

Analizing Successful Sanation of Windthrows in State Owned Forests in Medvednica Nature Park

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INTRODUCTION



From 2013 until today, the Medvednica area has been exposed to strong winds, which caused significant damage to the forest in the form of windbreaks and windthrows. In the area of two management units: Bitranska gora and Sljeme - Medvedgrad forests, we analyzed the data on the wood volume of the designated windthrow. We also selected several plots in the two management units, where we analyzed the success of the restoration.

METHODOLOGY

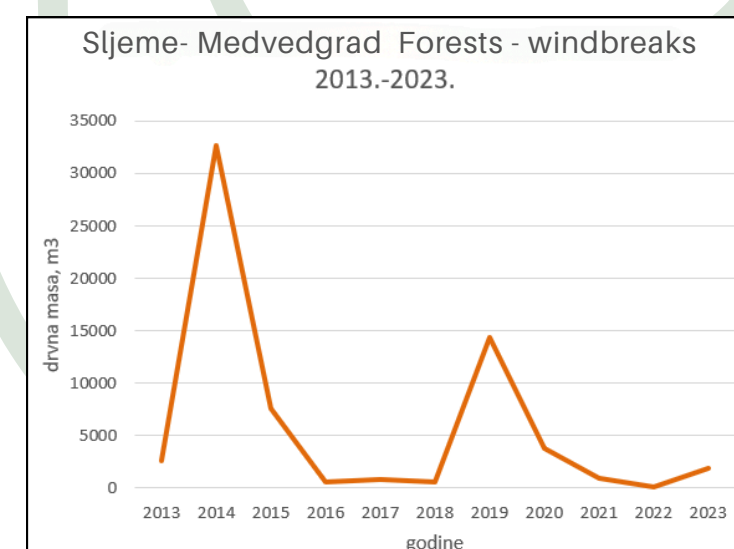


For the purpose of analyzing data on the wind-affected parts of state forests in Medvednica Nature Park, data from the "HŠ Fond" program were used and orthophoto images of certain areas from 2011, 2014, and 2021 were analyzed.

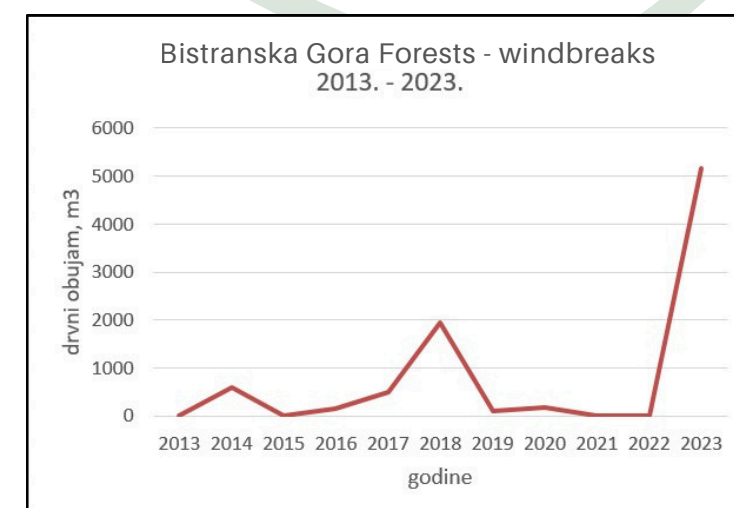
RESULTS



In the Sljeme - Medvedgrad Forests area, 66,021 m³ of wind-affected wood volume was recorded from 2013 to 2023, and in the Bitranska Gora Forests area, 8,684 m³. Analysis of orthophoto images of the selected experimental plots show visible changes in the color of the cover. Certain parts of the forest where the cover was non-existent in 2014 have "greened" again in the 2021 images. A field visit determined that these areas now grow young forest species.



