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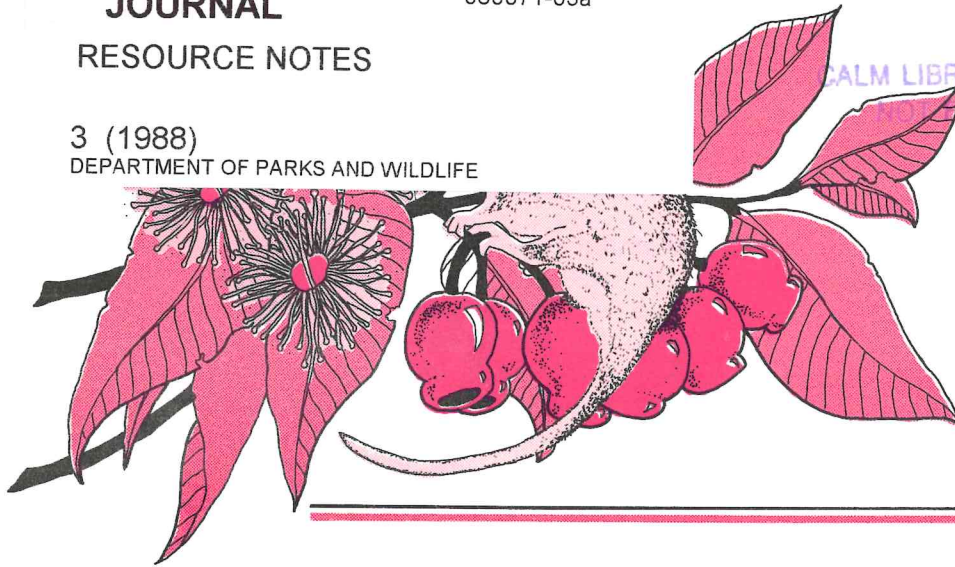
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Resource Notes

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WESTERN AUSTRALIA

SOME FROGS IN THE SOUTH-WEST OF W.A.

Only two families of frogs, the ground frogs and the tree frogs, occur in W.A. Nevertheless the 25 species found in the South-West exhibit a remarkable variety of shape, size, life history and mating call; that can keep one in swamps, rivers and dams for hours. In this paper, South-West refers roughly to the area between Shark Bay and Esperance.

The call of a frog is most distinctive and most familiar to people. Each species has unique call which, when learnt, provides a simple means of determining the number of breeding frog species in an area. In the breeding season male frogs emit a loud advertisement call that serves to attract a mate. Female frogs when ready to mate respond to the calling male and move towards the source of the noise. The biggest and loudest males call from the most suitable places for egg laying. These places differ for each species. When the female locates the male, mating occurs and the eggs are laid.

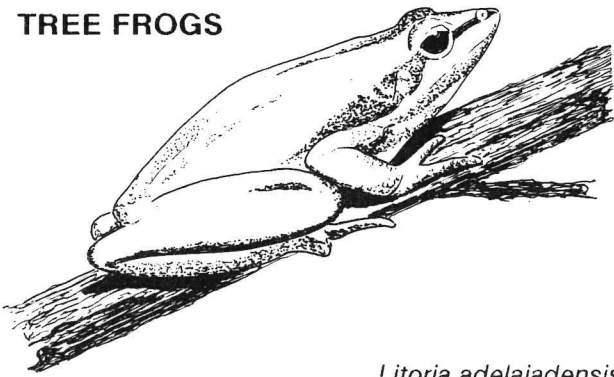
The advertising call of the male has a second function. It helps maintain spacing between calling male frogs. Breeding males show hostility toward other males of the same species, and the calling acts as a warning to potential intruders off the male's calling site.

A frogging expedition to a dam or creek at night, at any time of the year, will be rewarded by the sounds of calling frogs. Different species call at different times of the year. A headtorch from sport stores will enable relatively easy location of some species of calling frogs, leaving hands free for searching or tape recording sounds. Warm, water-resistant clothing and footwear should be worn on any frogging expedition.

Not all frogs live near water courses. Frogs may also be found on roads during mild wet weather, or under litter, or ground objects. If logs and stones are turned when searching for frogs, they must be replaced exactly, or many homes will be destroyed.

