

# Invasive Alien Species

## An Australian



# A History of Establishments

The unique Australian environment has become threatened over the last 100 years through a series of establishments of non native species. The most serious of these warrant true invasive status and have caused tremendous economic harm and severely affected native biodiversity. The worst of these species are listed below;

- **Gambusia affinis – The mosquito fish.**

Although it does not harm habitat, Gambusia have spread throughout Australia displacing many native species.



- **Cyprinus carpio – The European Carp**

Have proliferated since the 1960's outcompeting Native fish for food resources. Also causes major harm to riverine habitats



- **Tilapia and Oreochromis species**

Predate on smaller native species and severely alter the habitat



- It is also noteworthy to mention that translocation of many native species outside their natural range has also caused much harm.

# Naturalised vs. Invasive

In addition to the previous species the following species have recorded establishments in Australia however currently do not exhibit true invasive characteristics, existing only in localised populations. This is a distinction not made by Australian regulators instead taking the view that all establishments warrant noxious status.

## Established Non Native Species



**Goldfish, Platies, Swordtails, Weatherloach, Whitecloud minnows, Texas Cichlid, Red Devil Cichlid, Convict Cichlid, Oscar, Brasiliensis cichlid, Trimaculatus Cichlid Pseudotropheus zebra cichlid.**



Many of these species exist within enclosed water bodies or are supported through artificial means such as around power plants surviving from the warm effluent water.

**Other established species include Red fin perch, Trout, Roach & Tench.**



Many of these species were released in the 1870's by acclimatisation societies as food fish and for recreational fishing. While still present many of these species are now being displaced by carp.

# Pathways for release events

- Government agencies - e.g. Gambusia
- Recreational Fishermen –  
Stocking of non native sports fish e.g. Trout & Red fin Perch  
Use of live bait e.g. Weatherloach and Live Bearers
- Pondage overflow during heavy rains
- Aquarium Keepers
  - Unwanted or excess fish
  - Retaliatory release due to over regulation
  - Deliberate release for stocking and establishment purposes.

# Current Border Protection Framework

- **Environment Protection, Biodiversity and Conservation (EPBC) Act.**

This act regulates what live fish are allowable to import into Australia. There are currently approximately 500 freshwater ornamental species on the live import list. The process to apply to amend the list is very onerous and costly with the industry often dealing with moving goal posts.

It is also important to note that the EPBC act provides very serious penalties for possession of fish not on the allowable import list. This act also allows for a reverse burden of proof, meaning you have to prove that the fish in your possession were or are the progeny of lawfully imported specimens. However many ornamental species, particularly cichlids have been maintained in Australia since prior to 1980 when import restriction were near non existent.

- **Quarantine Act**

Administered by the Australian Quarantine Inspection Service (AQIS) the Quarantine acts provides The provision for mandatory quarantine between 1 and 3 weeks of all live fish imported into Australia. The act provides strict penalties for any breaches however prosecutions are rare. The main difficulty with the current quarantine arrangements lies around the correct identification of imported species. AQIS officers tend to have little training in ornamental fish and as such many non-permissible fish get imported into Australia as a closely related species.

# Smuggling in Australia

Over the last twenty years a lack of compliance and enforcement of both the Quarantine and EPBC Acts has created an environment where smugglers have proliferated many species that have never been legally imported to Australia. This has had the effect of rewarding those who seek to make money by doing the wrong thing while legitimate traders suffered. The most popular families of fish smuggled into Australia include;

Asian Arrowana, Shovelnose catfish, Red tail catfish, Freshwater stingrays, Garfishes, Arapaima, Cichlid species, Loricaridae catfish and many more.



Although ignorance is no defense, the reality is that many of these smuggled species have been purchased by the greater fish keeping public, in most cases having no idea they are breaking the law. Any change to future regulations and enforcement of current powers must take into consideration the past inertia of regulatory bodies and not seek to overzealously prosecute the fish keeping public. We need to target smuggling using a top down approach.

# The Ornamental Fish Management Implementation Group (OFMIG)

- **What is OFMIG and how does it work?**

OFMIG was formed in 2003 to address the inconsistencies in ornamental fish policy and management around Australia.

OFMIG is a joint advisory group comprising of Federal government representatives from the Department of Environment, Water, Heritage & Arts (DEHWA), The Department of Agriculture, Fisheries & Forestry (DAFF), Bio-security Australia (BA) and the Australian Quarantine Inspection Service (AQIS) as well as representatives of the Commercial and hobby ornamental fish industry. In addition each state and territory jurisdiction is represented by members of their Department of Primary Industries or Fisheries.

Previously these various stakeholder regulators created vastly different ornamental fish regulations from jurisdiction to jurisdiction often without consultation and without any regard to the bigger picture or the effect on the aquarium industry.

For more information about OFMIG please visit [www.brs.gov.au/ornamental](http://www.brs.gov.au/ornamental)

# National **Noxious** Fish List

OFMIG's charter included establishing a uniform national noxious fish list, a massive job when one considers that there are estimated some 1200+ species currently being kept and traded in Australia, of which some 500 of these species are currently allowable imports. The aquarium industry faced the very real possibility of all species that have never been allowably imported being arbitrarily assigned noxious status.

