

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Nineteenth meeting of the Conference of the Parties
Panama City (Republic of Panama), 14 - 25 November 2022

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

To list *Laotriton laoensis*, endemic to the Lao People's Democratic Republic, in CITES Appendix II, with a zero export quota for wild-taken specimens traded for commercial purposes, in accordance with Resolution Conf. 9.24 (Rev. CoP17). The regulation of trade within this genus is required in accordance with:

Annex 2 a:

criterion A, on the grounds that the trade must be regulated to prevent it to become eligible for listing in Appendix I in the near future;

- criterion B, to ensure that the harvest of wild individuals is not reducing the wild population to a level at which their survival might be threatened;

B. Proponent

European Union*

C. Supporting statement

1. Taxonomy

1.1 Class: Amphibia

1.2 Order: Caudata

1.3 Family: Salamandridae

1.4 Genus, species or subspecies, including author and year: *Laotriton laoensis* (Stuart and Papenfuss, 2002)

Laotriton (Dubois and Raffaëlli 2009) is a mono-specific genus, created to accommodate the morphologically unique (Stuart and Papenfuss, 2002) and molecularly divergent (Weisrock et al. 2006; Zhang et al. 2008) *Laotriton laoensis*, which was originally described as *Paramesotriton laoensis*.

The genus *Laotriton* is a member of the Modern Asian Newts, a monophyletic group, which also includes the genera *Pachytriton*, *Paramesotriton* and *Cynops* (Steinfartz et al. 2007; Zhang et al. 2008).

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

1.5 Scientific synonyms: *Paramesotriton laoensis*

1.6 Common names: English: Laos warty newt; Paddletail newt
 German: Laoswarzenmolch

1.7 Code numbers:

2. Overview

This proposal is to list *Laotriton laoensis*, endemic to the Lao People's Democratic Republic, in Appendix II of the Convention, with a zero export quota for wild-taken specimens traded for commercial purposes. The Laos warty newt is a monotypic species, with a distribution range restricted to a small area in northern Lao PDR, which is not included under any protected area. Additional efforts to uncover new populations around the species' known range - based on field surveys and interviews from local people - have been unsuccessful. Since its description in 2002, the Laos warty newt has been in high demand for the international pet trade due to its novelty and spectacular colour pattern. An online market survey found buyers willing to "pay anything" and "beat other offers" to acquire the desired adults and juveniles, which can run out of stock in just one day. Despite being listed as a category I species in the Lao Wildlife and Aquatic Law in 2008, which prohibits commercial trade, over-harvesting for the international pet trade, medicinal use and local consumption is still considered the primary threat to the species' survival (Phimmachak et al. 2012; Stuart et al. 2014).

L. laoensis has suffered an estimated 50% decline in the last 10 years (Phimmachak and Stuart, pers. com. [IUCN SSG ASG 2014]), and the species was assessed as Endangered in the IUCN Red List in 2014 with a declining population trend. Mature *L. laoensis* accumulate and form large breeding groups inside the pools of small streams that can seasonally be easily collected from known sites in high numbers with minimal effort, increasing the risk of over-exploitation and local extirpation (Phimmachak et al. 2012). In captivity, animals can reach sexual maturity within around four years, while it is expected, that it takes longer in natural habitats; this slow development to maturity limits the species' capability to recover from over-collection.

Its small distribution range and reported population declines make the species especially vulnerable to overharvesting for the international trade, which suggests compliance with criterion A and B (annex 2a) to list the species in CITES Appendix II. Given the actual and potential negative impacts of trade on wild populations, the regulation of the international trade in *L. laoensis* seems necessary to restrict any legal commercial trade in wild specimens and to ensure that additional controls are in place to curb the illegal harvest of wild specimens.

The genus *Paramesotriton* (including 14 species that share similar biological and trade characteristics) was listed in CITES Appendix II at CoP18, leaving *Laotriton laoensis* internationally unprotected. Therefore, trade in Warty newts may even more focus on the single species *Laotriton laoensis*, emphasizing the need to regulate international trade in this species as well.

3. Species characteristics

3.1 Distribution

This species is known only from a small continuous area in northern Lao PDR (Figure 1), namely from Xaysamboun District in Vientiane Province, Phoukout and Pek districts in Xiangkhouang Province, and Phoukhoun District in Luang Prabang (also Louangphabang) Province, between elevations of 1,160 and 1,430 m asl. The current extent of occurrence is approximately 4560-4,800 km² (IUCN 2014; Phimmachak et al. 2012). Increased efforts to discover additional populations in northern, eastern and southern areas of the species known range have been unsuccessful, providing further evidence of the species restricted range and endemism (IUCN SSG ASG 2014).

