

VOLUME 49

PART 2

# MEMOIRS

OF THE

# QUEENSLAND MUSEUM

© Queensland Museum

PO Box 3300, South Brisbane 4101, Australia

Phone 06 7 3840 7555

Fax 06 7 3846 1226

Email [qmlib@qm.qld.gov.au](mailto:qmlib@qm.qld.gov.au)

Website [www.qm.qld.gov.au](http://www.qm.qld.gov.au)

National Library of Australia card number

ISSN 0079-8835

## NOTE

Papers published in this volume and in all previous volumes of the *Memoirs of the Queensland Museum* may be reproduced for scientific research, individual study or other educational purposes. Properly acknowledged quotations may be made but queries regarding the republication of any papers should be addressed to the Director. Copies of the journal can be purchased from the Queensland Museum Shop.

A Guide to Authors is displayed at the Queensland Museum web site [www.qm.qld.gov.au/organisation/publications/memoirs/guidetoauthors.pdf](http://www.qm.qld.gov.au/organisation/publications/memoirs/guidetoauthors.pdf)

**A Queensland Government Project**

Typeset at the Queensland Museum

## OCCURRENCE OF THE WALLUM FROGLET (*CRINIA TINNULA*) AT LITTABELLA NATIONAL PARK, SOUTHEASTERN QUEENSLAND

EDWARD A. MEYER, HARRY B. HINES, JOHN M. CLARKE, JOHN HODGON AND IAN GYNTHYER

Meyer, E.A., Hines, H.B., Clarke, J.M., Hodgson, J. & Gynther, I. 2004 06 30: Occurrence of the wallum froglet (*Crinia tinnula*) at Littabella national park, southeastern Queensland. *Memoirs of the Queensland Museum* 49(2): 691-692. Brisbane. ISSN 0079-8835.

In June 2002, surveys for the vulnerable Wallum Froglet (*Crinia tinnula*) were undertaken at Littabella, Eurimbula and Deepwater National Parks, south-east Queensland. The presence of *C. tinnula* was confirmed at two sites within Littabella NP. Despite the presence of suitable habitat, *C. tinnula* was not recorded at either Eurimbula or Deepwater National Parks. Based on these results the northern limit of *C. tinnula*'s distribution would appear to be Littabella National Park. □ *Crinia tinnula*, froglet, occurrence.

Edward A. Meyer, School of Life Sciences, University of Queensland, St Lucia 4072; Harry B. Hines & Ian Gynther, Queensland Parks and Wildlife Service, PO Box 64, Bellbowrie 4070; John M. Clarke, Queensland Parks and Wildlife Service, PO Box 3130, Rockhampton Shopping Fair 4071; John Hodgson, Botany, Centre for Ecology, Evolution and Systematics, University of New England, Armidale 2351, Australia; 7 January 2003.

The vulnerable Wallum Froglet (*Crinia tinnula*) occurs from Kurnell, NSW (34°02'S, 151°13'E) to Fraser Island, Qld (Hines et al., 1999). On Fraser I., *C. tinnula* has been recorded as far north as Lake Wonjeel (24°53'S, 153°14'E) (Hines et al., 1999; Queensland Museum records). On the mainland, *C. tinnula* has not been confirmed north of Woodgate National Park (25°07'S, 152°34'E) (Hines et al., 1999).

During surveys in May 1997, Clarke et al. (1998) recorded *C. tinnula* at Littabella National Park (NP) (24°35'S, 152°03'E), north of Fraser I. and 75km north of Woodgate NP. Doubt, however, was cast on these records as the identification of voucher specimens could not be confirmed (Hines et al., 1999). (All but one of these, a single specimen lodged with the Queensland Museum [registration number QMJ63347], appear to have gone missing). Adding to doubt over these records is the likely occurrence of *Crinia parinsignifera* and/or *C. deserticola* (species easily confused with *C. tinnula*) at Littabella NP. Follow-up surveys were therefore undertaken to determine whether *C. tinnula* does indeed occur as far north as Littabella NP.

Following heavy rain in early June 2002 (>100mm in 7 days), EM, HH and JH surveyed sites at Littabella NP for *C. tinnula*. In addition, EM and HH undertook surveys further north at Deepwater NP (24°19'S, 151°56'E) and Eurimbula NP (24°05'S, 151°42'E), which had also received heavy rain. Survey effort was concentrated in areas with habitat typical of *C. tinnula* (i.e., low-lying areas of sandy soil with

heath, *Melaleuca* woodland and/or sedges). All sites were surveyed at night by listening for calls and searching with headlamps. Sites at Deepwater and Eurimbula NP were also visited by day. Climatic conditions under which surveys were conducted are summarised in Table 1.

