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Central Academy for State Forest Service

13th Mile, G.S. Road, Burnihat, Assam, PIN- 793101

Annual Magazine, 2019
XXII Issue

**CENTRAL ACADEMY FOR STATE FOREST SERVICE
BURNIHAT, ASSAM
STATE FOREST SERVICE OFFICER TRAINEES 2017-19 COURSE**



- 1st Row (sitting, l-r):** 1. Nabli Kanta Jha, 2. Mr. B.N. Talukdar, AFS (Retd.)(Guest Faculty), 3. Mr. M.K. Palit, IFS (Retd.)(Guest Faculty), 4. Mr. Roshan Horo, IFS (Principal), 5. Mr. C.A. Rahaman, IFS (Course Director), 6. Mr. Ajay Rajak (PT & Games Instructor), 7. Abhishek Chowdhury, Patra, 9. Chinmoy Barman.
- 2nd Row (l-r):** 1. Gebu Lepcha, 2. Ankita Bhaduri, 3. Mona Maheshwari, 4. Renuka Desai, 5. Amita Gupta, 6. Rhea Ganguly, 7. Nima Lamu Sherpa, 8. Arpita, 9. Chinmoy Barman.
- 3rd Row (l-r):** 1. Naveen Nirala, 2. Aquib Alam, 3. Anurag Chowdhury, 4. Sarada Saha, 5. Jonmenjoy Pal, 6. Saroj Bhujel, 7. Novojit De, 8. Ashish Khelwar, 9. Ashish Kumar Kotriwar, 2. Chandrakant Tikartha, 3. Partha Mukherjee, 4. Jasveer Singh Maravi, 5. Manendra Kumar Sirdar, 6. Debdarshan Roy, 7. Kamal Saha, 2. Tiyas Bhanja, 3. Asit Kumar Das, 4. Vijendra Singh Thakur, 5. Shivendra Sahu, 6. Manoj Kumar Vishwakarma, 7. Sanchit Sharma.
- 4th Row (l-r):**
- 5th Row (l-r):**

**CENTRAL ACADEMY FOR STATE FOREST SERVICE
BURNIHAT, ASSAM
FOREST RANGE OFFICER TRAINEES 2017-19 COURSE**



- 1st Row (sitting, l-r):** 1. Ruchika Tiwari, 2. Abhilasha Rao Kalwa, 3. Vaishali Namdeo, 4. Anju Verma, 5. Mr. Roshan Horo, IFS (Principal), 6. Mr. C.A. Rahaman, IFS (Course Director), 7. Kratika Shukla, 8. Reetika Yadav, 9. Vandana Pal, 10. Vineeta Suryawanshi, 1. Rishabh Bisaria, 2. Gajanan Birla, 3. Sachin, 4. Shashidhar Gouda Patil, 5. Md. Khurshid Alam Gazi, 6. Beenu Singh Gahavar, 7. Prerna Dubey, 8. Mukesh Kumar Ahirwar, 9. Kiran Dasaraddi, 10. Vimal Babu R., 11. Neeraj Singh Parihar, 12. Deepak Raj Prajapati, 13. Piyush Prasad Chaudhary.
- 2nd Row (l-r):**
- 3rd Row (l-r):** 1. Rakshit R., 2. Jay Kumar Dehariya, 3. Tilak Singh Raipuria, 4. Smriti Dubey, 5. Prashant Bhemappa Ganiger, 6. Gopal Ulike, 7. Babu Lal Chadhar, 8. Surya Kant Soni, 9. Dinesha K., 10. Sanjay Chouhan.

**CENTRAL ACADEMY FOR STATE FOREST SERVICE
BURNIHAT, ASSAM
FOREST RANGE OFFICER TRAINEES 2019-20 COURSE**



1st Row (sitting, l-r): 1. Mr. B.N. Talukdar, AFS (Retd.)(Guest Faculty), 2. Mr. M.K. Palit, IFS (Retd.) (Guest Faculty), 3. Mr. Roshan Horo, IFS(Principal), 4. Mr. C.A. Rahman, IFS (Course Director), 5. Mr. Ajay Rajak (PT & Games Instructor)

2nd Row (l-r): 1. K. Tejaswi, 2. Md. Naziya Thabassum, 3. P. Aruna, 4. A. Sravan, 5. P. Bhavana, 6. A. Archana, 7. K.S. Savitha, 8. T. Manasa, 9. P. Anusha, 10. P. Ashalatha Das.

3rd Row (l-r): 1. B. Sai Prakash, 2. G. Divya, 3. B. Sriletha, 4. U. Kavitha, 5. P. Radhika.

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5th Row (l-r): 1. S. Lokesh Kumar, 2. B. Charanteja, 3. G. Ravinder, 4. S. Anand Reddy, 5. T. Nikhil Reddy, 6. N. Veeresh.

6th Row (l-r): 1. K. Sharat Chandra Reddy, 2. K. Kirankumar, 3. T. Bhalchandra, 4. Md. Wajahat, 5. P. Raghuvveer, 6. B. Ravinder, 7. J. Sandeep, 8. K. Saivikas,



**Rakesh Chaturvedi, IFS
PCCF, Chhattisgarh**

Government of Chhattisgarh
Office of the Principal Chief Conservator of Forests
Aranya Bhawan, North Block, Sector-19
Atal Nagar, Dist.- Raipur, Chhattisgarh, India



MESSAGE

It gives me great pleasure to know that Officer Trainees of 2017-19 SFS Batch from Chhattisgarh, Gujarat and West Bengal and 2019-20 RFO Batch from Maharashtra and Telangana are coming out with the XXII issue of Aranyam Magazine. We foresters come across innumerable stories of people and the forests during the regular course of our duty but only a few of us put pen to paper to communicate these experiences to the larger public. Sudden sighting of a rare wolf or black panther, interactions with forest-dwelling tribals, dousing forest fires along with field staff, removal of encroachments, photographing butterflies and wild flowers- each one of these activities can be transformed into small stories or field observations. When we share such events and experiences, we also enrich knowledge of others. Hobbies like writing stories, poems, articles, painting, photography, bird watching etc keep our enthusiasm alive and help us to discharge our official duties better. I am delighted to know about July 2019 issue of ARANYAM, giving an opportunity to the officers to express their creative talent. I am sure that the readers will appreciate your efforts. I also heartily welcome Officer Trainees of Chhattisgarh to their home State once they successfully complete their training program.

(Rakesh Chaturvedi)



R. P. Singh, IFS
Director



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Government of India, Ministry of Environment,
Forest & Climate Change

Directorate of Forest Education

डाकघर न्यू फरेस्ट, देहरादून - 248006

P.O. - New Forest, Dehradun - 248006

MESSAGE

I am extremely happy to learn that Central Academy for State Forest Service, Burnihat is bringing out XXII volume of their magazine ARANYAM on the occasion of Passing out ceremony of State Forest officers of 2017-19 course.

The Forestry Sector is continuously witnessing exceptional transition and this change has necessitated a change in the capabilities and skills of modern Foresters also. The evolving and changing needs have placed strong challenges on our training institutions and therefore Forest Education in India also aims at developing personae with all round development so as to deal effectively with the multifarious challenges and changed roles in their field.

The Central Academy for State Forest Service, Burnihat has also performed exceptionally well in shaping the budding Forest officers at the level of Assistant Conservator of forests & Forest Range Officer levels by equipping them with essential skills and right attitudes to strive for excellence in their field of operation and to tackle ever increasing challenges in the management of Natural Resources particularly management of Forest and wildlife. The alumni of this institution have brought great accolades to the institution as well as state Forest departments in the country.

It is very crucial in present scenario that the forest officers communicate with the society through writing in various forums to elicit appreciation in the minds of citizens of the enormous role played by foresters. This magazine gives us an indication of talents and capabilities of Officer Trainees. Their other skills like writing, sports, cultural activities etc., are also brought to the fore by this venture.

The efforts of Officer Trainees in bringing out this publication are well appreciated. I congratulate and commend the Principal, Faculty members, Officer Trainees and all those who directly or indirectly connected with this venture or their efforts in bringing out this edition of this magazine in a brilliant manner.

I wish every success for the Academy Magazine.

(R.P. Singh)



Roshan Horo, IFS
CCF & Principal

From the Desk of the Principal

The Central Academy for State Forest Service is the premier institute in the country. It shapes the raw talents of the officer trainees from various states of the country. They come here with varied backgrounds, temperaments, and socio-cultural background. But they pass out the academy molded as Forester with a divine opportunity to serve the Mother Nature.

It is very interesting to witness the transformation among the officer trainees and feel their internal energy, enthusiasm and creativity. The State Forest Service Officer Trainees of 2017-2019 Batch have exhibited remarkable sense of discipline and dedication to learn the forestry aspects during their two years training at CASFOS, Burnihat.

The trainees have come up with the XXII issue of the Aranyam. The articles in the magazine are the reflection of their thoughts. It is very crucial to discover hidden talents and potentials within themselves. Penning down their understandings and innovative ideas are only the beginning but an important step towards refining the mental thoughts. I would like to thank the entire editorial team, my colleagues, the SFS and RFO trainees and all other contributors in bringing out the current issue of Aranyam.

(Roshan Horo)



C. A. Rahman, IFS
Lecturer & Chief Editor



Central Academy for State Forest Service

(MoEF&CC, Govt. of India)

G.S. Road, 13th Mile, Burnihat, Assam, PIN- 793101

Chief Editor's Note

"Forest is not a place to visit, it is a home"

For several thousands of years forests have been the part and parcel of human civilisation and progress. But the rapid pace of deforestation is causing global warming and adverse climatic changes. Hence effective forest management is necessary to curb the ill effects of such climate change which eventually calls for training of forest personnel imbued with scientific temper and passion towards nature.

I am glad to tell that Central Academy for State Forest Service, Burnihat, right from its inception is in the responsibility of training of SFS and RFO trainees from various parts of the country and from various educational backgrounds. The academy has been nurturing the trainees making them physically fit, mentally strong and technically competent enough to manage and deal with the situations in the field.

Academy has also provided an opportunity for officer trainees to improve and expose the hidden talents in them. ARANYAM magazine has been one such platform where the trainees can share their training experiences as well as challenges the forestry sector is facing and opportunities the sector provides and thereby making themselves updated with the latest developments.

Following the same tradition, this year also trainees of both SFS and RFO batches with the guidance and support of faculty are coming up with ARANYAM XXII edition. I congratulate the passing out SFS trainees of 2017-2019 Batch and wish them all the best for beginning their new journey.

(C. A. Rahman)



Nabi Kanta Jha
SFS Officer Trainee (2017-
2019 Batch) & Editor

Editor's Corner

ARANYAM is the mirror of the mind and heart of the Officer Trainees' of the Central Academy for State Forest Service, Burnihat. The magazine discovers the veiled talents of the trainees and spread their innovative thoughts among the people, besides storing those for the future as a permanent document. As trainee we travel almost all corners of our diverse country and try to understand not only the floral and faunal diversity but also its people and cultural multiplicity. The magazine gives us a platform to present our personal thoughts an inked depiction and thus to share with our friends and well wishers.

On behalf of the editorial board I would like to extend my profound gratitude to the Principal of this Institute Mr. Roshan Horo, IFS for providing the permission to publish the current issue and presenting all the necessary facilities required for the work. I personally also express my gratitude to Mr. C. A. Rahman, IFS whose support was the channel to reach the goal. My thanks are due to the Directorate of Forest Education and the Principal Chief Conservator of Forest, Chhatishgarh for their valuable messages for the magazine and the trainees.

This magazine is the outcome of the efforts of all the trainees, teaching and non-teaching staff of the academy who have added values to the quality of the magazine. I extend my truthful thanks to all of them. We are also thankful to the advertiser for their co-operation in the publication of the issue. At last but not the least, I thank the CASFoS Association for playing a vital role in the process.

I shall be grateful to all of you...

(Nabi Kanta Jha)

CASFOS (Burnihat) Association



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Principal



C. A. Rahman, IFS
Chief Editor



Ajay Rajak
P.T. & Game Instructor



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Asst. Editor and Asst. Magazine Secretary

Office Staff of Central Academy for State Forest Service Burnihat, Assam



Weapons Training of State Forest Service officer Trainees



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Biennial Report (2017-2019) of CASFOS Association, Burnihat, Assam

General Secretary, Abhishek Chowdhury

On the occasion of releasing of annual magazine "ARANYAM" I feel privileged to put forward the biennial report of the year 2017-2019 of the activities and achievements of the association. I feel honored to be part of the association and to work for it which gives platform to each and every officer trainee to express themselves regarding any issue whether it is related to the academy or outside world.

Objectives of the association:

- To maintain healthy environment in both academy and hostel.
- To maintain discipline amongst the trainees.
- To control and manage mess and hostel.
- To control, encourage and promote all games and sports, literary and cultural activities in CASFOS and thereby to infuse a sense of camaraderie amongst the trainees.
- To look after matters relating to study and health of the trainees.
- Publication of annual magazine "ARANYAM".
- To make, alter, amend, maintain and enforce rules and regulations for the control and governance of sports, cultural and academic activities.
- To do all such other acts as may be conducive to carry out the aims and objectives of CASFOS Association, Burnihat.
- To select different committees on need basis if necessary.

