Hypsiboas geographicus (Map Frog)

Family: Hylidae (Tree Frogs)
Order: Anura (Frogs and Toads)
Class: Amphibia (Amphibians)

Fig. 1. Map frog, *Hypsiboas geographicus.*

[http://www.shutterstock.com/video/clip-288490-stock-footage-map-treefrog-hypsiboas-geographicus-in-the-peruvian-amazon.html, downloaded 29 March 2015]

TRAITS. *Hypsiboas geographicus*, whose common name is the map frog, was formerly known as *Hyla geographica* (Wikipedia, 2015). The male can grow to 55mm while females can grow to 75mm (Bartlett and Bartlett, 2003). The map frog has no one specific colour or patterning but can be differentiated from other closely related frogs by its hand webbing and reticulated eyelids (Fig. 1) (Duellman, 1973). Colour and patterning is usually based on locality. While tadpoles of the map frog are plain black, juvenile map frogs have different skin colour from the adult frogs due to ontogenetic changes (Toledo and Haddad, 2009).

DISTRIBUTION. *Hypsiboas geographicus* is located in Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Trinidad and Tobago, and Venezuela (Fig. 2) (Amphibiaweb.org, 2015). They are arboreal animals which means that they dwell in trees. The map frog is usually found below 500 m with one exception being Ecuador where it is found above 1200 m (Stuart, 2008).

HABITAT AND ACTIVITY. The map frog is a nocturnal creature which as previously mentioned is arboreal and spends most of its time at night breeding or feeding. During the rainy season, the map frog can be both seen and heard more often than during the dry season (Bartlett and Bartlett, 2003). The map frog has been seen and heard between September and March in Ecuador, in the months of February, March, June and July in Brazil, January in Peru and February in Bolivia (Duellman, 1973). The map frog can be found in trees and vegetation close to lakeshore or near/above water. It is not common to see the map frog living near temporary ponds and wetlands. In the Várzea (seasonal floodplain) forest in Brazil, there is an abundance of map frogs due to the environment being conducive to living.

FOOD AND FEEDING. The map frog displays the usual diet of most tree frogs. The adult map frog feeds on a variety of invertebrates like flies, mosquitoes, worms, moths, beetles, ants and crickets. During the tadpole stage, it only feeds on vegetation. The map frog has been seen remaining very still on branches waiting for prey. The unaware prey would venture close to the frog and this is when the map frog would attack.

POPULATION ECOLOGY. Tadpoles of *Hypsiboas geographicus* form large non-polarized schools (Fig. 3). It is not known if they formed these school by family relation or by tadpole size. The size of the tadpoles in schools are >9mm total length and there are usually about 700 tadpoles, however it is not exceptional to see schools getting as large as 2000-3000 tadpoles (Caldwell, 1989). These large spherical balls of tadpoles can either be found at the bottom or top of the water mass they live in. Tadpoles form this aggregation to decrease the risk of predation, as they are small and somewhat defenceless and to attain food (Heursel and Haddad, 2002).

BEHAVIOUR. The tadpoles of *Hypsiboas geographicus* are the most interesting stage within the life cycle. They are usually aggregated and together they perform two types of behaviour; stationary and moving. The stationary behaviour of the tadpoles is thought to be a thermoregulation mechanism while the moving behaviour is used when feeding on vegetation but both can be seen as an anti-predatory mechanism (Caldwell, 1989). When the tadpoles aggregate, they try to swim to the middle of the school which forms a large black mass (Fig. 3) on the surface of the water and this makes it harder for the predator to spot them as a target (Caldwell, 1989). The tadpoles of the map frog do not have much to fear especially from fishes since they release a toxin from their skin which makes them inedible to fish, however invertebrates such as the aeshnid dragonfly larvae can prey upon the tadpole (Caldwell, 1989).

APPLIED ECOLOGY. The map frog is listed on the IUCN list of threatened species but under the category, Least Concern. This is due to the fact that the map frog has a wide distribution, a very large population and a wide range of tolerable habitats. They are in no way threatened and aren't harvested, hunted or used as pets. The map frog scarcely interacts with humans so they are not seen a pests and are not known to carry any human diseases.

