

# THE IMPACT OF THE COVID-19 EPIDEMIC ON THE NUMBER OF VISITORS IN SELECTED PROTECTED AREAS IN THE CZECH REPUBLIC

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## Abstract

Visitor monitoring has been taking place in many protected areas of the Czech Republic for many years. This provides nature conservationists with knowledge about the impact of visitors on the objects of protection of these areas. The 2020 COVID-19 epidemic and related government measures disrupted current long-term attendance trends in many localities. Based on several case studies, the text illustrates how the epidemic and the measures taken specifically affected the number of visitors to Czech protected areas.

**Key words:** Visitor counting, protected areas, COVID-19 epidemic

## Introduction

The COVID-19 epidemic has started to resonate in Czech public space in March 2020 when the first cases of infection appeared in the country. A significant part of "coronavirus measures" included various restrictions of moving in public. These included both individual restrictions and quarantines of infected or potentially infected individuals, as well as mass lockdowns on nation level with different intensities (e.g. curfews, limitations in travelling between districts or abroad, etc.). This exceptional situation has had an impact on a wide range of human activities and sectors in 2020 and partly also in 2021. Similar impacts have occurred in the area of outdoor recreation in protected areas. Therefore, due to the COVID-19 epidemic it was possible to observe significant changes in long-term trends in attendance based on visitor monitoring data.

## Methods of visitor monitoring in protected areas of the Czech Republic

Continuous visitor monitoring has been carried out for many years in selected protected areas of the Czech Republic by usage of automatic counting devices. Data from this monitoring contain information on the number of visitors per hour at monitored site (Zahradník et al., 2012, Zahradník et Banaš, 2016, Zahradník et al., 2017).

Obtained tourist attendance data from protected areas are subsequently used in monitoring the natural environment in relation to tourism and in protected area management (Švajda et al., 2015; Popelka et al., 2016, Zahradník et al., 2018, Banaš et al., 2020).

In 2020 and 2021 during the COVID-19 epidemic the Nature Conservation Agency of the Czech Republic (NCA CR) operated up to 79 attendance counting devices in 17 protected landscape areas (PLA). The results of visitor monitoring presented below are from sites where significant change in external conditions that could potentially affect number of visitors at these sites (besides the COVID-19 epidemics) has not been recorded in 2019-2021.

## The onset of the COVID-19 epidemic and its impact on attendance in the Křivoklátsko PLA

The Křivoklátsko PLA is located at a convenient distance for a day trip from the capital city of Prague. Many residents of the capital, same as inhabitants of Central Bohemian Region, own holiday cottages in the Křivoklátsko PLA. The case of Křivoklátsko PLA could be sample example of the significant impact of the COVID-19 epidemic on attendance in protected area. Tourist attendance is monitored at 8 sites in long-term period. Four counting devices are installed at official hiking trails, four at unofficial paths. The average year-on-year change in number of visitors of all monitored sites in 2016 compared to the previous year (2015) was +5.1%. In 2017, the change was -6.1% compared to 2016. In 2018 the year-on-year change increase to +0.1% and in 2019 the value was +0.9%. During the epidemic period in 2020, the number of visitors raised up compared to 2019 on average by 60.7%. This leap represents an unprecedented change in the development of the trend in tourist attendance over the

last five years. The development of attendance at the Křivoklátsko PLA, i.e. totals of number of visitors from each site over the last five years, is illustrated in Figure 1.

