

Orchid diversity of the Súľovské vrchy Mountains and the northern part of Strážovské vrchy Mountains

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Abstract. The aim of this study was the mapping and evaluation of diversity of the orchid family in the Súľovské vrchy Mountains in the northern part of the Strážovské vrchy Mountains and the foothill areas in the Považské podolie and Žilinská kotlina Basin. The field survey was conducted during the spring and summer season in 2017 and 2018. Coordinates of each individual or the population of all orchid species were recorded by a GPS device in various habitats including forests, rocks and scree, water springs, mires and fens, meadows and pastures, xerophilous and thermophilous grasslands, bushes, and ruderal habitats at altitudes ranging from 237 - 1213 m a.s.l. Historical records of orchids in the studied area were verified and changes in species composition were evaluated. The result is a list of 65 species, subspecies and hybrids with a brief description of the locality, a brief commentary, a map of the expansion in the Central European square map and a species diversity map.

Key words: *Orchidaceae*, *Epipactis*, threatened and rare species, Inner Western Carpathians, Slovakia

Introduction

In the past, the mountains on the western edge of the Western Inner Carpathians were called the Strážovská hornatina Mountains. It is currently divided into separate two geomorphological units; the Súľovské vrchy Mountains and the Strážovské vrchy Mountains. These two mountains are one of the best preserved areas in Slovakia and share a rugged terrain, carbonate rock subsoil, diverse habitats in a small area, and the highest species diversity of the *Orchidaceae* family in Central Europe. It is likely that this location represents the highest species representation of the genus *Epipactis* Zinn worldwide in one mountain range.

Orchids have attracted the attention of many botanists because of their diversity, variability, way of life, and the possibility of discovering a new

species in Slovakia. These mountains were visited by significant botanists from Austria-Hungary and Czechoslovakia such as J. L. Holuby, K. Brančík, J. Futák and K. Domin. P. Mereďa Jr. is another important botanist who contributed significantly to the description of new species of *Epipactis* in the Strážovské vrchy Mountains. Additionally, found in the the Súľovské skaly Geomorphological Subunit in the Súľovské vrchy Mountains is a veritable orchid paradise (Potůček and Kryška 1975). Although the area studied is visited by many professional and amateur botanists, many professional works have now become outdated because the landscape has changed greatly over the last several decades.

The Strážovské vrchy Mountains and Súľovské vrchy Mountains have been visited by botanists since the 17th century (Mereďa 2006). The most visited areas were the parts of the mountain range most famous for natural beauty, such as the southern parts of the Strážovské vrchy Mountains, including Trenčianske Teplice, Vápeč, Strážov, Ostrá Malenica and Súľovské skaly. One of the first references to orchids occurs in the literary work *Tri razy na Malenici* by J. L. Holuby (Holuby 1900). This prominent Austrian-Hungarian botanist found *Ophrys insectifera* L. (listed as *Ophrys myodes* Jacq.) on Ostrá Malenica hill for the first time in his life. His next discovery was an intergeneric hybrid \times *Cephalopactis hybrida* (Jáv.) Domin = *Cephalanthera damasonium* (Mill.) Druce \times *Epipactis helleborine* (L.) (Feráková 1986).

K. Domin practiced botany in Strážov hill, Manínska tiesňava Gorge, Kostolecká tiesňava Gorge and Trenčianske Teplice town in 1882 and in 1954. J. M. Novacký practiced botany in Strážov hill (Mereďa 2006). J. Futák dealt with xerotherm vegetation. He wrote the Candidate dissertation on the topic of xerothermic vegetation of the southern part of Strážovské vrchy (Futák 1960). He also dealt with the ecology and expansion of several rare plant species in the northern part of Strážovské vrchy Mountains, including species found at Manínska tiesňava Gorge and Súľovské skaly NNR (Šipošová 2016) and in was there that he recorded *Gymnadenia odoratissima* (L.) Rich. (Futák 1932). He found *Ophrys holubyana* András. (listed as *Ophrys fuciflora*) on the southern slope of Stráne hill near Košecké Podhradie village (Štátna ochrana prírody SR 2014), where he proposed the protection of xerothermic habitats (Šipošová 2016).

E. Sajverová and K. Prach recorded eight taxa of orchids in the Strážovská dolina valley, such as *Ophrys holubyana* and *Ophrys insectifera* (Sajverová and Prach 1985).

O. Potůček and F. Kryška reported the results of their survey between 1968 – 1975 in the article Súľov – a paradise of orchids. There in is a list of 33 species and three hybrids, including two new species for Czechoslovakia (Potůček and Kryška 1975).

O. Potůček drew up a complete list of species, subspecies and hybrids in the Súľovské vrchy Mountains and Strážovské vrchy Mountains. This list includes 67 taxa (Potůček, unpublished data), and makes reference to *Gymnadenia conopsea* subsp. *montana* Bisse. The taxonomic value of the identifying signs of this taxon is unclear, so some botanists have not recognized it as a subspecies, but only as a synonym *Gymnadenia conopsea* (L.) R. Br. subsp. *conopsea*.

Materials for mapping of 19 taxa from the Súľov Area were made by Velíšek, Potůček, Kryška, Projzdka, and Terková between 1968 – 1992 (Velíšek 1992). An inventory and detailed mapping of the 31 orchid species in the Súľovské vrchy Mountains and the northern part of Strážovské vrchy Mountains was made by Velíšek (1993).

P. Meraďa Jr. is most well known for his research on the genus *Epipactis* in Slovakia. He described three new species in the Strážovské vrchy Mountains: *Locus classicus* of *Epipactis futakii* Meraďa et Potůček, *E. pseudopurpurata* Meraďa and *E. komoricensis* Meraďa. *E. pseudopurpurata* is found near the town of Trenčianske Teplice (Meraďa 1996a), *E. komoricensis* near the town of Ilava (Meraďa 1996b), and *E. futakii* in the town of Trenčianska Teplá (Meraďa and Potůček 1998). Along with P. Meraďa Sr., he conducted field research between 1990–2002 and compiled a list of species and the extension of the genus *Epipactis* in the territory of the administration of the Strážovské vrchy Mountains PLA (Meraďa 2002). Hallonová collected a herbarium of *Epipactis helleborine* from Súľovské vrchy Mountains in 1978 that was later identified by P. Meraďa Jr. as *Epipactis greuteri* H. Baumann et Künkele, a new species of the Slovak flora (Meraďa 2000).

J. Smatanová has been the most active botanist in Strážovské vrchy Mountains in recent years. She works in the administration of the PLA Strážovské vrchy. The Slovak Republic State Nature Conservancy database includes more than 2500 orchid records from A. Beňová, K. Boublík, A. Cvachová, K. Devánová, V. Dinga, D. Dítě, A. Dobošová, D. Dúbravková, M. Duchoň, J. Dupkala, J. Ďuriga, E. Fajmonová, V. Feráková, T. Figura, J. Futák, M. Garčár, V. Grulich, L. Hrouda, M. Janišová, M. Kolník, J. Košťál, P. Koutecký, Lepší, P. Lustyk, B. Machciník, M. Maňák, P. Meraďa Jr., S. Mertanová, D. Micháľková, J. Němec, P. Novosadová, K. Olšavská, D. Pavlišin, Z. Pčolová, M. Pepichová, E. Pietorová, M. Pirchala, Z. Plesková, K. Prach, I. Rizman, G. Runkovič, E. Sajverová, J. Smatanová, V. Stanová, I. Škodová, S. Štefániková, J. Štěpánek, B. Trávníček, S. Uhrin, Urbanová, S. Vačková, J. Vnuk, and M. Vyšinský (Štátna ochrana prírody SR 2014).

In 2003, in the Strážovské vrchy Mountains, the 42th floristic course was conducted (Mertanová and Smatanová 2006). The flora of grassland communities (meadows, pastures, orchards, wetlands) was studied in the central part of Strážovské vrchy Mountains during the 2002 growing season (Janišová et al. 2004).

In their bachelor thesis, Z. Dávidíková dealt with orchids found at Terasy za Baranovským krížom near the town of Rajec, where 14 species were recorded (Dávidíková 2006). Management measures have been proposed in this area to strengthen flora populations.

P. Novosadová elaborated on this topic in their master's thesis: Proposal of Part of the Management Plan for the National Nature Reserve of Súľovské skaly, where a detailed description of the area and a list of 23 orchid taxa from the year 2016 is provided (Novosadová 2017).

F. Lajcha conducted a direct floristic survey of the Orchid family in Opatovská dolina valley. 17 taxa were recorded (Lajcha 2008).

The aim of this study is to present a comprehensive picture of the total diversity and distribution of the family *Orchidaceae*. In the growing season of 2017 and 2018, historical findings were confirmed or disproved by direct field survey and new locations of some taxa were found. Qualitative and quantitative location information were identified, such as the number and density of flowering individuals, as well as the inclination and orientation of the terrain.

Material and Methods

Definition of the study area

The monitored area is situated in the northern half of Strážovské vrchy Mountains, Súľovské vrchy Mountains and their foothills in Žilinská kotlina Basin and Považské Podolie. In the west, the border of the study area is Hričov Canal, Nosice Reservoir and the Váh river. In the east it is bordered by the Rajčianka river. The southern boundary is not clearly defined. The border crosses the cadastral municipality of Trenčín, Soblahov, Mnichová Lehota, Trenčianske Teplice, Timoradza, Kšinná, Čavoj, Klačno and Fačkov.

The issue of taxonomy

Some taxa names are not universally accepted between authors of the database or become accepted very slowly. For example, Reichenbach (1885) regarded *Listera* and *Neottia* as one genus. Szlachetko (1995) included the genus *Listera* in *Neottia*, but his classification was ignored or not accepted by many botanists. Recent studies suggest merging both genera on the basis of nuclear ribosomal DNA (Kotlínel et al. 2015). *Epipactis pseudopurpurata*, which is found in the Strážovské vrchy Mountains, was suggested as a separate species in the scientific work of Jakubská-Busse et al (2012). However, this work is questioned by the author of the taxon. Issues with the acceptance of some species lie mainly in genera *Dactylorhiza* (Taraška 2014), *Ophrys*, *Epipactis* and *Gymnadenia*. Subspecies *Gymnadenia conopsea* subsp. *montana* can be found in older records, but today it is not accepted taxonomy in Slovakia and it is only referred to as a synonym for *Gymnadenia conopsea*. *Epipactis leptochila* s. l. includes a rather complicated group of *Epipactis*. Five taxa in this aggregate are known in Slovakia and several others are awaiting description.



Fig. 1. View from the top of Vápeč hill. Ruderal habitats in the basins, beech-oak forests on steep slopes, xerotherm meadows on extreme sites, this is a typical landscape in Strážovské vrchy Mountains (Photo: V. Ruček, 2018).

The most problematic is *Epipactis neglecta* Kämpel. Its taxonomy is perceived differently by different experts (Mereďa 2010; Delforge and Gévaudan 2002).

Material and Methods

Issues specific to orchid species, preferred habitats, flowering, and plant morphology had to be studied prior to the field survey. These topics were discussed with P. Mereďa Jr., M. Kolník and J. Smatanová.

In 2017 and 2018, a field survey was conducted on relevant habitats based on the time of flowering to the for each species. The growing season can not be precisely determined due to climatic influences, but in general, it runs from April to September. Both years throughout which the survey was conducted were very dry and as a result the growing season for some species was recorded as occurring up to two weeks earlier than average. Field surveys in 2017 were conducted for 30 days and field surveys in 2018 were conducted for 34 days.

Field survey took place in various habitats including forests, rocks and scree habitats, water springs, mires and fens, meadows and pastures, xerophilous and thermophilous grasslands, bushes, and ruderal habitats (Fig. 1) at altitudes ranging from 237 - 1213 m a.s.l., (from the lowest point to the highest in the studied area).

Species determination was carried out directly at the site by determining key and detailed description according to: Batoušek and Kežlínek (2012), Baumann *et al.* (2009), Vlčko *et al.* (2003), Potůček and Čačko (1996), Mereďa (1999) and the AHO-Bayern e.V. website (Gügel *et al.* 2010). Genus *Dactylorhiza* and *Epipactis* are known for their high variability and cross-over, and it was difficult to identify some individuals. Therefore, photos of important identifying signs were made and sent to J. Smatanová, P. Mereďa Jr., M. Kolník, J. Šmiták, P. Batoušek and other experts in genus *Dactylorhiza*. Geographical coordinates for WGS84 were determined by the Garmin Etrex 30 navigation device, and were used to identify the sample location of all orchid species. The list of coordinates is in the author's personal database. Rare findings are embedded in a comprehensive information and monitoring database (Štátna ochrana prírody SR 2013).

Floristic data are complemented by a list of earlier findings. The list of taxa is listed in alphabetical

order by Latin name. Taxa nomenclature follows Vlčko *et al.* (2003) and Batoušek and Kežlínek (2012). Behind the name is the abbreviation for the category of threats according to Eliáš *et al.* (2015). Localities are arranged from south to north and their names are listed by OpenStreetMap contributors (2018). Locality and taxon information are listed in the following symbols and sequences and inspired by the works of Kolník (2004) and Kučera (2005):

1. Name of cadastral municipality,
2. Precise localization,
3. Altitude (meters above sea level),
4. Locality size: S – small (to 25 m²), M – middle (to 2500 m²), H – huge (over 2500 m²),
5. Terrain slope: P – plain, S – slight, M – medium, G – great inclination,
6. Slope orientation: 0 – indefinite, W – west, N – north, E – east, S – south,
7. Number of individuals: 0 – to 10 pcs, T – tens, H – hundreds, or exact number is given,
8. Density: S – sparse, scattered over a larger area, G – group, several isolated groups, I – isolated, one group,
9. Date,
10. Quadrant Code of the Central European Network Mapping (Niklfeld 1971),
11. Name of the mapper,
12. Author's comments.

Individual information is separated by a symbol „;“, if information is missing, in its place it is “/“, records of findings are separated by a symbol „*“. Other record authors are listed in a separate section. Behind the author's name is the cadastral area, year of record and number of base field and quadrant of Central European Network Mapping.

Results

Orchids occurring in the studied area

Anacamptis morio (L.) R. M. Bateman, Pridgeon et M. W. Chase, VU

Košecké Rovné; Dolná Stredná, cottage area; 460; S; S; N; O; I; 22.5.2015; 7076a; P. Smatanová; verified in 2017 and 2018, unconfirmed, reason: drought, population dynamics.

Records of occurrence according to K. Devánová: Rožňová Neporadza (2015, 7174d), Šípkov (2015, 7175b). According to M. Duchoň: Valaská Belá (2014, 7176a). According to Lajcha (2008): Dobrá (2007, 7074d). According to Čačko (1993): Horná Poruba (to 1993, 7075d), the data has not been confirmed. According to Grulich (Ambros 1996): Timoradza (1994, 7175c). According to J. Smatanová: Dubnica nad Váhom (2017, 7075c), Prejta (2017, 7075c), Veľké Košecké Podhradie (2010, 7076a). According to Velisek (1992): Hlboké nad Váhom (1969, 6777d), Dolný Hričov (1973, 6777d).

Cephalanthera damasonium (Mill.) Druce, NT
Omšenie; Havránovský potok NM, 1.5 km SW of Nad Vyhorencom hill; 425; S; P; O; I; 2.8.2017; 7175a; V. Ruček; / * Omšenie; 1.3 km south of the Omšenie village; 440; S; S; N; 13; I; 12.6.2018; 7175a; V. Ruček; / * Dubnica nad Váhom; 0.6

km NE of the Ostrý vrch Top; 350 ; /; M; E; /; /; 2.7.2015; 7075c; V. Ruček; / * Malý Kolačín; 150 m SE of Markovica Top; 560; S; M; S; 1; I; 16.7.2018; 7075c; V. Ruček; / * Trenčianske Teplice; 0.1 km from the Trenčianske Teplice town, southern slope of Grófovec hill; 298; S; M; S; 1; I; 16.7.2018; 7075c; V. Ruček; / * Omšenie; surroundings of Omšenská Baba hill; 525 – 575; H; M; S; T; G; 12.6.2017; 7075c; V. Ruček; / * Dubnica nad Váhom; Dúbravy, 0.8 km SE of Kopanica Settlement; 534; S; M; S; 1; I; 12.7.2018; 7075c; V. Ruček; / * Dolná Poruba; 0.7 km east of Slopský vrch hill; /; S; S; E; 4; I; 20.7.2017; 7075d; V. Ruček; / * Dolná Poruba; southern slope of Homôlka; 774 – 817; M; S; M; S; T; S; 21.7.2018; 7075d; V. Ruček; the species was registered near the monument in the saddle * Horná Poruba; surroundings of Vápeč hill; 523 – 920 ; H; P; M; W; S; H; G; 18. – 19.5.2018; 7075d; V. Ruček; verified older records * Kopec; Kruhy Locality, 2 km SSW of Kopec village; 692 – 777; H; S; M; N; T; G; 19.5.2018; 7076c; V. Ruček; / * Košecké Rovné; surrounding of Horná Stredná Settlement; 550 – 660; H; /; /; 56; G; 5.6.2018; 7076c; V. Ruček; / * Dolná Stredná; surroundings of Dolná Stredná Settlement; 440 – 580; H; /; /; 56; G; 5.6.2018; 7076c; V. Ruček; / * Košecké Rovné; surrounding of Košecké Rovné village; 570 – 772; H; /; /; 32; G; 2.6.2017, 5.6.2017, 27.7.2017, 20.7.2018; 7076c; V. Ruček; 2.6.2017 a field survey was conducted by J. Smatanová * Zliechov; the area between Javorina and Strážov hill, north of Zliechov village; 730 – 820; H; /; /; 40; G; 30.5.2017, 20.6.2017, 5.6.2018; 7076b; V. Ruček; / * Pružina; Strážovská dolina valley, 0.3 km below Dolný Strážovský vodopád Waterfall; 705; S; M; N; 11; I; 4.6.2018; 7076b; V. Ruček; in 1999, D. Dítě recorded it about 1 km north * Pružina; Strážovská dolina valley, near Priedhorie village, from the mouth of the valley to the cross in Široké pažite Locality; 425 – 483; H; P; N; S; 25.5.2006, 21.6.2015; 7076b; S. Vačková, J. Smatanová, K. Devánová; verified 5.6.2015 and 4.6.2018 * Pružina; 1.1 km NE of Čierny vrch hill; 619; S; M; N; 1; I; 6.8.2017; 7077a; V. Ruček; / * Vricko; 0.3 km south of Vrania skala Top; 905; S; S; S; O; I; 13.6.2017; 7078a; V. Ruček; / * Horná Poruba; Smrčkovci Settlement, 0.6 km SE of Vlčinec Top; 475; S; M; E; 1; I; 11.8.2018; 7075b; V. Ruček; in the vicinity of Vlčinec hill was recorded it by V. Feráková in 2003 (Mertanová and Smatanová 2006) * Košeca; Zábystrie Locality, 0.4 – 0.7 km SE-E of Norovica Top; 597 – 618; M; S; O; S; 26.6.2017; 7075b; V. Ruček; 1.6 km SW-W it was recorded by K. Boublík 2003 * Kopec; Jedličná Locality, 1.3 km east of Tomanovci Settlement; 544; S; S; W; 1; I; 1.8.2017; 7075b; V. Ruček; / * Veľké Košecké Podhradie; the forest steppe of Stupičie hill, Pancier, Dúbravy, Veľká and Malá Šimerka Locality; 367 – 810; H; /; S; 357; G; 2017 – 2018; 7076a; V. Ruček; the species was recorded at 127 micro-localities, the first record is by E. Fajmonová from 1995, another by J. Smatanová from 2002 and 2017 * Mojtn; 1.3 – 2.7 km west of Mojtn village; 622–815; H; /; N-E; 59; G; 31.7.2017, 24.5.2018; 7076a; V. Ruček; older records are from M. Pirchala from 2013 and P. Smatanová from 2015 * Beluša; surroundings of the Ostrá Malenica, Rohatín and Rakytník hill; 495 – 725; H; /; /; /; G; 1989 – 2018; 6976c; V. Dinga, D. Micháľková; J. Smatanová; V. Ruček; the

