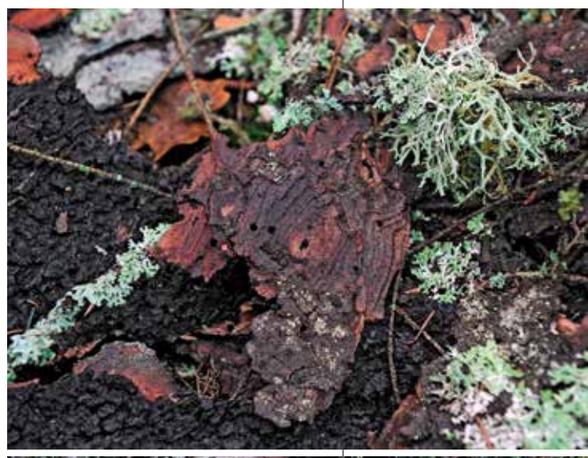
CURRENT PROBLEM

Conservation Faces the Cutting Edge

The Polish Academy of Sciences asks prominent experts about the problem with bark beetle outbreaks in the Białowieża Primeval Forest. Should the protection of this ancient forest include felling and removing infected trees?



NO

We have to start by considering the fundamental difference between natural and managed forests. In natural forests, most of the biomass moves directly from producers (trees) to dead organic matter, supplying nutrients to a complicated system of detritivores, with just 2–4% passing through the other tropic levels. Even bark beetle outbreaks do not have a significant effect on this proportion. Deadwood is a natural feature in forests but in Europe it is rarely left in situ, even though many studies indicate that it is highly significant for biodiversity as a whole and not just the organisms that feed on it.

As well as having most dead matter being removed from them, managed forests also have a distinctive structure of age and species. Natural forests exist in a state of dynamic equilibrium; in the event of a major disturbance, it can take as many as 150 years to recover. Natural forest ecosystems are not static and they are affected by natural processes and external factors such as climate and human activity; the latter is significantly less marked in Białowieża than in other places. This is supported by extensive scientific evidence.

The other question is one of values, which therefore goes beyond the scope of natural sciences. We must ask ourselves: what is the significance of the forest? Is it important? We are dealing with a conflict of values of utilitarianism vs. autotelism, which cannot be resolved. Do we see science as an autotelic value? If we do, the entire Białowieża forest should be protected; some of this may involve active conservation, but there should be no place for commercial activity.

Prof. **January Weiner**,
Jagiellonian University

I assure you that the State Forests administration is doing everything in its power to ensure the welfare of Białowieża Forest. For example, we have been granted an extension to the Programme for the Endorsement of Forest Certification (PEFC).

Instead of debating the logging of spruce trees, we should be discussing the ecosystem-based approach to environmental protection. Our activities are based on state regulations and the EU's Natura 2000 Programme, developed by scientists, supported by public consultation and reinforced by Polish legislation. Any accidents in the forest are the responsibility of head rangers, therefore it is important for health and safety regulations and legislation to be followed. I would like to refute the idea that there is mass-scale, illegal logging going on in Białowieża. The planned culling rate is being reduced and currently stands at 20% of forest growth; by comparison that figure is 60–70% in the rest of Poland, and around 90% in Scandinavia and Switzerland.

