



## New Record of *Duttaphrynus melanostictus* (Schneider, 1799) (Anura : Bufonidae) from Jamshedpur, Jharkhand with Systematic Account and Conservation Status

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**ABSTRACT:** The present communication deals with the new record of *Duttaphrynus melanostictus* (Schneider, 1799), the Common Indian Toad, from Jamshedpur (Jharkhand) with its synonymy, common names, diagnostic features, altitudinal range, distribution, habitat, food & feeding, breeding, conservation status and threats.

**Keywords:** New Record, *Duttaphrynus melanostictus*, Jamshedpur.

### I. INTRODUCTION

Amphibian fauna of old Bihar state has attracted the attention of some workers during the past [9, 10, 12, 14], but very little is known from Jharkhand part except from Chakulia (East Singhbhum district) by Sarkar, 1991. There is also a record from Sarsa (Deoghar dist.) (vide inaturalist). Annandale & Rao, 1918 made studies on tadpoles of some species from Bihar and elsewhere [1].

Recently some specimens of *Duttaphrynus melanostictus* (Schneider, 1799), the Common Indian Toad, were sighted at Jamshedpur (East Singhbhum district, Jharkhand) and reported here with its synonymy, diagnostic features and other related aspects.

### II. STUDY SITE: JAMSHEDPUR

**Physiography:** Jamshedpur lies at 22° 12' - 23° 12' N Latitude and 86° 04' - 86° 54' E Longitude, between confluence of Subernarekha and Kharkai rivers in East Singhbhum district. It is a hilly region with an average elevation of 135 m (213-945 m / 700-3100 ft), surrounded by lush green Dalma, Ukam and Jadugoda-Musabani hills and dotted with various big and small lakes. It is a part of Chota Nagpur Plateau. The district is bounded by West Bengal in east and Odisha in south. Site: 52, Straight Mile Road, Northern Town, Jamshedpur, with a water tank and good vegetation.

**Climate:** Tropical wet and dry climate with hot summers (40°-45° C) and cold winters (5° - 8° C) and rainy during July-September (1,200-1,400 mm annual rainfall).

**Flora:** Ornamental and other plants at study sit (52, St. Mile Road, Northern Town).

*Mangifera indica* (Mango), *Artocarpus heterophyllus* (Jackfruit), *Carica papaya* (Papita), *Musa* sp. (Banana),

*Hibiscus rosa sinensis* (Gurhal), *Elettaria cardamomum* (Cardamum, Elaichi), *Cymbopogon citratus* (Lemon grass), *Rosa* sp. (Rose), *Clitoria ternatea* (Aprajita), *Catharanthus roseus* (Sada-bahar), *Tagetes* sp. (Marigold), *Chrysanthemum* spp., *Viola tricolor* (Pansy), *Ocimum tenuiflorum* (Holy Basil, Tulsi), *Epipremnum aureum* (Money plant), *Hydrilla verticillata* (Waterhyme), *Nelumbo nucifera* (Lotus), *Cynodon dactylon* (Dhoob grass), *Cestrum nocturnum* (Jasmine, Raat-rani), *Solanum lycopersicum* (Tomato), *S. melongena* (Brinjal) etc.

