



# **STATE OF THE FORESTS AND MANAGEMENT TRENDS IN THE FORESTS OF WESTERN UKRAINE**

- 1. Short presentation of the Ukrainian National Forestry University (UNFU)**
- 2. Brief Description of Ukrainian Forests**
- 3. Management trends in the Forestry of Ukraine**





BELARUS

RUSSIA

POLAND

Luts'k

Rivne

Zhytomir

Kyiv

Sumy

Kharkiv

L'viv

Ternopil'

Khmel'nyts'kyl

Vinnytsia

Cherkasy

Poltava

Uzhhorod

Ivano-Frankivs'k

CARPATIAN MOUNTAINS

Kirovograd

Luhans'k

ROMANIA

MOLDOVA

Kryvi Rih

Dnipropetrovs'k

Donets'k

Zaporizhzhia

Mykolayiv

Odesa

Kherson

RUSSIA

Simferopol'

CRIMEA MOUNTAINS

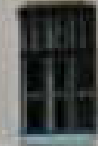
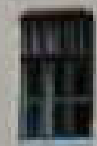
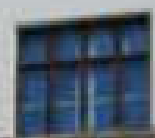
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The Ukrainian National Forestry University (UNFU), located in the historic city of Lviv in western Ukraine, is a well-known centre for forestry environmental and economic education and science in Ukraine and Eastern Europe. The UNFU was founded in 1874. Now it is a largest forestry educational and research center of Ukraine. Approximately 4000 students are studying here. Within 33 departments there are working 380 highly qualified lecturers, including 46 professors. Among them are the famous scientists, State Prize winners and IUFRO prize-winners. The UNFU is the only one university in Ukraine fully specialized in the field of forestry, forest engineering and wood industry research.





AD NATURAM VIVERE DISCIMUS









НАЦІОНАЛЬНИЙ ЛІСОТЕХНІЧНИЙ  
УНІВЕРСИТЕТ УКРАЇНИ

НАЦІОНАЛЬНИЙ ЛІСОТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ





































## **Institutes and institutions at the UNFU**

At present, the UNFU comprises the Institute of Forestry and Horticulture, the Institute of Ecological Economics, Institute of Forest Engineering and Mechanics, Institute of Woodworking Technology, Institute of Corresponding Studies and Post-Diploma Training, the Research Department, the Scientific Technical Library, the Small Forest Academy, Lviv Technological College, Transcarpathian Forestry College, the State Botanical Garden, the natural reserve "Rostochya", the Stradch Educational Forestry Enterprise, the Educational and Consulting Centre in Khust (Transcarpathian region), the Carpatian and Polissya Research Laboratories, three educational and research centres, a sport-and-recreation centre on the Black sea coast and a number of other institutions.



## **Campuses and buildings**

The University is accommodated in 6 academic buildings, one of them being an architectural monument. 4 student residences are located on the University area. All the academic buildings and student residences together with scientific and technical library make up the University Campus. He occupy an area of 14 hectares. Students from all over Ukraine study at the UNFU.





Under our university functions the educational complex “Forestry education”, which includes educational institutions from different regions of Ukraine – 6 colleges, 3 training schools, a lyceum and a boarding school-gymnasium. The main purpose of this complex is to organize a step-by-step educational system based on the integrated academic curricula with a shortened training time.

The University offers academic programmes leading to Bachelor and Master degrees for forestry and related sectors of the economy in 13 areas and 16 specialties.



In addition to traditional forest-based specialties UNFU provides training in Art, Ecology, Architecture, Digital technologies, Computer Sciences. Such range of professional training corresponds in structure to European universities and complies with the requirements of the Bologna Process.

In 1994, UNFU was recognized by the Ministry of Education and Science of Ukraine as a base higher educational institution to develop sectoral standards in higher education for training professionals of forestry profile. Operating at the University are three scientific methodical committees on designing higher educational standards of a new generation in the areas of “Forestry and Park-and-Garden Management”, “Logging” and “Woodworking Technology”.





At present, over 20 Ukrainian higher educational institutions make use of the scientific and methodological support base designed at the UNFU for professional training in the following specialties: “Forestry”, “Park-and-Garden Management”, “Woodworking Technology”, “Wood Products Manufacturing Technologies” and “Forestry Machinery”.

UNFU offers postgraduate studies in 8 specialties and post-doctoral studies in 4 programmes. There are 3 Specialized Dissertation Committees on postgraduate and doctorate thesis defense.



The Senate of the UNFU has awarded 14 diplomas of the Honorary Doctor (Honoris Causa), among which is also the former Federal Chancellor of Germany Dr. Helmut Kohl, the former Lord Mayor of Freiburg Dr. Rolf Böhme, former Federal Councillor Dr. Hans-Jürgen Doss, Prof. Dr. Hanns Essmann, Prof. Dr. Dieter Blütenwitz, Prof. Dr. Richard Brunner et al.





Verleihung der Ehrendoktorwürde der Ukrainischen Staatlichen  
Forsttechnischen Universität in Lemberg (Lwiw) an

**Bundeskanzler a.D. Dr. Helmut Kohl MdB**

Am 4. Dezember 2000 in der Deutschen Parlamentarischen  
Gesellschaft, Berlin



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The Motto of the UNFU is “**Ad naturam vivere discimus**” (We learn to live in harmony with nature)

A model of environmentally-focused research university is being applied and perfected at the UNFU according to the existing foreign and domestic experience. The results of the applied and fundamental researches leading to innovation in the areas of environmental protection and sustainable development of the forest sector of economy are to serve as a basis for the University development.





At the Institute of Forestry and Horticulture function five chairs:

1. Chair of Silviculture
2. Chair of Forest plantations and forest selection
3. Chair of Forest measurement and forest management
4. Department of Botany, Wood Science and Non-wood products
5. Department of Ecology, Horticulture and Landscape Architecture



Ukraine is a country with relatively small percentage of forest covered area. It's forests cover about 16 % of total area, that is 9 million and 700 thousands ha or 0,21 ha of forest per one capita.

