

Short Note

First Record of Carrion Feeding by Tadpoles of *Duttaphrynus himalayanus* and *Nanorana vicina* from Western Himalaya, India

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Received: 29 May 2020; Accepted: 9 October 2020

Scavenging by anuran larvae were documented in some species such as *Bufo cognatus* (on insect remains and dead animal matter)¹, *Rhinella crucifer* (on carcass of an adult *Hypsiboas faber*)², *Osteopilus septentrionalis* (on insect carcasses)³ and *Polypedates megalcephalus* (on an unidentified toad)⁴. Among Indian amphibians, carcass feeding behaviour have been so far documented in tadpoles of *Duttaphrynus melanostictus*⁵, *Minervarya* sp. (on *Duttaphrynus* sp.)⁶ and *Hoplobatrachus tigerinus* (on tadpoles of *Duttaphrynus stomaticus* and *Microhyla ornata*, fishes, earthworms, bugs etc.)^{7,8}. Indirect evidences of scavenging by the tadpoles (i.e., *Duttaphrynus melanostictus*, *Microhyla ornata*, *Fejervarya limnocharis*, *Fejervarya orrissaensis*, *Polypedates maculatus*, *Leptobranchium smithi* and *Euphlyctis cyanophlyctis*) have been also reported from gut content analyses^{9,10,11}. In this communication, we report observations of carrion feeding by tadpoles of *Nanorana vicina* and *Duttaphrynus himalayanus* (Fig. 1) from Benog Wildlife Sanctuary (30.4685°N, 78.0231°E, 1684 m elev., WGS84), Mussoorie, Uttarakhand, India. The voucher photographs (Fig. 1) have been deposited at Zoological Reference Collection of the Lee Kong Chian Natural History Museum, National University of

Singapore (ZRC) and are cataloged as ZRC(IMG) 1.191.

The tadpoles of *N. vicina* were identified by the combination of the characters such as medium sized and dorsoventrally compressed body, snout rounded, eyes dorsally placed, tail tip rounded, dorsum dull greenish-brown, tail greenish-grey^{12,13}. The tadpoles of *D. himalayanus* which is the only toad species occur in the study area¹⁴ and can be easily distinguished by their flattened head, small and sunken eyes, dark brown to black body colour^{13,15}.

First observation on *D. himalayanus* tadpoles feeding on carcass of *D. himalayanus* was carried out on 11th May 2019, at 1230hrs in a pool section of a perennial stream (Fig. 1A). Of our almost 50minutes of observation, we noticed around 10-15 tadpoles were scavenging on the carrion from the large school (spreading over 3m diameter area) gathered over there. While, the second occasion of carcass feeding by *N. vicina* tadpoles feeding on carcass of *D. himalayanus* was observed on 19th July 2019, at 2320hrs in a run section of the same stream approximately 500 m upstream from the previous observation site (Fig. 1B). We observed the tadpoles nibbling on the soft part of the carcass for almost 60 mins. We noticed that around 6-10 tadpoles (of the school spreading over an

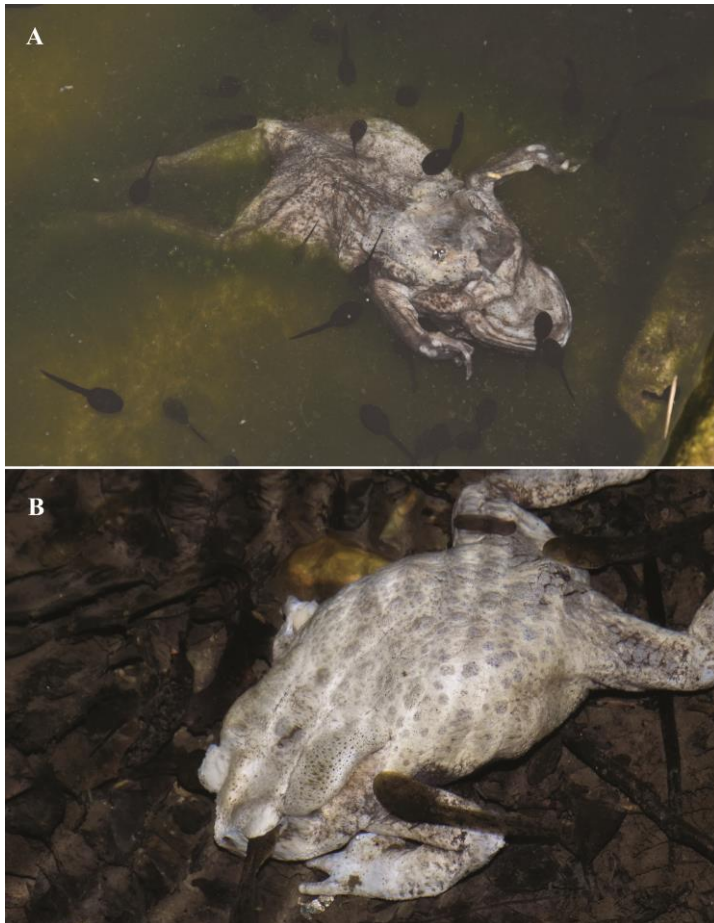


FIGURE 1. A. *Duttaphrynus himalayanus* tadpoles scavenging on dead *D. himalayanus* toad B. *Nanorana vicina* tadpoles feeding on the carcass of a *D. himalayanus* toad

area of 2–3 m diameter) were only feeding on the carcass at a time. In both the cases, at that point of time, there were no other species of tadpoles that have been observed to be present or scavenge along with these mentioned clutches. Although, apart from these two species of tadpoles, tadpoles of *Nanorana minica* have been noticed to sympatrically occur in many sections of the same stream along with its other congener i.e. *N. vicina*. Our observation suggests that they are mostly seen scraping on to algae on the vertical walls of the manmade pool and

been found around leaf litters in run and riffle sections of the stream.

Duttaphrynus himalayanus tadpoles are known to feed on bottom debris in water and also the scrapped materials from submerged rocks¹⁵, whereas *N. vicina* tadpoles feed on suspended microscopic particles, detritus, algae etc¹². The present observation thus become a novel report of carrion feeding by tadpoles of dicoglossid frog of the genus *Nanorana* and also the first report of carrion feeding by *D. himalayanus* tadpoles. Moreover, earlier

observations on scavenging behaviour of tadpoles were mostly reported from lower elevation ranges (≤ 1000 m). Thus, the present report adds important natural history information of anurans living in higher elevation of Western Himalayas.

ACKNOWLEDGEMENTS

We thank Uttarakhand Forest Department for research permission and WII Grant in Aid project for providing financial support. Thanks to Chan Kin Onn, Natural History museum, Singapore University for providing the ZRC reference number. We would also like to thank Deb Shankha Goswami and Swati Nawani for their support during field works.

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