

# Birds of the mountain range of the Low Tatra National Park, Brankov – Červená Magura, the West Carpathians, 1984 - 1991

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**Abstract.** Between 1984 and 1991, the limestone hilly range of Brankov - Červená Magura contained a mosaic of habitats that maintained a rich bird fauna. The European silver fir and beech mixed forest harboured a high number of forest bird species. Above 1000 m, meadows and pastures contained fewer species with lower diversity. Forest edges yielded a higher diversity than that found in typical coniferous spruce forests. Forest edges and mountain meadows harboured a high number of species restricted to these habitat types.

*Key words:* avifauna of the Low Tatras, Brankov - Červená Magura, the West Carpathians

## Introduction

The following account is a summary of our knowledge of the birds of the Brankov - Červená Magura range between 1984 and 1991. In this study area, habitats varied from those characteristic near the artificial tree line, to those of the different types of the forest - from spruce monocultures, to mixed fir, to beech old wood. Because of the variety of habitats, many species of birds were present.

The relationship between bird populations and their breeding habitats has interested avian ecologists for quite some time, and much work has been done (Johnston and Odum 1956; MacArthur 1965; Karr 1971; Payne 1982; Moskát *et al.* 1988; etc.) correlating the foliage complexity of the habitat with bird species diversity.

To date, no information has been gathered as to how habitat pattern relates to breeding bird abundance in Brankov – Červená Magura range in the Low Tatra mountains. Moreover, no information has been found regarding how differences in local weather and climate between years affects bird nesting and behaviour.

This study provides a list of birds living in this limestone dominated part of the Low Tatra mountains and can be used to manage non-game bird populations in the core area of the national park.

Data concerning the number of laid eggs, hatchlings and fledglings is presented for some species.

## Material and methods

Birds breeding in the different habitats were sampled between mid-April and mid-July, from 1984 to 1991, when the presence of singing or visually observed birds was recorded 5 - 8 times per year in 50 point counts of approximately 20 minutes each.

## Results and Discussion

### *Charadriiformes and Coraciiformes (Fig.1)*

Woodcock (*Scolopax rusticola*) - rare but resident, most often seen in unmistakable territorial flight. Roller (*Coracias garrulus*) - vagrant birds observed in autumn.

### *Galliformes (Fig.2)*

Hazel grouse (*Tetrastes bonasia*) lives in mixed woodland or in spruce forest, usually with a dense shrub layer, often near rocks. Black grouse (*Lyrurus tetrix*) - males often seen at open communal display grounds. Capercaillie (*Tetrao urogallus*) - rare, but seen, including females.

### *Accipitriformes (Figs. 3,4) and Falconiformes (Fig.5)*

Golden eagle (*Aquila chrysaetos*) young birds were often seen in treeless habitats, and meadows of Velký Brankov serve as their hunting area. The same is the case for Buzzard (*Buteo buteo*); the species breeds in spruce forests. Sparrowhawks (*Accipiter nisus*) and goshawks (*Accipiter gentilis*) - were observed in suitable hunting areas. Hobby (*Falco subbuteo*) - were rarely recorded, especially in the centre of the mountain range. Kestrel (*Falco tinnunculus*) - the tendency for the local population of this species to show an increase in size is well known. Birds nest on rock-ledges.

### *Columbiformes (Fig. 6) and Cuculiformes (Fig.7)*

Woodpigeon (*Columba palumbus*) - the mixed beech and spruce forest is a very suitable habitat for this species, as it nests in trees. Stock dove (*Columba oenans*) - rare, but breeding bird. Turtle

Dove (*Streptopelia turtur*) - vagrant birds were usually seen in hilly areas. Cuckoo (*Cuculus canorus*) - seen daily, including foraging individuals in meadows and forested regions. Birds are very consistent in choice of habitat.

*Strigiformes* (Fig. 8), *Piciformes* (Figs. 9 and 10) and *Apodiformes* (Fig. 12)

Tawny owl (*Strix aluco*) and Tengmalm's owl (*Aegolius funereus*) - regularly recorded the occurrence of both species, seen and heard in the forest. The Black woodpecker (*Dryocopus martius*) was mainly found in mixed beech and spruce forest habitats. The species was seen and heard daily, and when flying, it often crossed open hilly areas. Great spotted woodpecker (*Dendrocops major*) and lesser spotted woodpecker (*Dendrocops minor*) - mainly preferred old beech forest while the three-toed woodpecker (*Picoides tridactylus*) was regularly seen in coniferous spruce forest. Swifts (*Apus apus*) - seen flying and feeding over open country.

*Passeriformes*

*Alaudidae* (Fig. 11). The skylark (*Alauda arvensis*) is one of the most notable birds of Velký Brankov, breeding in the area's grasslands.

*Hirundinidae* (Fig. 12). Small numbers of swallows (*Hirundo rustica*) were seen most days. They were sometimes seen with house martins (*Delichon urbica*), flying over open country.

*Motacillidae* (Figs. 13-14). Tree pipit (*Anthus trivialis*) is a very abundant species on the main range of Velký Brankov and Červená Magura. The species requires the presence of trees in breeding season, when it frequents open woodland. Meadow pipits

(*Anthus pratensis*) - seen on the high meadows near the peak of Velký Brankov. Rock pipit (*Anthus spinoletta*) - often seen in early spring, during migration. White wagtail (*Motacilla alba*) and grey wagtail (*Motacilla cinerea*) - usually observed near local springs and streams with fresh water.

*Laniidae* and *Cinclidae* (Fig. 1). Red-backed shrike (*Lanius collurio*) - a few individuals were regularly seen over the mountain range during the breeding period. Dipper (*Cinclus cinclus*) was an occasional visitor of the mountain range.

*Prunellidae* (Fig. 15). Dunnock (*Prunella modularis*) - is one of the common birds breeding in the coniferous spruce forest. Four nests were found (Table 1).

*Muscicapidae*. Robin (*Erithacus rubecula*) - one of the most abundant species in the examined area (Fig. 16). Redstart (*Phoenicurus phoenicurus*) - males, in full song, were usually heard in old mixed beech and fir forest, adjacent to grassland areas (Fig. 17). Stonechat (*Saxicola torquatus*) - seen daily in the grasslands near Velký Brankov hill (Fig. 18). Red-breasted flycatcher (*Ficedula parva*) - breeds in the natural beech-fir mixed forest, often heard singing when perched on branches of old, high trees (Fig. 29). Collared flycatcher (*Ficedula albicollis*) also seen breeding and singing in the old beech-fir forest while pied flycatcher (*Ficedula hypoleuca*) was recorded in early spring at the time of migration.

*Turdidae* (Figs. 19 - 22). The lightly wooded slopes, and meadows with grazing livestock are very suitable habitats for several species of thrushes - blackbird (*Turdus merula*), ring ouzel (*Turdus torquatus*), mistle thrush (*Turdus viscivorus*) and song thrush (*Turdus philomelos*). The nidobiology and postnatal development of the ring ouzel was the main aim of

Average number of laid eggs (*N=4)	Average number of hatched nestlings (*N=4)	Average number of fledglings (*N=3)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
4.75	3.5	3	10	20.07 +- 0.99	14.58 +- 0.40

**Table 1.** Breeding success rate of *Prunella modularis* (1985 - 1991 Brankov) \*N - number of nests.

Average number of laid eggs (*N=5)	Average number of hatched nestlings (*N=4)	Average number of fledglings (*N=4)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
4	4	0.75	6	31.29 +- 1.30	21.25 +- 0.99

**Table 2.** Breeding success of *Turdus merula* (1985 - 1991 Brankov) \*N - number of nests.

Average number of laid eggs (*N=11)	Average number of hatched nestlings (*N=7)	Average number of fledglings (*N=5)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
4.63	2	1	45	27.16 +- 0.96	20.56 +- 0.73

**Table 3.** Breeding success of *Turdus philomelos* (1985 - 1991 Brankov) \*N - number of nests.

our research in this area. The results were, and will be, published in special studies dealing with this species. We estimate that approximately 40 males were singing in the area. Summarized records on the breeding rate of blackbird and song thrush are presented in Tables 2 and 3. Pine marten and red squirrel were the main predators of thrush nests. Fieldfare (*Turdus pilaris*) was rarely seen when crossing the mountain range

*Sylviidae* (Figs. 23-26). *Sylvia* warblers were recorded in tangled vegetation, scrub and low beech trees in the ecotone area between forest and grassland. A number of young birds of lesser whitethroat (*Sylvia curruca*) and blackcap (*Sylvia atricapilla*) species were also seen (see also Table 4). Leaf warblers - chifchaff (*Phylloscopus collybita*), willow warbler (*Ph. trochilus*) and wood warbler (*Ph. sibilatrix*) were very plentiful species. The wood warbler breeds in mixed beech-spruce forest while chifchaff and willow warbler were seen and heard in similar woodland habitats with scattered trees

*Regulidae* (Fig. 27). Goldcrest (*Regulus regulus*) is a very common species living in coniferous spruce forest. Firecrest (*Regulus ignicapilla*) preferred old fir conifers mixed with beech.

*Troglodytidae* (Fig. 28). Wren (*Troglodytes troglodytes*) - seen and heard daily.

*Paridae* (Figs. 30-34). Tit abundance and density in

a particular habitat is believed to be regulated by a vast combination of factors interacting with one another. This becomes apparent when one examines the breeding bird community of a particular habitat and discovers that year by year it is a dynamic system. Any seasonal or yearly variation of that habitat may result in changes to the suitability of the habitat for a tit species' niche requirements. In our case, the great tit (*Parus major*) was drastically affected by seasonal fluctuations between different years. In nest boxes, the number of breeding birds greatly fluctuated between high numbers to zero, while other tit species like the marsh tit (*Poecile palustris*) and willow tit (*Poecile montanus*) remained relatively stable. Breeding success of tit pairs nesting in the nest boxes is presented in Tables 5, 6, and 7.

*Aegithalidae* (Fig. 35). Long-tailed tit (*Aegithalos caudatus*) - frequently observed in the lower broad-leaved and mixed woods and scrub.

*Sittidae* (Fig. 36). Nuthatch (*Sitta europaea*) - common, seen daily but mainly in old mixed fir-beech forest. A female, breeding in a nestbox, laid eight eggs, from which seven young hatched and fledged.

