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Гриماشевич В.В. Кліматичний детермінований прогноз ресурсів побічного лісокористування Білорусі на період до 2050 р.

На підставі прогнозованої динаміки лісового фонду на тлі глобальної зміни клімату зроблено кліматично детермінований прогноз ресурсів побічного лісокористування на період до 2050 р. з інтервалами через п'ять років. Спрогнозовано зниження ресурсів: ягід брусниці, лохини, білого гриба, лисички звичайної і підберезника. Загалом відбудеться збільшення загальних ресурсів ресурсоутворювальних видів ягідних рослин на 11 % і зниження грибів на 5 %. Спрогнозовано збільшення ресурсів березового соку на 8 %, плодів горобини звичайної – на 15 %, груші звичайної і шипшини – на 4 %, плодів яблуні лісової і горіхів ліщини звичайної – на 2 %, калини звичайної – на 1 %, медопродуктивності лісових угідь – на 24 %. Для запобігання негативним наслідкам необхідно розробити низку лісгосподарських й інших заходів, які дадуть змогу не тільки зберегти, але й підвищити ресурси побічного лісокористування.

Grymashevich V.V. Climatic determined prognosis of resources of side forest using in Byelorussia on a period to 2050

Based on the predicted dynamics of the forest fund in terms of global climate change we have made a climatically determinate projection of minor forest produce resources to 2050 at 5-year intervals. According to the projections, the resources of *Vaccinium vitis-idaea* L., *Vaccinium uliginosum* L., *Boletus edulis* Fr., *Cantharellus cibarius* Fr. and *Boletus scaber* Fr. may decrease dramatically. On the whole the total resources of all the principal wild berry plants may increase by 11 %, while mushroom resources may decrease by 5 %. The resources of birch sap may increase by 8 %, fruit of *Sorbus aucuparia* L. – by 15 %, fruit of *Pyrus communis* L. and *Rosa* L. – by 4 %, fruit of *Malus sylvestris* Mill. and nuts of *Corylus avellana* L. – by 2 %, and fruit of *Viburnum opulus* L. – by 1 %; honey productivity of woodlands may increase by 24 %. A complex of silvicultural and special-purpose measures should be worked out to overcome negative berry plants productivity trends, conserve and increase resources of minor forest products.

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THE ENHANCEMENT OF SCIENTIFIC INFORMATION FOCUSING ON SUSTAINING PRODUCTIVITY OF LANDS FOR WOOD AND OTHER GOODS AND SERVICES IN MOLDOVA

Moldova is a small and developing country in eastern Europe. However, compared with other developing countries, the Republic of Moldova has limited natural resources. We propose that new alternative land uses based on forest resources could diversify and greatly improve the economy. Therefore, one of the main objectives of our Fulbright pro-

ject, is to synthesize and deliver information to private landowners about the potential opportunities from wood and other goods and services while also sustaining the productivity of their lands.

Keywords: forest resources, land use, goods and services, public ownership

Located in the south-eastern part of the European continent between Ukraine and Romania, Republic of Moldova (RM) has limited natural resources compared with other developing European countries such as Albania or Bosnia. The lack of fossil fuels (natural gas, oil and coal) and mineral ores have resulted in a strong economical and political dependence on Russia and Ukraine. Agriculture has been the dominant land use over the last few centuries, and poor land practices has led the country with some of the richest soil in the world to now have a greatly diminished economy with few alternatives (Gulca, 2007 a). This, in turn, jeopardises the security of RM. New alternative land use based on forest resources could diversify and greatly improve the economy. In Sweden for instance it was the development of mining, forest and hydroelectric industries from indigenous raw material that enabled Sweden to become a modern industrial nation. Developing a program for RM concentrated on sustaining productivity of lands for wood and other goods and services may provide a similar strategy that could greatly improve the economy of RM. This strategy must encourage farmers to invest money, land and time in afforestation of their private agricultural lands. Sustaining productivity of wood will lead simultaneously to restoration of whole spectrum of forest products such as wood, pulp, bioenergy, mushrooms, game, medicinal herbs, berries, etc. However we are conscious that after entire land expropriation in the middle of last century rural people lost the confidence in the land property rights and state representatives. The actions, which created this breach were expropriations, chronic changing of the states, governments, moneys, with no compensation for the society (Gulca, 2007 b).

