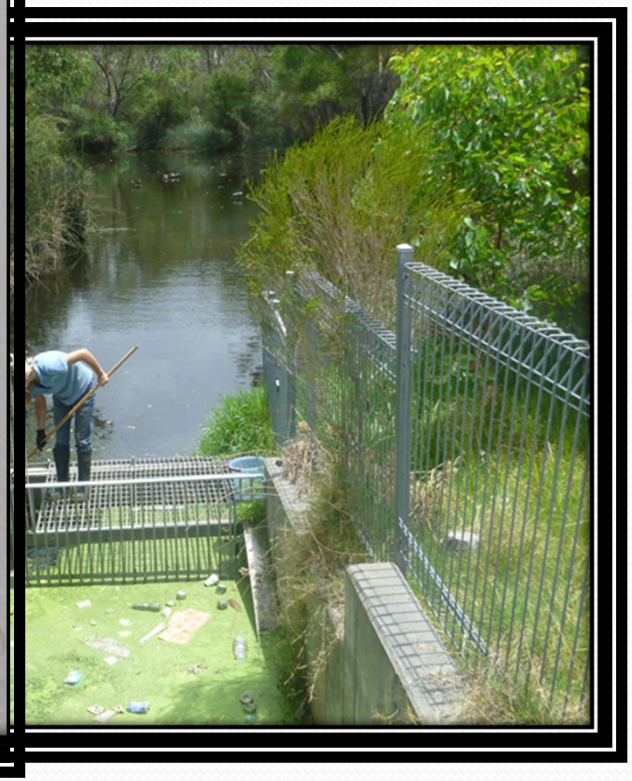
Amazon Frogbit – a weed to watch out for



Amazon Frogbit

- *Limnobium laevigatum* – also known as South American spongeplant
- Currently being listed as a declared pest in WA
- Arguably the most threatening aquatic weed to be introduced to WA wetlands to date
- It is native to Central and South America
- This species is tolerant of extreme temperatures
- Floating rosettes (1-8 cm) send runners out into the water, the ends of which form juvenile plants. Inconspicuous flower under leaf, seed set in seed pods 30+ seeds, 3-5 year viability

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Acts like Water Hyacinth

