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In February 2014 the new Field Guide Book on Amphibians and Reptiles of Nepal (625 pp in Nepali & English) had been launched successfully. Special price offers exist for SAARC - countries and Nepali students.

Visit to Budo Holi Turtle Rescue & Conservation Centre (TRCC) in February 2014 – an illustrated progress report





Landing on 15th February in Nepal a very cordial welcome was given to ARCO-Nepal president Hermann Schleich by our Nepali counterparts SUMMEF president Devraj Ghimire, Kaluram Rai and Nabin Bhattarai. Having arrived at the project site a huge group of local neighboring village people received ARCO president with garlands and bunches of flowers showing their acceptance and integration of the Turtle conservation project as most important part for a sustainable future and common understanding



Nothing looked anymore as it was seen at our last visit and construction work was partially completed, ongoing or being started for the new construction units. Improvements and minor modifications had been finalized in continuous work days and all ponds had at day of our departure been done.



Measurements taking and perimeter fixation for breeding centre (left) and central building (right)



Three finalized ponds can be seen, the one in the background serving for quarantine



The middle rear part of the photo shows the entrance area from SUMMEF Nature & recreation park to the TRCC. The blue covered shelter in the middle will be converted into the education centre with a nature walk. The photo to the right below shows finalization with anti-escape fencing and areas for palustrine and aquatic plants

Pending Construction Works towards finalization



;;;URGENTLY NEEDED!!!

Your collaboration and donation for realizing the finalfencing of the BudoHoli - TRCC

We need general security fencing for 170 meters with several courses of brick from ground level, reinforced concrete poles, meshwire and barbed wire to protect the whole area from any type of destructive intruders

your donation: EUR 6.600.-

We need anti-escape fencing around all built enclosures for the different types of turtles and tortoises

The photo shows the bigger artificial lake of the TRCC (before filling) but also all the smaller ponds, the smaller lake and the enclosures for the tortoises as well as for the quarantine areas need same type of anti-escape fencing

your donation: EUR 2.500.-



...and we need in- or underwater separation fencing within the 260 sqm lake to build 8 big sized compartments for aggressive softshells (*Chitra*, *Nilsonia* spp.) or bigger sized terrapins like *Batagur* or *Hardella* + circumferal fencing

> your donation: EUR 800.can make it possible

The Education Centre can be finalized with your contribution:



Shown is the existing former picnic shelter which needs a new roof and horizontal beams for supporting the panels

we need EUR 5.500.-

We need EUR 2.500.-

...for restoring the building and preparing it with beams and panels for fixation of the 32 weatherproofed 100 x 100 cm posters for in- and outside

..... and we need another

EUR 3.000.-

.....for the nature path at our TRCC with 20 posters and roofed metal stands on the amphibians & reptiles of Nepal



The TRCC-

Education Centre

with following units:

- Exhibition
- Didactical Nature Walk
- Mobile Education Unit

The physical units of the education centre shall be realized by

- Conversion of the existing Picnic shelter into an Education Centre
- Didactical open air course with explicative panels at the tortoises' reserve
- "Travelling suitcase" with information material to be brought to schools in Terai
- A mobile education unit set up in a suitcase to be used at the various schools and institutes containing the exhibition parts with its general information for education and conservation

Thirteen panels of $100 \ge 100$ cm will fit inside the first hall and four more in the outer (photo to the left). Also another thirteen will be mounted outside – all of them telling the Natural History of turtles of Nepal also its significance in para-medicine, religion and superstition.

General implementation of construction units at BudoHoli TRCC





Construction plans incl. three dimensional view realized by D. Diego Tovar, Roquetas-Almeria/Spain.



