

# **THE UNFU EFFORTS TOWARDS IMPLEMENTING CLOSE TO NATURE FORESTRY**

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The motto of the UNFU "*Learning to live in a harmony with nature*" is actively implemented in practice during the training students of all bachelors and masters programs but each program has different valuable experience. For example, the students of the Forestry Program (BSc, MSc) learn how to apply the theoretical and practical principles of the close to nature silviculture.

Close to nature silviculture is aimed at maximum use of natural processes of growth, development and interaction of tree species in order to form mixed, different ages, highly productive, healthy and economically valuable forest stands with minimal financial costs. The theory of such kind of forestry is based on the following principles:

- 1) Formation of mixed and different age stands. This reduces the possible climate change risks in the future or the economic situation at the market (periodic fluctuations in wood prices of different species).
- 2) Increasing the biological stability of stands due to the formation of well-developed crowns from a young age and removal during the next reception of felling of diseased or damaged trees.
- 3) Use of local (autochthonous) wood species in accordance with existing forest types.
- 4) Ensuring constant natural regeneration of tree species in forest stands.
- 5) Refusal of clear cut felling. Instead, a selective forest management system should be used.
- 6) Growing and selling large wood assortments of high quality.
- 7) Maintaining the natural fertility of soils without mineral fertilizers.

- 8) The use of environmentally friendly methods of logging through the use of modern conservation machines and technologies.
- 9) Ensuring the biodiversity of flora and fauna by preserving rare habitats and leaving dead wood in forests.
- 10) The use of the process of natural selection and differentiation of trees during the removal of trees for intermediate felling.
- 11) The formation of a diverse vertical and horizontal structure of the stand, i.e. the growth of trees of different species and different diameters and heights.

Primeval forests of the Ukrainian Carpathians are a valuable natural model for close to nature forestry. Observations of the natural processes of virgin forest development allow to obtain useful guidelines for forest management in commercial forests. That is why foresters-practitioners and students from Germany, Switzerland and other European countries come here every year for field studies and internships. Foresters from many countries, while getting acquainted with the virgin forests of the Ukrainian Carpathians are getting inspiration and encouragement to conduct close-to-nature forestry in their state, municipal or private forests. Moreover, they also invite new students and interns to study this treasure of nature.



