

Inclusion of Kaiser Spotted Newt *Neurergus kaiseri* in Appendix I

Proponent: Islamic Republic of Iran

Summary: The Kaiser Spotted or Lurestan Newt *Neurergus kaiseri* is a rare amphibian endemic to Iran, where it is known from only four highland streams in the southern Zagros Mountains. It is the smallest of the four *Neurergus* species, with an adult length of 10–14 cm. Longevity in the wild is unknown, although in captivity the species regularly lives beyond six to eight years. *N. kaiseri* reach breeding size at two to three years of age. Females lay around 45–60 eggs, which are deposited singly or in clutches. Its unique colouring, a mosaic of black and white patches and orange-red dorsal stripe, legs and belly, has made it a popular species with hobbyists.

The species was assessed in 2008 by IUCN as Critically Endangered on the basis that there appear to have been drastic population declines, estimated to be more than 80% within ten years; its area of occupancy is less than 10 km²; its populations are severely fragmented; and there is a continuing decline in the extent and quality of its habitat. There is little concrete information on population size and/or trends, although it is estimated that there may be fewer than 1000 mature individuals.

Over-collection for the pet and hobbyist trade is believed to have been a major cause of decline. Other threats include habitat loss as a result of firewood collection for small-scale subsistence use, coupled with the effects of recent severe droughts, and the introduction of non-native fishes that are spreading into the streams from lower elevations and which may feed on the larvae and eggs of *Neurergus kaiseri*. Concerns have also been raised that climate change may affect survival of *N. kaiseri*, causing fluctuations of water levels of streams and probably by contraction of optimum habitat as a result of increasing water temperature.

Collection of this species is prohibited under Iranian law. However, it has been observed for sale in markets in Tehran and wild specimens are apparently exported illegally. The species is offered for sale on the Internet, frequently said to be bred in captivity, but wild specimens are reportedly also available. Owing to the illegal nature of trade in wild specimens, the level of trade is difficult to determine. However, the purported levels of availability of wild specimens from one known dealer are in the order of 15–25% of the estimated mature population.

Analysis: The Kaiser Spotted Newt *Neurergus kaiseri* has a restricted range; the population is said to be small and it occurs in fewer than five severely fragmented locations. The population is said to have declined by more than 80% within recent years because of collection for trade, habitat destruction and the introduction of non-native fish. There is known to be trade in wild-collected specimens, despite export from Iran being illegal. *Neurergus kaiseri* would therefore appear to meet the criteria for inclusion in Appendix I.

Supporting Statement (SS)	Additional information
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Taxonomy

Neurergus kaiseri was first described as a subspecies of *Neurergus crocatus*.

Range

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Islamic Republic of Iran.	
<u>IUCN Global Category</u>	
Critically Endangered (A2d; B2ab(iii, v) ver 3.1)	Assessed 2008.

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

The SS states that the species meets criteria A ii), iii) and v) owing to observed small, fluctuating populations highly vulnerable to both intrinsic and extrinsic factors.

The total population is estimated to number fewer than 1000 mature individuals. Evidence based on field observations indicates that this species is rare and has undergone a dramatic decline within the previous 10 years. There is no population estimate available for *Neurergus kaiseri* in any of the four streams it inhabits in the southern Zagros Range.

B) Restricted area of distribution

(i) Fragmented or localized population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment

The SS states that the proposal meets criteria B i), iii) and iv) owing to a very restricted (far less than 100 km²) and fragmented area of occupancy.

Neurergus kaiseri is endemic to just four streams (in a single catchment area) within a restricted area of the southern Zagros Mountains of Lorestan, Iran; its area of occupancy is less than 10 km².

Although no information is available regarding terrestrial activity of *Neurergus kaiseri*, the appearance of the animals in aquatic habitat in March and their disappearance from the water in June suggests that this newt uses aquatic habitats mainly for breeding and spends a considerable amount of time in a terrestrial habitat, similar to the habit of other *Neurergus* species.

As a result of the substantial distance between different aquatic habitats and very rough topography, populations of *Neurergus kaiseri* are severely fragmented. Considering that all streams with *N. kaiseri* are located in deep valleys with very

Neurergus kaiseri inhabits periodic streams and ponds (Schmidtler and Schmidtler, 1975; Schultschik and Steinfartz, 1996, cited in Steinfartz et al., 2002) which do not provide stable environmental conditions, since water availability may drastically fluctuate over time. As a consequence, the breeding period of *N. kaiseri* and subsequent larval development are notably shorter than for the stream-species (Schmidtler and Schmidtler, 1975 cited in Steinfartz et al., 2002).

The populations are naturally fragmented by the local topography (Barani and Sharifi, in press).

