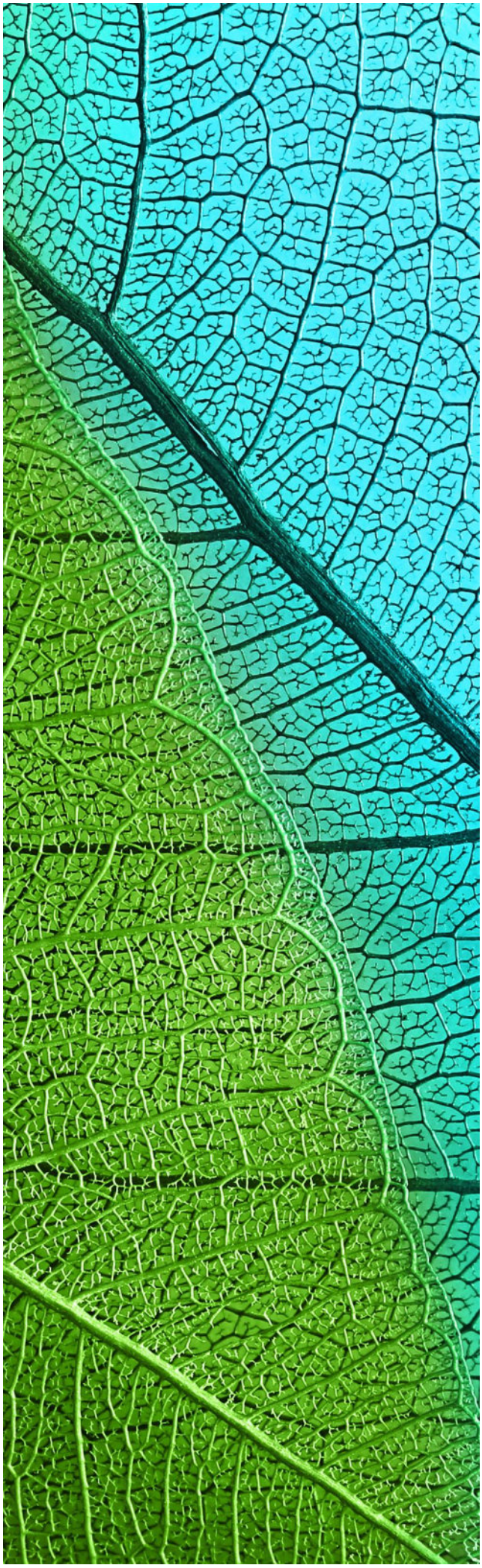

485 Cooper St, Epping

Growling Grass Frog Salvage and Relocation Plan

Prepared for GPT

March 2024
Report No. 22076.12 (1.1)

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1. Executive summary

GPT has engaged Nature Advisory to draft a Growling Grass Frog *Litoria raniformis* salvage and relocation plan for 485 Cooper St, Epping. This site, that is to be developed into a commercial estate, contains potential habitat for Growling Grass Frog (GGF). GGF are listed Vulnerable under the Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999.

A salvage and relocation plan for the species formed part of the conditions of approval for the planning permit for the proposed development. The proposed development involves the removal of areas of potential GGF habitat from the site so a salvage and relocation plan is required to ensure that individual GGF are moved to suitable nearby habitat before the development occurs.

Targeted surveys in February 2023 and a habitat assessment for GGF have previously been completed for the site. No GGF were observed (Nature Advisory 2023a and 2023b), and two areas of potential habitat were identified (Figure 1).

A summary of this Growling Grass Frog (GGF) salvage and relocation plan is detailed in Table 1.

2. Introduction and Methods

GPT will be developing land at 485 Cooper St, Epping, constructing a commercial estate there. The land was formerly used for quarrying and as a golf course but has been unused for many years. It is situated immediately east of Merri Creek. There are two ponds of permanent water on-site – a rocky one at the bottom of a quarry in the northwest of the site, and one largely covered with emergent aquatic vegetation in the centre-west of the site.

Merri Creek houses a population of Growling Grass Frogs (GGFs) (EPBC Act: Vulnerable), defined as important in the recovery plan for the species. Impacts to this population are therefore likely to be considered a significant impact to the species under the EPBC Act (DoE 2013). The two ponds on-site were previously considered to be potential habitat for GGF (Figure 1). Targeted surveys at these sites did not detect the species (Nature Advisory 2023a and 2023b). Nevertheless, because of their close proximity to Merri Creek, it was considered future dispersal into the site was possible. Therefore, to avoid significantly impacting the species, GPT were asked to ensure the species was salvaged and translocated from the site as part of the conditions of approval for their development.