General implementation of construction units at TRCC

@ SUMMEF Nature Park

Legend

Blue: lakes & ponds for softshells and terrapins

Turquoise: pipeline

Yellow: path ways

Green: outer security fencing

Brown: Construction units-

Central building

Education Centre

Breeding & Rearing + simple workshop

Green ovals: Tortoise areas

Dashed line: Nature path with explicative panels

Concept by ARCO-Nepal

Drawing by D. Diego Tovar Roquetas-Almeria

The whole construction has to be set upon a cemented and iron armored platform with layers of big pebbles or/and gravel underlying. This is extremely necessary to avoid capillary suction of humidity into walls and whole building. Also the platform must outrange the whole building for approx.. 150 cm to have dry walkable area around the house for visitors and outsideexhibition. The platform must be elevated above the normal ground surface to avoid flooding during monsoon The roof has to be constructed as cemented roof with the necessary beams. Of course all the walls must be constructed with good stone quality and plastered smooth in - and outside. Windows and door frames in termite resistant wood, also furniture and bear good lockable shutter units

ARCO Veröffentlichungen - Newsletter 07, April 2014

First Breeding Report of Indotestudo at Chitwan National Park

Background

A turtle conservation program was launched at the Gharial Conservation Breeding Center (GCBC) in 2000 in Kasarah Headquarter station of Chitwan National Park (CNP) with the aim to conserve turtle species through a captive program. Two enclosures have been developed with the help and support of Arco-Nepal (see www.arco-nepal.de), where terrestrial and aquatic turtles exist in a semi-natural habitat. The size of enclosure for terrestrial species is 25x15 m and for the aquatic ones 25x15 m. Altogether 7 species are at the centre including 2 terrestrial and 5 aquatic species.



Fig. 1,2: Tortoises rescued by ARCO president Hermann Schleich with help of family Shrestha from a temple in 2002 and being forwarded to Chitwan National Park

The tortoises have been collected by ARCO-Nepal president and collaborators from a temple in Kathmandu, from a mini zoo of Hetauda and from the Koshi Tappu River with technical backup from Arco-Nepal. A few specimen could have been collected and rescued by CNP from nearby villages of CNP.

All specimen delivered to CNP by Arco received individual data sheets as shown in newsletter 05 and had been forwarded to CNP. The setup of the first turtle conservation program including new maintenance facilities at CNP had been designed by ARCO-Nepal and realized by late Dr. Tirtha Man Maskey, former Director General.

The turtle conservation program is fully and regular managed by the Government of Nepal since 2000 with a budget of \$ 750 to \$ 1000 allocated each year for feeding and maintenance costs.



Figs. 2,3: Left - area for terrestrial species, right - area for aquatic species, both at its initial phase (photos: H. Schleich)

Aims of the program

- to establish a successful captive breeding program.
- to introduce and reintroduce turtles in potential habitat sites for maintaining aquatic ecosystems with endangered and protected species.
- to provide facilities for scientific research on the herpetofauna.
- to develop a conservation education center
- to collect and rescue turtles from nearby human habitations of CNP.

Captive/Semi-captive Maintenance

The enclosures are big and turtles are roaming around free in the whole area having proper natural vegetation and are within a natural habitat completely surrounded and integrated in the jungle area.

The seven species kept (details see table below) for breeding include the terrestrial *Indotestudo elongata* and *Melanochelys tricarinata* in one enclosure and the aquatic species like *Lissemys punctata*, *Pangshura flaviventer*, *Pangshura smithi smithi*, *Aspideretes hurum* and *Melanochelys trijuga* are kept separate in an enclosure where two ponds are managed with a population of 53 turtles.

General observations show more crepuscular activity of the turtles at dawn and dusk. Our terrestrial species as *Indotestudo elongata* and *Melanochelys tricarinata* hibernate fully in colder months (November-February). The aquatic turtles come out to bask during sunny days of the colder months.

Indotestudo elongata and Melanochelys tricarinata feed on pumpkin (Cucurbita pepo; mature, yellow color which is sweet in taste) and buffalo meat is also fed once a week for additional protein. During hot days we provide also Chickpea (Cicer arietinum) being soaked in water one day before. Aquatic turtles feed on natural pond life such as fish and different types of aquatic plants. Additionally they are fed Buffalo meat thrice a week.