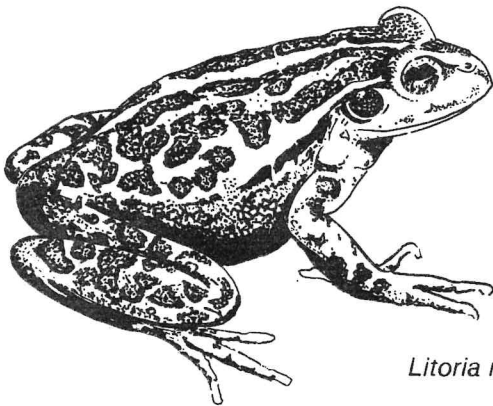


TREE FROGS



Litoria adelaidensis

Two tree frogs are found in the forests of the South-West. One, *Litoria adelaidensis* is a long slender frog ranging in colour from brown to green. It is often seen on window panes on warm wet nights. In winter it calls with a harsh grating screech, incorporating grunts, from reeds up to a metre above water.



Litoria moorei

The other, *Litoria moorei* is a very large green and gold frog with little climbing ability. In spring it calls from water with a sound like a motor bike changing gears.

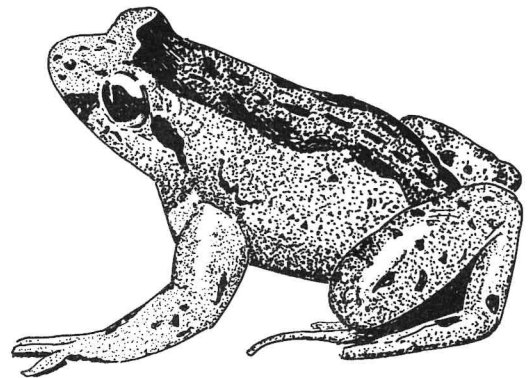
FROGS IDENTIFIED BY THEIR CALL

All of the frogs named above are easily distinguished from one another without hearing their call. For some other species, however it is necessary to hear the call to identify the frog. This is the case for a group of three relatively undistinguished frogs called *Ranidella insignifera*, *pseudinsignifera* and *subinsignifera*. The first is found on the coastal plain between Gingin and Busselton, the second throughout the South-

West forest areas and the last, in the lower South-West, between Manjimup and Albany.

CALLING SEASONS

All of the frogs mentioned so far have distinctive and relatively short calling and egg laying seasons. Some species, such as *Ranidella glauerti*, with a call like creaking door or a pebble being shaken in a can; *Crinia georgiana* which quacks like a duck; and *Geocrinia leai*, which makes a 'chick chick' sound; have more general calling seasons. They occur in areas of reliable rainfall where they call from shallow streams, drains or swamps.



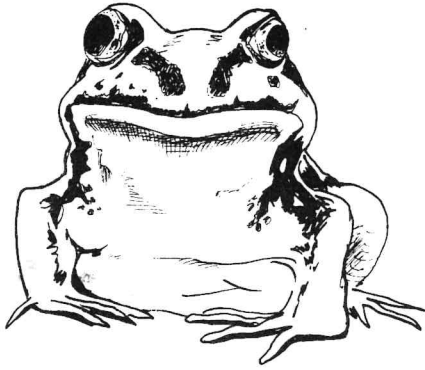
Geocrinia leai

Although many frogs in the South-West are well known, new species are still being discovered and the biology of tadpoles is still poorly understood. Any study of frog natural history could contribute much to our knowledge of this interesting and complex group of animals.

Two useful references are: 'Frogs of Western Australia', by M.J. Tyler, L.A Smith and R.E Johnstone, 1984, published by the W.A. Museum.

'Frogs of Southern Western Australia by A.R. Main, 1965 Published by The Western Australian Naturalists' Club.

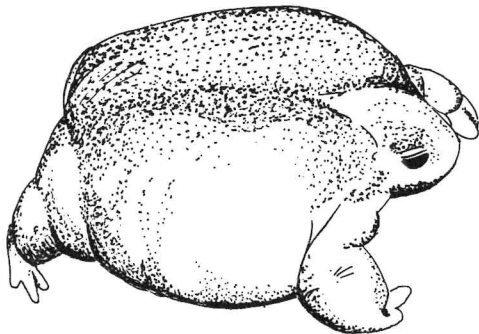
Written by ecologist Grant Wardell-Johnson of CALM's Manjimup Research Station.



Limnodynastes dorsalis

The banjo frog (*limnodynastes dorsalis*) is a very noble frog indeed. *Limnodynastes* is Latin for 'lord of the marshes'. It occurs throughout the south-west, and is a very robust species with a bright crimson groin. It calls from vegetation swamps and dams in winter and spring. Its loud, deep and explosive 'bonk' is unmistakable. Many of this species are found on the roads during wet nights in summer.

Nicholls toadlet (*Pseudophryne nichollsi*) occurs in the lower South-West, going through its entire life-cycle amongst leaf litter and rotting logs. Adults are less than 25 mm long but are nevertheless distinctive, with brilliantly marked belly of vivid orange and purple patches on a dark slate background. Some have remarked upon the resemblance of its belly to the fungal hyphae in the sites where it occurs. It makes a short grating 'ark' call during the peak of summer.



