

Triturus carnifex

System: Freshwater_terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Amphibia	Caudata	Salamandridae

Common name Italian Crested Newt (English), Tritone crestato italiano (Italian)

Synonym *Triton carnifex* ,Laurenti, 1768
Salamandra carnifex ,(Laurenti, 1768)

Similar species

Summary The Italian Crested Newt (*Triturus carnifex*) can grow up to 18cm. The species native in the south-central Europe and in the Balkan region, where it frequently occurs in natural and artificial waterbodies. The species preys on invertebrates. The sexual maturity is reached at 3 to 4 years. The species was introduced to Central and Northern Europe for ornamental purposes. The hybridisation with native species threatens the genetic diversity of local populations. Currently no measures were undertaken to manage the invasion of this species.



[view this species on IUCN Red List](#)

Species Description

Typically, *T. carnifex* have a stout body, a large head and well developed legs (Meilink et al. 2015). The appearance and size of the Italian Crested Newt (*Triturus carnifex*), however, differs among the subspecies: The subspecies *T. carnifex carnifex*, for example, is dark brown with an orange-yellow belly (amphibiaweb.org, 27.02.2018). The subspecies *T. carnifex macedonicus* has dense dark belly spots. Females range up to 180mm and males up to 150mm (amphibiaweb.org, 27.02.2018). Adults have toxic skin secretions, which is not very effective in protecting them against predators. The predators include birds, snakes and mammals such as Badgers and Hedgehogs. Fish are the major predator for larvae (http://www.froglife.org/info-advice/amphibians-and-reptiles/italian-crested-newt/, 05.03.2018). The species is native in the south-central Europe and in the Balkan region. It was introduced to the South east and Northern Europe and the Azores. The species is listed in the Red List of Threatened Species in the category Least Concern (IUCN, 2018).

Notes

The taxonomic range of the species is unclear due to widely common hybridization within the genus. Native populations are generally declining. The loss of aquatic habitats and the introduction of predatory fishes and the decrease of spring rains as a result of global climate change threatens the populations (IUCN Red List, 2018).

Lifecycle Stages

The lifecycle metamorphosis is very typical for Urodeles. It consists of an aquatic larval stage and an adult terrestrial stage. The timing of the metamorphosis can vary among population in different geographical areas. Some larvae transform in the same year they hatched, but mostly larvae metamorphose to immature juveniles after a period of overwintering. In few cases larvae grow and gain sexual maturity before metamorphosing into adults (Kalezic et al., 1994).



Uses

The species is used as an ornamental pet for garden ponds. It is traded in several countries (Google shopping, <https://www.exotic-pets.co.uk/crested-newt.html>, 2018).

Habitat Description

The species can adapt to a wide range of habitats up to an altitude of 2140m. During the breeding season it requires still waters. It mostly occurs in pools within streams, but also in artificial water bodies, such as garden ponds and water-filled gravel pits (amphibiaweb.org, 27.02.2018).

Reproduction

Females reach sexual maturity in the age of 3.6 years and males in 3.8 years. Variability of the reproduction cycle is depending on the geographical location (Cvetković et al, 1996). Females lay about 250 eggs per breeding season (amphibiaweb.org, 2018).

Nutrition

Adults feed on terrestrial invertebrates. Larvae feed on frog tadpoles and other larval amphibians. Tadpoles feed on aquatic invertebrates during the aquatic phase (amphibiaweb.org, 27.02.2018).

General Impacts

Naturally the Italian Crested Newt (*Triturus carnifex*) was separated from other native species of the genus, eg. *Triturus cristatus* (Laurenti, 1768), through geographical barriers. The species was intentionally introduced in areas outside of their natural range, most likely as pet or for ornamental purposes. In the introduced area it hybridizes with native species. This causes genetic pollution and threatens native species diversity (Meilink et al., 2015).

Management Info

Currently no measures were undertaken to manage the invasion of this species. The species is listed in Annex II in of the EU Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora." Official Journal of the European Union 206 (1992): 7-50.

Pathway

In 1903 the breeding site for alien species was established in Surrey by T.B. Rothwell. The amphibians were kept outside and occasionally escaped through the waterways and colonized local waterbodies. Brede et al., 2000. The species was used as 'garden ornaments' and released into the wild because a change in legislation prohibited sale (Bogaerts, 2002). Arntzen and Thorpe, 1999

Principal source: Antonio Romano, Jan Willem Arntzen, Mathieu Denoël, Robert Jehle, Franco Andreone, Brandon Anthony, Benedikt Schmidt, Wiesiek Babik, Robert Schabetsberger, Milan Vogrin, Miklós Puky, Petros Lymberakis, Jelka Crnobrnja Isailovic, Rastko Ajtic, Claudia Corti. 2009. *Triturus carnifex*. The IUCN Red List of Threatened Species 2009: e.T59474A11947714.

