

# Population growth set to significantly affect ecosystem services

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Changing land use can have a significant impact on a region's vital ecosystem services, a recent research study has revealed.

Large increases in urbanization can lead to more concrete and asphalt reducing an area's flood mitigation services.

Low density housing, however, has little effect on flood mitigation services but does cut down losses in the amount of land available for food and carbon storage, the study showed.

Researchers investigated how a projected 16 per cent increase in the human population in Britain by 2031 would affect key ecosystem services depending on how cities expanded to meet the growing demand.

Dr. Felix Eigenbrod, Lecturer in Ecology and Ecosystem Services at the University of Southampton, led the study while at the University of Sheffield.

He says: "Predicting exactly how cities are going to grow is extremely difficult because every city grows a bit differently, so we decided to analyse the impacts of two extreme, yet realistic scenarios – densification and suburban sprawl on three ecosystem services.

"We assumed under the sprawl scenario that the majority of [population growth](#) would be accommodated by building new suburban housing.

“Under the densification scenario we assumed that in the first instance areas with suburban levels of housing would become dense urban housing. This would greatly reduce the amount of new land needed for housing,” he says.

The study team, from the University of Sheffield and the Centre for Ecology and Hydrology, in Wallingford, explored the effect of these two different scenarios on three [ecosystem services](#) – flood mitigation, agricultural production and carbon storage.

Felix says: “If a city expands then that land is no longer useful for agriculture so production goes down and when you construct new houses you disturb the soil, which removes the stored carbon.

“However, if you reduce expansion of cities by increasing high density housing, you tend to have much less green space so the water will run off quicker and contribute to flooding, whereas in suburban areas there will be a lot of gardens and parks where the water can drain into the soil and not create floods.”

“There is an opportunity here, with clever planning, to try and maximise the benefits identified from both scenarios,” Felix adds.

The results of the study were presented at the British Ecological Society’s (BES) annual meeting at the University of Sheffield and are published in the journal *Proceedings of the Royal Society Biological Sciences*.

Provided by University of Southampton

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