

**LABORATORY REPRODUCTION OF THE CUBAN TOAD,
PELTOPHRYNE EMPUSA COPE, 1862**

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The paper presents data on reproduction of the Cuban toad, *Peltophryne empusa* in laboratory conditions. Spawning was stimulated by surfagon injection. The start of spawning was observed at a temperature of 27.0 – 27.5°C in the early morning after 10 – 12 h after the hormonal injection. The female fertility ranged from 2,415 to 7,343 eggs. Incubation lasted 12 – 24 h. The total embryogenesis duration from egg laying to the start of exogenous feeding of larvae was about 2 days. The larval development of the Cuban toad lasted from 27 to 64 days. The body length of young toads after complete tail resorption was 6.8 – 10.5 mm.

Key words: Cuban toad, *Peltophryne empusa*, captive breeding.

REFERENCES

- Goncharov B. F., Serbinova I. A., Uteshev V. K., Shubravy O. I. Development of Methods of Hormonal Stimulation of Processes of Reproduction at Amphibians. In: *Problems of Domestication at Amphibians*, Moscow, 1989, pp. 197–201 (in Russian).
- Measuring and Monitoring Biological Diversity: Standart Methods for Amphibian*. Moscow, KMK Scientific Press, 2003. 380 p. (in Russian).
- Kidov A. A., Serbinova I. A. Experience of Cultivation of the Caucasian Toad, *Bufo verrucosissimus* (Pallas, [1814]) (Amphibia: Anura: Bufonidae) in Laboratory Conditions. *Materialy Vserossiiskoi konferentsii «Aktual'nye problemy ekologii i sokhraneniia bioraznno-braziia»* [Proc. of the All-Russ. Conf. “Present Problems of Ecology and Conservation of Biodiversity”]. Vladikavkaz, 2008, pp. 49–53 (in Russian).
- Kidov A. A., Matushkina K. A., Afrin K. A., Blinova S. A., Timoshina A. L., Kovrina E. G. Captive Breeding of Common Toads of the Caucasus (*Bufo eichwaldi* and *B. verrucosissimus*) Without Hormonal Stimulation. *Current Studies in Herpetology*, 2014, vol. 14, iss. 1 – 2, pp. 19–26 (in Russian).
- Kidov A. A., Matushkina K. A., Litvinchuk S. N., Blinova S. A., Afrin K. A., Kovrina E. G. The First Case of Reproduction of the Lataste's Toad, *Bufo latastii* (Boulenger, 1882) in Laboratory Conditions. *Current Studies in Herpetology*, 2016, vol. 16, iss. 1 – 2, pp. 20–26 (in Russian).
- Matushkina K. A., Kidov A. A. Reproductive Biology of Talysh Common Toad (*Bufo eichwaldi*) in the Lenkoran Lowland. *Current Studies in Herpetology*, 2013, vol. 13, iss. 1 – 2, pp. 27–33 (in Russian).
- Orlov N. L., Ananjeva N. B. *Amphibians of South-East Asia*. St. Petersburg, St. Petersburg University Press, 2007. 270 p. (in Russian).
- Serbinova I. A. Reintroduction as a Method of wild Amphibia Conservation. *Scientific Research in Zoological Parks*, 2007, vol. 22, pp. 113–117 (in Russian).
- Alonso R., Rodriguez A. Advertisement Call of Cuban Toads of the Genus *Bufo* (Anura, Bufonidae). *Phylomedusa*, 2003, vol. 2, no. 2, pp. 75–82.
- Barbour T. The Reptiles and Amphibians of the Isle of Pines. *Annals of Carnegie Museum*, 1916, vol. 10, iss. 1–2, pp. 297–308.
- Bardsley L., Beebee T. J. C. Competition Between *Bufo* Larvae in Eutrophic Pond. *Oecologia*, 2000, vol. 124, iss. 1, pp. 33–39.
- Brenner A. Haltung und Nachzucht von *Anaxyrus speciosus*, der Texaskröte, sowie Anmerkungen zu *Anaxyrus cognatus*, der Präriekröte. *Draco*, 2009, vol. 9, pp. 34–41.
- Burchfield P. M. Breeding the Colombian Giant Toad *Bufo blombergi* at Brownsville Zoo. *International Zoo Yearbook*, 1975, vol. 15, pp. 89–90.
- Frost D. R. *Amphibian Species of the World 6.0, an Online Reference*. New York, American Museum of Natural History, 2015. Available at: <http://research.amnh.org/vz/herpetology/amphibia/> (accessed 14 December 2015).
- Frost D. R., Grant T., Faivovich J., Bain R. H., Haas A., Haddad C. F. B., de Sá R. O., Channing A., Wilkinson M., Donnellan S. C., Raxworthy C. J., Campbell J. A., Blotto B. L., Moler P. E., Drewes R. C., Nussbaum R. A., Lynch J. D., Green D. M., Wheeler W. C. The Amphibian Tree of Life. *Bull. of the American Museum of Natural History*, 2006, vol. 297, pp. 1–370.
- Garcia-Porta J., Litvinchuk S. N., Crochet P. A., Romano A., Geniez P. H., Lo-Valvo M., Lymberakis P., Carransa S. Molecular Phylogenetics and Historical Biogeography of the West-Palaearctic Common Toads (*Bufo bufo* species complex). *Molecular Phylogenetics and Evolution*, 2012, vol. 62, iss. 1, pp. 113–130.
- Hedges B., Diaz L. *Peltophryne empusa*. The IUCN Red List of Threatened Species. Cambridge, 2004, p. e.T54634A11179047. Available at: <http://www.iucnredlist.org/details/54634/0> (accessed 19 December 2015).
- Jones M. Captive Rearing and Breeding of Norfolk Natterjacks, *Bufo calamita*. *British Herpetological Society Bulletin*, 1984, vol. 10, pp. 43–45.