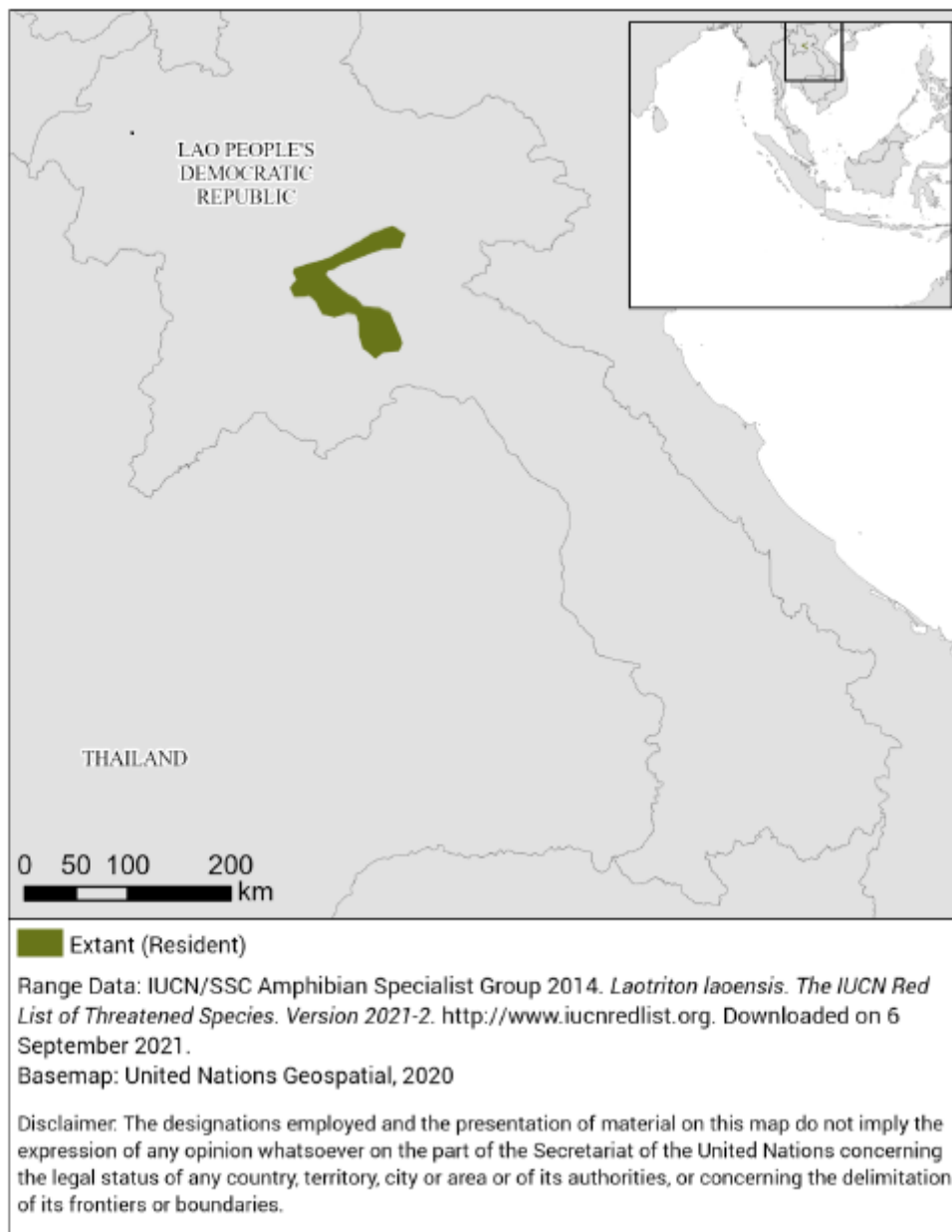


Figure 1. Distribution of *Laotriton laoensis*

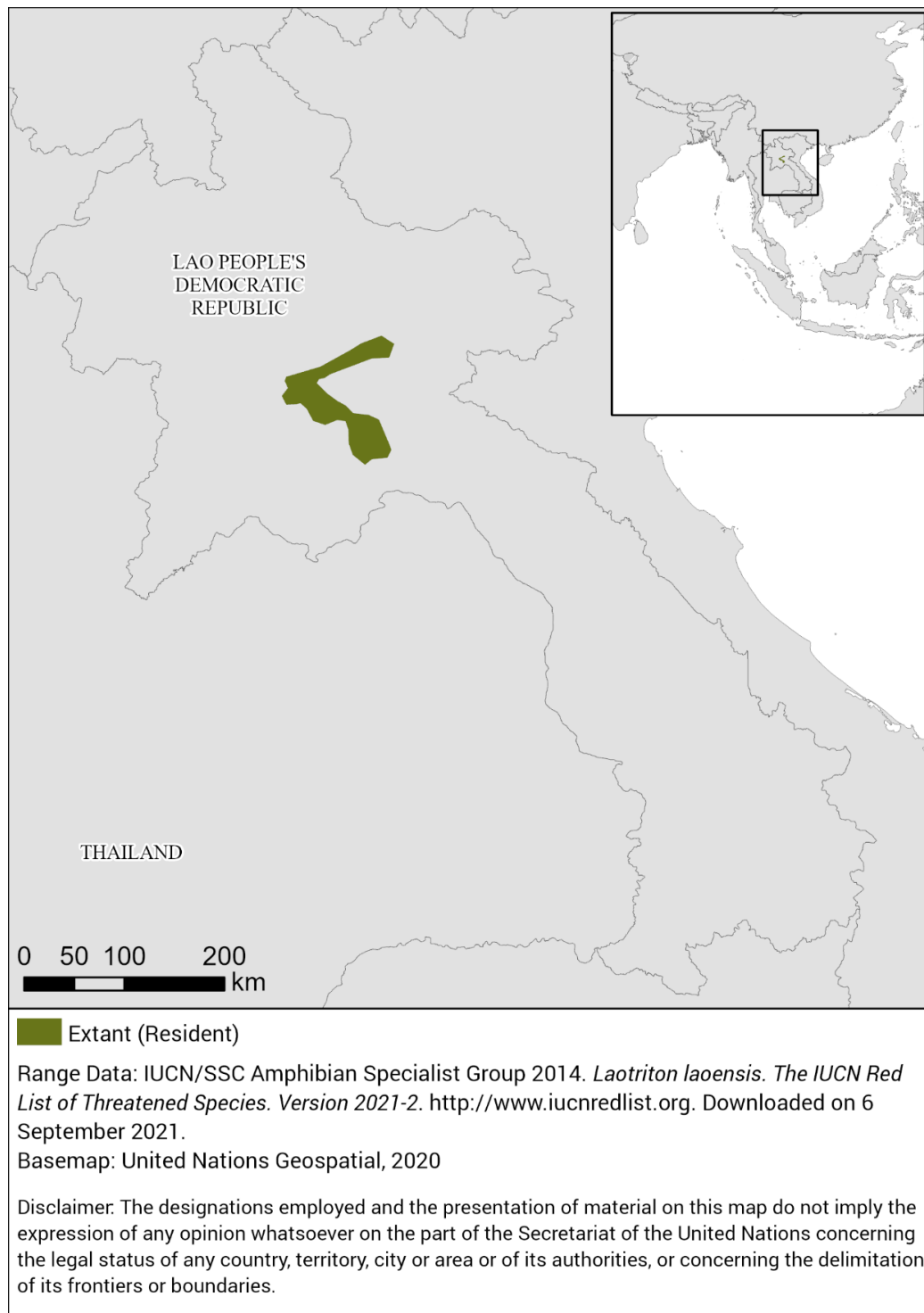


Figure 1. Distribution of *Laotriton laoensis*

3.2 Habitat

The habitat of *Laotriton laoensis* is strongly associated with lotic systems and their terrestrial vicinity. Adults are mostly aquatic and usually found in the pool section of the stream. The aquatic larvae morph into terrestrial immature juveniles that do not seem to wander more than a couple of meters away from the water body. The species inhabits small to medium size (1–10 m width), shallow (0.2–1 m depth) streams, with temperatures ranging between 13 to 25 °C, and slightly acidic pH (between 5 and 6). *L. laoensis* seems to tolerate some degree of habitat disturbance, as these streams flow through evergreen forests, as well as shrubs, grassland and rice fields, with almost no canopy cover (Phimmachak et al. 2012; Stuart and Papenfuss 2002).

3.3 Biological characteristics

The breeding season starts around November and lasts until around February, which corresponds to the coldest and driest months of the year (Phimmachak et al. 2012). During this period, adults are active at both day and night time, and outside of the breeding season adults are mostly nocturnal (Pasmans et al. 2014). Before the onset of oviposition, females contained on average 336 ± 51 eggs in their ovaries. Eggs are laid singly in rows inside the water attached between two leafs or within one folded leaf. Oviposition occurs over a long period of time (Phimmachak et al. 2012). Several mating and oviposition events can occur between one breeding pair. The complete count of eggs in one clutch is only known from captivity. Usually one clutch does not exceed 200 eggs, but occasionally it can exceed the count of 400 eggs (Bachhausen 2013). Larvae are found in nature between February and April (Phimmachak et al. 2012). Metamorphosis occurs at an average total length of 5 cm (Pasmans et al. 2014). Juveniles grow up on land as terrestrial eft and are mostly aquatic as adults, although they still move in land, especially during or after a heavy rain (Phimmachak et al. 2012). Sexual maturity can be reached during the 4th year in captivity, when males reached a total length of 17 cm and females of 20 cm (Bachhausen 2017). Given that in the wild the food supply is more irregular than in captivity, it may be expected that the animals take longer to reach these body lengths and therefore sexual maturity. Sexual dimorphism is already evident at around 2 years old, due to differences in the shape of the cloaca (Bachhausen 2017). The coloration in the dorsum of these animals, blended with the sunlight reflection on the water surface, seem to provide camouflage inside the water (Stuart and Papenfuss 2002). Contrary to its sister genus *Paramesotriton*, *L. laoensis* is not territorial and does not show signs of intraspecific aggression (Pasmans et al. 2014).

3.4 Morphological characteristics

