



State Agency of forest resources of Ukraine

Lviv Regional Department of Forestry and Hunting

State Enterprise "BIBRSKE forest management"

National Forestry University of Ukraine

Information about field trips

Thursday ,13 September 2012

Field visit 1. Close-to-nature silviculture

Thursday ,13 September 2012

Goal: get to know how close-to-nature silviculture develops on the example of major forest sample plots of Lviv oblast

Agenda:

08:30

Departure of the bus from hotel Dnister.

GROUP LEADERS:

Jaroslav Gula – Chief Forester of the State enterprise “Bibrske forest management”

Oleh Leychuk – Chief Forester of the State enterprise “Stryjske forest management”

08:30-09:30

Transfer Lviv – Romanovske forest range of the SE “Bibrske forest management”

09:30-10:30

Review of forest cultures and conversion cuts in the Romanivske forestry of the SE “Bibrske forest management”

10:30-12:30

Transfer from the Romanivske forestry of the SE “Bibrske forest management” to the Lisovytske forestry of the SE “Stryjske forest management”

12:30-13:30

Review of primary fir stands and conversion cuts in spruce-oak-beech forests of the Lisovytske forestry of the SE “Stryjske forest management”

13:30-14:00

Transfer to Morshyn

14:00-16:00

Lunch

16:00-18:00

Transfer to Lviv

Information about the scientific-production sample plot “Romanivsky”

General information

The sample plot was established in 2007 on a slope of 8 °, the exposure - south. Area - 13 hectares, altitude - 350-380 m. Beech forests. Forest type - Wet hornbeam beech forests, soil type - gray forest loam.

The purpose of establishment

Testing of conversion methods of pure even aged beech stands into mixed uneven-aged multi-layer close-to-nature stands based on natural regeneration.

Table 1. Silvicultural-taxation characteristics and forest management activities

Indicators of the stand conversion			Forest management activities (recommended and carried out)
Silvicultural-taxation indicators	Current status	Target results	
Stand composition	10Fagus sylvatica +quercus, Carpinus betulus, acer, sycamore, Tilia cordata, cherry, Ulmus laevis	6Fagus sylvatica 3quercus 1 Carpinus betulus +acer, sycamore, cherry, Ulmus laevis	1. Removals: <ul style="list-style-type: none"> • 1994 – selective sanitary cut, 7 m³/ha; • 1999-2000 – thinning, 36 m³/ha; • 2008– thinning, 86 m³/ha; • Next conversion cuts every 6-8 years with the intensity of 40-60 m³/ha 2. Facilitation of the target stand regeneration: <ul style="list-style-type: none"> • Regulation of undergrowth development • Regulation of density of sward • Litter loosening 3. Introduction of valuable species by silvicultural methods: <ul style="list-style-type: none"> • sowing of seeds; • creation of partial cultures with seedlings
Age structure	Even-aged, 80 л.	Uneven-aged	
Vertical and horizontal structure	One-layer, density – 0,75, crown canopy – 0,80	Three-layer, density by layers: I – 0,5; II – 0,4; III – 0,3, crown canopy – 0,9	
Stock, m³/ha	370	500	
Natural regeneration: number of undergrowth by species, thou pieces / ha	Fagus sylvatica – 205,0; quercus– 0,3; Carpinus betulus – 1,1; acer – 2,0; sycamore – 8,0; Ulmus laevis – 0,6; non-uniform distribution	Sufficient for sustainable development of uneven-age primary forest stand, uniform distribution	

Silvicultural feasibility and efficiency of the sample plot – formation of mixed uneven-aged high productive forest stand with the permanent performance of useful environmental functions and regular (every 6-8 years) removal of trees with the total mass of 40-60m³/ha

Economic efficiency of the sample plot with the area of 13 ha – saving of money in comparison with traditional forest growth – 115.1 thou UAH (8.9 thou UAH per 1 ha), including savings in:

- carrying out activities on growing forest - 109,7 thou UAH, 95,3% *
- thinning (in young crops up to 10 years) - 5,4 thou UAH, 4,7%

Savings on growing forest includes economy on:

- growth of planting materials - 44,3 thou UAH., 38,5%
- creation of forest crops - 22,3 thous UAH., 19,4%
- tending of plantations and interplanting - 43,1 thou UAH., 37,4%

Information about the scientific-production sample plot “Morshynsky”

General information

The sample plot was established in 2008. Area – 0.8 hectares. Beech forests.

