

ANNUAL REPORT FOR 2025¹

“DOBROČSKÝ PRALES NATIONAL NATURE RESERVE”

State: **Slovak Republic**

Name of the area: **Dobročský prales National Nature Reserve**

Year and number of years since the award or renewal of the European Diploma of Protected Areas: ***The Resolution CM/ResDip(2018)12 on the renewal of the European Diploma for the Dobročský prales National Nature Reserve (Slovakia) adopted at the 1321st meeting of the Committee of Ministers on 4 July 2018, valid by 18 September 2028 /hereafter “Resolution No (2018)12”²***

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1. Condition

The following condition is determined by the Resolution No (2018)12:

Conduct a study involving all stakeholders to verify necessity of a new forest road into the buffer zone and identify measures guaranteeing a least intervention solution to minimise the impact of the road, provided that the construction is not carried out during the vegetation period and in the breeding season, and that the felling itself does not include heavy machinery; a natural re-cultivation of the road should be foreseen once the forestry work has been carried out; report to the Council of Europe before starting the road works.

The state of emergency declared in the Brezno District in March 2024 due to the spread of the bark beetle calamity persists. The administrator and manager of the area, the Forests of the Slovak Republic, State Enterprise – Horehronie Branch (hereinafter "FE Horehronie"), has also prioritised processing of the sanitary logging in the vicinity of the Dobročský prales National Nature Reserve (hereinafter "NNR") during this period. It is not currently considering the construction of a new forest road. When sanitary logging is completed, FE Horehronie will reassess the need for the road construction. If it is still considered justified, experts will prepare a study to assess the possible impacts of constructing a new road in the territory of the Dobročský prales NNR.

¹ Reported period 1st September 2024 – 31th August 2025

² Originally resolution No (2003)6, resolution No (2008)19 and resolution No (2012)11, respectively

2. Recommendations

Four recommendations set up by the Resolution No (2018)12 are:

1. Add a chapter on scientific research to the management plan defining clearly the needs of the management of the nature reserve and including a timetable to avoid surveys that are not directly connected to the further development of the area.

Also during this reported period research in the Dobročský prales NNR continued in line with the Management Plan for the Dobročský prales National Nature Reserve (Special Area of Conservation SKUEV0047 Dobročský prales) for the period 2018-2047³ (conservation measures No. 1.2, 1.3, 1.9, 2.5 and 2.6 within the Chapter 3.4).

The project entitled PROBIOFOR "Relationship between biomass production and biodiversity in fir-beech forests under changing environmental conditions", focused on climate research, was completed in June 2024. However, individual measurements continued during this evaluation period under the management of a scientific team from the Technical University in Zvolen. The research is described in more detail in recommendation no. 3.

As part of a study on the Giant noctule (*Nyctalus lasiopterus*), researchers from the Institute of Forest Ecology of the Slovak Academy of Sciences in Zvolen wanted to confirm the presence of the species near Čierny Balog. The occurrence of the species was verified by successful mist-netting over the water surface, despite the probable reduction of shelter cavities due to calamity processing. Tree roosts were not searched.

Employees of the State Nature Conservancy of the Slovak Republic, the Poľana Protected Landscape Area and Biosphere Reserve Administration (hereinafter "Poľana PLA-BR Administration ") monitored the species of European interest, Green Shieldmoss (*Buxbaumia viridis*), at a permanent monitoring site in the core zone of the reserve. The species was confirmed in the area, but not in as large numbers as in previous years. The likely reason is lower annual rainfall.

No other research activities were carried out in the NNR.

2. Develop, according the precautionary principle, a strategy on how to deal with invasive alien species, in case of their appearance.

As in the previous reported period, Canadian goldenrod (*Solidago canadensis*) was the only detected invasive alien plant species in the buffer zone of the Dobročský prales NNR and its surroundings. Regular monitoring by employees of the Poľana PLA-BR Administration and the FE Horehronie at the end of August confirmed its constant occurrence in both valleys of the reserve's buffer zone. In the Za Dlhý grúň Valley, 111 individuals were removed from two locations and in the Brôtovo Valley, 62 individuals were removed from three locations. No invasive alien species were recorded within the reserve itself.

