Green and Golden Frog Protocol

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1. Context

The planning and approvals phase for irrigation schemes developed by Tasmanian Irrigation (TI) contains comprehensive environmental assessments of each proposed project. The environmental assessments include the identification of habitat for green and golden frogs (*Litoria raniformis*) which is listed under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and the *Threatened Species Protection Act 1995 (TSP Act)*.

The protocol has been prepared in accordance with the Threatened Species Section, *Species Management Profile for Green and Gold Frogs,* prepared by the Department of Natural Resources and Environment Tasmania and thedocument *Department of State Growth (2015), Green and Golden Frog (Litoria raniformis) Management Guidelines, report prepared by GHD*. Further details are outlined in this document including information relevant to the project life cycle. This protocol focuses on the construction phase only, and further details can be found in the guidelines.

2. Protocol Objectives

The objectives of the protocol are:

1. To minimise harm to green and golden frogs during construction activities; and
2. To ensure that there is no significant impact on the species.

3. Management of the Protocol

The protocol will be managed by TI's Ecologist with oversight from the General Manager Environment Health and Safety and project teams. The persons who hold these positions must have a working knowledge of the *EPBC Act*, *TSP Act* and the *Nature Conservation Act 2002* (NC Act) and hold current permits for the capture and translocation of the green and gold frog. All personnel involved in the implementation of the Protocol will be suitably qualified and have experience in freshwater ecology and animal handling.

4. Pre-construction Phase

During the pre-construction phase, the contractor must incorporate all biodiversity objectives, including any fauna sensitive design requirements, into their Construction Environmental Management Plan (CEMP), for TI approval. The contractor shall ensure adequate training of staff on the CEMP requirements.

5. Construction Hygiene

The Tasmanian Government has produced a set of guidelines titled "*Keeping it Clean – A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*" (Allan & Gartenstein 2010). This document sets a series of hygiene protocols for individual persons and machinery. This is required to manage the risk associated with transmitting Amphibian Chytrid Fungus (*Batrachochytrium dendrobatidis*). Contractors should implement measures from these guidelines during all construction activities.

6. Transportation away from construction activities

Green and Gold Frog habitat can include both 'known' habitats and potential. Breeding habitat for the Green and Gold Frog can include still or slow-moving water bodies (lagoons, lakes, farm dams, ponds,

irrigation channels, swamps, and slow-moving sections of rivers and streams). In most cases habitat does not necessarily include all roadside ditches or general low-lying areas.

As it may not be possible to avoid all frog habitats as part of the construction activities, a clearance survey should be conducted prior to any works occurring in identified green and golden frog habitat.NRE Tasmania needs to be engaged as a clearance survey may trigger the need for additional threatened species permits.

Once the construction through a waterbody (which includes ephemeral waterbodies in a wet or dry state) has been determined and fenced off appropriately, green and golden frogs that remain within the construction zone will need to be captured and moved out of harm's way using the measures outlined below. This includes both adult frogs and tadpoles.

6.1 Adult frogs and terrestrial metamorphs

Within the week prior to commencement of construction activities through a waterbody, concerted efforts should be made by qualified ecologists to detect, and capture threatened frogs (and other ground-dwelling fauna within the construction area), using active searching techniques.

If construction is to occur through a waterbody during the breeding season for the green and golden frog, and the environmental conditions at the time are conducive to increased frog activity (i.e., warm and wet nights), then nocturnal searches for the species should also be made prior to construction, to maximise the chances of detecting and clearing frogs from the construction zone.

6.2 Tadpoles and aquatic metamorphs - non-linear waterbody (i.e., wetland, pond, dam)

If a non-linear waterbody (i.e., wetland, pond, dam) is intercepted by the construction zone and needs to be drained before construction, then tadpoles and aquatic metamorphs of the green and golden frog will need to be removed from the waterbody and relocated to the nearest available suitable aquatic habitat, according to pre-determined handling protocols and Amphibian Chytrid Fungus protocols (see Section 6.3). Prior to any relocation, testing of both source and receiving populations for Chytrid Fungus is required.

The optimal method for this would be to commence pumping of the surface water to reduce the size and volume of the waterbody, to concentrate tadpoles and other aquatic fauna into a smaller area/volume. This should be done in the presence of a qualified ecologist, so that the pumping process can be slowed or stopped if it is believed to pose a threat to fauna (particularly the green and golden frog and its tadpoles). The intake for water extraction will need to be within 15 cm of the water surface at all times, and pumping will need to be done using a safe and effective filter system to prevent fauna from being sucked into the pump. The filter could be as simple as a fine mesh fenced enclosure that is installed around the water pump inlet, as long as it effectively excludes fauna.

Once the effective size of the waterbody has been reduced to the satisfaction of the supervising ecologist, pumping should be halted and dipnets and/or seine nets used to extract tadpoles from the water. When the waterbody has been cleared of fauna to the satisfaction of the ecologist, then the pumping process should continue until the waterbody is de-watered. If green and golden frog tadpoles (or other hylid tadpoles that could be green and golden frogs – tadpoles can be very difficult to identify in the field) are captured, then they would be moved to a nearby safe location. Collected tadpoles

would be stored temporarily and transported in low densities (no more than 5 large or 20 small tadpoles per litre) in well aerated containers of pond water.

6.3 Tadpoles and aquatic metamorphs – linear waterbody (i.e., stream, channel, drainage line)

If a linear waterbody (i.e., stream, channel, drainage line) is intercepted by the construction zone, and upstream water is to be dammed and then pumped around the construction area to the downstream side of the construction zone, then no collection of tadpoles will be required. In that case, the construction process is expected to create a temporary barrier to tadpoles' dispersal, but the likelihood of significant tadpole mortality or injury is considered to be relatively low. The water-pumping process for a linear waterway would still need to be done within 15 cm of the water's surface and using an effective filter system to prevent fauna from being sucked into the pump.

6.4 Chytrid management during capture and release of frogs

Measures to avoid the spread of the Amphibian Chytrid Fungus must be implemented during the animal-handling process only. Chytrid often occurs in a mosaic pattern within the landscape, with infected and uninfected ponds occurring within close proximity of one another. Given this, a risk assessment needs to be completed to ascertain the potential to distribute Amphibian Chytrid Fungus. For example, if the waterway is downstream, within the same catchment, the risk of spreading Amphibian Chytrid Fungus would be small. However, if the habitat is located in a separate catchment, the risk would be much higher. Where there is a medium to high risk of spreading Amphibian Chytrid Fungus, testing needs to be completed before translocation can occur.

7. References

Allan, K. & Gartenstein, S. (2010) Keeping it Clean - A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens. NRM South. ISBN: 978-1-921082-09-2.

Department of State Growth (2015), Green and Golden Frog (Litoria raniformis) Management Guidelines, report prepared by GHD

Threatened Species Section (2023). Green and Gold Frog (Litoria raniformis): Species Management Profile for Tasmania's Threatened Species Link. https://www.threatenedspecieslink.tas.gov.au/Pages/Green-and-Gold-Frog.aspx Department of Natural Resources and Environment Tasmania. Accessed on 27/2/2023.