Redding pond, before treatment, June 2005. Spongeplant choked out water primrose and parrotsfeather. Grass is beginning to grow on the mat.

Quadrat 0.5m on a side. Roughly 2000 to 2500 plants per square metre, many times higher than water hyacinth.

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Main Canal, Stanislaus County

Photos from late September, 2010. Canal personnel report that they noticed no spongeplant in this area as late as July.

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Main Canal, Stanislaus County

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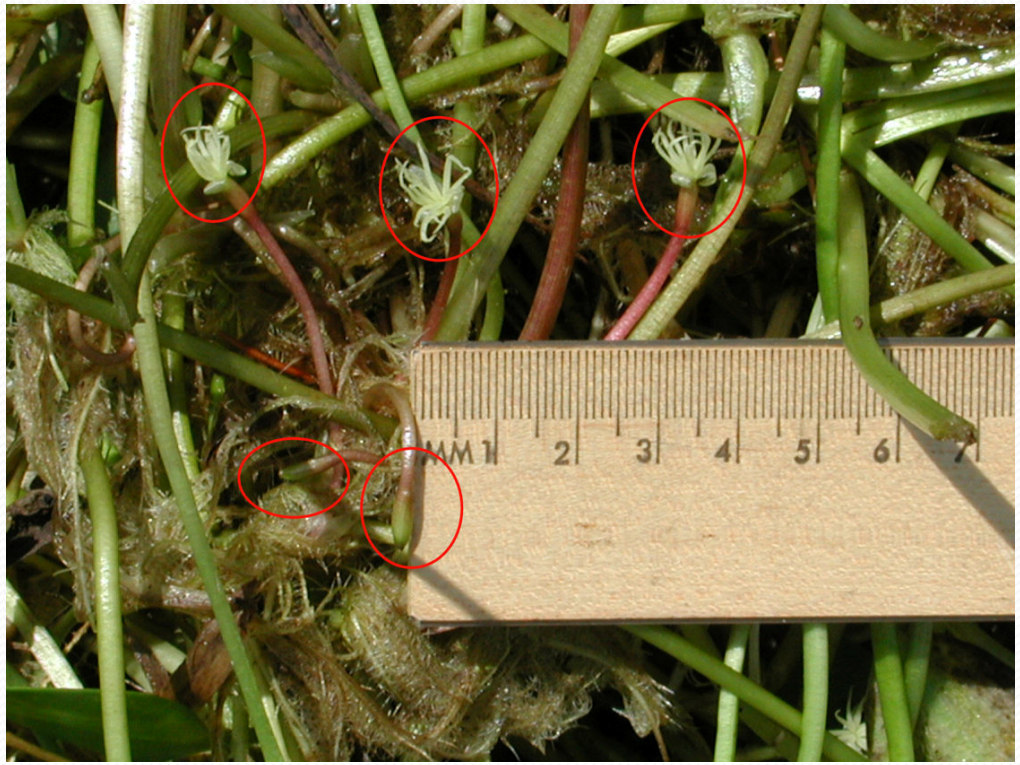
Heavy Seed Production