The majority of the study area is treeless open grassland, heavily dominated by introduced pasture grasses and broad-leaf weeds. Interspersed throughout the study area were various sized patches of native grassland vegetation. The highest quality native grassland vegetation was in the south-east of the study area. Other areas of native vegetation included scattered patches of degraded escarpment shrubland associated with the walls of the two quarry voids, as well as along the escarpments beside Merri Creek. Some small patches of wetland and marsh are associated with damp areas at the bottoms of the two quarry voids and along drainage lines. Riparian woodland occurs along the length of the Merri Creek between the creek and the escarpments. One small patch of woodland occurs in the south-east of the study area.

Some 28 disjunct areas of native vegetation comprising Heavier-soils Plains Grassland (EVC 132_61), Escarpment Shrubland (EVC 895), Plains Grassy Woodland (EVC 55_61), Tall Marsh (EVC 821), Plains Grassy Wetland (EVC 125) and Riparian Woodland (EVC 641) were identified in the study area. Large trees in patches were restricted to vegetation along the bank of Merri Creek. Two scattered trees were recorded in the extreme north-east of the study area as small River Red-gum trees.

A habitat assessment for GGF was conducted on the 22nd of February 2023 to determine suitable habitat within the development site (Nature Advisory 2023a and 2023b). Two areas were identified as potential GGF habitat (Figure 1). Site 1 was a small, shallow waterbody located in the abandoned quarry vegetated with a mixture of cumbungi and sedges with many large boulders in the vicinity that could provide shelter. Site 2 was a small, isolated waterbody vegetated with cumbungi and reeds; this site is further than 200 meters from the Merri Creek. Both waterbodies were populated with common frog species and tadpoles (Figure 1) (Nature Advisory 2023a and 2023b).

It is assumed that GGF inhabit the adjacent section of Merri Creek, at least from time to time, so the survey was focussed on the development area only. Site 1 is considered to be moderate quality habitat for GGF due to its location within 200 metres of Merri Creek, it's potential to be inundated regularly, and the availability of sheltering opportunities. While Site 2 is considered to be low-moderate quality for GGF, due to its small size and distance from Merri Creek.

The currently proposed development footprint assumes full removal of all vegetation within the development footprint area. This will result in the loss of a total extent of approximately 4.106 hectares of native vegetation as represented in Figure 3 and documented in the Native Vegetation Removal (NVR) report scenario test (Appendix 5).

Targeted surveys for GGF were conducted in February 2023 and no GGf were observed (Nature Advisory 2023b). The timing of the survey, February 2023 was outside the calling period for the GGF this season. Before each of the surveys began, areas of known GGF populations were visited to ascertain whether or not GGF were calling. On both occasions no GGF were recorded calling. The conditions were considered very good for GGF with mild temperatures medium to high humidity and none to very little wind (Nature Advisory 2023b). GGF could be present, and the targeted surveys may not have detected the species as they were not calling within the known reference site.

GPT engaged Nature Advisory to draft the Growling Grass Frog Salvage and Relocation Plan for 485 Cooper St, Epping. Existing information and guidelines on the species were consulted in the preparation of this plan, including the recovery plan for the species (Clemann and Gillespie 2012), the significant impact guidelines for the species (DEWHA 2009), previous assessments and information about the site including targeted surveys for GGF (Nature Advisory 2023 a and 2023b), and examples of existing salvage and relocation protocols for the species (Nature Advisory 2022, EHP 2011, 2022).

Figure 1: Growling Grass Frog habitat

Project: 485 Cooper Street, Epping
Client: The GPT Group
Date: 9/03/2023

Study area
Conservation area
GGF survey point
Potential GGF habitat

N

Metres
0 70

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3. Salvage and Relocation Plan

This Salvage and Relocation Plan for Growling Grass Frog can be split into two different phases: Pre-construction, and Construction. The actions for each phase are detailed in Section 3.1. and 3.2. below, and summarised in Table 1 in Section 3.3.

3.1. Pre-construction Phase

3.1.1. Sediment fences

Best practice erosion and sediment control measures will be employed. This includes the following:

- The use of sediment fences erected down slope of exposed soil and stockpiles to prevent sedimentation, particularly where water bodies or watercourses exist down slope.
- Sediment fencing will be erected around areas of potential GGF habitat to be removed within the Construction Footprint. The location of the fencing is shown in Figure 2.
- Sediment fencing is to be installed prior to construction commencing. Where sediment fencing is erected around areas of potential GGF habitat to be removed, it is to be installed prior to the pre-clearance GGF salvage and relocation survey. Sediment fencing will be maintained and remain in place until construction activities are completed in the relevant stage.
- Sediment fencing must be made of cloth or plastic material and be able to withstand variable weather over long periods.
- Fencing must be at least one metre high and extend 0.2 m underground (they must be pegged or trenched in).
- An additional 0.2 m at the top of the fence must be angled at <90 degrees to the vertical to prevent frogs from climbing or jumping over.
- No refugia should be permitted within one metre of the fence. Vegetation within one metre of the fence must be <0.5 m tall, to prevent frogs from breaching the fence. Vegetation must be maintained beneath this height over time, such that it is never >0.5 m high within one metre of the fence.
- The fence must be taut, without creases or folds.
- Fence is to be regularly inspected to ensure it has remained within the required specifications. Inspections must occur daily.
- Immediate repair (i.e. within 18 hours) of any gaps in, or under, sediment fencing.
- Any debris or litter caught in the fence that could assist in frogs breaching the fence shall be removed.
- Stockpiles will be minimised.

3.1.2. Pre-clearance Growling Grass Frog salvage and relocation survey

Immediately prior to construction commencing (irrespective of the time of year), a pre-clearance salvage and relocation survey of the Construction Footprint for GGF must be undertaken by a suitably qualified individual (zoologist), licensed by DEECA (under the Wildlife Act) with knowledge of and demonstrated experience in frog relocation methods. This survey must involve the following.

- Spotlighting and call-playback surveys for the species, in accordance with existing survey guidelines for the species (DEWHA 2009). This would involve surveying the habitat around GGF survey points 1 and 2 (Fig. 1) for approx. 90 minutes each on two separate nights. The surveys must be conducted from November-March, where daytime temperatures exceeded 15°C, and nighttime temperatures exceed 12°C, with moderate-no wind.

- If the species is detected, any individuals found during the survey must be immediately salvaged and translocated, and systematic active searching for individuals must be completed afterwards within potential habitat in the Construction Footprint. The active search must target likely sheltering sites such as underneath debris, logs, rocks and emergent aquatic vegetation, if any, within the Construction Footprint. All potential habitat for the species within the Construction Footprint must be actively searched.
- Notes on habitat description within the Construction Footprint will also be recorded as part of the pre-clearance surveys.
- Should GGF be encountered they will be immediately salvaged and translocated to suitable habitat such as dense vegetation, under rocks or under woody debris.
- During relocation works, any incidentally captured fauna such as other frog species, reptiles or small mammals, will also be removed from harm. Any other person assisting in relocation works will work under the close supervision of the individuals listed on the permit.
- Dewatering of quarry voids must occur prior to construction. During dewatering fauna handlers will safely capture and relocate native fauna that may be present.
    - To avoid injury to aquatic fauna, dam dewatering must be initially conducted by siphon, and not pump or mechanically driven water removal. Fauna that is siphoned out will be caught in a holding area, that is, an adjacent low area (not within the downstream water channel). The siphon holding area will be fitted with a fine micron mesh to allow filtered water to pass through but not allow fish or juvenile fish pest species or eggs to pass through. The rate of water flow through the holding area will not permit over-land flow to reach remaining waterbodies.
    - The animal handler will capture and relocate fauna as the quarry void water level drops. Appropriate animal handling equipment such as nets must be prepared prior to dewatering. Disturbed fauna are to be captured and relocated, as required.
    - Once satisfied all reasonable efforts have been made to capture fauna prior to the use of a suction pump or by mechanical water removal, the animal handler will advise the site manager to remove any remaining water and silt as they see fit.
    - If a significant amount of water remains when this decision is made (e.g. if the dam refills overnight), any suction hose used to dewater the dam is to have a sponge or another suitable filter cage on the end within the water column to prevent fauna inadvertently being sucked into the pump.
    - Any injured fauna are to be managed according to the Australian code of practice for the care and use of animals for scientific purposes (NHMRC et al., 2004), either for rescue or euthanasia.
    - Identified pest species (i.e. *Gambusia holbrooki*), if captured, should not be relocated or returned to the site. They are to be euthanised.
- A suitably qualified individual must handle the frog using the following procedures:
    - If no water is available for washing hands before starting surveys, a sterilising alcohol-based hand disinfectant will be used, such as AquaGel.
    - Gloved hands will be dipped in the local water (i.e. the water from the nearest potential habitat pond) to minimise loss of skin secretions from individuals.
    - Amphibians will be handled and released as quickly as possible, and always within 1 hour of capture. Unused disposable latex gloves will always be used when handling frogs. A new pair of gloves will be used for each individual.
    - No more than one individual will ever be held in the same container simultaneously. A new bag or sterilised container will be used for each individual and containers/bags will not be

reused. Containers/bags holding frogs will be stored in a cool place out of direct sunlight until they are released.