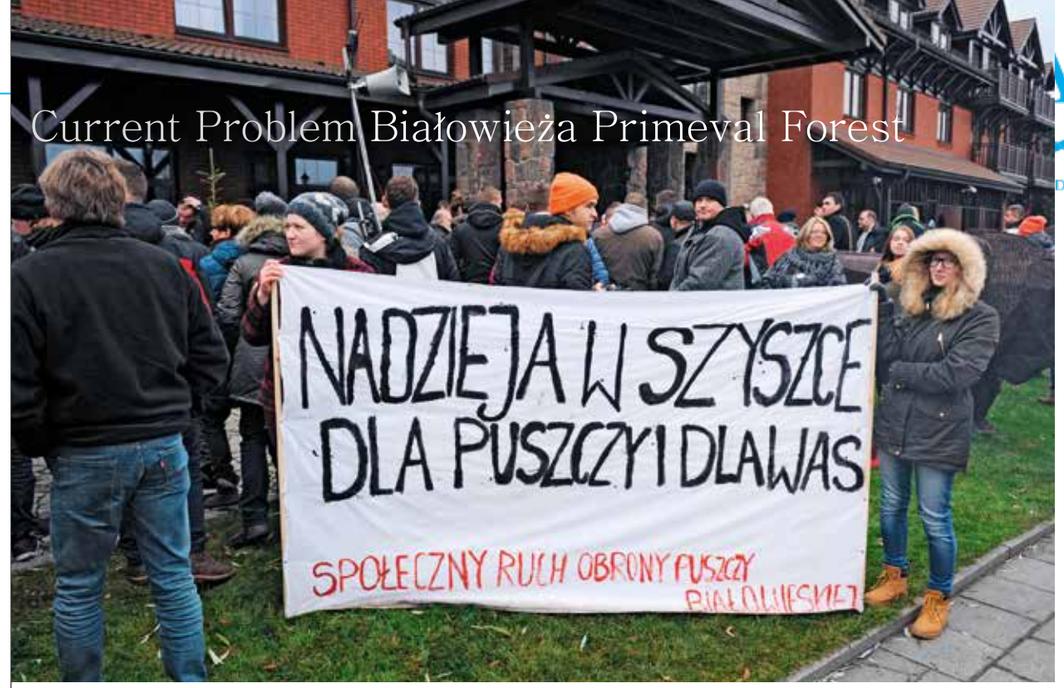
The current volume of deadwood in Białowieża is three times greater than the threshold volume necessary for preserving biodiversity (90 m^3/ha); even if allspruces were to be removed, it would remain at around 60 m^3/ha. The bark beetle outbreak has resulted in a 40% reduction in the number of trees with hollows in reference forests and a 10% fall in managed forests. Such trees are essential for several species of woodpeckers, which we are committed to protecting as part of the Natura 2000 Programme.

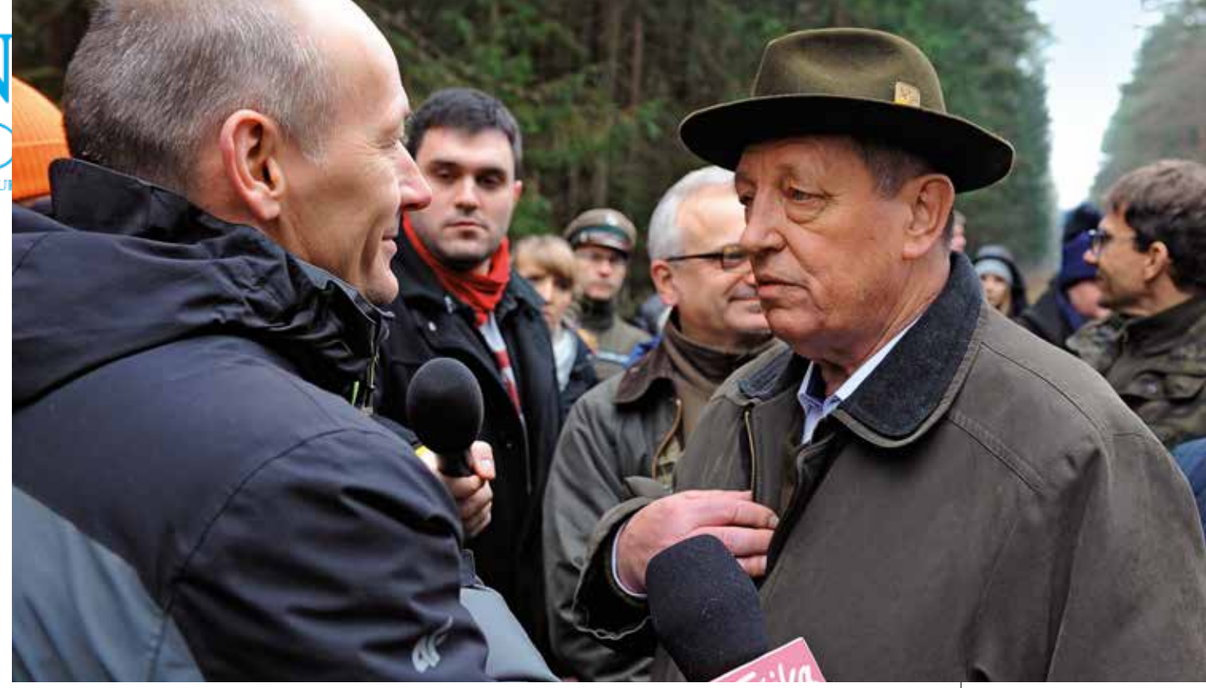
Specific tree species contribute to the entire biocenosis in forests. The number of spruce trees is Białowieza is declining, yet they support more species of fungi, lichens, mosses and invertebrates than hornbeam trees, which are increasing.

