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Short Note

Range Extension for *Limnonectes larvaepartus* at the Central Region of Sulawesi, Indonesia

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The first tadpole-bearing frog, *Limnonectes larvaepartus* Iskandar, Evans, and McGuire, 2014 is distributed on the Northern Peninsular and along the west coast of the central core of Sulawesi, Indonesia[1,2,3]. It occurs in natural habitats and disturbed forests, on rocky substrates, leaf litter, or isolated on grassy vegetation, found up to 10 m from the stream[2]. This endemic frog species has both internal fertilization and birth of tadpoles, where the exotrophic tadpole is retained to a later developmental stage in the female's oviducts[4]. Although found living in sympatry with other *Limnonectes* species[2], it did not call at the same time and at the same location with *L. modestus* because of their similar acoustic niches[5]. The new reproductive mode and the acoustic niche adaptation make this Sulawesi fanged frog unique among anurans.

In September 2021, we conducted amphibian surveys in the Lake Poso area of Central Sulawesi. Visual and acoustic encounter survey methods were used from 19.00–22.00 hours. During collecting activities in the lowlands north of Lake Poso, we collected three individuals of *L. larvaepartus*. All data was recorded in a field book, including collection time and behavior, horizontal and vertical position (distance from water), substrate, elevation, air temperature, water temperature, air humidity, water pH and weather condition. The specimens were fixed in a solution of 10% formalin and preserved in 70% ethanol, then deposited in the Animal Biosystematics and Evolution Laboratory of the Biology Department, Faculty of Mathematics and Natural Sciences, Tadulako University in the city of Palu, Central Sulawesi.

All specimens were recorded from Leboni Village, Pamona Puselemba District, Poso Regency (-1.75008 S, 120.53509 E, elevation 695 m asl; Fig. 1). This site is a secondary lowland tropical rain forest with many small streams and waterfalls that provide suitable habitat for anurans (Fig. 2A). The collected specimens were found in leaf litter, not far from small streams (about 0.5–6 m from the water). We collected one male (SVL = 40.59 mm; Fig. 2B) and two females (SVL = 48.58–51.41 mm). Among the females, one was pregnant and gave birth to tadpoles in a sample bag soon after collection (Fig. 2C–F). During the observation period, no advertisement calls were heard at the study site, even though we also found *L. modestus* and one unidentified species of *Limnonectes*. In this regard, our observations at other sites found that *L. modestus* is one of the most actively calling species in the area.

Although its distribution is not fully understood within the highlands of the Central Core of Sulawesi[2], the discovery of *L. larvaepartus* at our study site shows that it is more widespread than previously known. Also, its existence in at an elevation of 695 m asl is new information on the vertical geographic range limits of the species. Therefore, we need further herpetological exploration in the area which is considered suitable for the species (microhabitat requirements, habitat types, vegetation, and water sources). More research would show that the actual distribution of *L. larvaepartus* probably encompasses a larger area than currently known, as shown for other amphibians and reptiles within Sulawesi[6,7,8,9,10].

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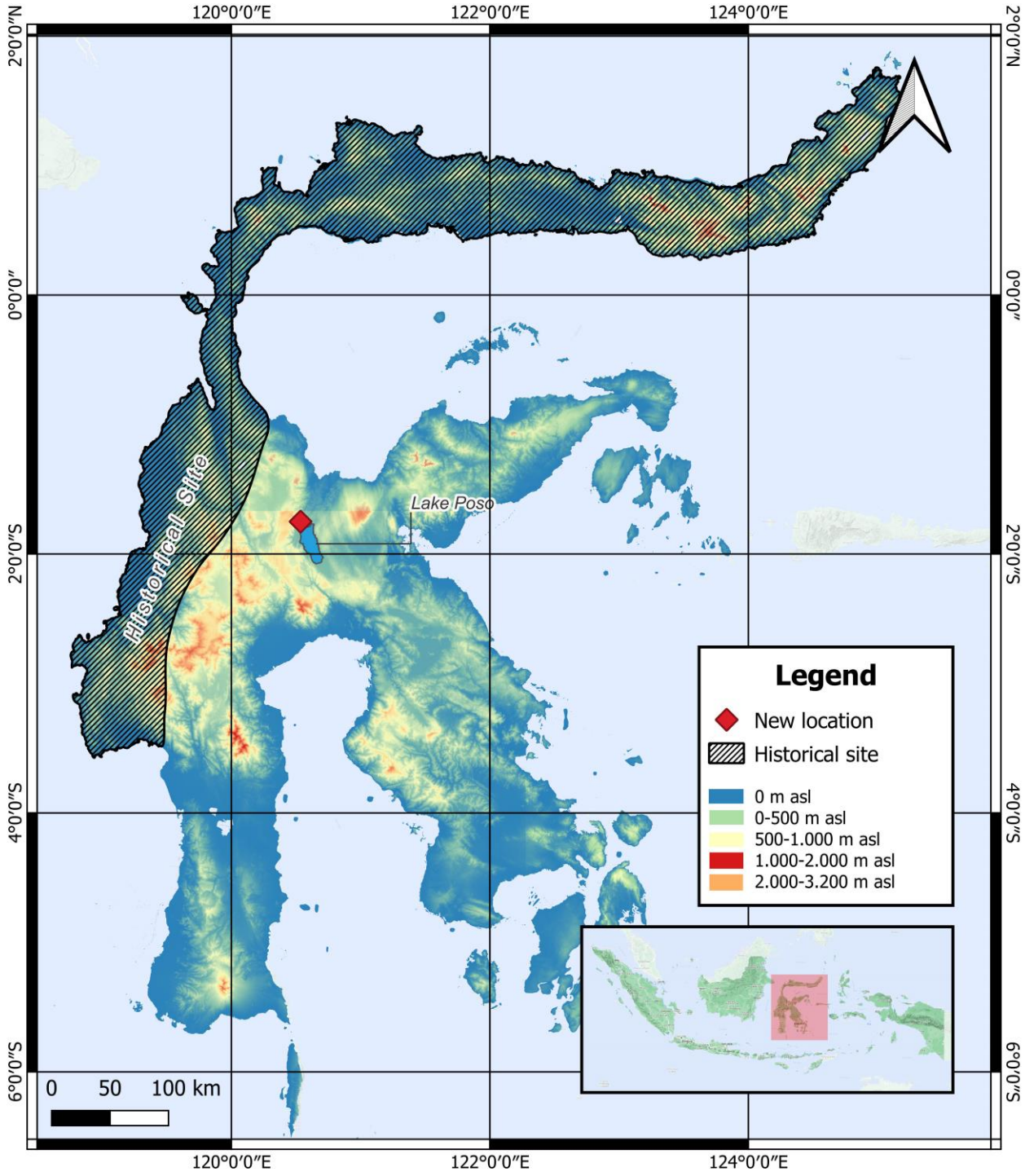