- All amphibians will be regarded as a high infection risk and will be handled in the above manner.
- The relocation of individuals between habitats could pose threat to an existing population by spread of disease such as Chytrid fungus (DSE 2010). Therefore, all fauna species captured will be released in the same watercourse it was located from, or their likely watercourse of origin, to avoid spreading disease. In this case, it is Merri Creek.
- All captured frogs (and other fauna species) during construction will be released in the nearest suitable habitat from the development. In this case, this is Merri Creek, located approx. 250 m west of the development.
- Healthy captured frogs will be released as soon as possible (always within 1 hour of capture), in nearby habitat that will not be impacted by the proposed works. Frogs will be released in dense vegetation, under rocks or under woody debris. Care will be taken to minimise disturbance of habitat features to prevent impacting other Growling Grass Frogs that may potentially be within the area.
- Habitat to which frogs are relocated should include adequate deep water (>0.5 m) and at least partial dense, fringing vegetation or beneath rocks for shelter.
- If a sick, dying or freshly dead wild amphibian is found, it will be collected, preserved and submitted for disease diagnosis as advised by DEECA.
- Sick or dying amphibians will be identified as those whose appearance or behaviour shows one or more of the following signs (taken from DECC 2008):
    - Darker or blotchy upper dorsal surface
    - Reddish/pink-tinged lower (ventral) surface and/or legs and/or webbing or toes
    - Swollen hind limbs
    - Very thin or emaciated
    - Skin lesions (sores, lumps)
    - Infected eyes
    - Lethargic limb movements
    - Abnormal behaviour (i.e. a nocturnal, burrowing or arboreal frog sitting out in the open during the day and making no attempt to move when approached)
    - Little or no movement when touched

** Hygiene protocols should be guided by the best available scientific evidence. This protocol was adapted from Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 'Hygiene protocols for the control of diseases in Australian frogs' (Murray et al. 2011).*

- Before commencing salvage and relocation surveys, zoologists performing the survey are to obtain the contact details of the nearest wildlife carer and veterinarian.
- If an individual does not appear sick, but does appear injured or distressed, the zoologist may intervene. This may include:
    - Continuing to watch the individual until recovery is apparent;
    - Pause of any activities that may cause further stress;
    - Recapture of the individual and transport to a veterinarian or wildlife carer; and/or

- Immediate euthanasia in the case of severe injury, using methods outlined in the zoologists' Animal Ethics Permit.

- Signs of distress by which the zoologist may assess the situation and need for intervention include:
  - Fast, shallow breathing; and/or
  - Temporary unresponsiveness or listlessness.
  - Animals displaying both of these indicators, or one of them to an extreme degree or a prolonged period of time, will be considered distressed or potentially injured.

- Once relocation is complete, works may commence. A report to DEECA will need to be prepared under the terms of any licence to translocate. A suitably qualified zoologist licensed by DEECA (under the Wildlife Act) will report activities to DEECA in a manner and timeframe specified by the *Wildlife Act 1975* licence requirements. The report will include:
  - Area of habitat salvaged;
  - Number of individuals found;
  - Number relocated;
  - Relocation sites;
  - Number of dead specimens; and
  - Records of non-target species are to be kept (location, species, number of individuals etc.) and forwarded to DEECA.

3.2. During construction

3.2.1. Hygiene Controls

The GGF hygiene protocols must be implemented, within areas of potential habitat for the species and the Conservation Area, during the entire period of the construction phase of the project.

Hygiene controls will be implemented during the construction period to reduce the potential introduction and spread of the infectious disease *Chytridiomycosis* between amphibians, which is caused by a Chytrid fungus that attacks the frogs' skin. Chytrid fungus is listed as a key threatening process under the EBPC Act.

Best-practice measures will need to be implemented. Hygiene controls will be in accordance with the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) *'Hygiene protocols for the control of diseases in Australian frogs'* (Murray *et al.* 2011).

To prevent the spread of this pathogenic organism, the following hygiene protocol will be undertaken:

- All plants, equipment, tools and vehicles will be disinfected with bleach (active ingredient Sodium Hypochlorite at 4%) diluted 1 in 4 (to give a 1% solution) at a designated wash down bay prior to entering the Conservation Area as this is Growling Grass Frog habitat.

All plant, equipment and vehicles must be sprayed/flushed initially with water and then with a disinfecting solution and recorded in a wash-down log book. All vehicles accessing the Construction Footprint must have wheels and tyres cleaned and disinfected. This should be carried out at a designated wash down bay. Spraying with bleach (active ingredient Sodium Hypochlorite at 4%) diluted 1 in 4 (to give a 1%

solution) is required to disinfect car wheels and tyres. Cleaning of footwear before getting back into the car will prevent the transfer of pathogens from/to vehicle floor and control pedals.

