



## Croatian Forestry Research Institute

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Forests are 'the lungs of our planet' and often regarded as symbol of the environment. They provide humanity with ecosystem services and forest products which are sources of direct economic benefit. Forests provide habitats for variety of planet's biodiversity and are therefore one of the most-important gene-reserves. Their role is crucial in Land use and land use change (LULUCF) as identified by the United Nations Climate Change Secretariat, having impact in global carbon cycle and influencing atmosphere. They are therefore a powerful tool to mitigate the climate changes, stabilize pollution and consequently global warming.

In modern context of rising concern for the environment and the climate extremes we're witnessing, when the recent international scientific studies confirm that it is *extremely likely* that humanity is to blame for the global warming and climate change (1), a clear view on the current state of scientific knowledge related to forest and forestry, continuous monitoring and implementation of the state-of the art forestry research should become national priorities. Croatian Forestry Research Institute – CFRI is proud to stand at the forefront of the forestry research in Croatia.

CFRI is a public research institute owned by the Republic of Croatia. Its research objectives and tasks are part of the National Scientific-Research Program of the Republic of Croatia and Development Program of "Croatian Forests" Ltd. Institute's principle goals are preservation of stability, productivity, biodiversity and genetic resources of forest ecosystems in Croatia based on the principles of sustainable forest management and natural rejuvenation.

CFRI was founded in 1974 as the Forest research institute, Jastrebarsko by merging: Institute for forestry and wildlife research, Zagreb (founded in 1945), Yugoslav institute for conifers, Jastrebarsko (founded in 1960) and Institute for control of forest seeds, Rijeka (founded in 1959). In 2009 Forest research institute, Jastrebarsko changes its name into Croatian forest research institute.

Performing of research and services in the CFRI is executed by six scientific divisions; a service Department for Nursery Production, and three Regional Research Centers.

CFRI's research departments are:

- **Division for forest ecology** which conducts research on forest ecology and soil science, and has key position in research and implementation of research projects, regional plans, silviculture, monitoring forest ecosystems. In recent years, great attention was given to the study of forest ecosystems and soil pollution with heavy metals and acidification of soils. Division is also in-charged for the implementation of International Co-operative Program



on Assessment and Monitoring of Air Pollution Effects on Forests ICP Forests in the Republic of Croatia.

- **Division for genetics, forest tree breeding and seed husbandry** is engaged in provenance trials, establishment of clonal seed orchards, establishment of progeny tests and vegetative propagation, measuring of molecular differentiation and quality control of forest seeds.
- **Division for forest management and forestry economics** is engaged in basic research and professional activities related to forest management and growth, balance and carbon cycle in terms of forest management, remote sensing, forest economics and forest policy, evaluating multifunctional role of forests and other non-wood forest products and services.
- **Division for Silviculture** deals with the establishment and management of forest plantations where scientific studies are being continuously conducted for 45 years in international and domestic projects. The importance of this research is reflected in the conservation of biodiversity and ecological stability of forest plantations (especially in respect to forest fires in the coastal area, pests, windfall, avalanches, climate change, water regime, the impact of air pollution, etc.), maximum use of production potential of the habitat (timber, biomass) and general biodiversity of forests in Croatia.
- **Division for forest protection and game management** is engaged in activities related to forest entomology, forest phytopathology, integrated forest protection and phytopharmacy. The focus of scientific

research and technical expertise are pathogens and pests of trees and causes of forest degradation.

- **Division for international scientific cooperation in southeast Europe – EFISEE** – coordinates and promotes research of products and services derived from forests and linking forestry in the region with the state-of-the-art forest research in Europe and the European Union. EFISEE is established to have impact on forestry research in South Eastern Europe with a focus on strengthening the existing potentials, expanding diversity and emphasizing the economic importance of forestry research.

Three regional research centers were established to connect research activity in the field of forestry with the local communities and experts in order to ensure sustainable management of forests and forest lands:

- Research Center for Urban and Private Forests in Varaždin;
- Research Center for Lowland Forests in Vinkovci.
- Research Center for Other Forest Goods and Services "Josip Ressel" in Pazin;

The quality of laboratory services at the CFRI is assured by implementing international quality standards ISO / IEC 17025, for that purpose the CFRI's Department for laboratory testing was formed. The Department for laboratory analysis provides its services in five laboratories:

- Laboratory for seed analysis;
- Laboratory for physical-chemical analysis;
- Laboratory for molecular-genetic analysis;
- Laboratory for entomological analysis;
- Laboratory for phytopathology analysis.

Highly skilled scientific staff as well as long tradition of scientific-research activity in the field of forestry is CFRI's major forces, along with the large number of young researchers who actively participate in national and international scientific initiatives and projects. Nowadays the CFRI employs 40 R&D and academic staff (whereas 25 PhD researchers, 8 research assistants and 7 doctoral students), with 32 employees working either as administrative or technical staff.

Publishing activity of Croatian Forest Research Institute includes:

- Journal RADOVI (indexed in CABI and HRČAK);
- International scientific journal in the field of forestry science SEEFOR, published in cooperation with renowned regional partners.

Publishing also includes monographs, bibliographies, symposium proceedings, reports, etc. CFRI's researchers act as reviewers in renowned scientific journals, their

scientific work is regularly published and indexed in Web of Science, Scopus, CAB Direct data bases.

With the objective to further implement scientific research in forestry, maintain and promote sustainable management of forest ecosystems, raise awareness on the role of forests and importance of their preservation for future generations, by continuous monitoring and securing the continuity of ecosystem and environmental services – the role of CFRI as key national and leading regional scientific force in the field of forestry research is essential in the Republic of Croatia and part of our vision and mission.

## REFERENCE

1. Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment, Working Group 1 report, September 27<sup>th</sup> 2013