Therefore the main task of our project is to synthesize information from a range of disciplines, and deliver it in clear and accessible formats to private landowners about sustaining productivity of their lands for wood and other goods and services. By providing interdisciplinary information specific to our region, we hope to strengthen decision-making processes by ensuring that policymakers and managers have access to an integrated body of thought.

There are numerous cultural, historical and political challenges that need to be overcome in order to develop a viable multifunctional forestry program in RM. We hypothesised that the forest use histories as reflected in ownership pattern and forest area affected the sustainable forest management (SFM). However, the opportunities are equally great as the challenges, and the development of a SFM for Moldova can result in economic independence, security, and social health for future generations (Gulca, 2009). In this context would be useful the idea of "conservation through wise use", advanced by Theodore Roosevelt and Gifford Pinchot in 1910. According to Roosevelt's (Leopold, 1986) all these "outdoor" resources were recognised as one integral whole, their "conservation through wise use" was recognised as public responsibility, and their private ownership as a public trust, while science was recognised as a tool for discharging that responsibility.

The timely science should be concentrated according to Per Pinstrup-Andersen (2008) on equilibrated increasing of productivity of water (one of the main issue for RM) and soil resources (principal natural resource in RM), risk control concerning droughts, flooding and pest (all often met in RM), diminishing of climate change consequences and adaptation. To meet the challenges of this new era, in which society aims to restore habitats for wildlife and maintain biodiversity as a primary objective of management, new principles are needed: cumulative effects, ecological dynamics, integration of ecology and planning (Krausman, 2002). These steps require international cooperation between managers and researchers both in areas where forest landscapes need to be restored and in areas which can provide knowledge and inspiration as reference areas where the fragmentation process has not advanced very far or even where it has not started (Angelstam, 1996, a).

In this context with a goal to apply some forest management models and practices from other countries to Moldova we would suggest a combination between patches of up to 0.1 ha on private land as in India, switched focus to farm and community forestry as in Philippines and increasing involvement of the private sector as in China. Of course the direction should be hold to Japan, Finland, Sweden and Norway models including proportion between private and public forests (Gulca, 2006 a). Or, in southern Sweden, the primary idea in the 1930 s was to increase the demand for wood and thus increase the value of the forests. A balance should be found at the local level; otherwise real sustainability may not be achieved Vanhanen (2005) cited by Gulca (2006 b). One of the most important aspects of the transition has been its effect on the pre-existing "untrained" men. Hundreds of field officers in the public service, though devoid of formal schooling, have, by contact with foresters, by personal study, and by attendance at forestry training camps, picked up a point of view, a technical understanding (Leopold, 1986).

It should be mentioned that countries in transition encounter many types of crises: economic, ecological, social, political and military (Gulca and Galupa, 2004). As Republic of Moldova is not an exception, but rather a specific region with more stressed particularities and social conflicts in relation between people and nature there is demand for sound scientific information. Hence because that high-quality research already exists our main task is the same as of hundreds of field officers mentioned by (Leopold, 1986), to pick up a point of view, a technical understanding among a scattered array of sources.

The main goal of the project is to enhance the usefulness of scientific information focused on sustaining productivity of lands for wood and other goods. We recognize that high-quality research already exists, but that locating it among a scattered array of sources can be time-consuming, expensive, and confusing. Consequently, we strive to pull together and synthesize information from a range of disciplines, and deliver it in clear and accessible formats.