Adults of *Laotriton laoensis* are large (up to 24.6 cm) and robust in constitution, the head is broad; the skin covered with warts and glands on both dorsal and ventral sides; and there are 12 trunk vertebrae present. It has a slightly raised dorsal ridge and prominent lateral ridges. The dorsal colour pattern is unique: a black ground colour with three pale-yellowish stripes. The middorsal stripe is narrow and extends from the snout to the base of the tail. The two broad lateral stripes start off behind the eyes and follow the lateral ridges until the base of the tail. The ventral side is characterized by a black background with large red to orange spots on venter, chin, underside of axillae and cloaca (Stuart and Papenfuss 2002; Annex 1, Fig.1).

Sexual dimorphism is present, with females reaching longer body lengths (on average females: 19.9 cm and males: 17.5 cm) and heavier weights (on average females: 33 g and males: 27 g) than males. The cloacal shape is also different and specially accentuated during the breeding season (Phimmachak et al. 2012): females have a cloacal protrusion that allows depositing eggs between leaves.

3.5 Role of the species in its ecosystem

Laotriton laoensis can be expected to exert a similar role in its ecosystem as other amphibians with both aquatic and terrestrial life stages. They are mid-level predators in the food web that regulate and connect the aquatic and terrestrial nutrient cycle. *Laotriton laoensis* is an opportunistic feeder, with a diet consisting of a wide range of vertebrate (other amphibians and their larvae) and invertebrate prey, including their own eggs. Although its reduced tongue has been suggested to be a specialization for aquatic feeding, both aquatic (many different insect larvae, crabs) and terrestrial (earthworms, spiders, centipedes) prey items have been found within the stomach content (Phimmachak et al. 2012). The species co-occurs with potential predators like large-headed turtles (*Platysternon megacephalum*), and large freshwater crabs (Schöttler, T. personal communication). *L. laoensis* contains tetrodotoxin (in an average concentration of $0.5 \mu\text{g} / \text{g}$ in four pet trade derived specimens, Yotsu-Yamashita et al. 2017), suggesting relative resistance to predation through toxicity. In Phoukout District the newts were found to be parasitized by their specific water mites, *Hygrobatas ancistrophorus*, whose interactions are still unclear (Goldschmidt and Koehler 2007).

4. Status and trends

4.1 Habitat trends

The distribution range of the Laos warty newt is very small (Phimmachak et al., 2012). Anthropogenic activities such as conversion of land for agricultural practices and infrastructure development are

negatively impacting sites across the species range (IUCN SSG ASG 2014). Original habitat consists of closed canopy forests, and while anthropogenic disturbances associated with agricultural practices result in degraded habitats, these seem to be tolerated to some extent by the species. However, *L. laoensis* is likely to suffer from changes in stream water quality or flow and extensive burning in areas adjacent to streams (where juveniles occur) (Phimmachak et al. 2012). Especially larvae were reported to be extremely sensitive to water pollution in captivity (Bachhausen 2017). Species distribution models predict that the available suitable habitat is scarce and most likely only restricted to elevations above 1,000 m asl.; only limited such areas are currently distributed within protected sites (Chunco et al. 2013).

