

RECREATION IN CZECH LARGE PROTECTED AREAS: COUNTED AND SORTED

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Abstract

Protected areas around the world attract people. Due to beautiful nature, landscape and suitable geomorphological conditions, leisure time activities are often concentrated in these areas. It can be in opposite to aims of nature conservation. Therefore, we mapped recreational infrastructure and areas across all Large Protected Areas within Czechia for four periods (1950s, around 1990, 2004–2006, 2016–2020). We included all forms of recreational land-use on the edges of built-up areas and outside of them. During our study period of approximately seventy years (1950–2020), their area and length increased significantly. Now, representation of recreational areas within protected areas varied from 0 to 1 % of whole area. Ski slopes and golf courses are among the biggest new recreational structures; playgrounds and sports fields are almost in each protected areas. Despite the relatively small portion of area, recreation created fragmentation features within the landscape and can generate other anthropogenic activities harmful for biodiversity and nature.

Key words: Recreational areas, Recreational infrastructure, National Parks, Protected Landscape Areas, Czechia

Introduction

Along with nature conservation, recreation is another desired goal of protected areas (PAs) (Brandon, Wells, 2002). PAs have potential to provide recreational services for society, but on the other hand, even non-invasive recreation can harm biodiversity and purpose of PA (Reed, Merenlender, 2008). In densely inhabited Central Europe, there is a need to find a compromise, solution, between protection of valuable parts of landscape and development for ensuring economic and social well-being, because recreation is an important for local community within the PAs as an economic activity (Heagney et al., 2018).

It is highlighted by examples from other parts of Europe (e.g. the Alps), where new forms of recreational land-use have been created in recent decades (Schneeberger et al., 2007). Moreover, an overlay of PAs and recreational attractiveness of the area is evident across Czechia (Perlin et al., 2010).

Therefore, in last five years (2018 – 2022) we monitored landscape in all Large Protected Areas for the Ministry of the Environment. Our work was also focused on recreational structures. Here, we bring quantification of their development during the study period.

Materials and methods

Spatial recreation data were manually vectorised in ArcGIS 10 software (ESRI, 2020) for four periods – 1950s (1949 – 1956), 1990 (1988 – 1995), 2004 (2002 – 2006) and 2016 (2016 – 2020) based on topographic maps, aerial images and ZABAGED (The Fundamental Base of Geographic Data of the Czech Republic). Data were prepared for Protected landscape areas (PLA, $n = 26$, 11 379 km²) and National Parks (NP, $n = 4$, 1405 km²) including their buffer zones. Recreational areas were recognized and divided into five categories: ski slopes, sport areas (beaches, outdoor swimming pools, playgrounds, shooting ranges, sports fields, tracks for motocross and cyclocross), golf courses, campsites and others (open-air museums, zoos) for all PAs.

Basically, we selected artificially transformed areas, which are used for recreation and are not buildings. Areas larger than 0.2 ha were taken into account. Furthermore, recreational infrastructure was mapped as lines of ski lifts and cable cars.

Then, we counted length and area of the recreational structures, their relative proportion as well, according above-mentioned categories and for each PAs.

Results

Generally, a huge increase of recreational areas and infrastructure happened in our study period. Areas enlarged from 236 ha to 2829 ha, tenfold on average per area (Fig. 1). Length of lines grew from 11 km in 1950s to 299 km in 2020. Especially after 1990, in period 1990 – 2004, building of new structures accelerated. However, proportion of the recreational areas and their types varied

significantly between PAs. Sport areas have been present almost in all PAs, on the other hand golf courses have appeared only in twelve PAs during the study period.

