

Urbanization trends in protected areas in the Czech Republic in the years 1975 – 2014

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Introduction

Protected areas aim to conserve nature and biodiversity and provide space for recreation to people.¹ They represent the most valuable natural landscapes that require strict development planning to preserve their values. PAs cover almost 13 % of Earth's surface¹, and most of them are not purely natural areas. Instead, they are inhabited and include buildings and human settlements of various size². We aim to analyse the urbanisation trend in Czech PAs using the most recent data on built-up area growth between 1975 and 2014.

Methods

- GHSL built-up area multitemporal dataset
- Czech large-scale protected areas dataset
- Creation of protected areas clusters based on neighbouring borders
- 5 and 10 km buffer zones
- Zonal Statistics in ArcMap Pro 2.6

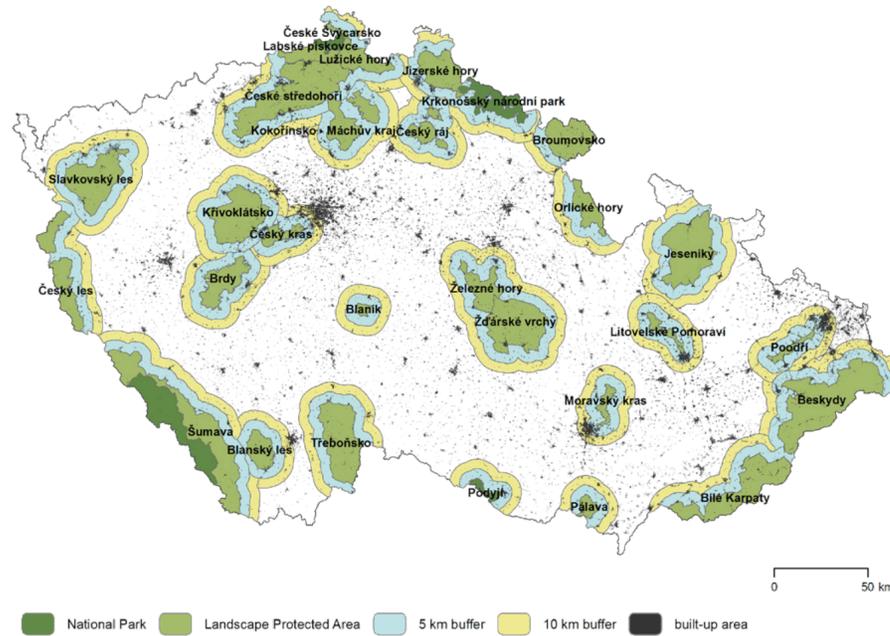


Fig. 1 Protected areas in the Czech Republic and their buffer zones

Results

In 2014, the average built-up area coverage in PAs was 4.48 %, representing half of the country average (Figure 2). However, the percentage of built-up was one-third higher in the buffer zones than the country average. The built-up share is usually higher in the buffer zones, where it was more or less one-third higher than the Czech average. The only exception is Pálava PLA with 8.45 % of built-up, whereas 7.13 % and 5.64 % in the 5 and 10 km buffer zone, respectively.

The speed of development was the fastest in 1975-1990 and the slowest in 2000-2014 (Figure 3). PAs were the fastest urbanised category in every period. We found no significant difference between NP's and LPA's values. The urbanisation trend was slower in the buffer zones. On the other hand, the values were the lowest in the Czech Republic as a country. Thus, PAs are more attractive to building development than the rest of the country.

