

Protected area designation effective in reducing, but not preventing, land cover changes

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The designation of protected areas in Europe has been effective in reducing, but not completely preventing, land cover changes associated

with human activity, according to a study published July 17 in the open-access journal *PLOS ONE* by Niels Hellwig of Potsdam University and Osnabrück University of Applied Sciences in Germany, and colleagues. Approximately 1.5% of all protected areas and 3% of all surrounding buffer zones were affected by land cover change from 2000 to 2012.

Land cover change involves massive transitions from natural to less [natural habitats](#) and thereby threatens ecosystems and the services they provide. To retain intact ecosystems and reduce land cover change, a dense network of protected areas has been established across Europe. But even protected areas, and in particular the zones around protected areas, have undergone land cover changes. In the new study, Hellwig and colleagues set out to compare land cover changes in protected areas, non-protected areas, and 1 km buffer zones around protected areas across Europe between 2000 and 2012, and analyze their relationship to climatic and [socioeconomic factors](#).

The results show that land cover changes were most frequent in 1 km buffer zones around protected areas, with 3% of all buffer areas affected. Overall, land cover changes within protected areas were less frequent than outside, although they still amounted to 1.5% of all protected areas. In some parts of Europe, purely anthropogenic processes such as urbanization and intensification of agriculture still accounted for up to 25% of land cover changes within protected areas. Demographic factors, including accessibility to cities and population density, were most important for coarse-scale patterns of land cover changes, whereas fine-scale patterns were most related to longitude (representing the general east/west economic gradient) and latitude (representing the north/south climatic gradient). According to the authors, it may be important to regularly monitor the effects of land cover changes in buffer zones on protected ecosystems, especially since these ecosystems are likely to experience greater vulnerability in the future due to [climate change](#) and socioeconomic development.

Hellwig adds: "Land cover changes were most frequent in [buffer zones](#) around protected areas, threatening the integrity of the protected areas."

More information: Hellwig N, Walz A, Markovic D (2019) Climatic and socioeconomic effects on land cover changes across Europe: Does protected area designation matter? *PLOS ONE* (2019). [DOI: 10.1371/journal.pone.0219374](#)

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