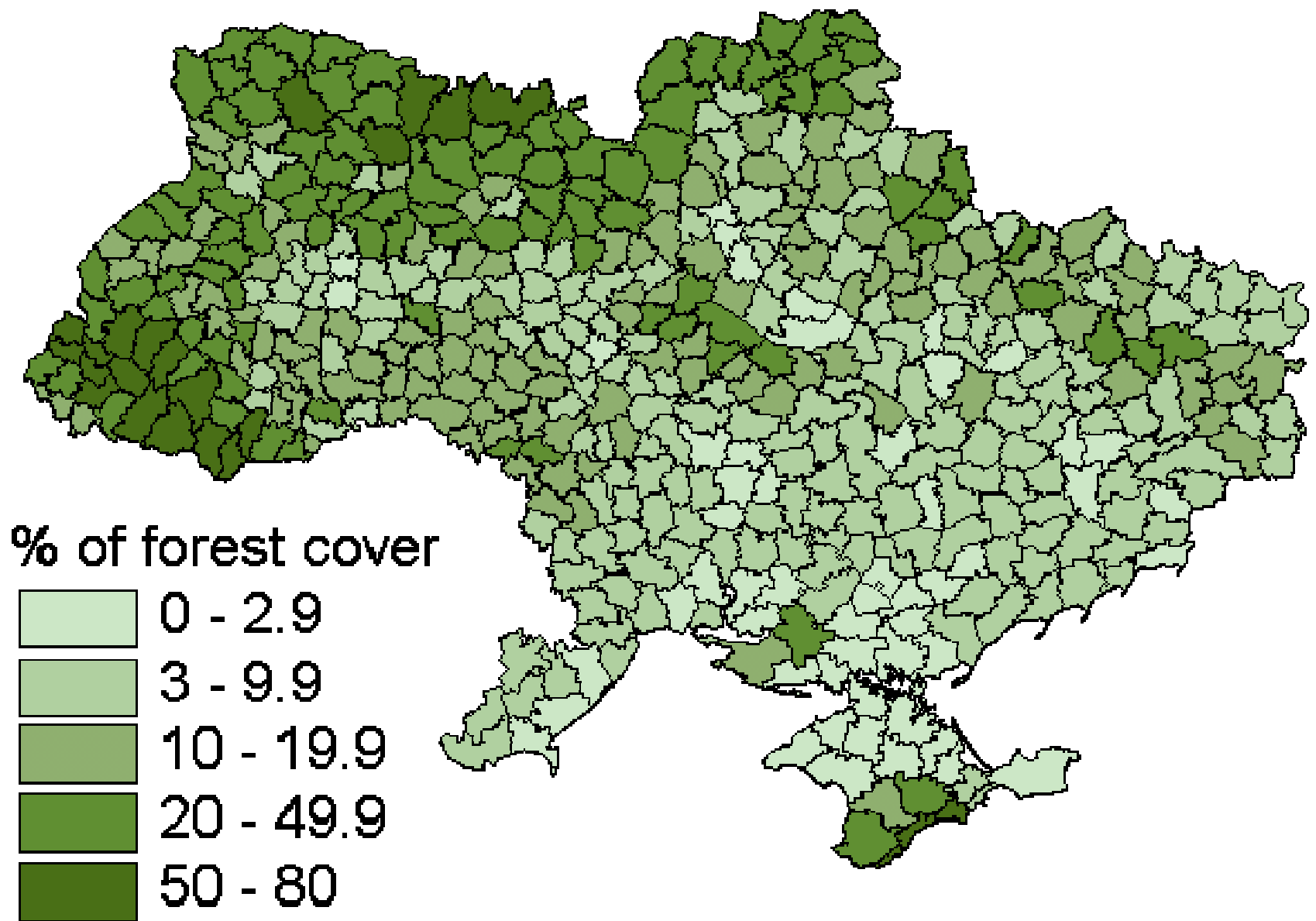
Deciduous stands are prevailing, occupying about 58 % of the forested areas.

Forests are located unevenly through the territory of Ukraine (figure 2). The Ukrainian Carpathian Mountains are characterized as the most forested areas - 55 %. At the north of the country, in zone of Polissya the forested areas makes 26 %, in zone of Forest-steppe – 12 % and in a zone of Steppe – just only 5 %.



