Environment Protection and Biodiversity Conservation Act 1999

draft referral guidelines for the vulnerable wallum sedge frog, *Litoria olongburensis*

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Front page photograph: wallum sedge frog. Photo by Mark Sanders (EcoSmart Ecology).

Important notice

Please note that these guidelines are general in nature and do not remove your obligation to consider whether you need to make a referral to the federal environment minister under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). While these guidelines provide information to help you decide whether to refer your action, the possible impacts of your proposal will depend on the particular circumstances of the action. These circumstances may include issues such as the precise location, mitigation measures and indirect impacts.

These guidelines were developed on the basis of the best information available at the time of writing. However, impacts of proposals will be assessed by the department on the basis of the best information available at that point in time, which may differ from the information on which these guidelines are based.

These guidelines do not provide guidance on requirements under state and local government laws. Information on Queensland, New South Wales and local government council laws can be obtained from the Queensland Department of Environment and Resource Management, the New South Wales Office of Environment and Heritage, and local councils in or near the proposed project area, respectively.

How to use these guidelines

These guidelines are intended to assist you in determining whether your action needs to be referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities (the department). These guidelines should be read in conjunction with EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance.

These guidelines apply to the wallum sedge frog, *Litoria olongburensis*, anywhere it may occur in Australia. The wallum sedge frog is listed as a vulnerable species under the EPBC Act. Listed threatened species and ecological communities are matters of national environmental significance under the EPBC Act.

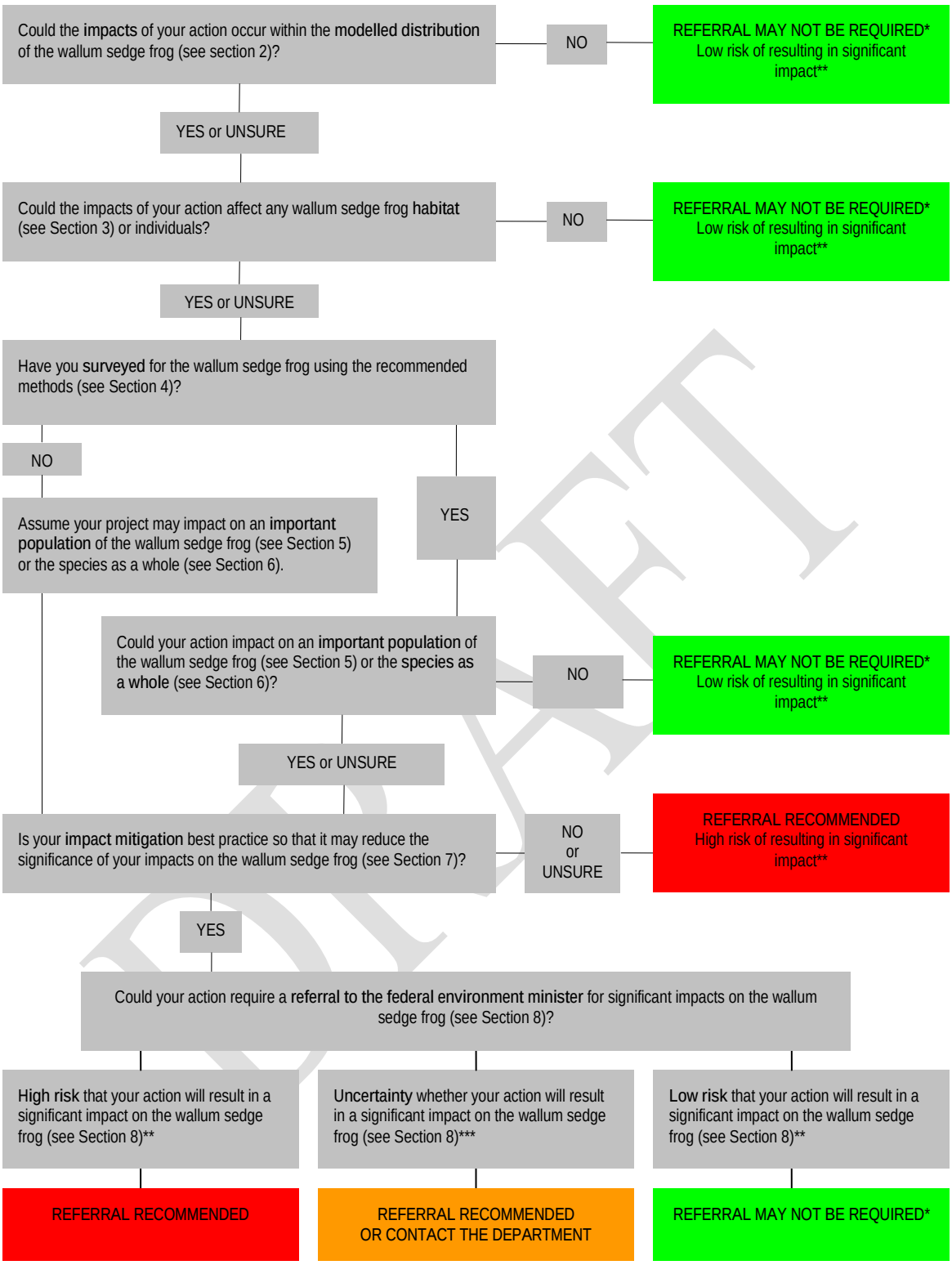
If you plan to undertake an action that has, will have or is likely to have a significant impact on the wallum sedge frog you must refer the proposal to the minister before commencing. The minister will then decide, within 20 business days, whether assessment is required under the EPBC Act. The potential significance of each action is judged on a case-by-case basis. Substantial penalties apply for undertaking an action, to which the EPBC Act applies, without approval (civil penalties up to $5.5 million or criminal penalties including up to seven years imprisonment). More information on referral, assessment and compliance is available at www.environment.gov.au/epbc/.