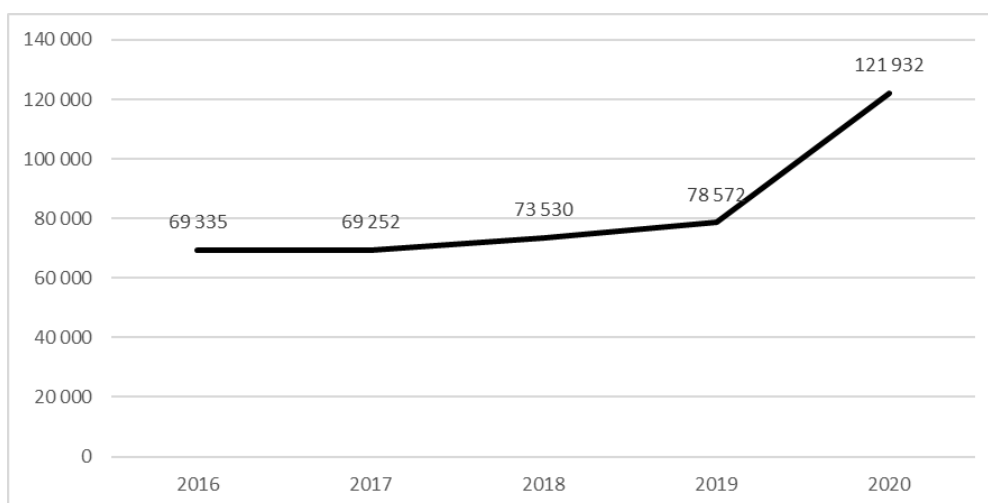


Fig. 11: Attendance at the Křivoklátsko PLA (absolute number of visitors from monitoring sites) in 2016–2020.

Focused on monthly visitors numbers at the Křivoklátsko PLA in 2020, data shows that the largest increase in attendance compared to the long-term average occurred in March (+95.2%), April (+164.6%), May (+112.1%), November (+222.4%) and December (+108.9%). Tourist attendance in March, April and May 2020 was influenced by the onset and duration of the so-called first wave of the epidemic and the first lockdowns. Data for November 2020 demonstrate the beginning of the second autumn wave of the COVID-19 epidemic which comes after summer attenuation of epidemic and which persisted till 2021. As different months have different effects on the overall change in attendance (a larger change in attendance during a low-attendance month may have less weight than a smaller change during a high-attendance month), Figure 2 also illustrates the percentage contribution of each month to the overall change in average attendance in 2020. This shows that the real increase in the number of visitors to the Křivoklátsko PLA during the epidemic in 2020 was primarily caused by higher attendance in April and May. With a bit of exaggeration it could be said, that many people from Prague fled from the overcrowded metropolis to the Křivoklátsko region, seeking for calm at their cottages or on one-day trips. On the other hand, during the fading of the spring wave of the epidemic (June 2020), the recorded attendance at monitoring sites declined compared to the long-term average.

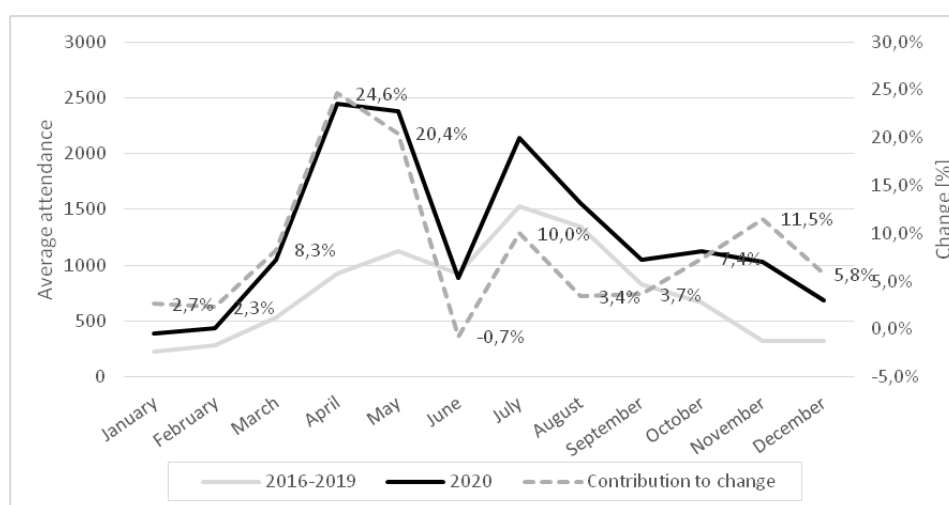


Fig. 2: Comparison of the average attendance of monitored sites at the Křivoklátsko PLA until 2019 and in 2020.