# Forest cover in Ukraine







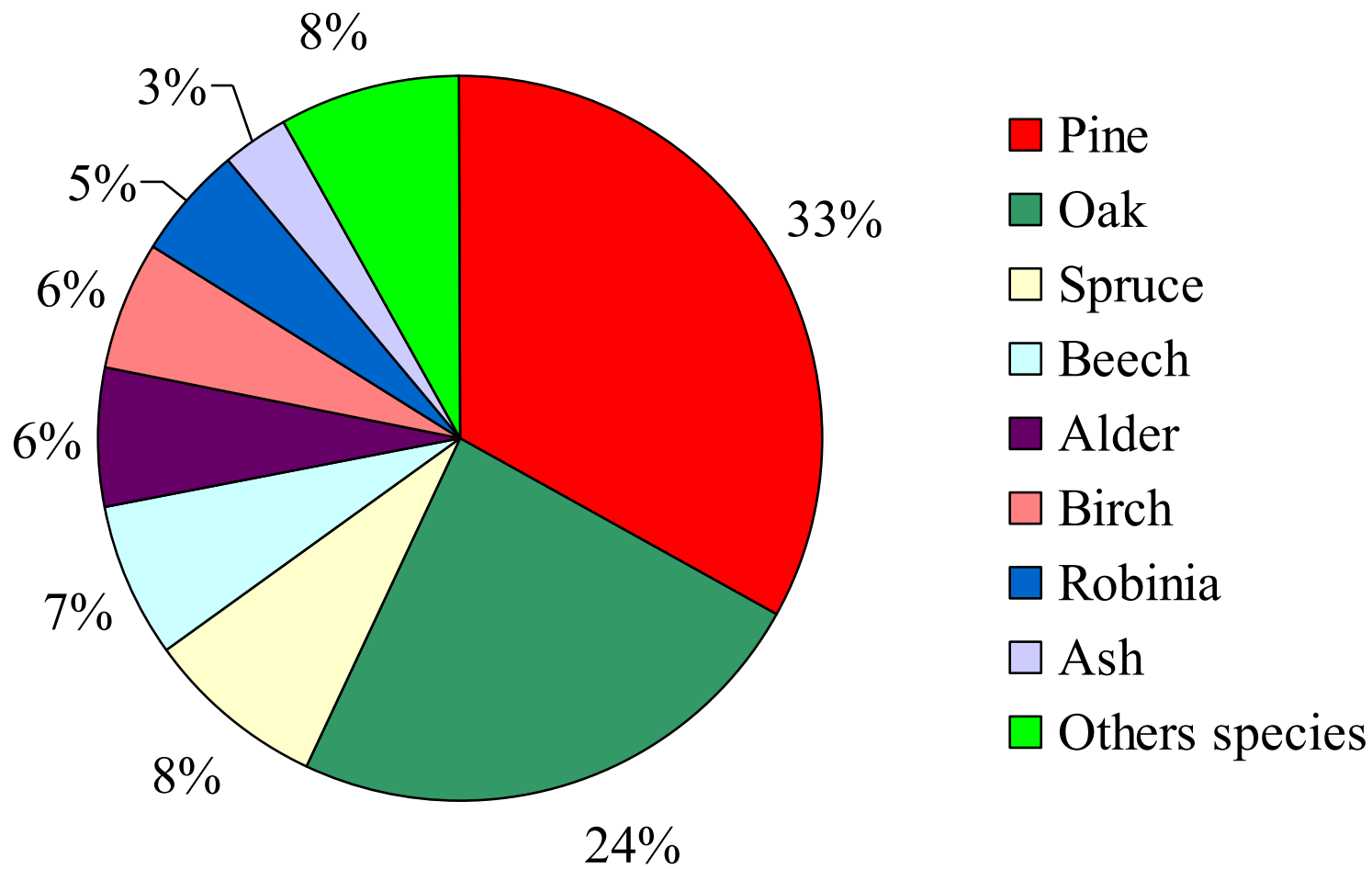


The average increment is  $4 \text{ m}^3/\text{ha}$  and ranges from  $5.0 \text{ m}^3$  in the Carpathians to  $2.5 \text{ m}^3$  in steppe areas. The average stand stock volume –  $217 \text{ m}^3/\text{ha}$ . The total stock volume in Ukrainian forests is increasing from year to year and now is two billion and 102 million  $\text{m}^3$ . During the last 30 years it has been doubled.

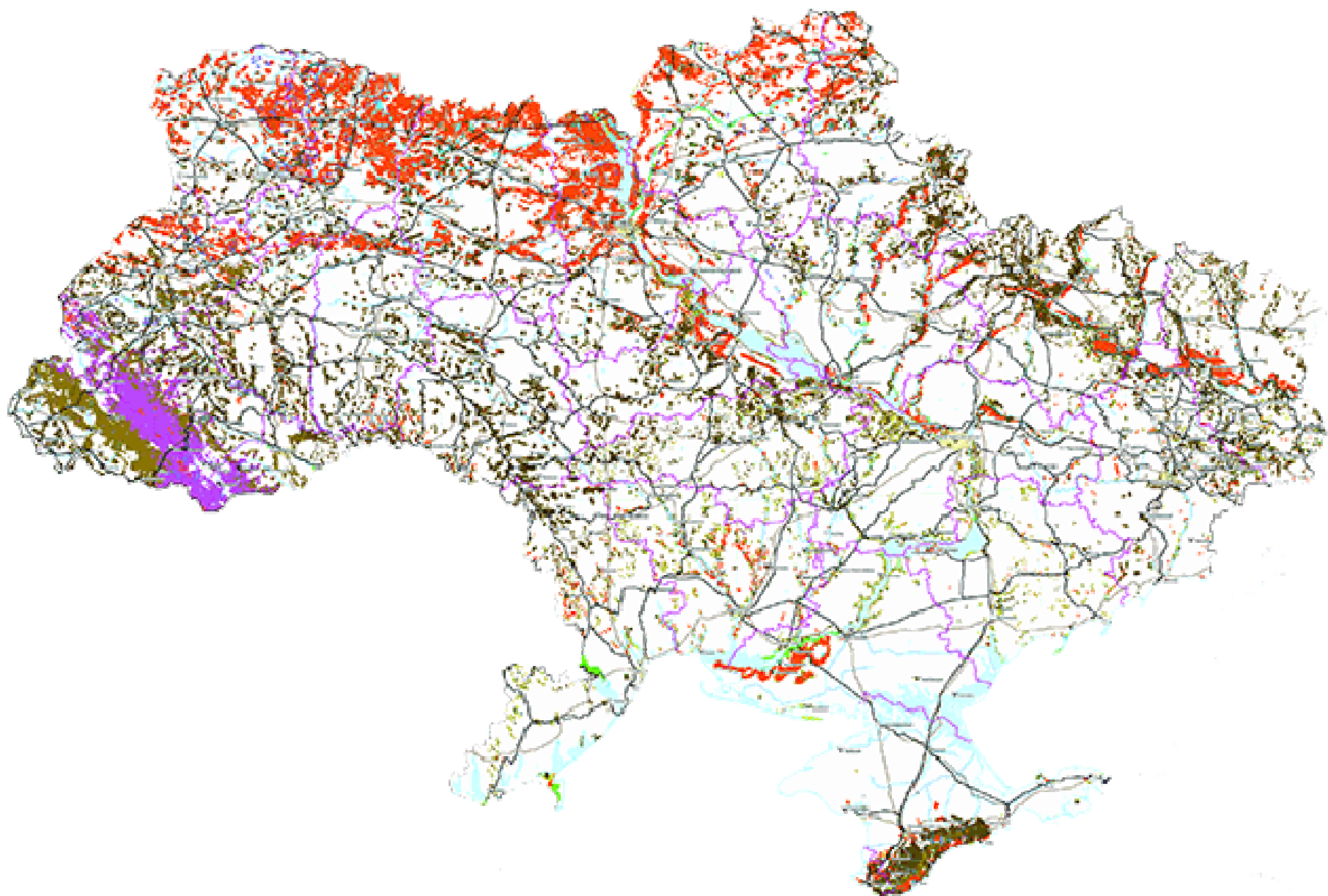
Scotch pine that occupies 33 % of the forest covered areas prevails among other species (fig. 3). It is followed by oak, spruce, beech, alder and birch forests.



## Main tree species in Ukraine (on 1.1.2011)









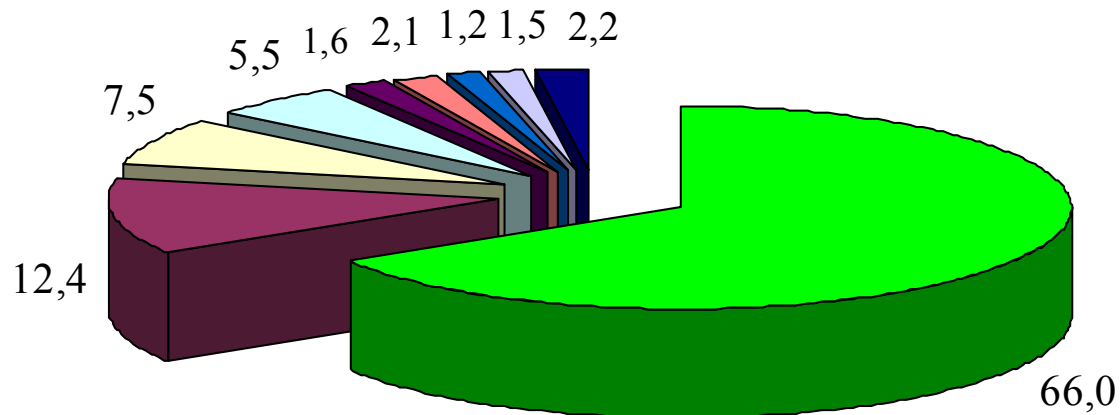
Despite of rather small forest ratio Ukraine takes 8th place in forest area rate in Europe and 6th place on growing stock rate. Over the last 50 years forest cover increased by 1.5 times.