4.2 Population size

Phimmachak et al. (2012) conducted a mark-recapture study during the dry season and estimated a population size of 1,200 individuals in a 4.7 km stream transect and concluded that the species can be locally abundant. The exact number of sites and an estimate of the entire population remains unknown.

4.3 Population structure

Laotriton laoensis is likely distributed in relatively isolated sub-populations, as it only occurs in pools at the headwaters of streams. As the species is mostly aquatic and restricted to high elevations, it is unlikely that significant gene flow occurs between subpopulations (IUCN SSG ASG 2014). The sex-ratio is approximately 1:1 but may vary between seasons. During the wet season, approximately 30% less females were found, suggesting a period of female inactivity (Phimmachak et al. 2012).

4.4 Population trends

On the basis of the small distributional range of *L. laoensis* only outside of protected areas, the decline in suitable habitat and the offtake for medicine, food and the international trade, the species, was considered to have experienced a population decline of at least 50% in the last 10 years (S. Phimmachak and B. L. Stuart pers. comm.). According to the IUCN SSC Amphibian Specialist Group (2014) the population is decreasing.

4.5 Geographic trends

Historically, forest management in Lao PDR developed from 1) a traditional hunter-gatherer society, to 2) an exploitive colonization (1983 to 1975), to 3) be used for national economic growth (1975 to 1986), to 4) internationalisation of forest policy (1986 to 1996), including the establishment of the first National Protected Areas, the start of the Land and Forest Allocation Program and the implementation of the Forestry Law for the promotion of forest plantations, into 5) a transitional phase of forest policy (1996 to 2001), and to 6) land privatization and increased investment into tree plantations (up to now), including the Forestry Strategy to the year 2020 (Phimmavong et al. 2009) whose target is to restore the pre-colonial forest cover of 72% (MAF, 2005).

According to FAO (2015), forest cover has been declining in an alarming rate, reaching a low around the year 2000. In 2009, the forest had recovered the cover area of 1990 and by 2015 had shown a growth to 81% of the total area of the country (FAO, 2015). However, most of the growth is related to the increase in forest plantations. The most recent forest assessment shows that forest plantation was the only forest class that increased in area between 2015 and 2019 (DOF, 2020), while there was a continuous decline in primary forest area between 1990 and 2015 (FAO, 2015). When accounting only for natural forests, Lao PDR has approximately 57% of its total land area covered, while another 28% represents planted forest, bamboo and regenerating secondary forests (DOF, 2020).

The extent and quality of natural habitats in Southeast Asia are declining and represent a major threat to biodiversity (Achard et al. 2002; Sodhi et al. 2004).

5. Threats

The single biggest threat to *Laotriton laoensis* is overharvesting, especially to meet the demands of the international pet trade (Stuart et al. 2006; Phimmachak et al. 2012; IUCN SSC ASG 2014; Rowley et al. 2016). *Laotriton laoensis* was not known in the international trade prior to its scientific description. Only four years after its description there were reports of foreign collectors exporting these newts abroad for profit. Some hobbyists are specially attracted to rare or recently described species and willing to pay high sums of

money for these species (Stuart et al. 2006). *Laotriton laoensis* is also collected for use in traditional medicine (locally, nationally and internationally (IUCN SSC ASG 2014) and as food source by local people in its natural habitat (Phimmachak et al. 2012; Annex 1, Fig. 2). As *L. laoensis* forms large breeding groups inside the pools of small streams, animals can be collected from known sites in high numbers with minimal effort, making them highly vulnerable to overharvesting and which increases the risk of local extirpation (Phimmachak et al. 2012; Rowley et al. 2010).

The Laos warty newt has been classified as Endangered (EN) under the IUCN Red List assessment, not only due to overharvesting, but also due to habitat loss and degradation. In anthropogenic altered landscapes, deterioration of water quality (including pollution, pesticides, and nutrients) and flow and agricultural practices (including burning of grasslands adjacent to streams) are likely to pose a direct threat to this species (IUCN SSC ASG 2014). Furthermore, there is ongoing forest change in Lao PDR partly associated with the need for food for the increasing population, but also for the expansion of cash crop plantations (such as rubber, coffee, and tea), and the growing development of hydropower (Rowley and Stuart 2014b). Although studies on the impact of water pollution on the species in natural habitats are lacking, in captive environment, the larvae are extremely sensitive to water pollution (Bachhausen 2017).

6. Utilization and trade

6.1 National utilization

In the native range of *Laotriton laoensis*, animals can be harvested from the wild in large numbers, due to their predictable and easily assessable aquatic habitat, their large body size, bright coloration and diurnal habits. Furthermore, animals seasonally aggregate in pool sections of streams (Annex 1, Fig. 3). Animals are either consumed in small volumes as a delicacy, or used in traditional medicine against respiratory ailments and arthritis. Before consumption, animals are either boiled in water so that the skin's secretions can easily be scraped off, dried over a fire (see again Annex 1, Fig. 2) or in the sun, or preserved in alcohol. Traditional medicine is used locally, but also sold into the domestic trade and internationally (Phimmachak et al. 2012; Rowley and Stuart 2014b). The species is also collected to supply the international pet trade.

6.2 Legal trade

The species has been protected in its native country since 2008. Legal trade in wild sourced specimens is assumed to only encompass trade before 2008; however, regardless of the protection status of *Laotriton laoensis* in its range country, wild sourced specimens have continued to be traded in non-range States.

Shortly after the species was discovered and described in 2002, commercial collectors from Germany and Japan visited villages in Lao DPR to obtain these rare newts for sale into the pet trade (Rowley and Stuart 2014a). For traditional medicine these animals are collected for relatively low prices (less than USD1 per animal), but in the international trade rare and recently described species like the Laos warty newt can be sold for large sums of money (more than USD200) (Rowley et al. 2010). Reports on captive breeding and husbandry of the species in Europe have been documented since 2006 (four years after the species description).