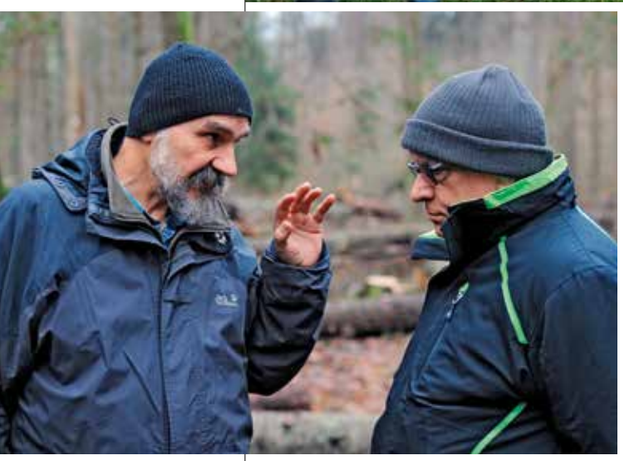
Prof. **Tomasz Zwiła-Niedźwiecki**,
Polish State Forests

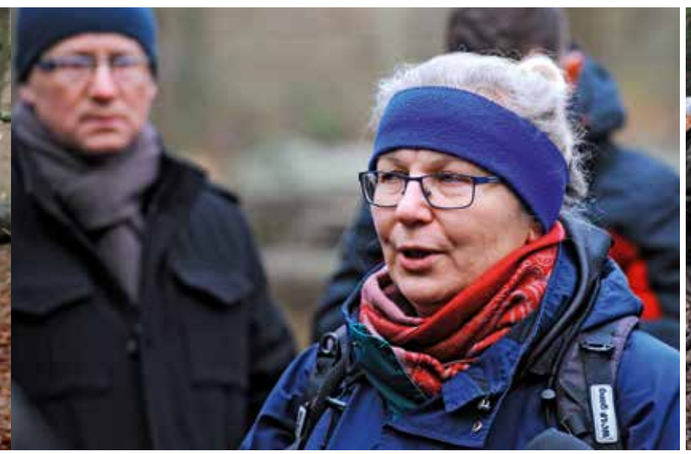
YES

Current Problem Białowieża Primeval Forest









NO

The Białowieża Forest is unique and almost entirely shaped by natural processes. Traces of human activity are minimal, and many features of a primeval forest are maintained. To preserve the diversity of species and structural features of a primeval forest we must allow natural processes to thrive. Białowieża is a treasure-trove of biodiversity, with up to 410 species of plants and fungi per hectare. Over the last forty years, 78 species of birds have been found nesting in just 33 hectares – that is more than all species of forest birds in the entire British Isles. This is due to the vast diversity of habitats and interactions between organisms, making Białowieża a unique natural laboratory. If we destroy it, it will be lost to us – and to the world – forever.

Natural forests are long-lived and characterized by spatial continuity. Many highly specialized forest species have low dispersion potential, which makes them vulnerable to habitat loss and fragmentation driven by forestry. Open spaces also serve as entry points for non-forest species. We should prioritize any activities protecting old tree stands.