CASFOS Association:

The Principal CASFOS, Burnihat is the President of the association, who is overall incharge for day to day activities of the association. General Body: All the officer trainees are members of the General Body of CASFOS, Association. Executive Body: Executive Body consists of 14 office bearers who are selected/elected among the trainees through selection/voting. For the present Executive Body Secretaries have been selected from the SFS 2017-19 Batch and all the Assistant Secretaries except Assistant General Secretary have been selected from RFO 2019-20 Batch. Name and designation of the Executive Body members are as follows:

<u>Sl No.</u>	<u>Name</u>	<u>Designation</u>
1.	Mr. Abhishek Chowdhury	General Secretary
2.	Ms. Mona Maheshwari	Assistant General Secretary
3.	Mr. Asit Kumar Das	Mess Secretary
4.	Mr. Sharat Chandra Reddy K	Assistant Mess Secretary
5.	Mrs. Amita Gupta	Treasurer
6.	Mr. Samudrala Lokesh Kumar	Assistant Treasurer
7.	Dr. Nabi Kanta Jha	Magazine Secretary
8.	Mr. Bezawada Sai Prakash	Assistant Magazine Secretary
9.	Mr. Ashish Kumar Kotriwar	Sports Secretary
10.	Mr. Methuku Goutham	Assistant Sports Secretary
11.	Ms. Ankita Bhaduri	Cultural Secretary
12.	Ms. P Bhavana	Assistant Cultural Secretary
13.	Mr. Jonmenjoy Pal	Hostel Secretary
14.	Mr. Koduru Prudhvi	Assistant Hostel Secretary

Major activities during 2017-2019:

It was a great experience for me to get the opportunity to work with three trainee batches namely SFS 2017-19 Batch, RFO 2017-19 Batch and RFO 2019-20 Batch. Association bid farewell to Shri N. Luikham, IFS, Faculty, and Shri M.K. Palit, Retd. IFS, Guest Faculty of the Academy with utmost solidarity and morose realising the fact that how much these people meant for the organisation. Our Sharma Ji, perhaps still seated on his mighty chair, was also bid farewell by our association in the mean time.

Trainees enjoyed and celebrated 31st December night, 2017 and Deepavali in both the years of 2017 and 2018 and the Association feels utterly happy to officially conduct all these occasions. We also celebrated Teachers' Day by felicitating our respected teachers of the academy through jovial participation of both the teachers and students. A homely get together with the trainees of Refreshers Course in November, 2018 along with our faculty Shri C.A. Rahman, IFS, had been informally conducted by our Association.

The bitter heartiness of being a General Secretary was realised in these eventful days and perhaps, here lied the meaning of this training. I realised and endorsed myself as much my physical and mental capabilities enticed for. I am utterly thankful to all who have been part and parcel of CASFOS Association, unconditionally.

Treasurer, Amita Gupta

Since the inception till date, the association has been performing a remarkable duty and works for the smooth running of the association in favour of all the trainees. Being a treasurer for the year 2017-19, I felt privileged

enough for making a meagre contribution for the whole shake regarding maintenance of accounts, cashbook and other financial related matters. Right from the scratch, CASFOS association has been maintaining a joint bank account at United Bank of India (UBI), Burnihat. The money in this account comes from the contribution from each trainee, which is Rs 200 per trainee on monthly basis. Likewise, the amount that is received from some enterprise in lieu of their advertisement in the magazine is also submitted in this account. The accumulated fund is used in organising functions such as festival celebration, cultural nights at the time of farewell and welcome, annual sports meet etc. Lastly, before going to OJT, the annual account along with all other details was put under the final audit by the Audit Committee prior to closing the account.

Mess Secretary, Asit Kumar Das

We all believe in an old saying that a healthy mind resides in a healthy body. We must take a good care of our physical health. To maintain the overall healthy condition and hygiene a balanced diet is necessary. The menu of the CASFoS Mess is prepared by the Executive Committee. This menu is revised periodically with the feedback from officer trainees. Both vegetarian and non-vegetarian foods are served in a balanced way. Special care is taken for the officer trainees who are suffering from any health disorder. They are served diet-food as per their requirement. I tried to provide regional dishes on the day of

festivals. During my tenure many assets of utensils like new steel plates, bowls, tea cups, spoons, water purifier, large mixer grinder, kadai, electrically operated food container etc., were purchased to provide better service and for smooth running of the mess. I am personally thankful to respected Principal and Hostel Warden for their support. By utilising the mess workers' welfare fund, two pairs of brown color uniform, one sweater, one pair of shoes, and one blanket, have been provided to the mess staff. Apart from these, bonus was given to the mess workers during Eid and Diwali. Financial help was provided for treatment of accidental injury, disease, and running of RD accounts of the mess workers.

Sports Secretary, Ashish Kumar Kotriwar

"All work and no play makes Jack a dull boy" - this famous saying highlights the importance of sports and games. Sports develop our social skills as we interact with our opponents as well as the teammates. It improves one's ability to work in a team giving him/her an exposure to the team culture, which is beneficial in professional life as well. In order to get this physical fitness, we have PT&G Instructor who guides us throughout the training course. Every morning except Saturday and Sunday we have physical training. We also spend half hour for Yoga class. Every Friday, either any game is played or trekking is done in CASFOS campus of the Meghalaya side, here there is a small patch of forest which is helpful for refreshing our mental health. In the evening, we have games period. Following are the facilities we have in our campus - Volleyball court, basketball court, badminton court, tennis court, multi activity ground for playing football, cricket, etc. There is a well equipped Gym centre and a multipurpose room for indoor games (table tennis, chess, carrom). In 2017 we had organised "Sadbhavana Cup", cricket tournament played between RFO and ACF batch. On 5th June 2018 on the occasion of World Environment Day, a half-marathon was organised. In 2018 a sports week was organised where trainees participated very enthusiastically. Our Trainees also participated in the All India Forest Sports Meet, held at Raipur, Chhattisgarh. Works held during my tenure: up-gradation of Gym and basketball court, extension of ground, completion of tennis court. Beside these, many other sports equipment has been purchased.

Hostel secretary, Jonmenjoy Pal

It's been an absolute honour to pen down the journey through this couple of years where I had the privilege to accommodate few facilities and infrastructures in this CASFOS Academy hostel. I am grateful to our Hostel Warden Shri Ajay Rajak who facilitated our causes and toiled to provide us with facilities and meet our

requirements. Last year the hostel was brought under internet wi-fi to keep the officer trainees updated with the modern development and real time trends in the world. The problem of drinking water has been an issue which has been dealt with the installation of water purifiers and coolers. Maintaining hygiene of the hostel campus, eradicating weeds, cleaning up of garbage seemed quite difficult to cope with since the staffs are quite limited in number. In the past couple of years, our hostel life thronged with memories, moments of pleasure and togetherness, seemed to complement the necessities which remained to be fulfilled by the trainees who will take the onus hereafter.

Cultural Secretary, Ankita Bhaduri

"A nation's culture resides in the heart and soul of its people." - Mahatma Gandhi
CASFoS Burnihat, being a central academy hosts forest officers from every corner of the country with widely different cultural backgrounds, representing the vast diversity of India. The cultural section of the association is responsible for planning, coordinating and managing the various events. Freshers' Welcome is given to a new batch of officers on their arrival, and the farewell to an outgoing batch of officers. Besides these, over the span of two years numerous other programmes are arranged on special national days, for refresher courses etc. In fact, the association, with the blessing of our respected faculties, does not limit the reasons for celebration. The CASFoS Association, during the tenure of 2017-19 has celebrated- a) the farewell of 2016-17 RFO Batch and Freshers' Welcome of the 2017-19 RFO Batch in July 2017; b) special Program in honour of the former ADG of Forests, Dr. Anil Kumar, IFS (Retd.), August 2017; c) Freshers' Welcome of the RFO Batch 2017-19, October 2017; d) Teachers Day, September 2018; e) Parting Away Gala for SFS 2017-19 Batch and RFO 2017-19 Batch; f) 1st Phase Ending Gala of SFS 2017-19 Batch with Refresher Course 5th - 11th Nov, 2018; g) Farewell of RFO Batch 2017-19 and Freshers' Welcome of RFO Batch 2019-20, February 2019; h) Farewell of SFS 2017-19 Batch, July 2019. The celebrations have always been blessed by the presence, kind words and performance of the respected faculties of CASFoS Burnihat.

Mudhipar – Godbahal Initiative

Developing Rural India : A Case Study

Ashish Kumar Kotriwar
State Forest Service Officer Trainee, 2017-2019 Batch

“The Earth, the air, the land and the water are not an inheritance from our forefathers but on loan from our children. So we have to handover to them at least as it was handed over to us”

- Mahatma Gandhi

Two-third of our population resides in rural India and mainly depends upon agriculture and forest for their livelihood and land is mainly owned by either revenue department or forest department. Forest department has always played a crucial role in rural development through Joint Forest Management Committees (JFMCs) and other related schemes. One such initiative can be seen in Chhattisgarh's Mahasamund Forest Division, Pithora Range – Mudhipar and Godbahal. This new initiative is the brainchild of Shri Alok Tiwari IFS, DFO, Mahasamund Division.

Milk Production in Godbahal

The JFMC of the village received Rs. 1 crore 70 lakh as a loan through CCF Raipur revolving fund. Milch animals were purchased and distributed among its members and they are now engaged in milk production activity. The committee purchases milk directly from the members. The collected milk is sold in the areas of Deobhog (Raipur) daily and payment is done to the committee weekly which again

disburse the amount to the respective members after deducting their loans. Committee is also involved in the collection of cow dung which is utilised in biogas production. Insurance facility for the cattle is provided. Fodder supply is ensured by the Forest Department. Napier grass is grown in degraded forest land and sold to members at the rate of one rupee per kilogram. This initiative is highly remunerative as on an average Rs. 12 lakh per month is deposited in the committee's account only by selling milk. It resulted in alternative livelihood generation for the people residing in forest-fringe areas and thus reduced pressure on forest and hence resulted in the enhancement of forest cover.

Mushroom cultivation in Mudipar

Concept which led to the genesis of this centre is the utilisation of agricultural waste in mushroom cultivation and vermicompost production. Generally, farmers burn this waste in their field which results in air pollution, decreasing soil fertility and reducing carbon stock. This initiative not only mitigates these environmental problems but also results in alternative livelihood generation in rural areas.

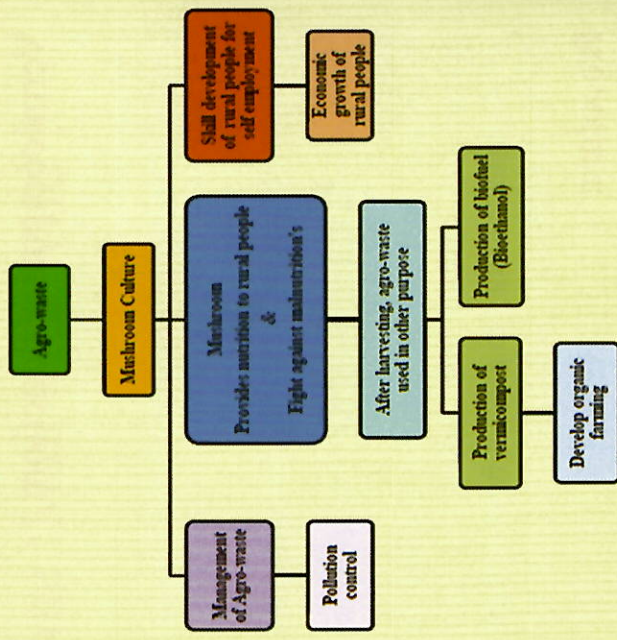
The procedure for mushroom cultivation can be divided into following four steps:

1. Preparation or procurement of spawn
2. Substrate preparation
3. Spawning of substrate and
4. Crop management

This centre consists of a mushroom spawn laboratory, moisture-controlled chamber, cold storage, training centre and vermicompost production unit, which is constructed by forest department. The cultivation process starts with spawn laboratory where mushroom spawns are prepared in wheat. These processed spawns are stacked in rice husk layered polythene bags and these bags are arranged vertically in moisture-controlled chamber. Rice husks are purchased and collected by forest department from farmers and sold to this committee. First mushroom production starts within 28 days and the bags can be reused three times. After three productions, the waste is used as a raw material for vermicompost unit. Mushrooms are stored in cold storage and the committee sells it directly in the market. Committee also produces mushroom pickle, mushroom soup powder, nuggets, mushroom chips, mushroom cookies, etc. Committee is engaged in providing 15 days training under Skill Development Scheme. After the training, people can cultivate mushroom in their house and sell it to the committee.

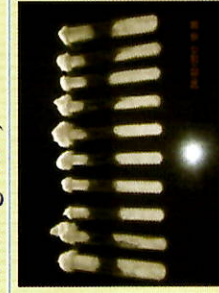
Future vision

- Fighting against malnutrition (from waste to best nutrient source).
- Providing livelihoods to rural people.
- Developing skill of rural people and motivate them for self-employment.
- Providing economic stability to the rural people.
- Managing of agro-waste to control pollution, promote mineralization.
- Preparing organic fertilisers (Vermicompost) and developing organic farming.