### Impact of COVID-19 epidemic on tourist attendance at the Jeseníky PLA

The automatic visitor monitoring at the Jeseníky PLA has been carried out since 2009. Together with the Beskydy PLA, these areas have the longest data series of visitor monitoring. Monitoring of attendance in the Jeseníky PLA was performed at 11 long-term monitored sites until the end of the 2021. At all of them the historical seasonal maximum in number of visitors was recorded during the epidemic period (i.e. 2020 or 2021). The average attendance at the long-term monitored sites in the Jeseníky PLA was 25.3% higher in 2020 than the average tourist attendance in 2016-2019. Compared to the Křivoklátsko PLA where the increase of number of visitors was mainly influenced by stronger attendance during the spring wave of the epidemic, in the Jeseníky PLA the average attendance during the spring wave was lower than in the 2016-2019. The increase of attendance during the summer months in the Jeseníky Mountains, especially July (see Figure 3), were the highest in the annual overview. This led to overcrowding the Jeseníky PLA during the summer months according to experts from the NCA CR.

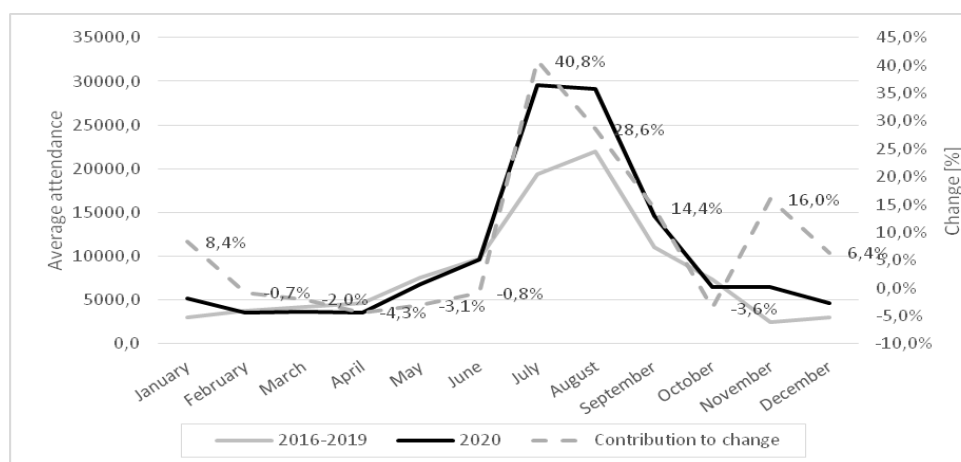


Fig. 12: Comparison of the average attendance of monitored sites at the Jeseníky PLA until 2019 and in 2020.

The difference in attendance between Křivoklátsko PLA and Jeseníky PLA is potentially caused by different type of visitors in each PLA. A significant part of Jeseníky PLA's visitors during the first wave of epidemic were so-called winter visitors (skiers, cross-country skiers, ski mountaineers, etc.). However, all services and visitor facilities were closed during the first wave of the epidemic in the Czech mountains as part of government measures to prevent the spread of the COVID-19. Therefore, the average number of visitors to the Jeseníky Mountains was lower than the average in 2016-2019 during the spring wave of the epidemic, compared to the Křivoklátsko PLA. As the global COVID-19 epidemic situation has made travelling abroad difficult, many people have decided to spend the summer holidays in the country. From this perspective of view, the Jeseníky PLA disposes of very good conditions for individual day trips same as a number of tourist attractions, a dense tourist infrastructure and a good accessibility from the regional cities of Olomouc (100 000 inhabitants) and Ostrava (300 000 inhabitants). The territory of the Jeseníky PLA, same as other Czech mountains, provided during the epidemic a relatively easily accessible alternative destination of summer holidays for a part of the public, who would normally spend it abroad.

### The Třeboňsko PLA as an example of negative impact of COVID-19 epidemic on tourist attendance

The visitor monitoring data from the Třeboňsko PLA are less robust than attendance data of the previous demonstration PLAs. The long-term visitor monitoring is taking place at a single site - the Lužnická cycle route in the national nature reserve Stará a Nová řeka. There are also data from four other counting devices which have been continuously monitoring attendance since 2018. The data from long-term visitor monitoring shows a continuous upward trend in attendance during the period 2015-2019. However, during the 2020 epidemic, the attendance at this site has dropped year-on-year (by 22.2%). same as at three others monitored sites. The attendance at the monitored sites in the Třeboňsko PLA has decreased of 8.7% between 2019 and 2020.