ЛАБОРАТОРНОЕ РАЗМНОЖЕНИЕ КУБИНСКОЙ ЖАБЫ

- Kidov A. A. Die Kröten des *Bufo-bufo*-Komplexes vom Kaukasus : Systematik, Biologie und Haltung. *Draco*, 2009, vol. 9, pp. 29–32.
- Kidov A. A., Matushkina K. A., Uteshev V. K., Timoshina A. L., Kovrina E. G. The First Captive Breeding of the Eichwald's Toad (*Bufo eichwaldi*). *Russ. J. of Herpetology*, 2014, vol. 21, no. 1, pp. 40–46.
- Kunz K. Haltung und Nachzucht der Kleinen Kröte (*Ingerophrynus cf. parvus*) über zwei Generationen. *Draco*, 2009, vol. 9, pp. 68–74.
- Maclean W. P., Kellner R., Dennis H. Island lists of West Indian Amphibians and Reptiles. *Smithsonian Herpetological Information Service*, 1977, no. 40. 47 p.
- Pramuk J. B., Hass C. A., Hedges S. B. Molecular phylogeny and biogeography of West Indian toads (Anura: Bufonidae). *Molecular Phylogenetics and Evolution*, 2001, vol. 20, no. 2, pp. 294–301.
- Recuero E., Canestrelli D., Vörös J., Szabo K., Poyarkov N. A., Arntzen J. W., Crnobrnja-Isailovic J., Kidov A. A., Cogălniceanu D., Caputo F. P., Nascetti G., Matinez-Solano I. Multilocus Species Tree Analyses Resolve the Radiation of the Widespread *Bufo bufo* Species Group (Anura, Bufonidae). *Molecular Phylogenetics and Evolution*, 2012, vol. 62, iss. 1, pp. 71–86.
- Rodriguez-Schettino L., Rivalta-Gonzales V. Herpetofauna del Municipio de Najasa, Provincia de Camagüey, Cuba. *Boletín de la Asociación Herpetológica Española*, 2008, vol. 19, pp. 100–106.
- Ryboltovsky E. A Note on the Wild Status and Captive Management of the Mountain Toad (*Bufo galeatus*) of Vietnam. *The Vivarium*, 1997, vol. 8, no. 6, pp. 18–20.
- Schneider H., Sinsch U. Calls and Calling Behaviour of the Common Toad, *Bufo b. bufo*, in Hungary and Comparison with the Advertisement Call of the giant Toad, *Bufo b. spinosus*. *Zeitschrift für Feldherpetologie*, 2004, vol. 11, pp. 187–201.
- Seuntjens R. Haltung und Nachzucht der Südamerikanischen Stachelkröte (*Rhinella granulosa*) im Zoo-Aquarium Berlin. *Draco*, 2009, vol. 9, pp. 54–57.
- Sicilia A., Lillo F., Zava B., Bernini F. Breeding Fenology of *Bufo viridis* Laurenti, 1768 in Sicily. *Acta Herpetologica*, 2006, vol. 1, no. 2, pp. 107–117.
- Stöck M., Moritz C., Hickerson M., Frynta D., Dujsebayeva T. N., Eremchenko V. K., Macey J. R., Papenfuss T. J., Wake D. B. 2006. Evolution of Mitochondrial Relationships and Biogeography of Palearctic Green Toads (*Bufo viridis* subgroup) With Insights in Their-genomic Plasticity. *Molecular Phylogenetics and Evolution*, 2006, vol. 41, iss. 2, pp. 663–689.
- Zhan A., Fu J. Past and Present : Phylogeography of the *Bufo gargarizans* Species Complex Inferred from Multi-loci Allele Sequence and Frequency Data. *Molecular Phylogenetics and Evolution*, 2011, vol. 61, iss. 1, pp. 136–148.

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