According to Forest Code of Ukraine there are declared three types of forest ownership: state, municipal and private, but today about 99% of forests are state owned. Another feature of Ukraine - is historically formed situation of giving forests to numerous permanent forest users for purpose of conducting forest management. Now Ukrainian forests are managed by more than fifty ministries, agencies and organizations. The largest of these is State Forest Resources Agency of Ukraine, the main state authority in forest and hunting management - 66%.

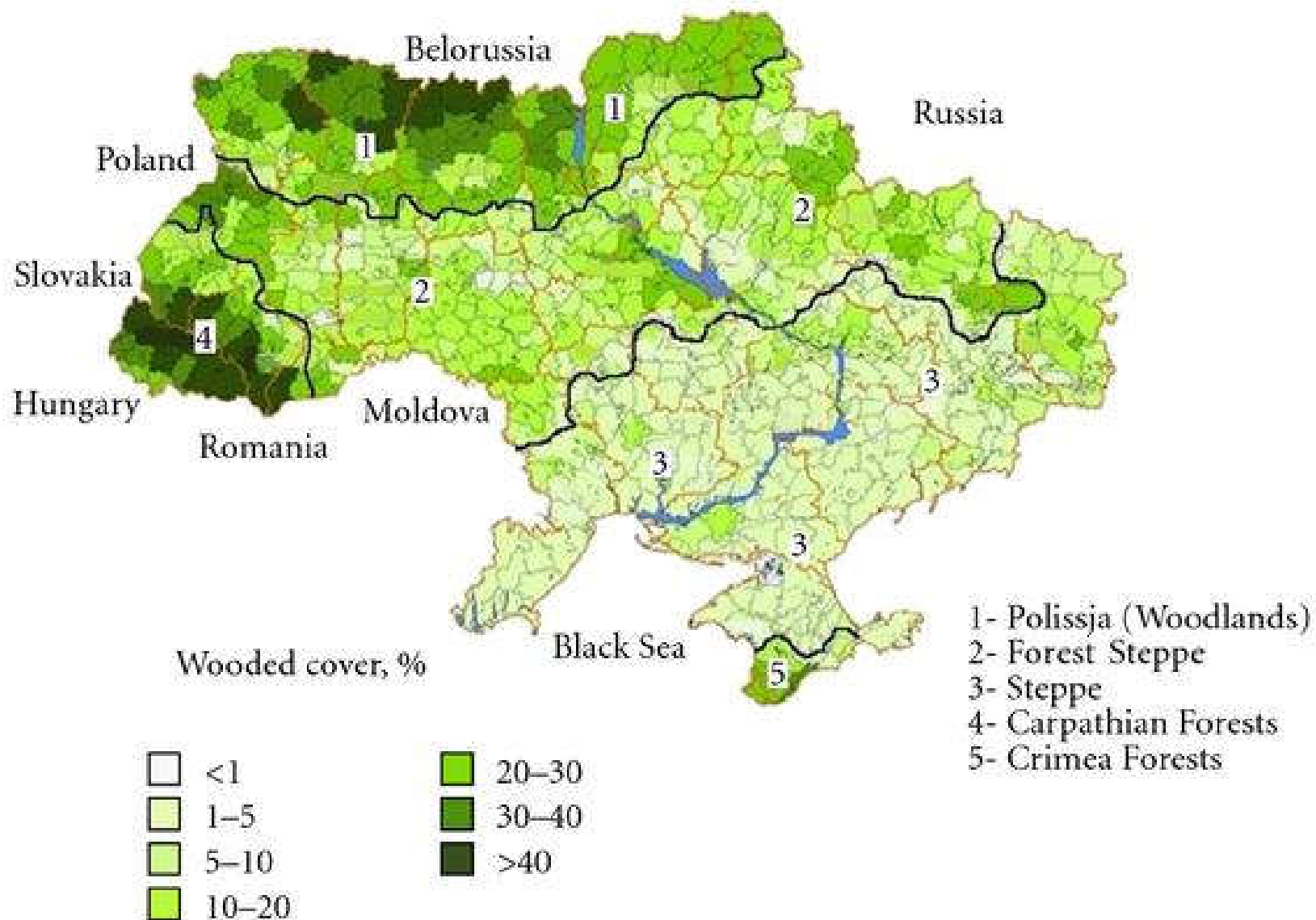




## The largest forest users in Ukraine (% of total forest area)



- State Agency for Forest Resources of Ukraine
- Local authorities
- Reserve land by communities
- Ministry of Agricultural Policy and Food
- Defence Ministry
- Government service for emergency situations
- Ministry of Infrastructure
- Ministry of Ecology and Natural Resources
- Other ministries and agencies





