Forest type - Wet hornbeam fir forests, soil type - gleic.



Research section



Control section

The purpose of establishment

Testing of conversion methods of pure even aged beech stands into mixed uneven-aged multi-layer close-to-nature stands based on natural regeneration.

Table 1. Silvicultural-taxation characteristics and forest management activities

Indicators of the stand conversion			Forest management activities (recommended and carried out)
Silvicultural-taxation indicators	Current status	Target results	
Stand composition	5Fagus sylvatica2quercus2 Abies alba, 1 Carpinus betulus + Alnus glutinosa, Picea excelsa, Tilia cordata, Ulmus laevis, Carpinus betulus	4Fagus sylvatica3abies alba2quercus1 Carpinus betulus + Scotch pine, Picea excelsa, Tilia cordata, Ulmus laevis, cherry, Populus tremula	<ol style="list-style-type: none"> Establishment of forest crops: <ul style="list-style-type: none"> 1935 creation of forest crops of quercus and Picea excelsa with participation of Scotch pine and Larix decidua at the cutting area with beech, Abies alba, Carpinus betulus undergrowth • Thinning Stand removals: <ul style="list-style-type: none"> • 1940-2000 – thinning • 2008 - conversion cuts with removal of 134 m³/ha • Next conversion cuts every 6-8 years with the intensity of about 50 m³/ha Facilitation of the target stand regeneration: <ul style="list-style-type: none"> • Regulation of undergrowth development • Regulation of density of sward • Litter loosening Introduction of valuable species by silvicultural methods: <ul style="list-style-type: none"> • sowing of seeds; • creation of partial cultures with seedlings
Age structure	Conditionally uneven-aged 40-80 aged	Uneven-aged	
Vertical and horizontal structure	Three-layer, density by layers: I – 0,3; II – 0,1; III – 0,1, crown canopy – 0,7	Three-layer, density by layers: I – 0,5; II – 0,4; III – 0,2, crown canopy – 0,9	
Stock, m³/ha	204	500	
Natural regeneration: number of undergrowth by species, thou pieces / ha	Fagus sylvatica – 14,8; Abies alba – 31,5; quercus – 1,3; Carpinus betulus– 50,2; Scotch pine – 0,8; Ulmus laevis – 1,6; Populus tremula– 0,5; white birch.; Pinus sylvestris Non-uniform distribution	Sufficient for sustainable development of uneven-age primary forest stand, uniform distribution	



Silvicultural feasibility and efficiency of the sample plot – formation of mixed uneven-aged high productive forest stand with the permanent performance of useful environmental functions and regular (every 6-8 years) removal of trees with the total mass of 50 m³/ha.

Economic efficiency of the sample plot with the area of 0,8 ha - saving of money in comparison with traditional forest growth - 9,1 thou UAH. (11,4 thou UAH per 1 ha), including savings in:

- carrying out activities on growing forest * - 8,4 thou UAH., 92,3%
- thinning (in young crops up to 10 years) - 0,7 thou UAH., 7,7%

***Savings on growing forest** includes economy on:

- growth of planting materials - 3,4 thou UAH., 37,4%
- creation of forest crops - 1,7 thou UAH., 18,7%
- tending of plantations and interplanting - 3,3 thou UAH, 36,2%

LVIV FORUM ON FORESTS IN A GREEN ECONOMY

FIELD TRIP. ECO-TOURISM AND GREEN TOURISM

Visit to the National Nature Park “Skolivski Beskydy”

Thursday ,13 September 2012

Goal: to survey the issue of sustainable tourism development at forest areas of nature protected fund of Ukraine.

Issues for discussion:

1. Development of tourism versus biodiversity preservation at the nature protected areas of Ukrainian Carpathians.
2. Role of nature protected areas in local economic development and sustainable use of natural (forest) resources.