The decision tree in Figure 1 and the rest of these guidelines are designed to assist you in determining whether your proposed action needs to be referred. You may also refer your proposed action if you are uncertain about the need to refer, or if you think the proposal would not have significant impacts on matters of national environmental significance, but would like legal certainty.

Possible exceptions to the need to refer

Certain actions are exempt from the requirement of assessment and approval under the EPBC Act. These include lawful continuations of land use that started before 16 July 2000, or actions that were legally authorised before 16 July 2000. There are a number of criteria that must be satisfied to rely on any such exemptions. More information on exemptions under the EPBC Act is available at www.environment.gov.au/epbc/publications/exemptions.html.

Figure 1: Decision making



* Although it would appear a referral may not be required, you may still refer your proposed action if unsure, or if you think the proposal would not have significant impacts on matters of national environmental significance, but would like legal certainty. An example may be when other matters of national environmental significance, in addition to wallum sedge frog, are potentially affected.

** Risk is the chance of something happening that will have a [significant] impact on objectives [e.g. protecting matters of national environmental significance] (adapted from Australian / New Zealand Risk Management Standard 4360: 2004).

*** If you are uncertain about the need to refer then you may also contact the Department to discuss your action by emailing epbc.referrals@environment.gov.au

1. What is known about the wallum sedge frog?

The wallum sedge frog (*Litoria olongburensis*), also known as the sharp-snouted reed frog or the Olongburra tree frog, is a small species belonging to the tree-frog family. It is found in wallum swamps and surrounding vegetation types in coastal south-east Queensland and north-east New South Wales (see Section 3). The species exhibits significant genetic differentiation and structuring from north to south along the species' distribution (see Section 2).

The number of wallum sedge frogs, and the extent and overall quality of species' habitat, is estimated to have greatly diminished with increasing human activity across its distribution. With the species confined to coastal wallum environments, populations are becoming increasingly isolated as a result of habitat loss, fragmentation and degradation. Populations along the mainland coast are becoming highly fragmented and may be at greater risk of local extinction because of the decreasing likelihood of immigration, genetic influx and reduced resilience against the effects of adverse environmental events (e.g. fire, flood or drought).

Further information on the wallum sedge frog is provided in the department's Species Profile and Threats (SPRAT) database.

2. Could the impacts of your action[1] occur within the modelled distribution of the wallum sedge frog?

The current distribution of the wallum sedge frog occurs along a narrow coastal area between Fraser Island, Queensland, and Woolgoolga, New South Wales (see Map 1). The species is known also to occur on several offshore sand islands, including Bribie, Moreton and North Stradbroke Islands.

