

*A.V. Sudnik,*

Candidate of Biological Science, Head of the Plant Monitoring Sector  
of the State Scientific

Institute of Experimental Botany n.a. V.F. Kuprevich  
under the National Academy of Sciences of Belarus

*P.P. Voznyachuk,*

Candidate of Biological Science, Lead Researcher, State Scientific

Institute of Experimental Botany n.a. V.F. Kuprevich  
under the National Academy of Sciences of Belarus

**EXPERIENCE IN ESTABLISHING A REGIONAL FOREST ECOLOGICAL  
EDUCATIONAL CENTRE IN LIDA DISTRICT OF GRODNO OBLAST  
BASED ON THE NATURAL MONUMENT OF LOCAL SIGNIFICANCE  
“GORNI”**

**INTRODUCTION** The idea of establishing a regional forest ecological educational centre in Lida district of Grodno oblast (hereinafter referred to as the Centre) arose in 2013 for the first time. However, it was 2016 when the idea started to be implemented. The Centre was founded by the Public Association “Belarusian Botanic Society” in partnership with the State Scientific Institute of Experimental Botany n.a. V.F. Kuprevich under the National Academy of Sciences of Belarus and the State Forestry Institution “Lida Forestry”. The foundation of the Centre is a pilot initiative within the framework of a large-scale project

“Supporting the Transition to a Green Economy in the Republic of Belarus”, funded by the European Union and implemented by the United Nations Development Programme in partnership with the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus. The implementation period for the pilot initiative is 18 months (from January 1, 2016 to June 30, 2017).

The purpose of the Centre is to develop infrastructure and increase the level of

awareness and environmental education of students of secondary, higher and special educational institutions, youth, local population as well as improvement of professional knowledge of forestry and other spheres of nature management in the field of environmentally-oriented forest management and forest use, development of ecotourism activities and provision of tourism and other services.

The main objectives of the Centre:

- raising the level of awareness, environmental education and involvement of students, youth, local population and tourists in the preservation of the natural values of Grodno oblast through conscious environmentally acceptable use of natural resources;

- dissemination of principles and ideas of sustainable forest management and forest use, forest certification, management in specially protected areas, forestry and environmental legislation for forestry workers and environmental organisations of Grodno oblast;

- organisation and conduct of scientific, practical and training seminars and conferences, lectures, excursions, various ceremonies and celebrations;

- development and organisation of ecotourism activities and services, attraction of travellers, hunters and fishermen, native and foreign tourists;

- promoting active recreation of the population by providing hunting facilities, sports equipment and equipped recreation areas for living, selling honey, etc.

**RESULTS** The Centre is located in the village of Gorni (on the southern outskirts of Lida, 2 km from the main highway M-6/E28 Minsk-Grodno-border of the Republic of Poland) and is consisted of four functional zones:

- educational - ecological class (educational computerized class designed for 20-25 people with an area of 34.4 m<sup>2</sup>);

- training and demonstration - Grodno oblast forestry museum

- (with expositions of forestry and nature protection topics and facilities of a mini-cinema for 35-40 visitors);

- natural demonstration combining a set of field full-scale demonstration and training objects (ecological routes, demonstration objects of sustainable forest management and forest use);

- tourist including a well-equipped area of the botanical natural monument

of local significance “Gorni Park” (benches, swings, wooden sculptures, a sandpit, children’s playgrounds, etc.); the house “Visiting the Bees” (next to the bee farm); hunting facilities; a sports ground; a wedding alley; a tree and shrub labyrinth; a walk of fame; 4 ecological routes, etc.

*Botanical natural monument of local significance “Gorni Park” (the territory of the Centre).* The Centre is situated on the territory of “Gorni Park” while the natural monument of local significance

“Gorni Park” is located in the village of Gorni, Lida district, Grodno region and is part of the forest fund (SFI “Lida Forestry”, Lida Forestry, block 85, unit 1, an area of 6.73 hectares). As a natural monument, it was approved by the decision of the Executive Committee of Lida District Council of Workers' Deputies No. 243 dated 12.24.1964.

When establishing the Centre, a complete survey of all tree and shrub vegetation on the territory of Gorni Park was carried out (species composition, biometric parameters, age, vital and emergency state, presence of damage, recommendations for taking care). During the inventory of the park, 2071 trees and shrubs belonging to 41 species were examined. Each tree has a tag with its individual number. There are 158 trees in the park (7.6% of the total number) that have passed the centenary mark. The survived 135-year-old trees date back to the period of the beginning of the park formation according to the initiative of the Tsarist State Forestry Protection. From this period, linden aisles, plantations of Siberian larch, Weymouth and Scots pine, individual oaks, maples and ash trees have survived to these days. Moreover, 226 trees (10.9%) are old-aged trees (80-100 years old). A set of documents, including NiTEO, is prepared for the natural monument of local significance “Gorni Park” taking into account the development of tourist activities in the park, which have been coordinated with Lida Forestry and approved by the decision No.639 of Lida District Executive Committee on June 27, 2016.