Agenda

08:30	Departure of the bus from hotel Dnister. GROUP LEADER – Vasyl Brendak , Deputy Director of the NNP “Skolivski Beskydy”
08:30-11:0	Transfer from Lviv to Urych village
11:00-12:00	Excursion at Tustan’ Fortress
12:00-13:00	Transfer Urych - Dubyna
13:00-14:00	Excursion to Kamyanka waterfall and tourist hut
14:00-14:30	Transfer Dubyna - Korostiv
14:30-16:00	Lunch
16:00-16:45	Excursion to rural guesthouse “Lyubomyra”
16:45-18:45	Transfer to Lviv

General description of the NNP “Skolivski Beskydy”

National Nature Park “Skolivski Beskydy” established by the Decree of the President of Ukraine of 11.02.99 No 157 with the goal of conservation, restoration and sustainable use of landscapes of the western part of Ukrainian Carpathians. NNP “Skolivski Beskydy” is a natural, recreational, cultural, educational, and scientific and research institution of national importance and is a part of natural reserve fund of Ukraine.

The total area of NNP is 35,684 hectares: 24,702 hectares - in permanent use, 10,982 ha – in use of other land users.

Administrative structure of NNP:

Management (administration);

Scientific department;

Forestries – 6 units;

Recreation and establishment department;

Economic section.

Park employees - 164 people, including nature guard service - 82 persons.

In the NNP “Skolivski Beskydy” there are 10 environmental programs under implementation, namely:

1. *Bison reintroduction program*. As part of this program 9 bisons were imported from Germany. At present time there are 15 bisons freely living in the Park.
2. *Conservation and restoration of forests with yew trees in mixture*. Under this program 1200 yew trees were planted in the park.
3. *Plantation of Ginkgo biloba*. 60 trees plantation was established.
4. *Improvement of secondary spruce plantations and reproduction of indigenous forest plant communities*.
5. *Current status of populations of brown bears in the national park*. The number of brown bears in the park is 26 individuals and it is optimal.
6. *Protection and restoration of wood grouse community*.
7. *Carpathian project of Hutsul horses breed recovery*. Purchased 11 horses. Current number of livestock - 16 individuals.
8. *Program of recreational activities in the NNP “Skolivski Beskydy”*. In the park there are 2 tourist shelters created, 8 environmental-educational paths and routes, 1 horse trail, 2 automobile routes, 2 biking trails, 10 recreational sites.
9. *Program of environmental education activities*. As part of this program 3 eco-educational centers created. Also there are 2 school forestries based on Skoliv boarding school and Zavadka school.
10. *Program "Forest surveys of protected area of NNP “Skolivski Beskydy”*. Route survey of the protected area are conducted in the Park, during which 9 rare groupings listed in the Green Book of Ukraine were found and 57 species of mushrooms inventoried.

Cooperation with the Bieszczady National Park (Poland) is established aimed at the exchange of experience in the environmental, scientific and educational work.

Recreational and eco-tourism potential of NNP “Skolivski Beskydy” can be considered as one of the priorities of the work of the Park.

Description of the visit sites

1. Historical and Cultural Reserve Tustan'

"Tustan" - is the accumulation of sandstone rocks in Urich village, with scientific, aesthetic, recreational, historical and cultural value, protected by the state as a natural monument since 1960. At present, Tustan' is the object of NNP "Skolivski Beskydy" and the State Historical and Cultural Reserve Tustan'.

Tustan' Fortress have always been interesting and attractive to tourists. This unique monument of history and architecture of the ninth and thirteenth centuries, which has no analogues in Europe, is visited by over 50 thousand tourists annually.

In the era of Rus-Ukraine and Galicia-Volyn principality at this place existed Knyazh-grad Tustan' whose history was created by many generations of Rus-Ukrainians. In the XIII century a transcontinental (Silk) route from China to Portugal was going through this place. Tustan' that was on the way, was one of the main points of trade (Galician salt). Archaeological evidence and written documents show that Tustan' played the role of customs from IX to mid XV century. By grooves and shear it was studied that for 500 years the castle was rebuilt five times, starting with one-storey building (in IX century) it became a five-storey building with total height of over 18 m (fifth construction period, which dates from XIII century).