A proposed noxious list was compiled by merging all existing state and territory noxious lists together in addition any species that had recorded establishment in Australia or other similar environments' throughout the world were also included as noxious. This listing represented in essence, a noxious 'wish list' for Australian regulators that was not scientifically based and would not be accepted by the greater aquarium industry.

A 'low hanging fruit ' approach was adopted whereby only species that had agreement between all stake holders remained noxious. The Current noxious list contains species from some 70 different genera.

To view the Australian national noxious list as it stands in 2007 document, A strategic approach to the management of ornamental fish in Australia please visit

<http://www.affashop.gov.au/product.asp?prodid=13332>

# The Grey List

The grey list is a dynamic list that is primarily compiled of those species that would represent the greatest loss to economic and hobby value of the ornamental aquarium industry. This list contains many cichlid species in addition to many of the collector type tank buster predatory species, which have been a mainstay of many smugglers.

Rather than allowing arbitrary noxious listings industry have lobbied to see these species assessed through a more formal risk analysis approach. Industry, where the science supports I would like to see a shift in regulation to create a license and permit system that would allow a limited import and trade in sterilised and micro-chipped specimens.

For detailed species listing of the Grey lists please visit

<http://www.affashop.gov.au/product.asp?prodid=13332>

# Grey List Risk Assessment Filter

A framework to begin to try and assess the 700+ species on the Grey list was developed by DEWHA which scored a range of measures in the categories of

- **Biodiversity;**

Climatic Match, Established in Australia, Eradication effort, Established internationally, CITES status and Resilience,

- **Impacts;**

Current noxious status in Australia, Impact on Habitat, Impact on other species, genetic risk to native species, Genetic risk of hybridisation with established noxious species and known carrier of disease.

- **Trade;**

Restricted trade elsewhere in world, Multiple use species and Current status in industry.

This process was heavily reliant on the Bomford climatic matching model to determine which parts of Australia are at risk. Industry has issues with this rather crude method as fish live in water and it fails to take into consideration

other water parameters such as pH & hardness tolerances. The application of precautionary principle whereby if a species was data deficient it was assigned the maximum score for that category is also of concern.

# The Purple, Blue & Yellow lists

Due to industry concerns with the initial grey list risk Assessment filter, the lack of sound science and the arbitrary application of precautionary principle any species that generated a high risk score that industry or hobby representatives' disagreed with were placed on a yellow or blue list.

The remaining 70 species were placed on the purple list from where they will be added to the national noxious list after statutory consultation period at a state and territory level. These lists essentially represent sub sets of the grey list and it is important to remember they are dynamic lists.

The species on the blue and yellow lists are to undergo a more rigorous assessment process using a framework similar to the one used to add additional species to the EPBC Act live import list. Some responsibility had to be taken on behalf on industry and many Species that the industry know to be invasive were conceded. Are you confused Yet??????

# Control Options

Control options currently under consideration for species assigned noxious status include;

- **A complete ban of the possession and sale of the species**

Such an option would lead to an amnesty period whereby people could surrender noxious fish for euthanasia. This option is not supported by the industry for all but the most invasive species. Total bans would only achieve to drive the trade further underground. It may also lead to retaliatory releases, as people don't want to see their fish destroyed. It must also be remembered it is the government's own inertia in enforcing existing regulations, failing to prosecute those selling smuggled fish that has created the current situation.

- **A permit or license system allowing the keeping of existing specimens for the rest of their natural lives.**

This option is preferred by industry and would require identification markers such as micro chipping, fin clipping or a record of a DNA profile. Industry would still like the ability for unwanted specimens to be traded within such a permit system. This remains

a sticking point. The logistics and management of such a system is still to be discussed.

# National Aquatic Weed Management Group – Ornamental Plant Risk Review

- The NAWMG has been established primarily to manage the control of the 4 aquatic weeds of national significance being;
  - Alligator weed,
  - Salvinia
  - Cabomba



However in 2005 its scope was expanded and funding was obtained to assess all currently traded aquatic plant species to prevent future weeds. A risk assessment filter similar to the grey list fish process was used to highlight species of concern. These species were then tested in growth and competition trials against native and existing noxious species.

For further information about NAWMG and the growth and competition trials please visit

[http://www.ngia.com.au/publication\\_resources/NP\\_Pdf/NGIA\\_NP\\_2007-06\(2\).pdf](http://www.ngia.com.au/publication_resources/NP_Pdf/NGIA_NP_2007-06(2).pdf)

# Getting the Balance Right

The trade in ornamental fish and plant species is coming under increasing pressure as issues such as Noxious and Invasive species come to centre stage. The industry is in a unique position in Australia to proactively work with regulators ensuring acceptable and workable outcomes for the ornamental trade while endeavoring to protect Australia's diverse aquatic ecosystems.

The aquarium industry has a special responsibility to step up and ensure we operate in a responsible best practice regulatory environment. This may require trade in certain species that do exhibit true invasive status to be surrendered. However, if we fail to take this leadership role our industry and livelihoods will end up being once again regulated by overzealous and ill conceived regulation. Which in many cases not only harms legitimate ornamental fish businesses but fails to irradiate illegal trade and in some case can even be counter productive causing retaliatory releases into the very ecosystems we are all striving to protect.

# Questions and Discussion