Salvage logging is regarded as a good way of protecting against pests, even though I have found no evidence for this in any academic publications. What's more, removing deadwood following a bark beetle outbreak can have a negative effect on biodiversity and natural processes – and those must be preserved as a key element of conservation of individual species and habitats.

Prof. **Tomasz Wesołowski**,
University of Warsaw

YES

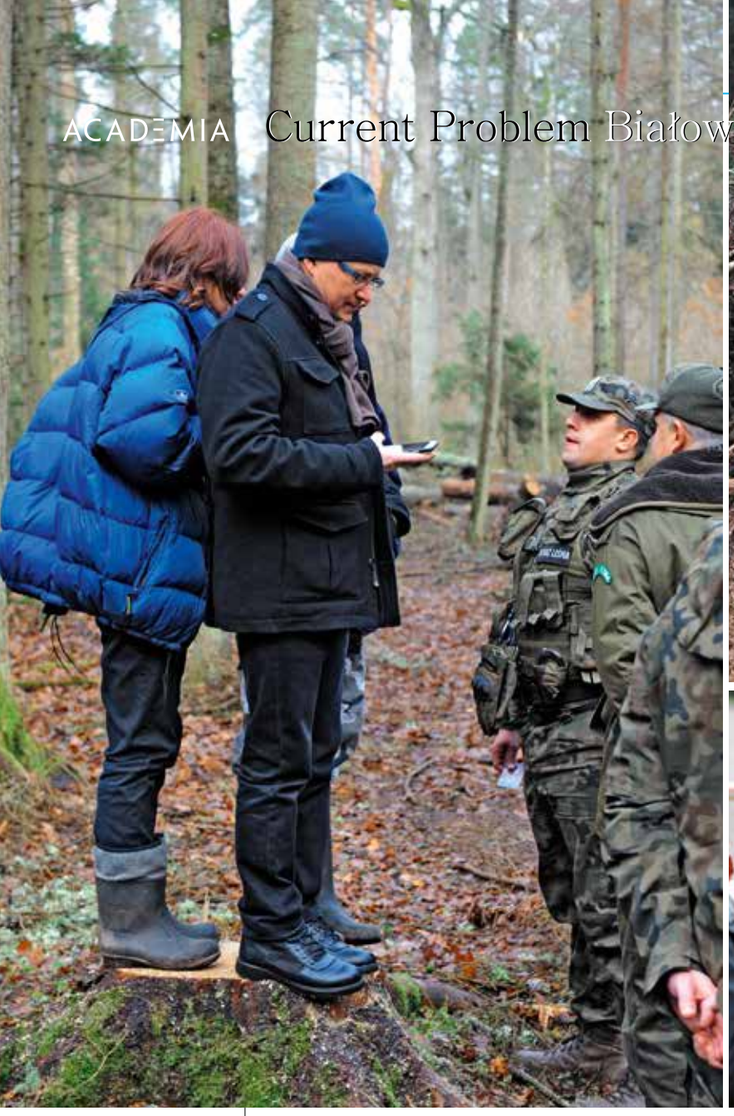
First of all, the protected part of the Białowieża Forest should be excluded from all interventions. Second of all, we should remember that the forest is managed by several institutions, including the national park and state forestry administration, which all have to follow a range of regulations – so if we want to make any changes, we need to start by changing the regulations.

