

9 January 2017

Narre Warren Central Pty Ltd  
C/- The Fidus Group Pty Ltd  
Att: Mr Christian Mistica  
PO Box 2305  
Lower Templestowe VIC 3107

Dear Christian

RE: Dwarf Galaxias Salvage and Translocation Program at 96-166 Centre Road Narre Warren

Aquatika Environmental (the trading name of Aquatica Australia Pty Ltd) was engaged by Narre Warren Central Pty Ltd c/- The Fidus Group Pty Ltd to conduct an on-site salvage and translocation program for Dwarf Galaxias (*Galaxiella pusilla*) at the site of a property development at 96-166 Centre Road Narre Warren, Victoria (Figure 1).

The salvage and translocation program was conducted in accordance with the project's approved<sup>1</sup> Dwarf Galaxias Salvage and Translocation Plan (DGSTP)(Aquatika Environmental 2015).

The requirement to implement the DGSTP was triggered as works were ready to commence on the development site following the execution of a 'Section 173 agreement' and the engagement of project construction contractor. In accordance with the project's federal approval, under the EPBC Act<sup>2</sup>, the DGSTP needed to be executed before works could commence in the areas that have been identified as existing Dwarf Galaxias habitat.

This report provides a summary of the Dwarf galaxias salvage and translocation program undertaken prior to the commencement of works.

### Scope of Work

The Dwarf Galaxias Salvage and translocation scope of work was undertaken in accordance with the Plan (Aquatika Environmental 2015) and included the following:

- Obtaining and confirming that permits are in place (Section 4.1, task completed);
- Pre-salvage reconnaissance of release sites and identification of up to five release sites in the development site boundary (Section 4.3.1);
- Clearance of Mosquitofish at identified release sites, if required (Section 4.4);

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<sup>1</sup> Approved by the Federal Department of the Environment and energy, the Victorian Department of Environment, Land, Water and Planning (DELWP) and Melbourne Water

<sup>2</sup> Environment Protection and Biodiversity Conservation Act 1999

- Salvage of Dwarf Galaxias from the site/s earmarked for removal and salvage that occurred over two days and one night, using hand-held dip-net and bait traps set with glow sticks and left in situ overnight (Section 4.3.2); and
- Release of salvaged Dwarf Galaxias at established release sites within the existing property boundary.

## Assumptions and Limitations

Given the difficulty in catching Dwarf Galaxias and the dense macrophyte vegetation at the salvage sites, it is unlikely that all resident individuals were salvaged during the program. In discussion with DELWP, during the program (T. Raadik, 2016, pers. comm., 6 October) it was determined that to facilitate the collection and transfer of adequate genetic diversity to the release site at least 50 individuals would need to be caught.

## Results

### Salvage and Translocation Timing and Weather

The salvage and translocation program was undertaken over two days and one night on 5 and 6 of October 2016.

Weather in the week leading up to the program was mostly cool and cloudy (BOM 2016). Daily temperatures ranged from a low of 6.1°C to a maximum of 23.1°C (mean=8.7°C min., 18.0°C max.). Daily rainfall was recorded all days and ranged from 0.1mm to 20mm (mean=5.3mm).

Weather during the two days of the program was cool (min.=6.3°C, max.=15.6°C), fine and sunny with moderate north-westerly breezes and no rainfall recorded or observed<sup>3</sup>.

Timing of the program coincided with the tail-end of the typical Dwarf Galaxias breeding season (May<sup>4</sup> to October).

### Salvage Area

Salvage was undertaken in the area previously identified as having Dwarf Galaxias and its connected water bodies (Streamline Research 2014). The salvage area was located at the most westerly north-south drain and the northern fence-line, and open grassy paddock on the northern western boundary of the drain (Figure 1).

Due to shallow water and dense vegetation inhibiting the deployment of bait traps across most of the salvage area (Figure 3a), traps could only be deployed in the main north-south drain area (Figure 2 and 3b). Dip-netting was undertaken across the entire salvage area.

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<sup>3</sup> Observed during the program by the program's field ecologists.

<sup>4</sup> Can be as early as March April depending on when autumn rains and inundation begin to occur (R. Colman 2014, pers. comm., 19 January).