oldest record is from V. Dinga in 1989 from Ostrá Malenica hill, D. Micháľková worked in the vicinity of Rohatín hill on 26.5.2001, 6.6.2001 and 7.6.2001, J. Smatanová on 3.7.2003 and 30.5.2017, V. Ruček 30.5.2017 (3 ex.), 22.7.2017 (1 ex.) and 24.7.2018 (2 ex.) * Veľké Košecké Podhradie; Ladecká Páľkovic Locality, Dehetník hill; 528; S; S; E; O; I; 26.6.2018; 6976c; V. Ruček; / * Hloža-Podhorie; Pod Tlstou horou Locality, above the Zahorú Cottage area, in front of a quarry; /; H; G; S; O; S; 3.8.2017; 6976c; V. Ruček; / * Beluša; Filipová kopanica, Za Víškami Locality; 421; S; S; O; 2; I; 28.6.2017; 6976c; V. Ruček; / * Beluša; surroundings of Kamenica hill, near the Rybníky Cottage area; 332 – 420; H; /; /; 6; G; 29.7.2017; 6976a; V. Ruček; 4 micro-localities * Visolaje; Zákľuky Locality, 0.6 – 1 km west of Jankov Háj Top; 293 – 321; S; M; W; 3; G; 29.7.2017; 6976a; V. Ruček; / * Trstie; Jaseňová, about 1 km south of Tupý hrádok Top; 460 – 537; H; /; /; O; S; 24.7.2018; 6976c – 6976d; V. Ruček; / * Podskalie; southern slope of Trnie hill; 516 – 622; H; M; S; 8; G; 16.8.2018; 6976d; V. Ruček; 3 micro-localities, the first record is by G. Runkovič from 1983 and 1989, A. Cvachová from 1988 (6976b), E. Fajmonová from 1995, J. Smatanová 2002, D. Pavlišin from 2014 (6976b) * Čelková Lehota; surroundings of the Čelková Lehota village; 499 – 629; H; /; /; 14; G; 30.6.2017, 1.7.2017, 2.7.2017; 6977c; V. Ruček; 5 micro-localities * Ďurďové; Richtárska, 1.6 – 2.3 km north of Ďurďové village; 548 – 678; H; /; S; O; S; 2.7.2017; 6977c; V. Ruček; the first record is by M. Vyšinský from 2014 from Stráne hill * Fačkov; Siguty, 1.1 km NE of Fačkov village, near the first class road; 515; S; M; W; 1; I; 13.6.2017; 6977d; V. Ruček; / * Vrchteplá; Pod Vieškami, 1.1 km north of Vrchteplá village; 574; M; S; S; 16; I; 26.5.2018; 6877c; V. Ruček; / * Považská Teplá; surroundings of Veľký Manín and Malý Manín hill; 458 – 506; H; M; S; W; 23; G; 11.6.2017, 23.7.2017, 9.8.2017, 12.8.2017, 14.7.2018; 6876d; V. Ruček; 10 micro-localities, verified Runkovič's record in Manínska tiesňava Gorge from 1990 * Súľov-Hradná; Súľovské skaly NNR; north of Súľov-Hradná village; 413 – 653; H; /; T; G; 26.5.2018, 27.7.2018; 6877b; V. Ruček; verified older findings * Súľov-Hradná; near Súľovský hrádok NM; 423; M; M; E; 6; S; 25.7.2017; 6877a; V. Ruček; verified older findings.

Records of occurrence according to J. Němec (2015, 7174d). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Trenčianske Mitice (2003, 7174d), Slatinka nad Bebravou (2003, 7175b). According to Lajcha (2008): Dobrá (2007, 7074d). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá (2002, 7176a). According to J. Smatanová: Klačno (2017, 7077b), Prečín (2017, 6977a), Malé Lednice (2017, 6977b). According to E. Fajmonová: Čičmany (1995, 7076d), Horné Kočkovce (2003, 6876c), Domaníža (2004, 6977c). According to K. Rejšek: Dobrá (2004, 7074d). According to P. Jánky (Eliáš Jr. 2010): Trenčín (2009, 7174a), Zamarovce (2009, 7074c). According to Rybáriková *et al.* (1994): Rajec (to 1994, 6977b). According to S. Štefaniková: Dolný Moštenec (2018, 6976b). According to D. Pavlišin (2014, 6877c). According to V. Velisek: Vrchteplá

(to 1993, 6877c). According to J. Limánek: Rajecké Teplice (2017, 6878c). According to A. Dobošová: Lietavská Svinná (2004, 6878a), Závodie (2014, 6778c). According to F. Kryška (Potůček, unpublished data): Paština Závada (1968 – 1980, 6777d).

Cephalanthera longifolia (L.) Fritsch, NT

Horná Poruba; 0.9 km S-SE of Hoľazne Top, near the forest path; 625; M; S; S; O; S; 19.5.2016; 7075d; V. Ruček; / * Horná Poruba; 1.2 km NW of Vápeč Top; 571; M; S; W; 7; S; 18.5.2018; 7075d; V. Ruček; /.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Trenčianske Mitice (2003, 7174d), Trenčianske Teplice, Omšenie (2003, 7075c). According to D. Pavlišin: Košecké Rovné (2013, 7076c). According to M. Pirchala: Košecké Rovné (2014, 7076a) – unconfirmed, reason: drought, population dynamics, incorrect location description; Lietavská Svinná (2013, 6878a), Súľov-Hradná (2014, 6877a). According to M. Vyšinský: Veľké Košecké Podhradie (2013, 7076a), Fačkov (2014, 7077a), Domaniža (2014, 6977c), Kardošová Vieska (2014, 6977d), Považská Teplá (2014, 6877a). According to J. Smatanová: Tužina (2017, 7077d), Hloža-Podhorie (2017, 6976c). According to Vačková (1997): Pružina (1996, 6976d). According to E. Fajmonová: Počarová (1995, 6977a). According to Urbanová: Považská Teplá (1991, 6877c). According to J. Smatanová: Súľov-Hradná (2016, 6877a). According to P. Novosadová: Súľov-Hradná (2016, 6877b).

Cephalanthera rubra (L.) Rich., NT

Omšenie; Omšenská Baba NR; 570 – 660; H; /; S; 74; G; 12.6.2017; 7075c; V. Ruček; 17 micro-localities * Omšenie; Bartošovica Locality, 2.7 km NE of Omšenie village; 670 – 700; M; /; S; 3; S; 20.7.2017; 7075c; V. Ruček; 2 micro-localities * Dolná Poruba; 0.9 km east of Slopský vrch Top, near the red hiking trail; /; M; S; S; 3; S; 20.7.2017; 7075d; V. Ruček; / * Veľké Košecké Podhradie; Mlynovica valley, Stráne hill; 527-535; H; M; S; O; S; 26.6.2017; 7075b; V. Ruček; 3 micro-localities * Košeca; 0.7 km SE of Norovica Top; 618; M; S; W; 5; S; 26.6.2017; 7075b; V. Ruček; / * Košeca; under Močeková skala Rock, Húboč; 432; S; M; N; O; I; 26.6.2017; 7075b; V. Ruček; / * Veľké Košecké Podhradie; the forest steppe of Stupičie hill, Skalica hill, Pancier hill, Veľká and Malá Šimerka hill; 380 – 600; H; M-G; S; 73; S; 1.6., 15.6., 17.7., 31.7., 4.8.2017, 16.6.2018; 7076a; V. Ruček; 41 micro-localities, verified data by J. Smatanová from 2002 and 2006 * Mojtín; the slopes of Suchý vrch hill; 632 – 778; H; G; E; O; S; 31.7.2017, 19.7.2018; 7076a; V. Ruček; / * Košecké Rovné; Znadlúčie Locality, 1.3 km north of Košecké Rovné, under of Gábrišské vrch Hills; 702 – 735; H; G; S; 5; S; 27.7.2017; 7076a; V. Ruček; 4 micro-localities * Zliechov; 1.8 km NE of Zliechov village, north of red hiking trail, Strážov NNR; 813 – 830; H; M; W; O; S; 5.6.2018; 7076b; V. Ruček; 4 micro-localities * Veľké Košecké Podhradie; Ladecká Páľkovicova hill, 1.6 km SW of Dielec Top; 459 – 470; M; M; S; 7; S; 26.6.2018; 7076a; / * Hloža-Podhorie; under Tlstá hora hill, 0.9 km south of Prvé vráta Gorge; 516 – 526; H; S; O; O; S; 3.8.2017; 6976c; V. Ruček; verified data by Ujházyová *et al.* (2007) * Pružina; Rečica valley; 479 – 535; H; P; O; O; S;

2.7.2017; 7076b, 6977c; V. Ruček; / * Čelková Lehota; 1.6 km south of Čelková Lehota village; 529; S; S; N; 1; I; 30.6.2017; 6977c; V. Ruček; / * Briestenné; Briestenské skaly NM and close surroundings; 415 – 483; H; /; S; O; S; 30.6.2017; 6976d; V. Ruček; 3 micro-localities * Ďurdové; Podstránčie, 0.6 km east of church of Ďurdové village; 494; S; S; S; 6; I; 2.7.2017; 6977c; V. Ruček; / * Domaniža; Richtárska, 1 km south of Stráne hill; 598 – 639; H; G; S-E; 10; G; 1.7.2017; 6977c; V. Ruček; 3 micro-localities * Ďurdové; Kohilovec Top; 636; S; S; O; 1; I; 16.8.2018; 6976d; V. Ruček; / * Domaniža; Blatnica valley; 390; M; S; 0; 2; S; 29.6.2018; 6977c; V. Ruček; / * Fačkov; Mackov laz Settlement; 525; S; S; S; 1; I; 13.6.2017; 6977d; V. Ruček; / * Považská Teplá; 0.9 km west of Veľký Manín Top; 554; S; S; W; 3; I; 9.8.2017; 6876d; V. Ruček; / * Vrchteplá; ridge of Havrania skala hill; 551 – 672; H; M; S; O; S; 23.7.2017; 6877c; V. Ruček; / * Súľov-Hradná; Súľovský hrádok NM, Súľovské skaly NNR, near the Súľov Castle; 478 – 548; H; /; /; O; S; 26.5., 19.6.2018; 6877a; V. Ruček; /.

Records of occurrence according to N. Hatala: Trenčianske Mitice (2015, 7174d). According to K. Devánová: Krásna Ves (2015, 7175c), Šípkov (2015, 7175b). According to I. Rizman: Omšenie (2015, 7175a), Valaská Belá (2015, 7176a), Jablonové (2015, 6877a), Porúbka (2015, 6878c). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Slatinka nad Bebravou (2003, 7175a), Šípkov, Omšenie (2003, 7175b). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá (2002, 7176a, 7176b), Čavoj (2002, 7176b). According to Lajcha (2008): Dobrá (2007, 7074d). According to A. Cvachová: Podskalie (1988, 6976b). According to J. Limánek: Fačkov (2017, 6977d), Šuja, Rajecká Lesná (2018, 6977b). According to E. Fajmonová: Domaniža (2004, 6977c). According to P. Smatanová: Prečín (2015, 6977a). According to J. Smatanová: Počarová (2006, 6977a), Záskanie (2007, 6877c), Súľov-Hradná (2002, 6877d). According to D. Pavlišin: Bodiná (2014, 6877c). According to M. Ujházyová and K. Ujházy (Ujházyová *et al.* 2007): Kostolec (2005, 6877c), Považská Teplá (2005, 6877c), Plevník-Drienové (2005, 6877a). According to Králik *et al.* (2006): Porúbka (to 2006, 6878c). According to Novosadová (2017): Súľov-Hradná, Paština Závada, Hrabové, Hlboké nad Váhom (2016, 6877b). According to Velísek (1993): Hrabové (to 1993, 6877b). According to F. Kryška (Potůček, unpublished data): Hričovské Podhradie (1968 – 1980, 6777d).

Corallorhiza trifida Châtel, LC

Omšenie; Omšenská Baba NR; 624; S; S; E; 1; I; 12.6.2017; 7075c; V. Ruček; / * Vricko; 0.6 km NEE of Vrania skala Top; 925; S; M; S; 1; I; 13.6.2017; 7078a; V. Ruček; /.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Slatinka nad Bebravou (2003, 7175b), Omšenie (2003, 7175a). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá (2002, 7176a).

According to Lukáš: Kubrica (1972, 7174b). According to Čačko (1993): Horná Poruba (to 1992, 7075d). According to E. Fajmonová: Zliechov, Pružina (1995, 7076b). According to J. Smatanová: Pružina (1999, 6976d). According to G. Runkovič: Podskalie (1989, 6976d). According to M. Ujházyová and K. Ujházy (Ujházyová *et al.* 2007): Kostolec (2005, 6877c). According to Urbanová: Považská Teplá (1991, 6877c). According to Novosadová (2017): Súľov-Hradná (2016, 6877a, 6877b), Hlboké nad Váhom (2016, 6877b). According to F. Kryška (Potůček, unpublished data): Hrabové (1968 – 1980, 6877b), Hričovské Podhradie (1968 – 1980, 6777d).

Cypripedium calceolus L., NT

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Zliechov (2003, 7076b) - The locality was verified in 30.5., 20.6.2017 and 5.6.2018. The occurrence has not been confirmed, reason: drought, population dynamics, shading of the micro-locality. M. Maňák found one sterile exemplar in 2018. According to B. Machciník: Klačno (2017, 7077b).

Dactylorhiza fuchsii (Druce) Soó subsp. *fuchsii*, NT Kopec; Kúty Locality, 1.6 km SSW of Kopec village; 580; M; S; N; 1; I; 19.5.2018; 7076c; V. Ruček; verified older data by E. Fajmonová and J. Smatanová, there is often crossing with *Dactylorhiza majalis* * Súľov-Hradná; Čierny potok valley; 395; M; S; N; O; S; 13.6.2017; 6877a; V. Ruček, J. Smatanová; in the vicinity there is *Dactylorhiza fuchsii* subsp. *sooiana*.

Records of occurrence according to J. Smatanová: Horná Poruba (2001, 7075d). According to E. Fajmonová: Kopec (1990, 7076c), Pružina (1995, 7076b).

Dactylorhiza fuchsii subsp. *sooiana* (Borsos) Borsos, NT Súľov-Hradná; Čierny potok valley; 390; S; S; N; 1; I; 13.6.2017; 6877a; V. Ruček; confirmation of an older finding by J. Smatanová.

Records of occurrence according to J. Smatanová: Kopec (2002, 7076c) – it was not confirmed in 19.5.2018, the reason may be crossing with other species of the genus *Dactylorhiza* and the extinction of parental taxons, incorrect determination in the past; Horná Poruba (2001, 7075d), Plevník-Drienové (2000, 6877a). According to A. Dobošová: Fačkov (2018, 6977d).

Dactylorhiza incarnata (L.) Soó subsp. *incarnata*, NT Omšenie; Omšenská Baba NR, 0.8 km north of Omšenie village; 460; M; S; S; 23; S; 12.6.2017; 7075c; V. Ruček; / * Čičmany; Hanušová; 720; M; P; E; /; I; 9.6.2017; 7076d; J. Smatanová; in the population there are hybrids with *Dactylorhiza majalis*, so determination of some individuals is difficult * Hloža-Podhorie; 0.6 km north of Dielec Top; 362; M; P; O; 3; S; 12.5.2018; 6976c; V. Ruček; there is Petasites succession * Prečín; 1 km west of Prečín village; 395; M; /; O; T; /; 8.6.2017; 6977a; J. Smatanová; /.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Valaská Belá (2003, 7076c), Zliechov (2003, 7076b), Čičmany (2003, 7077a). According to P. Meraďa Jr.: Prejta (1998, 7075a). According to J. Smatanová: Veľké Košecké

Podhradie (2006, 7075b). The locality in Zliechov and Veľké Košecké Podhradie was verified, the species there was not confirmed.

Dactylorhiza lapponica (Laest. ex Hartm.) Soó, NT Records of occurrence according to A. Dobošová: Fačkov (2010, 7077b), Šuja, Rajecká Lesná (2010, 6977b). Localities require revision.

Dactylorhiza majalis (Rchb) Hunt & Summerh, NT Kopec; Kúty Site, 1.6 km SSW of Kopec village; 580; M; S; N; T; I; 19.5.2018; 7076c; V. Ruček; verified older data by J. Smatanová and E. Fajmonová, there is often crossing with *Dactylorhiza fuchsii* subsp. *fuchsii* * Košecké Rovné; Stredniarské lúky Meadows, between Dolná Stredná and Horná Stredná Settlements; 575; M; S; E; 12; I; 5.6.2017; 7076c; V. Ruček; / * Kopec; the mouth of Kopčianská dolina valley; 370; M; P; O; 10; I; 19.5.2018; 7076a; V. Ruček; an individual of varying variability, it may be hybrids, verified older data by E. Fajmonová from 1995 * Zliechov; 0.3 – 1.8 km north of Zliechov village, Plešivé, under Javoriná and Strážov hill, Kopce; 655 – 770; H; /; S; H; G; 30.5.2017; 7076b; V. Ruček; 6 localities, verified older data by J. Smatanová from 2006, J. Košťál, J. Kochjarová, P. Koutecký from 2003 (Mertanová and Smatanová 2006) * Pružina; Priedhorie Settlement, the mouth of Strážovská dolina valley; 440; M; P; O; T; I; 2016; 7076b; V. Ruček; verified older data by S. Vačková from 1996, there were reported *Dactylorhiza lapponica* and *Dactylorhiza maculata* subsp. *maculata*, but it is probably incorrectly determined. In the case of *D. lapponica*, it is probably *D. majalis* and in the case of *D. maculata* subsp. *maculata*, it is another taxon of the *Dactylorhiza maculata* agg. * Podskalie; Nivy, football field, 1.1 km NNE of Podskalie village; 370; M; P; O; T; I; 24.5.2016; 6976b; V. Ruček; verified older data by J. Smatanová from 2000 * Sádóčné; the stream near the quarry, south between the Čelková Lehota and Sádóčné village; 431; M; P; O; O; I; 1.7.2017; 6977c; V. Ruček; / * Domaniža; Hodoň valley; 405 – 420; H; P; W; T; G; 25.5.201, 14.5.2018; 6977c; V. Ruček, J. Smatanová; verified older data by V. Grulich from 2004, E. Fajmonová from 2004.

Records of occurrence according to K. Devánová: Soblahov (2014, 7174b). According to P. Jánsky: Petrová Lehota (2009, 7174b). According to S. Mertanová: Omšenie (2003, 7175a, 2009, 7075c). According to D. Galvánek: Dolná Poruba (2003, 7175b, 7075d). According to the list of records from Floristical contribution from the central part of the Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá (2002, 7176b), Čavoj (2002, 7176b). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Valaská Belá (2003, 7176a), Čičmany (2003, 7077a, 7077d), Beluša (2003, 6976c). According to J. Smatanová: Horná Poruba (2010, 7075d), Fačkov (2004, 7077b), Pružina (1999, 7076b), Podskalie (2011, 6976d), Prečín (2006, 6977a), Milochovo (2005, 6876c), Veľká Čierna (2001, 6977a), Súľov-Hradná (1999, 6877d; 2002, 6877a), Kostolec (1999, 6877c), Záskanie (2007, 6877c), Plevník-Drienové (1999,

6877a). According to E. Fajmonová: Velké Košecké Podhradie (1995, 7076a), Počarová (2004, 6977a), Horné Kočkovce (2003, 6876c). According to J. Ďuriga: Tužina (1998, 7077a). According to Vačková (1997): Pružina (1996, 6976d). According to P. Smatanová: Malé Lednice (2015, 6977a). According to Rybáriková *et al.* (1994): Rajec (to 1994, 6977b). According to Cvachová *et al.* (1990): Súľov-Hradná (1990, 6877b). According to Velisek (1992; 1993): Jablonové (1992, 6877a), Lietavská Svinná (1993, 6878c). According to F. Kryška (Velisek 1992): Hričovské Podhradie, Paština Závada (1973, 6777d). According to A. Dobošová: Rajecká Lesná, Šuja (2018, 6977b), Fačkov (2008, 6977d).