*Certhiidae* (Fig. 37). Treecreeper (*Certhia familiaris*). The species is common in spruce, fir and mixed woodland, resident, often with tit parties in winter. *Corvidae* (Figs. 38-39). Nutcracker (*Nucifraga caryo-*

Average number of laid eggs	Average number of hatched nestlings	Average number of fledglings	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
5	4	4	5	19.94 +- 0.51	14.41 +- 0.14

**Table 4.** Breeding success and egg size of a pair of *Sylvia atricapilla*.

Average number of laid eggs (*N=5)	Average number of hatched nestlings (*N=5)	Average number of fledglings (*N=5)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
12	10.4	8.8	46	17.42 +- 1.64	13.75 +- 1.38

**Table 5.** Breeding success of *Parus major* (1985 - 1991 Brankov) \*N - number of nests.

Average number of laid eggs (*N=5)	Average number of hatched nestlings (*N=5)	Average number of fledglings (*N=5)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
8.4	7.8	7.4	10	16.36 +- 0.27	11.85 +- 0.14

**Table 6.** Breeding success of *Periparus ater* (1985 - 1991 Brankov) \*N - number of nests.

Average number of laid eggs (*N=2)	Average number of hatched nestlings (*N=2)	Average number of fledglings (*N=2)	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
8	4	4	8	15.75 +- 0.14	12.28 +- 0.18

**Table 7.** Breeding success of *Poecile montanus* (1985 - 1991 Brankov) \*N - number of nests.

*catactes*) - seen daily, calling from the tops of Norway spruce on the lower slopes of Velký Brankov and Červená Magura. Young birds were also recorded. Jay (*Garrulus glandarius*) - seen usually individually or in small parties in the forested areas with numerous scattered trees. Raven (*Corvus corax*) - seen often, particularly in early spring when it is common for them to flock, but during breeding season, commonly observed individually, in pairs or in family parties. Velký Brankov is a hunting area for this species; birds nested on rock ledges in the neighboring valley. Hooded crow (*Corvus corone cornix*) - vagrants seen in open country.

*Fringillidae* (Figs. 40-44). Chaffinch (*Fringilla coelebs*) - is the most common passerine species, and is observed in a wide variety of habitats, often in woods and areas with scattered trees. Breeding success of one pair is presented in Table 8.

Linnet (*Carduelis cannabina*), goldfinch (*Carduelis carduelis*), and greenfinch (*Chloris chloris*) were frequently found in habitats with scattered trees while siskin (*Spinus spinus*) was recorded in spruce and mixed forest. Hawfinch (*Coccothraustes coccothraustes*) was seen in old fir/beech mixed forest.

Bullfinch (*Pyrrhula pyrrhula*) and common crossbill (*Loxia curvirostra*) were widely distributed, and most common in mixed and spruce forest, respectively.

*Emberizidae*. Yellowhammer (*Emberiza citrinella*) - usually found and heard in sunny grassland habitats with scattered trees. Good local population was recorded near Červená Magura.

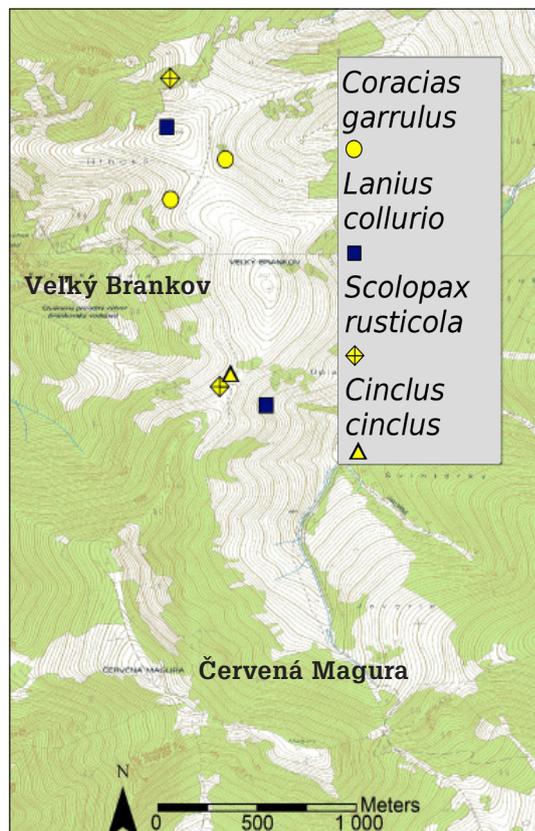
In summary, each of the four distinct habitats in the Brankov area - grassland, woodland with scattered trees (ecotone), spruce, old mixed fir-beech forest - has its own characteristic birds. Climate and topography, through their influence on vegetation, are the prime factors in the distribution and kinds of birds observed in these habitats. Yearly variations in breeding conditions surrounding some of the higher Low Tatra and Great Fatra mountains are likely barriers to movement of some species.

### Acknowledgements

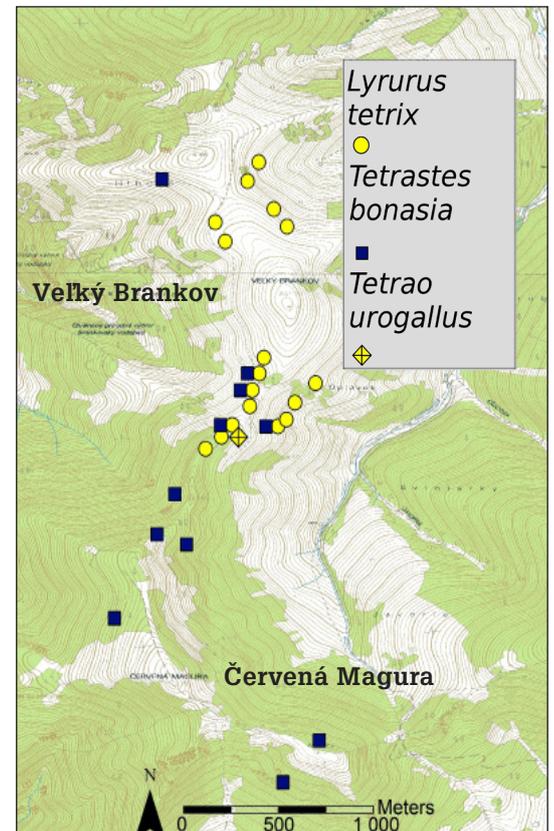
We are grateful to all our friends for accompanying the first author in the field and for their assistance and help in bird monitoring.

Average number of laid eggs	Average number of hatched nestlings	Average number of fledglings	Number of measured eggs	Mean length +- SD (mm)	Mean width +- SD (mm)
5	5	5	5	19.6 +- 0.66	15.2 +- 0.27

**Table 8.** Breeding success and egg dimensions of a pair of *Fringilla coelebs*.



**Fig. 1.** Observations of rare species.



**Fig. 2.** Frequent occurrence of *Lyrurus tetrrix*, *Tetrastes bonasia* and observations of *Tetrao urogallus*.

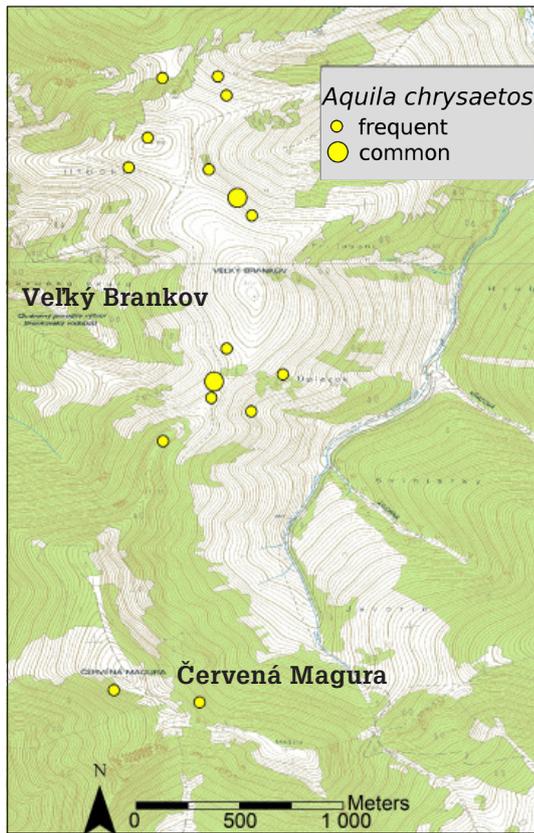


Fig. 3. Occurrence of *Aquila chrysaetos*.

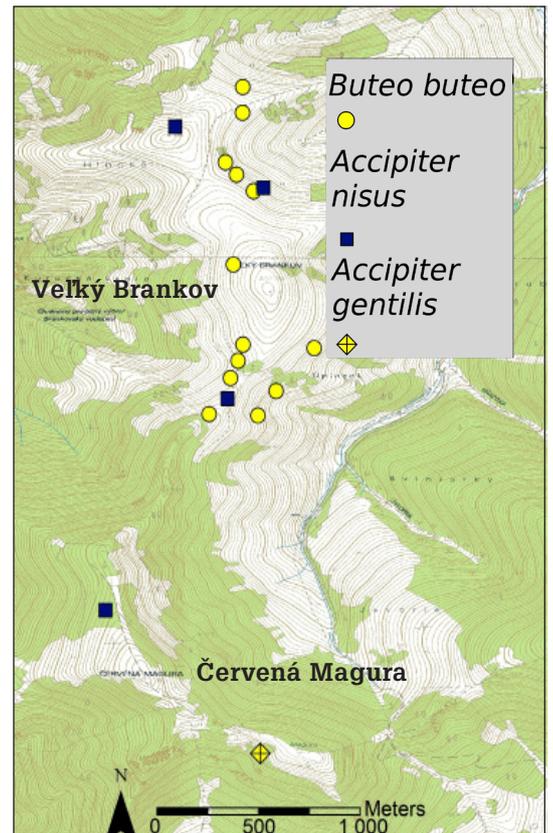


Fig. 4. Frequent occurrence of *Buteo buteo*, *Accipiter nisus* and observations of *Accipiter gentilis*.