Redding pond, late spring 2006. Above, female flowers and seed pods in red circles.

Above: opened seed pod.

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Re-infestation of Cleaned Areas

Seedlings emerging in the source pond in the Kings River canals infestation. Photos taken Oct. 2010. This pond has been kept clean of mature plants since early spring 2008. Pond was heavily infested when found.

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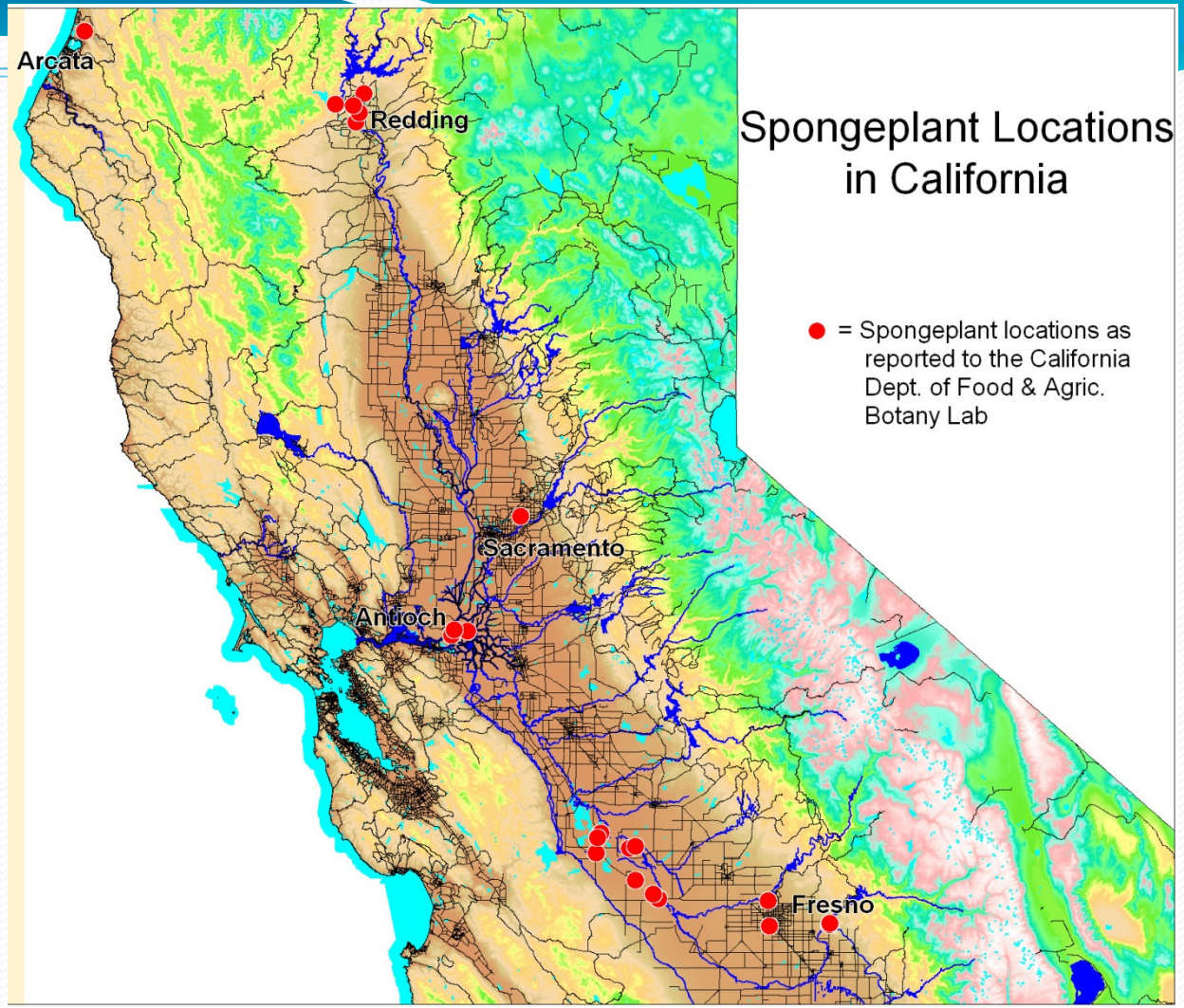
Result: Steady spread in California 2007-2010



