

*The Evolutionary course of*

*NATIONAL ENVIRONMENT*

*SCIENCE CAMP 2008-2009*



(Winners: National Hill View Public School, Bangalore)

**Unravel the Mystery of Evolution**

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## 1. An Overview of the Camp

Karavan Heritage and Nature Society organized the National Environment Science Camp 2008-09 (NEVSC 2008-09) at Dudhwa National Park in the Himalayan Terai in the month of November-December 2008 and January 2009. A brief extension program of the Camp was also organized in April 2009.

**The theme of the Camp was, 'Unravel the Mystery of Evolution.'** The Karavan team wove an interesting, exciting and action packed program that provided a glimpse of Evolutionary process over the past 15 billion years.

We initiated the journey at the Birth of the Universe itself (The Big Bang). We delved upon the Evolution of Unicellular Organisms, Great Trees, Insects, Reptiles, Birds and Mammals. We also unraveled the Evolution of Man. And finally, our quest stretched the imagination of the participants to 'Crystal Gaze' into the future course of Evolution.

**Three hundred students belonging to prestigious schools from all over India** converged at the awe-inspiring jungles of Dudhwa National Park in the Himalayan Terai for this lifetime event.

Scheduled for duration of four days, the camp was a grueling encounter of both brain and brawn. Knowledge, fierce tribal camaraderie, the spirit of adventure and environment friendliness was put to test in this crucible.

**The students of the National Hill View Public School, Rajarajeshwarinagar, Bangalore emerged as the overall winners in this trial by fire contest.** They edged past the Sela Qui World School, Dehradun by just about 50 points. Many congratulations to the students and teachers of National Hill View Public School, Bangalore for their outstanding performance.



While at one level NEVSC 2008-09 was a discovery of the amazing journey of Evolution, it was also an effort to kindle an understanding of the importance and preservation of life on the only living planet in the known Universe.

All the participating teams, teachers and students alike, have expressed their immense happiness at the execution of the Camp. We would like to express our sincere thanks for their appreciation of the hard work that our team has put in.

## 2. The Evolutionary History of the National Environment Science Camps

Karavan commenced its 'Mission' almost ten years ago, but it was only in the year 2006 that we were able to arrange for a unique National level event pertaining to the Environment. The place most suitable for an event like this could only have been the untouched and unknown paradise, Dudhwa National Park in the Himalyan Terai. Dudhwa is a vast stretch of wilderness and forms the last remnant of the magnificent Terai Ecosystem. A complex mosaic of woodlands, wetlands and grasslands, Dudhwa is home to an amazing variety of bio-diversity and offers exciting opportunities to admire wildlife from close quarters.

Even though it was a simple start and the participation limited mostly to Northern India, we at Karavan brooked no compromise with quality. The theme of the camp was Re-Discover Our Lost Paradise; an effort to explore the three different Eco-systems of Dudhwa. The Camp was held for duration of three days. On each day, the participants explored one unique Ecosystem. Our very first Camp was a great success; teachers and students still call to tell us what wonderful time they had had at the Camp.

Karavan organized the **National Environment Science Camp II** in November-December 2007. The theme this time was The Wonderful Web of Our Life. The objective of the Camp was to understand the complex interrelationship of various life-forms on our Planet. One slot of the Camp was held for four days. It was a tough competitive event for the participants. We designed entirely new activities for the second edition to stimulate the students to explore Nature and its Diversity outdoors; we called it the Outdoor Laboratory. It liberated the budding naturalists from the confines of classrooms.



Buoyed with the past experience, we were confident of doing an even better job for the **National Environment Science Camp 2008-09**. We brainstormed over the theme of the Camp. We learnt Charles Darwin had expounded his revolutionary ideas of Evolution in the year 1859. Undoubtedly, Evolution would certainly be the most apt theme for the NEVSC 2008-09 and a glorious tribute to Charles Darwin on the Hundred and Fiftieth year of his remarkable discovery.

It was quite a challenging task to design the activities for a rather complex theme as Evolution. But our creative team did full justice to the task.

Soon, it was time to welcome the boys from Vidya Sanskar International School, Faridabad for National Environment Science Camp 2008-09. Like anyone else, we too experienced stage fright.

### 3. The Evolution of Scientific Knowledge at NEVSC-III

At the National Environment Science Camps, we define a code of conduct for the participants. It's called the CIZPO CODE. CIZPO is an abbreviation for Cooperation, Information, Zero-Pollution, Prevention and OBSERVATION. We insist that Observation is the key and the very step to the Knowledge and understanding of Nature. We highlight this fact time and again.