High vulnerability to extrinsic factors, including: habitat decline owing to habitat loss for human development (such as forest practices), and dams, and resource extraction causing restricted movement because of habitat fragmentation (TRAFFIC North America, 2006).

Supporting Statement (SS)	Additional information
<p>sharp slopes and are well separated, it is unlikely that the newts can disperse far from their streams during their terrestrial phase in summer, autumn and winter.</p> <p><u>C) Decline in number of wild individuals</u></p> <p>(i) Ongoing or historic decline; (ii) inferred or projected decline owing to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment</p> <p>The SS states that the species meets criterion C ii) owing to a marked decline in the population size, inferred from habitat loss as a result of expansion of warm water of Lake Dez Dam. The expansion of the dam has caused an increase in cyprinid fish to some streams inhabited by <i>Neurergus kaiseri</i>.</p> <p>The SS also suggests that numbers have declined as a result of extremely high levels of harvesting for national and international trade with a dramatic decline within the previous 10 years.</p> <p>Population decline is estimated to have been more than 80% within recent years (2001–2005). Although there is no population trend information available for populations of <i>Neurergus kaiseri</i>, in recent years it has become extremely rare to observe this newt in the wild.</p>	<p>.</p> <p><i>No additional information on population trends was available; however the purported annual level of trade in wild specimens from one dealer may be in the region of 15–25% of the estimated number of mature individuals in the wild [see below].</i></p>

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

Evidence indicates that *Neurergus kaiseri* is being retailed in several European countries and in Japan. Live specimens are collected and smuggled out of Iran, probably via Azerbaijan, Ukraine, and the Russian Federation.

In December 2004, 50 specimens of Kaiser Spotted Newt were offered for sale via an Internet web site. The price for a Kaiser Spotted Newt, up to approximately USD350 per specimen, is high compared to most salamander species. Several shipments have been made in successive years to North America and Europe by a dealer in Ukraine (in 2005–2008 and 2010). Correspondence with this dealer in 2005 confirmed that wild-caught specimens of Kaiser Spotted Newt were imported and sold. According to the dealer, in early 2005 approximately 200 specimens were traded and approximately 250 more were expected, available by January 2006. It has been announced that wild-caught adults and captive-bred juveniles will be available in 2010. A wholesale trader in France offered the newts for EUR135 each and another large trader in Germany has been offering this species every year since 2005.

Neurergus kaiseri is a highly attractive animal, much in demand by private keepers (Federation of British Herpetologists and Reptile and Exotic Pet Trade Association, 2009).

*In January of 2006, one dealer was willing to export approximately 150 wild-caught adult *Neurergus kaiseri* to Canada (TRAFFIC North America, 2006).*

Supporting Statement (SS)	Additional information
Captive-bred animals have been offered for sale in the period 2006–2009 at lower prices (around EUR50–100) than those for wild-caught animals (EUR100–150).	

Other information

An important threat to *Neurergus kaiseri* is the introduction of several species of fish that have recently been able to expand their range upstream because of the expansion of the Dez Dam.

Furthermore, global warming may affect survival of *Neurergus kaiseri* through fluctuation of stream discharge and probably by contraction of optimum habitat as a result of increasing water temperature.

There is no information on chytrid fungus being a threat to this species but it may have been introduced by collectors or researchers.

Terrestrial habitat of *Neurergus kaiseri* is temporarily used by nomads. The fuel demand of these nomads is mainly supplied by wood, which coupled with the effects of recent severe droughts, could impact on the survival of *N. kaiseri*.

Direct negative effect may be expected to happen in Taleh Zang stream where an increasing number of visitors come to see the Shevi Waterfall during the Iranian new year holiday, starting on 21 March, during the time male *Neurergus kaiseri* expose themselves to find females.

Although *Neurergus kaiseri* is protected in Iran, animals have been observed for sale in Tehran pet shops for local use in aquaria.

Threats

Damming of the few known inhabited streams is a serious potential threat to the species. Non-native cyprinids are additionally spreading into the streams from lower elevations and present a threat to the larvae and eggs of this species (Sharifi et al., 2008).

The Zagros Mountains are in a highly earthquake-prone region. Such tectonic movements often close off springs, dump debris into habitats, and make ponds and streams uninhabitable (Anderson, 2009).

Conservation, management and legislation

The Department of Environment (DOE) is responsible for protecting wild animals and plants. This department has general jurisdiction for environmental protection based on the *Game and Fish Law* (1967) and *The Environmental Protection Law* (1975). Iranian environmental legislation considers *Neurergus kaiseri* as an endangered species and it is therefore protected by law. Any collection of this amphibian needs a permit issued by the CITES office in the legal department of DOE in Tehran. Any illegal collecting or keeping is subjected to a fine, but not imprisonment.