- All people entering and exiting the Conservation Area must use the boot wash station at the designated wash down bay to disinfect their footwear with bleach (active ingredient Sodium Hypochlorite at 4%) diluted 1 in 4 (to give a 1% solution) as the area is Growling Grass Frog habitat.

Footwear must be thoroughly cleaned and disinfected at the commencement and completion of work each day and when entering or exiting the construction site. This can be achieved by initially scraping boots clear of mud, washing all mud and soil off the boots, and standing the soles in a disinfecting solution of bleach (active ingredient Sodium Hypochlorite at 4%) diluted 1 in 4 (to give a 1% solution). The remainder of the boot should be rinsed or sprayed with a disinfecting solution of bleach (active ingredient Sodium Hypochlorite at 4%) diluted 1 in 4 (to give a 1% solution).

Disinfecting solutions must be prevented from entering any water bodies.

3.2.2. Construction Personnel Briefing

All key construction personnel will be briefed about the potential occurrence of GGF in the area. Other construction personnel will be informed about the species as part of the general environmental briefing of construction personnel. Information brochures have been prepared on this species for distribution to all site personnel providing a physical description of the species, their population distribution, habitat and similar species (see GGF brochure at Appendix 1).

3.2.3. Growling Grass Frog salvage and relocation

Should GGF be encountered during construction:

- All construction activities will cease until the frog has been secured under a large bucket or plastic box (or similar) that must be placed carefully over the animal. Construction activities, except within 50 metres of the secured frog, can resume once the location of the secured frog has been temporarily fenced with para-webbing or similar and signed as a No-go Zone.
- A thorough search of an area with a radius of 50m around the site where the frog was found is to be undertaken by a suitably qualified zoologist, including a search of any potential overwintering refuge areas present within this radius.
- No handling of frogs is to be undertaken by construction personnel without the relevant license.
- Nature Advisory is to be contacted immediately on 9815 2111. Alternatively, Wildlife CSI is to be contacted on 0431 252 477.
- A suitably qualified individual, licensed by DEECA (under the Wildlife Act) with knowledge of and demonstrated experience in GGF relocation methods, must be appointed as the supervisor of the relocation operation.
- During relocation works, any incidentally captured fauna such as other frog species, reptiles or small mammals, will also be removed from harm. Any other person assisting in relocation works will work under the close supervision of the individuals listed on the permit.
- A suitably qualified individual must handle the frog using the following procedures:
    - If no water is available for washing hands before starting surveys, a sterilising alcohol-based hand disinfectant will be used, such as AquaGel.
    - Gloved hands will be dipped in the local water (i.e. the water from the nearest potential habitat pond) to minimise loss of skin secretions from individuals.
    - Amphibians will be handled and released as quickly as possible, and always within 1 hour of capture. Unused disposable latex gloves will always be used when handling frogs. A new pair of gloves will be used for each individual.
    - No more than one individual will ever be held in the same container simultaneously. A new bag or sterilised container will be used for each individual and containers/bags will not be reused. Containers/bags holding frogs will be stored in a cool place out of direct sunlight until they are released.
    - All amphibians will be regarded as a high infection risk and will be handled in the above manner.
    - The relocation of individuals between habitats could pose threat to an existing population by spread of disease such as Chytrid fungus (DSE 2010). Therefore, all fauna species captured will be released in the same watercourse it was located from, or their likely watercourse of origin, to avoid spreading disease. In this case, it is Merri Creek.
    - All captured frogs (and other fauna species) during construction will be released in the nearest suitable habitat from the development. In this case, this is Merri Creek, located approx. 250 m west of the development.
    - Healthy captured frogs will be released as soon as possible (always within 1 hour of capture), in nearby habitat that will not be impacted by the proposed works. Frogs will be released in dense vegetation, under rocks or under woody debris. Care will be taken to minimise disturbance of habitat features to prevent impacting other Growling Grass Frogs that may potentially be within the area.