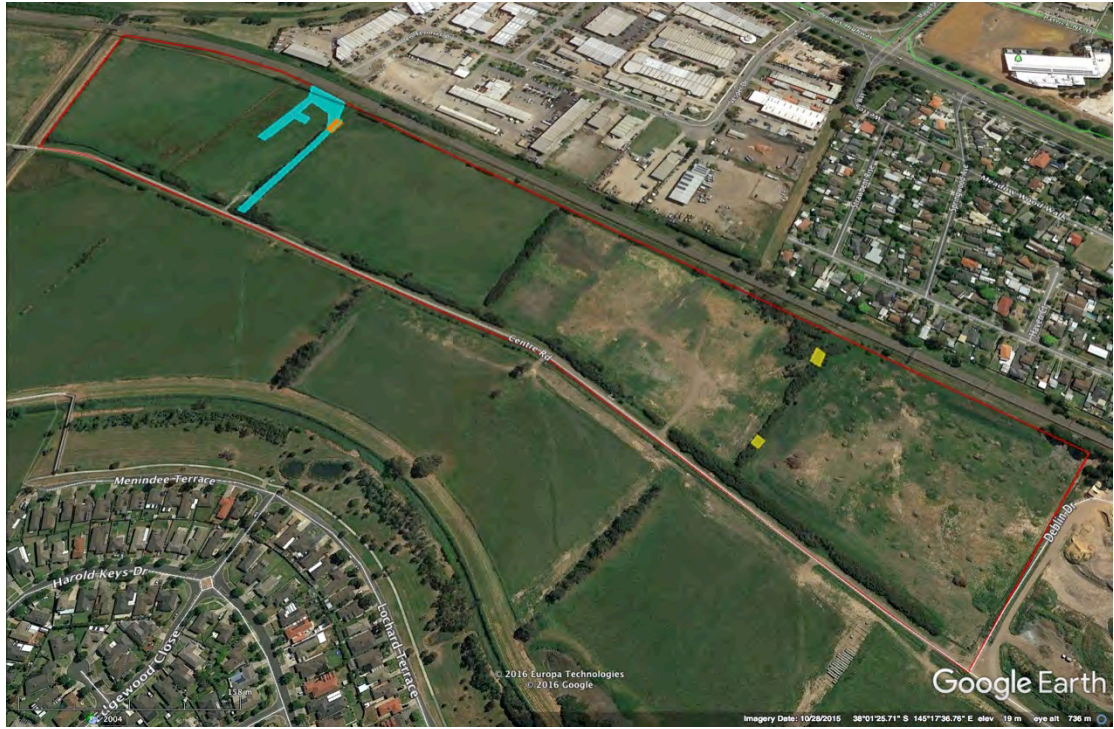


Figure 1 Development site (—), salvage area (■), salvage site (■) and release sites (■)



Figure 2 Salvage site in the main north-south drain



Figure 3 (a) water inundated grassy paddock and (b) southern shady portion of main north-south drain

#### Release Site/s

Two release sites were identified during the program, both of which occur in the most easterly north-south drain or “retained Dwarf Galaxias habitat’ (Figure 1). This drain and its Dwarf Galaxias habitat is being retained and protected as part of the development.

The most northern site is where previous records of Dwarf Galaxias occurred (Streamline Research 2014) and was intended to be the primary release site for this program. However, during the survey this site was unexpectedly found to be drying and too dry to allow release (Figure 5a and b). Accordingly, the southern site (Figure 4) was used as it provided sufficient water and vegetative cover to allow release.

Table 1 Release site descriptions

Site	Coordinates (Lat/Long)	Site Description
Southern release site (Figure 4)	38° 1'27.35"S 145° 17'46.45"E	Located approximately 20 metres north of the trail crossing the drain. This site is characterised by a dense overstory of Swamp Paperbark and an understory of water inundated grasses and reeds. There were some small areas of <i>Pericaria</i> nearby, similar to the salvage site. Water depth was approximately 300-400mm at the time of release, but appearing to be in a drying cycle.

Site	Coordinates (Lat/Long)	Site Description
Northern release site (Figure 5a and b)	38° 1'30.23"S 145° 17'43.68"E	A very dense area of Swamp Paperbark, with little aquatic vegetation in the drain. However, there are ephemeral areas nearby that are prone to wetting as indicated by dense stands of reeds. Dwarf Galaxias were not released at the some of salvage, due to this sit being dry, however, this is the area where Dwarf Galaxias have been previously recorded (Streamline Research 2014).



Figure 4 Southern release site



Figure 5 (a and b) Northern release site

### Salvage and Translocation Results

A total of 63 Dwarf Galaxias were salvaged and released during the program. All Dwarf Galaxias were caught in the same location (see Figure 1) using either hand-held dip-net (three individuals) or Bait traps baited with glow-sticks (60 individuals). Individuals ranged from approximately 18 to 32 millimetres and consisted mostly of that season's juveniles (approximately 80%) and a small number of adult males (Figure 6a and b). No adult or gravid females were identified.



Figure 6 (a and b) Some of the salvaged Dwarf Galaxias

### Recommendations

The primary concern with the retained north-south drain and the areas where the salvaged Dwarf Galaxias were released is to ensure that the drain's hydrological regime and water levels are maintained so suit the species. Key to this is ensuring this is water and areas of permanent refuge during the drier tie of year. Monitoring of water levels and quality should be undertaken regularly (ideally monthly) and action taken to add water if the drain starts to dry.

In accordance with the project's Salvage and translocation Plan (Aquatica Environmental 2015) population monitoring should now begin to occur. The plan requires that surveys be undertaken annually during November or December. Accordingly, the next round of survey at the site should occur in November/December 2017.

If you have any questions or would like to discuss this report or any other matter further, please do not hesitate to call me on 0413 935 497. I look forward to continuing to supporting Narre Warren central and The Fidus Group and working with you on this project.

Kind Regards,



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## References

Aquatica Environmental (2015). Dwarf Galaxias Salvage and Translocation Plan for 96 – 166 Centre Road, Narre Warren. Plan prepared for Narre Warren Central Pty Ltd c/- The Fidus Group Pty Ltd. January 2015.

BOM (2016). Daily Weather Observation for Cranbourne Botanic Gardens {station 086375}. Australian Government Bureau of Meteorology. Available online at: <http://www.bom.gov.au/climate/dwo/IDCJDW3019.latest.shtml>. Last accessed: 6 October 2016.

Streamline Research (2014). Dwarf Galaxias Survey. Streamline research Pty Ltd, Melbourne.