertebrate communities.



Sailfin molly

Poecilia latipinna



Key features

1. Oblong body with caudal peduncle as thick as body.
2. Dorsally attenuated head with upturned face.
3. Mature males often display greatly enlarged 'sail-like' dorsal fin.
4. Large, rounded caudal fin, other fins generally small.
5. Various colours, in wild generally light grey/olive although large breeding males may be greenish blue.
6. Up to 5 rows of brown spots on sides and dorsal and caudal fins. These may be very close together and blend to give the appearance of stripes.
7. Total length of males up to 15cm and females up to 10cm.

Habitat

- Still or slow flowing aquatic environments.
- Prefers marshes, lowland streams, estuaries, ponds, and lakes that are heavily vegetated.
- Freshwater, but can tolerate salinity well.

Range

Native range: Atlantic and Gulf Coast drainages North America.

Australian populations: QLD including Townsville and south east coastal drainages. Pilbara, WA.

Impacts

- Livebearer which reproduces repeatedly and reaches maturation within one-year.
- Implicated in the decline of damselfishes in Hawaii.
- Breeding and habitat plasticity provides competitive advantage.
- Feeds on algae and may modify habitat.
- Competes with natives for food and habitat.



Spotted tilapia

Pelmatolapia mariae



Key features

1. Short, rounded snout.
2. Three anal spines.
3. Dark olive green to light yellowish, with 8-9 dark bars on sides (more prominent in juveniles than adults).
4. 2-6 dark spots between bars on the middle of their side.
5. Can reach up to 32cm standard length.

Habitat

- Still or flowing waters in rocky, sandy, or mud-bottomed areas.
- Tolerant of higher salinity as they are also found in estuaries.

Range

Native range: Africa: coastal lagoons and lower river courses from the Tabou River (Côte d'Ivoire) to the Kribi River (Cameroon), and the lower Ntem, Cameroon.

Australian populations: QLD greater Cairns region and previously a self-sustaining population in the heated waters of the Hazelwood power station pondage near

Morwell in VIC where they are no longer present.

Impacts

- Strong, aggressive towards other species and often territorial.
- Voracious herbivore resulting in habitat modification with indirect effects on water quality.
- Competition for food with native species.
- High reproduction, rapid growth rate and maturation time facilitates population growth and dominance of waterways.
- High tolerance of environmental variables such as water temperature, salinity and pollution aids spread.



Pearlscale cichlid

Herichthys carpintis



Key features

1. Bright silver/turquoise 'pearl-like' scales across the entire body.
2. Underlying brownish body colour, with lighter horizontal banding.
3. Oblique mouth with a lower jaw that projects past the upper.
4. Rounded ventral profile
5. Males may have nape lump.
6. Can reach up to 17cm standard length.

Habitat

- Freshwater creeks, lagoons and rivers over gravel, mud and stone substrate.
- Slow to strong currents.

Range

Native range: North-western South America -lowland rivers and streams in Panama, Colombia, and western Venezuela.

Australian populations: Not in the wild in Australia.

Impacts

- Large, aggressive, and territorial -actively defends eggs during breeding.
- Omnivorous and feeds on small sh -could directly predate on smaller native species.
- Fast population growth could quickly dominate sh assemblages.



Three-spot gourami

Trichogaster trichopterus



Key features

1. Elongated body that is moderately compressed laterally.
2. Small dorsally directed mouth with prominent lower jaw.
3. Long anal fin extends from ventral fin to the tail.
4. Colour varies between aquarium and wild varieties – wild having a uniform pale blue/grey, possibly even brown background colour.
5. Grows to 15cm standard length but more commonly up to 10cm in the wild.

Habitat

- Still and slow-flowing conditions.
- Heavily vegetated, shallow, or standing lowland waters including ponds, ditches, rice paddies, canals, swamps, marshes, and wetlands.
- Peaty and black waters (i.e., highly acidic waters), polluted and modified environments, and brackish waters.

Range

Native range: Southeast Asia

Australian populations: Townsville, QLD.

Impacts

- Auxiliary breathing mechanisms enables species to tolerate low oxygen conditions.
- High reproduction, multiple spawnings per year.
- Broad diet - may compete with indigenous species for food.
- During reproduction, males become aggressive and may displace natives.
- Very high risk of introducing disease to native species with the group hosting significant exotic viruses and/or parasites.



Oriental weatherloach

Misgurnus anguillicaudatus



Key features

1. Small, elongate, cylindrical body with small eyes.
2. Generally, a mottled brownish-yellow colour, with a pale underside, numerous black spots on the back and sides.
3. Prominent black spot at the base of the caudal fin.
4. Maximum standard length of 28cm but in Australia usually grow to only around 20cm.
5. Small down-turned mouth surrounded by several pairs of barbels around the mouth.
6. Body covered in mucus, results in difficulty when handling.