Practical experience shows that, despite implemented measures, that the complete removal of goldenrod is not possible. However, regular mowing and uprooting help to maintain its population without further spread.

In the next reporting period, the Poľana PLA-BR Administration plans to involve citizens of the municipality of Čierny Balog in addressing the problem of invasive plant species by raising awareness and conducting practical demonstrations of methods for removing invasive alien species.

³ Available within the table overview: <https://www.sopsr.sk/web/?cl=119>

3. Prepare a study on the effects of climate change and global warming, both on the nature reserve itself and on the regional forests, including the strategy on how to manage the surrounding forest to avoid negative impact in the nature reserve

Climate change research continued in connection with the completed PROBIOFOR project by measuring soil respiration, stand and soil microclimate. From the beginning of the growing season, the carbon balance was also measured using the eddy covariance method. Tree growth monitoring was conducted not only on Norway spruce, Silver fir, and European beech, but also on Sycamore maple and European ash. The results show that fir and ash begin to grow after winter earlier than beech and maple. The summary results were published in a case study⁴, which indicates that mixed stands (coniferous and deciduous) are more resilient to climate change. The study therefore emphasises the need for diversified forestry strategies to increase resilience to climate change and the stability of carbon sequestration.

In connection with climate research, working meetings were held during the evaluated period to prepare next field seminar to present research results and their possible application in forestry practice. The seminar is planned for October 2025. It will focus on comparing the responses of spruce monocultures and mixed stands to climate change, the long-term and seasonal growth dynamics of beech and fir in primary and managed forests, and carbon input and output balances in forests and at the plots after calamities.

Measurements of dendrometric parameters and phytocenosis properties related to the evaluation of trends in the development of the herb layer were completed in the previous evaluation period. These were one-off measurements for comparison with results from 19 years ago. In accordance with the established research methodology, repeated measurements are expected in 10 years.

Other scientific papers focusing on the consequences of climate change were also published during the reported period. In the work of Idoate-Lacasia et al.⁵, the Dobročský prales NNR was included in the database from which tree mortality was calculated. It was shown that the dominant tree species of natural forests in Europe did not exhibit a consistently increasing mortality rate due to climate change. According to the results of Moktan et al.⁶, preserved natural forests support long-term carbon storage in both soil and above-ground biomass, highlighting their value in climate change mitigation strategies.

The results of the inventory of tree species over 8 cm in the Dobročský prales were also published. Measurements were taken in 1978, 1988, 1998, and 2015. Long-term data from these four completed measurements made it possible to analyse the large-scale dynamics of tree species composition, as well as structural and dimensional diversity, with regard to ongoing climate change. The analysis confirmed a trend of increasing dominance of beech at the expense of coniferous trees (fir and spruce) and a significant increase in stand volume. The Dobročský prales recorded a slight increase in total diversity, mainly as a result of increased height and diameter diversity (Kucbel et al., 2025)⁷.

⁴ Bosela M, Marcis P, Polták D, Rybár J, Fleischer sr P, Fleischer jr P, et al. Norway spruce monoculture has lower resilience and carbon sequestration capacity than a more diverse broadleaved forest: a case study in Central Europe. *Forest Ecology and Management*, 2025; 591:122829.

⁵ Idoate-Lacasia, J., et al. Trends in background mortality in unmanaged forests across Europe over the last century. *Journal of Ecology*, 2025; [113\(10\)](#), pp. 2905–2920.

⁶ Moktal L. et al. Not only aboveground biomass: Soil of undisturbed Carpathian beech forests also stores substantial carbon. *Forest Ecology and Management*, 2025; 597:123140.

⁷ Kucbel S. et al. Species and structural diversity in old-growth forest reserves Badínský a Dobročský prales. *Proceedings of Central European Silviculture, 2025: Adaptation Measures in Silviculture*, p.:124-130.