How do we exactly kindle the Power of Observation! It is really a hard task to force people to observe. But we succeeded through **our ingenious techniques and methodology during the scientific activities: Investigating the E-Secrets, Green Patrol and Crystal Gazing.**



We commenced the activities with a small briefing session. During the session, we underlined the objectives of the activity and then we provoked the participants to ponder over the many facets of Evolution.

The most important scientific activity was **Investigating the E-Secrets**; the objective of the activity was to study the evidences of Evolution and to understand the factors that influence Evolution. We displayed various Fossils and encouraged the participants to touch, feel and examine the fossils thoroughly. The actual activity was organized in the Outdoor Laboratory of Dudhwa National Park (in the buffer zone and later in the core forest). It involved a first hand study and sampling of characteristics that have aided living forms in the Struggle for Survival.

Unicellular organisms were observed under the Microscope. The study of great trees involved the comparative study of the Sal tree (indigenous to Dudhwa) and the teak trees (planted for timber). The difference in the undergrowth of the Teak and Sal forest was glaring. A rich variety of insects (beetles, grasshoppers and crickets) were observed by clearing fallen tree trunks and digging the earth especially under dead decaying matter. Termite hills were observed for their architectural features. Investigating the E-Secrets of Birds was done by listing them according to their habitats. It was an interesting observation how certain bird species have adapted themselves to unique habitats only.

The Scientific Activity for the study of the Evolution of Mammals was called **The Green Patrol**; for which the participants explored the Core Zone of Dudhwa National Park. Visiting the core jungles is the most difficult because it is beyond the human control to determine the sighting of wildlife, especially the elusive mammals. This is further compounded by the immense yearning for a glimpse of the handsome Royal Bengal Tiger.



We designed The Green Patrol to ensure that the participants enjoy their visit to the core forest and to see that they understand the Evolution of Mammals. The Green Patrol was a scientific study of the conditions of the Forest, the Weather, the Habitats and the Jungle Tracks. The participants were also tasked to provide an Intelligence report about the forest: the number of tourists, their vehicles and observation of illegal activities. The other aspect of the scientific study was the head count of the observed fauna and the place of observation. Interesting aspects of the Evolution were compiled; the herding and solitary instincts; the gregarious nature of some and the shyness of others; the chosen habitat; the response to human activity. Finally, the participants pondered whether the wildlife could survive without human involvement. The need for human intervention for the very existence was considered utmost for the very survival of most of the species.



During the activity, **Crystal Gazing**, the participants tried to visualize the future course of Evolution and the contours of the future humans. The participants logically analyzed the effects of global warming, floods, depletion of the Ozone Layer on the Evolution of Man and gave a shape to their thoughts through clay models and sketches.

At the National Environment Science Camp 2008-09, **Scientific Knowledge was pursued in its true spirit by means of Observation, Data Collection ,**

**Experiment and Analysis.** It helped the participants acquire a conceptual understanding of the Mystery of Evolution.

#### 4. Evolution of the Activities at NEVSC 2008-09

It might be considered an exaggeration, if we claimed that you wouldn't find activities like ours anywhere else. But the fact is that our activities are simply unique. They are interesting, exciting and most importantly entirely relevant to the theme of the Camp.

As the Campers embarked on the voyage of Evolution, it was important to inform them about the great scientists who have contributed to unraveling this great mystery. Men like Carl von Linnae, Jean Baptiste Lamarck, George Cuvier and of course the greatest of them all, Charles Darwin. So, a play titled **The Origin of Species**, scripted by the Karavan creative team, was staged. The Campers role played the scientists and tried to explain their marvelous ideas, theories and discoveries.



After the skit, the participants then proceed to the Mohana River (that forms the Northern limit of Dudhwa). **At the Mohana, the Campers and their tribes worked to construct a special raft called HMS Beagle.** The raft was set sail on the Mohana as a symbolic commemoration of Darwin's epochal voyage on HMS Beagle to the Galapagos Islands.

Sailing the HMS Beagle was a highly competitive activity. It entailed every flavor of excitement; planning, discussions, arguments, jostling, trial and error. Finally, if the raft sailed through, the tribes raised a cry victory. The energy level of the participants never wavered. It was in the words of the Campers, 'awesome.'