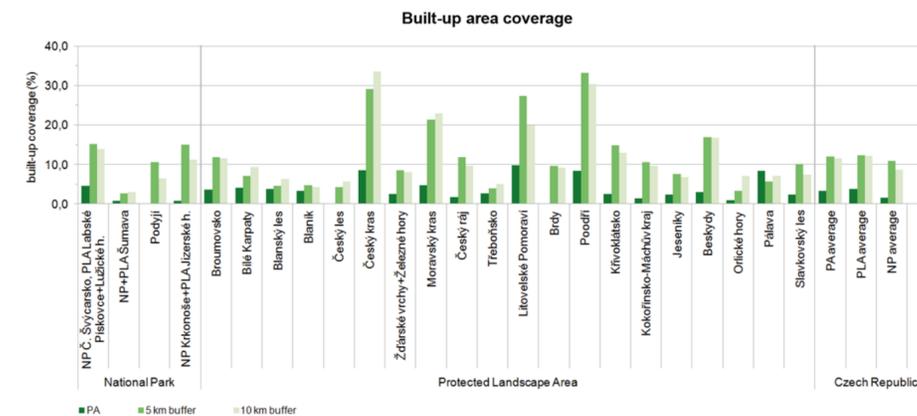


Fig. 2 Built-up area coverage in protected areas and their buffer zones

Conclusion

GHSL data are an unusual and effective source of information and are especially useful for large scale studies. The average built-up area coverage in PAs is smaller than the national average. However, the urbanisation trend in PAs tends to be higher than the country's average. High attractiveness and recreation potential might be causing faster urbanisation in PAs.

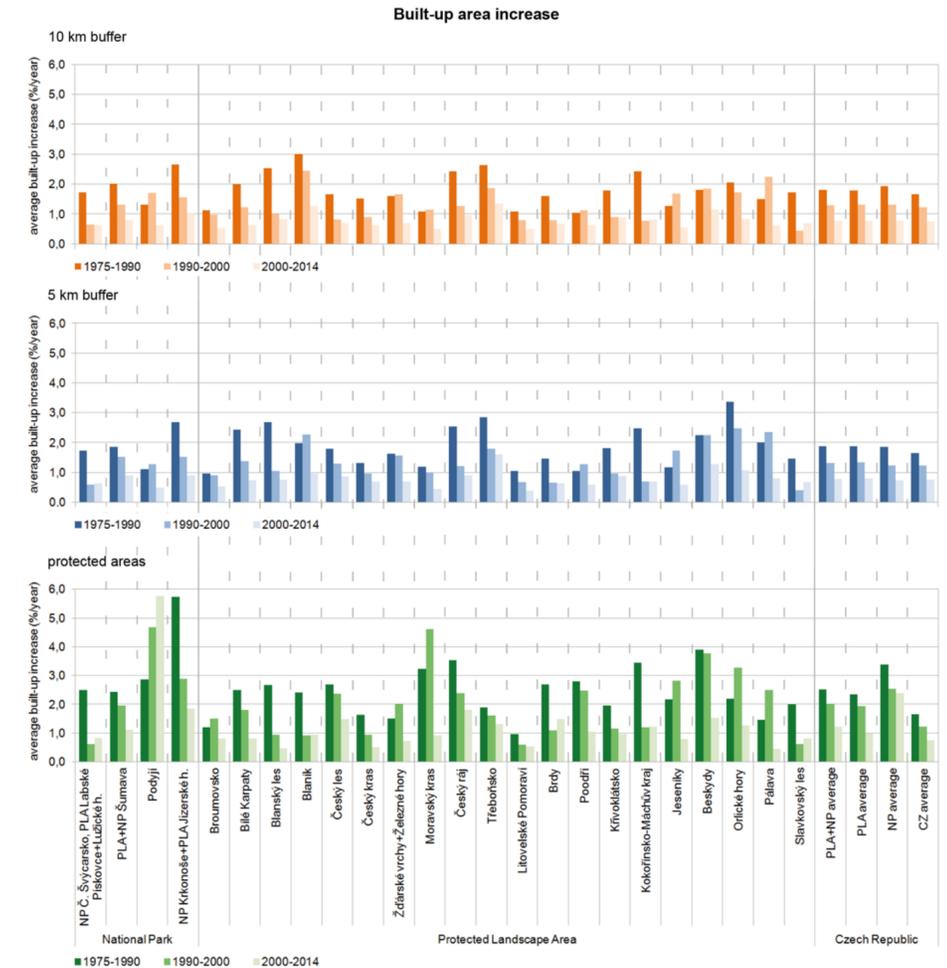


Fig. 3 Trend of built-up area increase in protected areas in 1975-2014

References

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- ² Fuente, B. D., Bertzky, B., Delli, G., Mandrici, A., Conti, M., Florczyk, A. J., . . . Dubois, G. (2020). Built-up areas within and around protected areas: Global patterns and 40-year trends. *Global Ecology and Conservation*, 24. DOI:10.1016/j.gecco.2020.e01291