The mapped distribution of the wallum sedge frog, presented in Map 1, is based on the best available information at the time of publication of his document and remains a static product. For the most up-to-date report of whether the species may occur in your project area, always use the Protected Matters Search Tool.

[1] When considering whether or not your action will have a significant impact on the wallum sedge frog, it is relevant to consider all adverse impacts from the action, including direct, indirect and offsite impacts such as downstream or downwind impacts, upstream impacts and facilitated impacts (impacts that result from further actions, which are made possible or facilitated by the action).

Map 1: The modelled distribution of the wallum sedge frog (*Litoria olongburensis*)

INDICATIVE MAP ONLY: For the latest departmental information, please refer to the Protected Matters Search Tool at www.environment.gov.au/epbc/index.html

0 20 40 60 80 100 km

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Produced by: Environmental Resources Information Network (ERIN)

Contextual data sources:
DEWHA (2006), Collaborative Australian Protected Areas Database
Geoscience Australia (2006), Geodata Topo 250K Topographic Data

Legend

- Species Known/Likely to Occur
- Species May Occur
- Cities & Towns
- Built Up Areas
- Major Rivers
- Perennial Lake
- Non-perennial Lake

3. Could the impacts of your action affect habitat for the wallum sedge frog?

The wallum sedge frog is most commonly found in sandy coastal lowlands, known as wallum, within the species' distribution (see Section 2). Wallum vegetation consists of heathlands, shrublands, woodlands or forests primarily occurring on sand dunes or flats at elevations above tidal influence.

Suitable breeding habitats for the species occur in acidic (between pH 3.5 and 6.0), permanent to ephemeral, freshwater wetlands with emergent vegetation, most notably sedges, reeds or ferns, and occasionally *Melaleuca* (paperbark) woodlands. These wetlands (wallum swamps, bogs, lakes or creeks) typically overlie deep, low-nutrient, sandy soils where groundwater levels are characteristically high.

Under wet conditions (i.e. resulting from significant rainfall events), the wallum sedge frog is known to utilize heathlands, grasslands, woodlands and forests, which adjoin breeding habitats, in wallum environments and on near-coastal alluvial (clay) plains. These non-breeding habitats provide landscape connectivity and may play an important role in maintaining landscape hydrology and the quality of water in suitable breeding habitats.

Further information on the habitat types in which the wallum sedge frog occurs is provided in the Department's Species Profile and Threats (SPRAT) database.

4. Have you surveyed for the wallum sedge frog using the recommended methods?

A guide to conducting surveys for the wallum sedge frog in areas of suitable habitat is outlined below. Surveys should:

- be conducted by a suitably qualified person with demonstrated skill in conducting frog surveys,
- be conducted under optimal conditions to maximise the chance of detecting the species, and
- account for uncertainty and error.

The following survey methods are recommended to determine the presence/absence of the species in areas of suitable habitat. Where it is not possible to conduct surveys in this manner, failure to detect the wallum sedge frog should not be considered indicative of its absence.

Optimal survey conditions

To maximise the likelihood of detecting the wallum sedge frog in your study area, surveys should be undertaken during conditions optimal for detecting the species. Surveys can be undertaken at any time of the year, however, as general rule surveys are best undertaken:

- during the warmer months of the year, especially from September to April (minimum 15°C air temperature),
- when ephemeral or semi-permanent wetlands are widely inundated with water, and
- when wind strength is minimal and relative humidity is maximal.

In order to adequately determine whether the wallum sedge frog is present or absent in an area of suitable habitat, it is recommended that you conduct an aural survey and subsequent, visual surveys if the species is not detected aurally.

Aural survey

The advantages of aural surveys over visual surveys are that trampling of reed beds in potential breeding habitat can be avoided or minimised, and that they may enable more rapid detection of the species than through visual surveys alone. An aural survey for the wallum sedge frog is best undertaken:

- during the calling period for the species from September to April,
- after rainfall, and
- from sunset into the evening.

It is important to note that failure to detect the wallum sedge frog through aural surveys is not evidence of the species' absence in your study area.

Visual surveys

Repeat, visual-encounter surveys should be undertaken if the initial aural survey is unsuccessful. If the species is detected during the first or second visual survey, no further surveying would be required. If two surveys have been conducted, and the species has not been detected, the third survey should be conducted during optimal conditions.