Official state records of spongeplant locations in California. The first records of spongeplant were in 2003, in Arcata and Redding. No more spongeplant appeared until the summer of 2007, when plants were reported in the San Joaquin River in Fresno. In late December, 2007, it was reported a few miles from Antioch in a patch at the western edge of the Sacramento Delta. That patch seemed to disappear after a major winter storm occurred a few days later. In February, 2008, plants were found in a canal system off the Kings River east of Fresno. In summer, 2008, it appeared in canals in western Fresno County between Mendota and Dos Palos. In 2009 and 2010, it was again found in the Delta. The Sacramento city location was in a small drain and has been eradicated.

Liege St Wetland 2013

Initial mapping

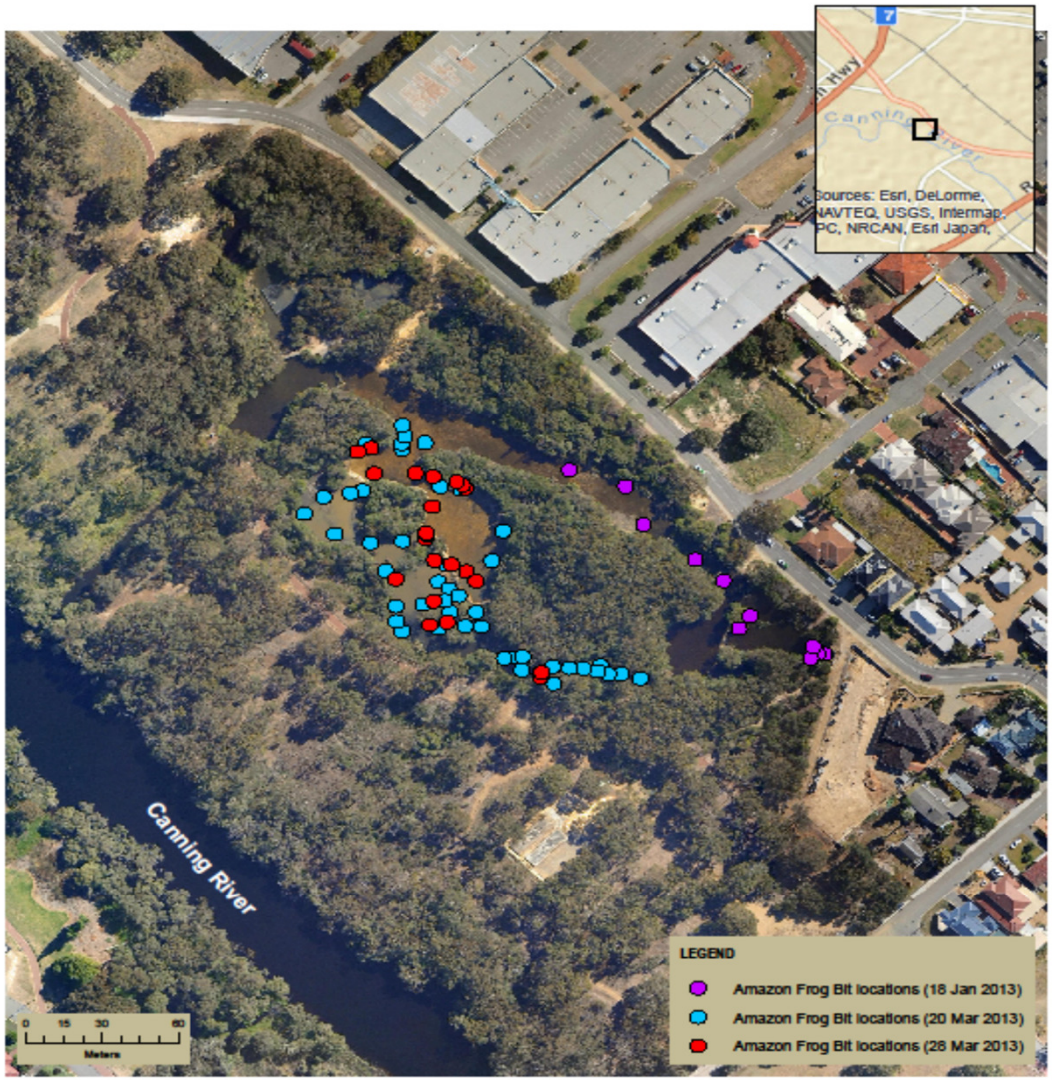


Figure showing the locations of Amazon Frog Bit in Liege Street Wetlands in January and March 2013

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Project: Amazon Frog Bit
Location: Liege Street Wetlands Cannington WA 6107

Scale: 1:1500
Original size: A4
Imagery from: 06/04/12
Source: Nearmap

Date drawn: 20/03/13
Revision: 1
Drawn by: D.S
Checked by: B.K

File: J:\GIS\Data\EDIT\DrainageNutrient InterventionProgram\LiegeStreet_Wetland\MXD\LiegeSt_Wetland_AmazonFrogBit

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Liege St Wetland 2013

Detected early and removed prior to plants maturing and producing any flowers/seed.

