Report on

Hands-on Training and Capacity Building on Reviving Forests *through* Assisted Natural Regeneration (ANR)

to the

Frontline Staff of the

Govind Pashu Vihar National Park & Wildlife Sanctuary, Sankari Uttarkashi, Uttarakhand

March 08th - 09th, 2025

Organized by

Uttarakhand Forest Department
in collaboration with

Amelioration of Biodiversity and Environmental Research (AMBER) Foundation, Dehradun

AMBER FOUNDATION
AMELIORATION OF BIODIVERSITY AND ENVIRONMENTAL RESEARCH
जैव विविधता और पर्यावरण अनुसंधान में सुधार

उत्तराखण्ड वन विभाग
Uttarakhand Forest Department

गोविन्द वन्यजीव विहार एवं राष्ट्रीय उद्यान
उत्तराखंड

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Photo Credits: Dr. V. P. Uniyal
Dr. Vandana Mehrwar

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Primula atrodentata
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Govind Wildlife Sanctuary & National Park Uttarakhand
गोविन्द वन्यजीव विहार एवं राष्ट्रीय उद्यान
उत्तराखंड

Hari Ki Doon, May 3rd 2009
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1. INTRODUCTION

Forests are vital ecosystems that provide numerous ecological, economic, and social benefits. However, anthropogenic pressures lead to deforestation and land degradation which further result into loss of biodiversity and Nature - based Solutions (NbS). Assisted Natural Regeneration (ANR) is a cost-effective and sustainable approach to restoring degraded forests by enhancing the natural regeneration of native species. This report documents a two-day training program conducted at Govind Pashu Vihar National Park and Wildlife Sanctuary to equip forest frontline staff with practical skills and knowledge on ANR.