Gorni Park is a unique botanical site which requires special measures for its conservation and imposes increased responsibility for its operation. This was taken into account when developing a concept for the improvement of the park. The maximum preservation of its territory and existing botanical values were assumed taking into account the development of ecotourism activities in the region. Public

hearings were organized and held. The participants could discuss the upgrading concept with an assessment of its impact on the environment.

The park has already been upgraded. For instance, wooden garden arbours and other small architectural forms (benches, swings, wooden sculptures, a sandpit, children's playgrounds, etc.) have been installed. An arbour with the adjacent road and path to it were installed for holding weddings. The newlyweds will be able to plant their own "family" tree here. Sports and children's playgrounds have been equipped in the park. The care and rejuvenation of the park plantations were carried out by planting and forming new compositions of trees and shrubs (a tree and shrub labyrinth, a walk of fame, etc.).

*Ecological class.* The ecological class is based in the same historical building as the administration of Lida forestry. The building was constructed in 1937 by the Polish forest guard. It has been in poor condition for a long time. However, it acquired the most modern look after reconstruction. Nevertheless, being the main architectural feature of the building, a pagoda-shaped roof rare for Belarus has been preserved. The ecological classroom is made in a modern style where you can hold lectures, seminars, business meetings, round-table discussions in a comfortable environment. Pupils from Lida received a modern educational platform for studying the flora and fauna of Belarus.

There are 2 general multimedia presentations aimed at pupils, local people and tourists: a virtual herbarium of plants and a virtual catalogue of animals.

8 specialized presentations are offered for forestry workers, specialists of state environmental institutions, travel organisations: Environmentally-oriented forestry as the basis for sustainable forest management and use; Forest certification as a tool for greening the forest sector of the Belarusian economy; Allocation of high conservation value forests and representative forest areas; Forest and climate; Organisation and implementation of forest monitoring including monitoring of high conservation value forests; Rare and typical biotopes; Specially protected natural territories of Belarus; Features of international and national legislation in the field of nature protection and its enforcement.

For the class, a selection of literature on environmental, ecological and forest topics was made. It's also possible to watch videos on the topic of ecology and forest

formation, participate in games such as the interactive board game “Enter the Forest”, a game for mobile devices

“Green economy”, etc.

*Museum of Grodno oblast forestry.* The museum is located in the building of the cone-drier which was built in 1972 by the former chief forester Fedor Vasilyevich Voytovich. It was considered one of the best in the Republic. By visiting the museum, one can find out how the process of drying cones and cleaning them from seeds looked like. It is equipped with modern equipment which nevertheless harmoniously fits into the architectural style of the 19th century.

Expositions of all 11 oblast forestry enterprises are represented at the museum. Honourable places are already taken by a seed cleaner machine, a saw for cutting logs into planks, a tool for tapping trees, a motor pump for extinguishing forest fires, a brush cutter, an old scale, samples of foresters’ uniforms of the past, etc. It will also be interesting to get acquainted with the merits of Lida forestry enterprise which can boast of its 140-year history, literature and periodicals on forestry. The museum has a mini-cinema with 40 seats for showing films and presentations.

The museum is equipped with the following stands and exhibits:

- 16 stands (posters) containing general information and demonstration materials on biological and landscape diversity of Lida district and Grodno oblast aimed at students, local population and tourists: “Forests as the Basis of Unique Natural Landscapes on the Territory of the Country”; “What Is Different Between Our Forests?”; “The Main Forest Forming Species: Scots pine”;
- “The Main Forest Forming Species: European Spruce”; “The Main Forest Forming Species: English Oak”; “The Main Forest Forming Species: European Black Alder”;
- “The Main Forest Forming Species: Weeping and Pubescent Birch”; The Main Forest Forming Species: Aspen (*Populus Tremula*);
- “Forest Resources”; “Large Inhabitants of the Forests of Lida District”; “Protected Animals of Lida District”; “Protected Plants of Lida District”; "The World of Insects";
- “The World of Fungi”; “The World of Lichens”; “Statements about the Forest”.

- 9 exhibits: 2 thematic collections of insects (useful species and forest pests);
- 3 voluminous collections of lichens (crustaceous, foliose and fruticose lichens); 2

voluminous collections of fungi (phytopathogens of forest trees and saprotrophs (species living on dead wood)); a collection of seeds of trees and shrubs; a collection of wood of the main forest-forming species.

– 2 interactive stands with tutorials.

*The house “Visiting the Bees”.* On the territory of the apiary located in Gorni Park, there is a small house “Visiting the Bees” where a professional beekeeper will tell you about the nuances of collecting honey, introduce you to the structure of the beehive and the family hierarchy of the bee family and let you try this sweet product and herbal tea.

The house is equipped with educational posters:

– “The Beehive is the Honey Bee’s Home”: this poster contains images and text that explain the structure of the beehives and the development of beekeeping as a branch of the national economy. The attention is focused on historical facts and important inventions in the field of beekeeping. The structure of the currently most common types of beehives is shown.