At the territory of the reserve there is a museum where you can gradually learn the history of Tustan' and hear interesting stories about archaeological findings: household items, which were used in the ninth and thirteenth centuries, weapons, interior of those times.

Within the reserve there is ecological-educational site (shelter "Lord's Yard"). It can accommodate up to 80 people at the same time. There are 4 places to relax ("Stravnytsya Ratna," "Princes," "Tower", "Vojvodina"), and viewing platform from which visitors can observe small waterfall.

2. Waterfall on the River Kamjanka

A few kilometers from the Dubyna village there is scenic waterfall - amazing sights of nature at river Kamjanka. Here the water falls with wide curtain from the six-meter height. This place is very popular among local historians and tourists.

To meet the needs of visitors and reduce the recreational pressure on the nature on the way to the waterfall on the Kamjanka river, moving to the right, in the forest massive there is "Tourist site Dubyna". Total capacity of the site - about 100 people.

The site includes 10 places/spots, including 6 - open, and 4 - covered. Each spot includes a table with benches, a place for tents, barbecue and parking. Here is the start of two eco-educational paths.

Income from recreation and tourism activities

At the NNP "Skolivski Beskydy" there are established and marked/signed 8 eco-educational trails and routes ("Skole - Gurkalo Falls ", "Valley of Kamjanka river", "To the waterfall" (Pavliv potik area – Chudyliiv potik area - waterfall on the river Kamjanka), "Buchyna", "Lopata", "Skole - Parashka mount - Majdan", "Rosokhach - Rosohatski meadows – Tysovets", "Skhidnytsya – Urych"), 2 automobile routes ("Skole - waterfall on the river Kamjanka - Tustan' Fortress", "Skole - the tomb of Prince Svyatoslav - Tysovets), 2 biking trails, 1 horse trail ("To rosohatski meadows").

In recreation areas of NNP "Skolivski Beskydy" the following services are provided: excursions (by foot, horseback, motorcycles, bicycles), short-term vacation, place for tents for long-term stay.

Park staff delivers guided tours for organized groups of youth. Horse riding can be also organized.

At the forestries there are furnished rooms for accommodation of tourists and visitors.

Income from recreational activity of NNP "Skolivski Beskydy" in 1st half of 2012 is 80,926 UAH.

Total number of visitors in the 1st half of 2012 - 27 thousand people.

Number of excursions in the 1st half of 2012: for organized groups - 154 schools - 83.

LVIV FORUM ON FORESTS IN A GREEN ECONOMY

Field trip “Forest industry and its development”

Thursday ,13 September 2012

Aim of the field trip: to get to know how forest industry develops in the Carpathian region of Ukraine on the example of the wood processing unit of the Brody forest enterprise and Svitanok company

Agenda:

- 08:30 Departure of the bus from hotel Dnister.
GROUP LEADER – Mykola Servatovych, Chief Engineer, Brodivky forest management.
- 08:30-09:50 Transfer from the hotel to Brody
- 09:50-10:15 Review of the office of the state enterprise “Brodivsky forest management”
- 10:15-10:30 Transfer Brody – Berlin
- 10:30-11:30 Review of the recreational place “Ozerce”, greenhouse growing planting material and dendropark of the Berlin forest range, transfer to the Brodivsky forest range and review of recreational place “Next to bears”
- 11:45-13:00 Getting to know Brodivsky wood processing unit
- 13:00-14:30 Lunch
- 14:30-17.00 Transfer Brody – Mistky, “Svitanok” company production facilities
- 17:00-18:00 Tour over wood processing company “Svitanok”.
- 18:00-18:15 Q&A. Discussion.
- 18:15-19:00 Transfer to Lviv

Information about the State enterprise “Brodivsky forest management”

Brodivsky forest management was organized on April 1, 1948. From 1950-s the enterprise was already engaged into wood processing with its shops producing boards for boxes and barrels. In 1958 in Brody, a wood processing workshop was organized, which continuously expanded to process in 1980 some 28.000 cubic meters of timber. In those times, the workshop had 4 lines and produced saw timber, boards for boxes, parquet boards.

