



Saving wetlands  
for wildlife & people



**Alpine newt**  
**(*Ichthyosaura alpestris*)**  
**Husbandry Guidelines**

**By Jay Redbond Herpetologist/Amphibian Keeper**  
**For the Wildfowl and Wetlands**  
**trustEmail:jayredbond@wwt.org.uk**  
**Reviewed By Jean Raffaelli**

## **1) Introduction**

**2) Taxonomy:** Nomenclature  
Common Name

**3) Natural History:** Physiology  
Morphology  
Longevity  
Ecology  
Diet and Feeding  
Reproduction

**4) Husbandry of captive stock:** Health checks  
Identification  
Cleaning

**5) Housing Requirements:** Aquariums  
Water quality  
Vegetation and substrate

**6) Feeding in Captivity**

## Alpine newts (*Ichthyosaura alpestris*)

### 1) Introduction

Alpine newts are from the genus *Ichthyosaura* of which there are believed to be eleven described subspecies.

*I. a. alpestris*: This is the nominate of *alpestris* and has the widest range and can be seen from Western France to Eastern Russia and as north as Denmark.

*I. a. apuana*: This subspecies is from Northern Italia.

*I. a. inexpectata*: This subspecies is found in Southern Italia and is very similar to *apuana*.

*I. a. veluchiensis*: This subspecies is found in Greece just below the normal forms range.

*I. a. cyreni*: This subspecies is found in Northern Spain.

*I. a. montenegrinus*: This subspecies is believed to remains neotenic and can be found in Lake Bukumirsko in Montenegro. There are meant to be two more neotenic species that are found in Montenegro but are unsure if these two species are *I. a. montenegrina*. The Latin names are *I. a. piperiana* and *I. a. serdara*.

*I. a. lacusnigri*: This subspecies is one of the rarest sub species and is found in a small area in Slovenia.

*I. a. reiseri*: This subspecies is believed to be extinct now. It was originally found in Lake Prokosko Jezero.

*I. a. carpathica*: This subspecies is the newest described sub species and ranges from Southern Central Europe, south east of *I. a. alpestris*, including Bosnia, and north of *I. a. veluchiensis*.

The Alpine newt has been bred and kept in captivity by hobbyists for a very long time, because of its beautiful colours during breeding season remains very popular and regularly available on the pet trade. They have also been introduced into the UK illegally by hobbyists or by them escaping from outdoor enclosures. Alpine newts are vectors of the disease chytridiomycosis and it is thought that some populations of alpiners that were introduced into the UK were carrying the disease.

## 2) Taxonomy

Alpine newts were formerly placed in the genus *Triturus*. This genus was divided with alpine newts having their own genus *Mesotriton*. Recently *Mesotriton* has been reclassified as *Ichthyosaura*.<sup>1</sup>

### Nomenclature

**Class** Amphibia  
**Order** Caudata  
**Family** Salamandridae  
**Genus** *Ichthyosaura*  
**Species** *alpestris*

### Common name

It is referred to as the Alpine newt in some countries.

## 3) Natural History

### Physiology and Morphology

*I. a. alpestris*: Males have a dorsal crest which follows the caudal keel it is yellow with black zigzag bars all the way along. They are a bluish grey colour with marbled markings with the females having darker marbled colours. The males have a white band along the flanks with black speckles which has a blue band underneath. The flanks of the female are speckled like the males but don't have a white line. The bellies are orange to red sometimes having spots underneath the throat. Females can grow as big as 12cm males are a bit smaller.

*I. a. apuana*: Males have a large dorsal crest similar to the nominate form but bigger, their colours are azure blue with the females mottled greenish brown colour. The throat has lots of small black spots sometimes seen on the belly to and there bellies are bright red. They are very aquatic and adults have been seen in full breeding colours but in a neotenic state. Females grow up to 10cm with males being smaller.