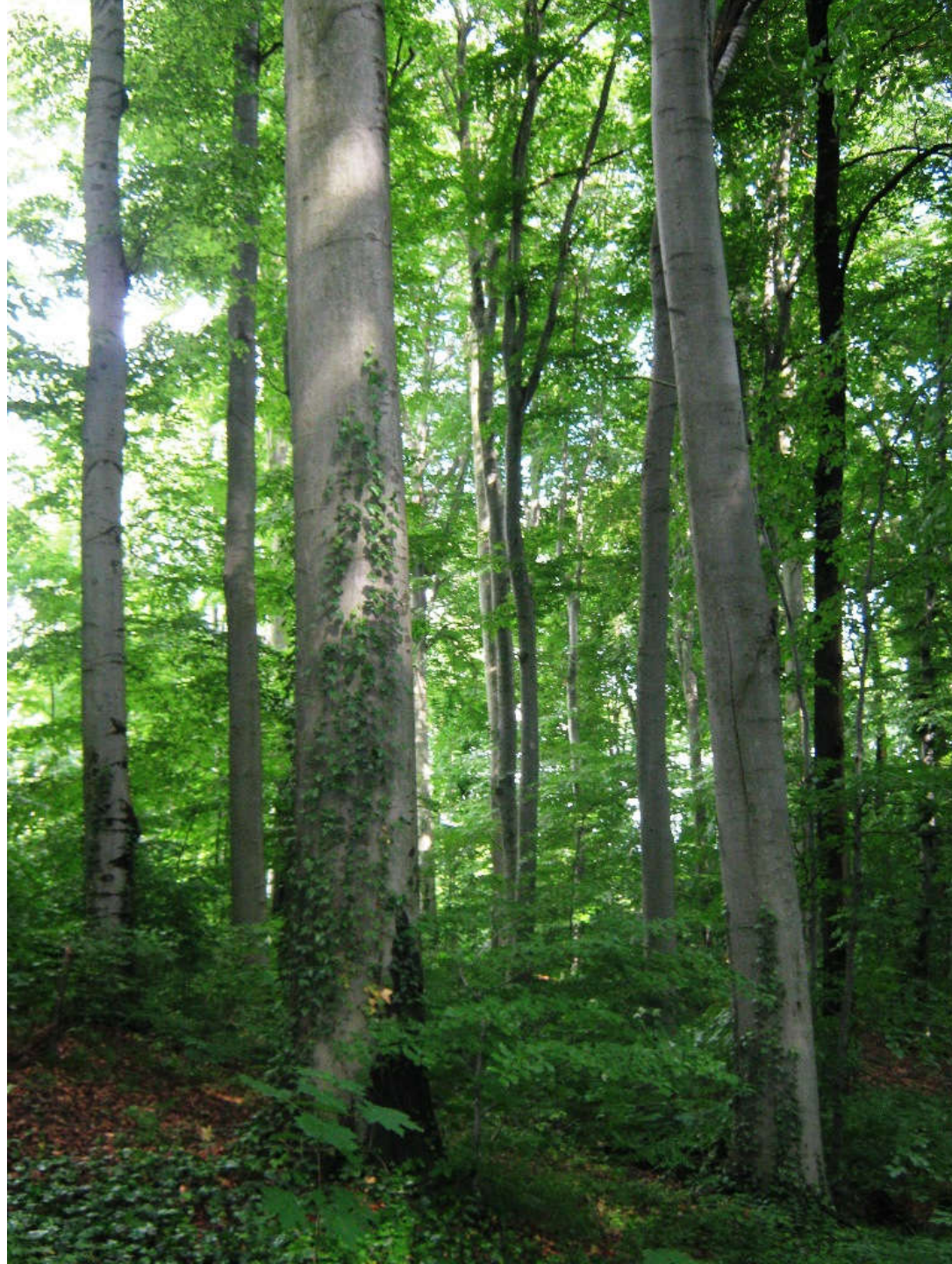






































**КОСТРИНСЬКЕ ЛІСНИЦТВО**  
**ЛІСОНАСІННЕВА ДІЛЯНКА**  
квартал-13 виділя-15 площа-1,2 га.  
порода- **ДУГЛАСІЯ ЗЕЛЕНА** (*pseudotsuga menziesii* M.)  
рік закладки 1986; рік насаджень 100 років  
середнє висота- 35 м. діаметр- 70 см.



