



Adactyly in a Mawphlang Odorous Frog, *Odorrana mawphlangensis* (Pillai and Chanda 1977) (Ranidae), from Mizoram, India

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Since Gesner (1554) reported the first case of a malformation in an anuran, such incidences have become alarmingly common due to overexposure to radiation and environmental contaminants (Ankley et al. 2002; Blaustein and Johnson 2003; Lunde and Johnson 2012). One type of malformation is adactyly, a specific form of ectrodactyly, which is characterized by the absence of all digits on a limb (Henle et al. 2017a).

The Mawphlang Odorous Frog, *Odorrana mawphlangensis* (Pillai and Chanda 1977), is a large frog distributed throughout northeastern India (Frost 2021). One population inhabiting a stream below hilly grass-covered terrain was breeding from late April and early June (Lalremsanga 2017).

An adult male *O. mawphlangensis* (SVL 78.68 mm) with adactyly was collected on 11 June 2016 from a seasonal streamlet (23°27'15.31"N; 92°45'07.34"E; 1,483 m asl) at Hmuifang Community Reserve Forest, Aizawl District, about 50 km south of Aizawl, Mizoram. The specimen was identified based on the original description of the species (Pillai and Chanda 1977) and catalogued in the Departmental Museum of Zoology, Mizoram University (MZMU 132). All five digits of the left hindlimb were greatly reduced in length (Fig. 1) and we saw no evidence that this condition was a result of an injury. This is the first documented case of adactyly in this species.

Various reports revealed that exposure to water contaminated with pollutants, pesticides, herbicides, retinoids and retinoid mimics, steroid-mimicking contaminants, petrochemicals, and metals, along with microbial diseases, parasitic infections, ultraviolet radiation, and global warming are principal causes of abnormalities in anurans (see Hall and Henry 1992; Chambon 1993; Kirk 1998; Marco et al. 2002; Blaustein and Johnson 2003; Degitz et al. 2003; Ankley et al. 2002; Johnson et al. 2001; Schoff et al. 2003; Lunde and Johnson 2012; Henle et al. 2017b; Monico et al. 2019). The cause of this abnormality in this particular species and the

extent of malformations among amphibians in the Hmuifang Community Reserve Forest are still unknown. Brachydactyly in a Nagaland Montane Torrent Toad (*Duttaphrynus chandai*) (Siammawii et al., in press) and a Tamenglong Horned



Fig. 1. Dorsal and ventral views of a Mawphlang Odorous Frog (*Odorrana mawphlangensis*) with adactyly on its left hindlimb. Photograph by Lal Muansanga.

Frog (*Xenophrys numbbumaeng*) (Siammawii et al. 2021) have been reported from the same locality. Thus, further investigation is needed in order to identify the possible causes of this malformation.

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