*In a decree (NO 168) issued in September 1999 "Stream Salamander" were declared to be a protected species. The scientific name was not specified, but the two native species of *Neurergus* (*N. microspiletus* and *N. kaiseri*) are the only stream-dwelling caudates in Iran, therefore it can be inferred that these are legally protected (Sharifi, 2009). *N. crocatus* has also been recorded in the past from north-western Iran, although its presence there now needs to be verified (Papenfuss et al., 2008).*

In the Iranian Game and Fish Law, the species is not specified as protected. Aquatic animals are defined as "all marine or freshwater fish", i.e. do not include amphibians.

Supporting Statement (SS)	Additional information
<p>Control and surveillance in the area where <i>Neurergus kaiseri</i> exists is the responsibility of the Regional Office of Environment in Khoramabad, Lurestan. If game rangers of any regional office of DOE encounter an illegal collector in the field, they are entitled to confiscate the specimens collected and the instrument by which they have been collected. However, the personnel of this regional office have no planned programme to conduct periodic checks to prevent illegal collection. According to present legislation, members of DOE are entitled to confiscate all live specimens in pet shops and also in the field. However, there is no evidence indicating how effectively this has been enforced. The area that the species is known from is close to the Zagros Oak Forest protected area.</p>	<p><i>No licences for the export of Neurergus kaiseri have ever been issued (Sharifi, 2009).</i></p>
<u>Similar species</u>	
<p>The northernmost species of the genus <i>Neurergus</i>, <i>N. strauchii</i>, <i>N. crocatus</i> and <i>N. microspilotus</i>, are similar in general appearance, with dark coloured bodies and contrasting bright yellow spots. <i>N. kaiseri</i>, occurring further south, is typically different, with its black and white mottling and orange dorsal stripe. All species of the genus appear to be stream-dwellers. <i>N. crocatus</i>, <i>N. microspilotus</i> and <i>N. strauchii</i> all have small or large round yellow-orange dots covering the dorsal side of the body, but never white coloured spots.</p>	<p><i>All Neurergus species can be easily distinguished on morphological and ecological grounds (Schmidler, 1994, cited in Steinfartz et al., 2002; Raffaëlli, 2009).</i></p> <p><i>A comparison made between characters pertaining to morphology and body stature in <i>N. microspilotus</i> and <i>Neurergus kaiseri</i> (Rastegar-Pouyani et al., 2006) indicated that the two species were distinguishable from each other (Barani and Sharifi, in press)</i></p>
<u>Captive breeding/artificial propagation/</u>	
<p>So far <i>Neurergus kaiseri</i> has been bred only irregularly by private persons (see http://www.caudata.org/cc/species/Neurergus/N_kaiseri.shtml). There is a German studbook for this species run by private persons (see www.ag-urodela.de). There is a growing interest in zoos to start <i>ex situ</i> breeding programmes (e.g. Amphibian Ark) for rare and endangered amphibian species. However, this ability has rarely been documented in scientific journals.</p>	<p><i>The first known captive specimens of <i>Neurergus kaiseri</i> were brought to Europe from field studies conducted in the 1970s by father and son Schmidler and Schmidler. In the early 1990s, Schultschik and Steinfartz brought some pairs to Europe, of which some descendents are still alive (Olsson, n.d.).</i></p> <p><i>A captive breeding programme is in place at the Sedgwick County Zoo in Wichita, Kansas, which now has hundreds of surplus captive-bred <i>Neurergus kaiseri</i>. The zoo has found that captive <i>N. kaiseri</i> will breed in both moving water and still water systems, and juveniles have been raised successfully in both aquatic and terrestrial environments (Amphibiaweb, 2009).</i></p> <p><i>An amateur breeder in Germany also manages a studbook for the species (TRAFFIC North America, 2006). Breeding guidelines are now available for this species (Olsson, n.d.). Bogaerts reports raising them in an aqua-terrarium without problems (Caudata, 2009).</i></p> <p><i>Specimens are offered for sale on the Internet, frequently as captive-bred. Wild-caught adults are generally more shy than their captive-bred counterparts (Caudata, 2009).</i></p>

Supporting Statement (SS)	Additional information
	On various Internet sites there are breeders offering specimens declared as captive-bred. Quoted prices include GBP40/EUR50 for young, GBP75.00 for a captive-bred juvenile, USD125.00 for captive-bred adults.
<u>Other comments</u>	

Reviewers:

S. Anderson, T. Papenfuss, J. Raffaëlli, TRAFFIC North America.

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