Steps Involved in Preparation of Mushroom Bed

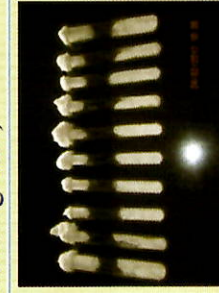
1. Raw material (paddy straw) ---> Chopping (3-5 cm) ---> Fill up in gunny bags
2. Soaking the bags in water (8-12 hrs) ---> Drain off excess water
3. Dip the bags in hot water (80-85°C) for 1-2 hrs ---> Drain of excess water
4. Cooling to room temperature bags with filled in layers of substrate, supplement and Spawn ---> Spawn running (15-20 days) ---> Remove plastic bags cover and maintain humidity, light and ventilation ---> Pinhead stage (3-5 days) ---> Cropping fruit flush, (3-4 days duration after pinhead) and subsequent flushes about 10 days interval ---> Picking on maturity (before spore shedding start)



Mother Spawn



Mushroom cultivated



Pure culture



Pinning of Mushroom bed and Spawn run

Vermicompost production:

Requirements for vermicompost:

- Earthworms
- Cow dung (minimum one week old)
- Paddy straw (Degraded / waste of mushroom cultivation) + organic wastes (leaves, rotten vegetables and fruits, etc.) are also added.
- Compost bed (compost poly bag/ compost wall bed)
- Water
- Soil
- Shed (for covering to prevent from sunlight and heavy rain)

Procedure:

The waste material from the mushroom production unit is used in manufacturing vermicompost. Along with these wastes Trichoderma viride, Earthworm and cow dung slurry are used. Vermicompost is manufactured in units which can be of three types – open field, polythene pits, and shade type. In all the three types the process is same, leaf litters and raw materials are first made a base and covered by a layer of cow dung slurry and some earthworms are added into this mixture and covered by another layer of raw material. Then Trichoderma viride along with cow dung slurry are spread on the top. Daily 2 to 3 times watering is done. This process requires 2 to 3 months to complete. The manufactured vermicompost is stored in bags. This is purchased by Forest Department.

Table: Nutrient properties of vermicompost compare to simple compost

Elements	Vermicompost contain more nutrient elements compare to simple compost (more %)
Nitrogen	5%
Phosphorus	3%
Potash	2- 2.5%
Zinc	2%

Can 'Man vs Wild' become 'Man with Wild'?

Kavali Eshwar
Range Forest Officer (2019-2020 Batch)

Man-animal conflict is a highly dynamic and extremely sensitive issue to confront in the current scenario. Balancing the ever increasing anthropogenic demands (in the form of land, food, fodder, fuel and others) with environmental concerns is a challenging task for wildlife managers. To ensure our efforts are effective and efficient, one should have a holistic and thorough understanding of the man-animal conflict. This attains special significance especially in the case of big cats like tigers and leopards. In this context the "Uttar Pradesh Big Cat Conflict Mitigation Project", a joint initiative of Uttar Pradesh Forest Department and Wildlife Trust of India that was launched in the year 2009 offers valuable findings to resolve the man-animal conflict.

Status of man-animal conflict in Uttar Pradesh prior to 2009

Dudhwa and Pilibhit Tiger Reserves and its adjoining areas were known for man-animal conflicts. Between 2000 and 2013, 151 human-wildlife conflict cases that resulted in human deaths and injuries were recorded by the Uttar Pradesh Forest Department in this landscape, 90.1% of which involved leopards and tigers. Tigers were responsible for 58.6% of cattle depredation cases while leopards accounted for 41.4% of the cases recorded.

Multipronged strategy to resolve the issue

This conflict was analysed and executed from three different angles. First, it strives to understand the natural drivers of conflict, assessing every conflict situation independently to determine the ecological factors behind it,

which may range from a shortage of wild prey species, to debilitating injuries or the age of the individual big cat involved, to the fragmentation of dispersal habitats. Second (and perhaps the most important), the project aims through various means to integrate local communities in the successful resolution of conflict situations. And finally, it aims at addressing complex conflict situations through rescue rehabilitation/release of the animal involved. There are thus ecological, sociological, and a veterinary aspects involved in the project.

Making local community part of the solution

There are Primary Response Teams (PRTs) in different parts of the landscape. These teams mainly comprise local volunteers and influential people such as village elders and forest department staff, and are trained to manage conflict situations on the ground. The teams function by assessing the location of the leopard or tiger, cautioning people in its vicinity and relaying information to the relevant authorities. In some cases they also inhibit the formation of crowds, conduct drives to impel the animal back to the forest, and attend to any human injuries. These teams are trained from time to time and provided with basic equipment such as flashlights, first-aid kits, pamphlets, utility vests, mobile phones etc., to enable them to carry out their work efficiently.

To increase people's participation and to develop a populace that is more accepting of

proactive' conflict mitigation measures, various awareness programmes have also been organised periodically. Additionally, the project has also initiated children's awareness programmes in several schools of the region. The aim is to sensitise the younger generation, increase awareness and willingness to conserve nature and wildlife. Several programmes have been conducted from 2010 to 2015, ranging from classroom sessions to interactive and educative competitions to field based activities, through where the school children have been sensitised.

Proactive response force

Besides these public interface initiatives, the project also established a Rapid Response Team (RRT) to provide an expert emergency response to human-big cat conflict situations. This team comprises a trained wildlife biologist, a wildlife veterinarian and a sociologist, and is provided with the requisite equipment and a vehicle. At the scene of a conflict situation the RRT strives to control crowds (usually with the support of the PRTs) and intervene if required to capture and translocate the big cat involved.

Veterinary interventions

Apart from providing treatment to big cats injured in conflict situations, the project also initiated certain measures to safeguard the big cat population in the larger landscape. Two such key activities were: 1) Treating prey species in distress situations and conducting post-mortem investigations of various animals found deceased; and 2) conducting livestock immunisation camps to create a disease free belt around protected forests.

Empowering the frontline staff

Capacity building workshops are organised to give frontline staff a more complete understanding of conflict situations and their underlying causes, and of the various ways they can be resolved, including the different technological innovations developed across the world to mitigate such situations.

Outcomes

Human injuries and deaths have considerably reduced, falling from 12 cases per year (136 in the eleven years preceding 2013) to just four cases per year (11 from 2013 to 2015). Meanwhile, since the project started, eight tiger and four leopards have been captured with four of them released back into the wild. In the last four years of the project, no leopard or tiger has been killed in direct retaliation for conflict by local people.

Sources:

Wildlife Trust of India
Rajya Sabha TV



Photo : Novyitt De

Decentralised People Nurseries (DPN) and Kishan Nursery Schemes

Md. Khurshid Alam
Range Forest Officer Trainee (2017-2019 Batch)

by the DFO.

After selection of the Beneficiary List, the same be recommended by the local Panchayat Samiti/Zilla Parishad and record should be kept there.

Land & Plant Species

Under this scheme, the nurseries will be raised in private land as stated above and the species selection should be done by the forest officers in consultation with the target farmers' utilisation. Generally mixture of forestry and fruit species are selected.

Period of this Nursery

Start in the month of Dec-March and will continue in the next financial year till September or till the entire stock of the nursery is exhausted. Nursery runs into 2 consecutive financial years- 1st year for Advance Work, and 2nd year for Creation Work.

Distribution of Seedlings

The seedlings raised under this scheme will be utilised for free distribution as well as distribution at subsidised rate to the local Villagers/School/Hospitals/Govt. Offices/Clubs etc. Beneficiary will be free to sell 50% of the seedlings from his end at a rate prevailing at that point of time in the state.

Main Components of this Nursery

Labour Components under advance work- under the estimate for the advance work the labour components has been fixed as 14.5 man-days raising for 2000 number of seedlings. The labour payment shall be made to the Farmers/JFMC members, in the form of Cash/Cheque at the prevailing rate of the Govt. of West Bengal issued by the Labour Department.

Material Components- it is in the form of purchase of watering can/bucket, price of the seeds and price of the insecticides etc., at the current market rates which shall be produced by the local Range Officer and supplied to the beneficiaries as per the approved estimate for the concerning financial year.

Decentralised People Nurseries (DPN) and Kishan Nursery Schemes were introduced in late 1980s and 1990s all over the country with an idea of transferring technology of rising seedlings to the rural villages so that the villagers / farmers can take part in fulfilling the target of planting 10-15 billion plants per year nationally for achieving the target of greening 1/3rd of the geographical area of the country. Initially the scheme was funded by Central Government and whereas later the scheme was adopted by the state. However, during last few years because of lack of instructions and guidelines this nursery schemes lost sight of its aims and was converted into a scheme for creating field nurseries. But for distributing seedlings to the villagers now it has been realised that there is an immediate need to issuing clear and transparent guidelines for implementing old scheme to all over the state of West Bengal to revive its cherished aims of emboldening the farmers.

Objectives:-

- Identify the local needs for specific tree species;
- Produce superior quality plants, required by the local community;
- Supply of healthy plants in the vicinity of 2-3 km from plantation sites;
- Create employment opportunities for women, landless and small holders.
- Promote Agroforestry.
- Produce fuel & fodder for the local people
- Assure supply of Quality Planting Material

Selection of Beneficiaries

The beneficiaries may be selected from the local farmers, members of JFMC/SHGs. The beneficiaries will be identified by the local Beat Officers and should have recommendation of concerned Range Officers and finally approved

Neither Wealth

Nazia Thabassum Mohammad
Range Forest Officer (2019-2020 Batch)

Neither wealth
nor technology, but
Biologically rich
Ecologically stable environment
is a largesse to our next generation
Where they bliss in the eternity of nature

It is in our hands how we
Introduce Biodiversity to our
next generation
As a "SPECIMEN" in a glass box
of a museum ?

Or

As a "SPECIES" in a natural
Environment!

R. Uday Kuma

Range Forest Officer (2019-2020 Batch)

I'm not only the beauty hidden behind
my clothes ...

I'm another world, if you see my depth.
I'm an ocean of the tides called dreams!
And yeah,

You are my sun and my universe
revolves around you
You entered into my life as a candlelight
in the dark,

You showed me the meaning of love not
with your words but with your care!
Your eyes speak up the love you have for me,
There is no one and nothing that can
compare to what you mean to me and
that is the truth!
You have made my life a much desired
paradise and I know that only you
could have done that for me.. !!

With Best Compliments from

Chaturbhuj Impex Pvt.Ltd

Grasslands Management – An Overview

Abhilasha Rao Kalwa

Range Forest Officer Trainee (2017-2019 Batch)

"Peace. The upland serenity of high altitude, the openness of grassland without indigenous bush or trees; the greening, yellowing or silver-browning that prevailed, according to season"

- Nadine Gordimer

animal conflict, over grazing leading to weed growth, forest fires etc.

Management interventions:

Habitat improvement zones: Fodder plantation for sufficient food availability- Grass (Saccharum sp., Nalkhaya, Pundi varieties), bamboo etc., in an area of 39.8392 sq km. Fodder nursery bed- dwarf grass plantation, creation of water holes, salt lick sites.
Buxa Tiger Reserve

Tiger population being very low (in camera trap 2 tigers found but no direct sighting) efforts are being made to restock tiger population.

Major challenges:

- To create prey base- decline in population of herbivores mainly deer species.
- To compete with already existing herbivore sp. (elephant and gaur).

Management interventions: Deer enclosure is being constructed for increasing prey base. Fodder nursery is being developed for creating grassland area in the Reserve forest area for habitat improvement.



Fig. Gorumara National Park- Grassland developed as observed during East India Tour

Introduction

Grassland in itself is an ecosystem representing a seral stage in autogenic succession. It predominantly consists of grass, which belongs to family Graminae (Poaceae). Grasslands are formed due to interaction of complex biotic and abiotic factors (Pandey, 1986) i.e., being autotrophic in nature constitutes primary producers. But these systems tend to form a nutrient pool in the soil that remains as unutilised energy which gets eutrophied as succession advances which itself is a threat as the soil conditions tend to easily convert it to a woodland, in case of any disturbance. This conversion has its impacts in the form of habitat loss for many species with adverse influence till the top carnivores. The unutilised energy is removed by mainly cut-back, and controlled burning. They maintain the herbivore population for top carnivores.

Threats to grassland ecosystem

- Habitat loss and their fragmentation
- Increased anthropogenic pressure, illegal livestock grazing
- Conversion of grassland for agricultural purpose

- Plantation of economically valuable species
- Natural succession process transforming it into woodland

Invasion of weeds, stabilisation of unpalatable grass species

FROM THE FIELD

Gorumara National Park

Gorumara NP with forest type as Northern tropical Moist Deciduous having riparian flood plain of Murti and Neora rivers with Savannah grassland. Major threats are destruction of animal corridors by conversion into tea gardens and agricultural lands, man-

Kaziranga National Park

Grassland here is natural gift of Brahmaputra River, formed due to alluvium brought by floods which maintain the same seral stage thus preserving the Wet Alluvial Grasslands in this region. The Great One-horned Rhinoceros one of the mega herbivore of Kaziranga NP is completely a grassland inhabitant. Classification can be made based on ecology and composition. Profile observed is as follows: (Talukdar, 1999)

- Imperatylindrica –on high lying regions
- Phragmites- in next elevation level
- Saccharum sp. and Phragmites in groups on edge of gentle slope
- Saccharum sp. in plain areas
- Arundodunax –in the adjacent region
- Short grass in low lying areas
- Wetland grass in marshy and wetland low lying region.