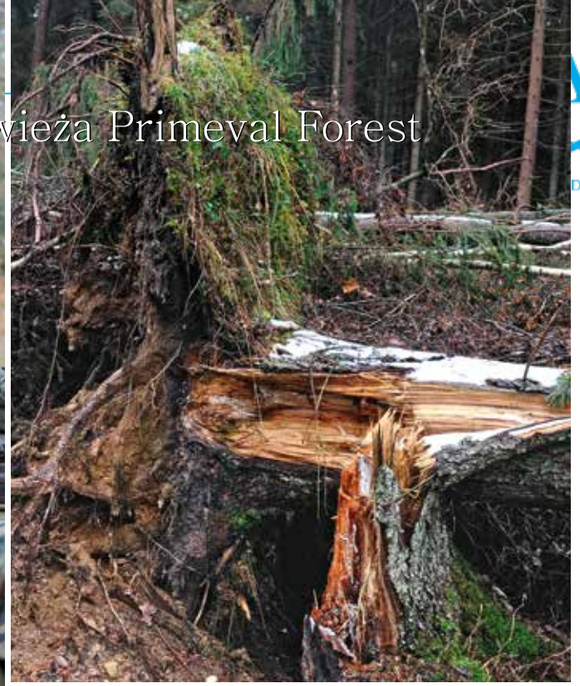
In the context of the current bark beetle outbreak, we should consider all the possible consequences of opting out of active conservation. What will happen to the accumulated biomass of deadwood? All it would take is a few dry years and a lightning storm, or a spark, and the resulting fires could damage or destroy protected areas as a result of decisions taken now. We should also remember that the majority of spruces found in the forest were planted in the 1920s to replace felled trees of other species. Spruces have shallow roots, which means that lower groundwater weakens them and makes them susceptible to bark beetle outbreaks.

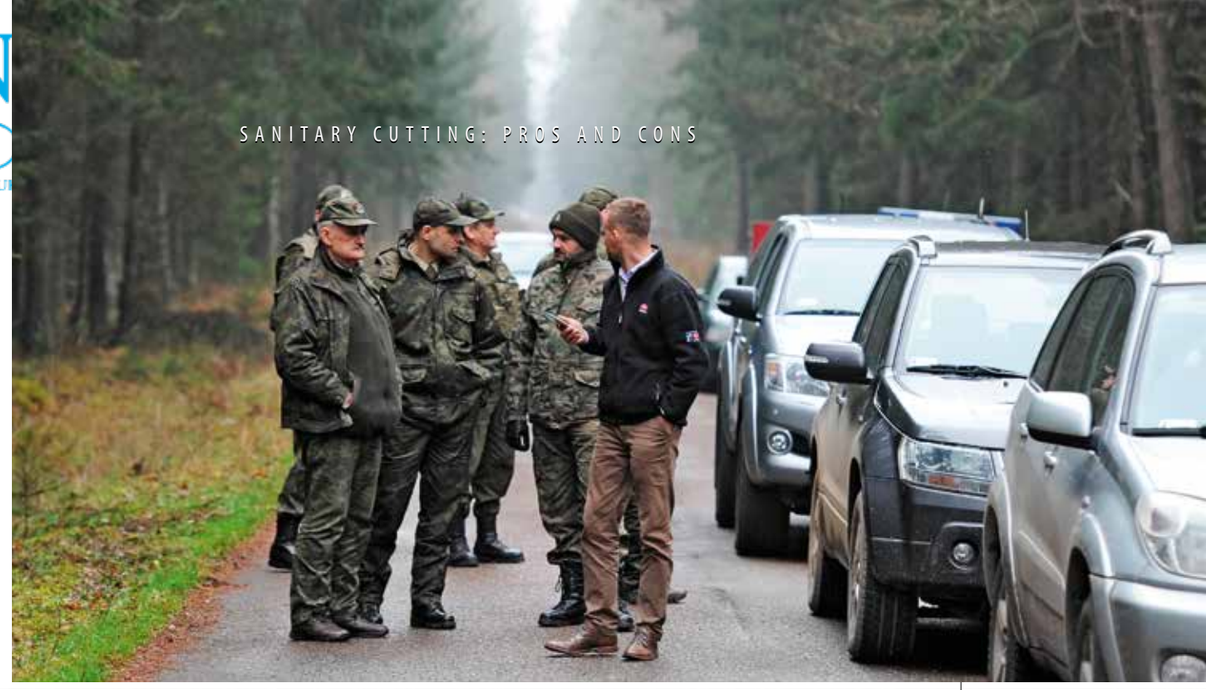
The permitted amount of deadwood in managed forests is regulated, so if we want to remove it, we need to start by changing the regulations. We have to examine our priorities. Do we want to safeguard the protected parts of the forest against fires and follow regulations? Currently, active conservation is only permitted in managed forests.

