GOVERNMENT OF WESTERN AUSTRALIA

SWAN RIVER TRUST

Fact Sheet

Australian Mud Whelk

(Batillaria australis)

This large aquatic snail is likely to have been introduced to the Swan River about 60 years ago[1]. It is now abundant and is thought to promote the growth of macroalgae in the lower river and thereby impact on the health of seagrass beds.

Description

The Australian Mud Whelk is a gastropod snail that measures to 49 mm in length and is typically 30 mm long. The shell is sculptured with coarse axial ribs. Exterior colour is brown, sometimes with a white spiral band.

Distribution

This snail is endemic to Australia and occurs from the Whitsunday Islands in Queensland, southwards to Victoria and Tasmania. The species died out in South Australia in the Pleistocene, and fossil shells are occasionally encountered there[3]. In Western Australia, it occurs in the Swan River estuary and Cockburn Sound only and these populations are thought to have become established after human introduction[1].

Habitat

These snails occur on mud flats in estuaries, river mouths and mangrove swamps. They are locally abundant in the Swan River and are many times more abundant than any native snails in seagrass beds and sand flats[3]. It is estimated that 3.6 billion *Batillaria* snails occur in the Swan Canning Riverpark.

Biology

Breeding takes place in summer, with most snails breeding for the first time at the end of their second year. Many die during the third year, with most not surviving the fourth year.

These snails are known to act as intermediate hosts in the lifecycle of the flatworm parasite *Austrobilharzia* that live in sea birds.

Conservation

In the Swan estuary this is an introduced species.

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Management messages

It has been shown that these snails contribute to the build-up of macroalgae (seaweed) in the lower estuary of the Swan Canning Riverpark[3]. *Batillaria* do this by providing a hard substratum for attachment of macroalgae colonisation, which is then distributed by fragmentation.

When abundant, both drift algae and snails have substantial negative effects on seagrass health, due to light reduction, physical disturbance and the changes they cause to biogeochemical processes in the sediments[3].

What do 3.6 billion snails do?

Move sediment	450,000 m^3 sediment/day*
Release nutrients (faeces)	18 tonnes nitrogen/year
Bind calcium carbonate (shells)	1.7 billion shells/year
Make homes for hermit crabs	130 million in *Batillaria* shells
Build hard substratum	1.8 million m^2 (live snails)
Attach seaweeds	36.5 million macroalgae shoots
Produce macroalgal fragments	433 million/day
Filter water	3 billion litres/day

*This volume of sediment is equivalent to 180 Olympic-sized swimming pools

Hermit crabs have been found in 49% of the dead *Batillaria* shells on seagrass patches and 16% on sand flats[3]

Eradication of *Batillaria* is unrealistic[3], so management must focus on reducing the risk and impacts of drift algal blooms options. This includes nutrient input control and drift algal removal.

References

1. Wells and Bryce (1986) Seashells of Western Australia. Western Australia Museum. pp. 1-207

2. Beechey, D. (2012). Seashells of New South Wales. http://seashellsofnsw.org.au/

3. Thomsen M.S., Wernberg, T., Tuya, F. & Silliman, B.R. (2010). Ecological performance and possible origin of a ubiquitous but under-studied gastropod. Estuarine, Coastal and Shelf Science. 87: 501-509