

THE CONCEPT OF SUSTAINABLE DEVELOPMENT IN THE STATE FORESTS NATIONAL FOREST HOLDING IN POLAND

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Abstract

The State Forests National Forest Holding strives to make everyday tasks performed in the Polish forests are consistent with the general concept of sustainable development by amending the existing executives acts for the Forest Act. With such a view was create the Director General of State Forests's Ordinance No. 11A, from 11 of May 1999, which is a change of the Director General of State Forests's Ordinance No. 11 from 14 of February 1995, concerning the improvement of forest management on ecological grounds. The new document contains a temporary general and detailed principles, which should be followed in order to improve forest management, with a view to sustainable development of forests and forestry. However, it is important to continue works on clarifying and implementating of these rules.

Key words: sustainable development, forestry, legislation.

Introduction

Recently, it is getting very popular to talk about the theory of sustainable development, and it seems that this phrase is becoming very fashionable, however, misused. Everybody talks about sustainable development, but there is one fundamental question, „do we know what the phrase really means”. What should be done to bring balanced development in reality.

Theory of sustainable development in forestry

The answers to questions mentioned above should be clear for foresters who analyzed the leads consisted in the decree published on 14 February 1995 with the changes introduced in decree 11A published on 11 May 1999 on improvement of forest economy based on ecological case. Discussed decree became the tool used by General Director of State Forests to introduce outlines of improvement of forest economy on the ecological base in State Forests units. The decree considered above obligates the directors of Regional Directorates of State Forests and head foresters to introduce and then follow the leads included in the decree in their current work and when the new forest management plans are being completed. There were no changes in present running works in order to avoid disorder.

Constantly increasing degradation of the natural environment as well as intensified influence of biotical and abiotical factors are threatening the forests. Mentioned threats are result of changes caused by people's activities,

unfortunately the changes are much more faster than forest adaptation process. Forest biocenosis condition is changing gradually what is connected with regular pauperization of the biocenosis caused by running of long term schematic and simplified forest economy. The tasks taking by forest workers have to lead to liquidation of factors that do not depend of foresters (civilization and climatic), and those that are result of simplified and schematic forest economy as well.

All rules consisted in the discussed decree were created in order to improve basic regulations of forest economy that are considered as the most important of the all Polish forestry acts of law. Among them is the forest stability and continuity of using its many-sided functions principle, another, the principle of forest resources and raise of its positive influence on human's lives conditions as well as prospering the nature as whole, and the principle of common forest protection. All economical activities taken in the National Forests should include international criteria and indexes of balanced development of forests and forestry leading to maintaining biological diversity of forests, keeping the production of forest's wealth at the same level and remaining forest ecosystems health and vitality, soil and water protection in the forests, increasing share of forest in global carbon balance, build up long-term and multi-sided social and economical advantages coming from the forest. The presence of legal, political and institutional

solutions supporting permanent development of forest economy. All discussed criteria were established on the international level with Poland as a participating country. The regulations should be adjusted to Polish conditions and the adjustment process ought to include the fact that the basic condition of forest sustainability and multi-sided utility is forest economy based on ecological foundation. For this purpose it is necessary to preserve and restore compliance between forest biocenosis and biotope what means evolutionarily changing environment of living organisms, plant, animal and microorganisms.

This adjustment process should include compliance of biocenosis and biotope, which requires prior careful diagnosis of biotope conditions and trends in changes appearing there, especially geological, soil, climate, hydrological processes and dynamic of humification and mineralization of organic matter. The observance of listed changes is a condition of aware formation of forest biocenosis types and their adjustment to specific biotope situation and take into consideration natural variability of the forests. Serve this purpose should be directed pedological and site works and modern component inventory investigating forest situation and the level of compliance of biocenosis and biotope; mentioned activities should cover all National Forests territory.

However, to make possible to introduce definitely formulated principals of forests and forestry balanced development in Poland consistent with discussed criteria and specific indicators there should be commence long term cognitive and adaptive process. Until the clarification and implementation of the principals mentioned above will be completed, there were established provisional rules of improving forest management in accordance with the general concept of balanced development.