Dactylorhiza sambucina (L.) Soó, NT

Records of occurrence according to K. Devánová: Omšenie (2002, 7175a). According to K. Devánová: Dolná Poruba (2015, 7075d). According to Čačko (1993): Horná Poruba (to 1993, 7075d). According to J. Smatanová: Dubnica nad Váhom (2017, 7075c), Prejta (2017, 7075c), Košecké Rovné (2015, 7076c) - verified data in 2017 and 2018, not verified, reason: dry and visit outside the growing season, Čičmany (2006, 7076b), Prečín (2006, 6977a), Súľov-Hradná (1999, 6877d), Fačkov (2004, 7077b). According to J. Němec: Zliechov (2015, 7076d). According to M. Duchoň: Čičmany (2015, 7077c). According to G. Runkovič: Podskalie (1989, 6976d), Kostolec (to 1990, 6877c). According to B. Veselský (Velisek 1992): Hričovské Podhradie (1973, 6777d). According to F. Kryška (Potůček, unpublished data): Súľov-Hradná (1968 – 1980, 6877b).

Dactylorhiza viridis (L.) A. M. Bateman, A. M. Pridgeon & M. Chase, NT

Velké Košecké Podhradie; 2.8 – 3.5 km SW of Suchý vrch Top, Michalová, Klokočová, Dúbravy Forest steppe; 410 – 615; H; M; S; 10; G; 1.6.2017; 7076a; V. Ruček; 2 micro-localities * Hričovské Podhradie; near a hiking trail to the Hričov Castle; /; H; S; 0; 2; /; 2018; 6777d; Milan Jánoš; there is over 8 years, in 2017 there were 8 exemplars.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Čičmany (2003, 7076b). According to J. Smatanová: Pružina (1999, 6976d), Kostolec (1999, 6877c). According to E. Fajmonová: Vrchteplá (1995, 6877c). According to Cvachová *et al.* (1990): Súľov-Hradná (1990, 6877b). According to F. Kryška (Potůček, unpublished data): Hrabové (1968 – 1980, 6877a, 6777c), Paština Závada (1968 – 1980, 6777d).

Dactylorhiza × aschersoniana (Hausskn.) Borsos *et Soó* (*D. incarnata* subsp. *incarnata* × *D. majalis*)

Čičmany; Hanušová; 720; M; P; E; /; I; 9.6.2017; 7076d; J. Smatanová; in the population there are *Dactylorhiza majalis* and *D. incarnata* subsp. *incarnata*, so determination of some individuals is difficult.

Dactylorhiza × braunii (Halácsy) Borsos *et Soó* (*D. fuchsii* subsp. *fuchsii* × *D. majalis*)

Kopec; Kúty, 1.6 km SSW of Kopec village; 580; M; S; N; 19; I; 19.5.2018; 7076c; V. Ruček; verified older data by E. Fajmonová from 1995 and by J. Smatanová, in this locality is also *Dactylorhiza majalis* (23 ex.) and *Dactylorhiza fuchsii* subsp. *fuchsii* (1 ex.).

The mouth of Kopčianská dolina valley (7076a), 4 km north of Kúty Locality are individuals similar to *Dactylorhiza × braunii*, but for unambiguous determination it is necessary to investigate it in other growing seasons.

Epipactis albensis Nováková *et* Rydlo, NT

Dubnica nad Váhom; 1.2 km east of Holoňovec Top; 467; M; S; W; 15; I; 12.7.2018; 7075c; P. Mereďa Jr. and P. Mereďa Sr., V. Ruček, J. Smatanová, Z. Pčolová; / * Velké Košecké Podhradie; Podhradský potok Stream, 1.1 km west of Velké Košecké Podhradie village; 313; S; P; 0; 1; I; 3.8.2018; 7075b; V. Ruček; / * Košeca; behind the canal, 1.1 km NW of Košeca village; 235; M; P; 0; 14; G; 22.7.2018; 6975c; V. Ruček; / * Ladce; 1.4 km west of Ladce village, near Váh river; 248; S; P; 0; 7; I; 22.7.2018; 6975d; V. Ruček; / * Hloža-Podhorie; near Slatinský potok Stream and the quarry in Beluša; 335; S; P; 0; 1; I; 2018; 6976c; V. Ruček; / * Beluša; Belušské Slatiny, near Slatinský potok Stream, 0.7 km west of Hradište Top; 338; S; P; 0; 6; I; 5.8.2018; 6976c; V. Ruček; / * Streženice; 0.4 km south of football field in Streženice village; 257; S; P; 0; 1; I; 1.8.2018; 6975b; V. Ruček and M. Kolník; / * Udiča; at the junction to Upohlav village; 290; S; P; 0; 1; I; 1.8.2018; 6876a; V. Ruček and M. Kolník; / * Jablonové; near the quarry and Hradnianska Stream, 0.6 km SE of Jablonové village; 340; S; P; 0; 2; I; 27.7.2018; 6877a; V. Ruček; / * Mikšová; in close proximity to Hričovský kanál Canal near Beňov Settlement; 300; M; P; 0; T; S; 1.8.2018; 6876b; V. Ruček and M. Kolník; / * Veľká Bytča; in close proximity to Pšurnovický potok Stream, 1.3 km west of Bytča town; 307; S; G; 0; 1; I; 1.8.2018; 6777c; V. Ruček and M. Kolník; / * Porúbka; near Sinečné skaly Camp on the right bank of Rajčianka river; 410; S; P; 0; 1; I; 25.8.2018; 6878c; V. Ruček; /.

Records of occurrence according to Kolník and Kučera (2002): Kubrica (2000, 7174b). According to M. Kolník: Súľov-Hradná (to 2002, 6877a).

Epipactis atrorubens (Hoffm.) Besser, LC

Omšenie; Lánce NNM; 440; M; S; N; 9; G; 12.6.2017; 7175a; V. Ruček; / * Omšenie; Omšenská Baba NR; 460 – 600; H; M; S; O; G; 12.6.2017; 7075c; V. Ruček; / * Dolná Poruba; south slope of Homólka hill; 832; S; G; S; 2; I; 21.7.2018; 7075d; V. Ruček; / * Horná Poruba; south slopes of Vápeč hill; 680 – 850; H; G; S; T; S; 29.6.2017, 13.7. and 18.7.2018; 7075d; J. Smatanová, V. Ruček; / * Malé Košecké Podhradie; 1 km NE of Sokol Top; 407; S; M; 0; 1; I; 19.6.2018; 7075b; V. Ruček; / * Veľké Košecké Podhradie; south oak slopes of Stráne hill between Mlynovica and Norovica valley; /; S; G; S; O; I; 26.6.2017; 7075b; V. Ruček; / * Veľké Košecké Podhradie; forest steppe southern slope of Stupičie, Pancier, Skalica, Veľká Šimerka, Malá Šimerka, Klokočová hill; 420 – 705; H; G; S; H; S; 2017 and 2018; 7076a; V. Ruček, J. Smatanová; 56 micro-localities, the color variation *lusus lutescens* was recorded in the eastern part of the locality * Košecké Rovné; valley below Gábrišské vrchy hill, 0.1 – 0.3 km NE of Košecké Rovné village; 533; M; M; S; O; S; 27.7. and 4.8. 2017; 7076a; V. Ruček; / * Zliechov; 1.3 km SSW of Strážov Top; 773; S; M; S; 1; I; 24.6.2018; 7076d; V. Ruček; / * Zliechov; 1.3

km NW of Strážov Top; 840; S; G; S; 1; I; 20.6.2017; 7076b; V. Ruček; / * Pružina; Strážovská dolina and Rečiča valley; 430 – 480; H; S; 0; 16; S; 20.6., 2.7., 6.8.2017, 4.6.2018; 7076b; V. Ruček; 3 micro-localities * Trstie; Jasenová valley, 1.4 km SEE of Dievča Top; 511; S; G; S; 1; I; 24.7.2018; 6976c; V. Ruček; / * Briestenné; Briestenské skaly NM; /; H; M; S; 25; S; 30.6.2017; 6976d; V. Ruček; / * Čelková Lehota; 0.8 km SW of Čelková Lehota village; /; M; M; E; 5; I; 1.7.2017; 6977c; V. Ruček; / * Sáčocné; Jaseňová valley, along the stream, 0.8 – 1.1 km SW of Sáčocné village; 444 – 455; H; P; 0; 15; G; 1.7.2017; 6977c; V. Ruček; 4 micro-localities * Domaniža; Hodoň and Blatnica valley; 391 – 426; H; /; 0; T; S; 29.6.2018; 6977c; V. Ruček; / * Fačkov; Siguty, 1.1 km NE of Fačkov village; 575; S; M; S; 1; I; 13.6.2017; 6977d; V. Ruček; / * Ďurdové; rocks in Richtárska Locality and 0.9 km north of Ďurdové village; 472 – 704; H; G; S; O; G; 2.7.2017; 6977c; V. Ruček; 4 micro-localities * Prečín; Protected Area Svarkovica; 385; M; M; S; O; S; 29.6.2018; 6977a; V. Ruček; / * Jasenové; the valley between Dubová and Žibrid hill, along the stream; 510; H; /; 0; 8; G; 16.7.2017; 6877d; V. Ruček; 2 micro-localities * Vrchteplá; southern ridge of Vodičná hill; 693; S; M; S; 1; I; 23.7.2017; 6877c; V. Ruček; / * Porúbka; Slnecné skaly NR; 410; S; G; E; 1; I; 4.9.2018; 6878c; V. Ruček; / * Súľov-Hradná; Súľovské skaly NNR and Čierny potok valley, 0.3 – 0.8 km east of Súľov village; 360 – 407; H; G; W; S; O; G; 26.5., 19.6.2018; 6877a; V. Ruček; 2 micro-localities.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Mnichová Lehota (2003, 7174d), Krásna Ves (2003, 7175c), Slatinka nad Bebravou (2003, 7175c), Šípkov (2003, 7175b), Veľký Kolačín (2003, 7075c), Prejta (2003, 7075b), Ilava (2003, 7075b). According to the list of records from Floristical contribution from the central part of the Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá (2002, 7176a, 7176b), Čavojs (2002, 7176b). According to Lajcha (2008): Opatová (2007, 7074d, 7174b). According to M. Pirchala: Tužina (2014, 7077d), Milochovej (2014, 6876c), Babkov (2013, 6877b), Lietavská Svinná (2013, 6878a). According to D. Pavlišin: Tužina (2014, 7077a), Košecké Rovné (2013, 7076c), Podskalie (2014, 6976b), Bodiná (2014, 6877c), Plevník-Drienové (2014, 6877a). According to M. Vyšinský: Kardošová Vieska (2014, 6977d), Počarová (2014, 6977a), Považská Bystrica (2014, 6876c). According to P. Meraďa Jr.: Malý Kolačín (1998, 7075c), Praznov (1994, 6877c). According to J. Smatanová: Dubnica nad Váhom (2012, 7075d), Malé Lednice (2002, 6977b), Vrchteplá (1999, 6877c), Záskanie (2016, 6877c), Považská Teplá (2016, 6877c). According to Vačková (1997): Trstie (1996, 6976d). According to T. Figura: Podskalie (2015, 6976d). According to Novosadová (2017): Hrabová (2016, 6877a). According to Rybáriková *et al.* (1994): Rajec (to 1994, 6977b). According to F. Kryška (Potůček, unpublished data): Paština Závada (1968 – 1980, 6777d), Hričovské Podhradie (1968 – 1980, 6777d). According to F. Kryška (Velisek 1992): Hlboké nad Váhom (1971, 6777d), Lietavská Závada (1992, 6877b). According to Velisek (1993):

Lietavská Svinná (1993, 6878a). According to A. Dobošová: Závodie (2003, 6778c). According to Z. Pčolová: Rajecká Lesná (2014, 6977b), Porúbka (2013, 6878a).

Epipactis futakii Meraďa et Potůček, EN

Veľký Kolačín; 0.4 km NE of Grófovec Top; 457; S; M; N; 3; I; 16.7.2018; 7075c; V. Ruček; verified older recorded by P. Meraďa Sr. and P. Meraďa Jr from 1994 – 1996, they also found it on the slopes of Drieňová and Markovica hill in 1994–2002 (Meraďa 2002).

Records of occurrence according to Meraďa Jr. (2010): Timoradza (1998, 7175d), Slatinka nad Bebravou (1998, 7175a), Omšenie (2002, 7175a), Trenčianske Teplice (1999, 7175a). Type locality is on Ostrý vrch hill (7074d) near the Trenčianska Teplá town (Meraďa Jr. and Potůček 1998).

Epipactis futakii was recorded near the studied area in Trenčianske Jastrabie (7174c), Považský Inovec Mountains (Eliáš Jr. 2010).

Epipactis greuteri, EN

Považská Teplá; the western foothills of Veľký Manín hill; 400 – 475; H; S; W; 43; G; 11. – 12.8.2017, 14.7.2018; 6876d; V. Ruček; 7 micro-localities, verified older recorded by P. Meraďa Sr. and P. Meraďa Jr. from 2001.

Records of occurrence according to Meraďa Jr. (2000): Lietavská Svinná (1998, 6878c, 6878a).

Epipactis helleborine (L.) Crantz subsp. *helleborine*, LC

Malý Kolačín; 0.6 km NW of Markovica Top; 501; S; S; N; 1; I; 17.7.2018; 7075c; V. Ruček; / * Omšenie; 0.5 km NE of Omšenská Baba Top; 627; S; M; S; 1; I; 20.7.2017; 7075c; V. Ruček; / * Dolná Poruba, Valaská Belá; SE, SW and NW slopes of Homôlka hill; 800 – 800; H; G; N, S, E; 5; S; 21.7.2018; 7075d; V. Ruček; / * Horná Poruba; Vápeč hill; 660 – 790; H; /; S, W; O; S; 1.8.2017, 13.7.2018; 7075d; J. Smatanová, V. Ruček; 3 micro-localities * Kopec; 1.1 km west of Kopec village; 578; S; S; E; 1; I; 1.8.2017; 7076c; V. Ruček; / * Zliechov; in valley 0.8 – 1.5 km SW of Strážov Top; 731 – 912; H; G; S; O; G; 18.6.2017, 23. – 24.6.2018; 7076b, 7076d; V. Ruček; / * Zliechov; 1.3 km NW of Strážov Top; 872; S; S; S; 1; I; 20.6.2017; 7076b; V. Ruček; / * Košecké Rovné; south slopes and valley under Gábrišské vrchy hill; 531 – 863; H; S, G; S; O; S; 27.7., 4.8. 2017; 7076a, 7076b; V. Ruček; / * Pružina; 0.8 km north of Strážovské vodopády Waterfalls; 653; S; S; N; 1; I; 4.6.2018; 7076b; V. Ruček; / * Košecké Podhradie; Podhradská dolina valley, 2 km SW of Mojtn village; 629 – 723; H; G; S; 6; S; 17.7.2017, 19.7.2018; 7076a; V. Ruček; / * Veľké Košecké Podhradie; Veľká and Malá Šimerka, Klokočova, Pancier Sides, Podhradský potok Stream; 365 – 700; H; /; S, N; T; S; 2017, 2018; 7076a; V. Ruček; / * Mojtn; 0.3 km west of Suchý vrch Top; 803 – 813; H; M; S; N; 8; S; 19.7.2018; 7076a; V. Ruček; / * Mojtn; 1 km south of Mojtn village; 711; S; S; N; 1; I; 20.7.2018; 7076a; flower mutation * Kopec; 1.5 km NW of Mačičie Top; 539; M; S; W; O; S; 1.8.2017; 7075b; V. Ruček; / * Trstie; eastern slopes of Dievča hill; 515 – 691; H; S, M, G; E, N; 12; G; 24.7.2018; 6976c; V. Ruček; 5 micro-localities * Beluša; 0.9 km NW of Rohatín Top; 626; S; G; N; 1; I; 21.7.2017; 6976c; V. Ruček; / * Beluša; 0.6 km north of Pasiенок Top; 422; S; S; N; 1; I;

16.9.2018; 6976c; V. Ruček; / * Hloža-Podhorie; under Kavčia skala Rock, Prvé vrata Gorge; 360 – 401; M; G; E; 3; S; 29.6.2018; 6976c; V. Ruček; / * Beluša; surroundings of Belušké Slatiny Settlement; 280 – 349; H; /; E; 4; S; 2017, 2018; 6976c; V. Ruček; / * Pružina; Sekaná hill, 0.2 km east of Priedhorie Settlement; 578; S; S; W; 1; I; 22.8.2018; 6976d; V. Ruček; / * Ďurďové; 1 km NE of Ďurďové village; 452; S; S; S; 6; I; 2.7.2017; 6977c; V. Ruček; / * Súľov-Hradná; the southern border of the village; 565; M; S; N; 10; G; 9.8.2018; 6877d; V. Ruček; / * Vrchteplá; ridge of Vodičná hill; 686; S; M; S; 1; I; 23.7.2017; 6877c; V. Ruček; / * Považská Teplá; the western foothills of Veľký Manín hill; 430 – 490; H; S; M; W; O; G; 14.7.2018; 6876d; V. Ruček; 3 micro-localities * Považská Teplá; slopes of Malý Manín hill; /; H; M; G; W; S; E; 22; G; 2017, 2018; 6876d, 6877c, 6877a; V. Ruček; 9 micro-localities * Mikšová; in close proximity to the Hričovský kanál Canal near Beňov Settlement; 300; S; P; O; O; S; 1.8.2018; 6876b; V. Ruček and M. Kolník; /.

The botanical records of *Epipactis helleborine* subsp. *helleborine* are from the entire area, but they may be incorrectly determined. This species can be easily interchangeable with *Epipactis leutei* and these two species have not been differentiated in the past. A similar problem is with *Epipactis helleborine* subsp. *orbicularis* subspecies. Occurrence of the species is expected on the entire study area.

Epipactis helleborine subsp. *orbicularis* (K. Richter)
E. Klien, NT

One record is from Malý Manín hill (Ujházyová *et al.* 2007), but this was not confirmed.

Epipactis komoricensis Mereda, NT

Dolná Poruba, Valaská Belá; eastern and southern slopes of Homôlka hill; 792 – 867; H; G; S; E; 4; S; 21.7.2018; 7075d; V. Ruček; / * Horná Poruba; western and southern slopes of Vápeč hill; 739 – 787; H; M; W; S; T; G; 13.7., 18.7.2018; 7075d; V. Ruček, J. Smatanová, P. Mereda Jr. and P. Mereda Sr.; 2 micro-localities, verification of the older record from 1991 – 1997 (Mereda Jr. 1998) * Považská Teplá; 1.4 km NW of Veľký Manín Top; 462; S; S; W; 1; I; 13.7., 14.7.2018; 6876d; V. Ruček, J. Smatanová, P. Mereda Jr. and Sr.; / * Považská Teplá; 0.9 km west of Malý Manín Top; 468; S; S; W; 1; I; 14.7.2018; 6876d; V. Ruček; /.

Records of occurrence according to Mereda Jr. (1998, 2002); Timoradza (1997, 7175c), Slatinka nad Bebravou (1996, 7175a), Omšenie (1994 – 1997, 7175a, 7075c), Dolná Poruba (2002, 7075d), Prejta (2002, 7075d), Horná Poruba (1993 – 1996, 7075d), Ilava (1993 – 1997, 7075b) – locus classicus, Trstie (1998, 6976c), Prečín (1997, 6977a), Kostolec (1997, 6877c), Jablonové (1994 – 1995, 6877a), Sádočné (1998, 6977c), Fačkov (1998, 7077a). According to Novosadová (2017): Súľov-Hradná (2016, 6877a).

