

COPHIXALUS ORNATUS (Ornate Nursery Frog)
CHYTRIDIOMYCOSIS. Chytridiomycosis is an emerging infectious disease that has been linked to amphibian population declines worldwide (Berger et al. 1998. Proc. Natl. Acad. Sci. 95:9031–9036) The chytrid fungus *Batrachochytrium dendrobatidis*, causative agent of chytridiomycosis, has an incredibly broad host range: it is currently known to infect over 150 amphibian species spanning two orders and 14 families (Speare and Berger 2004 www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm, updated with recently published accounts). Only seven of these species, however, are direct developers that bypass the free-swimming tadpole stage (*Eleutherodactylus cruentus*, *E. emcelae*, *E. melanostictus*, *E. karlschmidti*, *E. saltator*, *E. coqui*, *Leiopelma archeyi*). Tadpoles are thought to be an important life stage with respect to disease transmission: they stand a high chance of being exposed to the fungus' aquatic zoospores, and they do not succumb to chytrid infections, making them likely disease reservoirs (Daszak et al. 1999 Emerg. Inf. Dis. 5:735–748) Currently, there are no records of chytridiomycosis in Australian direct-developing frog species.

On 23 Sept 2005, KMK captured a male *Cophixalus ornatus* (Microhylidae) that was calling while perched on a leaf 2 m from the edge of Babinda Creek (70 m elev), in Queensland, Australia. KMK firmly ran a cotton swab over the frog's dorsum, ventrum, sides, thighs, and the webbing of its feet, and used quantitative PCR (Boyle et al. 2004. Dis. Aquat. Org. 60:141–148) to test for the presence of *Batrachochytrium dendrobatidis*. Thirty-one chytrid zoospores were detected on the swab. This represents the first record of chytridiomycosis in an Australian direct-developing frog species, and only the eighth record worldwide.

There are no published reports of population declines in *C. ornatus*, a species whose large geographic range encompasses the localities of many of north Queensland's recent amphibian declines and disappearances, including that of *Taudactylus acutirostris* (the last known individual of which died of chytridiomycosis in 1995; Wright et al. 2001. J. Herpetol. Med. Surg.). Our finding of chytridiomycosis in *C. ornatus* supports the hypothesis that while all frog species might be exposed to the disease, there are ecological differences among sympatric species that might lead to different disease outcomes, ranging from no effect on the population to mass mortality events and local extinctions (Daszak et al. 1999, *op. cit.*; Hero et al. 2005. J. Zool. Lond. 267:221–232).

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CRINIA SIGNIFERA (Eastern Froglet). **REPRODUCTION.** Multiple males simultaneously in amplexus with the same female is rarely reported in anurans. One of the species in which this behaviour is well documented is the quacking froglet *Crinia*

georginia (Roberts et al. 1999 Anim. Behav. 57:721–726). Here I report multiple male amplexus for another member of the genus. *Crinia signifera* is the most widespread and abundant frog in eastern Australia. The observation reported here was made in wet sub-alpine flat heathland in the Thomsons Run area of the Mount Baw Baw Plateau on the 18 Nov 2003. Morning conditions had been clear and sunny, however by the time the amplexing frogs were found, conditions were cloudy and cool.

At ca 1400 h a female *C. signifera* was observed on the surface of a pool in a sphagnum bog. Upon noting my presence, she attempted to dive into the detritus at the bottom of the pond. She could not dive successfully and upon closer examination two males were found to be clasping her. The first male was in inguinal amplexus, while the second male was clasping in a slightly lateral position with one arm around the hind leg of the female and other arm around the body of the first male. Both males were approximately the same size while the female was at least twice as large. The trio was observed for ten minutes after which they were disturbed and the second male released his hold and dove into the detritus. There were numerous eggs on the base of the pond where the female was first observed. I did not observe any further instances of multiple male amplexus in the remaining 13 days of fieldwork, although amplexing pairs were observed on three other occasions. Upon conversation with other workers it was mentioned that they had also observed instances of multiple males amplexing one female (Woodford, pers. comm.; Hollis, pers. comm.).

Multiple males in amplexus with a single female have not previously been reported in *C. signifera*. Two factors could potentially increase the likelihood of this behaviour occurring in high altitude populations. First this observation was made at peak breeding time for *C. signifera* on the Mt. Baw Baw Plateau. Four weeks earlier the area had been covered in snow, while several weeks later the number of frogs observed was clearly reduced. By mid December the ponds in the sphagnum bog had begun to dry up. This explosive breeding pattern may increase the potential for multiple males to be in the close proximity with single females. Secondly, the diurnal breeding behaviour of highland *C. signifera* may also increase the probability of males seeing females. Conversely, diurnal breeding may simply increase the potential for the behaviour to be noted by observers.

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ELEUTHERODACTYLUS JOHNSTONEI (Johnstone's Whistling Frog). **HABITAT.** An increasing number of reptile and amphibian species have been documented to take advantage of the novel habitat provided by human night lighting (e.g., Perry and Lazell 2000. Herpetol. Rev. 31:247). Nonetheless, information is lacking for most species. Only one species of *Eleutherodactylus* is known to utilize the night-light niche (Henderson and Powell 2001. Carib. J. Sci. 37:41–54). *Eleutherodactylus johnstonei* is associated with humans in the Netherlands Antilles (Powell et al. 2005. The Reptiles and Amphibians of the Dutch Caribbean: St. Eustatius, Saba, and St. Maarten. St. Eustatius National Parks