### *Duttaphrynus melanostictus* (SCHNEIDER, 1799)

#### Systematic Account and other aspects

##### Synonymy:

*Bufo melanostictus* Schneider, 1799. *Hist. Amph. Nat.*, 1: 216 (type-locality: India orientali); Gravenhorst, 1829. *Del. Mus. Zool. Vart.*: 57; Gunther, 1860. *Proc. Zool. Soc. Lond.*: 165; Gunther, 1861. *ibid.*, 220; Gunther, 1864. *Rept. Brit. India*: 422; Stoliczka, 1870. *Proc. Asiat. Soc. Beng.*: 155; Boulenger, 1882. *Cat. Batr. Sal.* (ed.2): 306; Boulenger, 1890. *Faun. Brit. India, Rept. & Batr.*: 505-507, fig. 140; Boulenger, 1907. *Rec. Indian Mus.*, 1: 149; Sclater, 1892. *List Batr. Indian Mus.*: 27; Fowler, 1896. *Proc. Zool. Soc. Lond.*: 911, pl. 44; Stejneger, 1907. *Bull. U. S. Nat. Mus.*, 58: 72; van Kampen, 1923. *Amph. Indo-Aust Archipel.*: 80; Swan & Leviton, 1962. *Proc. Calif. Acad. Sci.*, Ser. 4, 32 (6): 107; Daniel, 1963. *J. Bombay nat. Hist. Soc.*, 60: 435-437; Mansukhani & Murthy, 1964. *Rec. zool. Surv. India*, 62 (1-4): 58; Mansukhani & Sarkar, 1981. *ibid.*, 79 (1-2): 272; Inger, 1966. *Fieldiana Zool.*: 52; Inger, 1972. *Univ. Texas. Press.*: 102-118; Inger & Dutta, 1987. *J. Bombay nat. Hist. Soc.*, 83 (Suppl.): 136; Venkateswarlu & Murthy, 1972. *Indian J. Zoot.*, 13 (3): 129; Dubois, 1974. *Bull. Mus. natn. Hist. Nat. Paris*, Ser. 3, Zool., 213 (Zool. 143): 345; Pillai &

Chanda, 1979. *Rec. zool. Surv. India*, 75: 387; Pillai & Chanda, 1981. *ibid.*, 79: 167; Tilak & Mehta, 1983. *Res. Bull. (Sci.) Punjab Univ.*, 34 (3-4): 162; Sarkar, 1984. *Rec. zool. Surv. India*, 81 (3-4): 216; Sarkar, 1991. *ibid.*, 89 (1-4): 210-211; Sarkar & Sanyal, 1985. *ibid.*, 82 (1-4): 94; Frost, 1985. *Amphibian species of the world*: 54; Chanda, 1986. *J. Bengal nat. Hist. Soc. (N. S.)*, 5 (2): 142; Chanda, 1994. *Mem. zool. Surv. India*, 18 (2): 26-28, figs. 29-34; Chanda, 2002. *Handbook: Indian Amphibians*: 25-26, pl.10, fig. 32; Inder & Dutta, 1987. *J. Bombay nat. Hist. Soc.*, 83 (Suppl.): 136; Ray, 1995. *Himalayan Ecosystem Series*: 152, fig. 7; Ray, 1998. *Faun. Conservation Areas*, 10: 43-44; Ray, 1999. *Mem. zool. Surv. India*, 18 (3): 61-64, pls. 21, figs.1-4, pl. 25 (map); Ray & Tilak, 1995. *Faun. Conservation Areas*, 5: 56-58, pl. 1; Dubois & Ohler, 1999. *J. South Asian Nat. Hist.*, 4 (2): 139-141, figs. 2-5; Husain, 2003. *Wetland Ecosystem Series*, 5: 27-28; Mehta & Uniyal, 2007. *Faun. Diversity Western Doon Shivaliks*: 63; Sen & Mathew, 2008. *Rec. zool. Surv. India*, Occ. Paper No. 291: 6; Dinesh *et al.*, 2009. *ibid.*, Occ. Paper No. 301: 8-9.

*Bufo chlorogaster* Daudin, 1802. *Hist. Nat. Rain. Gren. Crap., Quarto*: 74 (type-locality: sur une montagne de l'île Java, Indonesia) (nomen dubium).

*Bufo flaviventris* Daudin, 1802. *Hist. Nat. Rain. Gren. Crap., Quarto*: 74, pl. 74 (alternative name for *Bufo chlorogaster* Daudin, 1802).

*Bufo scaber* Daudin, 1802 (nec *Bufo scaber* Schneider, 1799). *Hist. Nat. Rain. Gren. Crap., Quarto*: 94 (type-locality: India oriental).

*Bufo bengalensis* Daudin, 1802. *Hist. Nat. Rain. Gren. Crap., Quarto*: 96 (type-locality: Bengale).

*Rana dubia* Shaw, 1802. *Gen. Zool.*, 3(1): 157 (type-locality: India, restricted to neotype designation).

*Rana melanosticta*, Shaw, 1802. *Gen. Zool.*, 3(1): 174.