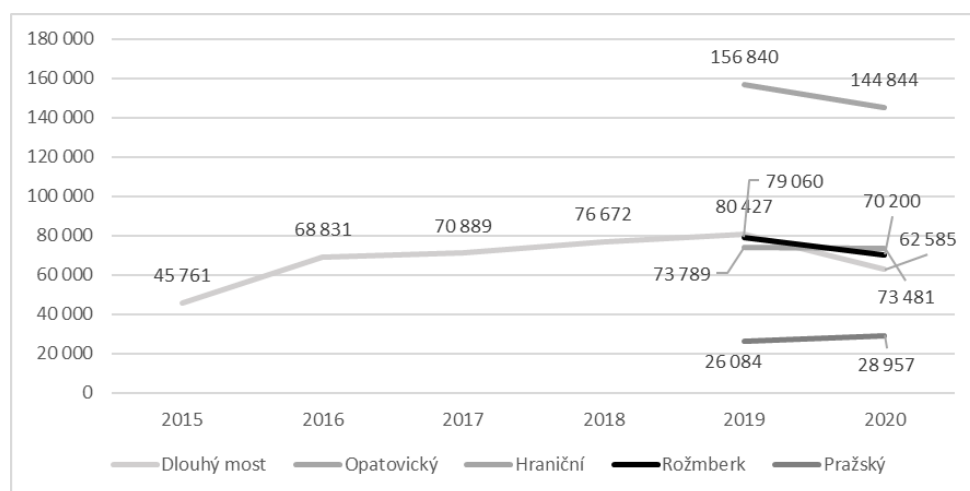


Fig. 4: Development of attendance at the Třeboňsko PLA.

Despite the limited range of dataset from this area, it is important to point out the reverse in the long-term trend of increasing attendance at the reference site which has occurred also at other sites with shorter-term monitoring period. During the COVID-19 epidemic in 2020 has been observed decline in number of visitors to monitored sites, which is related to the decline of attendance in the whole Třeboňsko PLA. The changes in trends in numbers of visitors reflect the local characteristics of attendance in this PLA. Significant proportion of visitors to Třeboňsko PLA is represented by bicycle riders, who usually come to the region from various parts of the Czech Republic for a multi-day cycling holiday. However, according the government measures during the 2020 epidemic a significant part of accommodation services was closed. On this base it could be assumed that at the PLAs which attendance consists of multiple-days visitors, such as the Třeboňsko PLA, has showed decline in the number of visitors during the 2020 COVID-19 epidemic compared to the normal situation before.

## Conclusion

At number of the monitored sites, a significant reversal of the previous long-term trends in tourist attendance has been occurred in 2020 and 2021. There is no doubt that the tourist attendance in protected areas of the Czech Republic reacted to the COVID-19 epidemic and related measures in 2020 and to a certain extent in 2021. In many of the monitored sites, a reversal of the previous long-term trends in visitor numbers occurred in 2020 and 2021. It is therefore obvious that only further years will reveal whether this fluctuation in numbers of visitors driven by the COVID-19 epidemic situation was only temporary deviation which reacted to government measures. The specific situation caused by the COVID-19 epidemic could possibly pose a trigger for a new trend of development of local tourism and for continuous increased tourist load in certain Czech protected areas.

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## Souhrn

Předkládaný text ilustruje na vybraných příkladech vliv epidemie COVID-19 na návštěvnost českých chráněných území. Z dat automatického monitoringu návštěvnosti vyplývá, že návštěvnost většiny CHKO v České republice se v roce 2020, který byl koronavirovou epidemií zásadně poznamenán, více či méně odchylovala od dosavadních vývojových trendů. Konkrétní projev epidemie a na ní navázaných opatření však nebyl v jednotlivých chráněných územích totožný. Zatímco v některých CHKO došlo vlivem epidemie k navýšení návštěvnosti (např. CHKO Křivoklátsko, CHKO Jeseníky), jinde oproti předchozím letům návštěvníků ubylo (např. CHKO Třeboňsko). Tato skutečnost je způsobena tím, že návštěvnost v řadě území je utvářena místními specifiky. Navíc jednotlivá epidemiologická restriktivní opatření vyvolávají u veřejnosti různé hromadné efekty. Omezení ubytovacích služeb vede k poklesu návštěvnosti v územích, kde převažují vícedenní turisté, a naopak generuje zvýšenou návštěvnost v územích s velkou četností časově snadno dostupných významných turistických atraktivit.

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