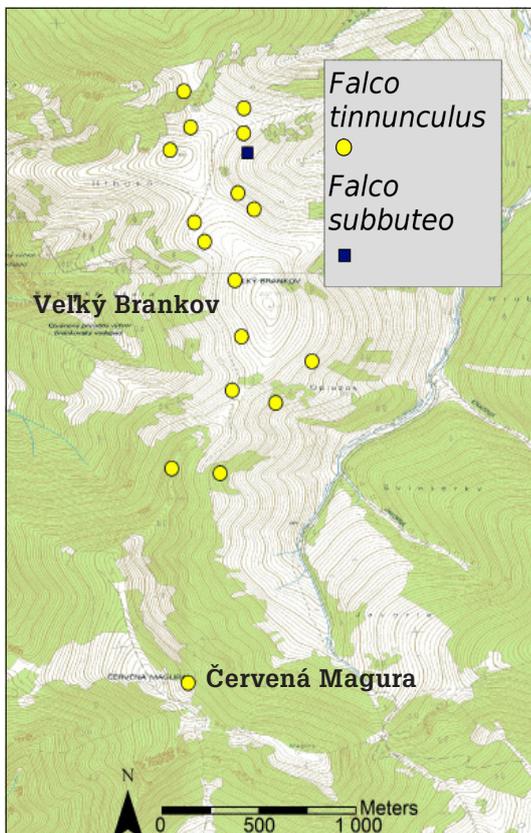


Fig. 5. Frequent occurrence of *Falco tinnunculus* and observations of *Falco subbuteo*.

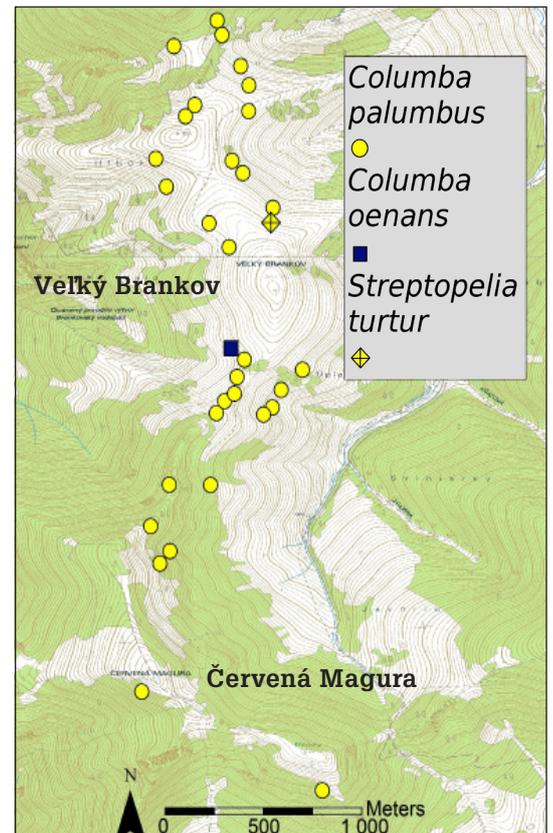


Fig. 6. Frequent occurrence of *Columba palumbus* and observations of *Columba oenans* and *Streptopelia turtur*.

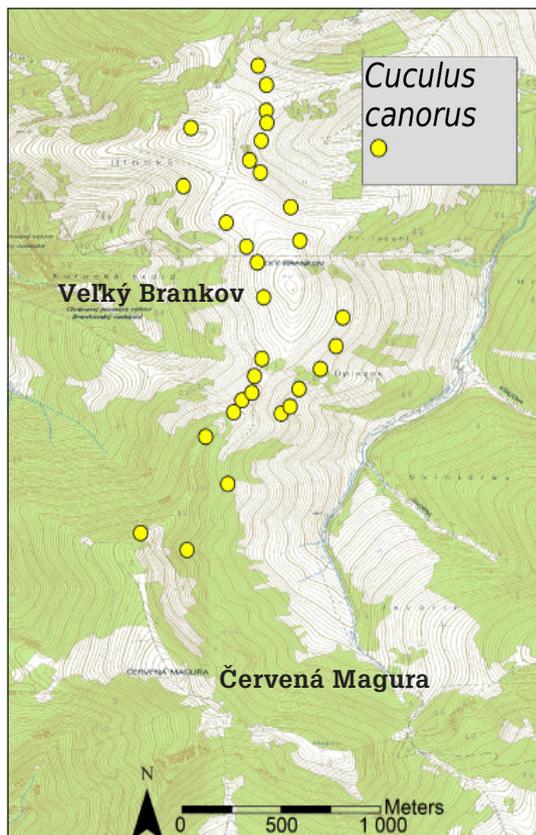


Fig. 7. Frequent occurrence of *Cuculus canorus*.

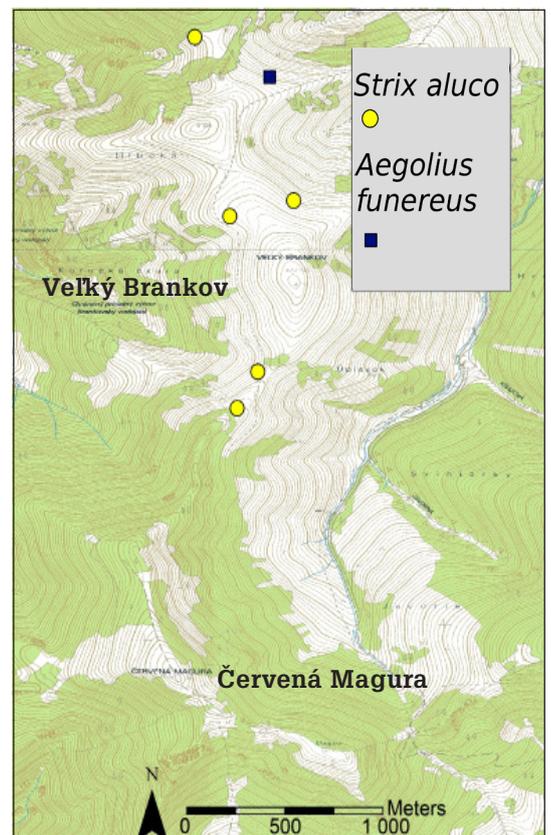


Fig. 8. Observations of *Strix aluco* and *Aegolius funereus*.

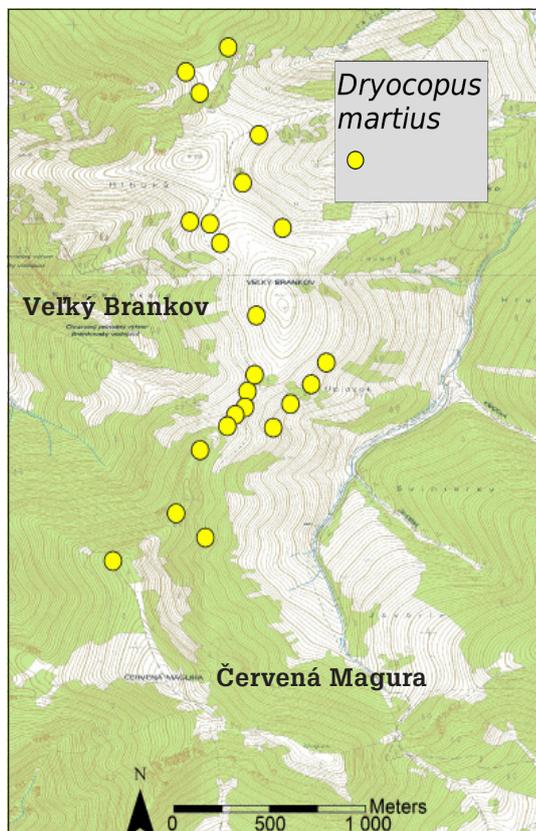


Fig. 9. Frequent occurrence of *Dryocopus martius*.

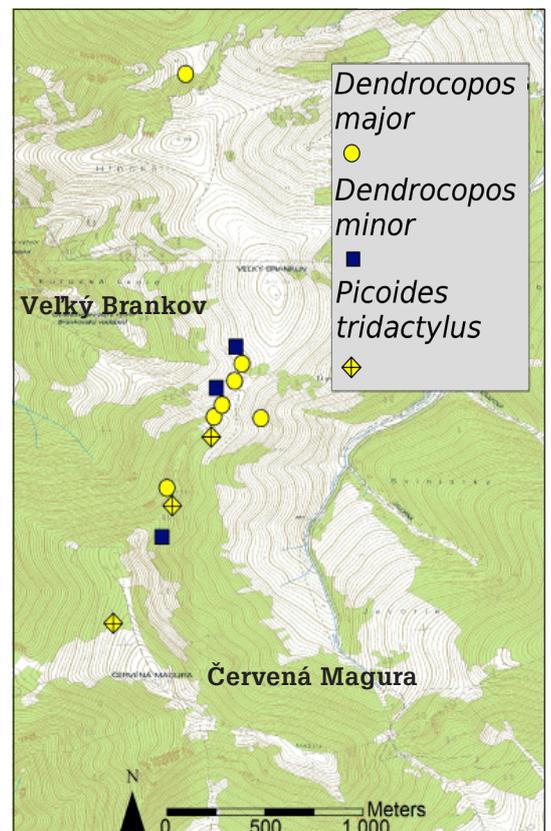


Fig. 10. Frequent occurrence of *Dendrocopos major* and observations of *Dendrocopos minor* and *Picoides tridactylus*.

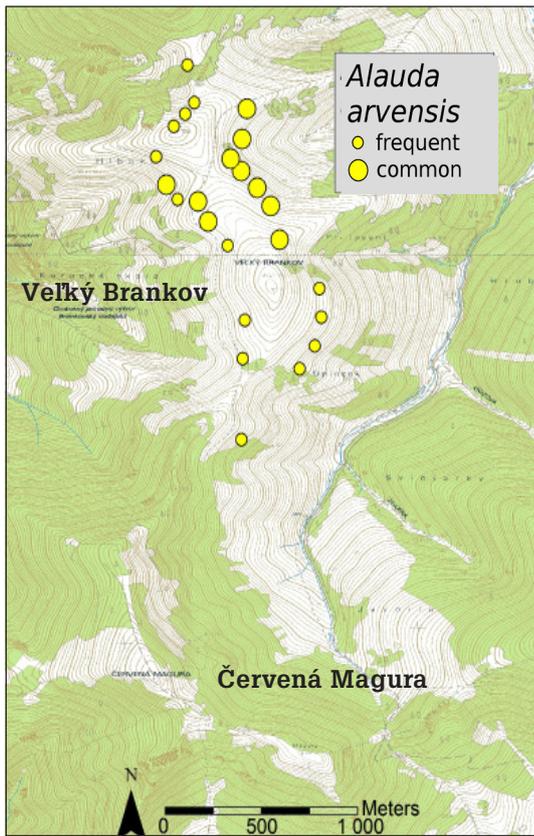


Fig. 11. Occurrence of *Alauda arvensis*.