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Posted online: 2015

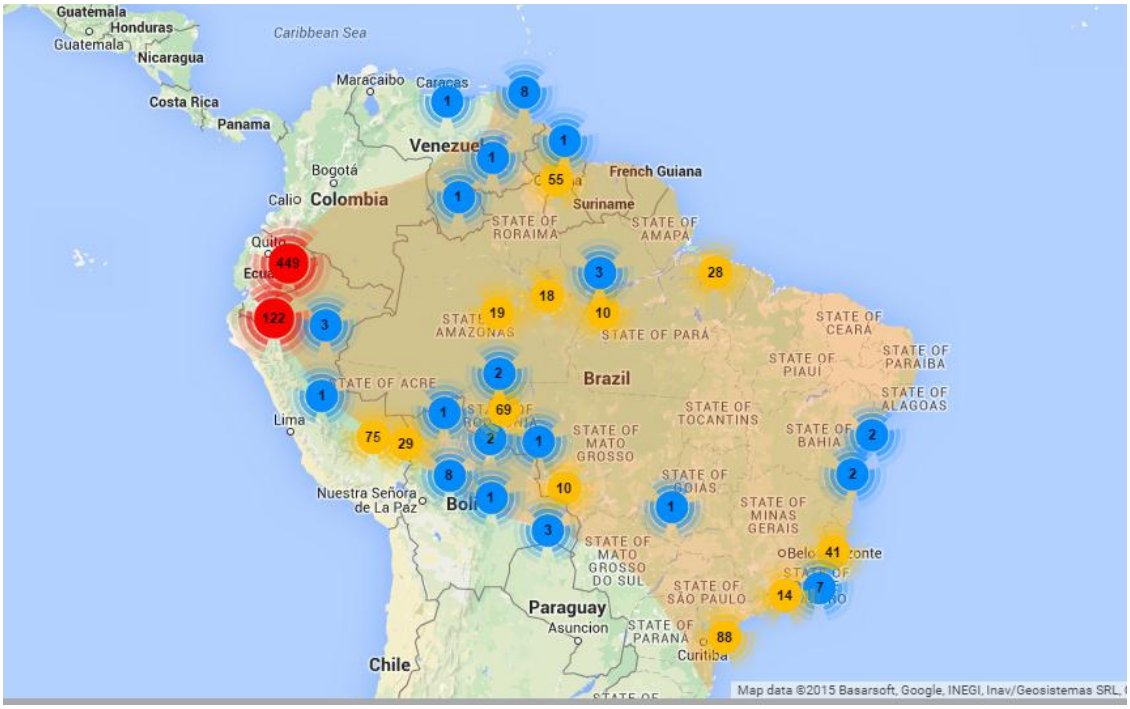

Fig. 2. Distribution of map frog.

[http://berkeleymapper.berkeley.edu/index.html?tabfile=http://amphibiaweb.org/tmpfiles/566681&configfile=http://amphibiaweb.org/tmpfiles/bm_config_33456.xml&ViewResults=tab&sourcename=AmphibiaWeb+Species+Map:+Hypsiboas+geographicus&amphibiaweb=true&label=1&opacity=0.50, downloaded 29 March 2015]

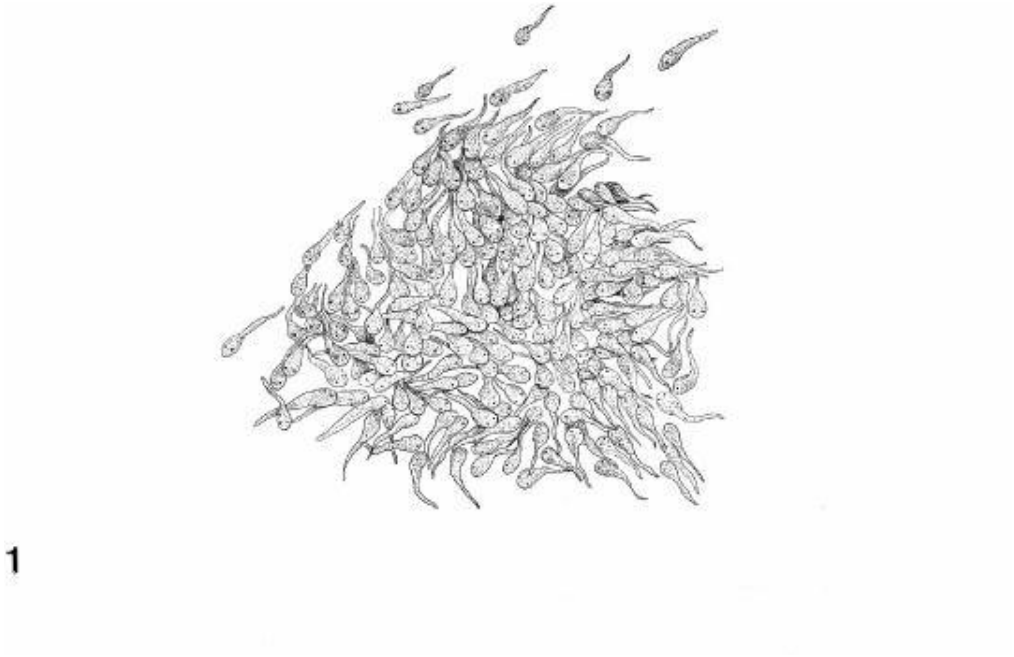

Fig. 3. Non-polarised aggregation of tadpoles.

[http://www.scielo.br/img/fbpe/isz/v92n1/10413f1.gif, downloaded 5 April 2015]

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