Management Interventions: 1. Controlled Burning is the most extensive, practically feasible and cheapest method as fire maintains the nutritive condition to the required level only, and increases grass growth. 2. Uprooting of woody invasive species like Bombax ceiba.



Fig. Controlled burning in Kaziranga (left). Bombax ceiba prolific regeneration in grassland area of Kaziranga (right).

Black Buck Sanctuary, Velvadar

This region has dry grassland with savannah. The black buck population sustains on this. This is also the largest roosting site for harriers, Great Indian Bustard etc. Hence maintenance of grassland is very crucial.

Management interventions: Controlled burning is practised by forming fixed sized plots. Widdis are formed which serve many purpose- manually cutting of grass, forming bundles, stored in godowns for sale as fodder

to nearby communities for cattle. The area so obtained by clearing grassland is then retained by broadcasting grass seeds, developing the grassland again.



Fig.: Dry grassland in Velvadar.

Grassland Management

- Canopy opening for grassland creation in the forest.
 - Species selection for grassland – based on the edaphic factors and other locality factors of that region.
 - Rational planning according to seasonal use mixed plantation, rotational planting of different species. Re-plantation in every 3 years this may be possible for short term.
 - Uprooting woody species and weeds.
 - Alternate strip burning- burning in patches stop the succession process. Fire lines developed (6 m) in and around grassland area.
 - Prevention from pest and insects- as it is artificially planted.
 - Site selection: Preferred near river banks
- Erosion and siltation by rivers – natural way to stop succession.
- Modify soil conditions in the region of development.

Future Implications

With initial implementation of plantation of grass it would sustain a good herbivore population but in future this would lead to stress in this particular region due to:

- As seral stage advances the edaphic factors would not be suitable for grassland instead would form a nutrient pool thus with such huge amount of unutilised energy, even a little disturbance would cause rapid conversion into woodland, thus maintaining the same seral stage through artificial means is a big challenge

- Decline in the wild instincts of animals for searching food as would confine and concentrate them in one particular region.

- More susceptible to diseases and unforeseen disaster; populations may be wiped out at once.

- Increased interbreeding as no movement in search for food, water, shelter, thus loss of wild gene pool leading to decline in species diversity ultimately loss of biodiversity.

- Rapid degradation due to over grazing as it would exceed grassland's carrying capacity would promote growth of weeds or soil erosion.

- Increased illegal livestock grazing.

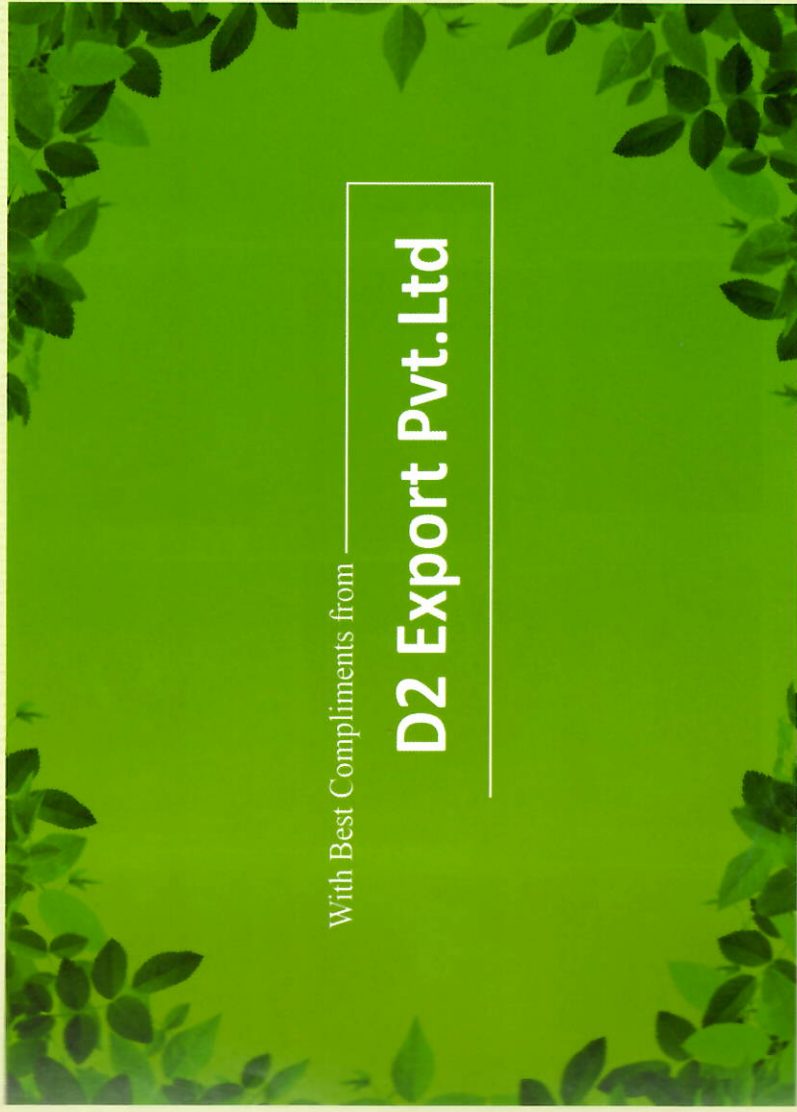
- Increased maintenance and management requirement will have unprecedented anthropogenic interference and pressure.

Hence, artificial grassland development is the need for conservation of various species but it seems possible for short duration and requires extensive regular management and control in its form like frequent interferences at each level like cutting, burning, weeding, re-plantation which are expensive in nature. Thus

feasibility survey and proper scientific study, comparing it with natural grassland systems is the need of the hour keeping in view long term factors as nature takes time to replenish and establish itself. Hence improving and restoring natural grasslands must be the priority (Improved management and use of Grassland in Xinjiang province, China, Xinshi 1992).

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- Resource persons-
 - o Badal Debnath, ADFO, Gorumara National Park.
 - o D.K. Jha, ADFO, Buxa Tiger Reserve.
 - o B.N. Talukdar, Kaziranga National Park.



Birds and Butterflies of Central Academy for State Forest Service Burnihat, Assam
Chinmoy Barman

State Forest Service Officer Trainee (2017-2019 Batch)

“One touch of nature makes the whole world kin” - William Shakespeare

It was the time of dawn, shades are being darker in trees, branches, grasses, pre-monsoon shower washing the city life, stepped in academy with full of hopes and excitement as much as a dream job successor, ethnic Assamese-British buildings, lush green playgrounds, gymnasium and new friends from Chhattisgarh and the warming smile of Rahman sir and Rajak sir.

All of a sudden of 24 hour journey from the lap of Bay of Bengal to the North-Eastern valley by Hamsafar Express with hamsafar Asit da and Kamal.

From the day I joined forest service, seniors often advised to make a hobby anything related to forests like wild life, trees etc., but I can't rather I don't want to be but, the moment I spent the mysterious evening at midst of deep rain forest near Indo-Bhutan border, I was so eager to frame the time of seeing mother tiger teaching her cub about human and the cub was annoying to learn. As a forester we all know that to meet a tiger in wild is a supreme bless of Mother Nature and if it is the life's first time, then anyone can imagine the moments. But I can't because of dead battery of my cell, I wish I had a camera to fridge the frame.

I started exploring the treasure of our academy through the changing beauty of teak patch, and the monsoon jungle, keeping in mind that there may be a lesser number of wings but my surpris as always done by nature, I just got mesmerised and addicted to explore more and more.

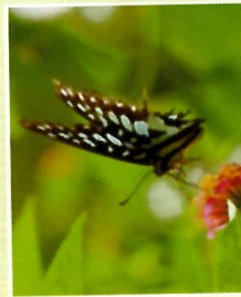
As our academy is in a valley crowned by the hills of Meghalaya, the forest is of northern tropical moist deciduous forests, harbors a rich biodiversity- The erratic flights of butterflies

and the hovering eagles in blue sky,

a meditating kingfisher at banks

and a perched blue jay measuring our PT skills in a foggy morning...

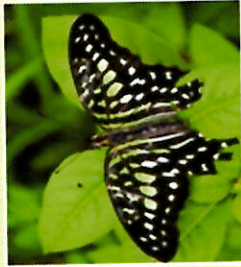
Here is a list of butterflies and birds of CASFOS, Burnihat- some are resident and some are seasonal visitors-



1. Veined Jay



5. Peacock Pansy



2. Tailed Jay



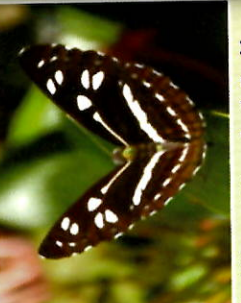
6. Pale Clouded Yellow



3. Tamil Lacewing



7. Niger



4. Short Banded Sailor



8. Lime Butterfly



10. Grey Pansy



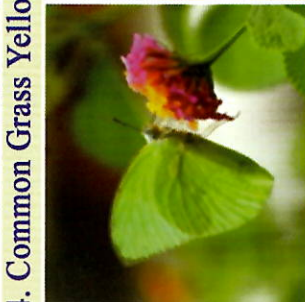
11. Fulvous pied flat



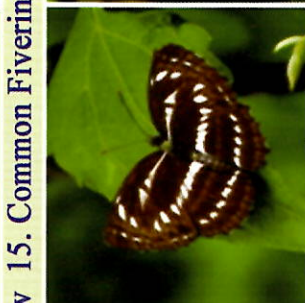
12. Common Lascar



13. Dark Grass Blue



14. Common Grass Yellow



15. Common Fivering



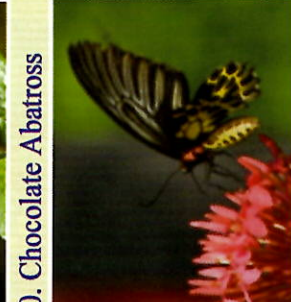
16. Common Flash



17. Common Evening Brown



18. Common Emigrant



19. Clear Sailor



20. Chocolate Abatross



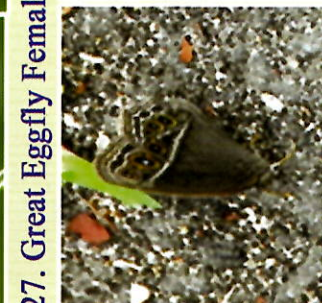
21. Brown King Crow



22. Rice Swift



23. Tawny Rajah



24. Golden Birdwing



25. Great Eggfly Male



26. Common Duffer



27. Great Eggfly Female



28. Common Mormon



29. Unidentified



30. Stripped Albatross



31. Long Brand Bushbrown



32. Common Castor



33. Lemon Pansy



34. Common Mottled Emigrant

35. Common Cerulean

36. Indian Cabbage White

Sweet Memories



Photos by Chinmoy Barman

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Who is important- Prey or Predator?

Arpita Patra

State Forest Service Officer Trainee (2017-2019 Batch)

Predator-prey relations refer to the interactions between two species where one species is the hunted food source for the other. The organism that feeds is called the predator and the organism that is fed upon is the prey. As species developed and flourished, other species exploited them as their food. A species that has become a successful predator, are just creatures trying to feed themselves. They are not bad guys and has developed a few or a number of strategies to acquire the prey. The predator may use speed, stealth, and camouflage, developed sense of smell, sight, or hearing, tolerance to poison produced by the prey, production of its own prey-killing poison, or an anatomy that permits the prey to be eaten or digested. For example, hawks catch their prey by chasing it. Heron uses stalking technique while crocodile is an ambush hunter. Wolves, wild dogs hunt in team.

Being a prey does not imply that the creature is completely helpless. The prey has strategies to help it avoid being killed by a predator. A prey species can also use the aforementioned attributes listed for the predator to avoid being caught and killed. The ways in which predators stalk, kill, and feed on their prey can be used in a classification scheme. A so-called true predator kills the prey and then feeds on it. True predation usually does not involve harm to the prey prior to death. Cattle that graze on grass are not considered a predator-prey relationship, as only a portion of the grass is eaten, with the intact roots permitting re-growth of the grassy stalk to occur.

Predator-prey relationships can be more complex than a simple one-to-one relationship, because a species that is the predator or the prey in one circumstance can be the opposite in a relationship with

different species. For example, birds such as the Indian Roller that prey on insects can become the prey for snakes and the predatory snakes can be the prey of birds such as hawks. This pattern known as a hierarchy or a food chain, transferred to a different ecosystem, an apex predator could become prey.

Naturally, the predator-prey relation will be advantageous for the fitness of both species in relation to how they compete against other species in the same ecosystem. However, since each species improves, their relationship with each other remains unchanged, and the challenge remains to kill or escape from being killed. This selection pressure has encouraged the development and retention of characteristics that make the individual species more environmentally hardy, and thus collectively strengthen the community of creatures that is part of various ecosystems.