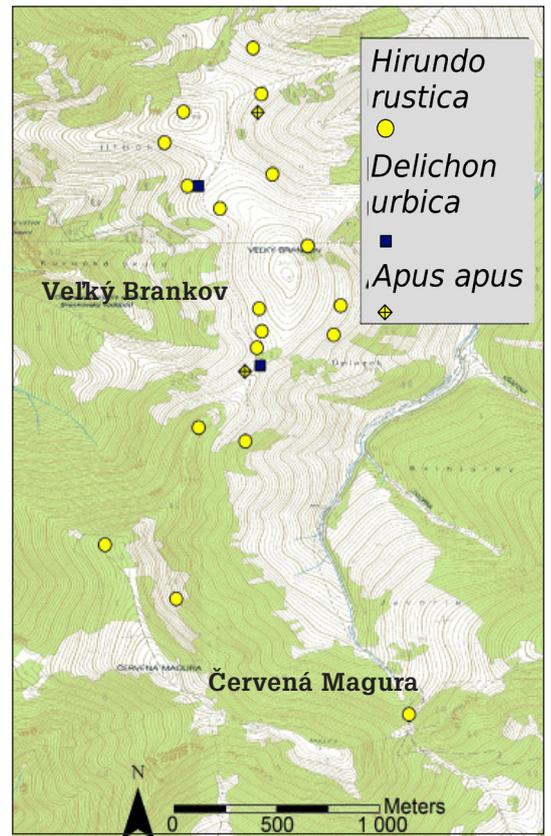


Fig. 12. Frequent occurrence of *Hirundo rustica*, *Delichon urbica* and *Apus apus*.

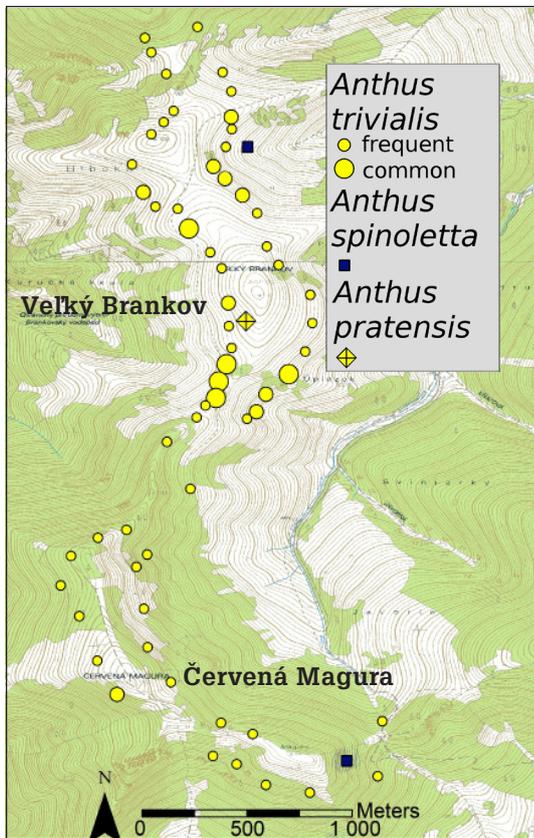


Fig. 13. Occurrence of *Anthus trivialis* and observations of *Anthus spinoletta* and *Anthus pratensis*.

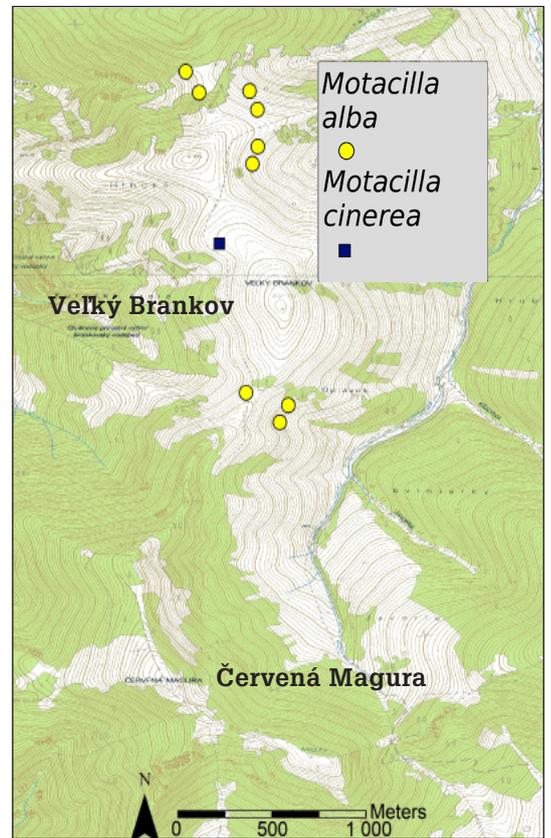


Fig. 14. Frequent occurrence of *Motacilla alba* and observations of *Motacilla cinerea*.

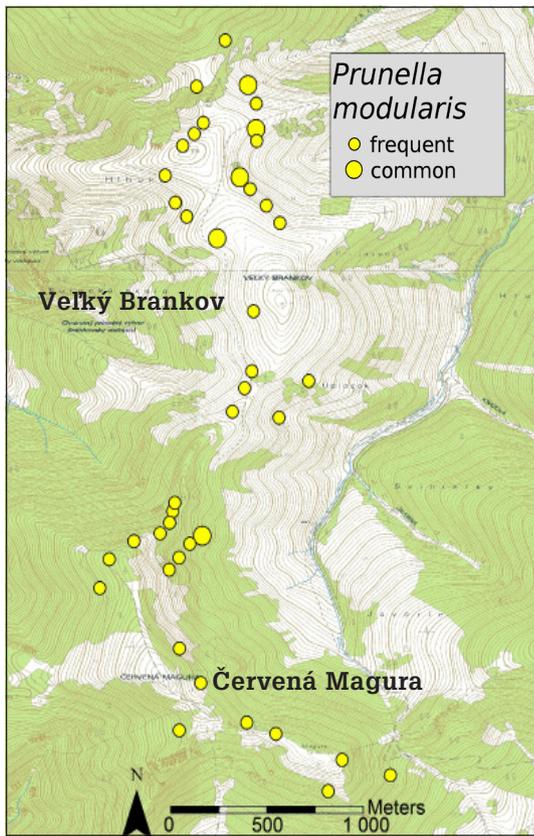


Fig. 15. Occurrence of *Prunella modularis*.

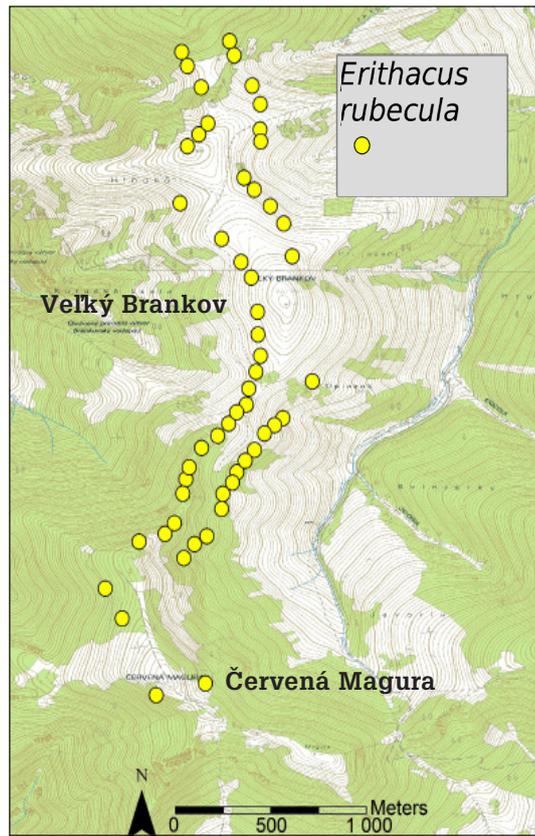


Fig. 16. Frequent occurrence of *Erithacus rubecula*.

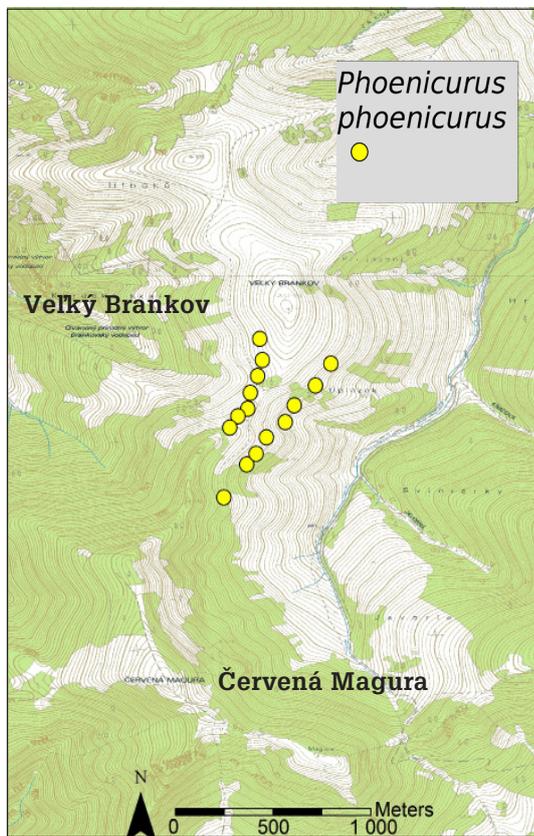


Fig. 17. Frequent occurrence of *Phoenicurus phoenicurus*.