4. Explore the possibility of moving the exhibition from the Pred Skalickou cottage to the Forest Museum.

The public was prohibited from accessing the Forest Open-Air Museum in Vydrovská dolina Valley until 30 April 2025. After this date, entry was permitted only at weekends and on holidays. The reason was the processing of sanitary logging as well as the partial reconstruction of individual thematic stops in the open-air museum, of which there are currently 50. The open-air museum is planned to be reopened to the public without restrictions from May 2026.

3. Local management

During the reported period, the local management respected the principles and measures defined in the Management Plan for the Dobročský prales NNR (Special Area of Conservation SKUVE0047 Dobročský prales) for years 2018-2047.

No forestry measures were implemented in core zone, e. g. "no intervention" regime continued to be applied. A bark beetle calamity, affecting 200 m³, was recorded. As in the previous reporting period, the tree species involved, was spruce. Only a very small number of living individuals of this tree species are present in the core zone.

The sanitary logging was carried out only in the buffer zone, with the following volumes: bark beetle calamity - 2 960 m³; drought - 1 450 m³. After the calamity was reported, employees of the Poľana PLA-BR Administration conducted a field inspection. During this reported period, processing of sanitary logging was limited in only one stand, with a volume of 158 m³. The reason was to increase the proportion of dead wood in the stand to improve the condition of the habitat of Community interest Asperulo-Fagetum beech forests (9130), and to create suitable conditions for species of Community interest (*Cucujus cinnaberinus*, *Rhysodes sulcatus*) as well. In other stands, "calamity" processing was not restricted, mainly due to the relatively high proportion of calamity volume left unprocessed in the previous reporting period.

The fire site, that occurred in 2024, was monitored by employees of the Poľana PLA-BR Administration. During the growing season, it was relatively densely overgrown with herbaceous vegetation. The withering of several beech trees growing along the edge of the fire area, which were affected by the fire, was observed.

4. Borders

No changes.

5. More details

FE Horehronie provided guided tour for two groups. First group consisted of 20 students from the Technical University in Zvolen, and second consisted of 25 university employees and students from Germany. Employees of the Poľana PLA-BR Administration accompanied 15 participants of the Chiropterological seminar 2024. They also provided specialized guided tour for 10 employees of Slovak national parks regarding the processing of sanitary logging in protected areas. Dobročský prales NNR was selected as one of the demonstration sites. Part of the excursion took place in the buffer zone of the reserve, where the principles of calamity assessment, leaving dead wood, its distribution in the stand with regard to technological possibilities, and the economic evaluation of harvested wood were explained. A guided tour was also provided for the German partners of the project entitled "Old Giants" (25 participants). NGO Vydra employees accompanied the visitors only on the educational trail in the buffer zone of the reserve. There was one group of 20 high school students and 40 individual groups, with a total of 160 visitors.

As the promotion of the Dobročský prales NNR and the dissemination of information about its European Diploma award in the Forestry Open-Air Museum are limited, promotional activities were organised during the above-mentioned excursions and various environmental education events, primarily for children and young people, but also for adults (Youth in the Mountains, Ostrá Lúka, Forestry Days, Old Giants in Podpoľanie). Participants in these events learned about protected areas within the Poľana PLA-BR, among which Dobročský prales holds a unique position. Promotional materials (leaflets, bookmarks, postcards) featuring information about the primeval forest and the European Diploma logo will remind visitors of its exceptional status.

The situation regarding the management of the calamity in the buffer zone of the reserve, particularly around the educational trail, has stabilised. Therefore, the FE Horehronie, the Poľana PLA-BR Administration, and the Čierny Balog Municipality have agreed to organise an Open Day of the Dobročský prales NNR in October 2025. This will revive the tradition of excursions for residents of Village of Čierny Balog and the surrounding area. Considering the territory, the maximum number of visitors will be limited to 40 again.

Annexes (photo documentation):

1. Climate research – measuring devices
2. Demonstration of the sanitary logging in the buffer zone of the Dobročský prales NNR
3. Excursions and environmental education events presenting the Dobročský prales NNR

In Zvolen, 28th of November 2025

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