- Habitat to which frogs are relocated should include adequate deep water (>0.5 m) and at least partial dense, fringing vegetation or beneath rocks for shelter.
- If a sick, dying or freshly dead wild amphibian is found, it will be collected, preserved and submitted for disease diagnosis as advised by DEECA.
- Sick or dying amphibians will be identified as those whose appearance or behaviour shows one or more of the following signs (taken from DECC 2008):
    - Darker or blotchy upper dorsal surface
    - Reddish/pink-tinged lower (ventral) surface and/or legs and/or webbing or toes
    - Swollen hind limbs
    - Very thin or emaciated
    - Skin lesions (sores, lumps)
    - Infected eyes
    - Lethargic limb movements
    - Abnormal behaviour (i.e. a nocturnal, burrowing or arboreal frog sitting out in the open during the day and making no attempt to move when approached)
    - Little or no movement when touched

** Hygiene protocols should be guided by the best available scientific evidence. This protocol was adapted from Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 'Hygiene protocols for the control of diseases in Australian frogs' (Murray et al. 2011).*

- Before commencing salvage and relocation surveys, zoologists performing the survey are to obtain the contact details of the nearest wildlife carer and veterinarian.
- If an individual does not appear sick, but does appear injured or distressed, the zoologist may intervene. This may include:
    - Continuing to watch the individual until recovery is apparent;
    - Pause of any activities that may cause further stress;
    - Recapture of the individual and transport to a veterinarian or wildlife carer; and/or
    - Immediate euthanasia in the case of severe injury, using methods outlined in the zoologists' Animal Ethics Permit.
- Signs of distress by which the zoologist may assess the situation and need for intervention include:
    - Fast, shallow breathing; and/or
    - Temporary unresponsiveness or listlessness.
    - Animals displaying both of these indicators, or one of them to an extreme degree or a prolonged period of time, will be considered distressed or potentially injured.
- Once relocation is complete, works may commence. A report to DEECA will need to be prepared under the terms of any licence to translocate. A suitably qualified zoologist licensed by DEECA (under the Wildlife Act) will report activities to DEECA in a manner and timeframe specified by the *Wildlife Act 1975* licence requirements. The report will include:
    - Area of habitat salvaged;
    - Number of individuals found;
    - Number relocated;

- Relocation sites;
- Number of dead specimens; and
- Records of non-target species are to be kept (location, species, number of individuals etc.) and forwarded to DEECA.

3.3. Summary Table

Table 1: Summary of measures relating to this GGF salvage and relocation plan

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
Pre-Construction					
Sediment Fencing	Sediment fencing, doubling as frog-proof fencing, to be installed: ▪ Downslope of exposed soil and stockpiles, particularly where water bodies or watercourses exist down slope. ▪ Around areas of potential GGF habitat to be removed.	GGF habitat is not subject to sedimentation. GGF are prevented from entering or re-entering fenced areas of habitat designated for removal. To achieve this, fencing shall meet the following specifications: ▪ Made of plastic of fabric material than can withstand variable weather conditions over long periods. ▪ At least 1 m high, and 0.2 m deep (trenched or pegged in). ▪ Additional 0.2 m of fencing at top to be bent at <90 degrees to the vertical. ▪ No refugia <1 m from the fence. This should be searched for frogs and removed during the pre-clearance survey. ▪ Vegetation <1 m from the fence to be maintained <0.5 m high. ▪ Fence must be taut, without creases or folds.	Erect and maintain in appropriate areas until construction concludes in the relevant stage. Inspections to be done in the morning several times per week, with: ▪ Immediate repair (i.e. within 18 hours) of any gaps in, or under, sediment fencing. ▪ Removal of any debris or litter caught in fence that could assist frogs in breaching it.	Proponent or construction contractors	Logbook of inspections and repairs to be maintained for submission to DEECA and DCCEEW.

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
Fencing Inspections	Inspections to ensure sediment and frog-proof fencing remains sufficiently intact to achieve its objective	Sediment and frog-proof fencing remains in sufficient condition to achieve their objectives.	Inspections to be done in the morning several times per week, with: ▪ Immediate repair (i.e. within 18 hours) of any gaps in, or under, sediment fencing. ▪ Removal of any debris or litter caught in fence that could assist frogs in breaching it.	Proponent or construction contractors	Logbook of inspections and repairs to be maintained for submission to DEECA and DCCEEW.
Pre-clearance GGF salvage and relocation survey	Surveys for GGF within fenced areas of habitat to be removed, for the purposes of capturing and translocating them into nearby retained habitat where they will be safe from construction.	GGF are removed from areas of habitat to be removed, prior to the commencement of construction. To be achieved by conducting spotlighting and call-layback surveys for the species, in accordance with existing survey guidelines for the species (DEWHA 2009). If detected, any individuals encountered to be salvaged and translocated, and systemic active searching of potential shelters for individuals to be completed within fenced habitat areas to be removed. Any individuals found (or other incidentally encountered herpetofauna) to be moved to safe areas of adjacent suitable habitat as soon as possible. Such areas are:	Twice, on two separate nights, as close to the commencement of construction as possible.	Ecologist/Zoologist	Report to DEECA on salvage and relocation activities, including information on: ▪ Area of habitat salvaged ▪ No. of individuals found and relocated.

