

## PROCEEDINGS OF THE MONTHLY SEMINAR OF HIMALAYAN FOREST RESEARCH INSTITUTE, SHIMLA HELD ON 26.02.2021

A monthly Seminar on the topic “**Impact of Forest Fire on Himalayan Ecosystems – Biodiversity, Ecosystem Services and Livelihood Security**” under the theme Biodiversity Conservation and Ecological Security was held on 26.02.2021 in the Conference Hall of Himalayan Forest Research Institute, Shimla. Dr. Ranjeet Kumar, Scientist–E, Forest Ecology and Climate Change Division delivered a talk on the topic. **Dr. S. S. Samant**, Director, HFRI presided over the seminar. Scientists, Officers and Technical officers were present during the presentation and research staff joined through virtual mode.

In the beginning, **Dr. Rajesh Sharma**, Group Coordinator Research welcomed **Dr. S.S. Samant**, Director, HFRI, and all the participants. He stressed to make a presentation as per the format with concrete outcome and from research perspective. He also requested all the participants to actively participate in the discussion and give valuable suggestions at the end of presentation.

In his presentation, the speaker initially elaborated upon the impact of the forest fires on bio-diversity, ecosystem services and its linkage with the people residing in the fringe areas of forests. He explained various components, types, causes and factors of forest fires in an elucidated manner. Vital statistics and comprehensive information on the incidences and consequences of fires at regional, national and global levels was also provided by the presenter. After that, **Dr. Ranjeet Kumar** discussed about the case studies of effect of forest fires on various ecosystems. He highlighted that Pine forests are much more prone to fires because pine needles shed by *Pinus roxburghii* make a thick layer on the ground and it becomes most suitable material for catching fire spontaneously. He added that innovative interventions like value addition of pine needles are required to remove and reduce the pine needle cover on ground floor. He also cited the example of HIMPINE – which is a start-up based at Kangra in Himachal Pradesh and making many useful handicrafts items e.g., mats, trays and bases from the pine needles.

In his presentation, **Dr. Ranjeet Kumar** also explained about the inferences of the recently concluded research project on **Analysing impact of control burning on plant diversity and soil properties in chir pine forests** by HFRI. He stated that fires incidences also act as a determinant for floristic composition of an area and alter the important parameters e.g., pH, organic matter, available nitrogen, phosphorus, potassium, etc. He expressed his concern over the fast establishment of invasive species weeds viz., *Lantana camara*, *Ageratum conyzoides*, *Parthenium hysterophorus* and *Ageratina adenophora* in the burnt out areas of the forests.

After the presentation, discussion was held on different aspects of forest fires. **Dr.S.S. Samant** asked about the sustainability of the products. The presenter apprised that these products are durable and last long provided these are kept away from fire and moist conditions. Adding to it, **Dr. Rajesh Sharma, GCR** informed about the potential use of pine needles as packaging material for transportation of agricultural produce. **Dr. S.S. Samant** also inquired about the vegetation changes which occurred at different sites of the project. The presenter informed that density of plant species has increased at these sites. Touching the management issues of fire, the presenter discussed about different tools and equipments which are handy to put off the forest fires. He also emphasised the general precautions and measures which are required to be taken by the field functionaries. During the course of discussion, **Dr. Bal Krishan Tewari, Scientist-B** raised the query about disruption of ecological balance and natural nutrient cycling in the forests due to removal of pine needles from the forest floor. About this, the presenter clarified that the rate of decomposition of pine needles is very slow and takes very long time to

get transformed into humus. **Dr. Ashwani Kumar Tapwal, Scientist-E** also substantiated the statement and informed that microbial decomposition of pine needles is difficult and these needles are highly combustible. **Dr. Joginder Singh Chauhan, CTO** asked about the impact of fires on the water quality. The presenter explicated that fires adversely impacts the water quality of surface and groundwater resources due to formation of ash, enhanced runoff and erosion process. **Dr. Chauhan** also expressed his concerns on the laxity of laws and strict penalties for frequent occurrence of forest fires which ultimately causes heavy losses to the natural wealth.

**Dr. S.S.Samant**, Director HFRI highly appreciated the presentation made by Dr. Ranjeet Kumar and also for providing useful information on the forest fires and its management.

### **Outcomes of the Seminars**

- ❖ Generation of baseline data on forest fires
- ❖ Up scaling of scientific knowledge and management of forest fires
- ❖ Generation of database on impact of forest fires on bio-diversity and ecosystem services
- ❖ Value addition of chir pine needles and improving the livelihood of people
- ❖ Developing sound methodology to calculate the damage caused by the forest fire
- ❖ HRD programme on forest fire management
- ❖ Development of user friendly technology to extinguish the forest fire

### **Formulation of Future Strategies & Networking**

- ❖ Execution of AICRP on forest fire and Research and Knowledge management
- ❖ Creation of a national level database on forest fire resources and best fire management practices
- ❖ Development of online portal on forest fires management and training webinars for different stakeholders
- ❖ Capacity building programme on forest fires management
- ❖ Dissemination of knowledge on tools and equipment related to forest fire among stakeholders
- ❖ Robust mechanism to estimate the damage caused by forest fire
- ❖ Effective communication network to avoid loss due to forest fire
- ❖ Development of models for payment of goods and services affected by forest fire
- ❖ Improvement in the livelihood of the people by avoiding the losses caused by the forest fire
- ❖ Monitoring of biodiversity, invasive and alien plant species in burnt area
- ❖ Funding partners DST, GoI, MoEF&CC, New Delhi, Ministry of Earth Sciences and collaboration can be done with IITs, NIH (Roorkee), NIT (Hamirpur), HIMCOSTE and UHF, Nauni.

In the end, **Dr. Rajesh Sharma, Group Coordinator Research** thanked all the participants for their active involvement in this Seminar and also providing the inputs for prioritizing the research needs and areas, for developing future strategies.

**GLIMPSES OF THE SEMINAR**



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