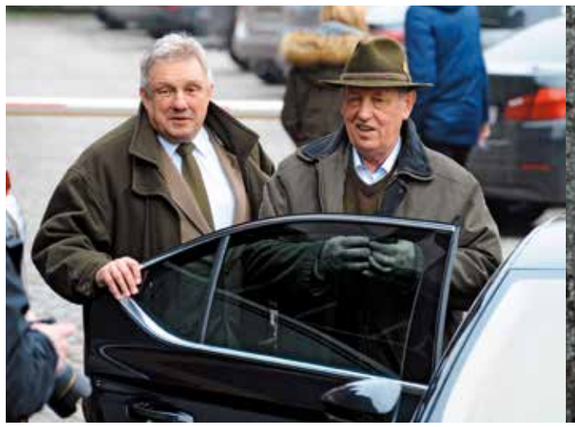
Finally, we should also remember social aspects. The Białowieża forestry employs local people, many of them representatives of national minorities. If protection is extended to more forest districts, they are likely to lose their jobs, so any discussion must not shy away from legal and socioeconomic aspects.

Prof. **Jacek Oleksyn**,
Institute of Dendrology, PAS









NO

The Białowieża Forest is unique. Its value could be measured by the sheer volume of academic publications since 2000 (significantly greater than any other European forest) and the attendant citations, which indicates that the body of knowledge gained through research conducted here is vastly important for science. When we consider bark beetle outbreaks, we should remember that they are a natural element of the dynamics of forests which comprise spruce trees, and they do not threaten their longevity. The current outbreaks in Białowieża are the result of mistakes made in forest management in the past. Our research suggests that spruces infested by bark beetles are clustered in certain regions where they were planted in high numbers and in unsuitable habitats.

Of course, any discussions about the forest should include socioeconomic factors. Studies show that its tourism value is around 13 times greater than in other forests in Poland. Visitors are attracted by the natural forest and the bison population. Additionally, profits generated by tourism find their way to the local communities, and these profits are several times greater than those from logging – in fact, logging actually puts tourists off. The entire Bialowieża forest is the only lowland forest in Europe which has been designated a UNESCO World Heritage Site. This puts a great responsibility on us to protect this unique ecosystem. Bark beetle outbreaks enhance the forest structure and the volume of deadwood, which has a positive effect on species and habitat biodiversity. Extending conservation to the entire forest will bring far more advantages to local communities than logging; in turn, stopping all logging in the forest will not entail economic losses for State Forests, since it provides just 0.3% of all timber produced in Poland.

Prof. **Rafał Kowalczyk**,
Mammal Research Institute, PAS

When we talk about the conflict concerning the Białowieża Forest, we should focus on issues beyond the scope of natural sciences, since the resolution of the conflict lies in the realm of goals and values. We should also remember that there are no simple solutions in environmental protection; many ideologies and attitudes exist in parallel, ranging from anthropocentric to theocentric. This means we must start by resolving the differences on that level before discussing the details. Conservation strategies and legislation take account of these differences.

There are a range of options: we are protecting processes and "states" of biodiversity (species or specific biotopes, for example as part of the Natura 2000 Programme). We are also aware that it is not possible to protect the full spectrum of biodiversity purely by conserving processes. In the present day, we protect nature in the ecumene since the entire planet is affected by human activity. As such, we are left with a hybrid system where we protect natural processes but certain cases – health and safety, other social aims, the conservation of specific species and biotopes – require our intervention. The conflict in Białowieża is compounded by the forest's complex administrative structure and the different systems and conservation regimes operating in its area, which are frequently contradictory. We must strive to resolve to problem through calm, focused discussion rather than through street demonstrations. We need to develop a coherent model of protecting and managing Białowieża while remaining aware that reaching it is a process which must take into account specific conditions and be suitably timed.

Prof. **Zbigniew Mirek**,
Szafer Institute Of Botany, PAS

YES

The Polish Academy of Sciences hosted discussion panels and an international conference on the problem of bark beetle infestation in the Białowieża Forest. A special edition of *Academia* magazine presents the outcome of the events.