Predator-prey relationships are also vital in maintaining and even increasing the biological diversity of the particular ecosystem, and in helping to keep the ecosystem stable. This is because a single species is kept under control the species that uses it for food. Without this population check, a species could explode in numbers, which can destroy the ability of the ecosystem to support the population.

With Best Compliments from

RLJ Woven Sacks

Swamp deer of Kanha and Kaziranga

Arpita Patra
State Forest Service Officer Trainee (2017-2019 Batch)

A large deer with a woolly golden-brown coat, the Barasingha or swamp deer gets its name from the many tines on an adult male's antlers; "Barasingha" means "12-tined", hence the translation of its name in Hindi, 12-antlered Deer.

The Barasingha was previously seen across most of the north and central India in areas of moist forest and swamp land. With the destructions of its habitat, the Barasingha is now only seen in isolated protected forests in Uttar Pradesh, Assam and Madhya Pradesh. Tourists can see Barasingha in wild in Dudhwa National Park in Uttar Pradesh (UP) in North India, Kanha and Indravati National Parks in Madhya Pradesh in Central India, and Kaziranga and Manas National Park in Assam in North-East India. I visited the Kanha National Park and Kaziranga National Park.

Swamp deer actually live in swampy areas in UP and Assam. The hooves of animals in those wetter regions are more splayed out to give them greater support in soft mud. But in Kanha the terrain is undulating and dry. So, it is called Barasingha hard-ground swamp deer in Kanha where the hooves of swamp deer are adapted to the hard ground.

Swamp deer in Kanha was very close to extinction when a successful breeding programme and conservation practices brought the animals back from the brink. Human encroachment

on their habitat, poaching, and disease all led to the decline. There were only about 60 individuals left in the national park when the conservation program started in the early 1970s. Various conservation methods were used, including habitat improvement and captive breeding, and today we can see the herds of 10 to 20 roaming the fields and meadows of this large and beautiful national park and tiger reserve. Undulating grassland dotted with sal trees and standing magnificent swamp deer with the golden sunlight lighting up their coats, all these in Kanha attracts many nature lovers. It is also memorable for me to see tiger in wild for the first time.

Of the three subspecies of the swamp deer in India, just about a thousand individuals of the eastern swamp deer are left in a single population in Kaziranga. Apart from this, a tiny population also exists in Manas. Wildlife Trust of India's Eastern Swamp Deer Conservation Project seeks to establish a viable population of the subspecies in Manas National Park. Swamp deer in Assam, different subspecies, have seasonally different by at least several months, and stags have velvet horns in March-April. This may be due to availability of lush green grasses at Kaziranga at the end of March and beginning of April. But Seasonal changes in Kanha occur during July-August.

Trekking cum Safari route from Bhulaveda to Kakrajhore

The route from Bhulaveda to Kakrajhore passes through the natural sal and miscellaneous forests. It is one of the finest natural forests in South Bengal. It is also a corridor for migration of Dalma elephant herd between Jharkhand and West Bengal. The forests are also home to variety of wild animals and birds. There is an existing 15 km trekking route from Bhulaveda to Kakrajhore. The same can be further developed to attract more tourists by providing basic amenities. It would also act as jungle safari route for those who don't want to walk the trekking. Tourists would be required to hire a local guide from the FPC to get informed about the forests, flora, fauna etc.



Laljal Rock Caves

Laljal is a small village which is around 70 km from Jhargram. It is named as Lal (red) Jal (water) as water looks reddish because of higher concentration of copper and iron. There is a rocky mountain where large rocks have formed natural caves. From top of the mountain beautiful view of Bansapahari forests can be seen. Though the spot is less known among the tourists it has very good potential to become a tourist attraction.



Fig.: Laljal Caves (left); View of forest from Laljal Hilltop (right).

Jungle Mahal Zoological Park

Jhargram Mini Zoo was started as a park in the year 1980 within a small patch of natural sal forest in the outskirts of Jhargram town. Subsequently, it was accorded the status of Mini Zoo (Small category Zoo) on 9th September 2005 by the Central Zoo Authority. In the year 2014 the Government of West Bengal decided to upgrade the Mini Zoo into Major Zoo and renamed as Jungle Mahal Zoological Park.



Fig.: Jhargram Mini Zoo.

As I perpetually near the reality of nothingness

Debdarshan Roy
State Forest Service Officer Trainee (2017-2019 Batch)

Ways not likely to be intruded; should not be. Life of a pseudo poet should bring of these sufferings of others. Lack of space suffices his entity; lack of perfection gives him complete enjoyment for once and all. Overcoming the stairs comes the sky – the no one. Here I give idol to my earth and dust; my perversion; my lust and my existence. As non futile as a vasectomised ass; or my editor. Everyday; every occasion.

I am no poet reader. No resurrection in me you can find. No humane feeling anyway. I derive pleasure from anyone's failure; any paranoia or colourlessness. I expect only I should be in hold of colours and people in want of colours should obey me to have it. As in search of words I wonder; people in search of peace should obey me. No joke.
“Do I have the right to know what were you doing?”
“Of course my love.”
“Who was with you in the phone?”
“Why are you asking? You are too insecure.”

Brushes of vibrant colours once painted the canvas. Bright moods; sunshine and delight were all starred like gems in the riverbed. Chords were in perfect harmony. Flowers bloomed and fragrance pervaded all where. Embodied lovers coined the earth for future warmth and home.

Years gone by; boredom as old alcohol intruded. Songs and steaks have grown old too. Papers can well be wasted to depict how I manipulated my girlfriends. Their coloured lips and faces; like masks hang upon a wall; I kept with utter caution to be sold to someone else.

A river is blowing; clear as its water; its forces are with its stones; its silts; its

I can not remember when I last dreamt; I can not recall when I last loved and I can not feel when I last cried. And here a fix for what Government schemes or the Rohingas or what glaciers melt on the heart of Himalayas or what reason my lover accused me for. Truly; I search for the Evil than the God and I am sure that I am alright.

to the utmost heaven I enjoyed; to the sunset sky I knew blue; to the eyes of those I saw passion in; to all my children this birth – even my dirty towel does not suffice to encroach their vice.

once upon a time there had been stars in the sky; there had been kisses from my mother and there had been taste to please my never soaked appetite – recently earned and solicited; nay; grieved. Can my readers believe it? I am the sole reason to defer upon and deliver for. Though I have no capability to reproduce it in language like Malarre; I cry when it sounds in the night chords. As my past father cried every confrontation with me; with a son trying solemnly his entity; defying his attempts to save a broken, suicidal ship. Quite alike my editor who never had a reception of my pursuit.

Is it a time to be in home?”

“Mercy me.”
“Don't you have a pity for your parents?”
“Mercy me, please.”

We have nowhere to go. How many times more will we have to end up like in Tabal?”
“Mercy me. Good night mom.”
“.....sobs.....”

Right in the left and left in the right. Each stair carries deep drops of repentance and a sense of ultimate freedom.

fishes as all these glitters to its iconic visitors. Suddenly a group of fishermen came and trapped its fishes; killed all its resources and beauty. People doing business in the market only buy the fishes; not the river my dear reader. As a visitor I see my lover; I swear. I know I am right; as I earn benefit as I am earning from my editor.

“It’s not worthy a write up to be printed you scoundrel.”

“I know.”

“You idiot; produce something worthy.”

“I know I can not.”

“You worthless.”

To this point I confess; I love to be one with this very thought. Why should there be any worth ?

Thousand worms creep up my vein thousand wriggling worms make the fate on me. Am I not worth of it ?

Once upon a time I was bestowed with the gift of words. It flowed in me like blood; like a sweet intoxication. Start nights fell on me like bliss; sunny days carried my fortune to be a poet. My work carried perfect rhythm and harmony as stood beside a pub or a lady; it did not matter; all in a single blow; kissed me like anything. Flowers carried my name rainbow my signature to all insignia. But today; but today I lost believe on a liveliness and I prefer sleep to anything else. Like a fat; cooked sausage on plate of pie; I melt myself; seeing to fate; to be eaten up.

Had there been my father alive slap me.....

Had there been any Satan to perve my nerves.....

Conservation Breeding of Batagur Baska in Sundarban Tiger Reserve: An Incredible Success Story

Novojit De
State Forest Service Officer Trainee (2017-2019 Batch)

Sundarban is famous worldwide for managing and protecting its healthy population of Bengal tigers against many odds since its establishment in 1973, but there is another species which is fighting a battle to make recovery from a disastrous decline of population in wild. It is none but the critically endangered Batagur baska which is commonly known as Northern River Terrapin, considered as the world’s second most endangered turtle after Yangtze giant soft shell turtle (*Rafetus swinhoei*).

Out of six large fresh water turtles under genus Batagur, three species are found in India and they are Batagur kachuga or Red-crowned roofed turtle, Batagur dhongoka or Three-striped roofed turtle and Batagur baska or Northern river terrapin. Among these three, Northern river terrapin is facing the highest threats of extinction.

It is a common query of the people that is there any difference between turtle, tortoise and terrapin? Actually turtle tortoise and terrapin are all names for the hard-shelled, egg-laying reptiles in the taxonomic order Chelonia. Basically they are all turtles but the different name used for a particular type of turtle is depending upon where it lives. The term “Turtle” is generally used for those turtle that spent most of their lives in water (in sea, ocean or in lake). Turtle’s legs are modified properly for aquatic life. It is developed as a webbed feet, generally called flippers. The word “Tortoise” is generally used for those turtles that spent most of their time on land. Some tortoise lives far from the major sources of water, such as desert. Unlike their aquatic cousin, tortoise don’t have webbed feet. They have blunt, stumpy feet for walking on land.

Terrapins” are turtles that spend time both on land and in brackish, swampy water. Their feet are also webbed like but not so much modified as flippers.

The northern river terrapin is one of the largest freshwater and backwater turtles, with carapace reaching up to 60cm and attains a maximum weight of 25 kg. A moderate depression is found on the carapace of the species; the juveniles has vertebral keel on their carapace. They have a large plastron which is strongly angular (laterally) in young individuals and convex in case of adults. The head is proportionately small, with a pointed and upwards-tending snout. Band like scales are found in both forelimbs and hind limbs. The northern river terrapin has olive brown carapace and a yellowish plastron, while the head and neck have brown colouration with reddish at the base. During the breeding season, in males, head and neck turns black in colour with a crimson or orange dorsal surface and red or orange forelegs and in case of females the colour of the pupils turns brown whereas the pupils in the males turn yellowish-white.

The species is native to South-East Asia and currently found in India, Bangladesh, Cambodia, Indonesia and Malaysia. Its wild population has been extinct from Myanmar, Singapore, Thailand and Vietnam.

It is an aquatic species but uses terrestrial nesting grounds, frequenting the tidal zones of estuaries large rivers and mangroves. The breeding season of northern river terrapin is generally between the late monsoons to early winter i.e., from September to November. It prefers nesting in colonies on sand banks. During January to March, River terrapin in the Sundarban area nest in the



Photo Novojit De

sea facing coast and lays egg in clutches comprising of 19-37 numbers, measuring 40-60mm; the incubation period being 60-66 days.

It is believed that not more than 50 individuals are left in the wild. The main reason for such disastrous situation is due to uncontrolled exploitations of eggs and turtles used for devouring. In Theobald's report (1868) it is mentioned that a large no. of this species had been used for making soup. It is evident from the fact that there are no reliable records of Batagur in coastal areas of Odisha for last 50 years which once found in profusion. So to recover the species from the verge of extinction the only way out was ex-situ conservation breeding and subsequent release in the wild.

Such landmark work of conservation was started all at once without much planning. The sea facing beaches of Sundarbans Tiger Reserve was a nesting ground of Olive Ridley turtle. They had come to lay their eggs in the sandy beaches of Sundarban mainly during December to March. Eggs of the turtles were collected from nature to ensure more hatchling and they were incubated at Sajnekhali. After hatchling they were released in the wild to restock the population. During late 1980s a different species had been come out from the collected eggs and they were nine in numbers. Later they were identified as Batagur baska.

Interest in the conservation of Batagur in India was started after this incident. Few surveys had been made in the Indian Sundarban between 1983 and 1993 by various agencies which had depicted clearly the alarming situation that the species is in the verge of extinction. Sporadic reports were also there that few numbers of Batagur are still present in the ponds of few villages. Since then a small scale rearing program of Batagur was initiated at Sajnekhali so that these fresh hatchlings one-day reach adulthood and can breed.

From 2008, attempt was made to recover the population of Batagur baska in Sundarban. It was started with 12 individuals. During the Aila a male was lost. Another adult female was obtained from a pond of the village Mollakhali in 2013. However, first successful hatchling took place in 12th June, 2012. Total 32 numbers of hatchling were emerged from the eggs. Gradually their number increases and

reached nearly 389 individuals at present. Madras Crocodile Bank Trust and Turtle Survival Alliance are two assisting agency working with West Bengal Forest Department in this regard.

The main objectives of this recovery program are Creating an ex-situ breeding condition and favourable growth environment. Soft release will be done in temporarily built enclosures on the tertiary creeks at the release site in order to acclimatize the individuals to the natural conditions and as per the protocol for the monitoring of the released individuals.