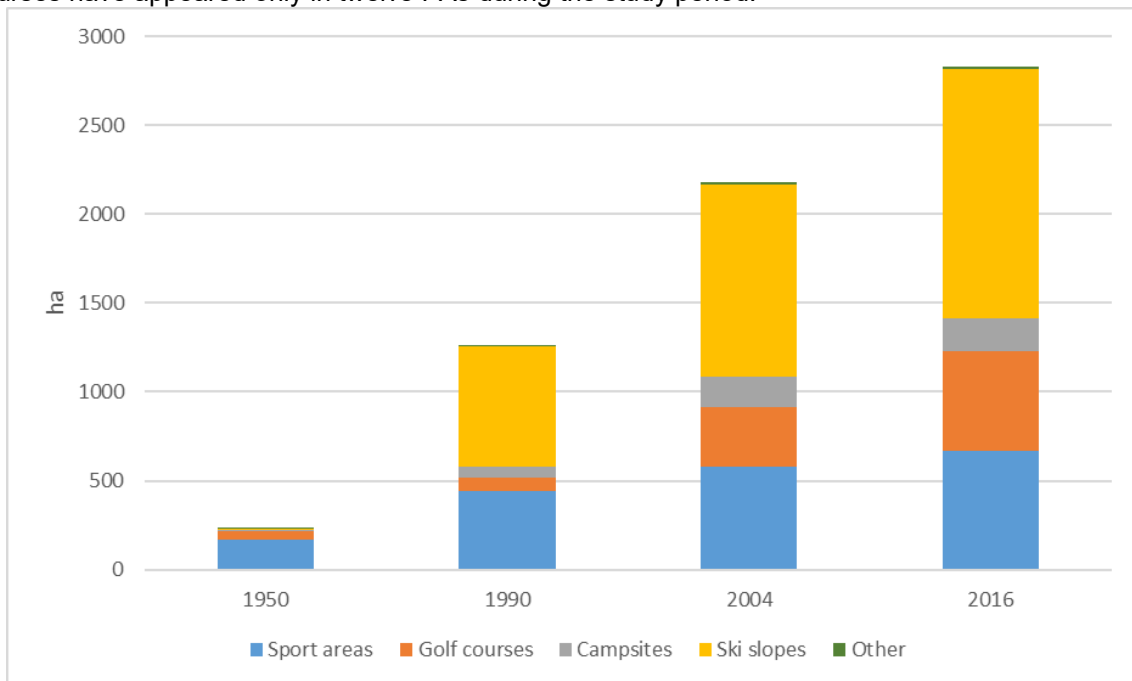


Fig. 1: An increase of recreational areas during the study period (1950 – 2020) according their types.

The lowest share of area nearly zero has been seen in densely forested and sparsely inhabited PAs: Brdy and Český les PLAs and České Švýcarsko NP. On the other hand, golf courses and ski slopes are larger recreational structures, thus PLAs and NPs with higher number of these patches have larger total area of recreation. The Krkonoše (Giant Mountains) NP and Slavkovský les PLA have a long tradition in mountainous and spa recreation and large proportion of ski slopes and golf courses, respectively, during our study period is a result. Nowadays, the Krkonoše NP has the largest share of recreation, followed by other mountainous areas, e.g. Beskydy, Jeseníky, Jizerské hory, Lužické hory (in this PLA, high share of recreation is given by combination of more categories of recreational areas), Orlické hory PLA and traditional recreational areas as above-mentioned Slavkovský les PLA with spa resorts and Český kras in vicinity of Prague (Fig. 2).

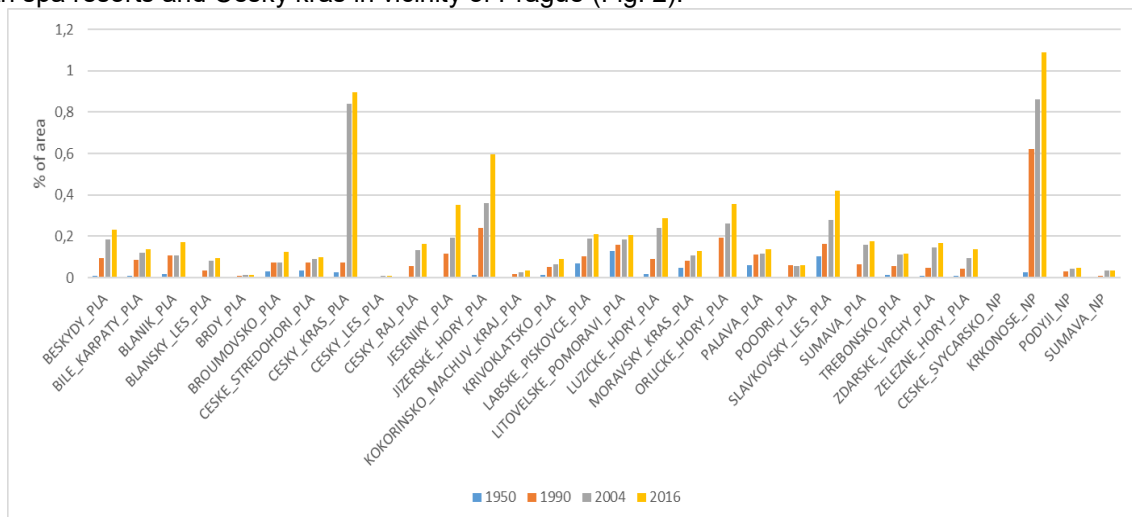


Fig. 2: Share of recreational areas during study period (1950 – 2020) in PAs.

