



“Gheorghe Asachi” Technical University of Iasi, Romania



DETERMINATION OF ECOLOGIC AND ANTHROPOGENIC DISTURBANCE STATUS ON HAZELNUT AGRICULTURE: A CASE STUDY OF UNYE-ORDU

Seyma Sengur*

Landscape Architecture Department of Ordu University, Cumhuriyet Campus, 52000, Altınordu-Ordu / Turkey

Abstract

Agricultural areas are cultural landscapes that contribute to biodiversity and ecosystem services. In this context, agricultural landscapes gain importance, and conservation and management issues need to be carefully considered along with revealing the state of disturbance on landscapes. Worldwide, Agricultural landscapes are in change and transformation under natural and anthropogenic pressures. The Unye district of Ordu Province in Turkey has an important potential in terms of hazelnut cultivation, and it carries an anthropogenic disturbance risk under the pressure of zoning and housing.

Disturbance is a process that develops because of natural processes and human use. The Disturbance Index provides information about the natural and anthropogenic disturbance of the landscape through various landscape metric analyses. In this study, disturbances experienced in hazelnut agriculture in the Unye district were discussed in two stages as both natural and anthropogenic disturbances.

By using the mowing window technique in FRAGSTATS software, natural disturbance status was revealed with landscape metrics Fragmentation/PLAND, Patch Density/PD, and Interspersion-Juxtaposition (IJ). In the second stage, the proximity to human usages, such as roads and settlements, was determined by the proximity analysis carried out in the ArcGIS program, and the anthropogenic disturbance status was revealed. Last, all maps produced were superimposed with the weighted combination technique in the ArcGIS software and the pressure level on hazelnut agriculture in the Unye district was mapped.

22% of the area is under low pressure, 50% is medium pressure and 26% is high pressure. Areas under very high pressure were detected as almost non-existent.

Key words: disturbance index, FRAGSTATS, landscape metrics, mowing window technique

Received: April, 2023; Revised final: June, 2025; Accepted: June, 2025

* Author to whom all correspondence should be addressed: e-mail: seyma_sengur@hotmail.com