Type locality is 0.5 km SE of Ilava town (Mereda Jr. 1996b).

Epipactis leptochila s.l.

The list includes undescribed species in *Epipactis leptochila* aggregate. *Epipactis leptochila* s. str. does not occur in the studied area.

Dolná Poruba, Valaská Belá; Homôlka hill; 810 – 850; H; G; N; E; 2; S; 21.7.2018; 7075d; V. Ruček;

2 micro-localities * Horná Poruba; the southern slopes of Vápeč hill; 730 – 770; H; M; G; S; O; S; 18.7.2018; 7075d; P. Mereda Jr., V. Ruček, J. Smatanová; 2 micro-localities, * Prejta; 1 km SE of Kopanica Settlement; 560 – 600; M; G; S; O; I; 12.7.2018; 7075c, 7075d; P. Mereda Jr., P. Mereda Sr., V. Ruček, J. Smatanová, Z. Václavová; / * Košecké Rovné; the southern slopes of Gábrišské vrchy hill; 726 – 777; H; M; W; 7; G; 27.7.2017, 20.7.2018; 7076a; V. Ruček; 2 micro-localities * Mojtín; west and south of Suchý vrch Top; 745 – 815; H; M; S; N; 11; S; 31.7.2017, 19.7.2018; 7076a; V. Ruček; 6 records * Ďurďové; Richtárska Site, 2.2 km NE of Ďurďové village; 627; S; G; S; 1; I; 1.7.2017; 6977c; V. Ruček; / * Jasenové; Hradisko Locality, 0.7 km west of Jasenové village; 564; S; M; E; 1; I; 16.7.2017; 6877d; V. Ruček; / * Plevník-Drienové; 0.8 km north of Malý Manín Top; 630; S; M; W; 1; I; 12.8.2017; 6877a; V. Ruček; / * Súľov-Hradná; 0.6 km NW of Súľov Castle; 403; M; M; N; O; I; 27.7.2018; 6877a; M. Jánoš; /.

Others records are from 1996 when a new *Epipactis komoricensis* was described (Mereda Jr. 1996b), since it is distinguished from other taxa in *Epipactis leptochila* aggregate. Older records were not used because it could be an *Epipactis neglecta*, *Epipactis komoricensis* or other undescribed species. According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Slatinka nad Bebravou (2003, 7175a).

Epipactis leutei Robatsch, EN

Veľký Kolačín; 0.6 km NE of Grófovec Top; 463; S; S; N; 1; I; 26.7.2018; 7075c; V. Ruček; / * Dolná Poruba, Valaská Belá; slopes of Homôlka hill; 819 – 854; H; G; S; E; N; 3; S; 21.7.2018; 7075d; V. Ruček; / * Dubnica nad Váhom, Prejta; Za humnami, Harmanová Locality under Beňová skala Top; 670 – 774; H; S; M; S; W; O; S; 12.7.2018; 7075d; V. Ruček, J. Smatanová, P. Mereda Jr. and P. Mereda Sr.; 4 micro-localities * Košecké Rovné; valley under Gábrišské vrchy hill, near the yellow-marked hiking trail from Košecké Rovné to Mojtín village; 545 – 739; H; S; W; 2; S; 27.7., 4.8.2017; 7076a; V. Ruček; 2 micro-localities * Mojtín; Hrianková Locality, 1 km south of Mojtín village, near the yellow-marked hiking trail; 730; S; S; N; 1; I; 20.7.2018; 7076a; V. Ruček; / * Mojtín; the northern slopes of Suchý vrch hill, 2 km east of Mojtín village; 762 – 801; H; M; S; N; 9; G; 19.7.2018; 7076a; V. Ruček; 4 micro-localities * Považská Teplá; 0.4 km east of Malý Manín Top; 616; S; G; W; 1; I; 14.7.2018; 6877c; V. Ruček; /.

Epipactis microphylla (Ehrh.) Swartz, LC

Slatinka nad Bebravou; 0.2 km south of Peršová Top, near the blue-marked hiking trail; 789; S; /; S; 1; I; 1.8.2017; 7175b; V. Ruček; / * Dolná Poruba, Valaská Belá; slopes of Homôlka hill; 767 – 867; H; M; G; S; E; 14; S; 21.7.2018; 7075d; V. Ruček; 10 micro-localities * Dolná Poruba; 1.4 km east of Slopský vrch Top, near the red-marked hiking trail; 602; S; M; S; 1; I; 20.7.2017; 7075d; V. Ruček; / * Prejta; 0.3 – 0.6 km west of Beňová skala Top, near the forest road; 736 – 748; H; S; W; 4; G; 12.7.2018; 7075d; V. Ruček; 2 micro-localities * Horná Poruba; southern slopes of Vápeč hill; 602 – 764; H; M; S; O; G; 13.7., 18.7.2018; 7075d; V. Ruček, J.

Smatanová; 4 micro-localities, verified older record by P. Mereda Jr. and P. Mereda Sr. from 1990 – 2002 * Horná Poruba; 0.6 km SSE of Vlčinec Top, east of Smrčkovci Settlement; 504; S; M; E; 1; I; 11.8.2018; 7075b; V. Ruček; / * Kopec; 0.7 km east of Mačičie Top, near the forest road; 560; S; S; S; 3; I; 1.8.2017; 7075b; V. Ruček; / * Zliechov; 0.7 – 1.2 km SSW of Strážov Top in valley under Harvanica Rock; 776 – 910; H; M; G; S; O; S; 23.-24.7.2018; 7076b, 7076d; V. Ruček; 3 micro-localities * Veľké Košecké Podhradie, Košecké Rovné; Podhradská dolina valley, Stupičie hill, southern slopes in the forest steppe, forest edges, 40 – 700 m above the third class road; 400 – 720; H; M; G; S; T; S; 15.6., 17.7., 31.7.-4.8.2017, 19.7.2018; 7075b, 7076a; V. Ruček; 14 records * Mojtín; Suchý vrch hill, 0.9 – 2.5 km east of Mojtín village; 682 – 829; H; M; G; N; E; S; T; S; 31.7.2017, 19.7.2018; 7076a; V. Ruček; 9 records * Veľké Košecké Podhradie, Košeca; slopes of Norovica hill and under the Mončeková skala Rock, 0.8 – 2.4 km NW of Košecké Podhradie village; 521 – 625; H; M; G; S; N; T; S; 26.6.2018; 7075b; V. Ruček; 10 records * Pružina; NE ridge of Sokolie hill, 1.6 km SW of Priedhorie Settlement; 667; S; M; E; 1; I; 23.8.2018; 7076b; V. Ruček; / * Veľké Košecké Podhradie; Dehetník, /; 1.8 km SSW of Dielec Top; M; M; E; O; S; 26.6.2018; 6976c; V. Ruček; 2 records * Trstie; in valley, 0.8 – 1.9 km east of Rakytník Top; 504 – 660; H; M; E; O; S; 24.7.2018; 6976c; V. Ruček; 2 records * Hloža-Podhorie, Beluša; Pod Tlstou hill, Pasienok hill, under Kavčia Rock near Prvé Vráta Gorge, 0.7 km east of Belušké Slatiny Settlement (Nad Martovou Hill); 365 – 498; H; M; G; S; E; O; S; 2017, 2018; 6976c; V. Ruček; 5 micro-localities, verification of the older record Pod Tlstou hill (Ujházyová *et al.* 2007) * Podskalie; 0.3 – 0.5 km north of Kohilovec Top on the ridge; 604 – 631; M; S; /; O; G; 16.8.2018; 6976d; V. Ruček; 2 micro-localities * Považská Teplá; 1.4 km NW of Veľký Manín Top; 483; S; /; W; 1; I; 14.7.2018; 6876d; V. Ruček; / * Považská Teplá; western and eastern slopes of Malý Manín hill; 526 – 621; H; M; G; W; E; 36; G; 2017, 2018; 6877c, 6877a; V. Ruček; 2 localities, 14 records, verification of the older record (Ujházyová *et al.* 2007) and record by Urbanová before 1991.

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Zemianske Mitice (2003, 7174d), Slatinka nad Bebravou (2003, 7175a), Slatina nad Bebravou (2003, 7175b), Čierna Lehota (2003, 7175b, 7176a), Omšenie (2003, 7175a, 7075c). According to P. Jánsky: Soblahov (2009, 7174b). According to E. Fajmonová: Čičmany (1995, 7076d). According to Ujházyová *et al.* (2007): Kostolec (2005, 6877c), Plevník-Drienové (2005, 6877a). According to Mereda (2010, 2002): Timoradza (to 1998, 7175c, 7175d), Čierna Lehota (1996, 7176c), Trenčianske Teplice (1993-2002, 7075c), Veľký Kolačín (2002, 7075c), Malý Kolačín (1992 – 2002, 7075c), Dubnica nad Váhom (2000, 7075c), Klobušice (2002, 7075a), Ilava (1993 – 2000, 7075a, 7075b), Košeca (1993 – 2002, 6975d), Rajecké Teplice (1998, 6878c), Porúbka (to 1979, 6878c), Lietavská Závadka (to 1985, 6877b), Zemianská Závada (to 1985, 6977a), Hričovské Podhradie (to 1985, 6777d).

Epipactis muelleri Godfery, NT

Valaská Belá; saddle under Homôlka hill, near the second class road; 760; S; S; S; 1; I; 21.7.2018; 7075d; V. Ruček; / * Malý Kolačín; Huštík Site, 1.6 km NW of Markovica Top; 309; S; M; N; 1; I; 17.7.2018; 7075c; V. Ruček; / * Dolná Poruba; 0.8 km east of Sľopský vrch Top, near the red-marked hiking trail; 600; M; /; E; 3; I; 20.7.2017; 7075d; V. Ruček; / * Horná Poruba; the southern slope of Vápeč hill and near red-marked hiking trail 1.2 km east of Horná Poruba village; 554 – 800; H; S; M; G; S; O; S; 13.7., 18.7.2018; 7075d; J. Smatanová, V. Ruček; 2 localities, 7 records * Zliechov; 1.3 km SSW of Strážov top in valley under Harvanica Rock; 772; S; M; S; 1; I; 23.6.2018; 7076d; V. Ruček; / * Košecké Rovné; 0.5 km SSW of Gábrišské vrchy Top; 753; S; M; S; 1; I; 20.7.2018; 7076a; V. Ruček; / * Veľké Košecké Podhradie; under Klokočová Locality, side valley of Podhradská dolina valley, 2.5 km NW of Čierny vrch hill; 405 – 459; M; M; S; 6; G; 16.6.2018; 7076a; V. Ruček; 2 micro-localities * Veľké Košecké Podhradie; Stráne hill, 0.2 km north of Košecké Podhradie village; 411; S; G; S; 1; I; 19.6.2018; 7075b; V. Ruček; / * Mojtín; 0.3 – 0.6 km east of Suchý vrch hill; 801 – 837; H; M; G; S; 4; S; 31.7.2017, 19.7.2018; 7076a; V. Ruček; / * Hloža-Podhorie; under Kavčia Rock, Prvé vráta Gorge; 395; S; G; E; 2; I; 29.6.2018; 6976c; V. Ruček; / * Domaniža; Hodoň Settlement; 422; M; S; O; O; S; 29.6.2018; 6977c; V. Ruček; / * Počarová; near the road 0.2 km from the cemetery in Počarova village; 412; M; M; S; 8; I; 29.6.2018; 6977a; V. Ruček, J. Smatanová; / * Podmanín; 1.1 km west of Veľký Manín Top; 508; S; S; W; 1; I; 14.7.2018; 6876d; V. Ruček; / * Považská Bystrica; 0.7 km west of Malý Manín Top; 538; M; M; W; O; S; 14.7.2018; 6877c; V. Ruček; /

Records of occurrence according to Mereda Jr. (1998, 2002): Timoradza (2004, 7175d), Kšinná (to 1996, 7176c), Slatinka nad Bebravou (2002, 7175a), Čierna Lehota (1996, 7176c), Trenčianske Teplice (1993 – 2002, 7075c), Omšenie (1993 – 2002, 7075c), Dubnica nad Váhom (1994-2002, 7075c), Prejta (1999, 7075d), Malé Košecké Podhradie (1992, 7075b), Klobušice (2002, 7075a), Ilava (2002, 7075a), Ladce (1998, 6975d), Praznov (1994, 6877c), Rajecké Teplice (to 1985, 6878c), Súľov-Hradná (until 1985, 6877b). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Krásna Ves (2003, 7175a), Slatinka nad Bebravou (2003, 7175a), Veľký Kolačín (2003, 7075c), Zliechov (2003, 7076b). According to Micháľková (2003): Hloža-Podhorie (2001, 6976c). According to Ujházyová *et al.* (2007): Hloža-Podhorie (2005, 6976c), Kostolec (2005, 6877c). According to Velíšek (1992, 1993): Súľov-Hradná (1992 – 1993, 6877a, 6877b), Hričovské Podhradie (1992, 6777d).

Epipactis neglecta (Kümpel) Kümpel, VU

Records of occurrence according to Mereda Jr. (2002, 2010): Malý Kolačín (1998, 7075c), Horná Poruba (1990 – 2000, 7075d), Považská Teplá, Plevník-Drienové (1998 – 2002, 6877a). According to P. Novosadová: Súľov-Hradná (2016, 6877b), Hrabové (2016, 6877b).

Epipactis palustris (L.) Crantz, NT

Omšenie; NR Omšenská Baba, under Omšenská Baba hill; 460; M; S; M; S; T; I; 12.6.2017; 7075c;

V. Ruček; verification of older record recorded by S. Mertanová and I. Škodová from 2003 (Mertanová and Smatanová 2006) * Kopec; Kúty Locality, 1.6 km SSW of Kopec village; 590; M; S; N; /; I; 9.6.2017; 7076c; J. Smatanová; / * Kopec; Kopecká dolina valley, 1.8 km NE of Mačičie Top; /; S; P; O; 1; I; 19.6.2018; 7076a; V. Ruček; / * Zliechov; 0.5 – 0.7 km NE of Zliechov village; 660 – 675; H; S; W; T; G; 7.7.2016, 20.6.2017; 7076b; V. Ruček; verification of older record recorded by P. Koutecký and J. Košťál (Mertanová and Smatanová 2006) * Klačno; 0.4 km SW of Vrania skala Top; 905; S; S; S; 1; I; 13.6.2017; 7078a; V. Ruček; / * Domaníža; Blatnica valley; 400; H; P; O; T; G; 29.6.2018; 6977c; V. Ruček; 2 micro-localities * Jasenové; valley between Jasnové and Malá Čierna village, around the stream; 475 – 500; H; S; O; H; G; 16.7.2017; 6877d; V. Ruček; / * Súľov-Hradná; Čierny potok valley; 415; S; P; S; N; O; I; 19.6.2018; 6877a; V. Ruček; According to Novosadová (2017) there were hundreds of exemplars in 2016.

Records of occurrence according to Meraďa Jr. (2002, 2010): Dubnica nad Váhom (1999, 7075d), Lietavská Svinná (to 1979, 6877d). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Mnichová Lehota (2003, 7174c, 7174d), Soblahov (2001, 7174b), Petrová Lehota (2009, 7174b), Čierna Lehota (2003, 7175b), Valaská Belá (2003, 7176a), Omšenie (2003, 7175a), Čičmany (2003, 7077a), Tístie (2003, 6976d). According to LT-SES Trenčín of 1998: Opatová (to 1998, 7174b). According to Lajcha (2008): Opatová (2007, 7074d). According to K. Devánová: Dolná Poruba (2001, 7175b). According to the list of records from Floristical contribution from the central part of the Strážovské vrchy Mountains (Janišová *et al.* 2004): Čavoj (2002, 7176b). According to J. Smatanová: Čičmany (2017, 7076d), Košecké Rovné (2001, 7076a), Podskalie (2006, 2010, 6976d, 6976b), Prečín (2001, 6977a), Zás-kalie (2007, 6877c). According to Z. Plesková: Veľké Košecké Podhradie (2015, 7076a), Domaníža (2015, 6977c). E. Fajmonová: Horná Poruba (2001, 7075b), Horné Kočkovce (2003, 6876c), Bodiná (to 1995, 6877c). According to Rybáriková *et al.* (1994): Rajec, Šuja, Rajecká Lesná (to 1993, 6977b). According to Potůček (unpublished data): Paština Závada (1968 – 1980, 6877b, 6777d). According to A. Dobošová: Šuja (2018, 6977b), Závodie (2015, 6778c). According to J. Limánek: Fačkov (2017, 6977d).

Epipactis placentina Bongiorno & P. Grünanger, EN Dubnica nad Váhom; Harmanová Locality; 649 – 680; H; S, M, G; S; 10; G; 12.7.2018; 7075d; P. Meraďa Jr., P. Meraďa Sr., V. Ruček, J. Smatanová, Z. Václavová; verification of the locality of occurrence from 1993 – 2002 discovered by P. Meraďa Jr. and P. Meraďa Sr. (Meraďa Jr. 2002).

Epipactis pontica Taubenheim, LC Hloža-Podhorie; 1.2 km SE of Butkov Top; 434 – 575; H; P, S, G; S; T; G; 3.8.2017, 24.7.2018; 6976c; V. Ruček; verification of older data recorded by Meraďa Jr. (1997) * Považská Teplá; 1 – 1.2 km NWW of Veľký Manín Top; 496 – 518; H; S, M, G; W; 37; G; 14.7.2018; 6876d; V. Ruček, J. Smatanová; 2 micro-localities, verification of older data recorded by P. Meraďa Jr. and P. Meraďa Sr. (Meraďa Jr. 2002).

Records of occurrence according to Meraďa Jr. (2002, 2010): Horné Motešice (1997, 7175c), Slatinka nad Bebravou (2002, 7175a), Čierna Lehota (1997, 7176c), Veľký Kolačín (1997, 7075c), Dubnica nad Váhom (1991 – 2000, 7075a), Prejta (1997, 7075a, 7075b), Horná Poruba, Kopec (1997, 7075d), Kopec (1997, 7075b, 7076a), Klobušice (2002, 7075b), Prečín (1997, 6877c). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Veľký Kolačín (2003, 7075c).

Epipactis pseudopurpurata Meraďa, VU

Omšenie, Veľký Kolačín; 1.6 km north of Baračka, Kamenné vráta, Pri altáne Locality; 497 – 515; H; S; S; O; S; 16.7.2018; 7075c; V. Ruček; 2 localities, 2.5 km from the *locus classicus* of this species * Dubnica nad Váhom; 1.7 km SSE of Kopanica Settlement; 520; M; S; S; O; I; 12.7.2018; 7075c; P. Meraďa Jr., P. Meraďa Sr., V. Ruček, J. Smatanová, Z. Václavová; / * Horná Poruba; the southern slopes of Vápeč hill; 689 – 762; H; S, M; S; O; G; 13.7. – 18.7.2018; 7075d; P. Meraďa Jr., P. Meraďa Sr., V. Ruček, J. Smatanová; 2 micro-localities * Košecké Rovné; the southern slopes Gábrišské vrchy, 0.2 – 0.9 km east of the yellow-marked hiking trail; 747 – 793; H; S, M; S; 10; S; 20.7.2018; 7076a; V. Ruček; 7 records, verification of older data recorded by P. Meraďa Jr. and P. Meraďa Sr. from 1998 (Meraďa 2002), in the locality there is an occurrence of *Epipactis purpurata* and *Epipactis ×merediorum* hybrid * Košecké Rovné; Podhradská dolina valley, 1.9 km SW of Mojtína village; 700 – 720; S; G; S; 2; I; 19.7.2018; 7076a; V. Ruček; / * Tístie; Blatnatá Locality, 1.1 km SEE of Dievča Top; 575; S; S; O; 2; I; 24.7.2018; 6976c; V. Ruček; nearby there occurs *Epipactis purpurata* * Beluša; the western foothills of Rohatín hill; 475 – 500; H; S; W, S; O; S; 21.7., 22.7.2017; 6976c; V. Ruček; 2 micro-localities spaced 0.8 km; verification of older data recorded by D. Michalková and P. Meraďa Jr. from 2001 (Meraďa 2002) * Súľov-Hradná; 0.7 km NW of Súľov Castle, in valley; 400; S; M; /; 1; I; 2018; 6877a; M. Jánoš; 3 km south E. *purpurata* was recorded by Novosadová (2017).