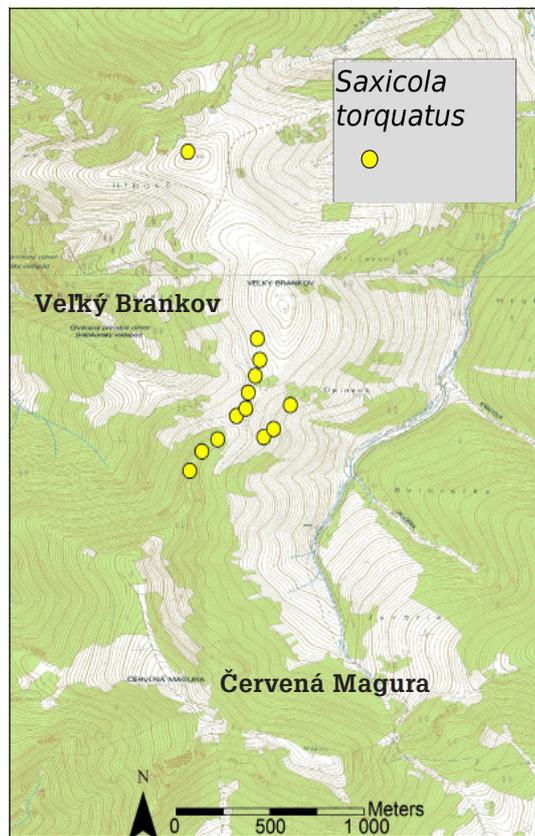


Fig. 18. Frequent occurrence of *Saxicola torquatus*.

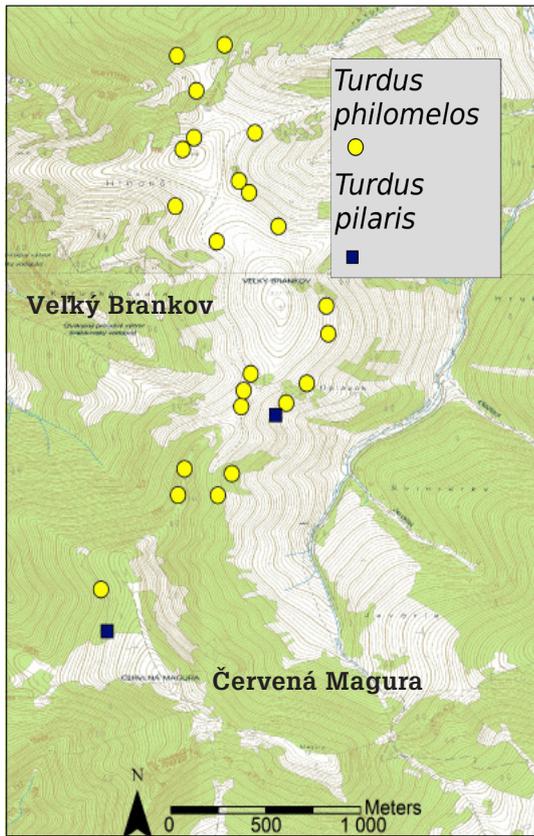


Fig. 19. Frequent occurrence of *Turdus philomelos* and *Turdus pilaris*.

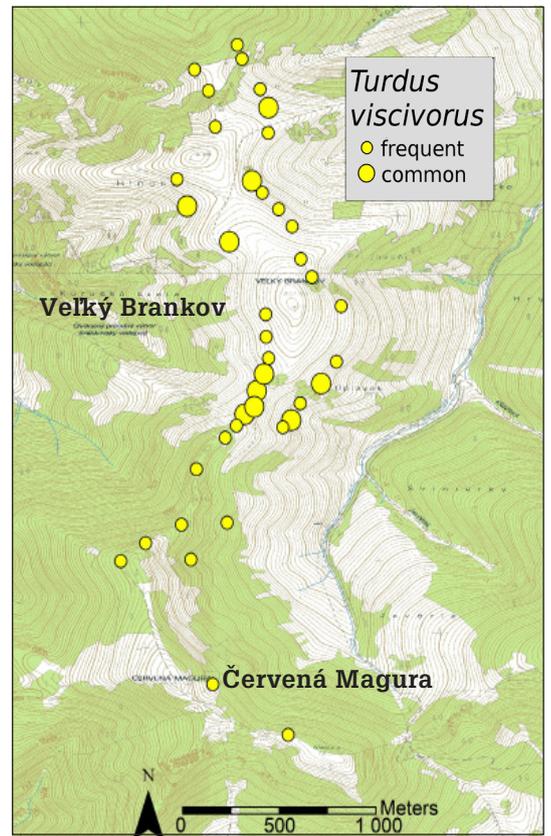


Fig. 20. Occurrence of *Turdus viscivorus*.

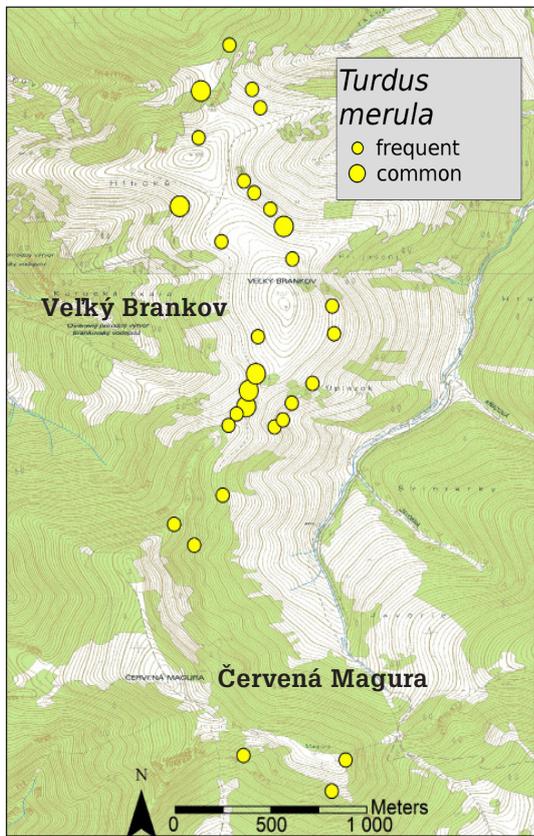


Fig. 21. Occurrence of *Turdus merula*.

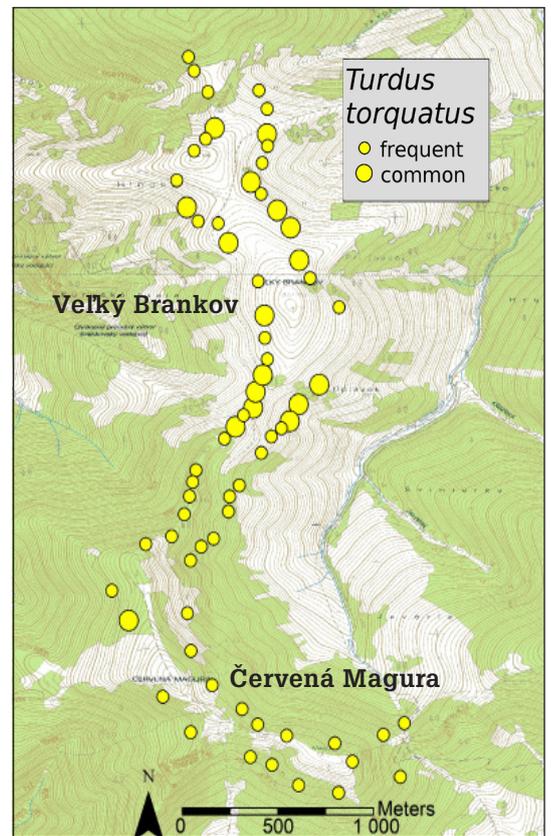


Fig. 22. Occurrence of *Turdus torquatus*.

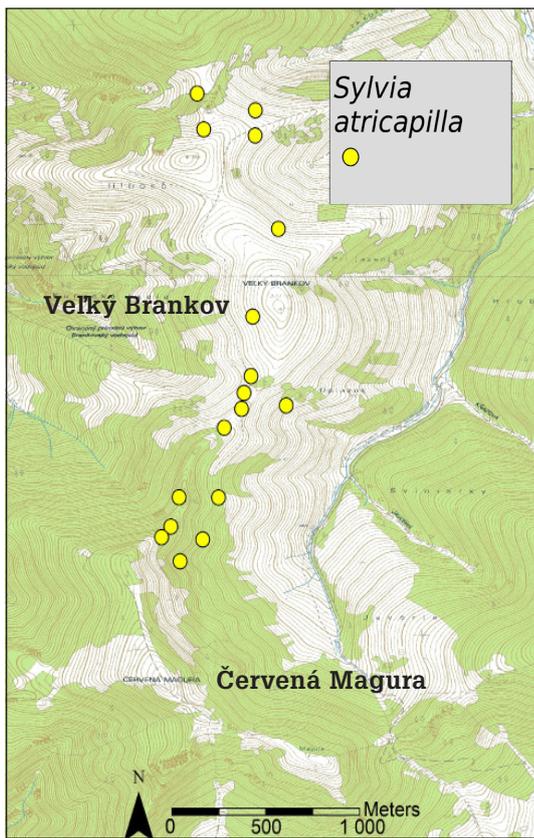


Fig. 23. Frequent occurrence of *Sylvia atricapilla*.

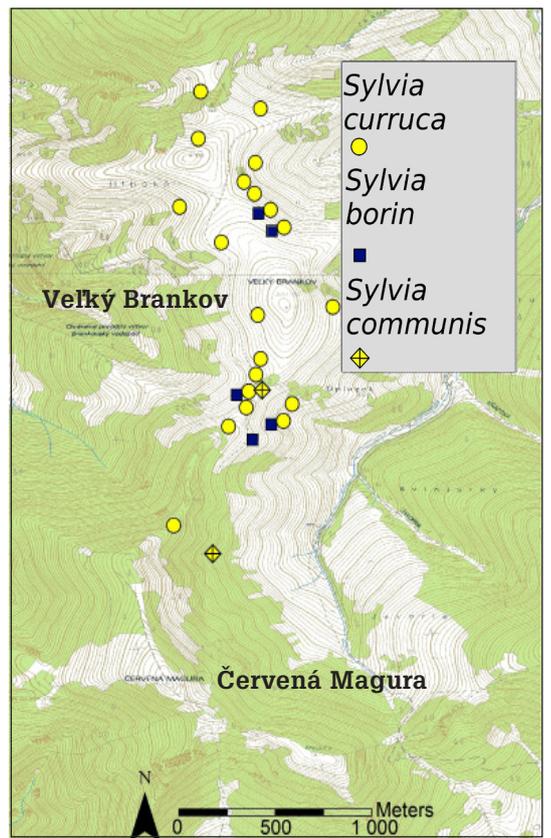


Fig. 24. Frequent occurrence of *Sylvia curruca*, *Sylvia borin* and *Sylvia communis*.

