

ENDEMIC FORESTS IN DANGER: LAND USE SHIFTS AND ACCOMPANYING IMPACTS UPON THE NATURAL FLOOD STORAGE CAPACITY ALONG THE NORTH BULGARIAN BLACK SEA COAST

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Longoses represent endemic forests native to the East Balkans. On the Bulgarian Black Sea coast, once they used to occupy vast areas along the river downstream sectors. Key environmental factors for their existence are the humid subtropical climate with mild winters and the river inundations occurring twice-yearly in late fall and early spring. These hygrophilous forests play an essential regulatory role in the runoff peaks by ensuring a crucial ecosystem service as flood storage providers. Nowadays, because of highly decreased and fragmented areals, longoses are red-listed as **critically endangered**. Hence, they are subject to preservation in compliance with the EU Habitats Directive and Annex 1 of Bulgaria's Biodiversity Act.

Aim and objectives of the study are: to investigate the spatiotemporal changes in the longos forests' areals along the North Bulgarian coast; to analyze the consequences of the anthropogenic impacts upon the river runoff; to provide a generalized assessment of the longoses' contemporary flood retention capabilities.

Topographic maps from the late 19th century were integrated into GIS to reconstruct the longoses' historical extents by on-screen digitizing of the areas of interest. Analogous procedures were applied on such from the mid-1970s, a time frame correlating with the extensive development of Bulgaria's coast during the Socialist period. Historical land cover as in the late 1980s, for the sites once entirely occupied by longos forests, was derived from Landsat images. These three historic data sets were chronologically compared to the longos forests' contemporary extents, available as up-to-date cadastral data. The comparisons were executed using GIS crosstabulation techniques.

Results demonstrate the ubiquitous decrease of the longos forests' extents due to land use shifts, decreased river runoff, overexploitation of the wood resources, etc. These findings imply for a deteriorated ecological status, impaired flood storage capacity and the inability of the longoses to act as a proper regulator of the peak runoffs nowadays, well correlating with the recent extreme coastal floods with fluvial origin.