Diversity and biogeography of frogs in the genus Amnirana (Anura: Ranidae) across sub-Saharan Africa

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Frogs in the genus Amnirana (family Ranidae) are widely distributed across sub-Saharan Africa and present a model system for exploring the relationship between diversification and geography across the continent. Using multiple loci from the mitochondrial (16S) and nuclear genomes (DISP2, FICD, KIAA2013, REV3L), we generated a strongly supported species-level phylogeny that provides insights into the continental biogeography of African species of Amnirana, which form a monophyletic group within the genus. Species delimitation analyses suggest that there may be as many as seven additional species of Amnirana in Africa. The biogeographic history of Amnirana is marked by several dispersal and vicariance events, including dispersal from the Lower Guinean Forest into the Congo Basin. In addition, phylogeographic patterns within two widespread species, A. albolabris and A. galamensis, reveal undescribed cryptic diversity. Populations assigned to A. albolabris in western Africa are more closely related to A. fonensis and require recognition as a distinct species. Our analyses reveal that the Lower and Upper Guinean Forest regions served as important centers of interspecific and intraspecific diversifications for Amnirana.
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