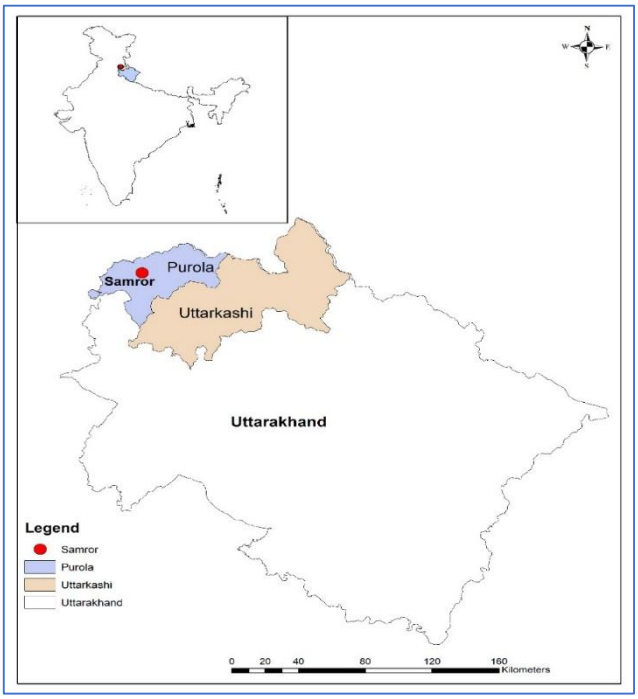
2. OBJECTIVES OF THE TRAINING PROGRAM

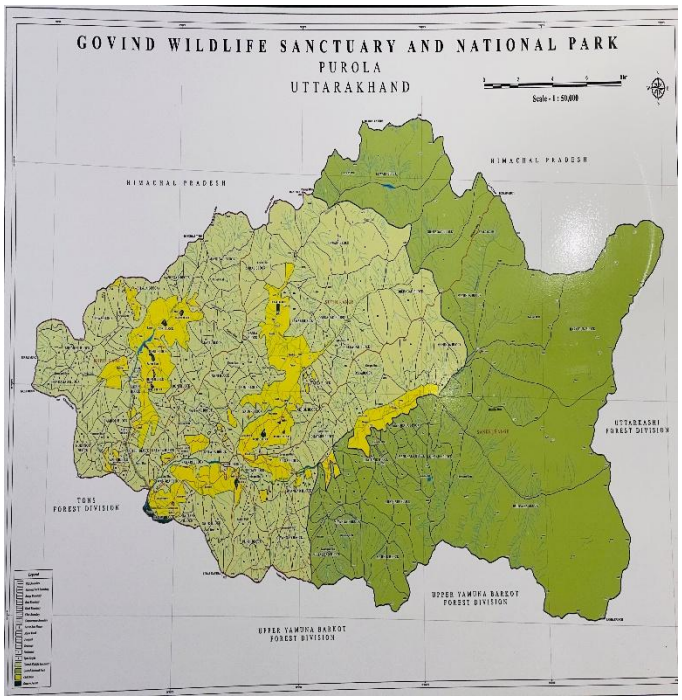
The primary objectives of the training program were:

1. To promote awareness regarding the importance of bioindicators in assessing ecosystem health and adapting to climate change for long-term forest management.
2. To equip forest frontline staffs with practical skills and knowledge on Assisted Natural Regeneration (ANR) for effective and sustainable forest restoration.
3. To enhance understanding of soil and water conservation techniques for sustaining healthy forests.
4. To provide hands-on training on site selection, protection of natural seedlings, and soil-water conservation techniques.

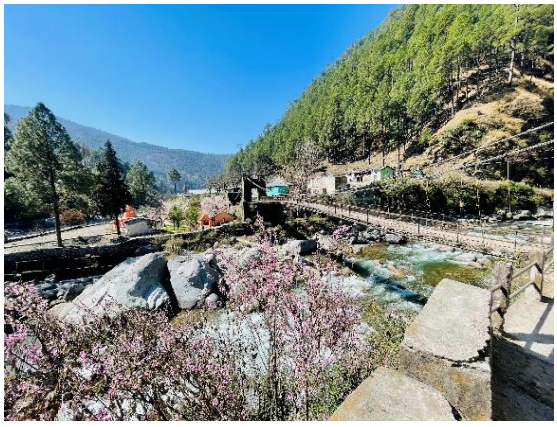
3. SITE DESCRIPTION AND PREPARATION

Govind Pashu Vihar National Park and Wildlife Sanctuary are protected areas spanning approximately 958 sq.km. in the Uttarkashi district of Uttarakhand. Established initially as a wildlife sanctuary in 1955, the area was later designated as a National Park in 1991. The park is situated in the higher reaches of the Garhwal Himalayas, the region encompasses the Rupin and Supin valleys, which form crucial catchments for the Tons River, the main tributary of the Yamuna River. The area boasts diverse climatic zones, ranging from sub-tropical to temperate and alpine, supporting a rich variety of flora, including Himalayan cedar, Rhododendron, Himalayan spruce, Himalayan yew, Oak, Chir pine, Blue pine, and Walnut. The sanctuary is also a stronghold for the bearded vulture and is actively involved in the Snow Leopard Project, making it a vital ecological catalyst in the region (Map1).





Map 1. Govind National Park & Wildlife Sanctuary



The training sites of Samror, is located in Rupin Block-IV, Compartment-IV, with geographical coordinates of 31°5’35” N and 78°4’18” E and an elevation of 1436±30 meters. The site covers an area of 5 hectares and lies within the Supin River watershed catchment. In preparation for the Assisted Natural Regeneration (ANR) initiative, 600 staggered trenches, to percolation ponds and 300 pits have already been dug to support soil and water conservation efforts. The plantation density is planned at 1100 plants per hectare, with planting activities scheduled to begin during the monsoon season. This groundwork ensures that the site is well-prepared for the restoration of the degraded forest area through sustainable and community-driven practices.

However, the site faces several key challenges, including forest fire issues, encroachment by villagers, over-grazing by livestock, and soil erosion due to steep slopes and heavy rainfall. Addressing these challenges is critical to the success of the ANR initiative and the long-term restoration of the forest ecosystem.