S.1	Species	Number of species		Food provided	Remarks
Terrestrial Species					
1.	Elongated tortoise (Indotestudo elongata)	29	$2 \stackrel{?}{\circ} ad, 6 \stackrel{?}{\circ} ad, 6 \stackrel{?}{\circ} ad, 6 sub-ad 9 juv and 6 hatchlings$	Yellow (mature) pumpkin, chickpea in hotter dry days and Buffalo meat provided once a weak.	CITES II
2.	Tricarinate hill turtle (<i>Melanochelys tricarinata</i>)	5	$2 \stackrel{?}{\circ} ad, 3 \stackrel{?}{\circ} ad$	Yellow (mature) pumpkin, chickpea in hotter dry days and Buffalo flesh meat provided once a weak	CITES I
	Aquatic Species				
3.	Indian-flapshell turtle (Lissemys punctata)	4	4 ad	Live fish and other aquatic flora and fauna growing in enclosure and additional buffalo meat fed thrice a week.	CITES II
4.	Yellow-bellied roofed turtle (Pangshura flaviventer)	1	ad	Live fish and other aquatic flora and fauna growing in enclosure and additional buffalo meat fed thrice a week.	CITES II
5	Brown-roofed turtle (Pangshura smithii smithii)	1	ad	Live fish and other aquatic flora and fauna growing in enclosure and additional buffalo meat fed thrice a week.	CITES II
6	Indian black turtle (<i>Melanochelys trijuga</i>)	6	2 ad, $4 \xrightarrow{\circ}$ ad	Live fish and other aquatic flora and fauna growing in enclosure and additional buffalo meat fed thrice a week.	Not recorded
7.	Indian peacock softshell turtle (Nilssonia hurum)	7	7 ad	Live fish and other aquatic flora and fauna growing in enclosure and additional buffalo meat fed thrice a week.	CITES I
	Total	53			

Fig. 4: Species and number of specimen actually kept at Kasarah Turtle Breeding Centre Chitwan National Park and type of feeding. (Editor's note: ARCO did deliver husbandry and diet plan but the shown practice is not in accordance)



Fig. 5,6: Starter group of turtles brought by Arco. A big problem in the beginning was the heavy infestation with entoparasites in *Indotestudo* and details of identification and treatment had been forwarded by Arco-country representative Prof. Dr. K. Rai in 2004 (photos: K.R.Rai).

From mating to hatching

Species listed on table above as nos 3 to 7 are kept in a single enclosure where 2 ponds managed. (Editors note: The lack of adequate separation of both ponds by a half meter high fence could avoid the migration of the bigger softshells in between the two ponds and preying on newborns of other terrapins.)

Currently, 25 *Indotestudo elongata* individuals are kept for breeding in the center. This species has bred since 2004 until now producing more than 30 eggs. Of the 9 hatchlings born in 2013, 6 are surviving in good healthy condition.

Melanochelys trijuga and *Melanochelys tricarinata* have reproduced but no hatchlings survived. *Indotestudo elongate* and *Melanochelys trijuga* lay eggs in September/October and hatch naturally with no human interference and no artificial incubation during heavy rains at monsoon time in July. Most eggs of *Melanochelys trijuga* were eaten by a predatory mongoose.



Fig. 7: Clutch of Indotestudo from Bhadrapur TRC



Fig. 8: Hatchlings from CNP, 2013-09; photo:B.Khadka

Generally, mating was observed from 2nd week of May to end of July but peak time of mating is the last week of June. The records show, that mating took place either early morning before sunrise or in the evening after sunset and which takes an average of 30 minutes. The play before mating includes a series of chasing the female by the male and striking their shells, hitting and producing a dhyke-dhyker sound. When they attain the position of intercourse, the male open its mouth producing sounds like syaerr....., syaerr....., syaerr..... and the female facilitates ejection by pushing up her sexual parts or back parts/ventral parts. The paring is so strong that even the appearance of a stranger is not noticed.

In our practice, hatchlings are left with the adults for about 1-2 week after hatching and then all hatchlings are transferred to another smaller baby-care pen where exists a semi-natural habitat. Hatchlings are fed regularly flower of China rose (*Rosa chinensis*) and pumpkin (mature, yellow and sweet) and buffalo meat once a week for additional protein. China rose flower and pumpkin are accepted as favored food for hatchlings and adult turtles.

General observations and problems

Winter activity in the time from December till February concentrates mainly on basking and shows almost no food uptake. Usually both terrestrial and aquatic turtles showed nocturnal activities. The *Melanochelys*, though terrestrial in nature, prefers moist grassland and riverbeds. The *Indotestudo* is completely terrestrial preferring lowland sal (*Shorea robusta*) and mixed forest habitats.

Sanitary problems in the beginning phase were heavy infestation by entoparasites as being shown on fig. From fecal samples.