Since 2009, the species has been included in Annex D of the EU Council Regulation (EC) No. 338/97, originally in the frame of the inclusion of the whole genus *Paramesotriton*, then in 2012 it was listed at the species level as *Paramesotriton laoensis*, and finally in 2013 as *Laotriton laoensis*. According to the CITES Trade Database¹, imports of *L. laoensis* into the EU-27 and United Kingdom of Great Britain and Northern Ireland² between 2010 and 2019 consisted solely of two shipments in 2013, in which a total of 41 live individuals of unknown source were imported directly by Germany from Japan for commercial purposes. However, the species has been regularly observed at fairs in Germany as wild caught until as recently as 2015–2018 (Bernardes pers. obs.). Evidence suggests that the amount of harvest in *L. laoensis* is far higher than the limited number of trade statistics might suggest (Rowley et al. 2016; see Section 6.4).

¹ Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, accessed July 2021

² The United Kingdom of Great Britain and Northern Ireland was subject to EU Council Regulation (EC) No. 338/97 until its exit from the European Union on 31 January 2020, and as such any of its 2019 trade in *L. laoensis* (as listed in Annex D) was included in this analysis.

A market analysis in non-range States of online pet shops (Annex 1, Fig. 4) and internet platforms with history recordings showed the first evidence of interest in the species and demand in trade starting in 2011. Several breeders regularly offer captive-bred offspring of *L. laoensis* in Europe and the US. Referring to online adverts, the trend of the documented demand for this species was always higher than the availability, with a peak of interest in 2017 (Annex 1, Fig. 5 and Tab. 1).

Commercial prices depend on the life stage of the animals and the type of seller, with the price for adults being higher than for juveniles and pet shops advertising higher prices than commercial (private) breeders. *Laotriton laoensis* was reported for sale in the US in 2011 for USD240–260 (Rowley et al. 2016). An online survey found that the price for juveniles, bred by commercial breeders in the US, has ranged between USD50–150 between 2012 and 2020, with the average price around USD100. In 2020, a commercial shop was found with captive-bred juveniles in stock for USD250. In Europe, prices seem to be slightly lower, with adults offered online for around EUR180 in 2019 (van Schingen-Khan pers. obs.) and in a reptile market in 2018 for EUR150 (Bernardes pers. obs.). According to the online survey conducted for this proposal (Annex 1, Tab. 1), some buyers are willing to “pay anything” and “beat other offers” to acquire the desired adults, which sometimes include wild caught animals for the purpose of maximizing the genetic variability of a captive group. Demand is so high that juveniles offered for sale can be out of stock within 1 to 10 days.

According to data from the LEMIS (Law Enforcement Management Information System) Database of the U.S. Fish & Wildlife Service, imports of *L. laoensis* into the United States between 2012 and 2021 comprised a total of 21 specimens (SPE), all of which were wild-sourced and imported for scientific purposes. No live imports or seizures of the species were reported. Exports of the species from the United States over this period comprised five live captive-bred individuals, exported to the Republic of Korea for commercial purposes. Re-exports of the species from the United States over this period comprised 12 scientific specimens (SPE), all of which originated in Lao PDR, and were re-exported to the People’s Republic of China (3) and Lao PDR (9).

6.3 Parts and derivatives in trade

The trade in this genus is predominantly in live animals or bodies dried or soaked in alcohol. There is no evidence of use of any parts or derivatives in domestic or international trade.

6.4 Illegal trade

Domestic trade in *Laotriton laoensis* has been prohibited in Lao PDR by law since 2008. However, domestic trade is still being reported, and local reports indicate that the scale of harvest of Southeast Asian newts is far greater than the limited number of trade statistics suggests. For example, in April 2008, villagers in Xiengkhouang Province, Lao PDR reported the selling of 300–400 individuals of *L. laoensis* per year to visiting European or Japanese collectors for ~USD0.60–1.76 each (IUCN SSC ASG, 2014; Phimmachak et al., 2012). In June 2009, local residents in Luang Phabang Province also reported the selling of hundreds of *L. laoensis* in January 2009 to a visiting Chinese collector for ~USD3.5 per kg (~USD0.20 per individual; IUCN SSC ASG, 2014). There are also recent (2015) reports of a market in Xiengkhouang Province selling *L. laoensis* for as little as LAK150,000/kg (~USD18/kg), approximately LAK10 000 (~USD1.20) per individual (S. Phimmachack, pers. obs.). Traders in Vientiane and adjacent areas were reported to have placed orders with local residents for the species (Phimmachak et al. 2012). As soon as these illegally collected animals leave the country, there is even less leverage for authorities in importing countries (Rowley and Stuart 2014b). *Laotriton laoensis* have also regularly been observed for sale as pets outside of their native range in Chatuchak market, Bangkok, Thailand (S. Phimmachack, pers. obs.) or being sold to Chinese traders who presumably export specimens to adjacent China. More than 100 individuals of *L. laoensis*, dried for medicinal purposes, were confiscated in 2005 at the Minneapolis/St. Paul International Airport from a Hmong woman from Lao PDR who illegally smuggled them into the US to sell at a traditional medicine shop in St. Paul, Minnesota (Annex 1, Fig. 6) (Phimmachak et al. 2012). Even though local residents have harvested the species in low numbers for local use in medicine and food for a long-time, improved transportation infrastructure within Lao PDR now subjects the species to an increased pressure from outside collectors within and outside the country (Phimmachak et al. 2012).