The first of three visual surveys is best undertaken at around six to eight weeks after significant rainfall causing widespread inundation of ephemeral or semi-permanent wetlands. This is when frog population densities are most likely to increase as tadpoles develop into froglets and emerge from the water. Repeat, visual surveys are best undertaken:

- at least one month apart,
- along transects,
- with one 50 m x 2 m transect per 2 ha of suitable habitat (for wetlands up to 20 ha in size), and
- at a minimum of one person-hour of survey effort per transect.

For areas of suitable habitat greater than 20 ha, please contact the department at speciespolicy@environment.gov.au to discuss appropriate survey efforts prior to conducting surveys.

Ethical considerations

Note that there may be additional approval requirements before conducting surveys. Permission may be required from relevant state government agencies and/or ethics committees to carry out native fauna surveys. Additionally, activities in Commonwealth areas may require permits under Part 13 of the EPBC Act.

Ethical considerations are also important when searching for frogs. Important ethical considerations include:

- taking care to minimize damage to habitat whilst conducting surveys (e.g. minimizing the trampling of reed beds and wetland microhabitat features), and
- taking measures to ensure that invasive weeds, amphibian chytrid fungus (*Batrachocytrium dendrobatidis*) and other pathogens are not introduced to the study area or habitat for the species.

5. Could your action impact on an important population of the wallum sedge frog?

The department considers that the recording of a single wallum sedge frog during a survey of suitable habitat for the species (see Section 3) would sufficiently indicate the presence of a population.

An important population of a species listed as vulnerable under the EPBC Act, such as the wallum sedge frog, is one that is necessary for the species' long-term survival and recovery. The wallum sedge frog is highly restricted in terms of its habitat requirements: populations and suitable habitats are extensively isolated across the species' distribution. Therefore, the department considers that a large majority of wallum sedge frog populations may meet the important population criteria outlined on page 11 of EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance. For example, small, isolated populations occurring along the mainland coast, and populations occurring in protected areas[2], may be essential for maintaining the dispersal, breeding and genetic diversity (see Section 1) of the species over the long term.

Conversely, the department considers that it is difficult to define which wallum sedge frog populations may not be important for the species' long-term survival and recovery. A wallum sedge frog population occurring in a degraded habitat may still be considered important if it is able to persist indefinitely.

A population may persist in a degraded habitat indefinitely if:

- the extent, condition and ecological function of the habitat is retained and not directly altered by human activity,
- the habitat is resilient to existing levels of disturbance and/or is sufficiently recoverable to the extent that it enables the population to persist, and
- the potential for the influx of wallum sedge frogs to the population persists.

6. Could your action impact on the species as a whole?

Potential impacts on important populations should be considered when determining whether to refer your action. However, you should also consider referring your action if it is likely to have a significant impact on a vulnerable species as a whole (that is, including populations that do not meet the definition of an "important population").

[2] For a list of protected areas in which the wallum sedge frog is known to occur, please refer to the species' SPRAT profile.

Therefore, in addition to considering important populations, you should also consider impacts on a vulnerable species through the one or more of the following criteria stated in significant impact guidelines 1.1 if your action is likely to:

- adversely affect habitat critical to the survival of a species,
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline,
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat,
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

Section 8 provides guidance for when one or more of these criteria may trigger the need to refer your action.

7. Is your impact mitigation best practice so that it may reduce the significance of your impacts?

Mitigation has the principle aim of avoiding significant impacts and should be applied in a hierarchical order:

1. avoid impacts – avoid habitat loss and preserve important populations,
2. mitigate impacts – minimize habitat degradation, and
3. monitor effectiveness of mitigation – ensure mitigation is effective and feeds back into an adaptive management plan.

Direct and indirect impacts on the wallum sedge frog have been known to result from activities (threatening processes) including, but not limited to, commercial and residential development, construction and operation of transport, water and wastewater infrastructure, agriculture, sand mining, forestry and recreation.

Effective mitigation can reduce the impacts of such actions and active monitoring should take place to ensure effective mitigation and management responses[3]. Table 1 outlines recommended measures to reduce impacts. It is not intended to be exhaustive or prescriptive, but to outline general principles of mitigation.

