

## Birth of a "Crocodile Salamander": the rare Himalayan Newt at Darjeeling Zoo

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Kingdom: Animalia  
Phylum: Chordata  
Class: Amphibia  
Order: Urodela  
Family: Salamandridae  
Genus: Tylototriton  
Species: *T. verrucosus*

Himalayan newt or *Tylototriton verrucosus* is the sole representative of the order Caudata among the amphibian fauna of the Indian subcontinent and is listed under Schedule I of the Indian Wildlife (Protection) Act, 1972. The species is found at altitudes of 1500m - 2250m in cold climates of the Eastern Himalayan region and has been reported to exist in a range spreading out from eastern Nepal through the Eastern Himalaya up to South East Asia. *T. verrucosus* lives in the Southern foothills of the Himalaya and has been known from Darjeeling and Sikkim in India, Nepal, North Thailand, Myanmar, and the west of China. Given the size of the distribution area it is plausible that *T. verrucosus* can differ, depending on the geographical origin. Because of the large distribution the habitat is not the same everywhere.

*Tylototriton verrucosus* is one of 7 *Tylototriton* species. Also known are: *Tylototriton asperrimus*, *Tylototriton hainanensis*, *Tylototriton kweichowensis*, *Tylototriton shanjing*, *Tylototriton taliangensis*, *Tylototriton wenxianensis*.

Salamanders are habitually secretive. During the warm summer months from April to September, they are known to inhabit cool mountain lakes, temporary and perennial pool and streams. Over the cold winter months from October to March, they hibernate under leaf litter, decaying logs and in mud burrows beneath forest floor. They swim slowly with undulatory movements of their tails, occasionally surfacing to breathe. Water-beetles and bugs, frog tadpoles, larvae, earth-worms, snails and slugs comprise the principal diet of the animal. Salamanders often shelter among bamboo stumps during the dry season, where they feed on the termites and woodlice that infest rooting vegetation .

While mostly dark in colour, the *Tylototriton verrucosus* has light brown limbs and tail. It's toes and fingers and under surface of it's tail are pale in colour. The body is cylindrical in shape and the head ringed by a hard porous ridge, with short longitudinal ridges along the vertex. The snout is short but larger in diameter than the eye. The eyes are moderate in size but have large upper eyelids. Large glandular tubercles occur in line along the body, terminating at the tail. The tympanum is distinct. The nostrils which are located close to the



**Himalayan Newt from Darjeeling Zoo.  
Photo: PNH Zoological Park, Darjeeling.**

tip of the blunt snout with a space between them. They are semi-circular and are closed by a small flap of skin. Palatine teeth are present in line with the internal nostrils along two ridges, which meet in front but widely diverge behind. The animal's body is around three times the length of its head, having four short stumpy limbs with 4 frontal digits and 5 on back legs. Its long tail resembles that of the crocodile. Thus the animal is also known as the Crocodile Salamander. It makes a low noise while snapping its jaws, giving its Nepali name "Pani Kukur" and Thai name "Mah Nam" both of which mean "Water Dog". The Gorkhas of Darjeeling call it "Gorho".

The salamanders do not show sexual dimorphism through most of the year so the males and females are difficult to distinguish. However, during the breeding season, they change in appearance, making identification easier. A highly distended belly distinguishes females, while males expel milt when their abdomen is pressed hard.

### **Status in captivity in PNHZ Park**

The State Wildlife Advisory Board, West Bengal in its XXII meeting held on January 29, 2000 recommended constitution of an expert committee to look into the various aspects of conservation of Himalayan Newt in Darjeeling hills. The Expert Committee submitted its findings and recommendations on August 14, 2000. One of the recommendations of the Expert Committee was to develop and enlarge the two existing small water bodies inside the Padmaja Naidu Himalayan Zoological Park, Darjeeling as natural habitat for Himalayan Newt breeding and conservation.

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The State Wildlife Advisory Board, West Bengal in its XXIII meeting accepted the recommendations of above Expert Committee and the Chief Wildlife Warden, West Bengal asked the Padmaja Naidu Himalayan Zoological Park, Darjeeling to develop water areas for conversion into congenial surrounding for Himalayan Newt breeding, and take suitable action in this regard.

Accordingly the water areas in the Zoological Park were developed by lining the ponds with plastic sheets and cement. The adjoining areas were planted with shrubs/herbs etc. and loose rocks/stones and logs were placed for creating hibernating areas. A request was made to the wildlife wing of the forest Department on January 2, 2001 for supply of some live Salamanders from different natural habitats to release into these areas. Accordingly nine individuals were collected from Maneybhanjang area and released in the ponds in the months of June, 2001.

It was observed during rainy months of 2002 that six of the animals actually returned to the ponds for breeding and at least 3 young were observed in the ponds. On seeing the initial success six more specimens from Sonada water body were released in the ponds during June/July, 2002 with the same objective.

Sadly these animals were kept for the purpose of display only. Thus the original stock of 9 animals

did not show any increase, partly because not much was done for enhancing their breeding. These were kept in a small covered pond, which was not conducive for breeding as there was no mechanism to control the temperature and feeding.

In 2003-04 one glass enclosure was constructed of the size 10m x 4m with a pebbled floor. Some large stones were kept in the watered floor for their hiding purpose. In 2005, on observing no increase in population, the zoo changed the habitat. A highland area was created, with the help of large stone, soil, and flora. Further changes were done in 2006. Water level was kept constant at five centimetres and water was changed weekly. External food given was meat pieces of small size and earthworms. In addition a large bulb was kept on during the evening which attracted insects, which are main food base of the animals. The bulb also helped in maintaining temperature in the enclosure. Sand with pebbles was added in the base of the enclosure. These changes seemed to bring the desired objective of breeding.

On 24<sup>th</sup> August 2006 six tadpoles were observed. This was the first success in breeding these threatened amphibians. They could be observed until the end of October, when they went for hibernation. Further progress shall be known only after March 2007.

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## VACANCY FOR A CONSERVATION AWARENESS OFFICER WITH SAMRAKSHAN TRUST

Samrakshan Trust is a Delhi based conservation organisation with operations in the states of Madhya Pradesh, Meghalaya and Mizoram. Our work fosters sustainable nature conservation in conjunction with local communities and other stakeholders at sites of conservation importance in these states. An integral part of our conservation strategy at each intervention site is to improve appreciation of natural values among various stakeholders. For this purpose Samrakshan is seeking to recruit a Conservation Awareness Officer based at its head office in Delhi. The job profile for this position includes the following tasks:

- i. Assisting Samrakshan field teams in MP, Meghalaya and Mizoram develop conservation awareness strategies and action plans conducive to local conditions;
- ii. Capacity enhancement of Samrakshan field teams for executing such action plans;
- iii. Monitoring the impact of such conservation awareness activities and making necessary corrections;
- iv. Helping the organisation communicate its work to a larger audience.

This position will require extensive travel to Samrakshan field offices and the devotion of several months at a stretch at these locations. The candidate should have demonstrable experience in conservation awareness work and an ability to work under extremely difficult physical conditions.

Candidates are welcome to learn more about Samrakshan's work at <[www.samrakshan.org](http://www.samrakshan.org)> Applications will be accepted till the position is filled. Please submit a CV and a 2-3 page note expressing your interest in this position and contact details of 2 referees to:

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