The gravid females are shifted from the adult pond to the hatchling enclosure after medical check-ups. Generally the adult females are found to be gravid during first week of March. The hatchling enclosure consists of a sand beach where the females can lay their eggs. The enclosure has a multi-layered protection against predator as well as harsh weather. From the 3rd to 4th week of March the females start to lay the eggs in clutches of 20-35 and within 1st week April all of them generally lay their eggs. After that the adult females are shifted from the hatchling enclosure to the adult pond. The eggs remain in the sand beach and temperature inside the sand beach is monitored regularly. After 60-66 days of incubation period the hatchlings emerge and new hatchlings are shifted to hatchling pool. Strict monitoring by CCTV camera is maintained throughout the process. The beach area is monitored for next 7 days after first hatchling. It has been found that all the eggs are generally hatched within 5-7 days. The newborn babies are then nurtured with proper care and after one year they are released into yearly pool. When the individuals become two years old and more than 1kg of weight they are released to adult pool.

After having a good population stock a soft release program had been made in which individuals has been released in a soft release enclosure at Chamta, each attached with acoustic transmitter to monitor them. To avoid unwanted situation like epidemic of any disease entire stock has been divided in four different ponds at Netidhopani, Chamta, Jhingakhali and Sajnekhali. In Sajnekhali enclosures of various sizes are under construction for various age groups of hatchlings. It is a part of the Batagur Rehabilitation Program and in future it will help stocking up the population in a large extent.



NYLON NET FENCING IN SUNDARBAN TIGER RESERVE

Idea that revolutionised the mitigation of man-tiger conflict

Novojit De
State Forest Service Officer Trainee (2017-2019)

Sundarban, the largest mangrove forest in the world and the only mangrove forest inhabited by the tigers has an age old history of man-tiger conflict. For example, consider the following observation of Hunter (1878) about this conflict:

Tigers are very numerous, and their ravages form one of the obstacles to the extension of cultivation. They often commit terrible havoc among the cattle, sometimes on the husbandman or his family. The depredations of a single fierce tiger have frequently forced an advanced colony of clearers to abandon their land, and allow it to relapse to jungle. [Hunter's Statistical Account of Sundarbans (1878)]

The Sundarbans Tiger Reserve (STR) is situated in the coastal districts of West Bengal, i.e. South 24-Parganas and North 24-Parganas (Arbasi Block only). It lies at the southern-most extremity of the lower Gangetic delta bordering the Bay of Bengal with an area of 4,263 sq km of which 2,584.

sq km has been designated as Sundarban Tiger Reserve. It is one of the first nine Tiger Reserves declared under the Project Tiger scheme in the year 1973. There are fringe villages all along the northern boundary of the Tiger Reserve. On the eastern boundary lies Bangladesh separated by the rivers Kalindi, Matamoga and Harimbhanga. On the western boundary lies the territorial Division of 24-Parganas South and towards the south lies Bay of Bengal. There are nearly 25 villages along the north eastern boundary. Though straying of tiger in the adjacent villages were a common phenomenon since the establishment of the villages, management strategies changes with advancement of time. With the establishment of Project Tiger and declaration of tiger as the national animal in 1972, the

park managers had to take new initiatives to reduce the straying incidents. During 1980s, straying incidents were at its peak resulting several man animal conflict incidents and demise of few tigers in retaliation. In such difficult condition the then park managers first thought of the idea of erection of some kind of fencing to prevent straying incidents.

Since Mughal era the felling of mangrove forest was started to increase land for human settlement, cultivation and revenue. The same practice was continued in British Raj. Most of the conflicts recorded then were due to fact that the resident tigers attacked humans and very often killed them during the clearing of land. The depredation was so alarming that to tackle these menace British rulers issued permits to hunt down the tigers. Between 1881 and 1912 more than 2,400 tigers were killed by the hunters in the area under official patronage, i.e. rewards.

Tigers of the Sundarban are infamous for their ferocity and man eating propensity. Men and tigers are living closely through ages despite cases of human casualties. The people accept it as their life style and a living system. Montgomery (2008) mentioned that about the end of the nineteenth century 4,218 people were killed by tigers. She also mentioned the village Amarpur near Gosaba, designated as widow village as in each of its 125 families has a woman whose husband or brother or son was killed by a tiger. The Sundarban tigers took a reported toll of about 600 human lives during mid-decades of 1960s (Chaudhuri 2007). During 1975-1985, the tigers killed 325 fishermen (Chowdhury et al., 2008).

People living in the vicinity of the forest are heavily dependent on forest for their livelihood and enter inside the forest by risking their lives to collect crabs, fish, honey

etc. Every year people get killed by tiger while entered inside the forest. This is one part of man-animal conflict in this region but there is another part too. Straying of tiger in the human habitat is the other and most difficult part of wildlife management here. To counter this problem a unique technique of nylon net fencing was introduced in Sundarban Tiger reserve and with advancement of time it has proved its effectiveness in reduction of tiger straying significantly.

Now, why tigers make such attempts to stray is not properly known yet. However there are several reasons which are attributed. Though there is no or very little scientific study had been made to verify the acceptability of these reasons whether they are true or just a myth.

1) Scarcity of prey animals: Killing of livestock by tigers is usually the outcome of the low prey base. In other parts of India such incidents take place more frequently than Sundarban. In most of the cases it has been seen that the strayed tiger killed the cattle in fear or in anger when it is cornered inside a cattle pen. There are no examples of taking away the cattle from the village by a strayed tiger. Cattles in the reclaimed areas of Sundarban could have been a good source of food for the tigers but numbers of such incidents are so less that it can't support the theory. Furthermore, unlike other parts of India there is no grazing of cattle inside the forest owing to its geographical terrain, depriving the tigers from an easy prey. Though there is no detail study about the prey base in Sundarban but primary study reflects no such scarcity of prey. Besides, the diet of Sundarban tigers includes wide range of foods like spotted deer, wild pig, rhesus macaques, jungle fowl, monitor lizards, snakes (remaining of a snake once was found inside tiger intestine during post mortem), fishes and even crabs. This unique food habit made it possible to sustain in these forest.

2) Difficulty in hunting: The mangrove habitat is different from the other tiger habitats in India. Thick mud, the spear-like

roots of mangroves and dense bushes make it difficult for the tigers to hunt. Tiger is an ambush hunter and depends mostly on its stealth. Sundarban terrain provides an unfavourable condition for this purpose. Thick mud hinders its stealthy movements, spear-like roots oppresses its final charging. That's why here the success rate of hunting is only 15-20%. There are several instances of rescuing injured tigers that got injured in their legs during hunting. Generally such injured tigers or old tigers that can't catch their prey strayed into the villages in search of easy prey like cattle.

3) Proximity of reclaimed human settlement: In some places of Sundarban the boundary between the forest and villages are obscure due to silting up of river channels or during low tide period, that acted as line of separation (as in the case of Arbesi Block- 1). Sometimes, mud flats in the village side being covered by mangrove plants resemble a forest area (as in the case of Rajat Jubilee village in Gosaba). In first case, tigers can easily cross the silted channels as they have to cover hardly 8-10 feet to enter the village. The cattle sheds are often situated near the bank of narrow creeks or at the fringe of the villages. After crossing the creek, tiger spots these sheds and hunts the cattle, an easy prey; eventually it develops the habit of becoming a regular cattle-lifter. In the second case, the grazing cattle in the forest fringes lure the tigers.

4) Tigers do not stray in the village to kill human: Tigers of Sundarban are infamous for their man eating propensity, and every year they attack, injure or kill number of people who enter the forest for any purpose. But it is astonishingly true that tigers never killed a person inside village except in one case. In 2005, one girl in Samshearnagar village was badly mauled by a strayed tiger and later died because of her injury. But in most of the cases tigers generally avoid human in the villages. If tigers had considered human as their natural prey the casualty of human lives would have been more. Most of the man eating takes place

inside the forest where tigers consider humans as their prey. It has also been observed that so called man eaters never strayed inside a fringe village.

5) Embankment protection mangrove strips are confused by the tigers as their habitat: Erosion of bunds in the villages is a common phenomenon. Mangrove patch is an effective counter measure to check the erosion. Mud flats of the villages are planted with mangrove species as a shelter belt against the current of water. After 'Aila Cyclone' such plantation has been increased and its importance has been understood by the villagers. Tigers sometimes confuse such plantation strips with their own habitat and enter.

6) Littering female strays in the paddy field to protect her cubs: It is also said that pregnant tigresses sometimes strayed into the locality to give birth their cubs in the paddy fields or in the dense vegetation of mangrove in the village side to prevent her offspring from the male tiger. However, paddy fields and the village side forest are frequented by humans for various reasons and therefore it's difficult to believe this concept of cub littering.

7) Paddy fields confused with Porteresia coarctata: During the late monsoon when the fields are filled with ripped paddy, tigers often get confused whether it is a forest land on the other side of the river or not because the vast ripped paddy fields resembles 'shali grass' or Porteresia coarctata.

8) Generally old tigers stray for easy prey: It is generally believed that old aged, injured or disabled tigers strayed into the villages in search of easy prey. But in most of the cases the tigers that are rescued from the villages are found healthy and sound. Only in few cases they were found to have injuries and of old age.

9) Straying due to washing out of pheromone by tidal waves: Sundarban, being a coastal zone, experiences prominent high tide and low tide. Few researchers believe that tigers become hyper-territorial as there pheromone markings are washed away due to the tidal effects. That's why they become confused and

enter the villages unintentionally. Though, such theory does not possess any strong proof in support.

10) The male tiger losing domain to the aggressive male tiger may stray: Many times it happens that, a male tiger is banished by another dominant male who has established his territory by driving away the old male. The old male then compelled to enter the villages. Sub adult males or females may also face same fate and are forced to stray into the village.

11) Fog factor: Most of the straying incidents take place during winter (nearly 50%). On this basis few say it is the fog due to which the tiger become rudderless and can't differentiate between forest and villages. Though tigers have good night vision capabilities but it can't work in fog which leads them to such mistake. There are many more sayings; few are myths, in this regard. But none can be taken with certainty to explain the reasons behind straying. Scientific study in this regard is also insufficient. However, what may be the reasons behind straying it ultimately leads to man-animal conflict.

Type of Straying:

Depending upon the nature of the straying it can be classified into two categories. Many times tigers strayed into the village and return back to forest on its own or forest staffs and villagers drives it away to the forest by beating drums, firing cracker and making pandemonium in a group. Such type of straying is called temporary straying. On the other hand if the tiger is get confined inside the human settlement or in cattle shed then there is no other way out but to apply chemical immobilisation technique to catch the tiger. Such straying is called permanent straying.

Problems involved in rescuing a strayed tiger: In Sundarban the islands are separated by

numerous rivers and creeks, results a serious hindrance to the quick communication. The main mode communication is waterways which is very slow. So it becomes difficult to transport the captured animal or to send the staffs to handle the situation. The villages in the fringe area are densely populated and most of the people depends on fishing, crab collection, honey collection etc., i.e., directly on the forest resources. Many of the people going into the forest are killed by tigers; sometimes forest staffs take legal action against them for violating forest laws. These result a severe grievance among villagers and they tries to assault the tiger and staffs in retaliation. There are many example of death of strayed tiger by the agitated villagers previously. However effective JFM activities have successfully stopped such unwanted activities nowadays.

Both the physical and chemical immobilisation techniques have its own challenges. Trap cages composed of heavy structures and requires several man power to assemble it along with arrangement of live bait. Similarly tranquilisation also needs technical expertise, precision, courage, patience and quick decision making ability. In both cases mob management becomes a big headache which makes the task more difficult.

As previously said, to reduce man animal conflict due to straying incidents, park authorities thought of the idea of erection of some kind of fencing. At the very beginning various ideas were implemented experimentally like electric fencing. But these ideas were not so effective. First barricade was constructed with the stem of *Cerriops excocaria*, and *Cerriops tagal* along the river during mid-nineties. It was of around 5-6 feet height. But it caused heavy destruction of vegetation and the longevity of these stems was less. Poles of *Avecinia marina* were started to be used with nylon net around 2000. Though it stands over three years but it also demanded heavy tolls on the forest. Later the *Avecinia* poles were replaced by bamboos (in soft ground) or RCC post (in hard ground).

Initially the height of the nylon net fencing was 6-8 feet. But tiger can negotiate that height easily. Height of the fencing was increased to 10-12 feet. The normal mesh size of the net remains 4"x4" to avoid strangulation of animals like deer. The net is made of 4 mm, 3-strand IP-PPPARA Yellow nylon rope.

Current Status of nylon net fencing:

Now total 96 km long nylon net fencing has been erected which cover all the forest fringe area opposite to the villages. Straying incident has been reduced significantly. Besides, human from village side can't enter the forest easily. The entry of the carcasses of the cattle is also stopped by this fencing effectively.

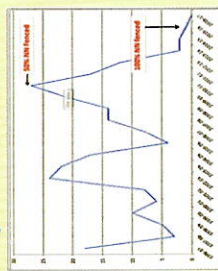


Fig.: Tiger straying incidents in last 21 years.