[3] The findings of any monitoring program should be provided to the relevant Queensland, New South Wales and Australian Government environmental agencies for incorporation into respective threatened species databases.

Table 1 Primary threats, impacts and mitigation

Impact	Threatening process	Mitigation
Habitat removal	• Direct - through vegetation clearing or the flooding, infilling or draining of wetlands • Indirect - through changes to the hydrology of a wetland or its catchment including channel alterations and water extraction, or decreasing water quality	• Design the project to avoid wallum sedge frog habitat. • Retain habitat corridors. • Relocate elements of the project affecting habitat, e.g. roads should not be constructed through habitat but around or over. • Capture, treat and redirect storm-water and surface water runoff away from frog habitat.
Habitat fragmentation	• Construction of physical barriers which limit movement between water bodies (e.g. roads or buildings) • Net reduction in the number and/or diversity of water bodies available to an important population • Removal or alteration of available terrestrial or aquatic habitat corridors (including alteration of connectivity during flood events)	• Design the project to protect movement corridors and/or retain connectivity of wallum sedge frog habitat [4], e.g. constructing bridges where roads are required. • Maximize the retention and/or establishment of natural vegetation buffers around areas identified as containing or linking habitat.
Habitat degradation	• Alteration of existing catchment hydrology (e.g. increased freshwater inflows to wetlands, changes in timing, duration or frequency of flood events, increased sedimentation from stormwater and surface water runoff) • A change in the duration of surface water inundation of ephemeral or semi-permanent wetlands • Alteration of surface or groundwater quality (e.g. salinity, acidity, nutrient levels and toxicity, dissolved oxygen, temperature and turbidity) • Degradation of terrestrial habitats immediately adjacent and/or linking wetland areas • Extensive trampling of wallum sedge frog habitat (including reed beds) by humans or feral pigs (*Sus scrofa*) • Alteration of the existing fire regime of ecosystems forming habitat or habitat corridors for the species	• Design the project to avoid the degradation or alteration of wallum sedge frog habitat. • Design the project to avoid alteration of the existing hydrology and surface and ground water quality in the affected landscape. • Ensure development does not interfere with overland flow in the local catchment. • Capture, treat and redirect storm-water and surface-water run-off away from habitat • Establish a buffer of natural vegetation of at least 100m around areas identified as containing or linking known or likely habitat. • Maintain geological and soil integrity (i.e. limit disturbance to the soil profile including impermeable subsoil layers that naturally impede drainage). • Ensure potentially harmful chemicals, including fertilisers and pesticides, cannot enter habitat areas. • Prevent the access of pigs to habitat. • Limit/control human activity in and around wetland habitats.

[4] Research suggests that wallum sedge frogs may re-colonise habitats over distances of 500 m (Lewis and Goldingay 2005).

Impact	Threatening process	Mitigation
Direct and indirect causes of population decline (including disease, predation and competition)	• Introduction of amphibian disease, e.g. chytridiomycosis caused by the amphibian chytrid fungus • Introduction of tadpole predators, e.g. mosquito fish (*Gambusia* species) • Introduction of competitors, e.g. the dwarf eastern tree frog (*Litoria fallax*) and the introduced cane toad (*Rhinella marina*) • Environmental changes in wallum sedge frog habitat increasing suitability for predators, competitors and other invasive species • Traffic-related frog fatalities resulting from road constructions or expansions adjacent to habitat	• Implement appropriate hygiene protocols to avoid the introduction of diseases. • Prevent the influx of invasive species in suitable wallum sedge frog habitats, e.g. construct roads around or over habitat. • Control competitors by ensuring habitat features that are attractive to competitors are not created or encouraged. For example: o Avoid/minimize the types of environmental degradation that are likely to improve access for invasive species. o Ensure retention basins are located at least 500 m away from known habitat. Such water bodies must remain free of the types of vegetation used by the dwarf eastern tree frog (e.g. emergent reeds and sedges, lily pads, trees and shrubs) and have dense vegetation coverage above the waterline to minimise the occurrence of cane toads.

8. Could your action require a referral to the federal environment minister for significant impacts on the wallum sedge frog?