Habitat

- Slow-flowing or still water with sand, mud, or detritus substrata.
- Degraded urban and rural streams and ponds to relatively pristine headwater streams.

Range

Native range: Asia: Myanmar and north eastern Asia and southward to central China.

Australian populations: NSW - Hawkesbury River, Murray River, Murrumbidgee River and Port Hacking catchments. Brisbane QLD, ACT, VIC and into SA.

Impacts

- Flexible diet includes crustaceans, insects, insect larvae and other small aquatic organisms; can impact natives through direct predation.
- Thought to compete with native shrimps for spawning sites, shelter, and planktonic food.
- Broad tolerance to environmental conditions including known to be drought resistant - will bury in mud to avoid dehydration.



Mayan cichlid

Mayaheros urophthalmus



Key features

1. Body oval and flattened on the sides, head tapers towards the mouth.
2. Yellow-brown to grey-brown base colour with six wide green-black vertical stripes on sides of body between pectoral and base of caudal fin.
3. Head and throat reddish, especially in juveniles.
4. Large black eye spot circled with blue-green on tail stem.
5. Larger cichlid species, up to 39cm total length and maximum published weight of 1.1kg.
6. Body becomes intense red during breeding.
7. Fins are spiny, with caudal fin and soft sections of dorsal and anal fins reddish.

Habitat

- Coastal and inland shallow, still water habitats such as freshwater streams and marshes, and mangrove swamps.
- Occupies modified aquatic environments including canals, ditches, and lakes.

- Preference is for freshwater and brackish environments but tolerates salinity.

Range

Native range: Central American Atlantic slope waters.

Australian populations: Not in the wild in Australia.

Impacts

- Impacts on native fish populations include competition for food and space, predation, behavioural modification and potentially disease transmission.
- Evidence of nest predation and competitive interactions for space with substrate-spawning natives.
- Ecosystem change/ habitat alteration.
- Modification of natural benthic communities.



Oscar

Astronotus ocellatus



Key features

1. Body is oval-shaped and laterally compressed with a blunt head and large mouth with extendable jaws.
2. Wild-caught forms of the species are typically dark olive-green to grey or chocolate brown coloured with yellow-ringed spots (ocelli) on the tail stem and on the dorsal fin.
3. Juveniles striped with white and orange wavy bands and have spotted heads.
4. Ornamental varieties can have more intense red marbling across the body or be albino, partially coloured or yellow forms.
5. Can rapidly alter colouration for ritualised territorial and combat displays with other oscars.
6. Grows up to 46cm total length but at a relatively slow growth rate.

Habitat

- Floodplains and swamps of slow-moving rivers among woody debris.
- Thrive in artificial ponds, lakes, and reservoirs.

Range

Native range: South America: Peru, Columbia, Brazil; French Guiana to north Paraguay.

Australian populations: South Gladstone, QLD.

Impacts

- Preys on small fish shown in laboratory experiments – could exhibit predation on smaller natives in the wild.
- Territorial and aggressive towards other fish.
- Competes for food and spawning space.
- Burrows into substrate during nest preparation when breeding which modifies the substrate.



Platy

Xiphophorus maculatus/*Xiphophorus variatus* and hybrids



Key features

1. Small, laterally compressed, deep-bodied shape that grows up to 6cm total length.
2. Colour is highly variable. Wild caught are less colourful and may be a pale olive-grey with or without speckled patches.
3. Ornamental platys typically exhibit bright coloration including orange, red, brown, yellow and black pigmentation.
4. A mid-lateral stripe is absent.
5. Males possess a modified anal fin called a gonopodium that does not extend to the tail stem and the third ray has a strong hook.

Habitat

- Slow-flowing water system, warm springs, weedy canals and ponds.
- Thrives in modified habitats and urban creeks.

Range

Native range: North and Central America, specifically Ciudad Veracruz, Mexico to northern Belize.

Australian populations:

Medowie, NSW. Coastal drainages of south eastern and central QLD and Nhulunbuy, NT.

Impacts

- Broad diet – able to modify diet to suit availability.
- Implicated in the decline of damsel fish and Newcomb's snail in Hawaii.
- Potential vector for diseases and/or parasites.
- Fast growing with high reproductive potential - give birth to live young, typically become sexually mature from 4 months.
- Highly adaptable to different environments and establishes well in disturbed areas.