<http://dx.doi.org/10.2305/IUCN.UK.2009.RLTS.T59474A11947714.en>. Downloaded on 26 February 2018.

Compiler:

Review:

Publication date:

ALIEN RANGE

[1] FRANCE

[1] GERMANY

[1] NETHERLANDS
[1] SWEDEN
[2] UNITED KINGDOM

[1] PORTUGAL
[1] SWITZERLAND

Red List assessed species 1: LC = 1;

[Triturus cristatus](#) LC

BIBLIOGRAPHY

33 references found for *Triturus carnifex*

Management information

- Dubey, S., Leuenberger, J., & Perrin, N. (2014). Multiple origins of invasive and 'native' water frogs (*Pelophylax* spp.) in Switzerland. *Biological Journal of the Linnean Society*, 112(3), 442-449.
- Dufresnes C, Pellet J, Bettinelli-Riccardi S, Thiébaud J, Perrin N, Fumagalli L (2016) Massive genetic introgression in threatened northern crested newts (*Triturus cristatus*) by an invasive congener (*T. carnifex*) in Western Switzerland. *Conservation Genetics* 17(4): 839-846.
- Heatwole, H., & Wilkinson, J. W. (2015). *Amphibian Biology, Volume 11, Part 4: Status of Conservation and Decline of Amphibians: Eastern Hemisphere: Southern Europe & Turkey* (Vol. 11). Pelagic Publishing Ltd.
- Holsbeek, G., Mergeay, J., Hotz, H., Plötner, J., Volckaert, F. A. M., & De Meester, L. (2008). A cryptic invasion within an invasion and widespread introgression in the European water frog complex: consequences of uncontrolled commercial trade and weak international legislation. *Molecular Ecology*, 17(23), 5023-5035.
- <http://www.maltawildplants.com/!faunafungi/maltawildlife.php?species=Pelophylax%20bedriagae>
- Lymberakis, P., & Poulakakis, N. (2010). Three continents claiming an archipelago: the evolution of Aegean's herpetofaunal diversity. *Diversity*, 2(2), 233-255.
- Meilink WR, Arntzen JW, van Delft JJ, Wielstra B (2015) Genetic pollution of a threatened native crested newt species through hybridization with an invasive congener in the Netherlands. *Biological Conservation* 184: 145-153.
- Perl, R. & Gafny, Sarig & Malka, Yoram & Renan, Sharon & Woodhams, Douglas & Rollins-Smith, Louise & Pask, James & Bletz, Molly & Geffen, Eli & Vences, Miguel. (2017). Natural history and conservation of the rediscovered Hula painted frog, *Latonia nigriventer*. *Contributions to zoology Bijdragen tot de dierkunde*. 86. 11-37. 10.1163/18759866-08601002.
- Sciberras, A. (2008). A contribution to the knowledge of Odonata in the Maltese Islands. *The Central Mediterranean Naturalist*, 4(4), 275-288.

