

## A report of *Duttaphrynus scaber* Schneider (1799) (Anura: Bufonidae), with Abnormal Toes, from Gavase, Kolhapur District, Maharashtra

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### Abstract:

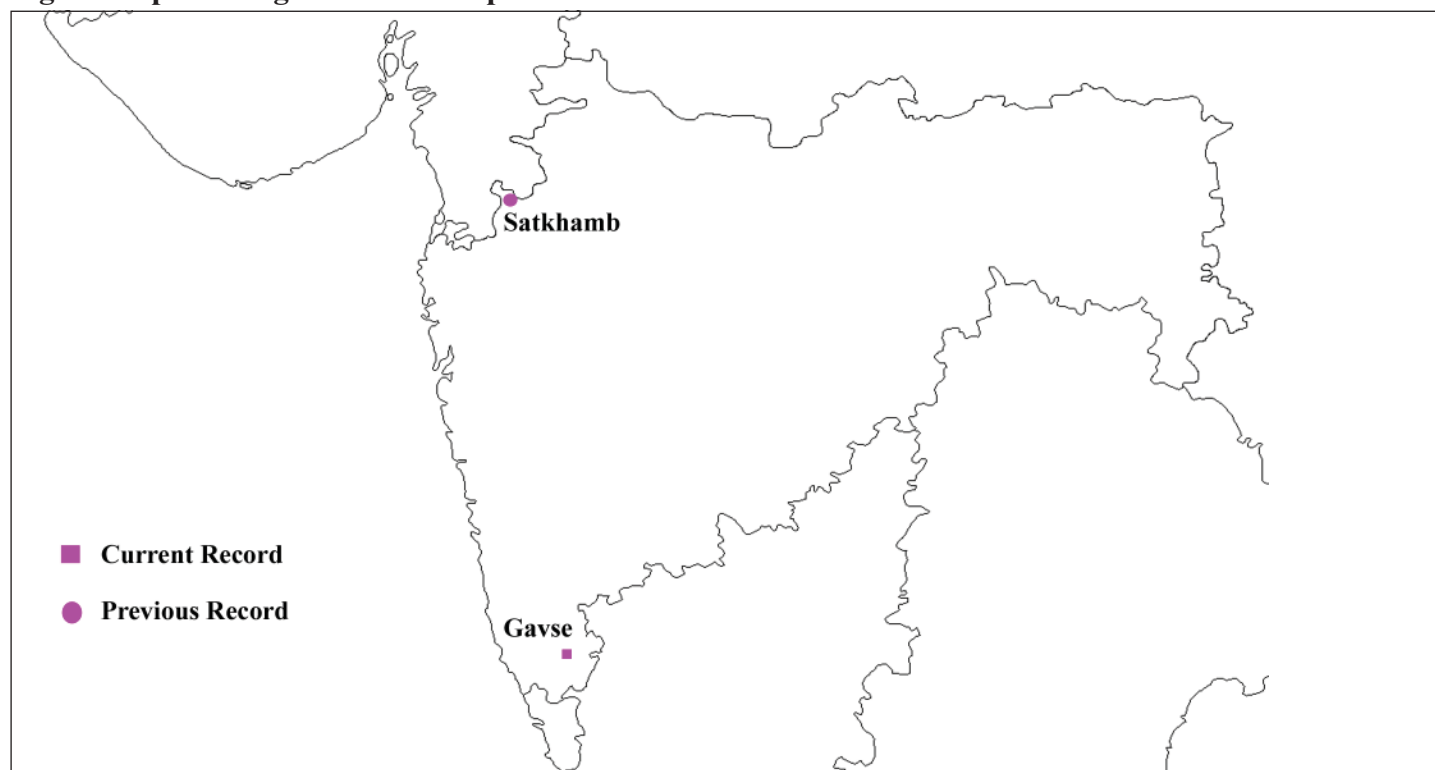
A toad, *Duttaphrynus scaber*, with hind limb abnormality was collected from Ajara-Amboli road. This is the first report of the species from southern Maharashtra and a second report of this species from the state. This short note is aimed to add to the existing information of species distribution along its range.