Climbing perch

ieus



Key features

1. Elongated body and various strong spines on the posterior edge of their gill covers.
2. Pale brown-orange to dark greenish-brown with occasional dark blotches over their body.
3. Pectoral fins become dark orange at the base.
4. Younger individuals have a dark spot on caudal peduncle.
5. Commonly grow 10–23cm total length, but sometimes up to 25cm.

Habitat

- Canals, lakes, ponds, swamps, and estuaries.
- Dense vegetation.
- Fresh and brackish water.

Range

Native range: Asia: India to Wallace line including China.

Australian populations: Not in Australia. Nearby invasive populations in Torres Strait Islands (officially part of QLD), East Timor and Papua New Guinea.

Impacts

- Known to kill sh, waterfowl and reptile species that predate on it – its sharp spines becoming locked in the predator's throat or stomach.
- Competes with native species for space and food and can rapidly dominate aquatic communities.
- Able to bury in mud of drying water bodies at end of wet season or at times of drought and emerge at onset of next rains.
- Can tolerate very turbid and brackish water conditions.
- Has accessory air-breathing organ and can survive out of water for several days.



Pearl cichlid

Geophagus brasiliensis



Key features

1. Attractive pattern of blue-white pearly spots over a pale light brown to grey-green or dark blue-purple body.
2. One dark spot which may or may not be visible on its body, located towards its tail.
3. May display several black bands running top to bottom down its body.
4. Fins red and may have blueish tones and be tipped in black.
5. Moderate to large sh compared to natives, reaching 28cm total length, though commonly much smaller at 9cm.
6. Dominant males often develop a nuchal hump, a bump or bulge on the nape.

Habitat

- Canals, lakes, ponds, swamps, and estuaries.
- Dense vegetation.
- Fresh and brackish water

Range

Native range: South America: Coastal drainages of eastern and southern Brazil and Uruguay.

Australian populations:

NSW – Doon Doon Creek and Tweed River system. QLD – Rockhampton, Burdekin Region and Somerset Dam. WA – Swan and Canning Rivers and tributaries.

Impacts

- Territorial and aggressive towards conspecific s and sympatric she s especially when breeding.
- Eats by sifting sediment and burrows into the substrate during nest preparation when breeding, causing habitat disruption and aquatic vegetation damage.
- Omnivorous diet and can occupy a broad range of ecosystems.
- Direct predation of coexisting sh.



Jack Dempsey

Rocio octofasciata



Key features

1. Background colour grey-olive to dark blue-green.
2. Bright blue variant exists in ornamental trade with uniform bright, metallic, medium dark blue body.
3. Series of small white to iridescent blue-green spots on head, body, and medial fins.
4. 8-11 faint vertical grey-black bars along sides.
5. Dorsal fin has red edge.
6. Lower jaw extends beyond upper jaw.
7. Medium sized cichlid, grows up to 25cm total length but commonly 7-20cm.

Habitat

- Warm and tropical freshwaters.
- Ponds, bogs, swamps, wetlands, springs, rivers.
- Preference for permanent pools and modified habitat such as rock quarries.
- Variable substrata: mud, sand, rocks, leaf litter.

Range

Native range: North and Central America, Atlantic slope from southern Mexico to Honduras.

Australian populations: NSW - Green Pool, Angourie, northern NSW.

Impacts

- Aggressive behaviour during breeding, may displace natives.
- High reproductive rate and fast growing.
- Able to cope with low oxygen conditions.
- Competes with natives for food and can consume smaller species.
- Builds nest in substrate by digging, altering habitat.



Glossary

Anal fin

fin on belly behind the anus

Belly

the lower part of the body

Benthic

relating to the bottom of a water body (sea, lake or river)

Brackish

slightly salty, as a result of fresh and salt water mixing

Carnivorous

feeding mainly on the flesh of other animals

Caudal fin

the tail fin

Caudal peduncle

the base of the tail between the anal fin and the caudal fin

Compressed

flattened laterally, from side to side

Crustacean

freshwater and saltwater animal with no backbone (invertebrate), jointed legs and hard shell made chitin (e.g. crab, lobster, crayfish, water flea)

Detritus

organic matter formed by the decomposition of animals and plants

Dorsal fin

the median fin on the upper part of the body

Elongate

narrow, the length is greater than the width

Invertebrate

an animal without a backbone

Lateral line

sensory canal system usually consisting of specialised scales that runs along the sides of all fish

Larvae

an early life stage which still carries a yolk sac and differs greatly in appearance and behaviour than the adult form

Median fins

the dorsal, anal and caudal fins

Nape

the region of the head above and behind the eyes, before the dorsal fin

Notifiable species

Schedule 1 of the Biosecurity Regulation 2017 lists several species as notifiable matter. It is illegal in NSW to possess, sell or move these species and you should notify NSW DPI if you suspect the presence of any of these pests