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
		▪ Areas that include adequate deep water (>0.5 m) and at least partial dense, fringing vegetation or beneath rocks for shelter. Diseases are not spread between GGF, other amphibian host species for chytrid fungus disease, or areas of GGF habitat. To be achieved by implementing the following hygiene protocols: ▪ Wash hands before survey. If no water is available, use an alcohol-based hand disinfectant (e.g. Aquagel). ▪ Unused disposable latex gloves to be used to handle each individual. No individuals should be handled with the same pair of gloves. ▪ No individuals to be held in the same container simultaneously. ▪ New bags or newly sterilised containers to be used to hold each individual between capture and release. No bags or containers to be reused. ▪ Habitat individuals are moved to must be in/along the same watercourse they were found in or are in/along their likely watercourse of origin – in this case, Merri Creek. ▪ Sick, dying or freshly dead wild amphibians will be collected, preserved and submitted for disease diagnosis as advised by DEECA. Signs of sickness detailed in Section 3.1.2.			▪ Relocation sites. ▪ No. of dead individuals found. ▪ Records of non-target species (location, species, no. of individuals).

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
Construction					
Hygiene Controls	A series of measures targeted towards the removal of soil and plants from, and the killing of chytrid fungus on, objects that could transfer these between sites. Such objects include footwear, plants, vehicles and equipment in contact with soil or water.	No diseases, particularly chytrid fungus, is spread to, from, or between areas of GGF habitat; biosecurity of the site is maintained. To be achieved by implementing the following hygiene controls (Murray et al. 2011): ▪ Plants, equipment, tools and vehicles (esp. car wheels and tyres) to be disinfected with bleach (active ingredient: sodium hypochlorite at 4%) diluted in a 1:4 ratio (giving a 1% solution). To be done at a designated wash-down bay prior to entering areas of GGF habitat. The wash-down bay must be located such that re-contamination does not have reasonable potential to occur between the wash-down bay and areas of GGF habitat. ▪ Personnel entering and exiting areas of GGF habitat must use a boot-wash station at the designated wash-down bay to disinfect their footwear with bleach (same concentration as for vehicles etc above). ▪ Footwear to be thoroughly cleaned and disinfected at commencement and completion of work daily when entering or leaving the construction site. Should be done by scraping footwear clear of mud, washing mud and soil off, and standing soles in bleach (same concentration as previously discussed). ▪ Disinfecting solutions (e.g. bleach) to be prevented from entering any water bodies or watercourses.	As needed – typically daily or multiple times per day, as appropriate.	All personnel accessing the site.	

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
Construction Personnel Briefing	Briefing of construction personnel on the potential occurrence of GGF in the area, to allow them to recognise the species upon encountering it so appropriate action can be taken to avoid harming individuals.	Construction personnel able to recognise GGF upon encountering them and initiate appropriate actions to avoid harming individuals, including the emergency GGF salvage and relocation protocol. To be achieved by: ▪ Direct briefing of key construction personnel. ▪ Briefing of other construction personnel during general environmental briefings. ▪ Distribution of information brochures to all site personnel describing the appearance of the species, population distribution, habitat and similar species (see GGF brochure in Appendix 1).	As appropriate. As a minimum, implemented such that all personnel entering the site are briefed, either individually or in a group, at least once.	Proponent. Ecologist can provide some briefing resources (see GGF brochure in Appendix 1).	
Emergency GGF salvage and relocation	Surveys for GGF in the immediate vicinity (50 m radius) of areas where one was encountered during construction. An effort to detect and translocate individuals that may have been overlooked or missed during pre-clearance surveys, to prevent them from being harmed by construction.	GGF are removed from areas of habitat to be removed, prior to the re-commencement of construction in the area where an individual was encountered. To be achieved by: ▪ Ceasing all works within a 50 m radius of the encountered individual. ▪ Informing the site manager, who is to call an ecologist or zoologist qualified to undertake GGF salvage and relocation. ▪ Placing a bucket or similar over the encountered individual to trap it until the ecologist or zoologist arrives and translocates it. ▪ Fencing off the area within a 50 m radius of the encountered individual with para-webbing or similar.	As appropriate – whenever a GGF individual is encountered within the construction site.	Construction personnel – responsible for recognising species and initiating emergency GGF salvage and relocation protocol. This includes: ▪ Ceasing works in the relevant area. ▪ Placing a bucket or similar over the encountered	Report to DEECA on salvage and relocation activities, including information on: ▪ Area of habitat salvaged ▪ No. of individuals found and relocated. ▪ Relocation sites. ▪ No. of dead individuals

