

Project Update: June 2023

As planned, the final months of our project were devoted to disseminating the results.

A project presentation was held for school and preschool children, in which our activities were presented in an age-appropriate manner, with special emphasis on developing awareness about fire protection and biodiversity conservation and promoting educational programmes in the field of environmental protection. This presentation was well received by both employees and children and was highly recommended by the managers of the children's institutions. The children were full of questions and eager to learn more about natural values and their conservation. One of the questions also referred to The Rufford Foundation's logo, so the significance of this fund in supporting ecological initiatives and small projects worldwide was explained to them.



We prepared a scientific paper that included the main findings of our project in accordance with the project plan. This manuscript was accepted for publication in the highly rated scientific journal "Frontiers in Forests and Global Change" (top ranked in the fields of Ecology and Forestry, with Impact Factor 4.32). It will be published in OA (open access mode), so it will be widely accessible to both the scientific community and the general public. The Rufford Foundation's contribution to the research and the project number are noted in the Acknowledgement section.

Popović Z., Vidaković V., Janković J. (2023). Variability of leaf traits in natural populations of *Picea omorika* determines ignitability of fresh foliage. *Front. For. Glob. Change* 6:1196809. doi: 10.3389/ffgc.2023.1196809

<https://www.frontiersin.org/articles/10.3389/ffgc.2023.1196809/abstract>

ORIGINAL RESEARCH article

Front. For. Glob. Change

Sec. Fire and Forests

Volume 6 - 2023 | doi: 10.3389/ffgc.2023.1196809

Variability of leaf traits in natural populations of *Picea omorika* determines ignitability of fresh foliage





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 The final, formatted version of the article will be published soon.

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A variety of plant traits, from architectural to the cellular level, have been connected to flammability, but intraspecific variability of plant traits (ITV) and components of flammability is poorly studied. The lack of knowledge about ITV of plant traits related to flammability appears to be a major shortcoming in further interpreting species flammability and fire behavior and incorporating the data into models. In this study, morpho-ecophysiological traits (width, length, thickness, weight, area, volume, moisture content, flatness, specific leaf area, density of leaf tissue, ratio of area to volume) and time-to-ignition of fresh foliage were measured in seven populations of *Picea omorika*. All leaf traits are presented along with their correlations to the flammability trait. The seven populations differed in terms of fresh leaves' time-to-ignition. Differences among populations in morpho-ecophysiological traits were also significant but not consistent among populations. PCA classified 49 elements into three different groups, where three populations were clustered by higher leaf area-related traits, other three populations were clustered by higher leaf length, volume, thickness, time-to-ignition, density index, moisture content, width, weight, and one population was classified between two main groups. The first two principal components accounted for 87% of the total variance: variability in leaf area- and leaf weight-derived parameters (specific leaf area and density index) and time-to-ignition primarily defined the formation of the first axis, while variability in leaf flatness (based on leaf weight and thickness) primarily contributed to the formation of the second axis. Results suggest high ITV in natural populations of *P. omorika* regardless of site fire history.

Keywords: Leaf morphology, Leaf moisture content, Ignitability, Trait variability, Intraspecific differences

Received: 30 Mar 2023; Accepted: 30 May 2023.