Status - extirpated

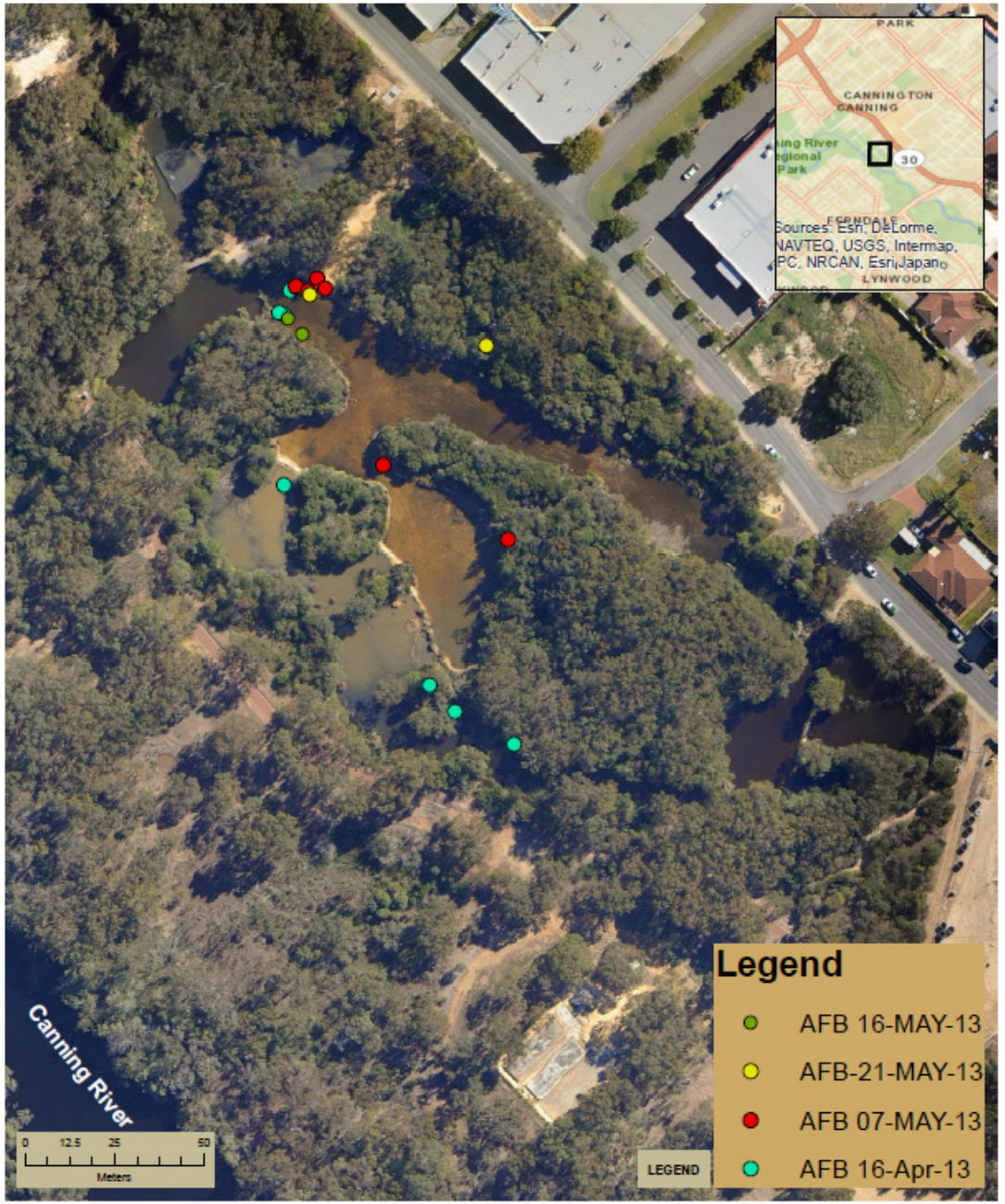

Figure showing the locations of Amazon Frog Bit in Liege Street Wetlands in April and May 2013