Records of occurrence according to Meraďa (2002, 2010): Slatinka nad Bebravou (1996, 7175a), Omšenie (1998, 7175a), Zliechov (1998, 7076b), Veľké Košecké Podhradie (1997 – 1998, 7075b), Rajecké Teplice (2001, 6878c), Porúbka (1998, 6878a). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Veľký Kolačín (2003, 7075c). *Locus classicus* is near Trenčianske Teplice town (7075c; Meraďa 1996a).

Epipactis purpurata Sm., NT

Opatová, Trenčianske Teplice; near the red-marked hiking trail from Trenčianske Teplice town to Opatovská dolina valley; 411 – 463; H; S, M; /; O; S; 20.7.2017; 7074b, 7174d; V. Ruček; in Opatovská dolina valley it was recorded in 2005 (Lacha 2008) * Veľký Kolačín; 0.6 km SW of Drieňová Top; 540; M; S; S; 4; S; 16.7.2018; 7075c; V. Ruček; / * Dolná Poruba; 0.8 km SE of Slopský vrch Top, near the red-marked hiking trail; 612; M; M; S; O; G; 20.7.2017; 7075d; V. Ruček; / * Malý Kolačín; 1.6 km NW of Markovica Top; 330; M; S; W; 5; G; 17.7.2018; 7075c; V. Ruček; / * Dubnica nad Váhom; Dubnická

dolina valley, 1.6 km NNE of Kopanica Settlement; 485; M; S; S; O; I; 12.7.2018; 7075c; P. Meraďa Jr., P. Meraďa Sr., V. Ruček, J. Smatanova, Z. Vaclavova; / * Horna Poruba; 0.6 km SWW of Smrckovci Settlement; 550; S; M; E; 1; I; 11.8.2018; 7075b; V. Ruček; / * Košecke Rovne; the southern slopes of Gabrišske vrchy hill; 760 – 840; H; S, M, G; S; T; G; 27.7.2017, 20.7.2018; 7076a, 7076b; V. Ruček; 3 micro-localities, verification of older data recorded by Meraďa (2002), there is an occurrence of *Epipactis pseudopurpurata* and hybrid *Epipactis × merediorum* * Mojtin; 0.6 km SWW of Suchy vrch Top; 795 – 833; M; S, M; S; O; S; 31.7.2017, 19.7.2018; 7076a; V. Ruček; / * Velke Košecke Podhradie, Hloža-Podhorie; Mraznica valley, 1.3 km west of Dielec Top; 425 – 480; H; P, G; E; 14; G; 26.6.2018; 6976c; V. Ruček; 2 micro-localities * Hloža-Podhorie, Beluša; western foothills of Rohatn hill; 465 – 500; H; P, S, M; W; 70; G; 21.7., 22.7.2017, 6976c; V. Ruček; 2 micro-localities, *Epipactis pseudopurpurata* occurs in the vicinity, verification of older data from 2001 (Meraďa 2002) * Trstie; Blatnata Locality, 1.1 – 1.4 km SE of Dievca Top; 484 – 570; H; P, S, M; S, E, N; 37; G; 24.7.2018; 6976c; V. Ruček; 5 micro-localities, there is an occurrence of *Epipactis pseudopurpurata* in the vicinity * Beluša; Pasiенок hill, Pansky haj hill; 400 – 500; H; P, S, M; S, E, N; T; G; 15.9., 16.9.2018; 6976c; V. Ruček; 7 micro-localities * Beluša; Nad Martovou Locality, 0.4 km west of Belušske Slatiny Settlement; 338; S; S; E; 1; I; 29.6.2018; 6976c; V. Ruček; / * Beluša; 0.1 km east of Kamenica Top; 413; S; S; O; 1; I; 29.7.2018; 6976a; V. Ruček; / * Visolaje; 0.5 km SE of Papežov laz Settlement; 360; H; P, S; O; 31; I; 29.7.2017; 6976a; V. Ruček; / * Podskalie; saddle SE of Tmie hill; 625; M; P; O; 4; I; 16.8.2018; 6976d, 6976b; V. Ruček; / * Sulov-Hradna; 0.7 km SE of quarry in Jablonove; 360; S; M; E; 1; I; 9.8.2018; 6877a; V. Ruček; /.

Records of occurrence according to Meraďa Jr. (2002, 2010): Slatinka nad Bebravou (1998 – 2002, 7175a), Trenianske Teplice (1928, 7075c, 7175a), Velky Kolacn (1996 – 2002, 7075c), Dubnica nad Vahom (1992 – 2002, 7075c), Prejta (1990, 7075a), Klobušice (1990, 7075a, 7075b), Ilava (2002, 7075a), Praznov (1994, 6877c), Plevnik-Drienove (1999, 6877a), Hričovske Podhradie (1985, 6777d). According to J. Smatanova: Horna Poruba (2018, 7075d).

Others records are from 1996 when a new *Epipactis pseudopurpurata* was described (Meraďa 1996a) and began to differentiate from similar *Epipactis purpurata*. According to the list of records from Floristic course Pruske 2003 (Mertanova and Smatanova 2006): Zemianske Mitice (2003, 7174d). According to P. Jansky: Soblahov (2009, 7174a). According to Lajcha (2008): Dobra (2005, 7074d). According to Novosadova (2017): Paština Zavada – NNR Sulovske skaly (2016, 6877b).

Epipactis tallosii Molnar et Robatsch, NT

Dubnica nad Vahom, above Kvašovec Locality; 1.3 km NNW of Ostry vrch hill; 254; M; P; O; 50; I; 12.7.2018; 7075c; P. Meraďa Jr., P. Meraďa Sr., V. Ruček, J. Smatanova; verification of older data recorded in 1991 – 2002 (Meraďa Jr. 2002).

Records of occurrence according to Meraďa Jr. (2002, 2010): Horne Motešice (2001, 7175c), Borice (1992, 1999, 7074b) - unsuccessful verification in 2018.

Epipactis × merediorum Batoušek (*E. purpurata* × *E. pseudopurpurata*)

Košecke Rovne; the southern slopes of Gabrišske vrchy hill; 750 – 790; H; S; S; 3; G; 20.7.2018; 7076a; V. Ruček; 2 micro-localities, occurrence of *Epipactis pseudopurpurata* and *Epipactis purpurata*.

Epipactis × heterogama Bayer (*E. atrorubens* × *E. muelleri*)

Records of occurrence according to Meraďa P. Jr. (2002): Horna Poruba (1992, 1999, 7075d).

Epipactis helleborine × *E. muelleri*

Records of occurrence according to Meraďa Jr. (2002, 2010): Omšenie (1996, 7175a), Horna Poruba (1990 – 1997, 7075d), Zliechov (1996 – 1997, 7076b).

Epipactis helleborine × *E. pseudopurpurata*

Records of occurrence according to Meraďa Jr. (2002): Košecke Rovne (1997 – 1998, 7076b).

Epipogium aphyllum Sw., NT

Records of occurrence according to P. Meraďa Jr. and J. Smatanova (Meraďa 2003): Maly Mann hill (2002, 6877c) – unsuccessful verification in 2017, 2018. According to Meraďa Sr. (unpublished data): Bodina (1997, 6977a) – unsuccessful verification in 2018, Bodina / Praznov (1997, 6877c). According to Potucek (unpublished data): Sulov-Hradna (1968 – 1987, 6877b).

Goodyera repens (L.) R.Br., NT

Sulov-Hradna; NM Sulovsky hradok; 450; M; P; O; T; I; 13.6., 25.7.2017., 9.8.2018; 6877a; V. Ruček, J. Smatanova; verification of older record recorded by V. Velisek from 1979 (Velisek 1992).

Records of occurrence according to the list of records from Floristic course Pruske 2003 (Mertanova and Smatanova 2006): Slatinka nad Bebravou (2003, 7175d). According to J. Smatanova: Ďurdove (2006, 6977c). According to I. Kalafusova: Male Lednice (2006, 6977a). According to D. Dite: Porubka (1998, 6878c). According to Novosadova (2017): Sulov-Hradna (2016, 6877a, 6877b).

Gymnadenia conopsea (L.) R.Br., LC

Omšenie; NNM Lance and vicinity; 420 – 450; H; S; N; H; I; 12.6.2017; 7175a; V. Ruček; / * Omšenie; NR Omšenska baba; 450 – 470; M; S, M; S; 28; I; 12.6.2017; 7075c; V. Ruček; / * Dubnica nad Vahom; Trsticke luky Locality, 570; M; S; N; O; I; 12.6.2017; 7075c; V. Ruček; verifications older data recorded by I. Škodova from 2014 * Košecke Rovne, Kopec; Horna Stredna and Dolna Stredna Settlement, mouth of Strednianska and Kopcianska dolina valley; 375 – 650; H; P, S, M; N; 64; G; 2017, 2018; 7076a, 7076c; V. Ruček; 5 localities, verifications older data recorded by J. Smatanova from 2014 and 2015, E. Fajmonova from 1995 * Košecke Rovne; above the cemetery in Košecke Rovne village; 650 – 675; H; S, M; N; O; S; 5.6.2017; 7076a; V. Ruček; 2 micro-localities * Zliechov; 0.8 – 2.3 km NE of Zliechov village; 660 – 765; H; S; W; H; G; 30.5., 20.6.2017, 5.6.2018; 7076b; V. Ruček, J. Smatanova; 3 micro-localities, verification of older data recorded by J. Koštal, P. Koutecky from 2003, J. Smatanova from 2006, 2014, M. Duchon

from 2014 * Pružina; Strážovská dolina valley, the mouth and end of the valley; 430 – 690; H; S; N; H; G; 20.6.2017, 4.6.2018; 7076b; V. Ruček; 3 micro-localities, verification of older data recorded by K. Devánová from 2015, J. Smatanová from 2000, 2002, 2006, D. Dítě from 1999, S. Vačková from 1996 (Vačková 1997), E. Sajverová from 1984 * Klačno; 0.3 south of Vrania skala Top; 900; S; S; S; O; I; 13.6.2017; 7078a; V. Ruček, J. Smatanová; / * Veľké Košecké Podhradie; forest steppe of Podhradská dolina valley, 2.6 – 6 km east of Košecké Podhradie village, Prevrat Saddle; 390 – 690; H; M; G; S; 136; S; 2017, 2018; 7076a, 7075b; V. Ruček, J. Smatanová; 42 records, verification of older data recorded by J. Smatanová from 2002, 2006, E. Fajmonová from 1988, 1990, 1995 * Mojtín; Javorina hill, 1 km east of Stanovci Settlement; 801; S; M; W; 3; I; 5.6.2018; 7076b; V. Ruček; / * Pružina, Briestenné; vicinity of the NM Briestenské skaly; 405 – 500; H; S; S; O; S; 30.6.2017; 6976d, 6977c; V. Ruček; verification of older data recorded by J. Smatanová from 2002 * Čelková Lehota; 0.7 km east of Čelková Lehota village, near the third class road; 473; S; P; 0; 4; I; 30.6.2017; 6977c; V. Ruček; / * Sádočné; Jaseňová dolina valley 0.5 – 1 km SW of Sádočné village; 430 – 450; H; P; S; N; 54; I; 1.7.2017; 6977c; V. Ruček; verification of older data recorded by E. Fajmonová from 2004 * Ďurďové; 1 km NE of Ďurďové village; 480; S; M; S; 2; I; 2.7.2017; 6977c; V. Ruček; verification of older data recorded by E. Fajmonová from 2004 * Domaniža; Blatnica and Hodoň valley; 397 – 425; H; S; W; T; G; 29.6.2018; 6977c; V. Ruček, J. Smatanová; 2 localities, verification of older data recorded by Z. Plesková from 2015, J. Smatanová from 2014, E. Fajmonová from 1995, 2004 * Fačkov, Siguty Locality, Rajecká Lesná; 0.9 – 2.4 km NE of Fačkov village; 525 – 560; H; S; M; S; W; H; G; 13.6.2017; 6977d; V. Ruček, J. Smatanová; 2 micro-localities * Počarová; behind the cemetery in Počarová village; 475; M; M; E; O; I; 8.6. 2017; 6977a; J. Smatanová; / * Bodiná; 0.6 km NE of Bodiná village; 487; S; S; W; 6; I; 9.8.2018; 6877c; V. Ruček; / * Jasenové; valley between Jasenové and Malá Čierna village; 453 – 505; H; P; S; 0; 186; I; 16.7.2017; 6877d; V. Ruček; / * Vrchteplá; Čierny potok valley, 1.7 km north of Vrchteplá village; 600; M; S; S; 3; S; 26.5.2018; 6877c; V. Ruček; verification of data recorded by P. Novosadová from 2016, by J. Smatanová from 2014, 2015 * Súľov-Hradná; Čierny potok valley, Súľovský hrádok Locality; 372 – 425; H; M; E; N; T; G; 13.6.2017, 19.6., 9.8.2018; 6877a; V. Ruček, J. Smatanová; 3 micro-localities, verification of data recorded by P. Novosadová from 2016, by Z. Pčolová from 2014 * Porúbka; NR Slnéčné skaly; 405; M; M; E; 19; I; 4.9.2018; 6878a; V. Ruček; /.

Records of occurrence according to Lajcha (2008): Opatová (2007, 7174b). According to K. Rejšek: Dobrá (2004, 7074d). According to D. Galvánek: Šípkov (2002, 7175b). According to S. Mertanová: Dolná Poruba (2007, 7175b). According to A. Fehér: Valaská Belá (2015, 7176a). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Valaská Belá (2003, 7176a). According to the list of records from Floristical contribution from the central part of the Strážovské vrchy Mountains (Janišová *et al.* 2004): Valaská Belá, Čavoj (2002, 7176b). According

to M. Duchoň: Klačno (2015, 7077b), Rajec (2015, 6977b). According to J. Smatanová: Horná Poruba (2017, 7075d), Čičmany (2015, 7077a, 7077c), Hloža-Podhorie (2000 – 2003, 6976c), Horný Moštenec (2000, 6976b), Prečín (2017, 6977a). According to A. Dobošová: Šuja, Rajecká Lesná (2018, 6977b), Lietavská Svinná (2016, 6878a), Lietavská Lúčka (2007, 6878a), Ovčiaro (2003, 6778c), Závodie (2015, 6778c). According to E. Fajmonová: Podmanín – Manínek hill (1995, 6876d), Malé Lednice (2004, 6977b). According to Novosadová (2017): Súľov-Hradná – NNR Súľovské skaly (2016, 6877b, 6777d). According to Velíšek (1993): Lietavská Svinná (1993, 6878c). According to S. Uhrin: Hlboké nad Váhom (2014, 6777c, 6777d).

Gymnadenia densiflora (Wahlenb.) A. Dietr., NT
Veľké Košecké Podhradie; Mraznica Saddle, 1.2 km NNE of Stupičie Top; 557; S; S; 0; 1; I; 19.6.2018; 7076a; V. Ruček; / * border of NM Briestenské skaly; 405; S; P; 0; 1; I; 30.6.2017; 6976d; V. Ruček; / * Čelková Lehota; 0.7 km NWW of Čelková Lehota village, near the third class road; 474; S; S; 0; 3; I; 30.6.2017; 6977c; V. Ruček; / * Sádočné; Jaseňová dolina valley, 0.5 SW of Sádočné village; 430; S; P; 0; 2; I; 1.7.2017; 6977c; V. Ruček; / * Domaniža; Blatnica valley; 400; S; P; 0; 1; I; 29.6.2018; 6977c; V. Ruček; verification of older data recorded by E. Fajmonová from 2004 and V. Grulich from 2003 (Mertanová and Smatanová 2006) * Jasenové; valley between Jasenové and Čierna Lehota village; 480 – 490; H; P; S; 0; 8; G; 16.7.2017; 6877d; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; 3 micro-localities * Súľov-Hradná; Čierna dolina valley; 400; S; S; N; 1; I; 19.6.2018; 6877a; V. Ruček; verification of data recorded by Novosadová (2017) from 2016, by J. Smatanová from 2002.

Some individuals of *Gymnadenia densiflora* are difficult to distinguish from *Gymnadenia conopsea*, so older records may not be reliably determined. Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Omšenie (2003, 7175b), Horná Poruba (2003, 7075d), Čičmany (2003, 7076d, 7077a), Zliechov (2003 7076b), Veľké Košecké Podhradie (2003, 7075b). According to D. Galvánek: Čierna Lehota (2001, 7175b). According to M. Duchoň: Čavoj (2014, 7176b). According to K. Devánová: Soblahov (2014, 7174b). According to D. Dítě: Omšenie (2001, 7175a). According to the list of records from Floristical contribution from the central part of the Strážovské vrchy Mountains (Janišová *et al.* 2004): Čavoj (2002, 7176b). According to J. Smatanová: Podskalie (2000, 6976b), Bodiná (2001, 6877c). According to P. Smatanová: Horná Poruba (2014, 7075d), Kopec (2015, 7076c), Zliechov (2015, 7076b), Malé Lednice (2015, 6977a). According to A. Dobošová: Fačkov (2015, 6977d), Šuja, Rajecká Lesná (2018, 6977b), Podhorie (2011, 6877b), Poluvsie nad Rajčankou (2002, 6878c), Bitarová (2003, 6778c). According to Velíšek (1993): Lietavská Svinná (1993, 6878c), Hrabové (1993, 6877b).

Gymnadenia odoratissima (L.) Rich., NT
Súľov-Hradná; Čierna dolina valley; 390 – 410; H; P; N; 2; S; 19.6.2018; 6877a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; 2 micro-localities, verification of data recorded by Novosadová (2017) from 2016,

by F. Kryška, Terková and V. Velíšek from 1975, 1979, 1980, 1992 (Velíšek 1992).

Records of occurrence according to I. Škodová: Omšenie (2015, 7175a). According to Lajcha (2008): Opatová (2007, 7174b). According to Vačková (1997): Pružina valley (1996, 7076b). According to Micháľková (2003): Hloža-Podhorie (2002, 6976c). According to Velíšek (1992): Súľov-Hradná (1979, 6877b), Hričovské Podhradie (1979, 1992, 6777d).

Gymnadenia × intermedia Peterm. (*G. conopsea* × *G. odoratissima*)

Súľov-Hradná; Čierna dolina valley; 381; S; S; N; O; I; 19.6.2018; 6877a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; 2 micro-localities, verification of older data recorded by V. Velíšek and J. Terková from 1978, 1993 (Velíšek 1992, 1993).

Records of occurrence according to Potůček (unpublished data): Súľov-Hradná (1968-1980, 6877b).

Herminium monorchis (L.) R.Br., CR

One locality of occurrence is in Rajecká kotlina Basin between Strážovské vrchy Mountains and Malá Fatra Mountains (6977d). Verification of an older finding by V. Ruček and J. Smatanová in 2017.

Himantoglossum adriaticum H. Baumann, EN

Records of occurrence according to M. Galovičová: Počarová (2014, 6977a) - unsuccessful verification in 2017, 2018 – probably a random flowering exemplar.

Limodorum abortivum (L.) Sw, NT

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Slatinka nad Bebravou (2003, 7175a). Records of occurrence according to P. Meraďa Sr.: Dubnica nad Váhom (2005 – 2013, 7075c) – probably a random flowering exemplar.