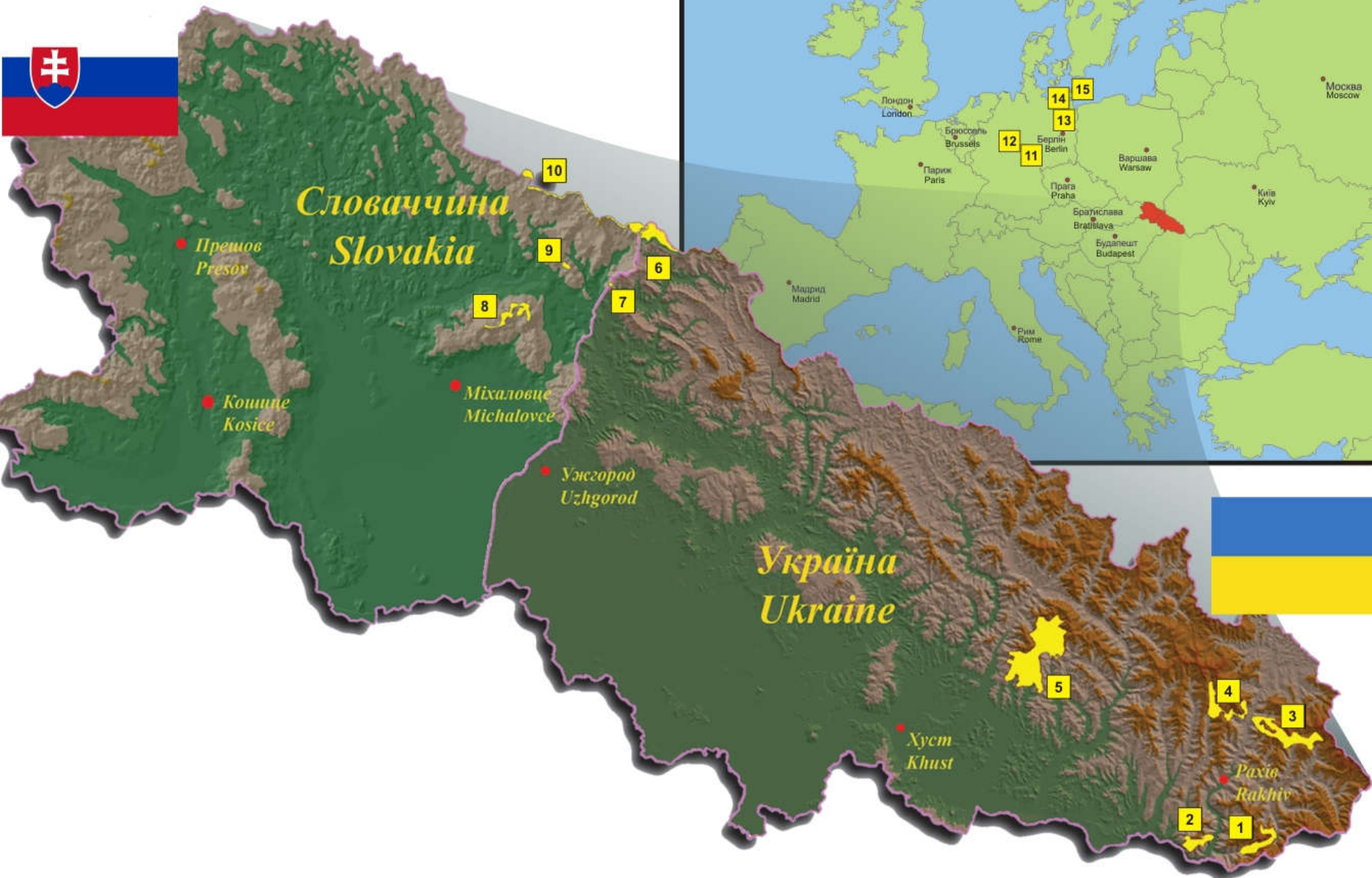






















Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany is a transnational World heritage site. The Primeval Beech Forests of the Carpathians include ten separate massifs located along the 185 km long axis from the Rakhiv mountains and Chornohora ridge in Ukraine over the Poloniny Ridge (Slovakia) to the Vihorlat Mountains in Slovakia. The Ancient Beech Forests of Germany include five locations in various parts of Germany.

Over 70% of the site is located in Ukraine. The area includes two national parks, a biosphere reserve, and a few habitat controlled areas (mostly in Slovakia). Both national parks, along with a neighboring area in Poland, compose a separate biosphere reserve, the East Carpathian Biosphere Reserve. Ukrainian locations include Chornohora, Kuziy-Trybushany, Maramarosh, Stuzhytsia–Uzhok, Svydovets, and Uholka–Shyrokyi Luh.





№	Назва складової частини Name of component part	Природоохоронна територія Protected area	Площа Area (га/ha)	Буферна зона Buffer zone (га/ha)
1	 Мараморош Maramorosh	Карпатський біосферний заповідник Carpathian Biosphere Reserve	2243,6	6230,4
2	 Кузій-Трибушани Kuziy-Trybushany	Карпатський біосферний заповідник Carpathian Biosphere Reserve	1369,6	3163,4
3	 Чорногора Chornohora	Карпатський біосферний заповідник Carpathian Biosphere Reserve	2476,8	12925
4	 Свидовець Svydovets	Карпатський біосферний заповідник Carpathian Biosphere Reserve	3030,5	5639,5
5	 Уголька-Широкий Луг Uholka-Shyrokyi Luh	Карпатський біосферний заповідник Carpathian Biosphere Reserve	11860	3301
6	 Стужиця-Ужок Stuzhytsia-Uzhok	Ужанський національний природний парк Uzhanskyi National Nature Park	2532	3615
7	 Рожок Rožok	Національний парк Полоніни Poloniny National Park	67,1	41,1
8	 Вігорлат Vihorlat	Охоронна ландшафтна область Вігорлат Vihorlat Protected Landscape Area	2578	2413
9	 Гавешова Havešová	Національний парк Полоніни Poloniny National Park	171,3	64
10	 Стужиця-Буковські Верхи Stužica-Bukovské Vrchy	Національний парк Полоніни Poloniny National Park	2950	11300
11	 Гайніх Hainich	Національний парк Гайніх Hainich National Park	1573,4	4085,4
12	 Келлервальд Kellerwald	Національний парк Келлервальд-Едерзее Kellerwald-Edersee National Park	1476,1	4271,4
13	 Грумзін Grumsin	Біосферний резерват Шорфгайде-Хорін Schorfheide-Chorin Biosphere Reserve	590,1	274,3
14	 Зерран Serrahn	Національний парк Мюріц Mueritz National Park	268,1	2568
15	 Ясмунд Jasmund	Національний парк Ясмунд Jasmund National Park	492,5	2510,5
   Разом Total			33670,1	62402,3



Primeval beech forests are particularly interesting objects for forest research as they provide excellent and necessary conditions for studying and understanding the ecosystem processes in forests where no human intervention has occurred for a long time.

Ukrainian Carpathians contain the largest virgin beech forest in Europe - the Uholka-Shyrokyi Luh massif. Together with colleagues from Swiss Federal Research Institute WSL we have made inventory project on primeval forest research. The inventory of 10 000 ha of primeval beech forest, which was carried out under adventurous conditions in real wilderness, is unique. It provides for the first time information that is really representative of a large area of primeval forest. The study is not only a valuable contribution to our understanding of natural forest dynamics, but the resulting data also provide much-needed reference values for nature conservation and natural forest management.











































































General information of Ukrainian forests is collected by forest inventory. Then there worked out a plan of organization and development of forest enterprises. There also made strategies of forest management development at regional and national levels.

The most important legal basis for the management of Ukrainian forests serves the Forest Code, the new editorial of which was adopted by the Parliament of Ukraine on 8 February 2006. This law regulates the work of the most important questions of forest ownership, forest management, state management in the field of forest resources, forest management planning and forest cadastre. It consists of five chapters and 108 articles.





In Forest Code of Ukraine a division of Ukrainian forests into four categories according to their main functions as follows defined:

- 1) protection forests (water protection, soil protection and other protection functions) - now they take 33% of the forest area;
- 2) recreational forests - 15%;
- 3) nature conservation forests - 14%;
- 4) commercial forests - 38%.





The Land Code permits private ownership of forests, the territory of which does not exceed 5 ha, and allows to plant private forests on the lands of little or no productivity.

In accordance with the Ukrainian conception, main functions of forests are nature-protective and recreational, their exploitation is limited. Reserves, national protected parks and other protected territories now occupy about 16% of forests area.

From this year forest enterprises of Ukraine may not export unprocessed timber products such as roundwood, only fuel wood or sawn wood.





Forestry in Ukraine last years has had following financing sources - state and local budgets and means received from sale of wood, not wood forest products and services. Means from sales are directed to financing forestry production, development of resource base, implementation of social programs.

Level of state financial support for forestry in Ukraine was around 5-30% in total forestry expenses. Share of government support in total amount of financing of state forest enterprises ranging according to a level of forest resources - in south part of Ukraine, where are the lowest level of forest cover it is higher, in north where forest cover is higher level of financial support is lower. From state budget there are mainly funded activities on afforestation, protection of forests against fire, pests and diseases, partially solved problem of purchasing forestry equipment and construction of forest roads.

