



A new species of bright-eyed treefrog (Mantellidae) from Madagascar, with comments on call evolution and patterns of syntopy in the *Boophis ankaratra* complex

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Abstract

We describe a new species of *Boophis* treefrog from Ranomafana National Park in the southern central east of Madagascar. This region has remarkably high anuran diversity, and along with neighbouring sites, hosts more than 35 *Boophis* species. *Boophis boppa* sp. nov. is part of the *B. ankaratra* sub-clade (herein named the *B. ankaratra* complex), previously identified within the monophyletic *B. albipunctatus* species group. It occurs sympatrically with two other species of the complex (*B. ankaratra* and *B. schuboeae*). Morphological differentiation of species within the *B. ankaratra* clade remains elusive, but species are well characterized by distinct advertisement calls, with *B. boppa* having the longest note duration and inter-note intervals when compared to closely related species. Furthermore, it has moderate differentiation in mitochondrial DNA, with pairwise distances of 1.9–3.7% to all other species in sequences of the mitochondrial 16S rRNA marker. Additional evidence is given by the lack of haplotype sharing with related species for the nuclear exon DNAH-3. All examples of syntopic occurrence in this complex involve species with strongly different advertisement calls, while allopatric species have more similar calls. Such a pattern might result from adaptive call co-evolution but could also be the result of non-adaptive processes. Thorough clarification of the systematics of the *B. ankaratra* sub-clade is required, and we outline future directions for both bioacoustic and genetic research.

Key words: Amphibia, Anura, Ranomafana National Park, new species, reinforcement, *Boophis boppa*, taxonomy

Famintinana

Araka ny fikarohana izay nataonay tao amin'ny valan-javaboahary nationaly Ranomafana, faritra atsimo atsinanan'i Madagasikara dia nahita karazana sahon'ala vaovao *Boophis* izahay. Manamarika io faritra io ny fananany 'diversité' ambony amin'ny karazana sahona ary ny toerana manodidina dia ahitana karazana *Boophis* mihoatra ny 35. Ny *Boophis boppa* sp. nov. dia anisan'ny karazana *Boophis ankaratra* ihany izay efa fantatra teo aloha fa izy dia iray fiaviana amin'ny vondron'ny *B. albipunctatus* ihany. *Boophis ankaratra* dia miaraka mipetraka amin'ny karazana sahona roa hafa koa izay iray fiaviana aminy dia ny *B. ankaratra* sy ny *B. schuboeae*. Ireo karazany ireo dia tsy voavaka raha ny endrika ivelany no resahina saingy kosa azo avahana amin'ny feony, izay mitarazoka kokoa sy miavaka ho an'ny *B. boppa*. Fanampin'izany dia misy maha samihafa azy koa amin'ny resaka ADN, izay tafiditra ao anelanelan'ny 1.9–3.7% manoloana ny an'ny hafa izay manana 'séquence mitochondriale 16S rARN marqueur'. Nefa kosa fiovana tohin 'ADN kely monja dia mampiova ireo karazana sahona, izay misy hifandraisany amin'ny 'axone nucléaire DNAH-3'. Marihina fa ny sahona izay mitovy toerana ipetrahana ary mitovy fihaviana dia hita fa manana feo tena samihafa, ho an'ireo izay tsy mitovy toerana ipetrahana kosa dia manana feo somary mitovitovy kokoa. Izany dia mety avy amin'ny fanatsarany miaraka ny feony na mety koa avy amin'ny tsy fivoaran'ny feony mihintsy. Araka izany dia ilaina ny fanazavana ara-tsistematika momba ny *B. ankaratra* sy ireo mitovy fihaviana aminy ary mila jerena koa ny mikasika ny hoavin'ny fikarohana eo amin'ny resaka feo sy eo amin'ny lafiny fototarazo. Eny na dia somary kely aza ny taha-pahaveloman'ity karazana sahona vaovao ity *B. boppa* sy kely ny faritra ivelomany izay misy azy dia hita fa tena voaaro tsara izy ao anatin'ny valan-javaboaharin'ny Ranomafana.