In the middle of 1990s, the enterprise has undergone modernization. The Forest management enterprise for the first time bought imported equipment (Woodmizer band saw, numerous saws PAUL) to be able to produce coniferous and hard-leaved saw timber for export.



In 2000 in order to expand the production volumes and increase its efficiency, a line for manufacturing the sawn timber was installed on the basis of the band saw ARTIGLIO ST-110 and multiple saw MBS-55. Gradually the workshop started to work in three shifts, producing some 8,500 cubic meters of sawn timber annually. In 2006, another sawn timber production line was added to process small-dimension timber. Sawn timber production volumes reached 12,000 cub. meters annually.

In 2003, efforts were made to improve efficiency if low grade timber processing. This year another line was installed to produce pallet boards on band saw machines, thus decreasing the timber input by 1/3 and increasing its output more than twice. The forest management enterprise continues to expand its production. Thus, in 2011 one more line was installed to produce pallet boards, making it possible to increase the output of pallet boards by 1300 cubic meters annually.

The wood processing workshop figures in dynamics are showed in the table.

Table 1. Main technical-economic indicators of the wood processing workshop of the State enterprise “Brodivske forest management”, 2008 – 2012

Indicators	2008	2009	2010	2011	2012
1. Processing of timber, cbm	37128	32313	39574	47227	29454
2. Processed timber to total harvesting	49.3	50.7	44.0	50.9	60.8
3. Output, cbm					
Sawn timber	12714	9879	10353	13846	7519
Sleepers	-	-	2691	2258	1873
Parquet board	70	136	105	146	73
Sawn boards for export					
Beech	704	810	752	555	328
Oak	875	920	780	826	406
Coniferous	229	132	-	-	-
Maple	111	75	65	51	43
Europallets	4160	3932	5456	6636	4645
4. Jobs	211	203	208	229	215
5. Average wage, UAH	1523	1528	2113	2809	2793
6. Profitability rate of processing, %	9.0	36.6	7.7.	8.6	5.0
7. Woodprocessing products to total sales. %	64.6	64.0	59.4	64.6	66.2

Information about company “Svitanok”

“Svitanok” – is a group of companies set up in 1990 focusing on construction and wood processing. The wood processing production facilities of 7000 sq.m. are furnished with European equipment and produce windows, interior and external doors, moldings and other elements of interior from various species. The company also specializes on renovation and manufacturing of doors and windows for Lviv historical buildings. It is a member of the Wood processing and Furniture cluster of Lviv region.

General overview of the wood based industries in the Carpathian region, Ukraine

Wood processing in the region has a long established tradition, is an important pillar of the regional economies and includes:

- sawmill and chip production,

- wooden railway ties,
- wooden floor coating of deck floor and parquetry,
- veneer, plywood,
- fiber board and particle board,
- other panels and boards,
- wood drying, wood impregnation,
- wooden construction frames and joinery products,
- wooden containers.

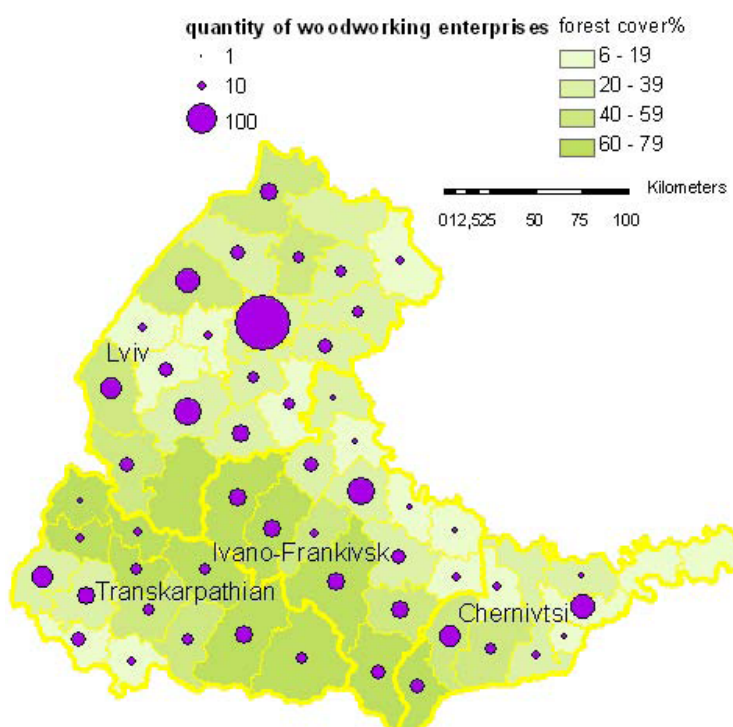
During few last years Ukrainian wood processing and furniture sector demonstrated stable increase of all parameters - production, sale, import, export. But in the aftermath of the economic crisis of 2008 these parameters considerably decreased.