**Keywords:** Species distribution, brachydactyly.

A toad specimen was recently collected from the vicinity of village Gavase on Ajara-Amboli road (16.103°N, 74.124°E, 685 m ASL, Fig. 1) on 19<sup>th</sup> July 2013 at about 21:45 hrs. The specimen showed brachydactyly in both hind limbs. The collected specimen was preserved in



Fig. 1: Map showing localities of reports of *D. scaber* from Maharashtra State



**Fig. 2: Photographs of live specimen collected at Gavse – A: Dorsal View, B: Ventral View & C: Lateral View.** (All photographs by Anushree Jadhav)



absolute ethanol and deposited in the museum of Zoology Research Laboratory in MES' Abasaheb Garware College (AGCZRL Amphibia175). Morphometry of the specimen was done as per Dubois and Ohler (1999), with the help of Ocean IP 54 Digital Vernier calliper. This data was used for comparison of the collected specimen with morphometric measurements of three specimens given by Padhye *et al.* (2013). The gender of the collected specimen was confirmed by taking lateral abdominal incision and inspection of gonads.

The specimen was confirmed to be an adult female of *Duttaphrynus scaber* Schneider, (1799) (Fig. 2) with the help of descriptions in Dubois and Ohler (1999), based on the following characters: Small toad (SVL 28.92 mm) with broad head i.e. Head length (HL 8.20 mm) lesser than head width (HW 9.31 mm); Snout slightly longer than eye (SL 3.19 mm; EL 2.62 mm); inter-orbital space concave, larger (IUE 3.48 mm) than upper eyelid (UEW 2.42 mm) and inter-narial distance (IN 1.87mm); distance between front of eyes (IFE 5.08 mm) is less than two thirds of distance between back of eyes (IBE 8.79 mm); Rounded nostrils closer to the tip of snout (NS 0.64 mm) than to eye (EN 2.76 mm); Parotids glands present, rounded, with horny spines and warts, very prominent, slightly longer (PL 2.91 mm) than wide (PW 2.07 mm), shorter than distance between them (PD 4.70 mm); Canthal, supraorbital, postorbital, parietal and slight preorbital ridges present; Co-ossified skin absent; short arm (FLL 6.53 mm) longer than hand (HAL 5.89 mm); Fingers long, slender (TFL 3.86 mm); Relative length of fingers, shortest to longest is I<II<IV<III; Finger tips rounded, without grooves; Fingers without webbing or

any dermal fringe; Tibia more than three times longer (TL 9.74 mm) than wide (TW 2.23 mm) and longer than thigh (FL 9.30 mm); Foot length (FOL 10.12 mm); Tips of toes rounded, not enlarged, without grooves; Webbing formula: I0-1III1-2III2-3½IV3½-1V; Dermal ridge along toe V absent; Subarticular tubercles prominent, rounded, all present; Inner metatarsal tubercle elongated, prominent; Tarsal fold absent; Outer metatarsal tubercle present, prominent rounded; numerous tubercles on the sole of the foot and toes.

In the collected specimen, toes of both hind limbs showed brachydactyly (Fig. 3) i.e. short toes with normal number of metatarsal bones but number of phalanges reduced (Meteyer, 2000). The first toe of right foot (T1) and third, fourth and fifth toes (T3, T4 & T5) of left foot were abnormal. The locality of collection had short shrubs, few trees, road side gutter and paddy fields in surrounding areas. Gurushankara *et al.*, (2007) have described morphological abnormalities in natural populations of common frog species inhabiting the agro-ecosystems of central Western Ghats. The morphological abnormalities recorded in their study included abnormal limbs with hemimelea: short tibia-fibula; brachydactyly: short toe; ectrodactyly: missing digit; ectromelea: incomplete limb with missing lower portion as well as a tumour on the femur. They also reported eye abnormalities and bulging abdomen. Rajshekhar *et al.*, (2010) have shown brachydactyly in *D. melanostictus*. The limb and eye deformity in *D. scaber* has been reported by Arvind and Gururaja (2011).

Detailed morphometrics of specimen collected at Gavse, as given in Dubois and Ohler (1999), are given in Table 1,

**Fig. 3: Brachdactyly in circles A - Right foot (T1) and B – Left foot (T3, T4 & T5)**

(All photographs by Anushree Jadhav)



while comparative morphometrics of specimen collected at Gavase and data from Padhye *et al.* 2013 are given in Appendix 1.

It is a common species listed as Least Concern in view of its wide distribution, tolerance of a broad range of habitats, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category (Dutta & Manamendra-Arachchi, 2004).