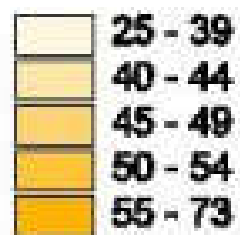
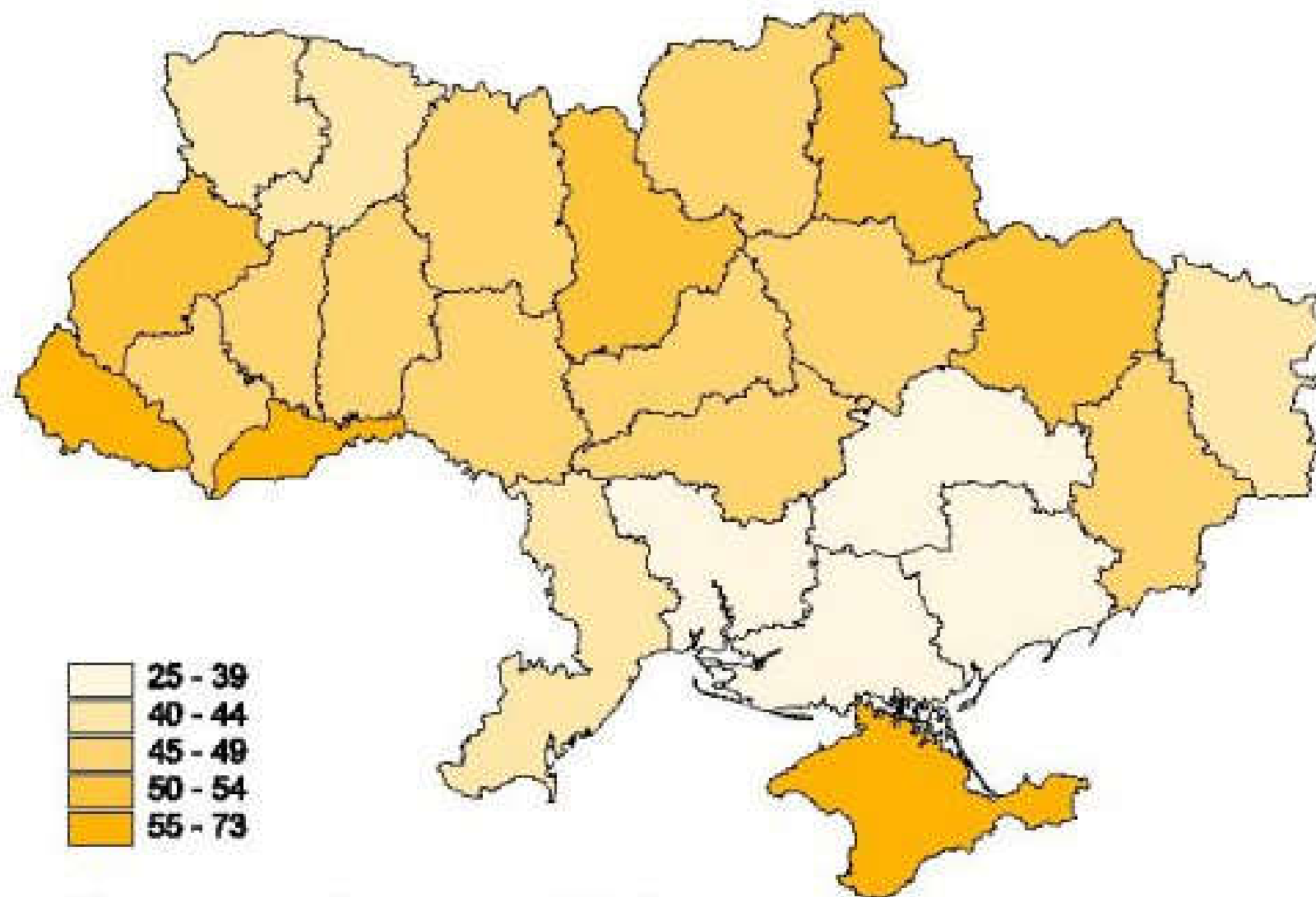




The state support to forestry is insufficient to meet all urgent forestry needs – sufficient level of afforestation, upgrading forestry equipment, application of new technologies in particular for conducting forest monitoring and forest inventory, carrying aerial observation of forests and improving forestry research.

As to the age distribution, young forests constitute 32%, there are 44% of middle-aged forest, 13% of approaching maturity forests and 11% of mature forests.