Myobatrachus gouldii

The mole, or turtle frog (*Myobatrachus gouldii*), is another example of the extremes of ecological specialization. It is a bizarre frog with a small head and tiny eyes, and short but very muscular limbs. It lives, feeds and breeds entirely underground. Two populations exist, one in the coastal sandplains from Harvey north to Eradu, and another in the wheatbelt. It is absent from the south-west forests. Perhaps it finds the digging too difficult. Eggs have been found more than a metre below the surface in moist sand.

MOANERS

A walk at night along creeks or roads in the northern jarrah forest in autumn will reward one with the calls of one or more of the five species of moaners (*Heleioporus*) occurring in the South-west. The males call from burrows, which become flooded after egg laying in early winter. All are large stout burrowing frogs with distinctive calls.



Heleioporus eyrei

H. eyrei, which is also common around Perth, makes itself very unpopular when it calls (a loud, low moan) beneath the houses of those trying to sleep. *H. inornatus* makes a 'whoop whoop'; *H. psammophilus* a 'put put' and *H. barycragus* a low owl-like 'hoot'.



Heleioporus albopunctatus

H. albopunctatus is the most distinctive of the moaners. It is a large robust, dark chocolate-coloured frog covered with numerous large white spots or blotches. It makes a short high-pitched regularly repeated 'coo coo' call.

SEASONAL BREEDING CALL OF SOME MALE FROGS OF SOUTHERN WA

SEASON	SPECIES	CALL	CALLING POSITION AND HABITAT	DISTRIBUTION AND REMARKS
Summer (December - March)	<i>Pseudophryne</i> (or <i>Metacrinia</i>) <i>nichollsi</i> (Nicholls Toadlet)	a short grating call, slowly repeated: "ka-ak"	under moist leaves and logs in forest and woodland along the South Coast	extreme South-west and Stirling Range similar to <i>P.guentheri</i> and some of the call variants of <i>P.occidentalis</i> , but never found with these species.
Autumn (April - May)	<i>Heleioporus eyrei</i>	a long low moan, slowly repeated	well-constructed burrow in sites of temporary swamps, before they fill	mostly coastal areas calling period very restricted.
	<i>Heleioporus psammophilus</i>	a long series of rapidly repeated pulses: "put-put-put..."	as for <i>H.eyrei</i>	South-west
	<i>Heleioporus inornatus</i>	groups of 2-3 pulses repeated frequently "woop-woop"	as for <i>H.eyrei</i> but prefers sandy peats	Darling Range
	<i>Heleioporus albopunctatus</i>	short high-pitched calls, slowly repeated: "coo-coo"	as for <i>H.eyrei</i>	Wheatbelt
	<i>Heleioporus barycragus</i>	a low-pitched owl-like "hoot" slowly repeated	well-constructed burrow in creek banks in hilly country of Darling Scarp	South-west
Winter (June - August)	<i>Ranidella insignifera</i>	a short rapidly repeated "peeping" call	floating in temporary ponds, or sitting in shallow water at edges	Swan Coastal Plain only
	<i>Ranidella pseudinsignifera</i>	a short 4-pulsed "bleet" rapidly repeated	floating in temporary ponds, or sitting in shallow water at edges	Wheatbelt and to the edge of the Darling Scarp
	<i>Ranidella subinsignifera</i>	a long drawn-out "squelch", slowly repeated	floating in temporary ponds supported by vegetation	found in southern sandy swamps from Manjimup to Mt Barker, then east and towards the South Coast
	<i>Crinia georgiana</i>	a variable duck-like "quack-quack"	sitting in shallow temporary hillside streams and some of the streams on the coastal plain	
	<i>Geocrinia leai</i>	a metallic call "chick, chick, chik-ik-ik"	in litter and vegetation by permanent water	odd calls through the year, especially along streams in the wetter forest country
	<i>Limnodynastes dorsalis</i> (Banjo Frog)	a banjo-like "plonking" call	floating in temporary or permanent water	South-west call occasionally heard throughout the year
	<i>Litoria adelaidensis</i>	an abrupt grating call: "ka-ark", occasionally ending in a high-pitched shriek	out of water from reeds and rushes in permanent lakes and swamps	Southwest some calls heard throughout the year
Spring (September - November)	<i>Litoria moorei</i>	a long low modulated growl usually followed by 3-5 distinct grunts	floating or on floating vegetation in permanent swamps and lakes	South-west

Adapted from: Table 3 in *Frogs of Southern Western Australia* by A.R. Main

Note. Scientific names used here are those used by the WA Museum. Some references may give different genus names.