*Bufo carinatus* Gray, 1830. *Illust. Indian Zool.*, Part 1: pl. 83, fig. 1 (type-locality: Bengal).

*Bufo dubius*, Gray, 1830. *Illust. Indian Zool.*, Part 1: viii, plate 83.

*Bufo isos* Lesson, 1832. In: Belanger (ed.), *Voy. Indes-Orientales N. Eur. Caucase Georgie Perse, Zool.*: 333 (type-locality: Bengale).

*Bufo gymnauchen* Bleeker, 1858. *Natuurkd. Tijdschr. Nederl. Indie*, 16: 46 (type-locality: Pulau Bintan, Kepulauan Riau, Indonesia / Indischen archipel).

*Docidophryne isos*, Fitzinger, 1861 (1860), *Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl.*, 42: 415.

*Docidophryne spinipes* Fitzinger, 1861 (1860), *Sitzungsber. Akad. Wiss. Wien, Phys. Math. Naturwiss. Kl.*, 42: 415 (type-locality: Nikobaren) (nomen nudum).

*Phrynoidis melanostictus*, Cope, 1862. *Proc. Acad. Nat. Sci. Philadelphia*, 14: 358.

*Bufo spinipes* Steindachner, 1867. *Reise Osterreichischen Fregatte Novara, Zool., Amph.*: 42 (type-locality: Nikobaren).

*Bufo longecristatus* Werner, 1903. *Zool. Anz.*, 26: 252 (type-locality: Inneres von Borneo).

*Bufo (Palaeobufo) melanostictus*, Bolokay, 1919. *Glasn. Zemaljskog Muz. Bosni Hercegov.*, 31: 295.

*Bufo tienhoensis* Bourret, 1937. *Annexe Bull. Gen. Instr. Publique, Hanoi*, 1937: 6, 11 (type-locality: col de Tien-Ho [Route de Lang-Son, Tonkin, alt. 300 m]).

*Docidophryne melanostictus*, Bourret, 1942. *Batr. Indochine*: 173.

*Bufo camortensis* Mansukhani & Sarkar, 1980. *Bull. zool. Surv. India*, 3: 97.

*Bufo camortensis* Mansukhani & Sarkar, 1982. *Bull. zool. Surv. India*, 3: 97 (type-locality: compound of Camorta Guest House, Camorta, Andaman and Nicobar Islands, India).

*Ansonia kamblei* Ravichandran & Pillai, 1996. *Rec. zool. Surv. India*, 86: 506 (type-locality: Jeur, 29 Km North of Tembhurni, Karnala, Dist. Solapur, Maharashtra, India).

*Bufo melanostictus melanostictus*, Khan, 2001. *Pakistan J. Zool.*, 33: 297 (by implication).

*Bufo melanostictus hazarensis* Khan, 2001. *Pakistan J. Zool.*, 33: 297 (type-locality: Oogi, Mansehra, and Data, Hazara Division, eastern NWFP [= Northwest Frontier Province], Pakistan).

*Duttaphrynus melanostictus*, Frost, Grant, Faivovich, Bain, Haas, Haddad, de Sa, Channing, Wilkinson, Donnellan, Raxworthy, Campbell, Blotto, Moler, Drewes, Nussbaum, Lynch, Green, & Wheeler, 2006. *Bull. Am. Mus. Nat. Hist.*, 297: 365; Frost, 2020. *Amphibian Species of the World: an Online Reference*. Version 6.1; Husain, 2015. In: *Aquatic Ecosystem: Biodiversity, Ecology and Conservation*: 218-220; Kumar, 2019. frog leg # 138. In: *Zoos' Print Journal*, 34 (8): 13, 16, fig.; Sharma & Sidhu 2016. *Biological Forum – An International Journal*, 8(1): 9.