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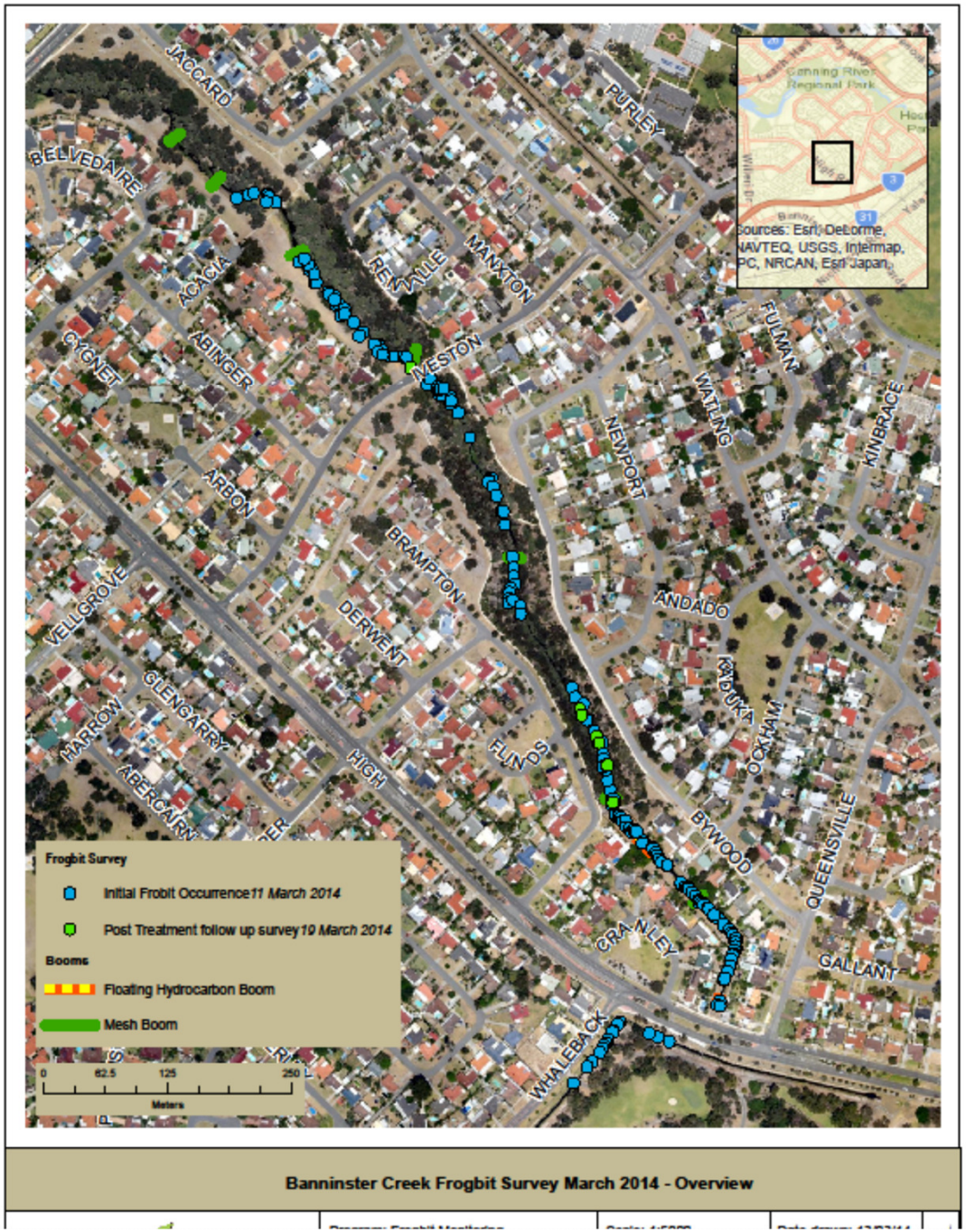
Bannister Creek 2014

Initial Mapping



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Bannister Creek 2014

Detected early and treated and removed prior to plants maturing and or producing any flowers/seeds.

Status - extirpated

Banninster Creek Frogbit Survey April 2014 - Overview

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Yangebup Lake

- First noted in early November 2016, not identified at time as Amazon Frogbit, thought to be native lily
- Four weeks later significant cover across drain
- Initial manual removal- volunteers/contractors

Over 200 volunteer hours

- Weekly treatments following
- Status - extirpated

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Yangebup Lake

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Balannup Drain/Baileys Drain

- Discovered November 2016
- Removed from City of Armadale's asset
- Was controlled nearly to extirpation by November 2017 in Water Corporation asset
- Lapses in treatment/funding allowed population to expand it’s reach and population returned to medium levels of infestation. It is now unclear if seed has been produced.