**The Dead-Lee Nite** was another landmark event and perhaps the biggest hit of the Camp. As an eerie darkness enveloped the Campsite, the long extinct Javaman and his weird army would make a shattering entry into the Camp. For a while, they'd knockout the wits of even the bravest. The Campers masquerading as Extinct Species would indulge in jousts of strength, catwalk, personality duel, infectious smiles and scary look all the while trying to please the hard to please Javaman. Usually subdued, the fierce Javaman would suddenly burst into a cry of delight, setting the Campers into a tizzy. The Javaman turned out to be the most loved and popular character of the NEVSC 2008-09.

On the final day at the Camp, the Campers paid a visit to the nearby **Tharu Villages**. The Tharus are a part and parcel of the Dudhwa milieu. Originally from Rajasthan, the Tharus have thrived in the inhospitable jungles of Dudhwa and thus make an amazing study of the Evolution of Man. The Campers visited the Tharu villages not merely to peek into village life, but also to **spread social and environmental awareness amongst the villagers.** A large crowd consisting of men, women-folk and kids would gather to witness the innovative performances of the Campers.

## 5. Evolution of Our Logistical Abilities

Karavan has evolved its logistical abilities gradually and steadily. It is the utilization of our resources and effective man management that gives us the edge over the others. The credit for our operations and logistics is due entirely to our team led by the Camp Leader, Deepti.

At Karavan, we abhor rigid division of labor. Whenever required, every member willingly undertakes the responsibilities beyond the assigned duties. Yet, generally speaking, we have our Kitchen personnel and the Camp Hardware personnel. You'll find our entire team courteous, talented and disciplined. There is virtually no time for rest and relaxation during the Camp, but our members endure it all. There is no confusion about the individual responsibilities, which are clearly elucidated. Nothing gives our team greater happiness than a kind word of praise and thanks.

The biggest challenge for our team is always the Time Factor. We consider ourselves very lucky to set up our Campsite at Bankati Forest Rest House (where a decent forest department infrastructure is available). But, this year, we had to shift our Campsite to Masankhamb Forest Rest House. This Campsite was lying unused for past 25 years. But the zeal of our team transformed the place into a Camper's paradise. The terrific commitment of our members made it possible.

Camping is a daunting task and involves meticulous planning. It is our strict policy to have a limited number of Campers. We are aware of our limitations (especially water and electricity) and as such we never indulge in excess. The need of every single Camper is of utmost importance to us. We encourage a disciplined camping life and naturally, the arrangements are Spartan; but certainly not wanting in basic creature comforts. We have large, spacious and aesthetic jungle tents with thick mattresses, bed-sheets, pillows and quilts. For every room tent, we have arranged for hygienic toilet tents. We arrange for a lavish and wholesome menu. We adhere to a strict environmental policy of hygiene, cleanliness and waste management.



As ingenious Indians, we proudly adopt the Jugaad Approach. Jugaad Approach offers simple, inexpensive and effective solutions to many complex problems. A peculiar problem encountered was that of Campers tripping the tent ropes in the dark. We clipped LEDs and button cells and installed them on the tent ropes. The LEDs glowed like fire-flies and provided the Camp a quaint beauty at night. We made the provision of water taps by the siphon system. We had candles, gas and kerosene lanterns, LED torches and lamps as a backup and a comprehensive back up plan for any eventuality.

With greater experience and frequent introspection, we shall always endeavor to evolve further and further.



## 6. Evolution of the Participants.

It was very, very interesting to meet of all ages Campers from all parts of the country. There were a handful of foreign students as well. We realized that almost all the participants were warm, forthcoming, enthusiastic, participative and responsive. It was a welcome contrast to the current media portrayal of the Gen X as Westernized, brash and rebellious.

It would be a vain boast to claim that the NEVSC 2008-09 transformed the Campers into hardcore Naturalists. **NEVSC 2008-09 was a wee little effort to Nurture the Environmental Values; Appreciation of Nature; and Camping Etiquette.** We encouraged habits like working in the tribal spirit of camaraderie; time management; avoiding wastage; cleanliness and tidiness; toilet hygiene. Usually many such routine tasks of our day to day lives are left to our not so fortunate brethren. At our Camp, it was our effort to instill the importance of these tasks. We even rated the tribes on these parameters. We were glad to see that there was no resentment.



It was also heartening to witness the intermingling and interaction of diverse age groups as we formed tribes for the activities. The initial hitch of associating with seniors/juniors/girls/boys would soon pave way for fierce tribal loyalty. It was always a pleasure to respond to queries and questions posed by the participants. We tried our level best to inculcate the skill of Observation and we are confident that to a certain extent the objective laid out by the Camp leader to Evolve the Camper into a better person has been achieved.