Baby turtles are preyed upon by various predators including crocodiles, birds, lizards and snakes. Turtles are everywhere in decline today being heavily collected and hunted for their meat, shell, skin and eggs as well as use of several traditional medicines in local communities. Habitat loss is another problem for decreasing turtle populations.

Turtle species chase each other and bite in the food struggle with babies also competing with the adults. So feeding becomes difficult as well as other activities. In May 2002, one specimen died for this reason.

Conclusions

For a better conservation management and to run a sustainable breeding program following main activities are proposed for the future of our turtle species:

• Construction of hatchlings - rearing enclosures for terrestrial and aquatic species quarantine station separation of big softshells in the existing enclosure monitoring program cum techniques for released specimen

- Rescue or collection of turtle species from their natural habitat to receive a proper male and female ratio.
- Employing turtle care taker for enclosure sanitation, natural food collection and survey of turtles in their natural habitat.

•

Having proper established breeding centres at CNPs and other lowland NPs there shall be no doubt that within a short span of time, a sustainable turtle conservation program can contribute to the survival of our endangered species.

Readings

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English version proof reading gratefully acknowledged to Sylvia Geldeard, secretary Arco-Spain.

Editor's note: As we can report from Kasarah Breeding centre at Chitwan National Park (kindly submitted by Bed Kharka/CNP) several *Indotestudo elongata* have been bred successfully during last years. They are offspring from a group that had been brought by ARCO-Nepal to Kasarah 10 years ago. The adults are roaming with complete natural vegetation and surroundings in one of the open air enclosures ARCO-Nepal planned for DNPWS at the beginning of the millennium. The offspring have been reared and raised at the already existing Crocodile Breeding and Rearing Station. Now the time comes to transfer them to the open air enclosure for observation and adaptation to their planned future wild life. All individual data sheets of the parental group as well as release suggestions by IUCN and others had been forwarded to CNP, too.

NEW:

Geographic Distribution Records

ARCO-Nepal Newsletter can publish brief notices of new geographic distribution records —as it was e.g. in the seventies done by the "Herp. Review"—to make them available to the natural science in Nepal in a published form. Such records are important for range determination and general distribution of species, its biology (and in case for rare species also for conservation issues). We suggest to apply to a standard format (e.g.: Herp.Rev, 8(4),1977.):

- Bi- or tri-nominal scientific name, common name and local names
- photographs
- Locality (name according to official map or google earth site id, gps data if available or coordinates and metrics for distance and altitude
- Date, time of collection, weather
- collector, place of deposition and collection number
- number of specimens observed (single many (?n)
- Notes on biology: e.g. basking, feeding, spawning, fighting, hatching etc., other species

Testudines





Melanochelys trijuga (Indian Black Turtle) Status: Lower Risk/near threatened ver 2.3 / CITES II Rapti River, Kasarah HQ Collected + photo: 2014 Apr 10

By Bed Kharka, Assistant Warden, Chitwan Nat. Park; bed.khadka@gmail.com

Serpentes



Sibynophis collaris, Collared black headed snake, Male kalotauke sap Mustang, Nepal latitude, longitude 28.74242897903338 83.68156528420513, 2675 m asl 2005 Sept 4; photographs only collected

By Mukesh K. Chalise, PhD, Central Dept. Zoology, Tribhuvan University; mukesh57@hotmail.com



Psammodynastes pulverulentus, Langtang Khola, Nepal latitude, longitude 28.20827798552508, 85.5626134830527 3775 m asl 2005 Oct 1; photographs only collected

By Mukesh K. Chalise, PhD, Central Dept. Zoology, Tribhuvan University; mukesh57@hotmail.com

Without your generous donations, we would not have already achieved what has been done so far. We would like to express our acknowledgment and THANK YOU!!! (mentioned below are donations received of 200 EUROS and more)

> British Chelonian Group Herpetofauna Foundation, NL W. Kaestle NBS V Nederland H.M. Pichler Van Rossem Rutherford, Bristol S tudbook Foundation, Klaaswaal Turtle Survival Alliance Europe

Please write us your opinion on our conservation issues at email: arco-nepal@t-online.de

or to Prof. Dr. Kaluram Rai (drkrkhambu@gmail.com) - Or simply post it on facebook at arconepal

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