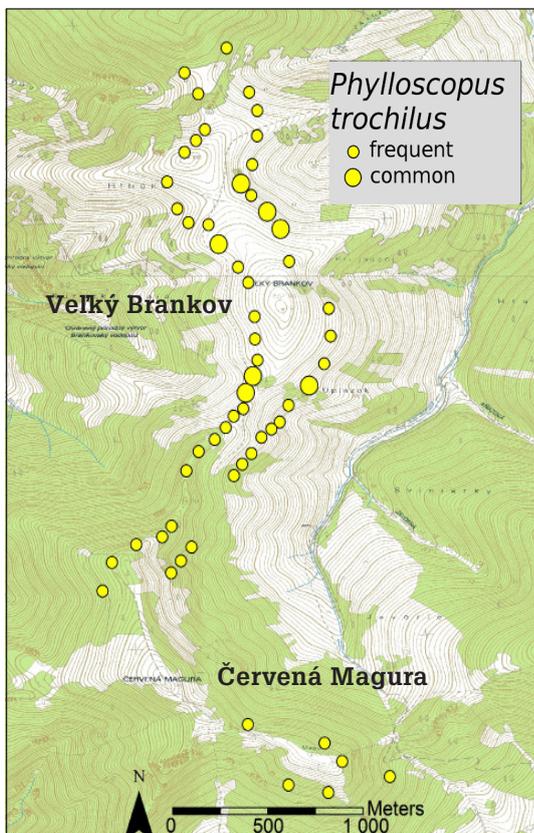


Fig. 25. Occurrence of *Phylloscopus trochilus*.

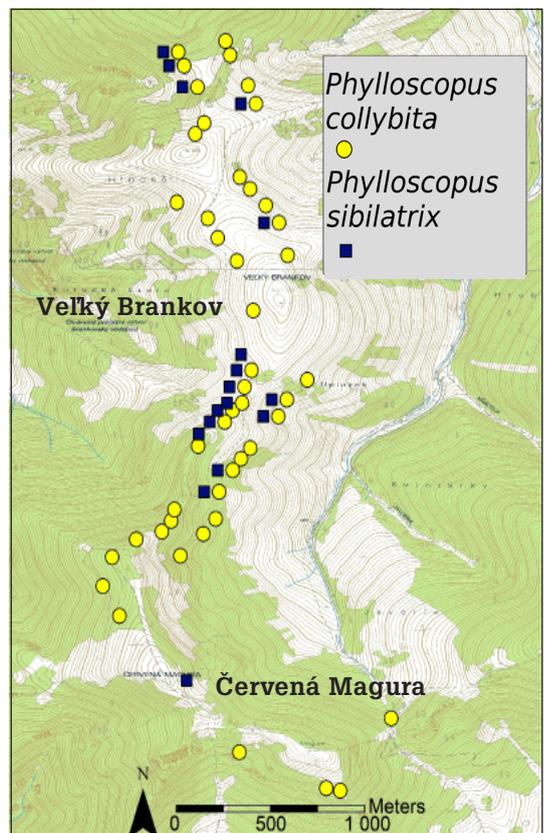
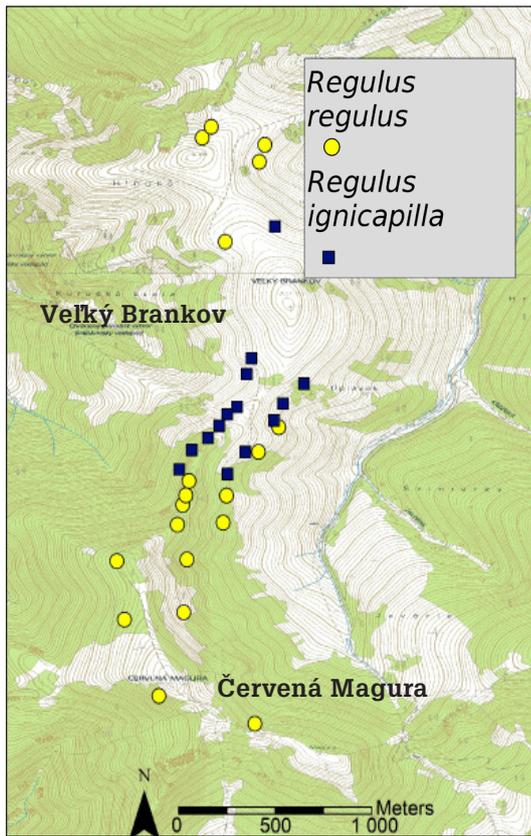
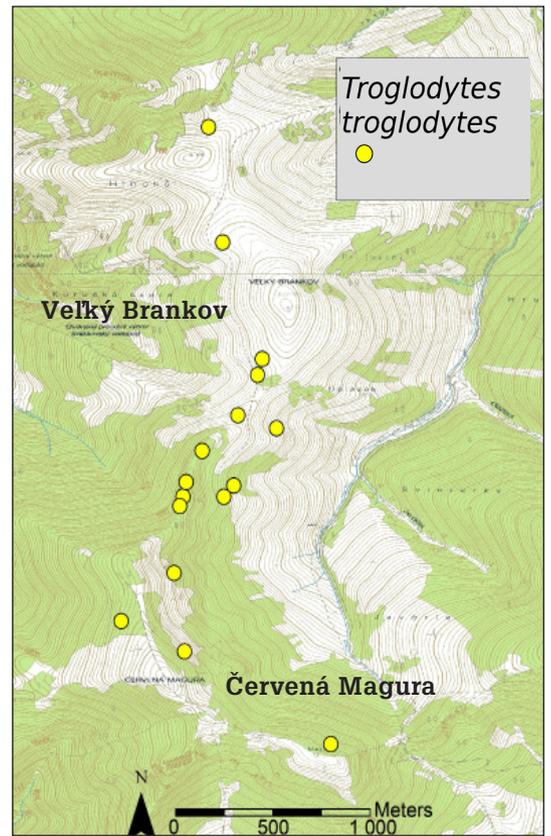


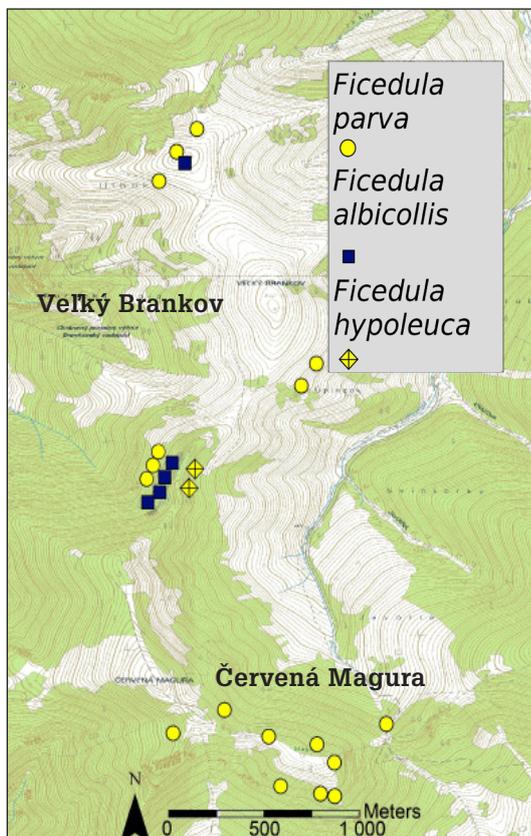
Fig. 26. Frequent occurrence of *Phylloscopus collybita* and *Phylloscopus sibilatrix*.



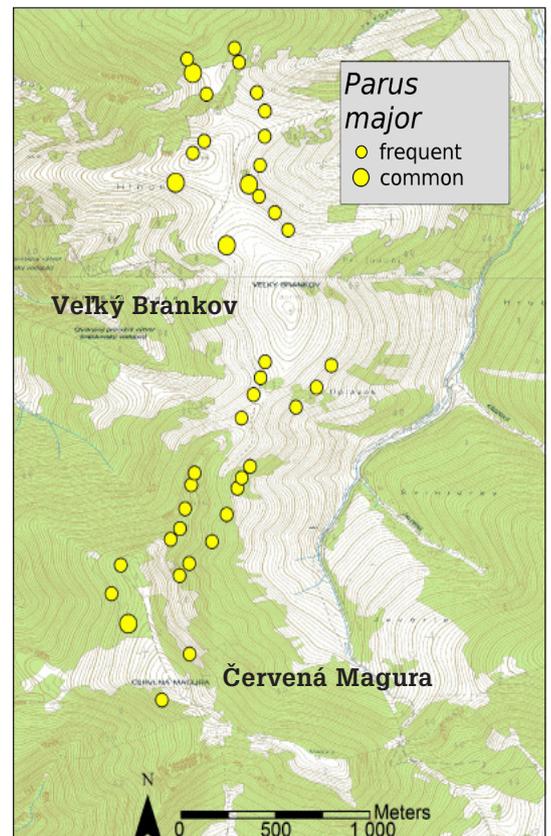
**Fig. 27.** Frequent occurrence of *Regulus regulus* and *Regulus ignicapilla*.



**Fig. 28.** Frequent occurrence of *Troglodytes troglodytes*.



**Fig. 29.** Frequent occurrence of *Ficedula parva*, *Ficedula albicollis* and *Ficedula hypoleuca*.



**Fig. 30.** Occurrence of *Parus major*.

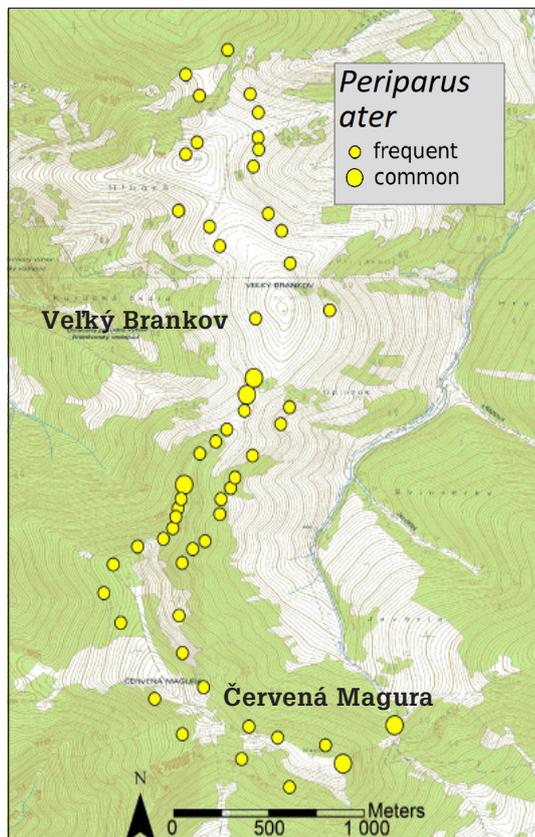


Fig. 31. Occurrence of *Periparus ater*.

