

FOR THE FOREST'S

On the need to change perceptions of the Białowieża Primeval Forest's value

Assoc. Prof. Rafał Kowalczyk

PAS Mammal Research Institute in Białowieża



**Rafał Kowalczyk,
PhD, DSc**

is the director of the PAS Mammal Research Institute in Białowieża. He does research in the fields of ecology, behavioral ecology, and the protection and management of large mammals.
rkowal@ibs.bialowieza.pl

The Białowieża Primeval Forest, with its rich biological diversity, is Europe's best preserved lowland forest, which has been shaped by natural ecological processes for thousands of years. Owing to these characteristics, the Forest was granted the status of a UNESCO World Heritage Site and included in the Natura 2000 network of protected areas. The Białowieża Forest is a unique area of natural and cultural heritage, a subject of scientific research, and indeed a well-known tourism brand. Its protection back in monarchic times along with multifunctional and traditional use in the past allowed the Forest to be preserved in perfect condition until the end of the 18th century, due to the very limited impact of human activity on the structure of the tree stands and its regeneration potential. Over the past 100 years, the structure of the forest has changed substantially as a result of reckless logging during the wars and a forest management strategy which has gradually led to the shrinkage of the most precious natural tree stands. Such stands nonetheless remain dominant in the Białowieża Forest and should be protected so as to preserve their condition and the natural processes that shape them. Over the past 20 years, the level of the Forest's protection has risen gradually – from the expansion of the area of the national park in 1996, to the protection of tree stands that are over 100 years old by a regulation imposed by the director general of the State Forests, the creation of the “Natural Forests of the Białowieża Primeval Forest” reserve area, the inclusion of the Forest in the Natura 2000 network, the approval of the Plan of Conservation Measures, reductions in the logging quotas, all the way to the status of a UNESCO World Heritage Site, which was granted to the whole of the Forest in 2014. We are currently witnessing a dramatic change in the management of the commercial part of the Forest and the logging of natural tree stands that are over 100 years old (pre-

viously excluded from such use), which poses a threat to the conservation of the area, deters tourists, reduces the income of local inhabitants, and affects the image of the State Forests and Poland in the international arena.

The European spruce bark beetle outbreaks that occur in the Białowieża Forest every decade or so are a natural element of the functioning of forests with Norway spruce trees. In natural forests, mass outbreaks of the bark beetle contribute to the diversification of the structure of tree stands and increase the volume of deadwood, which is an important element of the preservation of a high level of biodiversity and the continued presence of numerous rare species. In commercial forest stands, bark beetle outbreaks are seen as disastrous disturbances and the colonized trees are cut to fight the insects, although there is essentially no scientific evidence to confirm the effectiveness of such measures. Climate change, affecting the intensity and frequency of outbreaks in Europe, is leading to a decline in the share of spruce trees in tree stands. Such a drop can be observed in the natural forests of the Białowieża Forest, where the share of spruce trees has fallen by nearly half over the past several decades. An analysis of the data on the current outbreak of the bark beetle shows that in the managed parts of the Forest the infested trees are concentrated in certain areas, whereas in the natural forests of the Białowieża National Park such trees are more dispersed. It turns out that the larger the share of spruce trees in tree stands and the higher the altitude at which tree stands are located, the greater the likelihood that spruce trees will die as a result of bark beetle outbreaks. Consequently, mistakes in forest management, namely the planting of artificial spruce tree monocultures in habitats at higher altitudes with a low level of groundwater, make the tree stands in the Białowieża Forest more susceptible to the bark beetle outbreaks. Interestingly, natural tree stands with the same share of spruce trees turn out to be less susceptible to bark beetle outbreaks than artificially planted stands.

Natural disturbances such as bark beetle outbreaks, which cause a significant number of trees to die, may seem disastrous from the human per-

SAKE

spective, but they are by no means a disaster in the ecological sense of the word. With each generation, knowledge of the historical and natural condition of the environment disappears among members of the public as well as scientists, a phenomenon referred to as “shifting baseline syndrome.” This results in misguided perceptions of forests and depends on the current condition of the environment. In the eyes of the public, the word “forest” denotes the typical kind of commercial forest, with a simplified age and species structure, that dominates the landscapes of Poland and Europe and is managed in such a way as to yield timber of the best quality. It is forgotten that a forest in the full sense of the word means a natural forest with a complex species and age structure and a considerable amount of deadwood. Forest management in the Białowieża Primeval Forest leads to the gradual replacement of natural forests with commercial tree stands and impacts negatively on the conservation of habitats and species. We can notice this when we compare the protected areas and the areas harnessed commercially. The condition of a majority of habitats is favorable in the Białowieża National Park and unfavorable or bad in the managed parts. The fight against the bark beetle and the removal of colonized and dead spruce trees may be economically substantiated in typically commercial tree stands for reasons related to the quality of harvested timber. However, if large areas of a forest are protected, like in the Białowieża Primeval Forest, these measures are doomed to fail and pose a threat to the status of nature conservation.

Logging with the use of harvesters, which has taken place in recent months in the most precious over-100-year-old stands outside the area of the national park and the nature reserves, has chiefly involved dead spruce trees of large size. If the cutting of dead spruce trees in natural tree stands is necessary for reasons of public safety, a justification which is overused in the Białowieża Forest, they should be left where they are in accordance with the Plan of Conservation Measures for this unique area. Scientific research has shown that salvage logging after bark beetle outbreaks (1) disturbs ecological processes; (2) increases the ecosystem’s susceptibility to additional and repeated disturbances; (3) reduces natural biological diversity, and (4) causes the loss of so-called biological legacies, which comprise organisms, organic matter, and the environmental structures of natural origin, which survive distur-

bances and form an integral part of a recovering ecosystem.

The value of the Białowieża Primeval Forest cannot be measured by the price of the timber that can be harvested. The Forest is of enormous scientific value. The number of scientific publications devoted to the Białowieża Primeval Forest has exceeded 2,000, many more than in the case of any other well-studied forest in Europe. Such publications have been cited over 20,000 times, which demonstrates that the knowledge gained thanks to studies in the Białowieża Forest is of great value for science. Research shows that the economic benefits related to the Białowieża Forest’s appeal to tourists are 13 times larger than in the case of an average Polish forest. What is more, it turns that those who visit the Forest do so mainly for the chance to experience a natural forest. This is due to the fact that this type of forest is quite simply unique: most of the area of our continent is covered by commercial forests with a simplified species and age structure, whereas only 0.2% of the Central European deciduous forests remains in relatively natural state.

Tourism revenue, which according to estimates exceeded 70 million PLN (17 million euro) in 2016, is several times higher than the revenue from timber harvest generated by State Forests districts in the area, which are additionally subsidized every year by amounts in excess of 20 million PLN (5 million euro). Importantly, most of the tourism revenue reaches the local community, whereas the timber harvested here reaches mostly external recipients, with those who live in the Forest and surrounding areas drawing no direct benefits from the logging. Protection of the Forest and tourism creates jobs, the number of which is many times higher than those related to forest management. Forest logging deters tourists. It is the protection of the Białowieża Forest, not its commercial use, that guarantees the development of tourism and growth in the wealth of local community. Protecting the whole of the area of the Białowieża Forest will not cause the State Forests significant losses, because it covers only 0.6% of the country’s forested area and provides a mere 0.3% of the timber harvested in Poland.

The Białowieża Primeval Forest was granted the status of a UNESCO World Heritage Site in light of its natural, cultural, and scientific value. Poland has a responsibility to preserve and protect this globally unique forest. ■