**Fig. 1.** *Duttaphrynus melanostictus*, the Common Indian Toad (male).



**Fig. 2.** *Duttaphrynus melanostictus*, the Common Indian Toad (female).



**Fig. 3.** *Duttaphrynus melanostictus*, the Common Indian Toad (female).



**Fig. 4.** *Duttaphrynus melanostictus*, the Common Indian Toad (female, ventral view).



**Fig. 5.** Tank with aquatic vegetation in campus where toads breed.

**Classification:** Class Amphibia, order Anura, family Bufonidae, genus *Duttaphrynus* Frost *et al.*, 2006.

**Material Examined:** 1 example, 52, St. Mile Road, Northern Town, Jamshedpur, Jharkhand, 27.v.2020, by 2<sup>nd</sup> author (HJH); 1 example, same locality, 27.ix.2020, by 2<sup>nd</sup> author (HJH).

**Diagnostic Features:** Heavy-bodied toad; head with more or less elevated bony ridges; snout short and blunt; interorbital space much broader than upper eyelid; tympanum very distinct (inconspicuous in juveniles), at least  $\frac{2}{3}$ <sup>rd</sup> of eye diameter; parotids large and kidney-shaped or elliptical; fingers free, 1<sup>st</sup> little longer than 2<sup>nd</sup> (in younger individuals almost equal), 3<sup>rd</sup> longest, 2<sup>nd</sup> slightly shorter than 4<sup>th</sup>, metatarsal tubercle spiny and intermingled with spiny warts; toes less than half webbed with small subarticular tubercles; three digital phalanges of 4<sup>th</sup> free of webbing, 1<sup>st</sup> smallest and 4<sup>th</sup> longest, 3<sup>rd</sup> longer than 5<sup>th</sup>; two moderate metatarsal tubercles, outer oval, inner elongated and projecting; knee (tarso-metatarsal articulation) reaching tympanum or eye when hind leg held parallel along body; body yellowish or brownish, roughened as covered with spiny warts with black heads (juveniles lack warts), underside immaculate or more or less spotted.

Male smaller than female with subgular vocal sac; black callosities or nuptial pads on two inner fingers cornified and covered with black spinules, digital tips black-capped.

Size: Snout to vent 6.5 inches [2]; snout-vent 19-133 mm [12]; snout-vent 31-96 mm [3]; snout-vent 55, 89 mm [11]; SVL 71.6 mm [5]; snout-vent 165 mm [4]; snout-vent 16.5 cm [8]; about 20 cm [17].

**Tadpole:** Black above, translucent pink below; tail with broadly rounded tip.

**Altitudinal Range:** 3048 m / 10,000 ft in Sikkim and 2134 m / 7,000 ft in Nilgiris [2]; up to 2,000 m [7]; throughout plains [12]; 2,500, 3,000 m [10].

**Distribution:**

**Jharkhand:** Jamshedpur (present record) and Chakulia (BDO's office campus), East Singhbhum district [12]; Sarsa, Deoghar district [15].

**Rest of India:** Generally throughout [6, 11, 13]. Andaman & Nicobar Islands (introduced), Arunachal Pradesh, Assam, Bihar (Dhanbad dist., Valmiki Tiger Reserve, West Champaran dist.), Chandigarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim, Tamil Nadu (Nilgiris), Tripura, Uttarakhand (Chamoli, Dehra Dun, Haridwar, Pauri, Tehri, Uttarkashi; Almora, Nainital, Pithoragarh dists.; Corbett Tiger Reserve; Govind Pashu Vihar; Nanda Devi Biosphere Reserve; Rajaji Tiger Reserve), Uttar Pradesh, West Bengal.

**Elsewhere:** Bangladesh, Brunei Darussalam, Cambodia, China (including Hong Kong, Taiwan), Indonesia, Laos, Macao, Madagascar, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.

**Habitat:** Terrestrial and nocturnal, inhabit burrows, under logs and leaf litter in gardens.

**Food & Feeding:** Feed on insects and other arthropod group, come out in search of insects at night for feeding.

**Breeding:** It takes place in ponds, pools, tanks, marshes, slow-moving streams during monsoon months when males produce peculiar sounds, using their vocal sacs. Tadpoles black and metamorphose very fast. The fertilised ova take 35-40 days for complete metamorphosis into young toads [10].

**Conservation Status:** IUCN Red List- Least Concern.

**Threats:** No major threats as being very adaptive to various environments. It is found in international pet trade [16].

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