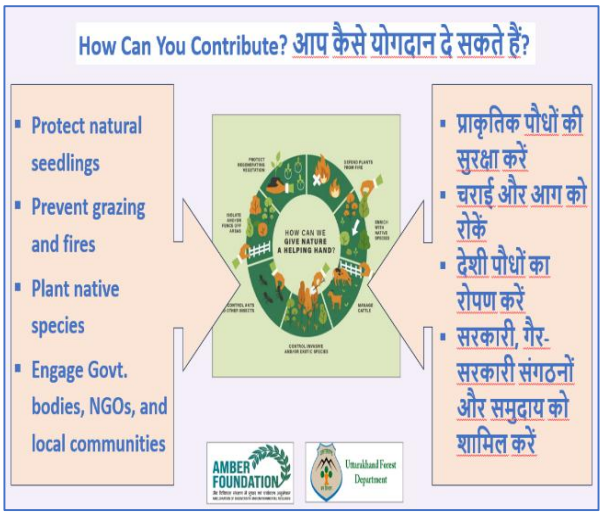
4. DAY ONE: CLASSROOM INTERACTIVE SESSIONS

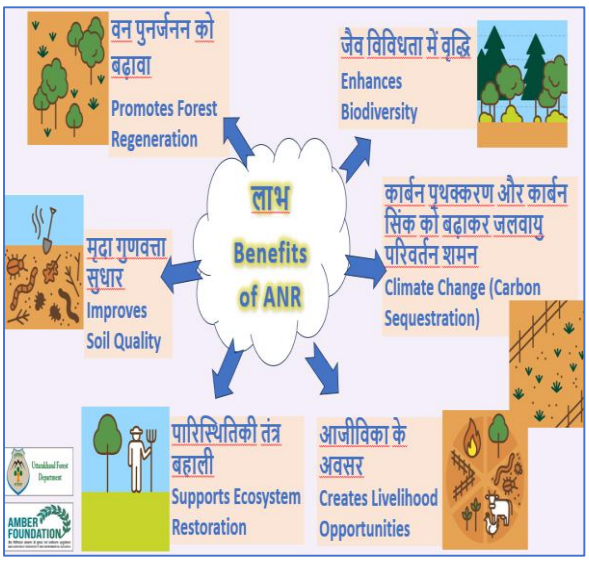
Venue: Interpretation Centre, GPVNP&WS, Sankari

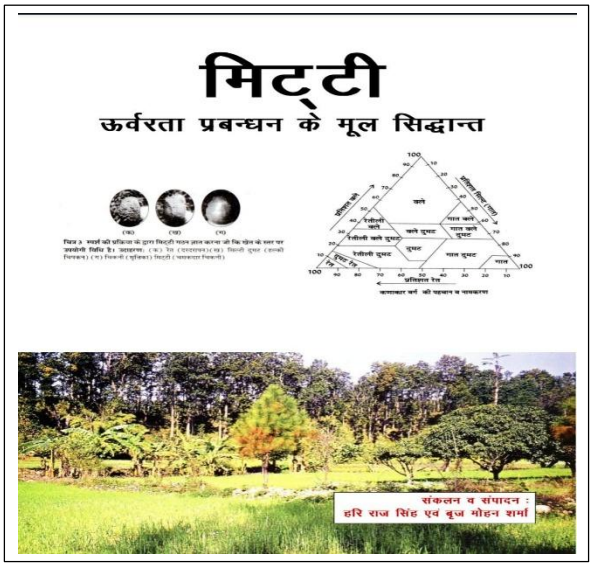
Following Topics were covered by the key speakers during the interactive session:

1. Bioindicators for Monitoring Biodiversity, Ecosystem Health & Climate Change: Expert session by Dr. V. P. Uniyal, highlighted the importance of bioindicators in assessing ecosystem health and adapting to climate change.
2. Soil & Water Conservation Techniques: Expert session by Mr. Hari Raj Singh, focused on techniques to prevent land degradation, soil erosion, and sustain healthy forests through conservation techniques.
3. Reviving Forests through Assisted Natural Regeneration (ANR) for Forest Restoration: Expert session by Dr. Vandana Mehrwar, covered the principles, significance, and tools & techniques involved in ANR. It emphasized the importance of community participation, biodiversity enhancement, and cost-effective forest restoration methods.