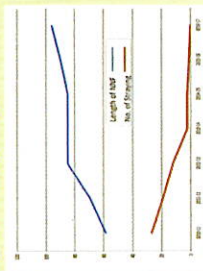


Fig.: Length of the Nylon Net Fencing and Straying incident.

Analysis of the data: Nylon net fencing has been proved very effective against tiger straying. Up to 2010-11 number of straying was significant but after that as the more area started to cover with nylon net fencing, number of straying gradually is going to decrease. In 2009-10 and 2010-11 number of straying was significantly high. Experts say that it may be due to the reason that the devastating effect of 'Aila' had damaged the balance of the ecosystem, resulting scarcity of prey animals and habitat degradation.

Benefit of the Nylon Net Fencing:

- The straying has reduced significantly which pacified the villagers rage against the tiger and the forest personal as well.

• Straying of other animals like spotted deer, wild pig is also reduced.

- The entry of carcasses, plastic bottles etc., thrown into the river is prevented.
- The net weaving, net erection and maintenance of the net involve lots of labours. This need of labours are fulfilled from the local JFMCs resulting a way of income generation for the villagers.

Maintenance of Nylon Net Fencing

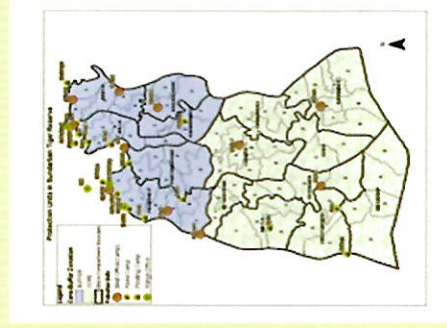
The nylon net fencing is considered as the life line of the Forest Department in Sundarban. The fencing is sometimes damaged by illegal intruders from the villages, by the wild pigs and sometime by tigers as well. Strict and rigorous monitoring works are performed regularly to check the fencing. A fencing checking protocol has been prepared for this purpose. A Fencing Register will be kept in each station and records will be kept in accordance to the parameters given below:

Rank	Frequency
Forest Guard	Daily
Beat Officer	Weekly once
Range Officer	Once in 15 days
Asst. Field Director	Once in a month
Dy. Field Director	Once in six weeks



The total length of Nylon Net fencing has to be checked as proposed on following parameters:

- The height should be of 8 ft (in case of new fencing) and 6.0 ft (in case of old fencing).
- Height of Khal (channel) guard to be maintained at least 5 feet above highest tidal level estimated for 'Kotal' period.
- Condition of nylon rope of the net.
- Condition of the posts of the fencing.
- The tensile strength of the runner is to be checked. GI runners to be used.
- Monitoring frequency (as proposed)



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गढ़वाल हिमालय में नीती घाटी : पर्यावरण की एक अमूल्य धरोहर

राज्य वन सेवा अधिकारी, प्रशिक्षु २०१७-२०१९
नवी कान्त झा

उत्तराखण्ड में जनपद चमोली की नीती घाटी उच्च गढ़वाल हिमालय के शीत मरुस्थली क्षेत्र के अन्तर्गत धौली गंगा के कम वर्षा वाला क्षेत्र में आता है। भौगोलिक रूप से यह क्षेत्र ३० ४१'२६"उ ७९ ५२'४३"पू एवं ३० ५८'२०"उ ७९ ५२'१५"पू के बीच स्थित है। यह घाटी भोटिया जनजाति और भेड़-बकरी पालकों के लिए जाना जाता है। यहाँ के बुयारों में तीन से चार महिने तक ये भेड़-बकरियाँ अपनी मन पसन्द और पौष्टिक घास चुगते रहते हैं। धामन, थाली, टिमरसैण, कसै, काला जाबर, चोर होती, बमलास, गोठिंग, सेपुक, राइकाना, लाल डांग और ग्यालडूंग इस घाटी के प्रमुख बुयार हैं जो कि भारत तिब्बत सीमा तक फैले हैं। सन् १९६२ की भारत-चीन युद्ध से पहले सीमा के दोनों तरफ के लोग एक दूसरे के बुयारों में भेड़ चुगाने तथा व्यवसायिक गतिविधियों के लिए आते-जाते थे। लेकिन इसके उपरान्त अन्तर्राष्ट्रीय सीमा इस तरह की गतिविधियों के लिए बन्द कर दी गई। इसके साथ ही यह पारम्परिक वस्तु विनिमय प्रणाली वाली व्यवसाय भी बन्द हो गयी।

दुर्गम भौगोलिक विषमताओं व विपरीत जलवायु के कारण यहाँ मानव अधिवास व जनसंख्या का घनत्व काफी कम है। नीती घाटी में लगभग २८ गाँव हैं जिनमें से ज्यादातर गाँवों में भोटिया जनजाति निवास करती है। जोशीमठ से ६१ किमी दूर स्थित मलारी गाँव के बाद यह घाटी दो हिस्सों में बंट जाती है। एक तरफ धौलीगंगा जो ५१ किमी दूर नीती दर्रा तिब्बत सीमा तक जबकि दूसरी तरफ रिमखिम नाला के नाम से परिचित नदी सुमना कि ओर से आती है।

नीती घाटी के लोगों के बारे में पुराने विदेशी विवरण उस काल की मान्यता की याद दिलाते हैं। उदाहरण के लिए १८२२ ई. में कमिश्नर कुमौंड (गढ़वाल) सि. ट्रेल ने लिखा था "नीती के भोटिया, जुहार कुमौंड के जुहारियों जितने समृद्ध तो नहीं परन्तु माणा के माछीओं से बेहतर हालत में हैं।" सच तो यह है कि तिब्बत की सीमा के जितने अधिक निकट बसा कोई गाँव होगा वह व्यापार के कारण उतना ही समृद्ध होगा। नीती के नितवाल कभी दर्रे से संकट रहित व्यापार हेतु 'हुरी' पुलिस कर व कियुंथाल व्यापार कर देते थे। यदि किसी साल नीती के व्यापारी तिब्बत अनाज नहीं ले जा पाये तो उस साल वहाँ भारी अकाल पड़ जाता था।

भोटिया नामकरण

नीती घाटी भोटिया जनजाति बहुल क्षेत् है। यह क्षेत्र भोट देश (तिब्बत) के साथ व्यावसायिक एवं सांस्कृतिक दृष्टि से जुड़ा था जिस कारण यहाँ के लोगों को भोटिया कहा जाने लगा। भोटिया जनजाति तीन उप-समुदायों में विभाजित है अर्थात् तोलछा, मारछा व जाद। लेकिन नीती घाटी के भोटिया तोलछा और मारछा समुदाय के हैं जबकि जाद समुदाय के लोग टकनौर भागीरथी घाटी में निवास करते हैं। टकनौरी जाद लोग बौद्ध धर्म के अनुयायी हैं जबकि नीती के तोलछा व मारछा हिन्दू हैं और भारद्वाजी गोत्र के हैं। नीती घाटी के लोगों का शीतकालीन व ग्रीष्मकालीन निवास के लिए दो अलग-अलग गाँव होते हैं। गर्मियों के महिने (मई से अक्टूबर) में वे गढ़वाल हिमालय के ऊँचे क्षेत्रों (२२७० मी. - ३७०० मी.) में स्थित गाँवों में रहते हैं। इन इलाकों में अक्टूबर से कडाके की ठण्ड व वर्षा की वजह से प्रतिफल परिस्थितियों के कारण यह लोग नवम्बर से अप्रैल तक गंगाड के निचले स्थानों अर्थात् नन्दप्रयाग व चमोली के आसपास के गाँवों में रहते हैं। ग्रामीण लोग कृषि गतिविधियों के लिए भेड़-बकरी पालकों से १५-२० दिन पहले ऊपरी क्षेत्रों के गाँवों में चले जाते हैं और अक्टूबर के अन्त में निचले क्षेत्रों के लिए आते हैं। जबकि भेड़-बकरी पालक करीब एक महिने पहले ही बुयारों से भाबर के लिए चले जाते हैं। नीती के वाशिनदे छिनका और भीमतला निकट चमोली में शीतकाल में रहते हैं। इन्हें यदि यहाँ बिजली प्राप्त है तो नीती में भी यूरैडा की सहायता से लघु जल विद्युत और सौर ऊर्जा बिजली प्राप्त है।

नीती गाँव

नीती धौली घाटी का अन्तिम गाँव है जोकि जोशीमठ से ८१ किमी दूरी पर स्थित है। 'नीती' शब्द का अगर विश्लेषण किया जाय तो इसका स्थानीय बोली में अर्थ होता है 'नी' अर्थात् धूप और 'ती' मतलब पानी। दरअसल बर्फिली हवाओं वाले इस क्षेत्र में धूप का अहमियत बहुत है। धौली के बायें किनारे स्थित नीती गाँव में धूप व पानी की कोई कमी नहीं है। दिन में चटक धूप पड़ती है। प्रवास के समय अधिकतम तापमान ३० ब जबकि न्यूनतम तापमान २ ब दर्ज की गई। स्थानीय लोगों का रहन-सहन पूरी तरह यहाँ की भौगोलिक परिस्थितियों पर निर्भर है। प्राकृतिक संसाधनों के सदुपयोग और इनका प्रबन्धन में नीती के लोग दक्ष हैं। यहाँ के लोगों का प्रमुख व पारम्परिक आजीविका है सीमित कृषि और भेड़-बकरी पालन। यहाँ के शर्द मौसम लोगों को लिए पूरे सालभर रहने के अनुकूल नहीं है। वर्षा पिघलने के बाद गर्मियों के मौसम के ४-५ महीने के लिए ही यह क्षेत्र रहने लायक है। इस क्षेत्र के लोग अपने पुरखों के आजमाये हुये तौर तरीकों के माध्यम से कठिन परिस्थितियों से जूझना सीख गये हैं। यहाँ के लोगों का पारम्परिक ज्ञान बहुत ही उन्नत है।

भेड़ पालक सुदूर भाबर (नैनीताल जनपद के रामनगर व पौड़ी जनपद के कोटद्वार मंडियों) से लगभग ३०० किमी की लम्बी दूरी तय कर यहाँ केवल ३-४ माह के प्रवास के लिए पहुँचते हैं। नीती गाँव में लगभग ६२ घर हैं। प्राचीन संयुक्त परिवार प्रणाली अब बिकर चुकी है। अधिकांश मकान एक मंजिला हैं। केवल दो-चार दुर्गमजिले मकान ही प्राचीन हैं। प्राचीन रहन सहन शैली तेजी से आधुनिक होती जा रही है। अब यहाँ प्राइमरी स्कूल बन्द पड़ी रहती है क्योंकि यह लोग बच्चों को यहाँ नहीं लाते। यदि वे आते हैं तो देवपूजन या छुटियों हेतु ही आते हैं। गाँव के ऊपर 'नन्दा दर्शन स्थली' है। परन्तु इस घाटी में प्राकृतिक दर्शनीय स्थल तो हैं - मलारी, टिमरसैण और सर्वश्रेष्ठ है काला जावर जो टिमरसैण के उत्तर पूर्व छोर पर ६ किमी दूरी पर धौली के बायें तरफ एक रमणीक बुयारल फूलों की क्यारी क्षेत्र तो है ही साथ में भरड़ की सर्वोत्तम सुरक्षित प्राकृतिक चारागाह भी है। नीती गाँव में सितम्बर के अन्त में पहाड़ी जौ याने उवा की फसल कटती है। इसके अलावा यहाँ औरगल, राजमा और आलू की खेती भी खूब होती है। यहाँ मलारी के समान उड्यार या समाधि स्थल नहीं है, केवल धौली पार दायें तट पर पश्चिम दिशा की फुगू पहाड़ी में दो - तीन छोटे उड्यार हैं।

सम्पन्नता

इन लोगों का प्रमुख व्यवसाय भेड़ पालन है जिससे इनका परम्परागत ऊन आधारित हस्तशिल्प व कुटीर उद्योग निर्भर है। चूँकि सीमान्त जनजाती के आरक्षण की सुविधा सबको मिली है। अतः इनकी सम्पन्नता गंगाड के गाँवों से अधिक होनी स्वाभाविक है परन्तु रिकार्ड बताते हैं कि गोरखानी के प्रसिद्ध अत्याचारी काल में जब गढ़वाल के लोग कंगाल हो गए थे तब भी इनकी आर्थिक स्थिति अच्छी थी और भेड़पालन व व्यापार हेतु तिब्बत जाने को यह लोग २० - ३० तक नौकर (ब्रिटिश लेखकों के शब्दों में गुलामों की नीलामी बोली में खरीदकर) रखते थे। आज भी सरकार नीती गाँव में इन्हें ४ - ५ माह के लिए रोजगार सुझाया करती है ताकि यह क्षेत्र गुलजार रहे, आवादा रहे व प्रवास को प्रोत्साहन मिले। इस मजदूरी में यह लोग अपने गाँव के रास्ते, पनघट, पंचायत भवन, सौन्दर्य स्थल आदि का निर्माण करते हैं। 'ज्या'- धी मिली नमकीन चाय इनका प्रिय पेय है।