The general principles of the decree consist of three groups of factors that determine the sustainability of forests. The first factor focuses on reducing the degradation of water conditions in forests. In this case great meaning has to elaborate and implement plans and programs for the reconstruction of small retention. The next part of general rules is to determine correctly the economic objectives of forestry planning what requires faster recognition of soil conditions. The third factor covers all activities necessary to accomplish existing forest management plans

like enhancement of forest-field and the forest-water boundary by creating a protective line consisting of shrubs and low trees, initiation of natural regeneration of forest in all habitats, limiting the application of the first group fellings, diversification of trees stands in terms of species, age and layered structure. It could be said that all general principals are focused on water, soil and biodiversity protection.

The detailed rules contain accurate description of five groups of proceeding on the balanced development theory. Starting with the selection, seed nursery by restoring forests, afforestation and plantation protection as well as care and protection of forest stands and guidelines or the use of fellings and forms of stands, until the tips for dealing in the use of the forest.

Practical aspects of biodiversity conservation on the example of Dębno Forest Division

To avoid writing about the theory only, we decided to discuss the specific principals using as an example forest management run by one of the Polish Forest Districts, namely Dębno Forest Division in order to prove that all the rules are introduced into life. Dębno Forest Division is situated in a part of West Pomerania Province and Lubuskie Province. According to the natural-forest regionalization the lands are part of the Baltic Land and Grater Poland and Pomeranian Lands, where the main forest-forming species include pine, pedunculate and sessile oak and beech. The forests of Dębno Forest Division cover the area of 23500 ha. The first in terms of specific ordinance includes the selection, seed and nursery. Important condition of the rational management of forests in Dębno Forest Division is the realization of seed production and selection. Sale of seeds and seedlings of forest-forming species is permitted only within the seed region, what is required by „The preservation of forest genetic resources and selective breeding of forest trees in Poland for the years 1991-2010.“. The same program created for the years 2011-2031, is going to have similar assumptions, however there is going to be tendency to put attention on the population features not the principle of regionalization. Seeds to sow can be collected only from selected seed stands of Temporary Seeds Stands (Polish GND), there are nearly 570 ha of such stands. Higher form of selection is the choice of the most valuable trees and save them as a

permanent base of the seed known as Permanent Seeds Stands (Polish WDN). In Dębno Forest Division Pedunculate Oak stand is considered as special seed stand, the area oak stand is as big as 13,6 ha. On the basis of seeds harvested in the WDN are started strictly accounted trees cultivations. In Dębno Forest Division there are founded cultivations of pine and oak derivatives covering the area of 161 ha and their area is steadily increasing. Trees of outstanding characteristics (abundance, straight-grown, cut) are recorded in the national registry as a parent tree – in Dębno Forest Division there are 25 trees and 5 species.

On the base of cutting taken from these trees there are started plantations within the limits of the particular seed regions. Another recommendation of the ordinance applies to the revitalization of mycorise in the cultivation area. In the Forest Division discussed in the article mycorise researches are important point, however, mycorise is enriched mainly by natural methods like raking leaves, without artificial process. In accordance with the guidelines the usage of herbicides in cultivations is maximally limited in the forestry, however, there was no need to introduce into the soil biological preparations.

The second point of the detailed principals includes a guide to forest regeneration, afforestation and cultivation protection. In the Forest Division every natural regeneration of pine, Douglas fir, oak, beech, which portends hope for the future are preserved, If natural regeneration is less than 10% of the area then it is shown in the artificial registration, however, it is marked as a natural one. When the artificial replenishment of self-sown trees is done, in the mentioned Forest Division, the natural mosaic of habitats is preserved.

The usage of chemical herbicide is limited in artificial forest restoration, there is used preparation to destroy reedgrass (*Calamagrostos spp.*) but only in small areas when is confirmed that nothing is going to grow there. In discussed Forest Division the shallowest soil preparation is practiced with emphasis on its cultivation. However, sowing preparation of soil is used, also for economic reasons, but only where the correction is needed, the usage of hardware is too difficult or the surface is extremely weed.

Initially, on the fresh forest sites phytomeliorative grey alder was introduced as a part of the composition, however, present days

in forest divisions more often are used biocenotic dopants. Generally, on the forest division territory there are 20,27 ha of biocenotic centers, that are made of Elderberry, Snowberry, Blackthorn, Dog Rose, Bird Cherry. All these species are planted to enrich the biodiversity, these are plants producing berries and nectar so they create good life conditions for birds and insects.