Reading Material and Pamphlets Distributed to the Participants







5. DAY TWO: HANDS-ON TRAINING PROGRAM

Venue: Samror, Rupin Block-IV, Compartment-IV

Activities Conducted:

- Scrutiny of the selected Site and its Preparedness
- Protection of Natural Seedlings
- Soil-Water Conservation Techniques
- Plantation of Native Vegetation

The second day of the hands-on training program was conducted at Samror, Rupin Block-IV, Compartment-IV, focusing on key aspects of Assisted Natural Regeneration (ANR) and ecosystem restoration. Participants engaged in practical exercises designed to enhance their understanding of site selection, seedling protection, soil-water conservation, and plantation techniques.

The training began with the scrutiny of the selected site and the preparedness already done in the region. Participants assessed the land conditions and evaluated previous restoration efforts to determine the suitability of the site for ANR activities. Following this, they were guided on identifying appropriate locations for intervention and preparing the area for restoration. The session continued with protecting natural seedlings, where techniques to safeguard young plants from grazing and other disturbances were demonstrated. Another crucial component of the training involved soil-water conservation techniques. Participants received hands-on experience in laying the proper structures of the trenches and pits, as well as constructing check dams to mitigate soil erosion and enhance water retention.

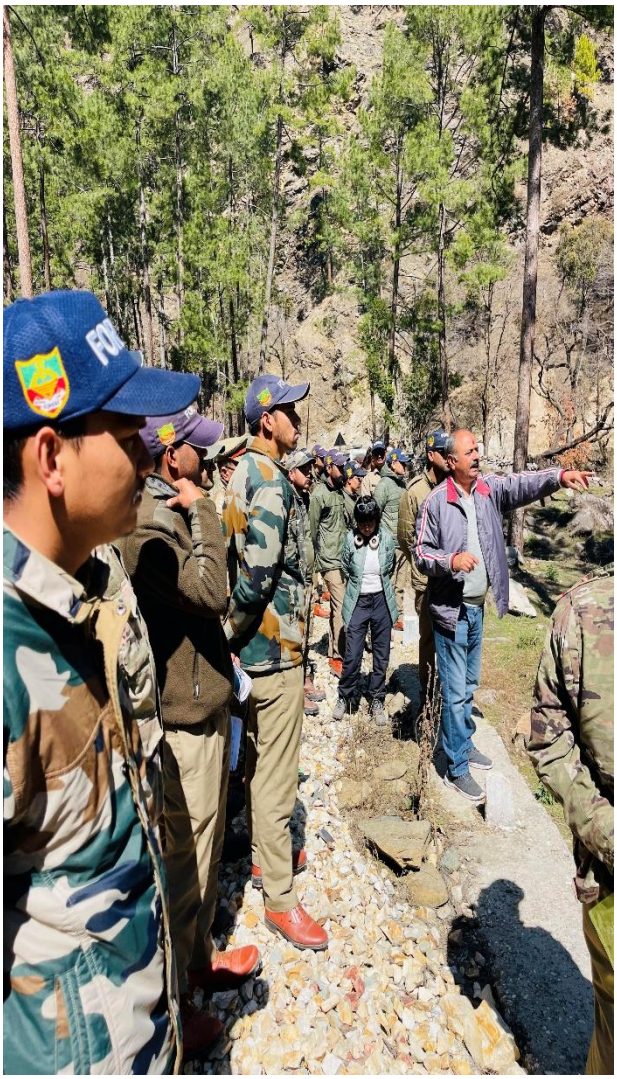
Since most of them serve as the host plants for the pollinators that are essential to their survival, the day concluded with the identification of some native vegetation. Participants learned about the significance of key plant and grass species like *Arundinaria* sp., *Rhododendron arboreum*, *Quercus* sp., *Pinus* sp., and *Lyonia ovalifolia* for maintaining the balance of ecosystem services.