6.5 Actual or potential trade impacts

Over-harvesting is the single biggest threat to *L. laoensis*, directly impacting the declining wild populations to meet the demands in the international pet trade. *L. laoensis* is an endemic and narrowly distributed species accumulating in pools during the breeding season, thus the localised harvesting

may have severe impacts on subpopulations and may even cause local extirpations at some sites (Phimmachak et al. 2012; Rowley et al. 2010). The species' size, striking colours and rarity, render it as an attractive pet. The high prices that rare or recently described species can achieve in the international pet trade may lead to local extirpation of populations. An online market survey carried out during the preparation of this proposal uncovered two potential buyers interested in having *L. laoensis* shipped overseas to Argentina and Japan from Germany and the US, respectively (in 2017 and 2019, respectively; see Annex 1, Table 1).

Partially long trade routes and the conditions inflicted upon the animals are disregarding the animals' welfare.

Although not specifically studied yet, it is fair to assume that *Laotriton laoensis* is a reservoir species for the chytrid fungus *Batrachochytrium salamandrivorans*, as are other eastern Asian salamandrid species (Laking et al. 2017; Yuan et al. 2018). The recent introduction of this fungus in Europe has been linked to trade in eastern Asian salamandrid species and now threatens survival of a large proportion of western Palearctic urodeles (Martel et al. 2014). Therefore, it is important to regulate the movement of species like *L. laoensis* that can spread pathogens through the pet trade (Rowley et al., 2016).

Given these actual and potential trade impacts, it is important to monitor the commerce of *L. laoensis* to ensure that any legal trade is based on captive-produced specimens and that additional controls are in place to curb the illegal harvest of wild specimens for the international pet trade.

7. Legal instruments

7.1 National

Since 2008, the commercial trade of *Laotriton laoensis* (as *Paramesotriton laoensis*) is prohibited in Lao PDR, as the species was listed as a Category I species under the Lao Wildlife and Aquatic [Animal] Law.

7.2 International

Laotriton laoensis was listed in Annex D of the EU Wildlife Trade Regulation (EC) No 338/97 in 2009. Since 2018, *L. laoensis* is included in the Decision (EU) 2018/320 of 28 February 2018 on the animal health protection measures for intra-Union trade in salamanders and the introduction into the Union of such animals in relation to the chytrid fungus *Bsal*. In the U.S., *Laotriton laoensis* is however not included as “injurious wildlife” under the Lacey Act (18 U.S.C. § 42), from 28 January 2016, published by the U.S. Fish and Wildlife Service in order to avoid the introduction of *Bsal* into North America.

At CITES CoP18, the genus *Paramesotriton* spp. was included in CITES Appendix II, leaving international trade in *Laotriton laoensis* unregulated.

8. Species management

8.1 Management measures

None

8.2 Population monitoring

None

8.3 Control measures

8.3.1 International

International trade in salamanders and newts in Europe is regulated by decision (EU) 2018/320 of 28 February 2018 on certain animal health protection measures for intra-Union trade in salamanders and the introduction into the European Union of such animals in relation to the fungus *Batrachochytrium salamandrivorans*.

8.3.2 Domestic

The species is listed in the Prohibited Category I under the Lao wildlife law (Decree No. 81/PM 2008).

8.4 Captive breeding and artificial propagation

According to ZIMS (Zoological Information Management System of Species360) a total of 46 individuals of the Laos warty newt are currently kept in seven facilities worldwide: one in Germany, one in Poland, two in United Kingdom, one Russia, and two North America. The first captive breeding of the species in a public zoo or aquarium succeeded in 2011 and was repeated in 2012 and 2018 aiming to offer offspring to other Accredited Zoos and Aquariums (AZA) facilities working with endangered amphibians, and contribute to ex-situ breeding programs or for display and education purposes. No captive breeding has been documented in Lao PDR.

Additionally, the species is being bred by several private breeders, whose first documented success occurred in 2006 (Bachhausen 2008). In captivity, animals can be kept year round in a large, stream type aquarium with temperatures fluctuating between 15–25°C. Food consists of invertebrates. Reproduction occurs spontaneously when water temperatures drop to 18°C in the fall. Long-leaved plants provide egg laying sites. Rearing of the larvae requires good water quality, especially in regard to low levels of organic nutrients. Juveniles can be raised in a terrestrial setup. Maturity can be reached at an age of four years (Bachhausen 2013, Pasmans et al. 2014). The rearing of both larvae and juveniles is difficult and presents high mortality under sub-optimal conditions (Bachhausen 2017).

8.5 Habitat conservation

The species is known to occur entirely outside of protected areas (Chunco et al. 2013; Phimmachak et al. 2012). A protected area should urgently be established within the range of *L. laoensis* (Rowley and Stuart 2014b).

8.6 Safeguards

None.

9. Information on similar species

Laotriton laoensis has been previously described as *Paramesotriton laoensis*, as the two genera share characteristic morphological traits. Still the genera *Laotriton* and *Paramesotriton* are both considered as “Warty Newts”. The genus *Paramesotriton* (including 14 species that share similar biological and trade characteristics) has been listed in CITES Appendix II since 26/11/2019, leaving *Laotriton laoensis* unprotected. Therefore, trade in Warty newts may focus on the non-listed single species *Laotriton laoensis*, emphasizing the need to regulate international trade in this species as well.

10. Consultations

Lao PDR is the only range State and co-proponent of the proposal.

11. Additional remarks

Red List category, criteria and year of assessment – Endangered (EN) B1ab(iii, v) ver. 3.1, 2013.

12. References

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Figure 1. *Laotriton laoensis* adult from Phoukout District, Xiangkhouang Province, Lao PDR. Photo credit: Paul Bachhausen.



Figure 2. *Laotriton laoensis* dried over a fire to remove skin toxins before consumption at a road construction camp near Nam Madao (25 February 2009) Photo credit: Phimmachak et al. (2012).



Figure 3. A road culvert over a stream in Xaysamboun, Vientiane, where during the day specimens of *Laotriton laoensis* could be seen inside the water from the road (8 June 2007). Photo credit: Phimmachak et al. (2012).