*I. a. inexpectata*: Dorsal colouration darker than *I. a. apuanus* spots are present underneath the throat but not many. They have rows of black spots along the lower flanks. Adults are also seen in neotenic state and females grow 10cm long males being smaller.

*I. a. veluchiensis*: Males are light blue never dark blue and there is no blue and black mottling present like in *I. a. alpestris*. Lateral band is yellow to white, inferior band is silvery blue. The bands are often stained brown or black and continue down the throat and stomach. The upper part of the iris is bright yellow. They can grow beyond 12cm making them the biggest of all the subspecies. There are different populations or subgroups some of them are small and others being much larger individuals.

*I. a. cyreni*: This subspecies is very similar to the nominate form but has a larger head, the body is smaller and is more obvious in the female.

*I. a. montenegrina*: This subspecies is completely neotenic and looks like the nominate form with a larger head and narrower mouth believed to be used to suck rather than snap. *I. a. piperiana* and *I. a. serdara* are meant to be very similar hence why it is unsure whether they are valid neotenic subspecies as well as *I. a. lacusnigri*.

*I. a. lacusnigri*: They have a large head which appears to look almost square shape when looking from above; they have a short slim body with a very long tail and thin limbs. The upper dorsal colour is very dark almost black. Females grow to 12cm with males being just a bit smaller.

*I. a. reiseri*: This subspecies is meant to have a very large head with a small body and tail often remaining in a neotenic state.

*I. a. carpathica*: this subspecies is a very mottled blue and brown colour with not much distinguishable features between the females and males. Males tend to reach 9cm with females growing on average about 10cm.



Female *I. a. carpathica*



Female *I. a. inexpectata*



Male *I. a. inexpectata* in breeding condition. Juvenile male *I. a. apuanas*.



Male *I. a. carpathica*.

Male *I. a. veluchiensis*.

### **Heart rate**

Requires further research

### **Respiratory rate**

Requires further research

### **Longevity**

Alpine newts have been reported to live beyond 20 years in captivity. Further research needs to be done on their longevity in the wild but it is likely to be much shorter depending on predators, habitat and food availability.

### **Ecology**

Alpine newts can be found throughout Europe living in ponds, lakes, brooks, swamps, streams and puddles. Some remain fully aquatic but others travel to the water in early spring to breed. They then leave the water during summer where they will live hiding under logs, leaves and stones, in woodlands, pastureland and meadows. They can be

found on mountains as high up as 2000m above sea level and in low land habitats.

### **Diet and Feeding**

This newt spends a lot of time during the warmer weather feeding so it has enough fat built up to last the cooler periods through autumn and winter where in the wild it would become if not hibernating very inactive. In captivity alpine newts can remain solely aquatic which makes it easier to monitor the animals when you cool them for winter. Food varies with subspecies in the wild, depending on habitat and if they are a fully aquatic subspecies or are a subspecies that have a terrestrial period. If they are a fully aquatic subspecies, from larvae they will feed on tiny single celled protozoans, crustaceans and daphnia. As they grow they will start to gradually increase the size of their prey such as shrimps, worms, insect larvae and even aquatic snails as well as any invertebrates that fall in the water. Subspecies that have a terrestrial stage will feed on pretty much anything that moves that will fit in their mouth's so slugs, crickets, woodlice, earthworms and other small invertebrates. When they are in their aquatic state they will feed on the same food as the fully aquatic subspecies.

### **Reproduction**

This starts to take place usually in early spring depending on the subspecies and region and always occurs in an aquatic environment. In captivity reducing the temperatures no lower than 2°C for 1-3 months is sufficient stimulation for breeding. Males will then develop a crest and their colour will change to help attract females. They display towards the females by using their tails to fan pheromones that are released from the male's cloaca to induce the female to breed. The female can decide from the pheromones whether the subject is healthy and compatible with her for breeding. If the female is interested she will stay until he finishes his display and then follow him until he releases a few spermatophores on the floor. The male will guide her to the spermatophores where she will open her cloacal lips and collect the packages one after another. Just over a week after the female will lay up to 200 eggs individually wrapped in an aquatic plant leaf. They will hatch about a week after depending on the temperature of the water. For the first few days they will not feed but after then need to be fed on a daily basis. It is advisable to either

remove eggs or adults to rear them separately to avoid the adults consuming their own young. The larvae will gradually change developing their front legs first then their back legs and finally metamorphosis with them absorbing their gills and leaving the water. Although as previously mentioned some subspecies do not lose their gills so remain neotenic.