6. KEY CHALLENGES AND OBSERVATIONS

Despite the successful execution of training activities, several challenges were observed at the site. One of the major issues identified was the risk of forest fires, which pose a significant threat to natural regeneration efforts. The presence of dry vegetation and human activities increases the likelihood of fire outbreaks, necessitating preventive measures. Another

challenge was encroachment and over-grazing. The intrusion of villagers into forested areas and uncontrolled grazing by livestock hinder the growth of young seedlings, reducing the

Field Exercise for Assisted Natural Regeneration (ANR)
Samror, Rupin Block-IV, Compartment-IV



effectiveness of ANR initiatives. Lastly, soil erosion was identified as a major concern due to the site's steep slopes and heavy rainfall. The loss of topsoil negatively impacts seedling establishment and overall ecosystem restoration efforts.

Addressing these challenges will be crucial in ensuring the long-term success of ANR initiatives in the region. Future interventions should focus on fire prevention strategies, community engagement to reduce encroachment, and enhanced soil conservation techniques to improve regeneration outcomes.

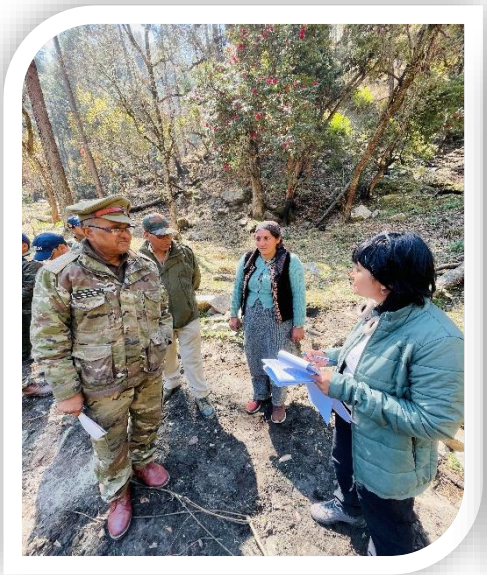
7. SUGGESTED GUIDELINES FOR ANR IMPLEMENTATION

To ensure the successful implementation of Assisted Natural Regeneration (ANR) in forest restoration projects, a multi-faceted approach is necessary. The following guidelines are recommended:

1. **Proper Demarcation and Fencing:** Demarcate the restoration site clearly and install fencing to prevent encroachment by villagers and protect the area from over-grazing by livestock.
2. **Benchmark Mapping of Existing Structures and Biodiversity:** Conduct a detailed mapping of existing structures and monitor overall biodiversity, including the number of tree species, shrubs, herbs, seedlings, saplings, wildlings, and grasses.
3. **Faunal Diversity Monitoring:** Regularly monitor faunal diversity, including birds, insects, and other wildlife, to assess the impact of ANR on the ecosystem.
4. **Mechanical and Vegetative Soil-Water Conservation Techniques:** Implement mechanical techniques such as trenches, pits, ponds, check dams, crate walls, and gabion structures to conserve soil and water. Use vegetative barriers to break the slope gradient and reduce the erosive impact of water flow.
5. **Plantation of Native Vegetation:** Prioritize the plantation of native species such as *Arundinaria* sp., *Rhododendron* sp., *Quercus* sp., and *Lyonia ovalifolia* to enhance biodiversity and ensure ecological balance.
6. **Community Collaboration:** Foster collaboration between forest staff and local communities to ensure the success of ANR. Community participation is crucial for the long-term sustainability of forest restoration projects.

