

The unit serves those interested in forest nature, and also the world of business and industry, by producing research data and by applying it in expert work assignments, expert opinions and commissioned studies. The unit also provides important training in the management of peatland forests to players practically involved in the forestry sector. Its auditorium is used in conference and educational events.

In the laboratory, plant, soil and water analyses and commissioned studies are carried out, and new analysis procedures are developed. Heavy metal research reference specimens are supplied from the laboratory to over 20 countries.

The Ostrobothnia Regional Energy Agency, which is located at the unit, serves the development of the region's energy sector.



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Muhos Research Unit

Extensive networking in the rapidly developing Oulu district



The Finnish Forest Research Institute (Metla) has been operating in Muhos since 1922. The Muhos unit was set up in 1969 and - in addition to the director - employs 11 permanent researchers and the Professor in Forest Genetics who is based at the unit, plus the Professor in Ecology of Forest Regeneration who works simultaneously for Metla and the University of Oulu. The total number of permanent employees is 43.

Since its foundation, the Muhos unit has been working in close cooperation with the University of Oulu. The unit also plays an active role in the development of the Oulu region's natural resources expertise cluster. Also operating at the premises of the unit is the Ostrobothnia Regional Energy Agency, which cooperates closely with the other regional players in the energy sector and with the University of Oulu and Metla's BIO research programme.

The regional responsibility of the Muhos operating unit covers North Ostrobothnia and Kainuu. Special features of this area include the 'land uplift' coast, major peat and timber resources and the elevated areas of Kainuu and Koillismaa. The unit also includes the Paljakka Environmental Specimen Bank, where specimens are kept for future research requirement.



Peatland research

The cultivation of peatland forests and the requirement for improvement draining are investigated by researching the impact of nutrient content and climate on the growth of tree stands. Long-term tests are underway at Muhos to study the impact of wood ash fertilisation on the productive capacity of peatland forests. In addition, the impact of ashes on the coverage of peat substrates by ground vegetation and on the early development of tree stands has been studied.



Environmental research

The impact of forestry measures on the quality of surface and ground water has been studied at Kainuu since 1973. Based on the results obtained, current research is focusing in particular on the environmental effects of stump extraction and of logging residue, in extensive experimental fields in various parts of Finland.

The heavy metal deposition project has been producing up-to-date information on deposition since 1985, via moss samples collected at five year intervals. The project is part of a Europe-wide survey (UNECE ICP Vegetation).

The nature restoration study produces information on the performance and cost-effectiveness of restoration procedures, both in mineral and in peat soils. It is the most extensive experimental restoration study in Finland, and Metla's restoration project group is coordinated at Muhos.

The national phenological observation network which is coordi-

nated at the unit produces information on the response to climate change in forest trees. These results are used to draw up seed crop forecasts for berry and mushroom crops and forest trees. There is an active cooperation network for phenological research both in Finland and abroad.

Forest biology and forest regeneration research

The objective of forest pathology research is to fine-tune forest management guidelines, to improve the results of natural regeneration and to safeguard the supply of forest tree seeds by investigating (in particular) the manifestation of rust fungi diseases and the epidemiology of Scots pine blister rust.

In forest genetics, work is carried out in cooperation with the University of Oulu to determine the genetic basis of the important characteristics of conifers: growth cessation, resistance to cold, and other stress reactions. The research forms part of several EU projects.

In ecomorphological research on conifer seeds, the impact of structures on events during germination and on species adaptation is investigated. Results are used in the determination of cone collection time, seed extraction, pretreatment procedures for storage, and germination guidelines.

Developing methods of forest regeneration and young stand management in Northern Ostrobothnia and Kainuu have been a significant part in the unit activities.