Omnivorous

eating both animal and plant foods

Ornamental fish

fish species that are kept in home aquariums or ponds for aesthetic purposes

Pectoral

found on either side of the body just behind the gill opening

Pelvic fin

paired fins on the belly before the anal fin

Planktonic

floating in the water column and carried by the currents

Prohibited species

high risk species we do not want in NSW and not established in NSW listed in Schedule 2 of the *Biosecurity Act 2015*. It is an offence to deal with prohibited matter and you should notify NSW DPI if you suspect you have seen any of these species

Rays

the rigid or flexible struts that support the fins

Snout

the part of the head in front of the eye

Spawn

to release sex cells (eggs and sperm) directly into the water

Standard length

length of a fish from snout to the tail-end of the end of its last vertebrae (excludes the caudal fin)

Substrate

non-living material serving as the waterway bed or basis upon which an organism lives or grows

Total length

the greatest distance from the tip of the snout to the end of the tail

Turbid

muddied, cloudy, caused by suspended matter, usually sediments or the result of run-off

Ventral

on or relating to the underside or bottom of the fish

Acknowledgments

Image of *Chitala chitala* Source: Fishbase.se Author: Hamid Badar Osmany

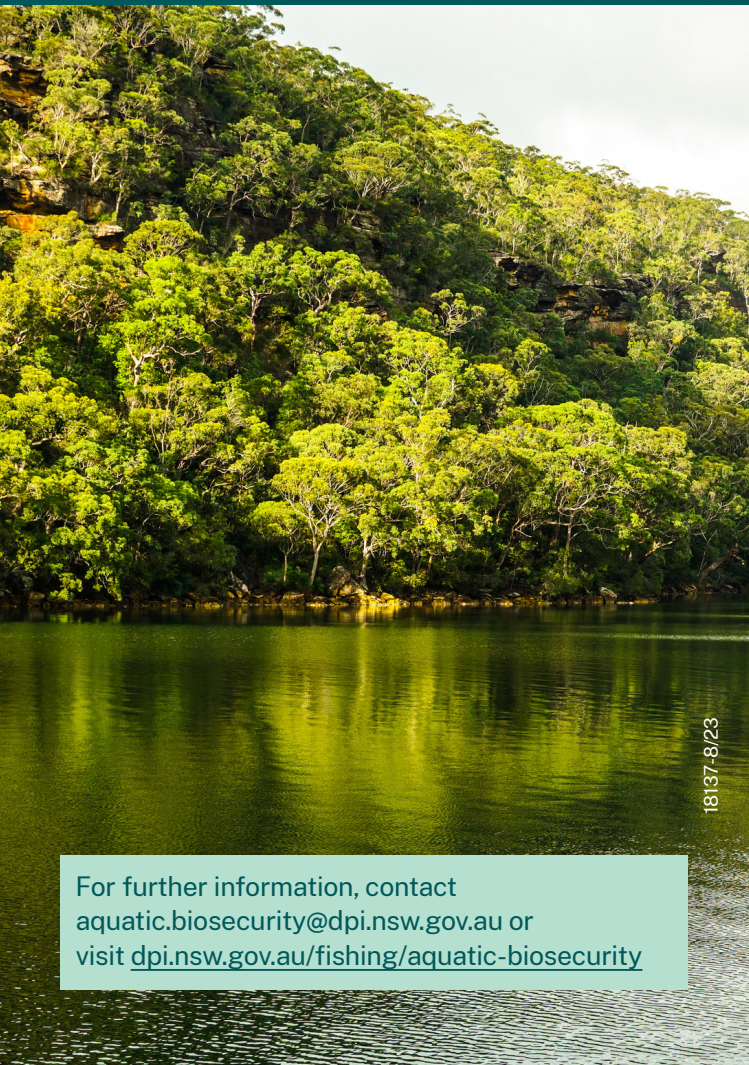
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Images of *Oreochromis mossambicus* and *Pelmatolapia mariae* © Gunther Schmida

Image of *Poecilia latipinna* Source: Florida Museum of Natural History photo by Zach Randall

To report an aquatic pest:

- Call the 24-hour Emergency Animal Disease Hotline: 1800 675 888;
- Complete the online form: dpi.nsw.gov.au/fishing/aquatic-biosecurity/reporting or
- Email aquatic.biosecurity@dpi.nsw.gov.au



For further information, contact aquatic.biosecurity@dpi.nsw.gov.au or visit dpi.nsw.gov.au/fishing/aquatic-biosecurity