We identified in the project six objectives that affect the ability of landowners to sustainably produce wood and services in the region. These objectives are intended to provide private landowners with information about how their management actions contribute to the regional economy, as well as how their lands contribute to the biological diversity of the region. These key objectives include:

- Identifying and understanding the major issues relating to forest and wildlife resources.
- Identifying barriers to sustainable forestry and wildlife management and assessing the impacts of incentives and environmental regulations on sustainable forest management.
- Developing a regional assessment of resource trends and market conditions including the long-term economic viability of forestry and hunting in the region.
- Assessing market opportunities for small woodland owners identifying niche market and other opportunities for small landowners.
- Identifying emerging technologies for wood products and summarizing and synthesizing new and existing information on wood technology.
- Developing a comprehensive communication strategy for reporting findings to a broad client base of land managers, researchers, and the general public.

Significance of the project is focused particularly to the private landowners from the poor and developing countries especially with a few natural resources. Consequently we expect by sound accessible scientific information about sustainable development of agricultural, forest and hunting sectors in combination, to improve the prosperity of the whole country. We think that proposals stipulated in the project for poor countries will help to prevent supposed situations in developed countries as we live on the same planet, which is rather small.

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Гулька В., Діл Р. Збільшення наукової інформації, що зосереджена на підтверджуючій продуктивності земель для деревини й інших товарів і послуг у Молдові

Молдова – невелика країна, що розвивається, у Східній Європі. Проте, порівняно з іншими країнами, що розвиваються, Республіка Молдова має обмежені природні ресурси. Ми пропонуємо, щоб нові альтернативні землі використовували, базуючись на лісових ресурсах, що приведе до урізноманітнення та значного покращення економіки. Тому, одне з головних завдань нашого проекту Фулбрайта – синтезувати і дослідити інформацію щодо приватних землевласників та про потенційні можливості вирощування й отримання деревини та інші товари і послуги, підтверджуючи продуктивність їхніх земель.

Ключові слова: лісові ресурси, використання земель, товари і послуги, державна власність.

Гулька В., Дил Р. Увеличение научной информации, которая сосредоточена на подтверждающей производительности земель для древесины и других товаров и услуг в Молдове

Молдова – небольшая развивающаяся восточноевропейская страна. Однако, в сравнении с другими развивающимися странами, Республика Молдова имеет ограниченные природные ресурсы. Мы предлагаем, чтобы новые альтернативные земли использовали базируясь на лесных ресурсах, что приведет к разнообразию и значительному улучшению экономики. Поэтому, одно из главных заданий нашего проекта Фулбрайта – синтезировать и исследовать информацию относительно частных землевладельцев и о потенциальных возможностях выращивания и получения древесины, а также другие товары и услуги, подтверждая производительность их земель.

Ключевые слова: лесные ресурсы, использование земель, товары и услуги, государственная собственность.

УДК 504.062.2

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BIOENERGY IN MECKLENBURG-WESTERN POMERANIA (GERMANY) AS A CONTRIBUTION TO SUSTAINABLE ENERGY SUPPLY

Fossile energy sources are limited. Furthermore the use of fossile energy damages our environment. Climate change is visable now and mankind has to take care for limiting this climate changes. The energy demand of all nations is rising at present. But the use of fossile ressources increases the global warming. That's why we are looking for alternatives. One of them is the use of bioenergy. It is renewable and does not intensify the green house effect. So we could see the use of bioenergy as a contribution to sustainable energy supply.

All nations of Europe try to increase the utilization of bioenergy now, and so does Mecklenburg-Western Pommerania. In a study we tried to estimate which part of primary energy consumption we are able to replace by bioenergy. The result is, that it would be possible to reach nearly one quarter in Mecklenburg-Western Pomerania. In addition we also will export a respectable amount of bioenergy.

Keywords: bioenergy, renewable supply, sustainable development, energy potential

Prevailing Circumstances. A lot of effort is made in the state Mecklenburg-Western Pomerania as well as in Germany and in the European Community

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