– “Honey Bee's Family”: this poster contains images and text about the structure of the honey bee’s family. The process of development of a working bee, its internal and external structure and types of bees of different labour specialization are shown. Attention is focused on its taxonomic position in the kingdom of living organisms. Interesting facts about honey and its properties are given.

*Ecological routes.* 3 walking, water and cycling ecological routes are equipped with information boards, posters and other materials (in Russian and English).

One ecological walking route runs through “Gorni Park”, the other one - through a forest in the area of Rybinovskogo st., Lida. For the convenience of strollers, 18 benches have been installed. There is also a cycling route which connects the area of the garden association “Borovka” with tennis courts located in Molodezhnyi microdistrict. Within the framework of the Project, 10 bicycles were purchased which can be rented.

Another route between the green giants of “Gorni Park” (children’s ecological route “Lukomorye”) has turned into an alley of fairy tales filled with mythical characters: some of them have “settled” near the trees, the others have “climbed” the branches. The famous Lida woodcarver Ivan Mikulko recreated fairytale characters.

He made 8 wooden sculptures of fairytale and cartoon characters (sculptures of Baba Yaga, the cat-scientist, the mermaid, the puck, the kikimora, the dragon, the geese-swans, the face of forestspirit Berendey). The water route was developed together with the “Address of the Summer” travel agency.

It starts in the village of Belogruda on the Ditva next to the church and continues towards the villages of Lubory and Konyushany. This direction was not chosen by chance: along the route there are an interfluve and an islet located on it popularly called the “Swedish Mountain” (it has its own history). This place is rich in various species of fish, birds, mammals and other representatives of the animal world.

Ecological routes have been agreed with the management of Lida forestry with an indication of the objects that need to be equipped (places for installing billboards, posters, signs; arrangement of recreation sites; crossings over streams, etc.). Corresponding metal structures were made for information boards and posters. 4 information and advertising boards (billboards) about the Centre have been developed and installed in places agreed with the management of Lida District Executive Committee.

*Objects of ecologically oriented forestry.* Experimental production facilities have been created in the forest fund in order to check scientific developments using the latest technologies and techniques in specific zonal-climatic and soil-typological conditions. Projects of forestry activities have been developed for these objects. The corresponding documentation (passports) has been drawn up. Scientific and technical products have been prepared (original layouts of information stands). Demonstration objects of sustainable forest management and use in the forest fund of Lida forestry are equipped with information stands.

*Tourist infrastructure.* With the support of Grodno State Forestry Organisation, 7 wooden arbors were installed on the territory of the park. The park is equipped with:

- a children’s playground consisting of a house with a slide, swings, swings-balancers, a sandbox, benches made of wood with carved figures of animals;
- two spacious sports grounds for playing volleyball, table tennis, badminton, etc. The necessary sports equipment and inventory have been purchased. There is a place for fans.
- a wedding alley and an arbor, a tree and shrub labyrinth.

Information (photo albums, photo puzzles, postcards, magnets, etc.) and advertising materials (leaflets, signs, advertisements, etc.) about the regional forest environmental educational centre have been developed.

*Organised and conducted events.* 7 scientific, practical and training seminars in various directions have been organised and conducted (more than 200 participants) in order to raise awareness and the level of environmental education as well as involve students, youth, local population, forestry workers and other industries in the preservation of natural values of Grodno oblast through a conscious environmentally acceptable use of natural resources, dissemination of principles and ideas of sustainable forest management and forest use, forest certification, management in specially protected areas, forestry and environmental legislation for forestry workers and environmental organisations of Grodno oblast.

**RECOMMENDATIONS.** The SFI “Lida Forestry” recommends to actively involve the public in the discussion of issues related to the functioning of the Centre. For instance, to establish a rapport with the public organisation “Christian Commonwealth of Adults and Young People” in Lida district which has been implementing an initiative aimed at developing opportunities for lifelong education on the territory of Peskovskiy Village Council and creating conditions for the implementation of non-formal educational programmes for rural residents on the basis of the Youth Centre; to work more actively with schools of secondary and additional education in Lida district and Grodno oblast.

**CONCLUSIONS.** All in all, on the basis of the Centre, an easily accessible information base has been formed including objective information about the nature and biological diversity of Grodno oblast and Lida district, in particular, about the current trends in the use of natural resources, new methods of forestry, organisation and management of nature protected areas and ecotourism activities. Functioning of the Centre creates conditions for increasing environmental literacy and engaging young people and local population in the process of preserving the natural values of Grodno oblast in specially protected natural areas, in the first instance, through conscious environmentally acceptable use of natural resources, participation in environmental activities, and prevention of violation of environmental legislation. The creation of the Centre allows to attract young people to the study of the principles of environmentally-



oriented forestry and contributes to the formation of a respectful attitude towards nature.