Discussion

In the recent decades, a huge shift from productive to non-productive land-use has been evident in Central Europe (Boudný et al., 2022; Janík, Kupková, 2021; Lipský et al., 2022). Therefore, many new recreational areas were made.

However, there are huge differences of recreational structures share between PAs. Ski slopes experienced the highest increase and now have the highest share between all types of recreation, thus mountainous PAs especially after 1990 have had enormous growth of recreational areas despite their nature conservation status.

Therefore, this development of recreation has consequences for nature viability. This rapid growth destroyed natural land cover and habitats, e.g. mountainous forests, led to higher level of landscape fragmentation and disturbed protected species (Belotti et al., 2012; Filla et al., 2017; Štursa, 2007).

Conclusion

Recreational use of PAs is a result of their attractiveness, especially for some specialized activities. PAs provides recreational ecosystem services. However, it is often against interests of nature conservation, especially large new patches contributed to habitat loss, landscape fragmentation and lead to biodiversity decline. Especially since 1990 recreation has been highly demanded by society, which has been hand in hand with shift from productive to non-productive land-use in Czechia. This is in particular characteristic for some mountainous PAs and their ski slopes. On the other hand, range of share of recreational areas is wide between PAs and in some of them the recreational structures have been barely presented. Here, we showed ongoing anthropogenic pressure on PAs, which will probably continue. Therefore, managing its spatial impacts is a key task for PA's administrations.

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Souhrn

V průběhu posledních pěti lety jsme v rámci smlouvy s Ministerstvem životního prostředí monitorovali vývoj krajiny v českých velkoplošných zvláště chráněných území od 50. let 20. století do současnosti. Součástí bylo i zhodnocení vývoje rekreačních struktur v územích. Jejich stav by sledován ve čtyřech časových horizontech 50. léta 20. století (1949 – 1956), okolo roku 1990 (1988 – 1995), 2004 (2002 – 2006) a 2016 (2016 – 2020). Zaznamenány byly liniové (vleky, lanové dráhy) a plošné prvky (golfová hřiště, sjezdové tratě, sportoviště, kempy a další) ve velikosti větší než 0,2 ha. Sportoviště jsou přítomna kromě NP České Švýcarsko ve všech území, zato golfová hřiště jsou pouze ve dvanácti z nich. Celkem došlo k významnému nárůstu jak liniových (30x), tak plošných struktur (12x). Největší současné podíly i nárůsty během sledovaného období byly zaregistrovány u ploch sjezdových tratí, což vede k tomu, že právě některá horská chráněná území mají vyšší podíly rekreačních ploch a souhrnné délky infrastruktury. Vůbec nejvíce rekreačních ploch leží v současné době v Krkonošském národním parku, z horských území nalézáme vysoké zastoupení rekreace díky značným rozlohám sjezdovek v CHKO Beskydy, Jeseníky, Jizerské hory a Orlické hory. Velikost golfových hřišť pak předurčuje vysoké podíly rekreace v CHKO Slavkovský les, kde je toto využití krajiny spojeno s přítomným lázeňstvím, a v CHKO Český kras, které je samo poměrně hustě osídleno a nachází se v zázemí Prahy, čímž tvoří přirozenou rekreační oblast velkoměsta. Vysoké zastoupení rekreačních ploch v CHKO Lužické hory je pak dáno kombinací přítomnosti více typů rekreace – golfových hřišť, sjezdových tratí i sportovišť. Na druhé straně jsou území s minimem rekreačních ploch, ty spojuje vysoká lesnatost, stabilní krajinný pokryv a nízká hustota osídlení, jedná se zejména o CHKO Brdy, Český les a NP České Švýcarsko. Nárůst rekreačních ploch a infrastruktury jde ruku v ruce s posunem od produkčního k neprodukčnímu využití krajiny, přičemž ale důsledkem značného nárůstu rekreačních ploch a infrastruktury ve velkoplošných zvláště chráněných území je jeho dopad na krajinu, a to v podobě ztráty přírodních stanovišť, rušení chráněných druhů a zvyšování míry fragmentace, což vede ke ztrátě biodiverzity. Zejména po roce 1990 tato vysoká společenská poptávka po rekreaci znamená neutuchající antropogenní tlak na chráněná území a je pravděpodobné, že ten bude i nadále pokračovat. Poté je výzvou pro management území spravovat prostorové dopady rekreace tak, aby nedocházelo k poškozování předmětů ochrany přírody a krajiny.

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