Listera ovata (L.) Bluff & Fingerh., LC

Omšenie; NNM Lánce; 410 – 450; H; S; M; N; 24; G; 12.6.2017; 7175a; V. Ruček; 3 micro-localities, verification of data recorded by S. Mertanová and I. Škodová from 2003 (Mertanová and Smatanová 2003) * Omšenie; NR Omšenská baba; 440; S; S; S; 12; I; 12.6.2017; 7075c; V. Ruček; / * Dubnica nad Váhom; Trštické lúky Meadows, 1 km NE of Omšenská baba Top; 575 – 590; H; S; N; 17; G; 22.5., 12.6.2017; 7075c; V. Ruček, J. Smatanová; verification of data recorded by J. Smatanová from 2015 * Kopec; Kúty Locality, 1.5 km SSW of Kopec village; 590; S; S; N; O; I; 19.5.2018; 7076c; V. Ruček; verification of older data recorded by E. Fajmonová from 1995 * Košecké Rovné; Strednianská dolina valley, Horná and Dolná Stredná Settlement; 460 – 650; H; P; S; M; N; 22; G; 30.5., 5.6.2017; 7076a, 7076c; V. Ruček, J. Smatanová; 4 micro-localities, verification of data recorded by J. Smatanová from 2005 – 2014 * Zliechov; 1.7 km SSW of Strážov Top; 720; S; S; S; 1; I; 18.6.2017; 7076d; V. Ruček; / * Košecké Rovné; behind the cemetery in Košecké Rovné village; 550 – 580; H; S; N; 211; I; 2.6., 5.6.2017; 7076a; V. Ruček, J. Smatanová; / * Zliechov; 1.3 – 1.5 km NE of Zliechov village; 725 – 750; H; S; W; O; G; 30.5., 20.6.2017; 7076b; V. Ruček, J. Smatanová; verification of older data recorded by J. Smatanová from 2006 * Pružina;

the end and mouth of the Strážovská dolina valley, NNR Strážov; 426 – 775; H; P; M; N; 15; G; 20.6.2017, 4.6.2018; 7076b; V. Ruček; verification of data recorded by K. Devánová from 2015, by J. Smatanová from 200, 2002, by E. Sajverová from 1984, by S. Vačková from 1996, by D. Dítě from 1999 * Klačno; south of Vrania skala Top, near the red-marked hiking trail; 910; H; S; S; O; G; 13.6.2017; 7077b, 7078a; 2 micro-localities * Velké Košecké Podhradie; Podhradská dolina valley and side northern valleys; 360 – 680; H; P; S; M; H; S; 122; G; 2017, 2018; 7076a; V. Ruček, J. Smatanová; 7 micro-localities, verification of older data recorded by J. Smatanová from 2002, 2006, by E. Fajmonová from 1995 * Beluša; 1 km NWW of Dievča Top; 575; S; M; W; 1; I; 2016; 6976c; V. Ruček; verification of older data recorded by Micháľková (2003) from 2000 – 2002 * Sadočné; 0.7 km SE of Čelková Lehota village; 443; S; M; N; 1; I; 1.7.2017; 6977c; V. Ruček; / * Fačkov; 1 – 2.3 km NNE of Fačkov village, near the first class road; 530; H; M; W; O; S; 13.6.2017; 6977d; V. Ruček, J. Smatanová; 2 micro-localities * Súľov-Hradná; Čierny potok valley; 375 – 600; H; P; S; N; H; G; 2017, 2018; 6877a, 6877c; V. Ruček; V. Ruček, J. Smatanová, P. Kučera, M. Kolník, E. Štubňová; 6 micro-localities, verification of data recorded by P. Novosadová from 2016 (Novosadová 2017), by J. Smatanová from 2002 – 2015, by Z. Pčolová from 2014, by Velíšek (1992).

Records of occurrence according to J. Němec: Kubrica (2015, 7174b). According to K. Devánová: Šípkov (2015, 7175d). According to D. Dítě: Trebičava (1998, 7175d). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Čierna Lehota (2003, 7175b), Valaská Belá (2003, 7075d), Ilava (2003, 7075b), Čičmany (2003, 7077a). According to Lajcha (2008): Opatová nad Váhom (2007, 7074d, 7174b). According to the list of records from Floristic contribution from the central part of Strážovské vrchy Mountains (Janišová et al. 2004): Valaská Belá, Čavoj (2002, 7076c, 7176a, 7176b). According to T. Figura: Valaská Belá (2015, 7176a). According to M. Duchoň: Dolná Poruba (2014, 7075d). According to J. Smatanová: Horná Poruba (2017, 7075d), Podskalie (2006, 6976d), Milochoch (2005, 6876c), Horný Moštenec (2000, 6976b), Počarová (2017, 6976b, 6977a), Prečín (2002 – 2017, 6977a), Malé Lednice (2017, 6977b), Bodiná (2018, 6877c). According to S. Uhrin: Rajec (2015, 6977b), Zbýňov (2015, 6877d). According to J. Limánek: Poluvsie nad Rajčankou (2017, 6878c). According to A. Dobošová: Porúbka (2012, 6878a, 6878c). According to Novosadová (2017): Súľov-Hradná (2016, 6877b), Hlboké nad Váhom (2016, 6777d). According to Z. Pčolová: Závodie (2014, 6778c).

Malaxis monophyllos (L.) Sw., NT

Súľov-Hradná; Čierny potok valley; 382; M; M; W; O; I; 19.6.2018; 6877a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; verification of older data recorded by M. Kolník from 1998.

Records of occurrence according to G. Runkovič: Považská Teplá (to 1990, 6877c).

Neotinea ustulata R.M. Bateman, A. M. Pridgeon & M. W. Chase subsp. *aestivalis* (Kümpel) Jacquet et Scappat., EN

Prečín; PA Svarkovica; 380; S; M; S; 1; O; 29.6.2018; 6977a; V. Ruček, J. Smatanová; verification of older data recorded by J. Smatanová from 2010.

In the past, subspecies was not distinguished from *Neotinea ustulata* subsp. *ustulata* (L.) R. M. Bateman, A. M. Pridgeon et M. W. Chase. Late-flowering *Neotinea ustulata* was raised to subspecies status by Kümpel and Mrkvicka (1990). Therefore older records may not be correctly determined.

Records of occurrence according to Lajcha (2008): Opatová nad Váhom (2007, 7174b). According to V. Grulich: Timoradza (1994, 7175c). According to J. Smatanová: Pružina (1999, 6976d), Veľké Košecké Podhradie (2007, 7076a). According to Velíšek (1993): Dolná Poruba (to 1993, 7075d). According to A. Dobošová: Fačkov (2015, 6977d).

Neottia nidus-avis (L.) Rich.

Omšenie; NR Omšenská baba; 450 – 525; H; M; S; 4; S; 12.6.2017; 7075c; V. Ruček; / * Omšenie; Kamenné vráta and Závratie Locality; 566 – 600; H; M; S; O; S; 20.7.2017, 16.7.2018; 7075c; V. Ruček; 2 localities, verification of older data recorded by J. Štěpánek from 2003 (Mertanová and Smatanová 2006) * Valaská Belá; Homôlka hill; 843 – 900; H; S; G; E; 3; S; 21.7.2018; 7075d; V. Ruček; / * Horná Poruba; Vápeč hill; 630 – 750; H; M; W; 35; G; 18.5., 19.5.2018; 7075d; V. Ruček; 3 micro-localities, verification of older data recorded by J. Smatanová from 2002, by L. Hrouda, J. Smatanová, P. Koutecký, V. Grulich from 2003 (Mertanová and Smatanová 2006) * Košecké Rovné; Horná Stredná Settlement; 625; S; S; E; 1; I; 5.6.2017; 7076c; V. Ruček; verification of data recorded by D. Pavlišin from 2013 * Zliechov; 1.3 – 2 km NE of Zliechov village; 740 – 870; H; S, M, G; W; 10; G; 30.5., 20.6.2017, 5.6.2018; 7076b; V. Ruček; 3 micro-localities * Pružina; Strážovská dolina valley; 535 – 775; H; P, M; N; 8; G; 20.6.2017, 4.6.2018; 7076b; V. Ruček; 3 micro-localities * Košecké Rovné; Pusté Locality, 0.5 north of Košecké Rovné village; 600; S; S; 1; I; 4.8.2017; 7076a; V. Ruček; / * Veľké Košecké Podhradie; Podhradská dolina valley, side northern valleys, southern slopes; 375 – 700; H; M, G; S, E; 140; S; 2017, 2018; 7075b, 7076a; V. Ruček; 61 records * Veľké Košecké Podhradie; Stráne hill, 1 km NW of Veľké Košecké Podhradie village; 535; H; G; S; O; G; 26.6.2017; 7075b; V. Ruček; 2 micro-localities * Košeca; Kraví vrch Locality, 1.7 km NWW of Norovica Top; 422; S; S; W; 1; I; 26.6.2017; 7075b; V. Ruček; / * Veľké Košecké Podhradie; Mraznica valley, 0.7 km SWW of Dielec Top; 380; S; S; N; 10; I; 26.6.2018; 6976c; V. Ruček; / * Mojtín; 0.8 km NE of Rakytník Top; 665; S; M; E; 1; I; 24.7.2018; 6976c; V. Ruček; / * Hloža-Podhorie, Beluša; southern and western slopes of Rohatín hill; /; H; G; S, W; T; G; 28.5.2015, 21.7.2017; 6976c; V. Ruček; 2 micro-localities, verification of older data recorded by D. Michalková from 2001 (Michalková 2003) * Beluša; Nad Martovou Locality, 0.4 km west of Belušké Slatiny Settlement; 335; H; S; E; 11; G; 29.6.2018; 6976c; V. Ruček; 2 micro-localities * Beluša; 0.4 km west of Kamenica Top; 405; S; M; W; 1; I; 29.7.2017; 6976a; V. Ruček; / * Bristenné; Bukovina hill, 1.8 km SSE of Bristenné village, near the green-marked hiking trail; 630; S; S; S; 1; I; 30.6.2017; 6977c; V. Ruček; / * Čelková Lehota; 1.2

km SSW of Čelková Lehota village; /; S; M; E; 3; I; 1.7.2017; 6977c; V. Ruček; / * Ďurďové; 0.9 – 1.8 km NE of Ďurďové village; 475 – 510; H; S, M; S; 23; G; 1.7.2017; 6977c; V. Ruček; 2 micro-localities * Jasenové; Hradisko Locality, 0.8 km west of Jasenové village; /; S; G; N; 1; I; 16.7.2017; 6877d; V. Ruček; / * Považská Teplá; 0.9 km NW of Malý Manín Top; 412; S; M; S; 1; I; 12.8.2017; 6876d; V. Ruček; / * Súľov-Hradná; NNR Súľovské skaly; 444 – 650; H; S, M; S, E; T; S; 26.5.2018; 6877a, 6877b; V. Ruček; verification of data recorded by T. Figura from 2015, by P. Smatanová from 2015, by I. Rizman from 2015, by J. Smatanová from 2002, 2005, by D. Dítě from 1999, by A. Cvachová from 1990, by F. Kryška from 1968 – 1987 (Potůček, unpublished data).

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Trenčianske Mitice, Mnichova Lehota (2003, 7174d), Krásna Ves (2003, 7175c), Omšenie (2003, 7175a), Slatinka nad Bebravou, Šípkov, Dolná Poruba (2003, 7175b), Trenčianske Teplice (2003, 7075c), Košeca (2003, 6975d). According to D. Pavlišin: Čavoj (2013, 7176b), Podskalíe (2014, 6976b). According to I. Rizman: Dobrá (2015, 7074d), Bánová (2015, 6878a). According to Lajcha (2008): Opatová nad Váhom (2007, 7074d, 7174b). According to M. Garčár: Dubnica nad Váhom (2015, 7075c). According to the list of records from Floristic contribution from the central part of Strážovské vrchy Mountains (Janišová et al. 2004): Valaská Belá (2002, 7176a, 7176b). According to E. Fajmonová: Čičmany (1995, 7076d), Podmanín (1995, 6876d). According to M. Juříček: Fačkov (2015, 6977d). According to J. Smatanová: Klačno (2017, 7077b), Podskalíe (2017, 6976d), Bodiná (2018, 6877c). According to Rybáriková et al. (1994): Šuja, Rajecká Lesná (to 1994, 6977b). According to A. Dobošová: Rajec (2004, 6977b), Lietava (2004, 6878a). According to D. Dítě: Porúbka (1998, 6878c). According to M. Pirchala: Lietavská Svinná (2013, 6878a). According to Velíšek (1993): Hričovské Podhradie (1993, 677d).

Neotinea tridentata (Scop.) R.M. Bateman, Pridgeon & M.W. Chase, NT

Records of occurrence according to M. Ďurček: Soblahov (2016, 7174b). According to Velíšek (1993) and J. Smatanová: Malé Lednice (1993, 6977b) – frequent crossing with *Orchis militaris*. According to A. Dobošová: Porúbka (2012, 6878c), Turie (2012, 6878a).

Ophrys apifera Huds., VU

Omšenie; NR Omšenská baba; 455 – 470; M; S; S; 9; I; 12.6.2017; 7075c; V. Ruček; verification of older data recorded by Mihálová, J. Vlčko (Dítě 1998).

Records of occurrence according to M. Duchoň (Eliáš Jr. 2015): Slatinka nad Bebravou (2014, 7175d), Šípkov (2014, 7175b).

Ophrys holubyana András., VU

Veľké Košecké Podhradie; side northern valley of Podhradská dolina valley; 430; M; S; S; 5; I; 15.6.2017; 7076a; V. Ruček; verification of older data recorded by J. Smatanová from 2002, 2006, a flowering exemplar was not found in 2018 – probable reason: population dynamics * Veľké Košecké Podhradie; forest steppe of southern slope of

Stupičie hill; 610; S; M; S; 1; I; 22.5.2017; 7076a; V. Ruček; a flowering exemplar was not found in 2018 – probable reason : random flowering exemplar * Pružina; Strážovská dolina valley; 480; M; P; 0; 3; I; 2017, 4.6.2018; 7076b; V. Ruček, J. Smatanová; verification of older data recorded by K. Devánová from 2015, by J. Smatanová from 1999, 2006, by E. Sajverová from 1984 (recorded syn. *Ophrys fuciflora*), by Vačková (1997) from 1996 (recorded syn. *Ophrys holosericea*) * Súľov-Hradná; protection zone of NNR Súľovské skaly; 392; M; S; N; 1; I; 19.6.2018; 6877a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; verification of data recorded by Z. Pčolová from 2017, by J. Smatanová from 1999, 2002, by D. Dítě from 2001, by F. Kryška from 1968 – 1987 (Potůček, unpublished data), by J. Terková, F. Procházka, V. Velíšek from 1978 - 1992 (Velíšek 1992).

Records of occurrence according to K. Rajcová: Peťovka, Petrova Lehota (to 2018, 7174b). According to K. Devánová: Slatinka nad Bebravou (2015, 7175c). According to D. Dítě: Šípkov (1997, 7175b), Čierna Lehota (1999, 7175b, 7176a). According to I. Škodová: Omšenie (2015, 7175a). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Omšenie (2003, 7175b). According to M. Maňák and J. Smatanová: Horná Poruba (2017, 7075d). According to J. Futák: Veľké Košecké Podhradie (1965, 7075b) – recorded as *Ophrys fuciflora*. According to J. Smatanová: Pružina (1999, 6976d), Podskalje (2010, 6976d), Prečín (1999, 2017, 6977a).

Ophrys insectifera L., NT

Omšenie; NR Omšenská Baba; 460; S; M; S; 2; I; 12.6.2017; 7075c; V. Ruček; / * Horná Poruba; NNR Vápeč, below the peak of Vápeč hill; 903; S; G; W; 1; I; 18.5.2018; 7075d; V. Ruček; verification of older data recorded by J. Smatanová from 2002 * Veľké Košecké Podhradie; forest steppe of Podhradská dolina valley; 360 – 825; H; M; G; S; >202; S; G; 2017, 2018; 7076a; V. Ruček, J. Smatanová; 20 micro-localities * Hloža-Podhorie; southern slope of Rohatín hill; 625; S; G; S; 1; I; 28.5.2015; 6976c; V. Ruček; verification of older data recorded by Micháľková (2003) from 2000 – 2002 * Fačkov; 2 km NNE of Fačkov village; 525; S; M; N; 1; I; 13.6.2017; 6977d; V. Ruček, J. Smatanová; / * Počarová; behind the cemetery in Počarová village; 413; S; M; S; 1; I; 24.6.2017; 6977a; V. Ruček; / * Súľov-Hradná; protection zone of NNR Súľovské skaly; 392; M; S; N; O; I; 13.6.2017, 19.6.2018; 6877a; V. Ruček, J. Smatanová, P. Kučera, M. Kolník, E. Štubňová; verification of data recorded by Z. Pčolová from 2014, by J. Smatanová from 1999, 2002, 2006, 2016, by F. Kryška from 1968 – 1987 (Potůček, unpublished data), by V. Velíšek from 1993.

Records of occurrence according to K. Devánová: Rožňová Neporadza (2015, 7174d). According to V. Grulich: Timoradza (1996, 7175c). According to D. Dítě: Krásna Ves (1998, 7175c), Trebichava (1998, 7175d), Porúbka (1999, 6878c). According to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Omšenie (2003, 7175a, 7175b). According to I. Škodová: Omšenie (2015, 7175a). According to E. Fajmonová: Veľké Košecké Podhradie (1995, 7075b), Domaniža (2004, 6977c). According to P. Smatanová: Košecké Rovné (2015,

7076a). According to Vačková (1997), E. Sajverová, D. Dítě: Pružina (1984, 1996, 1999, 7076b). According to J. Smatanová: Podskalje (2000, 2002, 2006, 6976d), Malé Lednice (2002, 6977b), Prečín (2017, 6977a), Bodiná (1999, 2011, 6877c), Záskalje (2007, 6877c), Vrchteplá (1999, 6877c). According to Z. Pčolová: Šuja (2014, 6977b). According to A. Dobošová: Rajec (2012, 6977b), Lietavská Svinná (2016, 6877b). According to Novosadová (2017): Súľov-Hradná (2016, 6877b). According to F. Kryška (Potůček, unpublished data): Hlboké nad Váhom, Hričovské Podhradie (1968 – 1987, 6777d).

Ophrys × devenensis Rchb. f. (*O. holoserica* × *O. insectifera*)

Records of occurrence according to P. Potůček (Velíšek 1992): Súľov-Hradná (1968, 6877a) – a Locality destroyed by landslide after rain in 1969. it was probably a hybrid *Ophrys holubyana* × *insectifera*.

Orchis × canuti Richter (*O. militaris* × *O. tridentata*)

Records of occurrence according to Velíšek (1993), J. Smatanová: Malé Lednice (1993, 2002, 2017, 6977b).