Laotriton laoensis



Sold By: : M.O.C. Reptiles

\$250.00

Add a note to encourage purchase

QUANTITY - 1 +

ADD TO CART

We are offering a limited number of these extremely rare newts. They are captive bred, still in their terrestrial stage. We grew these guys for over a year after their larval stage, they are thriving and doing great!

Figure 4. Online sale advertisement for captive breed *Laotriton laoensis* [sic.] from a pet shop in Florida, U.S. (assessed in November 2020). The photo is taken from Phimmachak et al. (2012) without any references. The original description of this capture is “wild caught animals being sold to tourists at a cave in Vangvieng District”.



Figure 5. Offer and demand tendencies for *Laotriton laoensis* based on data from Table 1 for a period between 2011 and 2020.

Sheila O'Connor: The investigation goes back to about 2005. A mother-daughter wildlife and drug smuggling team were living in the Twin Cities (Minneapolis-St. Paul). Both had been born in Laos and then immigrated to the United States in the 1980s. The mother would go back to Laos, where she would obtain parts and pieces of different kinds of wildlife, the bulk of it endangered, threatened, or protected by CITES (this international treaty). She smuggled it back to the United States, where she sold it at a flea market in St. Paul.

We caught her as she came through the Minneapolis-St. Paul Airport. US Customs and Agriculture found her during what is called a secondary inspection. Anyone who's traveled internationally, odds are, if you haven't had a secondary inspection yourself, you've seen someone else go through it. They pull you aside, open up your suitcases and physically check to see what your bringing back into the United States as compared with what it says on your Customs declaration.



Desiccated Asian salamander. Photo courtesy of Laurel Neme.

Figure 6. News (from Mongabay.com) of wildlife crime comprising of dried *Laotriton laoensis* smuggled to the US to sell as tradicional medicine.

Table 1: Trade in *Laotriton laoensis* based on internet surveys from online platforms and interviews with dealers conducted by the authors of this proposal between September and November 2020. n.s. – not specified; CB – captive breeding; WC – wild caught; LTC – long-term captive; Group composition (x.y.z) – first position: number of males, second position: number of females, third position: number of juveniles of unknown sex.

| Date | Country | Trade type | Group composition | life stage | Type bred | Price | Purpose | Source | Comment |
|------------|---------|------------|-------------------|--------------|-----------|-------------|---------|----------------------|---|
| 23.12.2011 | Spain | demand | n.s. | anything | CB | n.s. | private | Facebook | |
| 24.01.2012 | US | demand | n.s. | juveniles | n.s. | n.s. | private | Dendroboard.com | |
| 25.01.2012 | US | demand | n.s. | juveniles | n.s. | n.s. | private | Dendroboard.com | |
| 25.01.2012 | US | demand | n.s. | juveniles | n.s. | n.s. | private | Dendroboard.com | |
| 28.02.2012 | Russia | demand | n.s. | eggs | n.s. | n.s. | private | Facebook | |
| 10.06.2012 | Spain | demand | n.s. | n.s. | CB | n.s. | private | Facebook | |
| 2.07.2012 | Germany | sale | n.s. | ≥ metamorphs | CB | n.s. | private | Facebook | |
| 12.08.2012 | US | sale | n.s. | juveniles | CB | 100 \$ each | private | faunaclassifieds.com | price plus shipping |
| 1.10.2012 | Russia | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 16.10.2012 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 29.10.2012 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 29.10.2012 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 22.04.2013 | US | sale | 1.1.0 | adults | n.s. | n.s. | private | faunaclassifieds.com | Shipping 35\$ or local pickup |
| 30.08.2013 | US | sale | 0.2.0 | subadults | n.s. | 100 \$ each | private | faunaclassifieds.com | |
| 25.10.2013 | Spain | demand | n.s. | ≥ juveniles | CB | n.s. | private | Facebook | |
| 23.10.2013 | France | demand | n.s. | ≥ subadults | n.s. | n.s. | private | Facebook | |
| 14.03.2014 | Spain | demand | n.s. | adults | n.s. | n.s. | private | Facebook | |
| 19.03.2014 | Germany | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 19.09.2014 | France | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 24.09.2014 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 13.10.2014 | Spain | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 26.11.2014 | US | demand | n.s. | adult | n.s. | n.s. | private | faunaclassifieds.com | "willing to pay anything" |
| 17.12.2014 | US | exchange | 1.0.0 | adult | n.s. | n.s. | private | faunaclassifieds.com | looking for 1M in exchange for 1F |

| Date | Country | Trade type | Group composition | life stage | Type bred | Price | Purpose | Source | Comment |
|------------|-----------|------------|-----------------------|---------------------------------|-------------------|-------------|---------|----------------------|---|
| 25.12.2014 | France | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 16.01.2015 | France | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 16.02.2015 | Germany | demand | n.s. | adult | n.s. | n.s. | private | Facebook | |
| 29.05.2015 | France | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 26.10.2015 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 9.11.2015 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 27.01.2016 | US | demand | n.s. | n.s. | n.s. | n.s. | private | faunaclassifieds.com | |
| 12.03.2016 | US | sale | 0.0.X | subadults | CB or LTC | 150 \$ each | private | faunaclassifieds.com | |
| 15.04.2016 | UK | demand | 3.1.0 | adults | n.s. | n.s. | private | Facebook | for Houten (NE) reptile show |
| 31.08.2016 | Italy | demand | 1.1.0 | ≥ subadults | n.s. | n.s. | private | Facebook | |
| 14.12.2016 | US | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 19.01.2017 | US | demand | n.s. | adult | preference for WC | | private | faunaclassifieds.com | "always looking for more (...) ample cash in hand and willing to beat other offers" - Intention to maximize genetic diversity |
| 28.01.2017 | Germany | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 5.03.2017 | US | exchange | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 5.03.2017 | US | demand | n.s. | eggs | n.s. | n.s. | private | Facebook | |
| 5.03.2017 | US | demand | n.s. | juveniles | n.s. | n.s. | private | Dendroboard.com | |
| 08.04.2017 | US | demand | n.s. | n.s. | n.s. | n.s. | private | faunaclassifieds.com | |
| 30.04.2017 | US | demand | n.s. | n.s. | n.s. | n.s. | private | faunaclassifieds.com | |
| 23.05.2017 | US | demand | n.s. | n.s. | n.s. | n.s. | private | Dendroboard.com | |
| 10.07.2017 | US | sale | ≥ 14 (by photo count) | juveniles | CB | 50 \$ each | private | faunaclassifieds.com | 1 day later all the available animals were sold. Shipping anywhere in the US |
| 19.07.2017 | US | sale | 7 | juveniles | CB | 50 \$ each | private | faunaclassifieds.com | 10 days later all the available animals were sold. Shipping anywhere in the US |
| 28.08.2017 | UK | demand | n.s. | n.s. | CB | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 27.09.2017 | Germany | sale | 2.1.0 | adult males and subadult female | CB | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 27.09.2017 | Argentina | demand | ns | eggs | n.s. | n.s. | private | Facebook | interested in having eggs sent to Argentina |