देवपूजन और आतिथ्य परम्परा

नीती और इसके आसपास के गाँवों में पूजे जाने वाली देवी - देवताओं में नन्दादेवी और धण्टाकर्ण प्रमुख हैं। स्थानीय परम्परा के अनुसार गर्मी के छः महिने में एक बार सामूहिक पूजा होती है जिसे लास्या कहा जाता है। हर साल एक परिवार के पास पूजा का दायित्व आता है और इस छः महिने के दौरान गाँव में आने वाले सामूहिक अतिथियों का सत्कार भी इसी परिवार के जिम्मे होता है। यह अपने आप में एक अनोखी प्रथा है जिसका पालन गाँव के हर परिवार को बारी आने पर करना ही होता है। किसी भी उत्सव में यहाँ लोक-नृत्य एव लोक गीत व संगीत बहुत महत्वपूर्ण होते हैं। इन पारम्परिक उत्सवों में पोंडव नृत्य, चाछणी, चोफला इत्यादि प्रसिद्ध हैं जो कि अष्टमी व लास्या के दौरान आयोजित की जाती हैं। इन जनजातियों में शादी विवाह वैदिक रीति रिवाज से अपने समुदाय में ही होती है। किसी भी बात को गीत-गायन की पुट देकर गढ़वाली परम्परा में कहने का इनमें भी रिवाज है।

वेशभूषा व खानपान

यहाँ की महिलायें काले रंग के कपड़े पहनते हैं स्थानीय भाषा में जिसे पाखी कहा जाता है जो विषम भौगोलिक परिस्थिति के अनुसार तैयार किया जाता है और इसपर सफेद रंग के कपड़े को कमर में लपेटा जाता है जिसे स्थानीय भाषा में पाण्डा कहा जाता है। महिलायें कमर के ऊपर ब्लाउज की तरह का वस्त्र पहनती हैं जिसे आगणी कहा जाता है और सिर पर जड़ी वाला सफेद कपड़ा बाँधते हैं। इस समुदाय के लोगों का खानपान में बदलाव आ रहा है। परम्परागत खानपान जैसे चीना, औरगल, फाफर इत्यादि की जगह बाजार में उपलब्ध चावल व दाले ले रही हैं। यहाँ के लोग अब पारम्परिक खेती में उतना उत्साह नहीं दिखा रहे हैं जितना कि नकदी फसलों जैसे आलू व राजमा में रुचि रख रहे हैं। इसके कई कारण हैं। नकदी फसलें उन्हें कम समय में ज्यादा उत्पादन व आर्थिक रूप से ज्यादा फायदेमंद लगता है जबकि नई पीढ़ी के लोग चीना या औरगल खाने में दिलचस्पी नहीं दिखाते हैं। उनका रुझान शहरी खाद्यान्नों की ओर बढ़ गया है। चावल, दाल व मॉस इनका प्रमुख भोजन है। सूखी मॉस को दाल में डालकर उसमें जम्बू, फरण का तड़का लगा खाना का स्वाद इन ठण्डे इलाकों में कुछ खास ही लगता है। बदन को गरम रखने के लिए जान और छन नाम की मदिरा जो कि घरों में बनायी जाती है, का सेवन सभी स्थानीय लोग करते हैं। जंगली चाय पत्ती से बनी घी मिला हुआ नमकीन चाय जिसे 'ज्या' कहा जाता है, बहुत ही ऊर्जावान होती है।

नीती घाटा (पास)

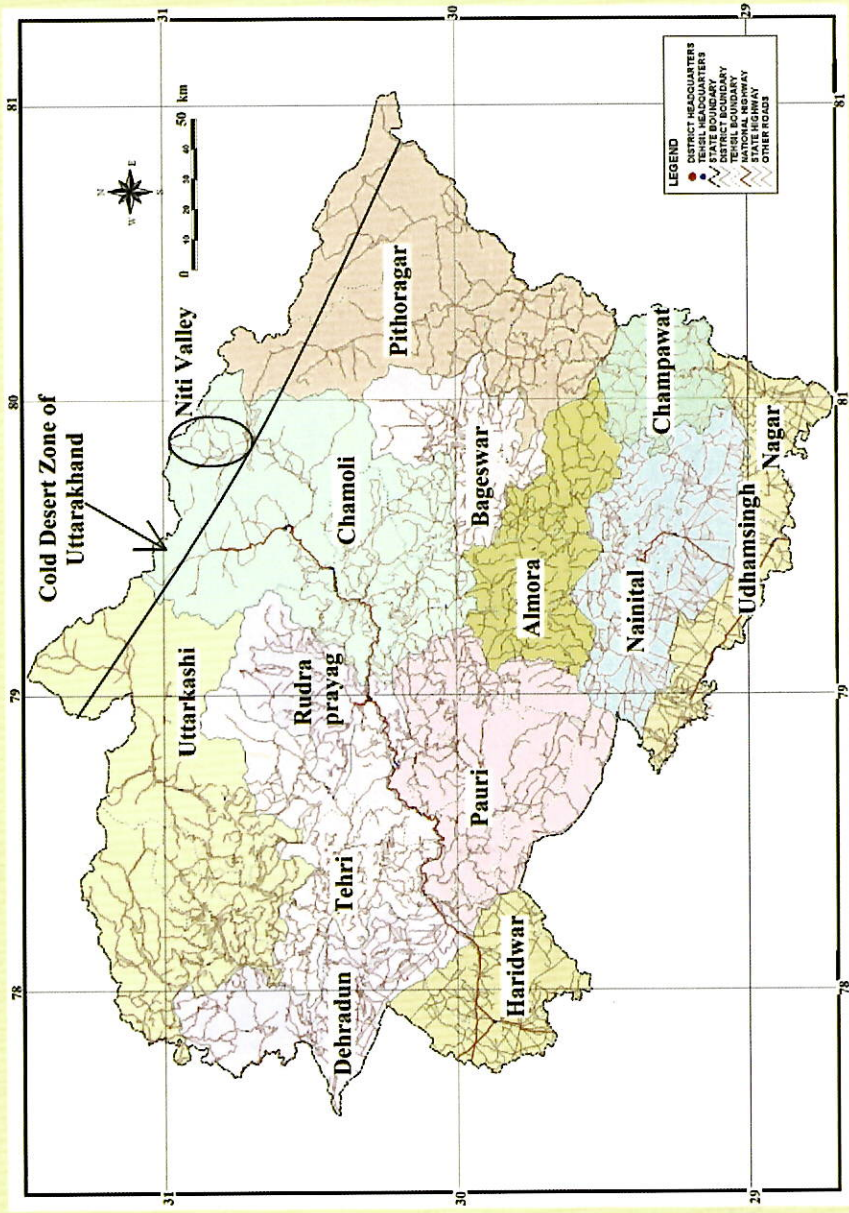
नीती गाँव के वर्णन के साथ बरबस ही नीती दर्रा भी कुछ शब्दों में उस पर प्रकाश डालने की माँग करने लगता है। नीती गाँव से ८ किमी आगे पहले गोठिंग नामक छोटा दर्रा पड़ता है इससे १८ किमी आगे बढने पर १६,६२८ फुट ऊँचाई पर नीती दर्रा आता है। उसके बाद दूसरी ओर तिब्बती डलान मार्ग पर खरवसिया और क्युनलंग नाम के कैम्पिंग ग्राउंड आते हैं। यहाँ के व्यापारी इसके मार्ग से निकट की दो मंडियों को बढते थे जिनके नाम दाबा और शिवचिलम थे। तिब्बत जाने का एक और व्यापारी मार्ग तुन जुमला या चोर होती नाम से था। इस पास के बाद शांती गाड़ मार्ग पर हुणिया खर्क था।

पर्यावरण व प्राकृतिक संसाधन

जंगल इनके जीवन का एक अभिन्न अंग है। ३५०१ मी. (११४८६ फीट) की ऊँचाई पर स्थित नीती गाँव के पश्चिमी छोर की पहाड़ी को फुगु नाम से जाना जाता है। यहाँ कैल (पाइनस वालियियाना) और भोजपत्र (बेटुला यूटिलिस) के पेड़ बहुतायत मात्रा में पाये जाते हैं। नीती गाँव के लोग इसी जंगल से जलावनी लकड़ी का उपयोग करते हैं। यहाँ के जंगलों में कस्तूरी मृग पाये जाते हैं जिनका संरक्षण गाँव के लोग करते हैं। यहाँ के लोग पर्यावरण के प्रति कितने जागरूक है इस बात का पता यहाँ के लोगों का जंगलों व जंगली जानवर के संरक्षण से पता चलता है। यह पहाड़ी भेड़-बकरी चुगाने के लिए प्रतिबन्धित किया गया है क्योंकि यहाँ हिम तेंदुये और भरड का प्राकृतिक अधिवास है।

अनेक शोध कार्य से माना जाता है कि बुग्यालों में भेड़-बकरी चुगाने से पारिस्थितिकी तंत्र पर प्रतिकूल प्रभाव पड़ रहा है। लेकिन यदि हम नीती के स्थानीय लोग व भेड़-बकरी पालक की अनुभवों को सुने तो यह कहा जा सकता है कि हिमालय के प्राकृतिक संसाधन इस क्षेत्र में अभी पूरी तरह से सुरक्षित हैं और चारागाहों में पर्याप्त घास उपलब्ध है। यहाँ के लोगों का प्रकृति प्रेम और उनको सहजने की परम्परा विश्व प्रसिद्ध है। अगर हम अतीत में जाये तो देखेंगे कि चिपको आन्दोलन की जन्मस्थली यही नीती घाटी का रेणी गाँव है। जहाँ की महिलाओं और बच्चों भी अपने जंगल बचाने के लिए अपने प्राण तक निछावर करने को तैयार थे। बस जरूरत जागरूकता लाने की है जिसमें सरकारी मशीनरी व संबन्धित संस्थान महत्वपूर्ण भूमिका निभा सकते हैं।

विगत कई वर्षों से नीती गाँव में कई तरह की सरकारी योजनाओं के माध्यम से विकास कार्य किये जा रहे हैं ताकि यहाँ इस दुर्गम क्षेत्र में रह रहे लोगों का सामाजिक-आर्थिक विकास किया जा सके। पहले नीती जाने के लिए लोग गमसाली से दुर्गम रास्ते से होते हुए नीती पहुँचते थे। वर्तमान में गाँव सड़क मार्ग से जुड़ जाने के कारण लोगों के आवागमन आसान हो गया है। यहाँ शिक्षा का स्तर का काफी विकास हो रहा है जिसके कारण शिक्षित लोग आजीविका की तलाश में शहरी क्षेत्रों की ओर पलायन कर रहे हैं। यही कारण है कि गर्मियों में घाटी के ऊपरी गाँवों में आने वाले लोगों की संख्या में कमी आ रही है। नई पीढ़ी के लोग शहरी क्षेत्रों में आजीविका को छोड़कर व शिक्षा की सुविधा के अभाव के कारण यहाँ नहीं आना चाहते हैं। आजकल भोटिया समुदाय के लोग अपनी भेड़-बकरियाँ दूसरे स्थानीय लोगों को बेच दे रहे हैं। या तो फिर उनकी देखभाल के लिए दूसरों को मजदूरी देते हैं जो यहाँ के सामाजिक-आर्थिक परिवेश में बदलाव की ओर इशारा करता है।



नीती घाटी का बाखिरी गाँव - नीती

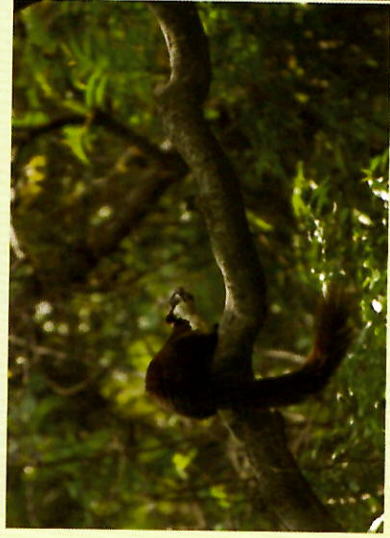


थाली दुग्धाल का विहंगम दृश्य



पारम्परिक लोक-नृत्य एव लोक गीत-संगीत

Sweet Memories



Photos by Novojit De

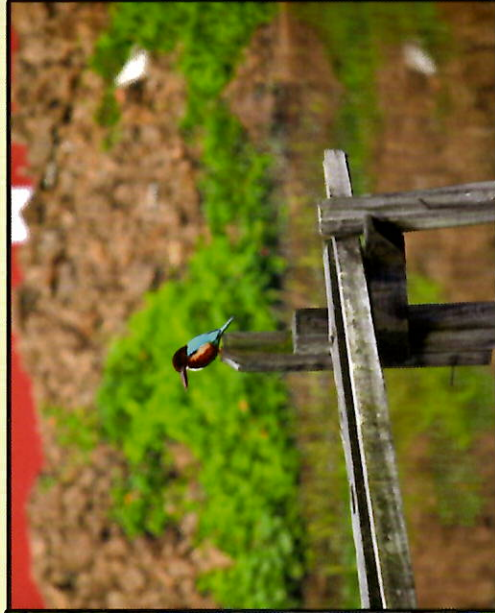


Photos by Rhea Granguly



Sweet Memories





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