Orchis mascula subsp. *signifera* (Vest) Soó, NT

Dolná Poruba; between Dolná Poruba village and Homôlka hill; 550; M; S; W; 60; I; 20.5.2016; 7075d; V. Ruček; / * Horná Poruba; Kotliny Locality, 1.1 km east of Horná Poruba village; 535 – 571; H; S; M; W; 73; I; 18.5.2018; 7075d; V. Ruček; verification of older data recorded by J. Smatanová from 2006 * Košecké Rovné; Stredniarská dolina valley, Horná and Dolná Stredná Settlement, Kržlenica Locality; 455 – 630; H; S; M; E; S; 26; G; 30.5., 5.6.2017; 7076a, 7076c; V. Ruček; 3 localities, verification of data recorded by P. Smatanová from 2015 and by J. Smatanová from 2005, 2007 * Košecké Rovné; behind the cemetery in Košecké Rovné village; 560; S; S; N; 2; I; 2.6. – 5.6.2017; 7076a; J. Smatanová, V. Ruček; / * Zliechov, Čičmany; NNR Strážov, a peak of Strážov hill; 1185 – 1205; H; S; E; 22; G; 20.6.2017, 4.6.2018; 7076b; V. Ruček; verification of older data recorded by J. Smatanová from 2002 * Veľké Košecké Podhradie; Tuchyňa valley; 400; S; M; E; 1; I; 7.5.2017; 7076a; V. Ruček; / * Pružina; Hrubá Kačka hill, Samostrel Meadow; 900; M; S; N; 8; I; 4.6.2015; 7077a; V. Ruček; / * Hloža-Podhorie; 0.9 km east of Dielec Top; 400; M; S; M; N; 20; I; 12.5.2018; 6976c; V. Ruček; / * Čelková Lehota; 0.8 km NEE of Briestenné village, near the third class road; 500; M; S; E; T; I; 25.5.2016; 6977c; V. Ruček; / * Podmanín; 0.5 km SSW of Manínek Top; 455; S; S; 1; I; 11.6.2017; 6876d; V. Ruček; / * Vrchteplá; north of Vrchteplá village, near the red-marked hiking trail; 575 – 605; H; S; S; 16; G; 26.5.2018; 6877c; V. Ruček; 2 micro-localities, verification of data recorded by P. Smatanová from 2015 * Súľov-Hradná; Čierny potok valley, near the red-marked hiking trail; 385; M; S; N; 3; S; 13.6.2017; 6877a; V. Ruček, J. Smatanová; verification of data recorded by P. Smatanová from 2015, by Z. Pčolová from 2014, by J. Smatanová from 2002, 2006, by Velíšek (1993) from 1992 * Súľov-Hradná; NNR Súľovské skaly, near the yellow-marked hiking trail; 450; S; P; S; 1; I; 26.5.2018; 6877b; V. Ruček; /

Records of occurrence according to Lajcha (2008): Opatová nad Váhom (2007, 7074d). Accord-

ing to P. Smatanová: Dubnica nad Váhom (2015, 7075c). According to D. Galvánek: Dolná Poruba (2003, 7175b). According to J. Smatanová: Čičmany (2017, 2018, 7077c), Klačno (2004, 7077b), Fačkov (2004, 7077b), Pružina, Podskalie (2000, 6976d), Zemianský Kvášov, Horná Moštenec (2000, 6976b), Milochov (2005, 6876c), Počarová, Prečín (2017, 6977a), Bodiná (2018, 6877c), Súľov-Hradná (1999, 6877d). According to S. Uhrin: Malá Čierna (2015, 6877d). According to Rybáriková *et al.* (1994): Rajec (to 1993, 6977b). According to A. Dobošová: Lietavská Svinná (2004, 6877b, 6878a), Porúbka (2012, 6878c), Závodie (2003, 6778c). According to A. Beňová: Hlboké nad Váhom (2004, 6777c, 6777d). According to Velisek (1993): Lietavská Svinná (1993, 6878c).

Orchis militaris L., NT

Omšenie; 1.1 km south of Omšenie village; 425; M; S; N; O; S; 12.6.2017; 7175a; V. Ruček; / * Zliechov; 1.8 km NNE of Zliechov village, near the green-marked hiking trail; 745; M; S, M; S; 97; I; 30.5.2017; 7076b; V. Ruček, J. Smatanová; / * Veľké Košecké Podhradie; Podhradská dolina valley, side northern valleys, Tuchyňa valley and under Malá Šimerka Locality; 381 – 445; H; S; S; 165; G; 5.6.2017, 11.5.2018; 7076a; V. Ruček; 2 localities, verification of older data recorded by J. Smatanová from 2002, 2006, by E. Fajmonová from 1995 * Hloža-Podhorie; 0.8 km east of Dielec Top; 390; M; M; N; 15; I; 12.5.2018; 6976c; V. Ruček; / * Podskalie; 0.3 km NE of Podskalie village, above the green-marked hiking trail; 375; M; M; E; T; I; 24.5.2016; 6976d; V. Ruček; / * Prečín; PA Svarkovica; 375; M; M; S; O; I; 25.5.2016, 2017; 6977a; V. Ruček, J. Smatanová; verification of data recorded by T. Figura from 2015, by Z. Pčolová from 2014, by J. Smatanová from 2002, 2006, by E. Fajmonová from 1995 * Vrchteplá; north of Vrchteplá village, near the red-marked hiking trail; 575; S; S; S; 1; I; 26.5.2018; 6877c; V. Ruček; / * Súľov-Hradná; protection zone NNR Súľovské skaly; 392; M; S; N; O; I; 13.6.2017; 6877a; V. Ruček, J. Smatanová; verification of data recorded by J. Smatanová from 2002, 2006, 2016, by Velisek (1992) from 1992, 1984.

Records of occurrence according to V. Grulich: Timoradza (1994, 7175c). According to K. Devánová: Rožňová Neporadza (2014, 7174d), Krásna Ves (2015, 7175c). According to M. Duchoň: Slatina nad Bebravou (2014, 7175d). According to D. Dítě: Trebichava (1998, 7175d). According to Local Territorial System of Ecological Stability of Trenčín town from 1998: Trenčín (to 1998, 7174a). According to D. Galvánek: Dolná Poruba (2003, 7175b). According to Lajcha (2008): Opatová nad Váhom (2007, 7074d). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Moutains (Janišová *et al.* 2004): Valaská Belá (2002, 7176b). According to S. Mertanová: Omšenie (2009, 7075c). According to J. Smatanová: Horná Poruba (2006, 7075d), Počarová, Prečín (2017, 6977a), Malé Lednice (2017, 6977b), Hrabové – NNR Súľovské skaly (2002, 6877b). According to E. Fajmonová: Čelková Lehota, Sádočné, Domaníža (2004, 6977c). According to A. Dobošová: Rajecká Lesná (2015, 6977d), Lietavská Svinná (2004, 6877b). According to S. Uhrin: Rajec, Šuja (2015, 6977b), Zbyňov (2015, 6877d). Accord-

ing to F. Kryška (Velisek 1992): Hlboké nad Váhom, Hričovské Podhradie (1969, 6777d). According to Velisek (1993): Lietavská Svinná (1993, 6878c).

Orchis pallens L., NT

Horná Poruba; 1.3 km NW of Vápeč Top; 540 – 555; M; M; W; 20; I; 18.5.2018; 7075d; V. Ruček; / * Veľké Košecké Podhradie; Podhradská dolina valley, southern slopes of Stupičie, Pancier, Skalica hill and Dúbravy Locality; 375 – 825; H; S, M, G; W, S, E; H; G; 2017, 2018; 7076a; V. Ruček, J. Smatanová; 7 micro-localities, verification of older data recorded by J. Smatanová from 2002 and by E. Fajmonová from 1995 * Beluša; Belušské Slatiny Settlement, under Jelenia skala Rock; 340 – 375; H; S, M; S; H; G; 16.4.2019; 6976c; V. Ruček, O. Roučka; verification of data recorded by O. Roučka * Súľov-Hradná; Čierny potok valley, NNR Súľovské skaly; 395; S; M; N; 2; I; 13.6.2017; 6877a; V. Ruček, J. Smatanová; /.

Records of occurrence according to I. Škodová: Trenčianske Mitice (2014, 7174d), Kubrica (2014, 7174b). According to Lajcha (2008): Opatová nad Váhom (2007, 7074d). According to J. Smatanová: Prejta (2017, 7075c), Košecké Rovné (2007, 2005, 7076c), Trstie (2000, 6976c), Milochov (2005, 6876c), Počarová (2000, 6976b, 6977a), Prečín (2017, 2000, 6977a), Záskanie (2017, 6877c), Súľov-Hradná (2017, 6877b). According to M. Dudáš (Eliáš 2015): Košecké Rovné (2013, 7076a). According to E. Fajmonová: Veľké Košecké Podhradie (1995, 7075b). According to H. Kubišová: Podskalie (2019, 6976d). According to Rybáriková *et al.* (1994): Rajec (to 1994, 6977b). According to M. Pepichová: Podmanín (2006, 6876d). According to P. Smatanová: Vrchteplá (2015, 6877c). According to A. Dobošová: Rajecké Teplice (2003 6878c). According to Novosadová (2017): Súľov-Hradná (2016, 6877b). According to F. Kryška (Potůček, unpublished data): Hlboké nad Váhom, Hričovské Podhradie, Dolný Hričov (1968 – 1980, 6777d).

Orchis spitzelii Saut. ex W.D.J.Koch., EN

Orchis spitzelii was first found in Malá Fatra Moutains in 1988 (Čačko 1990) and in 2006 it was also found by B. Machciník in Strážovské vrchy Mounatins. Records of occurrence according to V. Ruček, J. Smatanová: Malá Fatra (2017, 7078a). According to J. Smatanová, B. Machciník: Klačno (2017, 7077b).

Orchis × loreziana Brügger (*Orchis mascula* subsp. *signifera* × *O. pallens*)

Records of occurrence according to F. Kryška (Potůček, unpublished data): Súľov-Hradná (1968 – 1980, 6877a, 6877b). According to Velisek (1993): Kostolec (1993, 6877c). According to M. Kolník: Súľov-Hradná (1999 – 2002, 6877b).

Platanthera bifolia (L.) Rich, LC

Dolná Poruba; 1 km SSE of Česaná hora Top, near the blue-marked hiking trail; 750; S; G; E; 1; I; 1.8.2017; 7175b; V. Ruček; / * Omšenie; NR Žihlavník, 0.8 km NNW of Žihlavník Top; 820; S; G; N; 1; I; 1.8.2017; 7175a; V. Ruček; / * Omšenie; NNM Lánce; 430; S; M; N; 2; I; 12.6.2017; 7175a; V. Ruček; verification of older data recorded by S.

Mertanová and I. Škodová from 2003 (Mertanová and Smatanová 2006) * Omšenie; above Baračka near the educational trail; 325 – 475; H; G; E; O; S; 16.7.2018; 7075c; V. Ruček; / * Omšenie; NR Omšenská Baba and the peak of Michalová hill; 450 – 610; H; S; M; S; 28; G; 12.6.2017; 7075c; V. Ruček; 3 micro-localities * Dolná Poruba; 0.7 km east of Slopský vrch Top, near the red-marked hiking trail; 595 – 625; M; S; E; 3; S; 20.7.2017; 7075d; V. Ruček; / * Horná Poruba; NNR Vápeč, the western foothills of Vápeč hill, near red-blue-marked hiking trail on NE ridge; 480 – 900; H; S; M; G; W; T; S; 1.8.2018, 18.5.2018; 7075d, 7076c; V. Ruček; verification of data recorded by J. Smatanová from 2014, 2006, 2002, 2001, by V. Grulich from 2003, by A. Cvachová from 1983 * Košecké Rovné; Strednianska dolina valley; 430 – 575; H; P; M; S; 10; G; 9.6.2017; 7076a, 7076c; V. Ruček; 3 localities * Košecké Rovné; behind the cemetery in Košecké Rovné village; 575; S; M; N; 2; I; 5.6.2017; 7076a; V. Ruček; / * Zliechov; NNR Strážov, 1.3 km NNW of Strážov Top; 775; M; M; S; 3; S; 18.6.2017; 7076d; V. Ruček; verification of data recorded by J. Němec from 2015 * Zliechov; 1.7 km NE of Zliechov village, NNR Strážov; 790 – 825; H; M; W; 17; G; 2017, 2018; 7076b; V. Ruček; verification of older data recorded by J. Smatanová from 2006, by J. Košťál, P. Koutecký, J. Kochjarová from 2003 (Mertanová and Smatanová 2006) * Čičmany; NNR Strážov, the peak of Strážov hill; 1201; S; S; E; 1; I; 4.6.2018; 7076b; V. Ruček; / * Pružina; Strážovská dolina valley; 475 – 1062; H; P; S; G; N; 63; G; 20.6.2017, 4.6., 5.6.2018; 7076b; V. Ruček; 6 micro-localities, verification of data recorded by K. Devánová from 2015, by J. Smatanová from 2014, 2006, 2002, by Vačková (1997) from 1996, by E. Fajmonová from 1995 * Košecké Rovné; the southern slopes of Gáabrišské vrch hill; 550 – 860; H; G; S; O; S; 27.7.2017; 7076a, 7076b; V. Ruček; / * Veľké Košecké Podhradie; Podhradská dolina valley, southern slopes and side valley; 370 – 830; H; S; M; G; S; 126; S; 2017, 2018; 7076a; V. Ruček; verification of older data recorded by M. Pirchala from 2014, by J. Smatanová from 2002, by E. Fajmonová from 1995 * Mojtín; near the Stará Mojtínska jaskyňa Cave; 570; S; G; W; 1; I; 5.6.2018; 7076b; V. Ruček; / * Mojtín; west of Mojtín village, Tretie vráta Gorge – Smetlička, Vříšky Locality, Suchý vrch hill; 591 – 800; H; M; G; S; T; G; 31.7.2017, 24.5., 19.7.2018; 7076a; V. Ruček; 3 localities * Veľké Košecké Podhradie; Mraznica valley, 1.7 km NW of Dielec Top; 450 – 520; H; G; S; O; S; 26.6.2018; 7076a, 6976c; V. Ruček; / * Hloža-Podhorie; southern slopes of Rohatín hill; 430 – 650; H; M; G; S; T; G; 2015, 2017; 6976c; V. Ruček; verification of data recorded by Michalková (2003) from 2002 * Pružina; Rečica valley; 472; S; P; W; 1; I; 2.7.2017; 7076b; V. Ruček; / * Čelková Lehota; south and west of Čelková Lehota village; 500 – 630; H; S; M; N; E; T; G; 2015, 2017; 6977c; V. Ruček; scattered throughout the territory, verification of older data recorded by E. Fajmonová from 2004 * Briestenné; NM Briestenské skaly; 440; M; S; G; S; 30; I; 30.6.2017; 6976d; V. Ruček * Hloža-Podhorie; under Tlstá hora hill, Kavčia Rock; 375 – 540; H; M; S; E; 25; S; 1.6.2014, 3.8.2017; 6976c; V. Ruček; 2 localities * Beluša; Filipová kopanica Locality, 0.9 km east of church in Belušské Slatiny; 420; S; P; O; 4; I;

28.6.2017; 6976c; V. Ruček; / * Ďurďové; the eastern half of the cadastral area; 490 – 675; H; S; /; O; S; 1.7., 2.7.2017; 6 977c; V. Ruček; 5 micro-localities * Beluša; Kamenica hill; 375 – 420; H; S; E; O; S; 29.7.2017; 6976a; V. Ruček; verification of older data recorded by D. Michalková from 2004 * Fačkov, Rajecká Lesná; 1.9 km NNE of Fačkov village, near the first class road; 425; M; S; W; O; S; 13.6.2017; 6977d; V. Ruček; / * Bodiná; 1.2 km SWW of Vysoký vrch Top; 480; S; M; W; 1; I; 9.8.2018; 6877c; V. Ruček; verification of older data recorded by J. Smatanová from 1999, by E. Fajmonová from 1995 * Jasenové; valley between Jasenové and Malá Čierna village; 470 – 500; H; S; E; O; S; 16.7.2017; 6877d; V. Ruček; / * Považská Teplá; the western foothills of Veľký Manin hill; 392 – 525; H; S; M; W; 9; S; 14.7.2018; 6876d; V. Ruček; 4 micro-localities * Vrchteplá; the ridge of Vodičná hill and Čierny potok valley; 595 – 765; H; S; M; S; O; S; 23.7.2017, 26.5.2018; 6877c; V. Ruček; 3 micro-localities, verification of data recorded by P. Smatanová from 2015 * Súľov-Hradná; NNR Súľovské skaly, protection zone, Čierny potok valley; 366 – 534; H; P; S; M; G; N; E; S; 40; S; 2017, 2018; 6877a; V. Ruček; verification of data recorded by Novosadová (2017) from 2016, by J. Smatanová from 2016, 2006, 2002, by P. Smatanová from 2015, by M. Pirchala, by Z. Pčolová from 2014, by V. Velisek from 1993, by F. Kryška from 1968 – 1980 (Potůček, unpublished data) * Lietavská Lúčka; 1.2 km east of Lietava village; 388; S; P; O; 1; I; 1.9.2018; 6878a; V. Ruček; / * Mikšová; in close proximity to the Hričovský kanál Canal near Beňov Settlement; 290; M; P; O; T; I; 1.8.2018; 6876b; V. Ruček and M. Kolník; /

Records of occurrence according to the list of records from Floristic course Pruské 2003 (Mertanová and Smatanová 2006): Mnichová Lehota, Trenčianske Mitice (2003, 7174c, 7174d), Opatová nad Váhom (2003, 7174b), Prejta, Ilava (2003, 7075a, 7075b), Košeca (2003, 6975d). According to D. Dítě: Krásna Ves (1998, 7175c), Trebichava (1998, 7175d). According to K. Rejšek: Dobrá (2004, 7074d), Trenčianska Teplá (2004, 7074d). According to K. Devánová: Soblahov (2014, 7174b). According to Lajcha (2008): Opatová nad Váhom (2007, 7074d). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mts (Janišová *et al.* 2004): Valaská Belá (2002, 7176a), Temeš, Čavoj (2002, 7176b), Prejta (2003, 7075a). According to A. Dobošová: Fačkov (2018, 7077a, 7077b), Rajecká Lesná (2015, 6977d), Zbyňov (2002, 6977b). According to D. Pavlišin: Malé Košecké Podhradie (2014, 7075b), Podskalje (2014, 6976b). According to J. Smatanová: Čičmany (2018, 7077c), Počarová, Prečín (2016, 2017, 6977a). According to S. Štefaniková: Dolný Moštenec (2018, 6976b). According to Z. Pčolová: Rajec (2014, 6977b). According to M. Duchoň: Poluvsie nad Rajčankou (2014, 6878c). According to Novosadová (2017): Súľov-Hradná (2016, 6877b). According to F. Kryška (Potůček, unpublished data): Hričovské Podhradie (1968 – 1980, 6777d).