7. **Regular Monitoring and Adaptive Management:** Establish experimental plots and conduct regular monitoring to assess the progress of ANR. Use adaptive management strategies to address challenges and improve outcomes.
8. **Site-Specific Planning:** Develop site-specific plans based on the unique ecological and geographical characteristics of the restoration site.
9. **Awareness and Education:** Conduct awareness campaigns and educational programs to inform local communities about the importance of ANR and their role in forest conservation.
10. **Research and Documentation:** Encourage research and documentation of ANR practices and outcomes to build a knowledge base for future projects.

The two-day training program (08th - 09th, 2025) on Assisted Natural Regeneration (ANR) at Govind Pashu Vihar National Park and Wildlife Sanctuary was a significant step towards reviving degraded forests and promoting sustainable forest management. The hands-on training and interactive sessions equipped participants with the necessary skills and knowledge to implement ANR effectively. By fostering community participation and collaboration, we can ensure the long-term conservation of our forests and biodiversity.



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LIST OF PARTICIPANTS

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आज दिनांक 08/03/2025 को इंटरप्रिटेशन सेंटर सांकरी रेंज, सांकरी में गोविन्द वन्यजीव विहार एवं राष्ट्रीय पार्क, पुरोला के अंतर्गत समस्त फिल्ड स्टॉफ क्षमता विकास हेतु दो दिवसीय क्षमता विकास प्रशिक्षण का आयोजन किया गया जिसमे

क्र०सं०	नाम		हस्ताक्षर
(1)	सुश्री निधि सेमवाल	उपनिदेशक	
(2)	श्री गौरव कुमार अग्रवाल	वन क्षेत्राधिकारी	
(3)	श्री सेवाराम आर्य	वन क्षेत्राधिकारी	
(4)	श्री जलपाल आर्य	उपवन क्षेत्राधिकारी	
(5)	डा० वी० पी० डंगवाल	पूर्व वैज्ञानिक, भारतीय वन्यजीव संस्थान	
(6)	श्री हरिराज सिंह	विषय वि० : कृषि एवं प्राकृतिक संसाधन प्रबन्धन	
(7)	नीरज वशिष्ट		
(8)	डा० वन्दना		
(9)	कृतिका उनियाल		
(10)	राज्य		
(11)	कुल्लू		
(12)	गौरव केवल	वन दरोगा	
(13)	विदेश कुमार	वन दरोगा	
(14)	मदन सिंह रावत	वन दरोगा	
(15)	आशाक " "	"	
(16)	प्रद्युम्न कोठारी	"	
(17)	~~राम~~ सतपाल सिंह	वनआढ़ती	

क्र०सं०	नाम	हस्ताक्षर
18	दिगम्बर सिंह राणा	Digambar
19	मदन चौहान	
20	Jyoti Mahar	Jyoti
21	ऋतिका रावत	Ritika Rawat
22	Kuldeep Rana	Kuldeep
25	Pradeep	
26	Anil Dhandari	Dhandari
27	Kapil Negi	
28	Umashankar	
29	Rishabh Semwal	
30	Baldev singh	Baldev सिंह
31	Daulat Ram (Pater)	
32	Dheeraj Bisht	
33	सोबतसिंह व० अ०	
34	विनोद कुमार व० अ०	
35	रविन्द्र सिंह चपरासी वर्मा	
36	सुरेन्द्र सिंह	
37	विकास सिंह (व०अ०)	Vikram
38	गणेश चौहान	
39	मेम्बर सिंह	मेमसर
40	अच्यत्तर सरकार	
41	दलबीर सिंह रावत	बलबीर सिंह
42	उताउलाल	
43	नरेश लाल	नरेश
44	रणदेव	रणदेव
45	अनिलमाणेश्री	
46	रणजीत (ड्राईवर)	
47	राजेन्द्र (अर्दली)	
48	अजीत सिंह	

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49 दीपक रांगड

(50) विजयपाल

(51) सुपाल लाल

-दीपक

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