

WINDFALLS AND FOREST SAFETY: ECOLOGY AND ECONOMY

Ветровалы и безопасность леса: экология и экономика

The article aims to analyze the danger of windfall of forests as a factor influencing economy and ecology of the country. Forests cover around 40 % of land area of the country, it means about 8 to 9 million hectares. However, strong winds which occur quite often under Belarussian climate conditions cause trees to fall, creating serious problems for both forest ecosystems and people. Powerful cyclonic storms periodically pass through the republic, capable of quickly damaging vast areas of forest. For example, the hurricane that struck on July 12–13, 2016, caused the largest windfall in the country's history: approximately 4.6 million cubic meters of timber felled over an area of approximately 40,400 hectares. In 2022, a series of hurricanes affected a total of approximately 90,000 hectares of Belarusian forests [1]. In July 2024, strong winds killed six people and damaged forests over an area of over 41,000 hectares [2]. The most recent major incident occurred in July 2025, when a windfall killed one person and injured four others (including a child). Strong winds damaged forests over an area of approximately 1,700 hectares [3].

Such disasters cause significant economic losses. It is loss of commercial timber, as well as the costs for clean-up operations. Moreover, environmental damage should be taken into consideration which are expressed in habitat destruction, increased risk of pest outbreaks in fallen tree debris. To restore the forests and eliminate the consequences the Belarussian state has to make significant efforts and spend a lot of money.

Three main categories of factors affect the likelihood of windfalls: climatic factors, such as how strong and frequent wind gusts are in connection with the amount of rainfalls; geographical factors, including terrain exposure; soil characteristics, the tree's location within the forest; vegetation-related factors, like the species' resistance to wind, and the trees' height and trunk diameter.

Conclusion. Digital technologies and modeling to estimate the risk of windfall in forests are innovative technologies that will be effective in solving economic and ecological problems. New approaches are based on systems analysis to understand the many factors that influence windfalls. New technologies are based on the uses of statistical methods and artificial intelligence in terms of computer vision and machine learning to identify tree species and measure their features from photos. Digital technologies are used to mitigate the effects of strong winds on forest areas while analyzing systematically the factors that determine the likelihood of damage to forest areas under the influence of

strong winds. Identifying forest areas most vulnerable to strong winds will allow for proactive preventative measures: for example, identifying areas that are most vulnerable to wind damage, optimizing forest planting patterns based on wind patterns, creating windbreaks.

References

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UAE NATIONAL BRANDING: FROM AN OIL STATE TO A SYMBOL OF LUXURY, INNOVATION AND CULTURE

Национальный брендинг ОАЭ:

от нефтяного государства к символу роскоши, инноваций и культуры

The aim of the study is to demonstrate how a country has transformed and reached its peak of development through the effective use of resources, using the example of the United Arab Emirates.

Modern Dubai has been a symbol of luxury and wealth for several years, rivaling the capital city of Abu Dhabi. Every year, the United Arab Emirates attracts millions of tourists from around the world, eager to witness the world of luxury that has been created in a remarkably short time.

The UAE is famous for its reserves of oil and natural gas, which are concentrated in Abu Dhabi and Dubai. It is these resources that have formed the economic basis of the country and allowed it to become a leader. The UAE is one of the top ten countries in terms of oil production, ranking sixth. According to statistics, the UAE produces