Male *I. a. veluchiensis* displaying to female.

Eggs from *I. a. veluchiensis*



Female and Male *I. a. veluchiensis* courting.

Rearing tank.

#### 4) Husbandry of captive stock

##### Health checks

There should be a check everyday on the animals looking at their behaviour and general physic. Full health checks should be done on individuals at least once a week looking for any lesions or fungus and any torn skin or broken legs they may have picked up during feeding. Make sure their eyes are clear and there are no calices over the eyes.

Faeces should be taken on a monthly base and checked for any nematodes or pathogens. However it is very hard to collect faeces from a very aquatic animal.

### **Identification**

You can use photographic ID as individuals have different spot patterns on their body. Although it is hard to tell them a part even with photos it can be done. I would rather stay clear of toe clipping and silicone colour injections.

### **Cleaning**

If the aquarium is maintained at a high level of cleanliness health problems will be scarce. Half water changes should be done every week with a full clean every three months depending on how clean the water is. However if you have external filters it will very rarely need changing I can recommend EHEIM eco filters. I also uses internal filters EHEIM aquaballs are good. If you don't have a filter then a full water change with the gravel being cleaned is essential to stop the build up of ammonia in the water. Glass will have to be cleaned to prevent the build up of algae; you can use a standard aquarium magnet glass cleaner.

## **5) Housing requirements**

### **Aquariums**

You can house up to twelve adults in 12 gallons of water, I use Clear-seal Basic aquariums that are 32in x 15in x 15in. They tend to like it quit deep so about 12in water depth is adequate.

### **Water quality**

They are fairly hardy newt and don't tend to have many health problems with their skin as long as the ammonia and nitrate levels are low and the pH remains around 6.5-7.5, which is the range in which pond life thrives in. Nitrate levels can be controlled by adding moss balls and other vegetation. An air pump can create good oxygenated water so having one is very beneficial.

### Vegetation and substrate

This species can be kept aquatic all year round but will sometimes venture out into the shallow waters or even on to land. It is best to provide a small area of land even a rock breaking the surface or a bit of floating cork bark is sufficient. You can chose either to have a substrate free bottom which makes it easier to clean, or have a gravel or sand bottom which makes it more natural. A lot of rocks and plants are a good idea for them to hide and gives different levels in the tank. The plants are also important for laying, the more vegetation the more places to lay eggs.



### 6) Feeding in captivity

*Ichthyosaura alpestris* will eat any aquatic food that is available to purchase, so things like Daphnia, Brim shrimp, Bloodworm, White worm and Tubifex. They are not fussy eaters and will happily take food from tweezers. It would be worthwhile farming earth worms as they are a good diet for these animals. You can chop up the worms and feed them by tweezers which means you know which ones have fed and which ones haven't. They will often take wax worms as well but it is

important not to feed them often as they are very high in fat. I use underwater food bowls which are just Petri dishes this prevents food from escaping before being eaten it dieing and polluting the tank. It is also best to find suitable sized worms rather than cut them up because they live longer underwater which means they have a better chance of being eaten before dieing.

## **Bibliography**

Jean Raffaelli, Les Urodeles du Monde

Mark Staniszewski, Alpine newts care 1998.

IUCN Red list of threatened species. Global amphibian assessment 2008.

Caudata Culture Species entry

## **Photography**

Jay Redbond

## **Authorship**

Jay Redbond

Wildfowl & Wetlands Trust

November 2010