

DEFENCE MECHANISMS IN FROGS

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Long-toed Running frog. Notokassina wealli.



Long-toed Running frog in its "passive" defence pose - shamming dead.

One of the first lines of defence in most frogs when on land is to jump away and thus avoid predators. Notorious jumpers include Grass frogs (*Ptychaedena*), Stream frogs (*Rana*) and Reed frogs (*Hyperolius*). Running is another form of defence and is well developed in the Running frogs (*Kassina* and *Nototassina*). Cryptic colouration such as broken patterns and colours which blend into the environment are very important to most frogs. On the other hand frogs such as the Rubber frog (*Phrynomerus*) may exhibit bright red or yellow colours which may act as a warning to predators. Rubber frogs, Toads (*Bufo*) and Rainfrogs (*Breviceps*) secrete a poisonous irritant from their skins which can also prevent them from being eaten.

Another form of defence employed by Bullfrogs (*Pyxicephalus*), Toads and Rainfrogs is to inflate their bodies with air. In so doing they intimidate their predators by presenting a large image or physically preventing their predators from swallowing them. When inflated they may hiss or puff in order to further intimidate the predator. Bullfrogs may even lunge at a predator and attempt to bite it.

In the Orange Free State the Long-toed running frog, *Notokassina wealii*, which can grow up to 44 mm in length, occurs along the eastern

Orange Free State-Lesotho border and extends into the north eastern OFS. This frog is unusual in that it not only uses both active defence modes of running away and inflating itself, but also uses a passive defence mode of shamming dead. The term shamming dead is used as opposed to 'freezing', which also means to sit perfectly still, and is sometimes used by toads as a defence mechanism. The Long-toed running frog is possibly the only frog in South Africa to employ this passive defence tactic. A close relative, the Running frog (*Kassina senegalensis*), with which it can easily be confused, appears to exhibit no tendency to sham.

A Long-toed running frog, when suddenly set upon or harassed draws its hind and fore legs in close to its body and may cover its eyes or mouth with its forelegs. The frog may inflate its body to such an extent that it assumes the appearance of a ball. Many snakes rely on movement when capturing their prey and by shamming dead the Long-toed running frog may avoid detection. Snakes may even nudge their prey in order to make them move before actually biting them. The advantage of shamming dead is therefore very obvious. In addition, the inflated body and moist skin of the frog would make it extremely difficult for a small snake to obtain a good grip with its teeth or to constrict it.