As per the published records, *D. scaber* is distributed from Trivandrum in Kerala (Daniels 2005) to Ahwa, Gujarat (Padhye *et al.*, 2013) in Western Ghats. It also occurs outside Western Ghats at Chennai, Tamil Nadu; Banjara Hills - Hyderabad, Andhra Pradesh; Sambalpur District in Odisha and Shoolpaneshwar wildlife sanctuary, Gujarat. Recently the species has been recorded from north-eastern state of Manipur (Mathew & Sen 2009; 2010). Outside India, the species is reported from Sri Lanka (Dutta & Manamendra-Arachchi 1996; Padhye *et al.* 2013).

This species is generally present from sea level to 300m asl. This terrestrial species inhabits a number of habitat types including wet evergreen tropical forest, tropical dry forest, dry scrubland, grassland, coastal marshes and rural farmland areas. Adults are generally found under ground cover, or during the breeding season they are found in grasslands close to water-bodies. Larvae are aquatic and occur in stagnant waters (Dutta & Manamendra-Arachchi, 2004). Grampurohit *et al.*, (2008) have studied kinship influenced larval growth and metamorphic traits of this

species. Their findings demonstrated that, in *D. scaber*, kinship plays a role in driving the metamorphic traits in a context-dependent manner. They also showed that effects of kinship are expressed selectively under adverse ecological situations such as overcrowding. Deforestation for commercial purposes, pollution of land and water-bodies with agrochemicals and the loss of suitable habitat to urbanization are major threats to this species (Dutta & Manamendra-Arachchi, 2004).

Our report is the second record of *D. scaber* from Maharashtra and the first record from the southern region of Maharashtra state. Earlier it was known only from village Satkhamb from Surgana Taluka of Nasik District of Maharashtra (Padhye *et al.*, 2013). The presence of species at two extreme locations of Western Ghats of Maharashtra suggests that the species might also be present in localities between the two ends of Maharashtra. Hence, our paper also highlights the lacunae in the field studies from Western Ghats of Maharashtra.

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#### **Author Contribution:**

NM and AB collected the specimen, ADP identified the specimen, NM did the morphometry, NM and ADP prepared the MS.

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most limit of Western Ghats, with its advertisement call analysis. *Journal of Threatened Taxa* 5(11): 4579-4585.

**Table 1:** Morphometrics (in mm) of specimen collected from Gavase

AGCZRL Amphibia, Female Gavase, Maharashtra	
SVL	28.92
HL	8.40
HW	9.31
SL	3.19
EL	2.62
MN	6.26
MFE	4.27
MBE	1.23
IUE	3.48
UEW	2.42
IN	1.87
IFE	5.08
IBE	8.79
NS	0.64
EN	2.76
TYD	1.65
TYE	0.54
PL	2.91
PW	2.07
PD	4.70
FLL	6.53
HAL	5.89
TFL	3.86
F1	1.86
F2	2.13
F3	3.86
F4	2.50
FL	9.30
TL	9.74
TW	2.23
FOL	10.12
TFOL	13.72
T1	2.05
T2	4.47
T3	6.03
T4	9.95
T5	6.74

**Appendix 1:** Comparative morphometrics of specimen collected at Gavase and data given by Padhye et al. 2013.

Voucher Number	AGCZRL Amphibia 41	AGCZRL Amphibia 42	AGCZRL Amphibia 98	AGCZRL Amphibia 173
Gender	Male	Male	Female	Female
Place of collection	Supdahad, Gujarat	Supdahad, Gujarat	Thrissure, Kerala	Gavase, Maharashtra
Snout to vent length	24.2	25.5	36	28.92
Head length	7.4	7.8	11.8	8.4
Head width	8.5	8.8	12.8	9.31
Inter narial distance	1.5	2	3.2	1.87
Snout length	0.9	1.1	1.7	3.19
Eye diameter	2.6	2.8	3.8	2.62
Inter orbital distance	2.7	2.9	3.4	3.48
Width of upper eyelid	1.8	2.3	3.1	2.42
Tympanum dia. (horizontal)	1.1	1.2	2.3	1.65
Eye-tympanum distance	0.8	0.9	0.3	0.54
Forelimb length	17.3	17.9	20.7	16.28
Hindlimb length	28.1	28.6	41.6	32.76
Femur	6.6	7	11.7	9.3
Tibia	8.4	8.5	11.6	9.74
Foot	13.1	13.7	18.3	13.72
Length of parotid gland	1.8	2.2	3.5	2.91
Width of parotid gland	1.8	2.2	3.3	2.07