Measure	Description	Performance Criteria	Frequency/Timing	Party Responsible for Implementation	Reporting Requirements
		▪ Systemic active searching by the zoologist or ecologist of potential shelters for individuals within a 50 m radius of the location of the encountered individual. Any individuals of this species or non-target herpetofauna species found will be dealt with in the same way as in pre-clearance surveys. The same hygiene protocols will be implemented as in pre-clearance surveys as well, including the collection, preservation, and submission of sick, dying or freshly dead amphibians for disease diagnosis.		individual. ▪ Informing the site manager. ▪ Fencing off the relevant area with para-webbing or similar. Proponent/site manager – responsible for: ▪ Calling qualified ecologist or zoologist. Ecologist/zoologist – responsible for implementation of emergency GGF salvage and relocation protocol, and associated reporting.	found. ▪ Records of non-target species (location, species, no. of individuals).

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Appendix 1: GGF brochure

Threats

The main threats to the species are habitat removal or disturbance; degradation, fragmentation and pollution of habitat (i.e. waterways or native vegetation), infection from Chytrid Fungus, and predation from introduced fauna. These impacts can result in local extinction of populations.

Conservation status

This species is listed as **vulnerable** under the federal *Environment Protection and Biodiversity Conservation Act 1999;* **threatened** under Victoria's Flora and Fauna Guarantee Act 1988 and **endangered** on DELWP's *Advisory List of Threatened Vertebrate Fauna in Victoria.*

Management and Recovery

If Growling Grass Frog are detected on your work site, stop work and contact Nature Advisory for directions to ensure you do not breach your legal obligations.

Do not harm or handle frogs. Frogs must be translocated from the site to an allocated recipient site by a suitably qualified ecologist with a permit to handle the species, in accordance with a Salvage and Translocation Plan prepared for the project.

Contacts

Injured frogs should be reported immediately to either of the following contacts

Nature Advisory
(03) 9815 2111

Melbourne Zoo
Elliott Avenue (PO Box 74), Parkville, 3052
(03) 9285 9300

Victorian Government
Department of Environment, Land, Water and Planning
136 186

Nature Advisory

Suite 5, 61-63 Camberwell Road,
Hawthorn East, Vic. 3123
P.O. Box 337, Camberwell, Vic. 3124
Ph. (03) 9815 2111

Growling Grass Frog

Litoria raniformis

Nature Advisory
Trusted ecology experts

Description

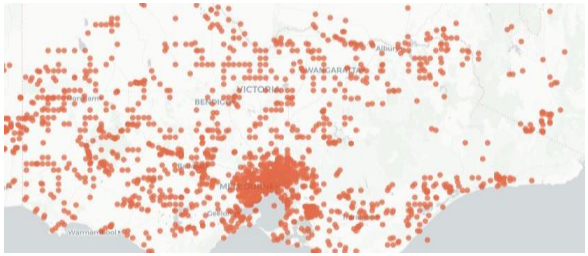
The Growling Grass Frog is a large ground-dwelling frog, growing to 104 mm in length.

It can be identified by:

- Blotchy or almost stripy colorings of bright to dull green and dull golden-brown, with a white under surface, sometimes with pale stripe down middle of head and back.
- Broad head with a fairly pointed, rounded snout.
- Conspicuous tympanum (ear) behind eyes
- Small discs on tips of fingers and toes.
- Un-webbed fingers but almost fully webbed toes.
- Distinctive low-pitched growling call ('cra-a-a-a-wk, crawk, cra-a-a-a-wk') during warm, wet nights in spring to autumn.

Distribution

This species inhabits woodlands, shrublands and flooded open plains or disturbed areas. It historically occurred across southeastern Australia, including southern NSW, Victoria (except the drier north-west and high country), southeastern SA, northeastern Tas. And the Murray Valley. Victorian populations have since declined to a few scattered colonies (Anstis 2013).



Growling Grass Frog records from Atlas of Living Australia

Habitat

The Growling Grass Frog breeds in spring and summer in permanent ponds, flooded plains, slow-flowing creek pools and the edges of lakes, dams or swamps that support fringing and submerged vegetation. Adults can disperse up to 1 to 2km away from water bodies when in search of mates or alternative water sources. During cooler periods, the Growling Grass Frog retreats under rocks or logs or in burrows near water bodies and enter a state of torpor (similar to hibernation).

Similar Species

Other frogs may be mistaken for the Growling Grass Frog. There are 13 species of frog that occur in Victoria's lowlands. The three species which are most similar in appearance to the Growling Grass Frog are shown below.

South-eastern Banjo Frog

Spotted Marsh Frog

Striped Marsh Frog

Source: www.aviceda.org

Reference List

Antis M 2013, *Tadpoles and Frogs of Australia,* New Publishers, London.