



LASPEH

Low Adriatic Species and Habitat

Pinus heldreichii H. Christ 1863



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Parco Naturale Regionale
Dune Costiere
da Torre Canne a Torre San Leonardo



Ministero dell'Ambiente
e della Sicurezza Energetica



Comune di Ugento



Comune di Guardiagreia

Public Enterprise for National Parks of Montenegro is one of the partners in the project LASPEH (Low Adriatic Species and Habitat, Interreg IPA CBC, Italy - Albania - Montenegro) in cooperation with partners in Montenegro (Public Enterprise for National Parks of Montenegro), with three other Italian partners (Managing Authority of Taranto Regional Natural Reserves, Municipality of Ugento and Guardiaregia Municipality) and an Albanian partner (National Agency for Protected Areas).

The project aims to protect, promote and valorize endangered species and habitats in the Adriatic region. National parks of Montenegro are realizing the revitalization of the Bosnian pine (*Pinus heldreichii* H. Christ1863) habitat on the slopes of Jezerski vrh in Lovćen National Park.





Lovćen National Park was founded in 1952 to protect and maintain the unique nature, wildlife and authentic Katun settlements (seasonal settlement of cattlemen during the summer in the mountains). This National Park is located on Mount Lovćen, whose largest peaks are Štirovnik (1749m) and Jezerski vrh (1660m). The area of the park is about 6220 ha, and mainly covers the central and highest part of the Lovćen massif.

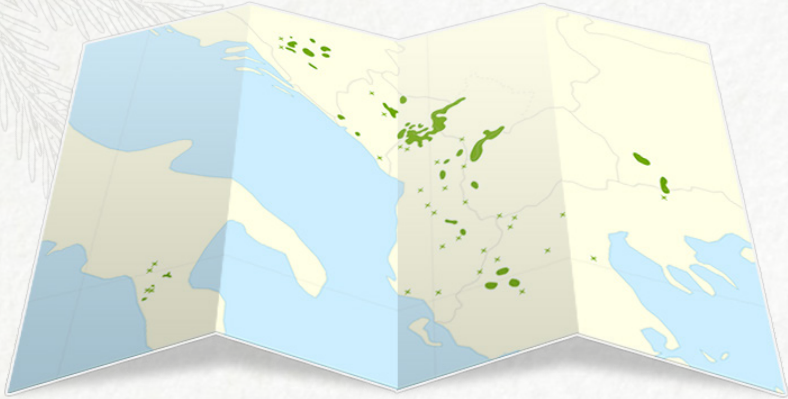
Pinus heldreichii H. Christ 1863 (syn. *P. heldreichii* var. *leucodermis* (Antonie) Markgraf) is a species from the family Pinaceae (family of pines). Bosnian pine was named after the famous Greek botanist Heldreich (Theodor Heinrich Hermann von Heldreich - 1822-1907). Common names are Bosnian pine, ivory pine, spruce pine, armor pine, etc. Bosnian pine is a tertiary relic and subendemic of the Balkan Peninsula and has also been reported in the Apennine Peninsula in southern Italy. The Bosnian pine tree reaches a height of 35 m. The diameter of the tree is up to 1 m and can reach several hundred years. The color of the bark at a young age is light and smooth, later ash-gray and deep-grained cracked onto polygonal tiles. The appearance of the tiles is reminiscent of "body armor", which is why in Germany it is called "Panzerkiefer" (armor pine).



The pine needles are dark green, two in each sleeve, rigid, sharp and clustered at the apex of the twigs, 6 to 11 cm long and up to 1.5 mm thick. The buds are up to 2 cm long, without resin. The cones are ovate shape, 5-8 cm long and 2-3.5 cm wide, with a greenish color later in life. In mature cones, the inner part of the protective flakes is light brown in contrast to black pine, where the interior of the flakes is completely black. This pine is propagated by seed. The seed is elliptical, about 7 mm long, spotted, with a 25 mm long wing covering the seed. The seeds ripen in late September or early October of the second year. The root is very developed, with numerous strong branches that penetrate deep into the cracks in the rocks, allowing it to survive on extremely steep and high terrain.



Bosnian pine habitats are found on the Habitat Directive - 95A0 High or Mediterranean pine forest, and this habitat type also includes habitats of endemic *Pinus peuce*. The European Red List of Habitats - Foresta Habitat Group report states that the IUCN category of this habitat is NT (Near Threatened) in EU countries, while in non EU countries it has the LC (Least Concern) IUCN category. In Montenegro, Bosnian pine is protected by national legislation - it is on the list of protected species by the Decision on putting under the protection of certain plant and animal species issued by the Republic Institute for Nature Conservation (Official Gazette of the Republic of Montenegro 76/06).



Map of distribution of *Pinus heldreichii*

Pinus heldreichii grows on vertical and inaccessible slopes, on which only it can survive. The global population of this species is fragmented and consists of rather small stands. The highest stands are recorded in Albania. In vertical distribution, it usually occupies the belt from 1,000 to 1,900 m above sea level, but it also occurs lower at 720 m in Greece and more than 2,000 m, 2,500 m at Olympus. Throughout the range, older stands are being restored at higher altitudes and are poorly restored.

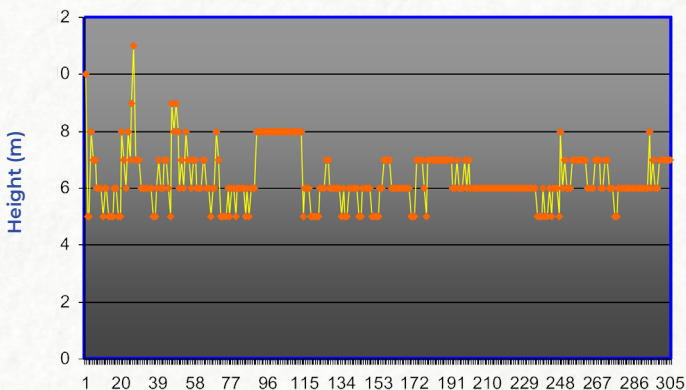


Some activities have been manifested by the LASPEH project to protect and to help the smooth development of this particularly valuable type of pine. Implementation of conservation and concrete measures in the field will provide, first of all, protection of the habitat from the started erosion processes. Removing broken and dry black pine trees will provide space for the restoration of the Bosnian pine. Also, if there is a need for afforestation with indigenous seedlings of the same genetic origin, it will contribute to increasing the population and improving the forest community of the *Pinus heldreichii*.

This project will allow regeneration of the Bosnian pine as a particularly significant species and its habitat protection, and to ensure its undisturbed development and survival in indigenous habitat and in a capacity that will provide the genetic potential for future generations.

The graph shows the layout of the heights of the Bosnian pine trees. It was made based on field research for the preparation of the Conservation Plan and it is concluded that the largest number of trees is 5 to 8m high.

Heights of trees of Balkan pine on the slopes of Jezerski Peak



The number of Balkan pine trees (310)



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Laspeh Project



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