As the person proposing the action it is your responsibility to decide whether or not to refer your action. If you believe your action is at high risk of having a significant impact on an important population of the wallum sedge frog or the species as a whole you should refer the action to the federal environment minister. If you are uncertain whether your action will have a significant impact on the wallum sedge frog you may also refer your action or contact the department. Table 2 provides general guidance on what, in the department's view, may be at high and low risk of requiring a referral to the department as well as providing some guidance on uncertainty. The list of examples provided in Table 2 is not intended to be exhaustive or prescriptive.

Table 2 Referral guidelines

High risk of significant impacts: referral recommended
• A change in the ecological character or function of the natural environment within 100 m of habitat for an important population of wallum sedge frogs (e.g. through actions such as the clearing or burning of vegetation, or the drainage, flooding, or infilling of wetlands) • Actions resulting in the alteration of the existing natural hydrological regime and/or surface water or groundwater quality within 100 m of habitat for an important population • The fragmentation of connective habitat corridors between breeding habitats, or within 500 m of breeding habitats, resulting in the isolation or fragmentation of one or more important populations • Actions resulting in the spread of amphibian chytrid fungus to a population of wallum sedge frogs (see Section 2) • The deliberate or accidental introduction of animal or plant pests, predators, or competitor species to the habitat of an important population

Uncertainty: referral recommended or contact the department
• A change in the ecological character or function of the natural environment or alter the existing natural hydrological regime, and/or surface water or groundwater quality, between 100 m and 500 m distance from the habitat of an important population • Actions which have the potential to fragment connective habitat corridors between breeding habitats, or within 500 m of breeding habitats, resulting in the isolation or fragmentation of one or more important populations • Actions which have the potential for indirect, facilitated or downstream impacts on an important population, for example the creation of a water body within 500 m of breeding habitat for an important population which may improve predator or competitor species access to habitat • Actions facilitating the spread of amphibian chytrid fungus within the mapped distribution of the wallum sedge frog
Low risk of significant impacts: referral may not be required but you may refer for legal certainty
• A change in the ecological character or function of the natural environment at distances greater than 500 m from the breeding habitat of an important population (providing that one or more important populations do not become isolated as a result) • Actions that retain a 100 m buffer to the habitat of an important population (with exception of the placement of water bodies, which require a 500 m buffer from the breeding habitat of an important population) and adopt mitigation measures recommended in these guidelines (see Section 7) to prevent direct or indirect impacts on that population • Actions that are proposed outside the mapped distribution of the wallum sedge frog (see Section 2) and where no wallum sedge frog habitat occurs in the downstream catchment

9. Where can you get more information?

The SPRAT profile for this species provides the biological and ecological context for survey guidelines, significant impact guidance and mitigation measures. It can be accessed at www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

Other EPBC Act policy statements are available to help you understand the EPBC Act and your obligations. They are available from the department's website at www.environment.gov.au/epbc/guidelines-policies.html or by contacting the community information unit by email: ciu@environment.gov.au or by phone: 1800 803 772. The department can provide assistance in ensuring your action complies with the EPBC Act, especially when contacted early in the planning process.

The Protected Matters Search Tool can provide a good starting point for determining the likelihood of having matters of national environmental significance in your area. State and territory government agencies may also hold relevant information including habitat and species distribution information.

References

Lewis, B.D. & R.L. Goldingay (2005). Population monitoring of the vulnerable wallum sedge frog (*Litoria olongburensis*) in north eastern New South Wales. *Australian Journal of Zoology.* 53: 185-194

Glossary

Amphibian:

An animal species belonging to the class of animals known as *Amphibia* (i.e. frogs, salamanders, newts and caecilians)

Chytridiomycosis:

A highly infectious and lethal skin disease in amphibians caused by amphibian chytrid fungus (*Batrachocytrium dendrobatidis*)

Ephemeral (wetland):

Short-lived; a wetland that holds water periodically depending on climatic (typically seasonal) variability

Facilitated impacts:

Impacts which result from further actions (including actions by third parties) which are made possible or facilitated by the action, for example, the construction of a dam to supply irrigation water facilitates the use of that water by irrigators with associated impacts

Hydrology:

The distribution and flow of water through the landscape (above and below ground); derived from the elementary term meaning, the study of water (on Earth)

Resilience:

The ability of an organism or ecological system to recover from environmental disturbance

Turbidity:

A measure of the concentration of suspended sediments in water; cloudiness or murkiness of water