De Martonne and Lang Ecometric Indices Determination by GIS Analysis, Based on Climatic Raster Data Sets

Determinarea prin analiza GIS a indicilor ecometrici Lang şi De Martonne, pe baza seturilor de date climatice în format raster

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Abstract:

The pressure exerted by the significant climate variability is expected to affect both the distribution and abundance of native species. As the scientific community is increasing the understanding of the biological impacts that could influence the environment or the biodiversity, research is now increasingly focused on the econometric climatic indexes.

Among the most efficient and widely used indexes are De Martonne's index of aridity and Lang's rain-factor. These indexes represent useful instruments in the management of the protected areas that aim to ensure the long-term survival of the threatened species and habitats. This study aims to determine the De Martonne's and Lang's indexes using QGIS mapping techniques. The mathematical distribution models of the temperatures and precipitations available in raster format were implemented in the R statistical computing environment.

Keywords: climatic data, raster calculus, Lang rain-factor, De Martonne index, resolution, GIS