FIGURE 1. Distribution map of *Limnonectes larvaepartus* in historical sites with previous locations (Northern Peninsular and west coast of the central core[1,2,3]) and in the newly recorded location (northern part of Lake Poso, central core of Sulawesi).

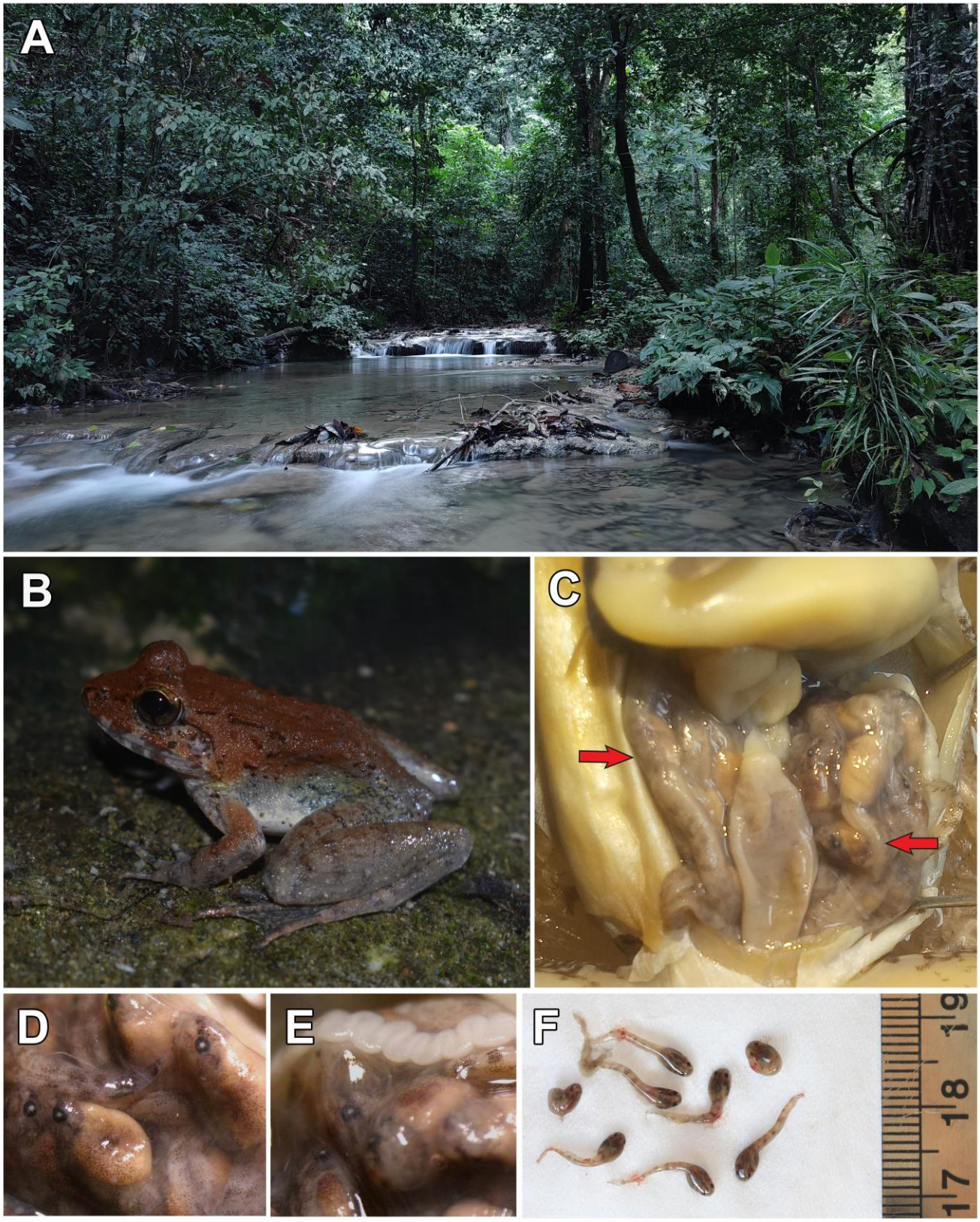

FIGURE 2. *Limnonectes larvaepartus*. A. Habitat type at the new collection site, B. a male in life specimen, C. dissection of preserved gravid female, D–E. tadpoles in the preserved specimen, F. live tadpoles found in sample bags before specimen preservation. (Photographs A by Kurniawan P. Bandjoulu; C–E by Dian Husnaya)

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