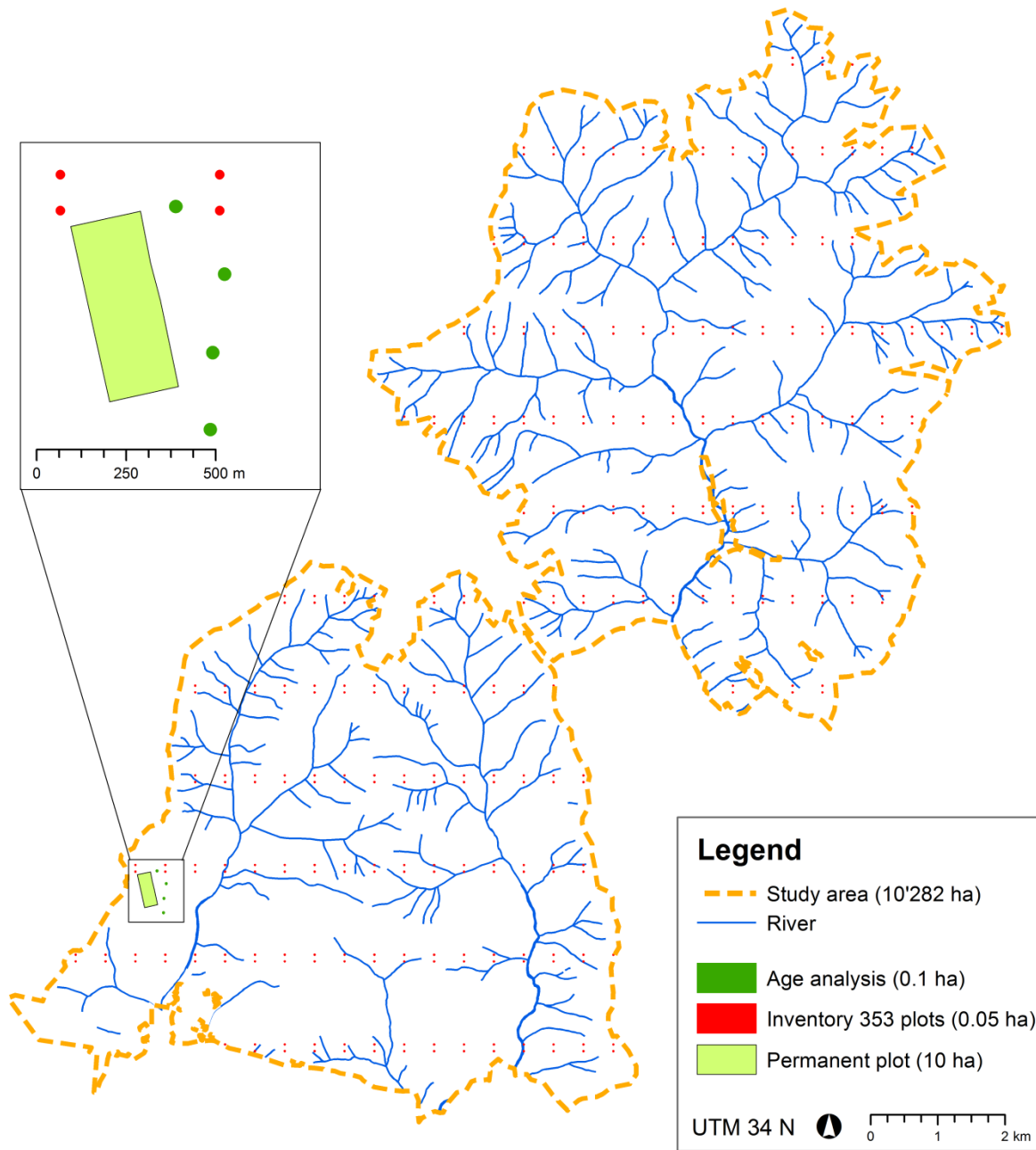








In recent years, the interest of well-known international research institutions in joint research of virgin forests in the Ukrainian Carpathians has been growing. An example of such scientific cooperation is the implementation of the Swiss-Ukrainian scientific project on "Statistical inventory of the Uholka-Shyrokoluzhanskyy beech virgin forest", which was carried out in 2009-2010 and repeatedly in 2019. Until now, in the virgin forests of Europe, studies of their structure and structure have been conducted only on small test plots. A systematic inventory of such a large area of beech virgin land has never been carried out in Europe.



<b>structural forest characteristics</b>		<b>mean inventory 2010<sup>1</sup></b>	<b>mean 10 ha plot year 2010<sup>2</sup></b>
living trees ≥6 cm DBH	tree density [N/ha]	435	296
	basal area [m <sup>2</sup> /ha]	37	38
	volume [m <sup>3</sup> /ha]	582	661
Dead-wood	standing volume [m <sup>3</sup> /ha]	27	37
	lying volume[m <sup>3</sup> /ha]	136	134
	total volume [m <sup>3</sup> /ha]	163	171
	percentage of total volume	28	21

1. Commarmot, B., U.-B. Brändli, F. Hamor, and V. Lavnyy (eds.). 2013. Inventory of the largest primeval beech forest in Europe - A Swiss-Ukrainian scientific adventure. WSL Swiss Federal Research Institute, Birmensdorf, Switzerland.

2. 10 ha monitoring plot data of the year 2010. Shparyk Y. (URIMF) and B. Commarmot (WSL).



At the expense of the German side, for 13 years in a row I have been conducted a study tour for 16 master students of the Institute of Forestry and Horticulture of the UNFU in the federal states of Baden-Württemberg and Bavaria (Germany), where students have the opportunity to learn close to the nature forestry. In particular, to see modern methods of multifunctional forestry in beech, spruce, oak and mixed beech-fir-spruce forests, to get acquainted with modern nature-saving technologies of timber harvesting, to visit wood processing enterprises, Stihl Factory and the Berchtesgaden National Park.



















Close to nature, multi-purpose forestry approach is implemented in Stradch Training and Production Forestry Enterprise of the UNFU and in the state enterprise "Lviv Forestry" in the framework of a Joint research and development project „*Transformation of pine forests to a close-to nature forest management in Ukraine and with special consideration of resilience to fire and climate extremes such as drought*” (Scientific supervisor of the project – Prof. Vasyl Lavnyy) which is carried out jointly with the University of Sustainable Development Eberswalde (Germany).

This enterprises does not use clear-cut felling, but only a selective forestry system. Due to this, there are no clear cut areas in its forests, preference is given to natural regeneration of forests. In addition, foresters leave to grow individual micro-settlements trees in each area, which are marked on the trunk with the letter "E" (for environmental needs). The company's management has established a mutually beneficial dialogue with environmental organizations and local communities, so there are no conflicts during forest management.

Close to nature forestry approach is an example of eco-innovation of guiding activities in a manner which is responsible for preserving the environment. It helps to improve the protective functions of the forest, including the protection of water resources and the reduction of soil erosion. In addition, this form of forestry improves the aesthetic value of forest areas, which is important in modern conditions to increase the demand of urban residents for recreation in forests.





**THANK YOU FOR YOUR ATTENTION!**