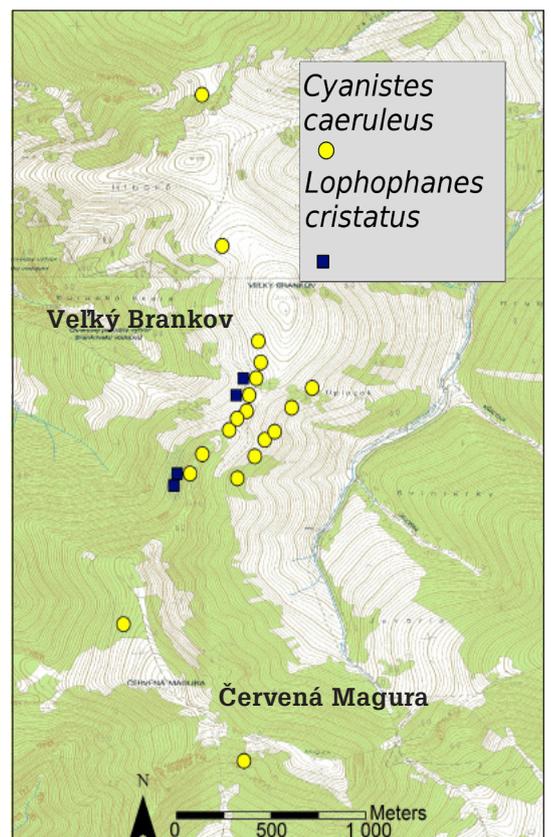


Fig. 32. Frequent occurrence of *Cyanistes caeruleus* and *Lophophanes cristatus*.

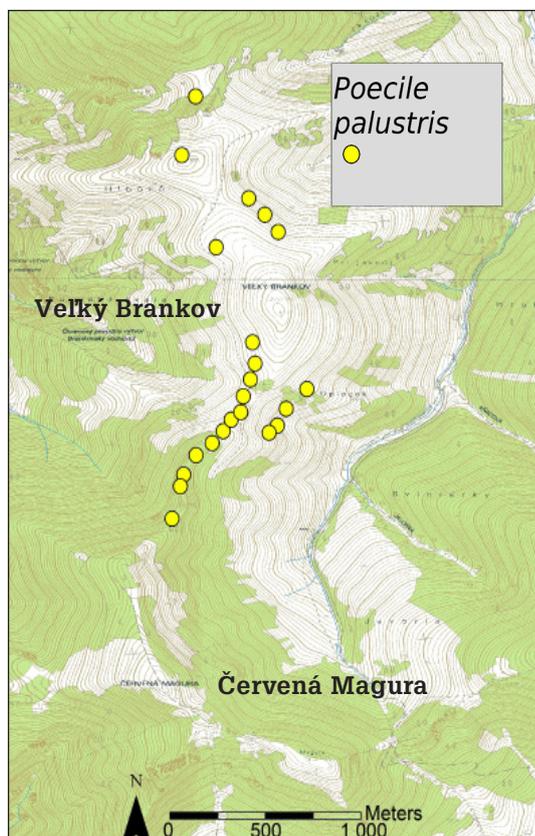


Fig. 33. Frequent occurrence of *Poecile palustris*.

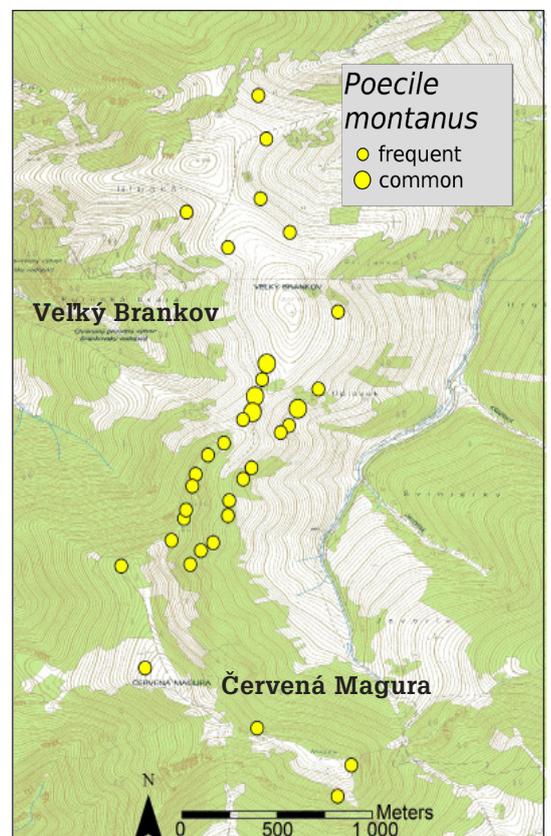


Fig. 34. Frequent occurrence of *Poecile montanus*.

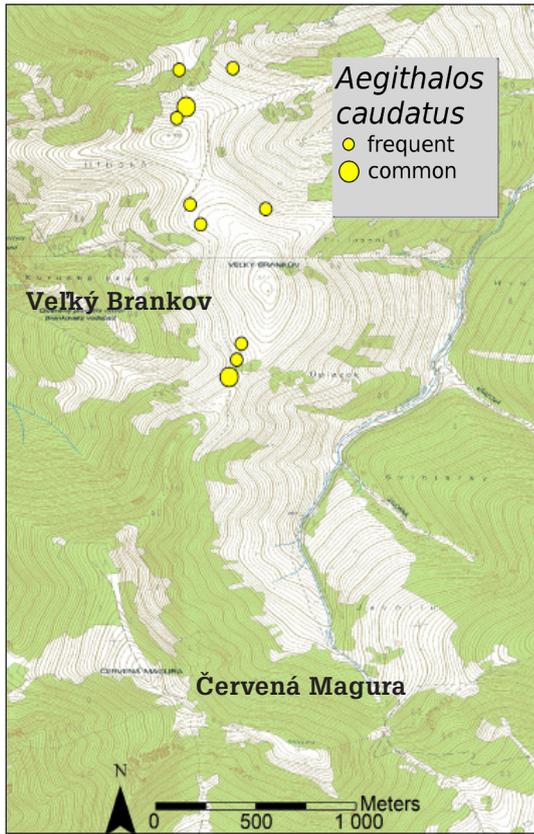


Fig. 35. Occurrence of *Aegithalos caudatus*.

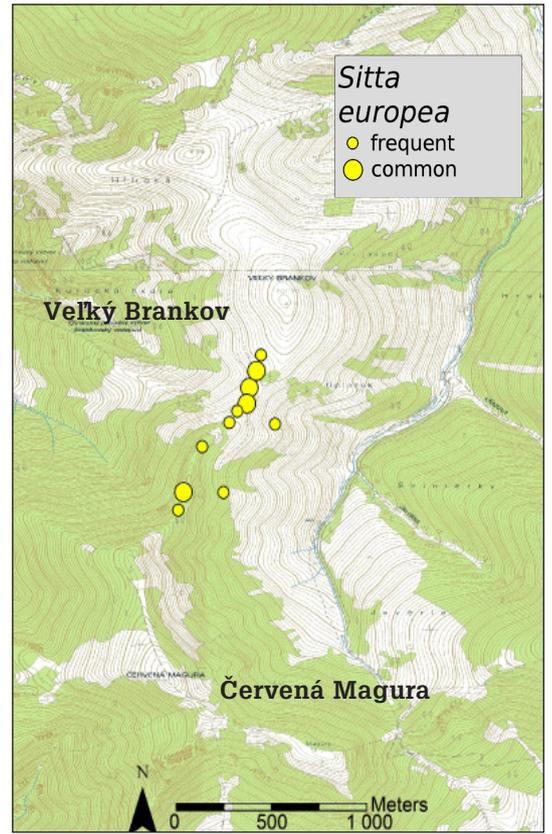


Fig. 36. Occurrence of *Sitta europea*.

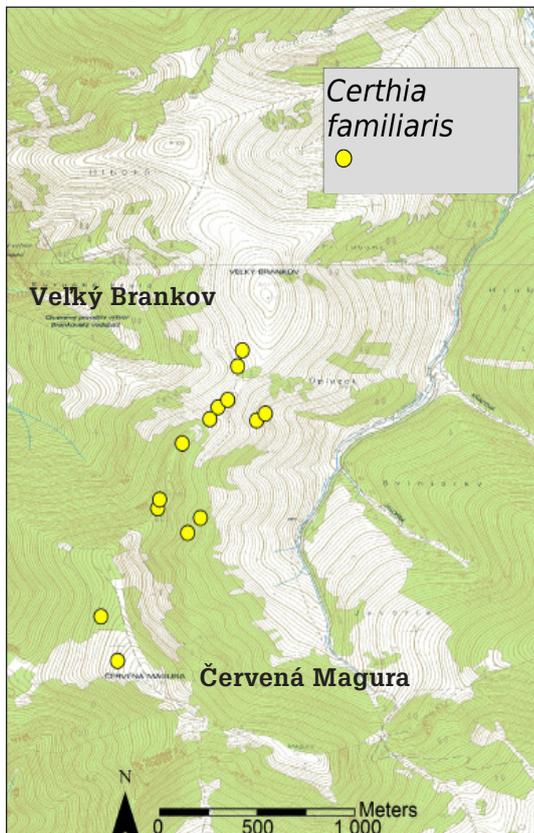


Fig. 37. Frequent occurrence of *Certhia familiaris*.

