



Re-discovery of the Giant West African Squeaker, *Arthroleptis krokosua* Ernst, Agyei & Rödel, 2008 (Amphibia: Anura: Arthroleptidae) in two forests of south-western Ghana with observations on the species' variability and habitat preferences

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Arthroleptis krokosua Ernst, Agyei & Rödel, 2008 is a recently described, morphologically distinct squeaker species. It has no apparent affiliations to any other West African member of the genus (Ernst *et al.* 2008), but instead is most closely related to some Central African *Arthroleptis* (Blackburn *et al.* 2010). It differs from all known West African *Arthroleptis* by its large size (> 40 mm snout-vent-length), coloration and other morphological characters, such as a very broad head. Until now the species is only known from the type locality, the Krokosua Hills Forest Reserve and only from the holotype (Ernst *et al.* 2008). Other large *Arthroleptis* (larger than 35 mm SVL) are known from Central and East Africa (Blackburn *et al.* 2009). As *A. krokosua* might be locally endemic, i.e. amphibian assessments in other Ghanaian and eastern Ivorian forests failed to detect this species (Hillers *et al.* 2009 and literature cited therein); we herein aim to add more data on the variability, distribution and ecology of *A. krokosua*.

We conducted amphibian surveys in three commercially logged forest reserves: the type locality of *A. krokosua*: Krokosua Hills Forest Reserve (KHFR), the Sui River Forest Reserve (SRFR) and the Suhuma Forest Reserve (SFR). The climate of these forests is characterized by a wet season with two rainfall peaks falling between May–June and September–October, respectively. Annual rainfall ranges between 1200–1800 mm (Hall & Swaine 1981). The dry season is between November and March.

The KHFR (481.7 km²) falls within the northwest subtype of moist semi-deciduous forest (MSD). Trees in this type of forest become taller (50–60 m) than those of other Ghanaian forest types. Upper canopy consists of deciduous and evergreen species in varying proportions. *A. krokosua* was described from northern KHFR, which was the only part of KHFR surveyed at that time (Rödel *et al.* 2005). During the present study only the southern part of KHFR could be surveyed. This part is more degraded than the northern one, i.e. due to farms and logging. The SRFR (333.9 km²) consists of a long narrow band that follows the Bia-Tano watershed, south of Buaku. Most parts of the reserve are under active logging. The SFR (359 km²) is located within the moist evergreen (ME) and MSD forest zones of Ghana. The canopy is discontinuous, usually reaching average heights of 43 m and 50–60 m in the ME and MSD zones, respectively. Large areas of the reserves have been logged and still are under active logging. All three reserves have an undulating topography with very steep slopes (Hawthorne & Abu-Juam 1995). Vegetation on most of these slopes is less damaged as a result of being inaccessible to logging operations.

We established a total of 48 2-ha plots (16 per forest site) and achieved more than 700 person-hours of sampling during day-light. Data were collected over an eight-month period (May–December 2009) in order to include wet and dry seasons. We sampled frog occurrence data by visually scanning the vegetation and the ground and by lifting objects such as rocks, logs and debris; whilst listening for calls. Frogs that were seen were captured, sexed and measured. Three frogs were euthanized and preserved in 75% ethanol. Two vouchers (GAB 021-022, SRFR, 06°14.915' N, 002°41.948' W, 1 August 2009, 439 m a.s.l.) will be deposited in the Wildlife Museum of the Kwame Nkrumah University of Science and Technology; one voucher was deposited in the Museum für Naturkunde, Berlin (ZMB 74801, SRFR, 06°12.680' N, 002°41.685' W, 10 August 2009, 447 m a.s.l.). All other frogs were released at their original sites. We assessed morphological characters of new specimens by following Ernst *et al.* (2008). Characters taken in the field included snout-vent length (SVL in mm); structure of dorsal skin; snout shape in dorsal and lateral view, nares visible from above or not and dorsal and ventral colour pattern.