Graph 1: Wood volume destroyed in windstorms from 2013 to 2023 in the area of Sljeme - Medvedgrad forests



Graph 2: Wood volume destroyed in windstorms from 2013 to 2023 in the area of Bitranska gora forests

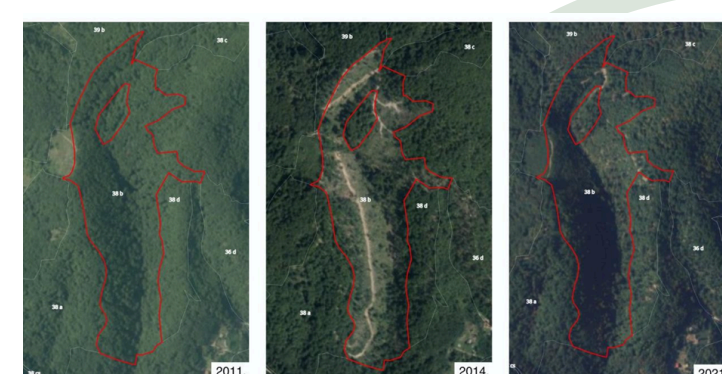
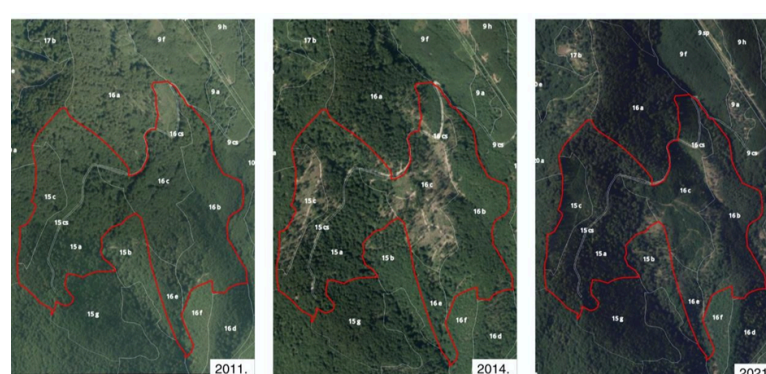
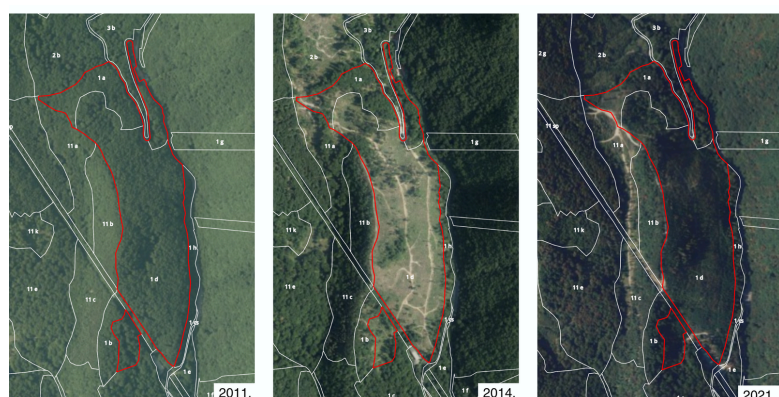


Figure 1, 2 and 3: View of the same areas of the Sljeme - Medvedgrad forests on orthophoto images before the windthrows (2011), immediately after (2014) and after sanitation (2021) (Source of background: DGU Geoportal)

CONCLUSIN



Based on the observed orthophotos and field visits, we can conclude that the sanitation and planting were successful. Due to the undertaken efforts, a young forest of indigenous tree species (common beech, sessile oak, fir, etc.) is now growing on the once devastated parts of Medvednica.



Image 4: The same part of the forest that was completely destroyed by windthrows in 2014. In 2017 a young common beech was growing here, and today that forest is over 2 meters high.



Figure 5: Aerial image of the Sljeme - Medvedgrad forest after strong winds in 2019.