How far we have succeeded, we know not! The touchstone of success would of course be to see our Campers once again in the years to come at the future Editions of National Environment Science Camps.

### Wildlife Sightings at the National Environment Science Camp

The Terai Ecosystem of Dudhwa National Park is home to rich Biodiversity. But wildlife sighting is a matter of patience and luck. During the National Environment Science Camp, the campers participated in the 'Green Patrol' a scientific study to understand how different species have evolved in different habitats. Based on their reports, we have summarized the observations as follows:

Sr.	Category	Common Name (Scientific Name)	Habitat (where sighted)	Frequency	Average Numbers Sighted by participants
1.	Mammal (Carnivore)	Royal Bengal Tiger (Panthera tigris)	Woodland (Kishanpur)	Twice	1-2
2.	Mammal (Carnivore)	Civet Cats (Viverricula indica)	Woodland	Twice	1-2
3.	Mammal (Omnivore)	Sloth Bear (Melursus ursinus)	Woodland	Once	1
4.	Mammal (Omnivore)	Wild Boars (Sus scrofa)	Woodland	Four times	3-4
5.	Mammal (Herbivore)	One horned Rhinoceros (Rhinoceros unicornis)	Grassland	Thrice	1-2
6.	Mammal (Herbivore)	Swamp Deer (Cervus duvauceli duvauceli)	Wetland (Jhadi Tal)	Every time	25-30
7.	Mammal (Herbivore)	Sambar Deer (Cervus unicolor)	Woodland (Kishanpur)	Once	1
8.	Mammal (Herbivore)	Barking Deer (Muntiacus muntjak)	Woodland	Four times	1-2
9.	Mammal (Herbivore)	Spotted Deer (Axis axis)	Scrub Forest	Every time	15
10.	Mammal (Herbivore)	Blue Bull (Boselaphus tragocamelus)	Woodland	Once	1 (Male)
11.	Mammal (Scavenger)	Jackals (Canis aureus)	Scrub Forest	Four times	2-3
12.	Mammals (Primates)	Common Langoor (Presbytis entellus)	Scrub Forest	All times	Numerous
13.	Mammal (Primates)	Rhesus Macaques (Macaca mulatta)	Near Human Habitation	All times	Numerous
14.	Aves (BirdsofPrey)	Crested Serpent Eagle Marsh harrier	Wetlands Wetlands	Thrice Twice	1 1

15.	Aves (Wild Ducks)	Red Crested Pochard Common Pochards Pintails	Wetland (Jhadi Tal)	Half the time Twice	3 (male) 3 (male) 1 (male)
16.	Aves (Geese)	Gray Lag Goose	Wetland (Jhadi Tal)	Twice	40-50
17.	Aves (Resident Migrants)	Yellow Wagtail	Wetland	1	2
18.	Aves (Resident Water Fowl)	Adjutant Storks Black Necked Storks White Necked Storks Open Billed Storks Purple Heron Snake Bird Lesser Whistling Teals Purple Heron Brahminy Ducks	Wetland	Thrice Twice Once Once Thrice Twice Twice Four times Twice	2 2 3 1 3 4 10 1 1
19.	Aves (Common Water Fowl)	Small Egrets Little Cormorant Pond Heron White-brested water hen White-brested Kingfisher	Wetland	All times All times Thrice Twice  Six Times	10 5 1 1  1
20.	Aves (Familiar Birds)	Red Wattled Lapwing Tree-pie Red Vented Bulbuls Rose-ringed Parakeets Black-headed Orioles Spotted Owlet Peafowl	Woodlands	Twice Once Once Once Once Once Four	1 4 5 5 3 1 2-3
21.	Reptiles (Gavials, Crocs)	Crocodile ( <i>Crocodylus palustris</i> )	River Suheli	Eight times	1-2
22.	Reptiles (Tortoise & Turtles)	Turtles (exact species could not be identified)	Wetland	Thrice	2-3
23.	Reptiles (Snakes)	Python ( <i>Python molurus</i> )	Woodland	Twice	1
24.	Reptiles (Lizards)	Monitor Lizard ( <i>Varanus bengalensis</i> )	Woodland	Twice	2

Note: All the figures mentioned above have been recorded by the campers themselves.  
Scientific Names of the Birds have not been mentioned for want of space