

**PROCEEDINGS OF THE INSTITUTE LEVEL MONTHLY SEMINAR HELD ON 22.02.2019
IN THE CONFERENCE HALL OF HIMALAYAN FOREST RESEARCH INSTITUTE, SHIMLA**

In the series of monthly seminar, a talk on the topic “Eco-restoration of Degraded Areas of Cold Desert in Himachal Pradesh and Jammu & Kashmir” under the theme “*Managing Forests and Forest Products for Livelihood Support and Economic Growth*” was delivered by **Dr. Swaran Lata, Scientist-C**, Silviculture & Forest Management Division on 22nd February, 2019. All the Scientists, Forest officers, Researchers and Technical staff of the institute were present during this seminar.

Dr. V.P. Tewari, Director, HFRI chaired the proceedings of monthly research seminar. **Dr. Rajesh Sharma**, Group Coordinator Research welcomed the Director and all the participants and highlighted the importance of Cold desert. He gave overview of the topics on which entire talk revolved around and requested all to actively participate in the discussion and give valuable suggestions at the end of the presentation.



In her presentation, **Dr. Swaran Lata, Scientist-C** touched various issues related to Eco-restoration in degraded areas of Cold desert in Himachal Pradesh and Jammu & Kashmir. She gave overview of cold desert including area & distribution of cold desert in India, floristic diversity in cold desert of H.P. & J & K, adaptations of cold desert plants and their affinity with plants found in Tibet, Afghanistan, Siberia and parts of the western and central Himalaya, faunal diversity in cold desert, major forest types, pasture lands, livelihood dependency on plant resource, cultural richness etc. She elaborated upon land degradation and presented the land degradation status in Cold desert areas of



H.P. & J&K. **Dr. Swarn Lata** presented the degradation status in (2003-05) and (2011-2013) and degradation change between the period and also clarified the process of desertification and land degradation classes. She also highlighted major land degradation problems and stressed upon

the need of eco-restoration in these regions not only to restore highly degraded sites and to improve productive capability but also to enhance conservation of unique biodiversity and improve the livelihood of locals. She further elaborated the earlier efforts of eco-restoration in cold desert of H.P. & J & K and the reasons for their failure. The presenter talked about the research efforts of HFRI in Cold Deserts of H.P. & J & K and showed pictorial slides on Indigenous trees and shrubs having potential for eco-restoration and livelihood. She further informed about eco-restoration strategies which include development of Nutrient Management Strategies, Development of Minor Forest produce Management Strategies, Plantations of Indigenous Species, Pasture Management Programmes, Discouraging Land Encroachments, Development of Eco-restoration models, Organizing Awareness programmes for Locals on



Conservation and Eco-restoration. In the end, she emphasized upon the relevant research needs on eco-restoration of degraded areas of cold desert of H.P. & J & K and appropriately

highlighted how the institute can combine its efforts with other research organizations for eco-restoration of degraded areas through collaborative research and apprised the participants about the future roadmap in this direction in the shape of the formulation of research projects on similar lines and evolve strategies for proper networking of the same.

During the course of discussion, **Dr.V.P.Tewari, Director**, queried about the mass movement in cold desert and said that the project formulation in collaboration with SFDs is needed for the development of area specific technology for a forestation. Further, he stressed that



pasture development is needed with improved cultivar of Grass/Shrubs and queried about the work done by other institutes on cultivar development. He further added that research on

isolation of compounds from important medicinal plants need to be conducted as cold desert have rich medicinal plant resource and for this we need to identify other research institute for network programme. He also queried about the availability of *Atriplex crassifolia* in cold desert to which **Dr. Vaneet Jishtu, Scientist-D** responded that this plant is found especially in saline areas of cold deserts.

Dr. Sandeep Sharma, Scientist-G emphasised on the screening of quality seed sources of indigenous species of cold desert is important for raising quality planting material and cited example of *Juniperus polycarpus* as seed of *Juniperus polycarpus* collected from some areas of cold deserts have low incidence of pest and pathogens. **Sh. P.S. Negi, Scientist-C** added that screening and selection of seeds sources also need to be carried out for other species of cold desert like *Betula utilis*, *Fraxinus xanthoxyloides*, *Elaeagnus angustifolia* etc.

Sh. Dinesh Paul, DCF opined that, due to fragile ecosystem, introduction of exotic can affect the ecology of the area and, hence, one need to be very careful for the selection of tree species for eco-restoration activities in Cold desert. He told that the plantation of indigenous species should be preferred and for that identification of quality seed source of potential native species is important for achieving good plantation stock in nurseries.

Dr. Rajesh Sharma, Group Coordinator Research added that selection of suitable tree species for eco-restoration is important as the change in vegetative and reproductive behaviour is affected the most due to the climatic conditions of the area. **Dr. R.K. Verma, Scientist-G** further added that in cold desert rain fall is very less (300 mm) and if suitable species is not selected then tree species can be affected by pest and pathogen attack after plantation.

Outcomes of the seminar were as follow:

A. Identification of research needs: As a result of discussion held, it was agreed that in future research must revolve around:

- Inventorization and documentation of site specific floristic diversity in cold desert of H.P. & J&K.
- Identification of suitable species for eco-restoration of degraded areas of cold desert of H.P. & J&K.
- Screening of quality seed sources of native species for raising quality planting material.
- Genetic variability studies on important species of cold deserts in H.P. & J&K.
- Standardization of nursery and planting techniques of important cold deserts species of H.P. & J&K.

- Studies on ecological aspects of stress sites of cold deserts and development of eco-restoration models.
- Standardization of cultivation techniques of important medicinal plants of cold deserts of H.P. & J&K.
- Phyto-chemical studies of important medicinal plants of Cold deserts.
- Long-term climatic studies in cold deserts of H.P. & J&K.

B. Formulation of future strategies/ road map:

It was discussed that looking into the 'Eco-restoration of Degraded Areas of Cold Desert in H. P. & J&K' scenario, HFRI may take up research projects in due course of time keeping in view the followings objectives:

- Inventorization and documentation of floristic diversity in remote areas of cold desert of H.P. & J&K.
- Screening of quality seed sources of native species for raising quality planting material.
- Development of area specific technology for afforestation.
- Standardization of nursery and planting techniques of important cold desert species of H.P. & J&K.
- Phyto-chemical studies of important medicinal plants of Cold desert of H.P. & J&K.

C. Networking research options identified: HIMCOSTE, SFDs, DIHAR, SKAUST, IHBT and Universities.

D: Future research directions discussed for implementation and opportunities for funding:

Research proposal on 'Eco-restoration of Degraded areas of Cold Desert in Himachal Pradesh and Jammu & Kashmir' needs to be prepared and it can be send to various funding agencies viz. MoEF & CC, NNRMS, Tribal Development Departments, SFDs.

In the end of the session, **Dr. V.P. Tewari, Director** and Chairman appreciated the efforts of Dr. Swaran Lata and thanked the presenter and **Dr. Rajesh Sharma, Group Coordinator of Research** proposed formal vote of thanks.
