



Eastern Gambusia *Gambusia holbrooki*

DESCRIPTION AND CHARACTERISTICS

Eastern Gambusia, more commonly known as Mosquito fish, are a noxious fish species introduced into Australia in 1925 from North and Central America. They have a dorsally flattened head, rounded tail and a single dorsal fin. Their back is green to brown, becoming grey with a bluish tinge down their sides, and silver on the belly. They also have an upturned mouth, large eyes, and a rounded belly.



Male *G.holbrooki*—Photo: Tarmo A. Raadik

Eastern Gambusia are sexually dimorphic (females and males have different forms), with females

reaching a much larger size of up to 6cm, compared to males, which only grow to around 3cm in length.



Female *G.holbrooki*—Photo by Gunther Schmida. Sourced from the Murray-Darling Basin Commission.

Females also possess a deeper stomach and a distinguishing black spot near the rear of their abdomen, which becomes more pronounced when gravid (carrying eggs).

Males lack the prominent stomach bulge present in females, and possess a longer anal fin which is used as a breeding tool.

BIOLOGY AND LIFE CYCLE

Eastern Gambusia prefer warm, still or slow flowing water, but are found in a wide variety of habitats around Australia. They are extremely tolerant of adverse water conditions. Eastern Gambusia can tolerate a wide range of temperatures, (from 5°C to 44°C) and salinities (from freshwater to estuaries). They are also able to live in oxygen poor environments, and will gulp air from the surface to supplement their oxygen supply. Eastern Gambusia possess an extremely diverse

diet, and are known to voraciously predate a variety of native aquatic organisms, including aquatic bugs, beetles, frog and fish eggs/larvae, ants and flies. They also display aggressive fin-nipping behaviour, biting the fins of fish and tadpoles.

Unlike many native fish, they give birth to live young. They can bear up to nine broods per year, averaging 30-50 young per brood. Young fish mature very quickly, reaching reproductive age at between 4 and 6 weeks.

ENVIRONMENTAL IMPACTS

Eastern Gambusia are extremely aggressive predators that compete with native fish, eat their eggs and predate their young. Evidence suggests that they are partially responsible for the decline of various frog and fish populations across Australia,

and have been implicated in the decline of the endangered Growling Grass Frog. Known to nip the fins of native fish causing stress and often death. High reproduction rates and long breeding season means they can rapidly dominate systems.

HISTORY OF INTRODUCTION

Eastern Gambusia were introduced to Australia in 1925 as a biological control agent for mosquitoes (up until 1982 the World Health Organisation recommended their use for malaria control programs). Soon after, populations of Eastern Gambusia became well established and were widely dispersed by military and health authorities.

There is a strong body of evidence that suggests this species are no more effective than native spe-

cies at controlling mosquito numbers. In some instances, they may even exacerbate the problem due to their voracious appetite for the natural invertebrate predators of mosquito larvae.

Unfortunately, they are now the most widespread freshwater fish in Australia, occurring in all States and Territories!

DISPERSAL

Once introduced into a waterway Eastern Gambusia are usually able to disperse along its entire length due to their tolerance to a diverse range of environmental conditions.

Unfortunately, many people have introduced them to household ponds, not realising they are actually a noxious pest. **Please note, the deliberate release, transfer, or disposal of Eastern Gambusia into local creeks, rivers, wetlands or ponds is illegal, as it may lead to further dispersal of this noxious fish throughout Australian waterways.**

Although there is anecdotal evidence suggesting that Eastern Gambusia can be transported "live" in the crop and gullet of birds and deposited in new areas, it is far more likely that dispersal occurs during times of flood and through unintentional relocation by humans. Eastern Gambusia can also be inadvertently transported in aquatic equipment, such as nets, boats and fishing gear.

LEGAL STATUS IN VICTORIA

In Victoria *Gambusia holbrooki* has been declared a Noxious Aquatic Species as stated under the Fish-

eries Act, 1995. As a declared noxious fish, this species cannot be returned to water.

POSSIBLE CONTROL MEASURES

Eastern Gambusia are notoriously difficult to eradicate once introduced. One control measure is the addition of piscivorous poisons to waterways. Unfortunately this method eradicates *all* fish present, including native fish.

They can be removed from wetlands and other 'closed' water bodies through draining and drying. Once again, non-target species are also affected.

It is unlikely that this fish could be controlled through a viral, bacterial or parasitic control agent, due to the non species-specific nature of fish disease and parasites.

There is also little evidence to suggest that any

native fish preferentially predate Eastern Gambusia when alternative food sources are available.

By far the best control method for this species is to prevent further dispersal and introduction to new waterways.

Never replace or relocate this fish to *any* water body within Australia - it is illegal under the Fisheries Act, 1995.

If you use equipment i.e. boats, nets etc. in waters known to contain mosquito fish, please ensure they are well cleaned and air-dried before next use.