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Bayswater Main Drain

- Detected in December 2017, 7km of drainage asset
- Mapping and early control treatments completed
- All vegetation discovered thus far has been juvenile
- Due to heavy rain in Jan 18 it has spread into Eric Singleton Bird Sanctuary

- Status – under management and greatly reduced, only three pieces found at last treatment

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Bayswater Main Drain Frogbit Survey December 2017 and January 2018

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Other Known Infestations

- City of Belmont - Belmont Main Drain
- City of Rockingham - 300m of drainage line leading to Lake Richmond
- City of Cockburn - Little Rush Lake
- City of Swan – Noble Falls

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Preventing Spread

- Early identification and prevention
- Use of physical barriers to prevent spread
- Early extirpation
- Check hygiene to reduce spread
- Public education- lobby to remove from sale
- Monitor

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Control Method

One method is simply not enough

- Infestation needs to be investigated and mapped to identify the source point and the extent
- Booms/barriers to prevent spread
- Chemically treat large biomasses and/or mechanically
- Clear fringing vegetation/obstacles
- Hand removal – be thorough

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Keys to Extirpation

- Identified in early stages of infestation
- Managed in a timely manner – prevent it from seeding
- Treat/manage any plants/obstacles where it can hide
- Thorough treatment – ensure all plant matter is removed/ treated
- Follow up, follow up, follow up until you've had several clean sweeps and then continue to monitor the site through the following summer
- Mapping infestation can help to identify problem areas or possible reinfestation points

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The Problem

- Amazon Frogbit is freely available in WA as an aquarium/pond plant and is being dumped into drains and wetlands with increasing frequency
- It can establish quickly forming a dense mat both above and below water levels – increasing flood risks in drainage assets and degrading habitat and water quality in natural areas
- It's expensive and labour intensive to extirpate and requires a committed long term management plan
- Potential to become a widespread problem across the Perth Metropolitan Region, across management boundaries and across WA

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The Plan

- Management – react to new infestations, increase frequency of treatment
- Research – salinity, seed viability, growth rate and wind and waves
- Education and Training – aquarium/water garden shops, Perth Garden Festival, training for land managers

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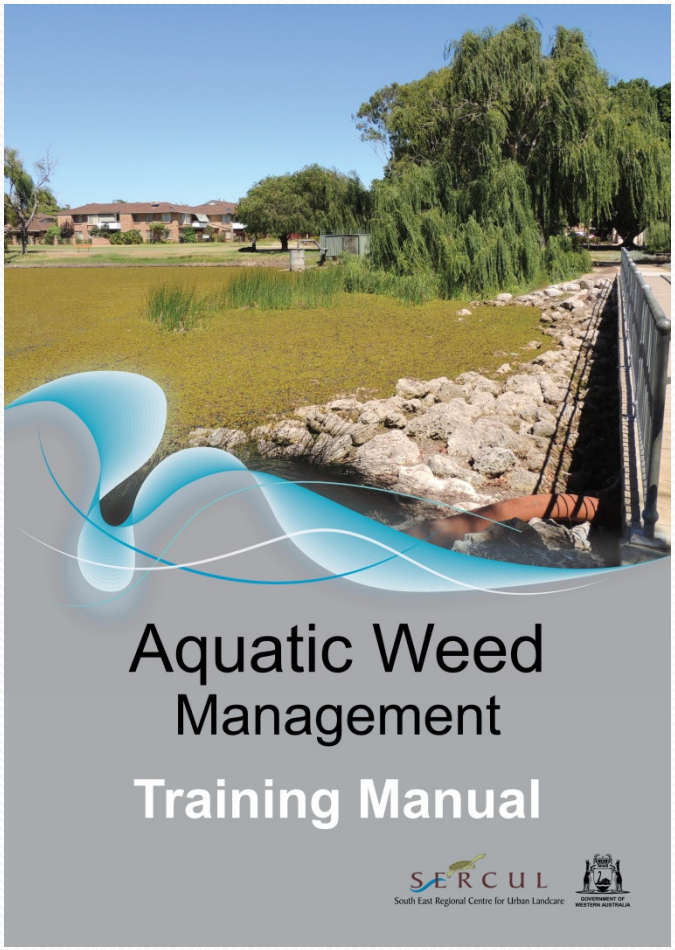
Aquatic Weed Training

- Decision Makers
- Weed Management Operators
- Landcare Personnel, Community Volunteers and Students



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Aquatic Weed Training

Manual covers:

- Aquatic weed id
- Aquatic weed risk assessment
- Mapping aquatic weeds
- Control and containment
- Case studies

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