| Date | Country | Trade type | Group composition | life stage | Type bred | Price | Purpose | Source | Comment |
|------------|---------|------------|-----------------------|----------------|-----------|-------------|---------|-------------------------|---|
| 2.10.2017 | Germany | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 18.10.2017 | UK | demand | n.s. | n.s. | CB | n.s. | private | Facebook | |
| 15.10.2017 | UK | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 3.11.2017 | France | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | for Hamm (DE) reptile show |
| 17.11.2017 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 2.01.2018 | UK | sale | 0.0.6 | juveniles | CB | n.s. | private | Facebook | |
| 10.03.2018 | Germany | sale | n.s. | adult | WC | 150 € each | private | Terraristika Messe Hamm | |
| 14.05.2018 | US | demand | 0.1.0 | adult | n.s. | n.s. | private | faunaclassifieds.com | |
| 14.05.2018 | UK | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 17.05.2018 | US | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 18.05.2018 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 27.05.2018 | France | demand | 1.0.X | adult or young | n.s. | n.s. | private | Facebook | |
| 28.06.2018 | US | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 30.06.2018 | Spain | sale | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 4.07.2018 | US | demand | 0.0.4 | juveniles | CB | n.s. | private | Facebook | |
| 29.07.2018 | US | sale | 0.0.3 | juveniles | n.s. | 100 \$ each | private | faunaclassifieds.com | plus 70 \$ overnight priority shipping |
| 19.08.2018 | US | demand | X.X.0 | adult | n.s. | n.s. | private | faunaclassifieds.com | |
| 20.08.2018 | Germany | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 22.08.2018 | France | demand | 1.0.0 | adult | n.s. | n.s. | private | Facebook | for Hamm (DE) reptile show |
| 30.08.2018 | France | demand | 1.0.X | adult or young | n.s. | n.s. | private | Facebook | |
| 8.10.2018 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 10.10.2018 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 22.12.2018 | US | sale | 2.3.0 | adult | n.s. | n.s. | private | faunaclassifieds.com | |
| 16.01.2019 | France | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 14.01.2019 | Belgium | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 30.01.2019 | US | sale | ≥ 10 (by photo count) | juveniles | CB | 125 € each | private | Facebook | there is one potential costumer interested in having the juveniles shipped to Japan |

| Date | Country | Trade type | Group composition | life stage | Type bred | Price | Purpose | Source | Comment |
|------------|---------|------------|----------------------|------------|-----------|-------------|---------|----------------------|---|
| 7.02.2019 | Italy | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 21.03.2019 | US | sale | ≥ 8 (by photo count) | juveniles | CB | 70 \$ each | private | Facebook | 9 days later all animals were sold. Pick up locally or at reptile show and / or delivery (within 150km) |
| 27.03.2019 | US | sale | n.s. | juveniles | CB | 125 \$ each | private | Facebook | 6 month old F2 |
| 10.04.2019 | Italy | demand | 0.0.1 | young | CB | n.s. | private | Facebook | |
| 15.04.2019 | UK | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 30.06.2019 | US | demand | 0.0.1 | young | n.s. | n.s. | private | Facebook | |
| 21.08.2019 | UK | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 21.08.2019 | US | sale | 1.0.0 | adult | n.s. | n.s. | private | Facebook | |
| 23.08.2019 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | terrariumistik.com | for Gersfeld (DE) Urodela working group meeting |
| 27.08.2019 | Italy | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 8.09.2019 | Germany | demand | 0.1.0 | n.s. | n.s. | n.s. | private | Facebook | for Gersfeld (DE) Urodela working group meeting |
| 30.09.2019 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | terrariumistik.com | |
| 24.11.2019 | Vietnam | demand | 1.0.0 | adult | n.s. | n.s. | private | Facebook | |
| 22.02.2020 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | terrariumistik.com | possible hand-over in Gersfeld (DE) Urodela working group meeting |
| 16.03.2020 | US | demand | n.s. | n.s. | n.s. | n.s. | private | faunaclassifieds.com | |
| 13.04.2020 | US | demand | 0.1.0 | adult | n.s. | n.s. | private | Facebook | |
| 19.04.2020 | US | demand | n.s. | n.s. | n.s. | n.s. | private | faunaclassifieds.com | |
| 11.05.2020 | Germany | demand | n.s. | young | n.s. | n.s. | private | Facebook | |
| 28.05.2020 | UK | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 14.07.2020 | US | sale | n.s. | juveniles | CB | 125 \$ each | private | Facebook | |
| 25.08.2020 | US | demand | 0.X.0 | adult | n.s. | n.s. | private | Facebook | |
| 13.10.2020 | Germany | demand | n.s. | n.s. | n.s. | n.s. | private | Facebook | |
| 11.11.2020 | US | sale | 0.0.X | juveniles | CB | 250 | shop | Online shop FL, US | |