Identification of *Crinia* spp. was based on morphology and/or call. Morphological characters used to distinguish between *Crinia* spp. were (1) belly colouration (white without speckling [*C.*



FIG. 1. Sound spectrograms showing advertisement calls of (A) male *C. tinnula* (QMJ80271) recorded at Littabella NP on 6.06.2002 (ambient [air] temperature = 19C); (B) male *C. tinnula* recorded at Karawatha Forest Park, Brisbane on 9.8.02 (ambient temperature = 18.5C); and (C) *Crinia parinsignifera* recorded at Karawatha Forest Park on 9.8.02 (ambient temperature = 18.5C). Calls of *C. tinnula* and *C. parinsignifera* were recorded using the same equipment as that used to record *C. tinnula* at Littabella NP. As these spectrograms show, calls of *C. tinnula* are of similar frequency but much shorter duration than that of *C. parinsignifera*. The advertisement call of *C. deserticola* (not shown here) is a double note (vs. single note in *C. tinnula* and *C. parinsignifera*) with a dominant frequency of 4kHz (see Liem & Ingram, 1977).

TABLE 1. Climatic conditions during surveys at Littabella, Deepwater and Eurimbula National Parks in June 2002. Air temperature was measured at ground level.

Site	Date	Cloud cover	Air temp. °C	Rainfall	Surface water
Littabella NP (1)	6.06.02	100%	19-20	light rain with occasional heavier showers	none
Littabella NP (2)	6.06.02	100%	19-20	light rain with occasional heavier showers	present
Deepwater NP	6.06.02	100%	-	overcast; intermittent light rain	present
Eurimbula NP	7.06.02	100%	20-21	overcast; rain in afternoon	present

*deserticola*] vs. grey or off-white with dark speckling [*C. tinnula* and *C. parinsignifera*] and (2) presence/absence of a pale mid-ventral stripe down the throat and abdomen (present only in *C. tinnula*). In some *C. tinnula*, especially preserved specimens, the presence of a pale mid-ventral stripe may be difficult to discern making identification difficult. To allow positive identification of animals, calls of male *Crinia* were recorded using a Cardiod unidirectional microphone and Sony Walkman cassette-recorder. Advertisement calls of male *C. tinnula* and *C. parinsignifera* were also recorded at Karawatha Forest Park (Brisbane, southeast Qld) during winter 2002 for comparison with calls recorded at Littabella NP. Sound spectrograms of recorded calls were produced using the program Canary.

Animals identified as *C. tinnula*, based on morphology and/or call (see Fig. 1), were found at two sites in Littabella NP. At the first site (24°38'03.53"S, 152°02'52.22"E) two individuals were found along a firebreak through an area of wet heath, upslope from a drainage line. Despite substantial rain, there was no significant surface water at this site and no frogs were heard calling. Other frog species encountered/detected at this site included *Litoria nasuta* and *Limnodynastes terraereginae*. At the second site (24°36'32"S, 152°03'23"E), a sedge swamp with emergent *Melaleuca viridiflora*, male *C. tinnula* were found calling near water. Anuran species sympatric with *C. tinnula* at this site included: *Crinia deserticola*, *Pseudophryne major*, *P. raveni*, *Limnodynastes peronii*, *L. tasmaniensis*, *L. terraereginae*, *Litoria nasuta* and *L. fallax*. Voucher specimens were collected from both

sites and subsequently lodged at the Queensland Museum (registration numbers QMJ80269-71).

At Deepwater NP a sizeable area of apparently suitable habitat was surveyed. Despite the presence of surface water, only *C. deserticola* were heard calling. The following night, at Eurimbula NP, several areas of apparently suitable habitat were surveyed. Here again only *C. deserticola* were found. Conditions were not dissimilar to those the previous night (see Table 1).

Based on these surveys the northern limit for *C. tinnula* would appear to be Littabella NP. *C. tinnula* could, however, occur further north in Deepwater NP. In the south of this national park is an area of wet heath with emergent *Melaleuca* subject to inundation which seems ideal for *C. tinnula*. Further surveys of this area are required to determine whether *C. tinnula* is present.

Littabella, Deepwater and Eurimbula National Parks contain habitat suitable not only for *C. tinnula* but also *Litoria olongburensis* and *Litoria freycineti* (both listed as vulnerable in Queensland). Surveys of these areas, however, did not reveal the presence of either species. The timing of surveys, however, may not have been suitable for detection of these 'acid' frog species.

#### LITERATURE CITED

- CLARKE, J., HODGON, J., HORTON, P., HAZZARD, A., KAMPF, A., WALKER, C. & CLARK, S. 1998. Fauna Surveys of Littabella NP. (Internal report for Queensland Department of Environment).
- HINES, H., MAHONY, M. & MCDONALD, K. 1999. An assessment of frog declines in wet subtropical Australia. Pp. 44-63. In Campbell, A. (ed.) Declines and disappearances of Australian frogs. (Environment Australia: Canberra).
- LIEM, D.S. & INGRAM, G.J. 1977. Two new species of frogs (Anura: Myobatrachidae: Pelodyadidae) from Queensland and New South Wales. Victorian Naturalist 94: 255-262.