If to compare the four Carpathian oblasts in terms of resources and production capacities, the overall trend is that the highest value-added processing is located mainly in the vicinity of the markets rather than resources.

Approximately 2000 **sawmilling** enterprises (mainly small-scale) are operating in the Carpathian region. On average, these small sawmills employ from 5 to 8 persons with an average production capacity of 1000 cub m per year. The sawn goods are export oriented kinds of products. The largest number of sawmills located in remote mountainous communities where they provide important employment opportunities as well as supply various wood products.

There are 5 **board manufacturing** enterprises in the Carpathian region (three in Ivano-Frankivsk region, one in Lviv and Chernivtsy regions and none in Transcarpathia). They employ about 1500 persons. Rates of output growth in the board industry are the highest in the whole forest sector of the Carpathian region, also because of the stable demand for board materials.

The most powerful production in the **pulp and paper industry** of the Carpathian region of Ukraine is Zhydachiv pulp and paper plant located in Lviv oblast. Its share in the Ukrainian market of news paper is 24%.



The Carpathian **furniture industry** accounts for 15% of the total furniture output of Ukraine. Furniture enterprises are quite widespread – they are present almost in every rayon. About half of furniture enterprises are concentrated in the vicinity of Lviv and Ivano-Frankivsk and the rest are more or less evenly distributed. There are a lot of furniture manufacturers which are mostly oriented towards cheap furniture production resulting with only 3-5% of enterprises producing massive furniture. At the same time, the demand for furniture in Ukraine is ever-increasing, particularly for high quality massive furniture.

Fig. A. Concentration of wood processing enterprises in the Carpathian region of Ukraine

In accordance with the functional purpose, in the Carpathian region of Ukraine, upholstered furniture and domestic furniture have the highest share of production (41% and 26% respectively).

The forest and wood based sector of the Ukrainian Carpathians occupies the 4th place in the economy when treated as a possible **cluster** – an interrelated complex of forestry, wood processing, forest based tourism, non-timber forest products etc. The forest and wood based industries employ 52 thousand men and women at more than 2000 enterprises. All these factors demonstrate important socio-economic significance of this sector in the regional economy.

There is a real potential to strengthen positions of the forest sector in such directions as wood processing, wooden house construction, forest based tourism, non-timber forest products processing which would contribute to creation of new jobs and increase of population income. However, this requires joint coordinated efforts of all stakeholders at various levels: decision makers, business and community.

One recent example of forming a regional network is the **Wood Processing and Furniture Cluster** of Lviv region <http://www.domv.lviv.ua> , a young organization set up in 2010. The history of the cluster stems from the events organized in 2007-2009 within the Swiss-Ukrainian project FORZA, which dealt with the sustainable forestry management in the Ukrainian Carpathians. Those seminars and conferences brought together wood processing companies and companies using wood, representatives of state forests' management authorities as well as local authorities from the across the region. Svitanok, Buk Holding, Uniplyt, Lviv Furniture Combinat are the founders of the cluster, with a range of companies as well as the Ukrainian National Forest University being its members. Wood Processing and Furniture Cluster's main activities are centered on the growth and extension of markets, in which members of the cluster are active, innovation in the wood-related industries, joint presentation at world leading fairs as well as collaboration between different institutional stakeholders (authorities, regulators, NGOs, etc.).