When it comes to forest culture protection against insects we should search for elimination or reduction of the causes of hazards. On Debno Forest Division territory, before the forest culture is started there are detailed researches in order to check the amount of grubs. Generally, because of preventive action there is not a problem of excessive amount of grubs. The larger problem is to fight to destroy weevils, forest divisions deals with this difficulty using two methods: mechanically by digging wells, shafts, and picking up weevil beetles or using dormancy of cuttings method, when the cutting area is left without doing any work, then the weevil larvae do not have access to food, which limits their lifespan.

Another point of these principals is to rationalize the hunting economy, and that is why Dębno Forest Division started cooperation with Professor Boguslaw Bobek from the Department of Ecology, Hunting and Ecotourism Research Institute of Biology. Five more local hunting clubs are joined to this cooperation. An inventory of wildlife and develop of indicators for multi-annual breeding plan were result of this action.

To create conditions conducive to balancing of biocenotic systems on cultivation areas there are employed multiple steps:

- ecotone lines, which are created as 10-30 meters wide lines of old trees which influence the cultivations situated 100-200 meters further, what increases the number of runners eliminating parasitic organisms;
- the peeling after trees cutting was stopped in order to increase the biodiversity of organisms colonizing the stumps;
- there, where is no threat a single dry-wood is tolerated (5 kb/ha);
- wherever is possible the hollow trees are left.

The third section contains detailed rules connected to the instructions for care and protection of forest stands. In order to avoid the

mass growth of fungi causing pine shoots decay there is recommended care treatment as early as it possible, carefully loosening the truss in young stands and removing the infested trees. There were not noticed any problems with the disease of dying pine shoots, however, loosening of truss is used because of the need for tree breeding. When the recommendations on root rot are discussed, since four years there has not been obligatory used fungicide to protect the stumps in the trees stands where the trees are cut down. Mentioned fungicide is used only in areas where the presence of *Heterobasidion annosum* was confirmed, it means area of 295 ha. In terms of limiting the population of insects by using insecticides, in 2003 the Forest Division of Dębno had problems with black arches (*Lymantria monacha*) in that case nearly 3000 ha were covered by application of selectively working insecticides operating on the development stages of insect, all works were done using an aircraft. After action treatment monitoring was carried out in which various forms of life were found (ant beetle, spiders, ants) except Black Arches. In 2005, the threat of oak stands became European oak leafroller (*Tortrix viridana*), in that case spraying covered 1000 ha.

In order to increase the resilience of forest for biological factors in Dębno Forest Division were established nine areas that are fenced and equipped with feeders and waterholes for birds, planted by species giving berries and nectar, with stacks of stones and sticks for reptiles, it covers the area of 1,6 ha. To increase the effect, the space around them is cultivated by placing understory - 172 ha.

The fourth point of the detailed principals included in discussed decree considers the case of cuttings and mixed forms. All activities associated with this point are so obvious issue that nobody has to wonder whether they are enforced. The recommendations of this part of the decree are specifically imposed by the forest planning and simply completed by the Forest Divisions.

The summarizing point is the proceedings in the use of the forest. When the wood harvesting

is considered there are obedience rules of using environmentally friendly technologies by carrying out work in a way that minimizes damage of other components of forest. That is why Dębno Forest Division introduced late cleaning and early thinning from fourth to first quarter of the year, fast wood rotation prevents from quick populating and multiplying insects. To protect trees from damage arising during skidding there are used pins and protective bands. Recommendations for use biofuel in saws and mat gas sorption is accomplished by placing mentioned condition in the contracts signed by the Forest Service and Forestry Divisions.

Conclusion

Decree no 11A ordered by General Director of the State Forests published on 11 May 1999 is broad document, containing many specific recommendations relating to greening of steps taken in forest economy. According to the workers of Dębno Forest Division appearance of the government law caused great changes in a way of thinking and proceedings when considering forest environment. Detailed recommendations have been accepted and supported by foresters strongly enough to make the majority of these principals commonly respected and used. This is also due to the inclusion of the contents of the decree to the existing Principles of Silviculture.

Improvement of forest economy on the ecological basis is growing rapidly and is already becoming a daily activity, not only adapting to the theory-enforced.

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