250 0 250 Kilometers

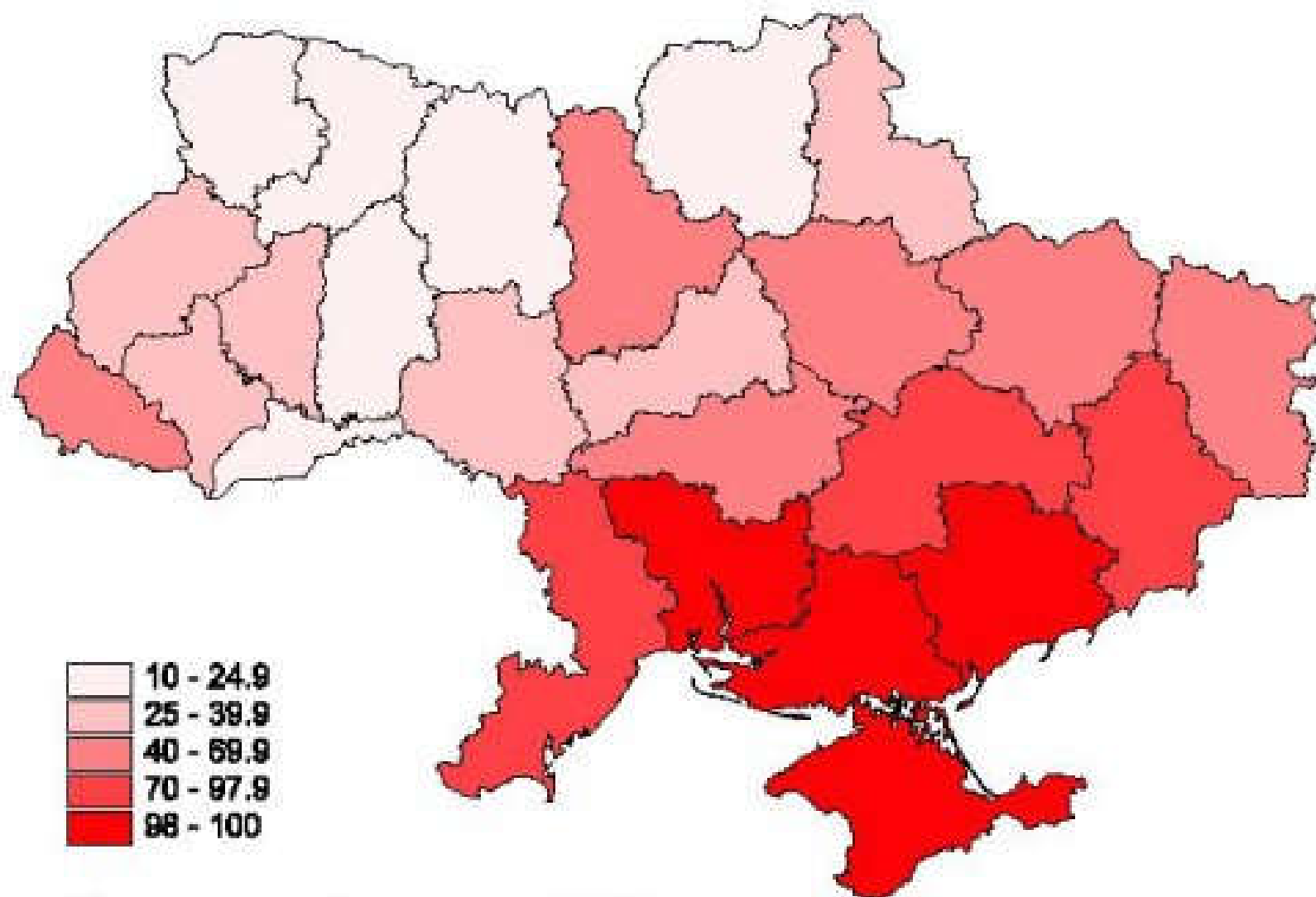




Almost half of Ukrainian forests was planted. There is a developed network of numerous seeds stands and -trees for the large-scale afforestation available. In the structure of the State Agency for Forest Resources of Ukraine are about 100 nurseries and 16 thousand ha of seed stocks, where each year around 400 million pieces planting material is getting.

Only about 18 million cubic meters of wood are harvested annually in Ukraine (on average 1,9 m<sup>3</sup> / ha of forest land), from which only about 45% comes from the main cutting. There are used only around 50% of an annual increment. This is connected with the fact that about 40% of Ukrainian forests are excluded from the main cutting.





250 0 250 Kilometers







Forest health was influenced by a large-scale reforestation after the Second World War. Now every second hectare of Ukrainian forests is planted. Monocultures grow in large forest territories, a lot of plantations grow in unfavorable conditions (for example in unproductive eroded lands). Forests are fragmented. In these conditions forests are perceptible to negative anthropogenic impacts and environmental factors.

According to the national legislation and international agreements environmental monitoring is implemented in Ukraine as a component of the state environmental monitoring system. Since 1989 forest monitoring is fulfilled in the framework of the International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests Economic Commission for Europe (ICP-Forests). Forests monitoring is based on the Manual ICP-Forests of I Level.





The share of forest production in the total production in Ukraine is about 0,3%.

Under the final fellings dominate in Ukraine the clear cuts - they account for about 90% of the cutting areas.

On average, half of all forest operations is carried out by private enterprises and commercial structures, whose services are then paid by the forest enterprises.

The management of forests in Ukraine is strictly regulated. Various regulations of the Cabinet and the State Agency for Forestry leave foresters little room for own initiative.





For example, according to "Regulation on the improvement of the qualitative state of forests" may not be carried out thinning in 21-40-year-old forest stands with a stocking of 0.7 and less. In the older stands, the limit is even already at a stocking level of 0.8 and less.

In the base of the main felling there is the observance of the principles of continuous, sustainable and rational use of forest resources, reconstruction of the stable stands of high productivity, which will promote forest biodiversity conservation at complete use of possibilities of natural regeneration of the valuable forest forming species and more wide use of ecologically safe technologies of logging.





Creation of protective forest stands and shelter belts is planned to protect environment, to prevent soil erosion and river exhausting. Protective forest cultivation will be carried out chiefly on the lands which are of low productivity, degraded and polluted.

To improve forest protection from fires, it is foreseen to carry out additional fire-preventing measures in coniferous stands of the steppe zone by creation wide fire-preventing breaks and step by step introduction of television laser distant observation complexes.





There are following priorities in National Forest strategy of Ukraine:

- increase of forest coverage in the country up to optimal scientifically-founded level;
- increase of productivity and improvement of tree species composition of forest stands;
- increase of nature-conservation potential of forests, preservation of their biodiversity;
- increase of forest ecosystems sustainability to negative environment factors and climate changes;
- increase of rational forest resources use level;
- increase of scale of protective forest cultivation and forest melioration;
- improvement of legislative base for forest management and its harmonization with international principles of sustainable forest management;
- magnification of state control for forest conservation and protection, forest resources usage and renewal;
- development of forest science and education;
- magnification of socio-economical role of forest management.





The main directions of forest management in mountain conditions are:

- replacement of secondary spruce stands in the belt of beech and silver fir forests on the primary types of stands;
- creation of protective forest stands along small rivers;
- afforestation of eroded sites on the steep slopes;
- reconstruction of forest stands, destroyed by element and biotic factors, forming of mixed stands of many layers;
- improvement of felling system for the account of the shelterwood and selective felling, nature protective technology of logging;
- forest roads network development.





The "sanitary rules for the forests of Ukraine" foresee, whole stand to cut out, if after removal of diseased and damaged trees a stand stocking of 0.5 is not reached. Then, this area is to replant. These regulations are not effective for the forming of mixed, unevenaged forest stands.

Currently, many stocks have sunk due to the action of pests and diseases biological resilience that the massive scale of sanitation fellings caused in Ukraine. Particularly large area is the dying of secondary spruce stands in the Ukrainian Carpathians.





























In addition to these immediate pressures of the forests there are a number of other difficulties:

- There is too great gap between the forestry scientific knowledge and the capacity to implement it. Although scientists have developed modern, nature-friendly methods of forest management, but for the foresters on site it is difficult due to lack of money and lack of technical possibilities, to put this into practice.
- In the suburban forests is often a heavy load to register by recreation seekers. This causes degradation of resources and a reduction of stand increment.
- Forest management is often complicated by the small density of forest roads, especially this is recorded in the Carpathians.
- Poor condition of forest machines and tractors. They are often outdated and forest enterprises lack the money for the procurement of new technique.

























































































































































































































EST. AC. GROW  
*Fagus sylvatica* L.  
H = 33 m  
D. = 64 cm  
V = 4.3 m³

































**THANK YOU FOR YOUR ATTENTION!**