General information

- AmphibiaWeb 2009 *Pelophylax bedriagae*: Levant Green Frog University of California, Berkeley, CA, USA. Accessed Jan 23, 2018.
- Arntzen J. W., and Thorpe R. S (1999) Italian Crested Newts *Triturus carnifex* in the basin of Geneva: Distribution and genetic interactions with autochthonous species. *Herpetologica*, 55(4): 423-433.
- Brede E (2015) Beam Brook revisited: a molecular study of a historically introduced non-native amphibian (*Triturus carnifex*) and its limited introgression into native UK *Triturus cristatus* populations. *Amphibia-Reptilia* 36(3): 287-299.
- Brede EG, Thorpe RS, Arntzen JW, Langton TE (2000) A morphometric study of a hybrid newt population (*Triturus cristatus*/*T. carnifex*): Beam Brook Nurseries, Surrey, UK. *Biological Journal of the Linnean Society* 70(4): 685-695.
- CABI, 2018. *Pelophylax* cf. *bedriagae*. In: *Invasive Species Compendium*. Wallingford, UK: CAB International. www.cabi.org/isc.
- Çakıcı, Ö. (2014). Carbaryl-induced histopathologic alterations in the digestive tract of the Levantine frog, *Pelophylax bedriagae* (Anura: Ranidae). *Toxicologic pathology*, 42(6), 1032-1040.
- Çiçek, K., & İsmail, İ. B. (2017). Levanten su kurbağası, *Pelophylax bedriagae*'nin (Camerano, 1882)(Anura: Ranidae) Sülüklü Göl'deki (Manisa) popülasyon büyüklüğü, yaş yapısı ve yaşam döngüsü. *Su Ürünleri Dergisi*, 34(2), 169-177.
- Çiçek, K., Kumaş, M., Ayaz, D., Mermer, A., & Engin, Ş. D. (2011). Age structure of Levant water frog, *Pelophylax bedriagae*, in Lake Sülüklü (Western Anatolia, Turkey). *Basic and Applied Herpetology*, 25, 73-80.
- Demir, S., Yakar, O., Yildirimhan, H. S., & Bırlık, S. (2015). Helminth parasites of the levantine frog (*Pelophylax bedriagae* Camerano, 1882) from the western part of Turkey. *Helminthologia*, 52(1), 71-76.
- Frost, D.R. 2013. *Amphibian Species of the World: an Online Reference*. Version 5.6 (9 January 2013). Electronic Database. American Museum of Natural History, New York, USA. Available at: <http://research.amnh.org/herpetology/amphibia/index.html>.
- <https://www.herpetofauna.at/index.php/reiseberichte/15-berichte/80-jordan-trip-report-2012>
- https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=775178#null
- Michaels, C. J., & Preziosi, R. F. (2013). Basking behaviour and ultraviolet B radiation exposure in a wild population of *Pelophylax lessonae* in northern Italy. *Herpetological Bulletin*, 124, 1-8.
- Orrell T. (custodian) (2018). ITIS Global: The Integrated Taxonomic Information System (version Jun 2017). In: Roskov Y., Abucay L., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., De Wever A., Nieukerken E. van, Zarucchi J., Penev L., eds. (2018). *Species 2000 & ITIS Catalogue of Life*, 20th December 2017. Digital resource at www.catalogueoflife.org/col. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-8858.
- Papenfuss, T., Kuzmin, S., Disi, A.M., Degani, G., Ugurtas, I.H., Sparreboom, M., Anderson, S., Sadek, R., Hraoui-Bloquet, S., Gasith, A., Elron, E., Gafny, S., Lymberakis, P., Böhme, W. & Baha El Din, S. 2009. *Pelophylax bedriagae* (errata version published in 2016). The IUCN Red List of Threatened Species 2009: e.T58559A86622844. <http://dx.doi.org/10.2305/IUCN.UK.2009.RLTS.T58559A11803274.en>. Downloaded on 23 January 2018.
- Simic, S., Tallósi, B., & Popovic, E. (1992). Seasonal Changes in Feeding of *Rana ridibunda* Pallas, (Amphibia Anura) from Backwater Tisza. *Tiscia*, 26, 5-7.
- www.akvaryum.com, 2018
- Yilmaz, Z. C., & Kutrup, B. (1771). Seasonal changes in the diet of *Rana ridibunda*. Pallas, 201-204.



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Triturus carnifex*

Badner et al., (2012). Herpetological Trip to Jordan, April/May 2012.

<https://www.herpetofauna.at/index.php/reiseberichte/15-berichte/80-jordan-trip-report-2012>

Başkale, E., & Kaya, U. (2012). Decline of the Levantine Frog, *Pelophylax bedriagae* Camerano, 1882, in the western Aegean Region of Turkey changes in population size and implications for conservation: (Amphibia: Ranidae). *Zoology in the Middle East*, 57(1), 69-76.

DAISIE (Delivering Alien Invasive Species Inventories for Europe), 2018.

<http://www.europe-aliens.org/speciesFactsheet.do?speciesId=50028#>

<http://www.turkherptil.org/TurListe.asp?IcerikKatId=19>

Ibrahim, A. A. S. A. (2011). First record of *Pelophylax bedriagae* (Amphibia; Ranidae) in the Suez Canal region, Egypt. *Herpetol. Notes*, 4, 331-332.

Salman, I., Salsaa, M., & Qumsiyeh, M. B. (2014). Distribution and cytogenetics of amphibians from the occupied Palestinian territories (West Bank of Jordan). *Jordan Journal of Natural History*, 1, 116-130.