Platanthera chlorantha (Custer) Rchb., NT
Omšenie; NM Havránkovský potok; 395; S; P; O; 1; I; 2.8.2017; 7175a; V. Ruček; / * Omšenie; NNM Lánce; 430; S; S; N; 1; I; 12.6.2017; 7175a; V. Ruček; / * Omšenie; NR Omšenská baba; 450 - 475;

M; S, M; S; 13; I; 12.6.2017; 7075c; V. Ruček; / * Veľký Kolačín; 0.8 km south of Markovica Top; 440; S; S; S; 1; I; 16.7.2018; 7075c; V. Ruček; / * Omšenie; NP Havránkovský potok; 395; S; P; 0; 1; I; 2.8.2017; 7175a; V. Ruček; / * Dolná Poruba; 1 km east of Slopský vrch Top, near the red-marked hiking trail; 595; S; S; S; 1; I; 20.7.2017; 7075d; V. Ruček; / * Horná Poruba; 1.2 km SW of Vápeč Top, near the red-marked hiking trail; 512; S; S; W; 1; I; 18.7.2018; 7075d; V. Ruček; / * Košecké Rovné; Dolná Stredná Settlement; 472; S; S; N; 1; I; 19.6.2018; 7076a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; verification of data recorded by P. Smatanová from 2014, by J. Smatanová from 2000 * Zliechov; 1.2 – 1.8 km NNW of Strážov Top, NNR Strážov; 715 – 760; H; S; M; S; 7; S; 18.6.2017, 23.6.2018; 7076d; V. Ruček; / * Zliechov; 1.4 – 2.2 km NE of Zliechov village; 760 – 800; H; S; W; S; 34; G; 20.6.2017, 5.6.2018; 7076b; V. Ruček; 3 micro-localities, verification of data recorded by J. Smatanová from 2014 * Pružina; Strážovská dolina valley; 440 – 625; H; P, S; N; 12; S; 20.6.2017, 4.6.2018; 7076b; V. Ruček; 5 micro-localities, verification of data recorded by K. Devánová from 2015, by E. Sajverová from 1984 * Veľké Košecké Podhradie; Podhradská dolina valley, southern slopes and side valley; 355 – 690; H; P, S, M; S; 17; S; 2017, 2018; 7076a; V. Ruček; 4 localities, verification of older data recorded by E. Fajmonová from 1997 * Košeca; Beňová Localities, 2.3 km NE of Košeca church; 320; M; S; W; 6; S; 26.6.2017; 7075b; V. Ruček; verification of older data recorded by K. Boublík (Mertanová and Smatanová 2006) * Hloža-Podhorie; 0.7 km north of Dielec Top; 355; S; P; 0; 1; I; 26.6.2018; 6976c; V. Ruček; / * Beluša; Filipová kopanica Locality, 0.9 km east of Belušské Slatiny church; 420; S; P; 0; 11; I; 28.6.2017; 6976c; V. Ruček; 98 cm high exemplars * Tístie; Jaseňová valley, 0.9 km NNE of Tupý hrádok Top; 450; S; M; E; 1; I; 24.7.2018; 6976d; V. Ruček; / * Bristenné; 1.2 km NW of Bristenné village; 495; S; P; 0; 1; I; 30.6.2017; 6976d; V. Ruček; / * Ďurďové; 0.8 km NNE of Bristenné village; 520; S; S; W; 5; I; 30.6.2017; 6977c; V. Ruček; / * Sádočné; 1 km NE of Čelková Lehota village; 440; S; S; N; 1; I; 1.7.2017; 6977c; V. Ruček; / * Fačkov; 2.1 km NE of Fačkov village; 560; S; M; N; 1; I; 13.6.2017; 6977d; V. Ruček, J. Smatanová; / * Prečín; PA Svarkovica; 380 – 390; M; M; S; O; S; 29.6.2018; 6977a; / * Súľov-Hradná; 1.5 km SSW of Hradná village; 560; S; S; N; 1; I; 9.8.2018; 6877d; V. Ruček; / * Vrchteplá; 1.6 km north of Vrchteplá Top, near the red-marked hiking trail; 600; S; S; S; 1; I; 26.5.2018; 6877c; V. Ruček; verification of data recorded by P. Novosadová from 2016 * Súľov-Hradná; protection zone NNR Súľovské skaly, Čierny potok valley; 370 – 410; H; P, S; N; O; S; 13.6.2017, 19.6.2018; 6877a; V. Ruček, J. Smatanová, P. Kučera, M. Kolník, E. Štubňová; verification of data recorded by Novosadová (2017) from 2016, by P. Smatanová from 2015, 2014, by J. Smatanová from 2006, 2002.

Records of occurrence according to K. Olšavská: Trenčianske Mítice (2003, 7174d). According to S. Mertanová: Peťovka, Petrová Lehota (2003, 7174b). According to V. Grulich: Timoradza (1994, 7175d). According to Štepanková: Slatina nad Bepravou (1994, 7175d). According to D. Galvánec: Šípkov (2002, 7175b). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mountains (Janišová *et al.* 2004):

Valaská Belá (2002, 7176a, 7176b, 7076c). According to P. Smatanová: Horná Poruba 2014, 7075d), Kopec (2015, 7076c). According to K. Prach (Mertanová and Smatanová 2006): Ladce (2003, 6975d). According to J. Smatanová: Visolaje (2001, 6976a), Podskalie (2006, 6976b). According to J. Limánek: Fačkov (2017, 6977d). According to A. Dobošová: Šuja, Rajecká Lesná (2018, 6977b). According to Novosadová (2017): Súľov-Hradná (2016, 6877b), Hlboké nad Váhom (2016, 6777d). According to Velisek (1993): Lietavská Svinná (1993, 6878a). According to Z. Pčolová: Závodie (2014, 6778c).

Platanthera ×hybrida Brügger (*P. chlorantha* × *P. bifolia*)

Košecké Rovné; Dolná Stredná Settlement; 470; S; S; N; 1; I; 19.6.2018; 7076a; V. Ruček, P. Kučera, M. Kolník, E. Štubňová; / * Beluša; Filipová kopanica Locality, 0.9 km east of Belušské Slatiny church; 420; S; P; 0; 4; I; 28.6.2017; 6976c; V. Ruček; /.

Records of occurrence according to B. Trávníček (Mertanová and Smatanová 2006): Veľký Kolačín (2003, 7075c). According to J. Smatanová: Horná Poruba (2006, 7075d), Záskanie, Kostolec (1999, 6877c), Súľov-Hradná (2002, 6877a). According to E. Fajmonová: Veľké Košecké Podhradie (1997, 7076a).

Traunsteinera globosa (L.) Rchb., NT

Košecké Rovné; Strednianská dolina valley, Strednianské lúky Meadows, Kržlenica Locality, Horná and Dolná Stredná Settlement; 460 – 655; H; S, M; N; 48; G; 30.5., 5.6.2017; 7076a, 7076c, 7076c; V. Ruček, J. Smatanová; 4 localities, by P. Smatanová from 2015 * Košecké Rovné; behind the cemetery in Košecké Rovné village; 565; M; M; N; 5; I; 2.6., 5.6.2017; 7076a; V. Ruček, J. Smatanová; / * Zliechov, Čičmany; NNR Strážov, near the hiking trail between the upper and lower meadows below the peak of Strážov hill; 1135 – 1200; H; P, M; W, E; 9; G; 20.6.2017, 5.6.2018; 7076b; V. Ruček; verification of data recorded by J. Smatanová from 2010, by J. Košťál and J. Kochjarová from 2003 (Mertanová and Smatanová 2006), by E. Fajmonová from 1995.

Records of occurrence according to D. Galvánec: Dolná Poruba (2003, 7175b, 7075d). According to K. Rejšek: Dobrá (2004, 7074d). According to Lajcha (2008): Opatová nad Váhom (2007, 7174b). According to the list of records from Floristical contribution from the central part of Strážovské vrchy Mountains (Janišová *et al.* 2004): Čavoj (2002, 7176b). According to M. Duchoň: Valaská Belá (2014, 7075d). According to P. Smatanová: Horná Poruba (2015, 7075d). According to J. Smatanová: Dubnica nad Váhom (2017, 7075c), Horná Poruba (2001, 7075d), Podskalie (2010 6976d), Prečín (2006, 6977a). According to P. Merea Jr.: Dubnica nad Váhom (1998, 7075d). According to A. Dobošová: Fačkov (2015, 6977d), Šuja, Rajec (2012, 6977b). According to I. Kalafusová: Vrchteplá (2005, 6877c). According to Velisek (1993): Jablonové (1993, 6877a).

Other Orchids from the south part of Strážovské vrchy Mountains

Orchis purpurea Huds., NT

The species is reported in thermophilous forest communities of the southern part of Strážovské

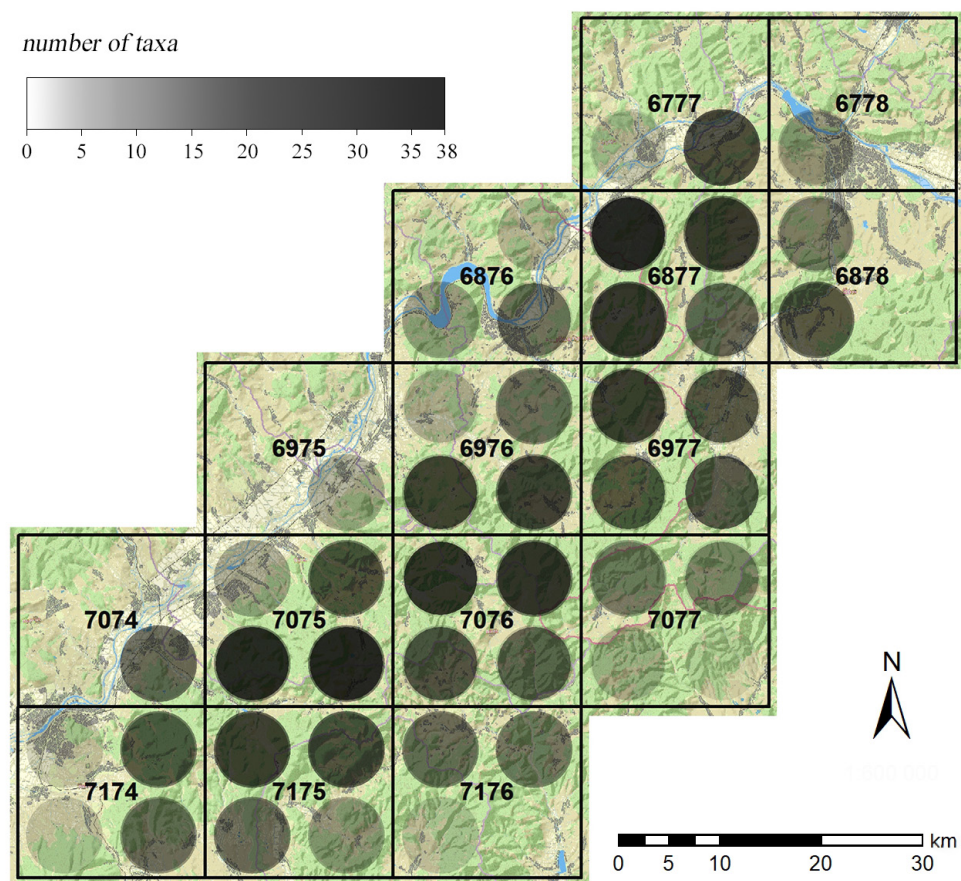


Fig. 2. Species diversity of the family *Orchidaceae* by map quadrants. Includes current and historical findings of 65 taxa. The largest number of taxa is in the darkest dots 7075c, 7075d, and 6877a. there are 35 - 38 taxa / quadrant.

vrchy Moutains (Skořepa 2005), specifically in the Kňaží stôl and Malá Magura Subunits (Štátna ochrana prírody SR 2014).

Pseudorchis albida (L.) Á.Löve & D.Löve, NT
Leucorchis albida (syn.) was recorded in the area of Rokoš hill (Futák 1960). The species is considered to be missing in this area.

Anacamptis pyramidalis (L.) Rich., VU
According to S. Benedikt and J. Raisová (Eliáš 2012): Uhrovské Podhradie (2011, 7276b).

Discussion

A total of 65 taxa of the family *Orchidaceae* (54 species and 11 hybrids) were recorded in the study area, taking into consideration historical and present botanical occurrence. Of these, 57 were verified and found in 2010 – 2018. Eight taxa were not confirmed: *Limodorum abortivum*, *Epipogium aphyllum* and rare hybrids of the genus *Epipactis*, *Ophrys* and *Orchis*. This may be due to climatic conditions or population dynamics.

Súľovské skaly NNR has been called an orchid paradise since the second half of the 20th century (Potůček and Kryška 1975). A systematic survey of orchids has been undertaken in this area since 1968 and therefore the evolution of the number of species is best demonstrated in this area. Accord-

ing to the list of species and hybrids found by F. Kryška between 1968 – 1987, there were 34 taxa in the area of Súľovské skaly (Potůček, unpublished data). There are reported findings of *Epipactis hel-leborine* subsp. *viridis* and *Gymnadenia conopsea* subsp. *montana*, whose taxonomic value is questionable (Mereďa Jr. 2010). These are not currently on the list of orchids found in Slovakia. It is likely that *Epipactis leptochila* (Godfery) Godfery was also incorrectly reported. According to Mereďa Jr. (2002), this species does not occur in the studied area, and was likely *Epipactis komoricensis* (Mereďa 1996b), *E. neglecta* or another species not yet described from the *Epipactis leptochila* aggregate. Some localities of occurrence no longer exist, and may have disappeared due to afforestation, intensive grazing or absence of extensive grazing and subsequent natural succession (Potůček, unpublished data). *Dactylorhiza sambucina*, *Ophrys* × *devensis*, *Orchis morio*, *Ophrys cornuta* (artificially planted) have been absent for several years, and it is like they they are extinct or are present in a new locality. Following taxonomic revision of some species, the number of species increased in the Súľovské vrchy Mountains. *Dactylorhiza fuchsii* subsp. *fuchsii* was separated from *Dactylorhiza maculata* agg. *Epipactis pseudopurpurata* began to differ from *Epactis purpurata*. Súľovské skaly drew many botanists who produced new findings for the area, such as *Dactylorhiza fuchsii* subsp. *sooana*, *Epipactis albensis*, *E. komoricensis*, *E. neglecta*, *E.*

pseudopurpurata, *Gymnadenia densiflora* and *Malaxis monophyllos*. According to the current list of orchids (Vlčko *et al.* 2003), we can say that in the years 1968 – 1987 there were 32 species in the area of Súľovské skaly. Between 1987 and 2018, nine new taxa were found. In the last century, 4 taxa became extinct (Potůček, unpublished data) and in 2010 – 2018 *Orchis ×loreziana*, *Platanthera ×hybrida*, *Dactylorhiza majalis*, *Epipogium aphyllum*, *Traunsteinera globosa* were no longer found.

During the growing season in 2017 and 2018, about 8000 predominantly flowering examples of 48 taxa were recorded in 2021 localities/ micro-localities by our own field survey. New localities of some species of orchid were also discovered during this period. Among the most interesting are the presence of *Cephalanthera longifolia* at two locations in the Strážovské vrchy Mountains; *Dactylorhiza incarnata* at one locality in Strážovské vrchy Mountains; *Epipactis albensis* at 11 localities in all studied geomorphological units, which is a new species for the Žilinská kotlina Basin; and *Epipactis komoricensis* at 2 localities in Strážovské and Súľovské vrchy Mountains. *Epipactis leptochila* agg. was present at 5 surveyed localities near both mountains; *Epipactis leutei* at 5 localities near both Mountains. Although this species has not yet been published in the territory, P. Mereda Jr. mentions its occurrence. *Epipactis microphylla* was found at 17 localities at both Mountains; *Epipactis muelleri* at 14 localities in both Mountains; *Epipactis pseudopurpurata* at two localities in the Strážovské vrchy Mountains; and *Epipactis ×merediorum* was found in one location in the Strážovské vrchy Mountains. Information on the occurrence of this hybrid in the territory of Slovakia has not yet been published. *Gymnadenia densiflora* was present in 5 localities including both Mountains and the Žilinská kotlina Basin. *Ophrys holubyana* was found in one location in the Strážovské vrchy Mountains. *Ophrys insectifera* was present at 3 localities in both Mountains, and *Platanthera ×hybrida* at two localities in Strážovské vrchy Mountains. The occurrence of *Dactylorhiza fuchsii* subsp. *fuchsii*, *D. fuchsii* subsp. *sooiana*, *D. incarnata* subsp. *incarnata*, *D. viridis*, *Dactylorhiza ×braunii*, *Epipactis futakii*, *E. greuteri*, *E. komoricensis*, *E. placentina*, *E. pontica*, *E. pseudopurpurata*, *E. tallosii*, *Goodyera repens*, *Gymnadenia odoratissima*, *Gymnadenia ×intermedia*, *Herminium monorchis*, *Malaxis monophyllos*, *Neotinea ustulata* subsp. *aestivalis*, *Ophrys apifera*, *Ophrys holubyana*, *Traunsteinera globosa* was confirmed at known localities.

Significant population dynamics of some taxa could be observed even during the two growing seasons in which intensive exploration took place. For example, in Podhradská dolina valley in Strážovské vrchy Mountains there were 30 occurrences. *Ophrys insectifera* on one microlocalite during the 2017 growing season, but non observed the following year. Similarly, there were five examples of *Ophrys holubyana* observed in 2017 in two micro-localities in Podhradská dolina valley, but none in 2018. We also recorded a decrease in the number of *Traunsteinera globosa* in Strednianska dolina valley and at the top of Strážov hill in the Strážovské vrchy Mountains. The most likely cause of a small number of flowering exemplars is the ex-

tremely dry spring season in 2018, which accelerated the growing season including the time of flowering by approximately two weeks. In the highest parts of Strážov hill in 2017, the flowering of *Traunsteinera globosa* occurred in the third week of July, while in 2018 it occurred in the first week of July. Due to this shift, it was necessary to adapt summer field survey dates. The drought was reflected in the condition of flowers, imperfect development of flower organs, more frequent kleistogamous flowering, as well as the drying of buds, and thus, it was more difficult to determine species in the troubled *Epipactis* genus. Conversely, 2018 was characterized by successful „floodplain orchids“, which corresponds to a number of new localities.

The number of orchid taxa in each geomorphological unit and in close proximity is as follows: Strážovské vrchy Mountains (945 km²) – 52 species (including three species from the southern part of the mountain range outside the studied area) and eight hybrids. Súľovské vrchy Mountains (200 km²) – 45 species and four hybrids, Považské Podolie Basin - east part of the river Váh (240 km²) – 12 species, Žilinská kotlina Basin - west part of the river Rajčianka (125 km²) – 23 species. For comparison, the Nízke Tatry National Park with an area of 1830 km² has 49 taxa on the list (Dítě and Jasík 2009), Malé Karpaty Mountains has 48 taxa, Biele Karpaty Mountains has 55 taxa (Mráz 2003; Somlyay 2010; Figura 2013; Figura 2014; Dítě 2005; Wild *et al.* 2019).

According to the diversity map (Fig. 2), map quadrants to the west with lowland relief exhibit 1 – 6 species. The southern edge shows a lack of data, so the diversity map may not be accurately expressed. The greatest diversity is concentrated in quadrants 7075c, 7075d and 6877a where 35 – 38 taxa occur. This is a very rugged conservation area with diverse habitats (forest and non-forest) in the vicinity of Omšenie, Horná Poruba, Súľov-Hradná Village, Veľký and Malý Manín Hill.

Species recorded

List of species occurring in the study area sorted by threat level (Eliáš *et al.* 2015):

Critically Endangered (CR)

Herminium monorchis.

Endangered (EN)

Epipactis futakii, *E. greuteri*, *E. leutei*, *E. placentina*, *Himantoglossum adriaticum*, *Orchis spitzelii*.

Vulnerable (VU)

Anacamptis pyramidalis, *Ophrys apifera*, *O. holubyana*, *Epipactis neglecta*, *E. pseudopurpurata*.

Near Threatened (NT)

Anacamptis morio, *Cephalanthera damasonium*, *C. longifolia*, *C. rubra*, *Cypripedium calceolus*, *Dactylorhiza fuchsii* subsp. *fuchsii*, *D. fuchsii* subsp. *sooiana*, *D. incarnata* subsp. *incarnata*, *D. lapponica*, *D. majalis*, *D. sambucina*, *D. viridis*, *Epipactis albensis*, *Epipactis distans*, *E. komoricensis*, *E. muelleri*, *E. palustris*, *E. purpurata*, *E. tallosii*, *Epipogium aphyllum*, *Goodyera repens*, *Gymnadenia densiflora*, *G. odoratissima*, *Limodorum abortivum*,

Malaxis monophyllos, *Neotinea tridentata*, *N. ustulata* subsp. *aestivalis*, *Ophrys insectifera*, *Orchis mascula* subsp. *signifera*, *O. militaris*, *O. pallens*, *Platanthera chlorantha*, *Traunsteinera globosa*.

Least Concern (LC)

Corallorhiza trifida, *Epipactis atrorubens*, *E. helleborine* subsp. *helleborine*, *E. microphylla*, *E. pontica*, *Gymnadenia conopsea*, *Listera ovata*, *Platanthera bifolia*.

Unclassified

Dactylohriza × aschersoniana, *D. × braunii*, *Epipactis × merediorum*, *E. atrorubens × E. muelleri*, *E. helleborine × E. muelleri*, *E. helleborine × E. pseudopurpurata*, *E. leptochila* s.l. (incl. undescribed species), *Gymnadenia conopsea × G. odoratissima*, *Neottia nidus-avis*, *Ophrys × devensis*, *Orchis × canuti*, *O. × loreziana*, *Platanthera × hybrida*.

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