

Cophixalus ornatus

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Authority: Fry, 1912

Common Name: Ornate Frog, Nursery Frog, Ornate Litter Frog.

Description (Zweifel 1962; Cogger 1992; Burton 1993; Barker *et al.* 1995; Olding 1998): A small frog with distinctive large (triangular-shaped) finger and toe pads. Colour patterns are extremely variable in this species and can include mid-vertebral stripes, patches of colour and/or lateral stripes. This patterning is heavier on the dorsal surface, with lateral and ventral surfaces often grey or opaque with less colouring. The dorsal skin has numerous tubercles and skin folds. Males reach a size of 17–27 mm, and females 22–30 mm. The species has a slightly different call for courting females compared to its advertisement call. The advertisement call is a loud 'beep' of approximately 0.5 seconds. The courtship call is quieter and sounds 'squeakier'. The advertisement call is emitted usually from a 'perch', of up to 2 m from the ground. Members of the *Cophixalus* genus can be distinguished from the other Australian microhylid genus *Sphenophryne*, by the lack of procoracoid cartilages and clavicles. The superficial muscles of the throat are also a distinguishing feature.

Similar species (Barker *et al.* 1995): Both *C. concinnus* and *C. saxatilis* have similar shaped finger discs to *C. ornatus*. Since patterning is variable in this species, using colour as a way of identification can be misleading (especially when differentiating species within the genus).

Range (McDonald 1992; Cogger 1992): *Cophixalus ornatus* is the most widespread microhylid in Australia. Their distribution ranges from Bluewater Range (19° 12'S, 146° 22'E) to Mt Spurgeon (16° 27'S, 145° 23'E) in north Queensland. *C. ornatus* occurs across an altitude ranging from sea level, to 1520m above sea level on Mt Bellenden Ker.

Ecology and behaviour (Tyler 1989; McDonald 1992; Olding 1998;): *C. ornatus* is the most widespread species of the *Cophixalus* genera in Australia. As a result, they are found across a wide variety of habit types. Habitat type ranges from mesophyll vine forest at low elevations, to complex mesophyll vine forest in upland regions. *C. ornatus* is similar to other Australian microhylids in that they are generally cryptic during the day (hiding under logs or leaf litter). Activity increases at night when males call from elevated 'perches', either from vegetation or (typically) from crevices in tree trunks. Like all microhylids, *C. ornatus* moves across the forest floor by walking, rather than jumping. Little is known on diet for this species, however small litter dwelling invertebrates would make up a substantial part.

Breeding biology (Tyler 1989; Burton 1993; Brooke 1996;): *C. ornatus* has an extended breeding season lasting for about six months from Sept-Feb. Males build terrestrial nests into which females lay a clutch of macrolethical (large-yolked) eggs, which are held together by strings of 'jelly'. Nests may contain more than one clutch of eggs, presumably from different females. There is some evidence that females are attracted to males with lower call frequencies. One explanation for this is that age and/or size are inversely correlated with call frequency, and that this is a mechanism used by females for mate selection. There is some evidence that older males build more suitable nests than young males do. Choosing mates with low call frequencies may therefore be advantageous to females by increasing the survival chances of the developing eggs. Once the eggs have been laid, the male guards the eggs simply by sitting over them (a trait of most

microhylids). It has been suggested that this may decrease fungal infection of the eggs, however this hypothesis has yet to be tested.

Courtship Behaviour (Zweifel & Parker 1969; Brooke 1996; Olding 1998): Courtship behaviour in *C. ornatus* is fairly complex. Calling males appear to be 'clumped' in spatial distribution. Clumping may increase the number of females attracted to an area because of the increase in overall call velocity caused by more than one male calling. Males also appear to synchronize calls and entrain their call to match nearby conspecifics. This may also serve to attract more females in the local area than a single calling male. Territoriality in this species does not appear to exist, however individual calling sites appear to be important. Brooke (1996) showed in a displacement experiment, that twenty-eight percent of males returned to their original calling positions after being moved. Since males guard egg clutches, and nest sites are usually near calling positions, this homing behaviour may be related to the males desire to return to the nest rather than any preference for calling sites. Once a female has been lured, the male changes his call slightly, and leads the female to his nest. The path he takes is convoluted, and is much longer than the direct route from the calling site to the nest. Nest selection is important, with females preferring males that build deep, small-chambered nests with mud/stick ceilings.

Status (McDonald 1992; Brooke 1996; Olding 1998): This species is relatively common across it's range, however, as mentioned it has a 'clumped' distribution, with a high number of individuals found in some areas and very few in others. *C. ornatus* does not appear to have been affected by the cause of declining frog populations, which has occurred across Australia during the last fifteen years.

Literature cited:

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