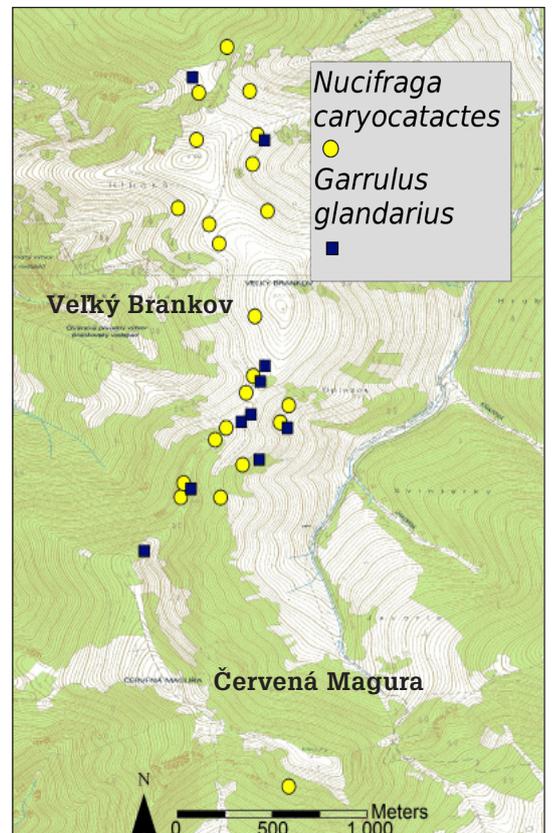


Fig. 38. Frequent occurrence of *Nucifraga caryocatactes* and *Garrulus glandarius*.

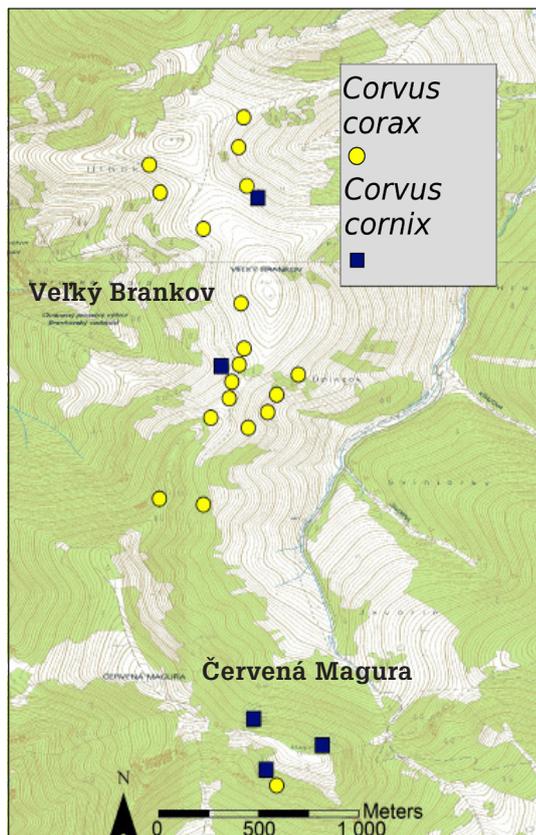


Fig. 39. Frequent occurrence of *Corvus corax* and *Corvus cornix*.

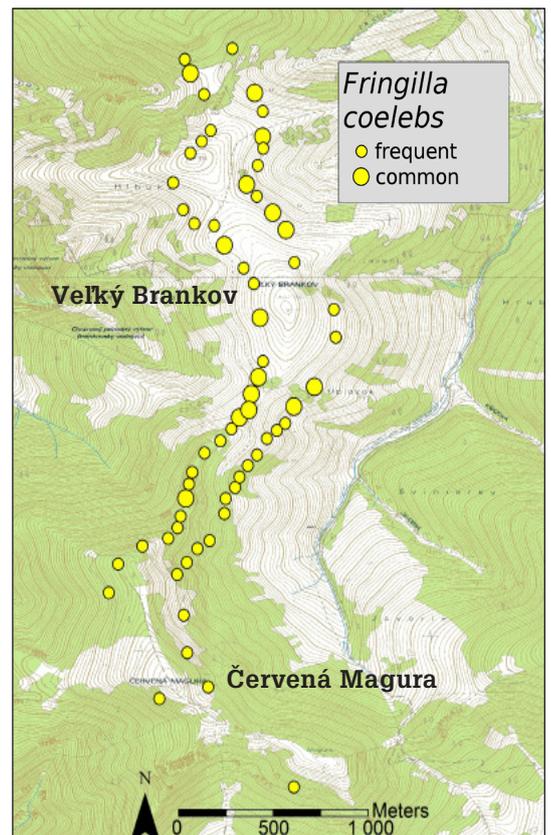


Fig. 40. Occurrence of *Fringilla coelebs*.

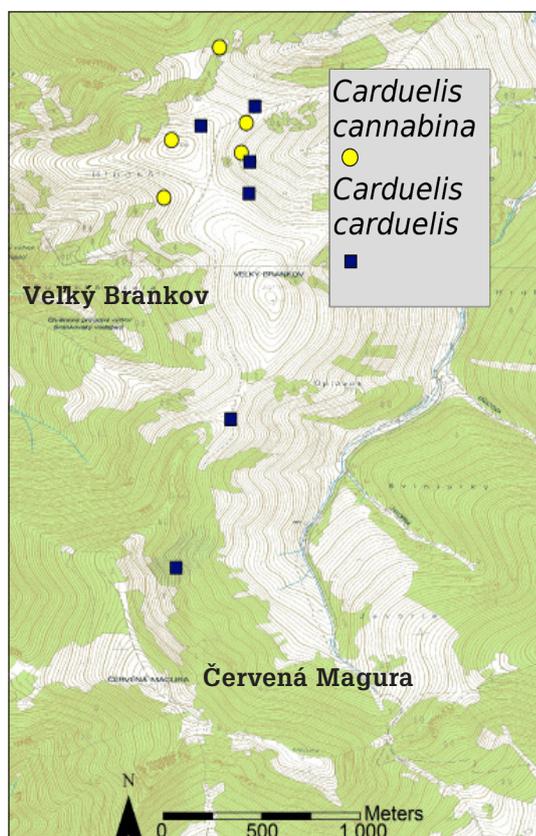


Fig. 41. Frequent occurrence of *Carduelis cannabina* and *Carduelis carduelis*.

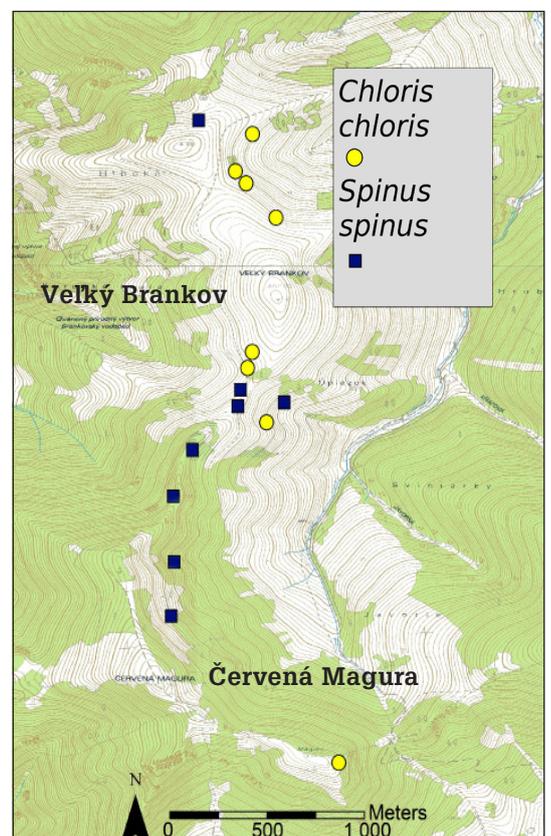
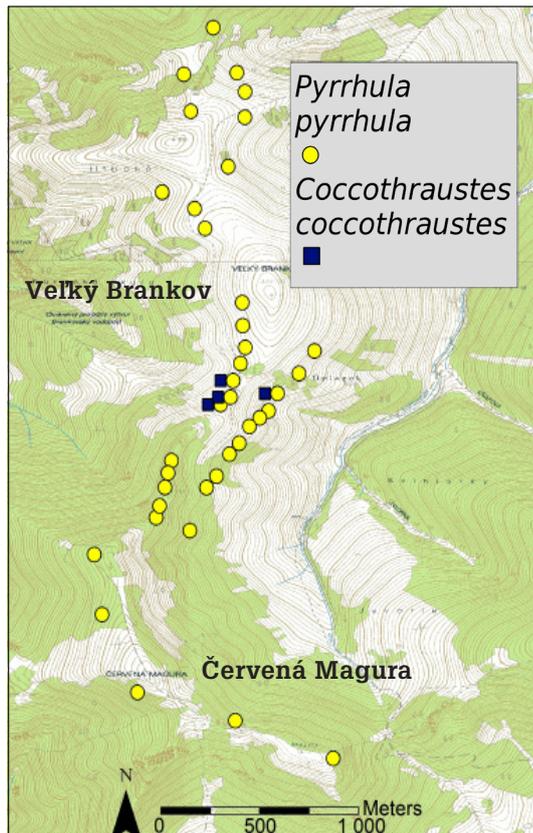
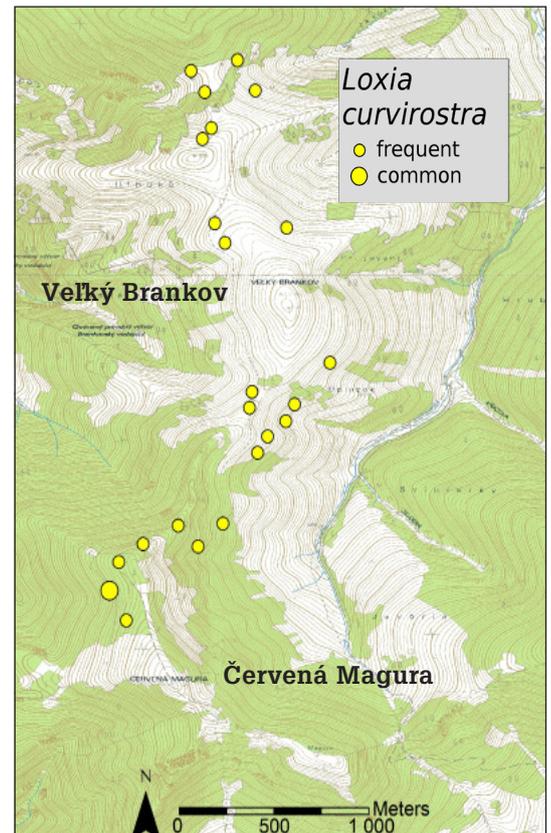


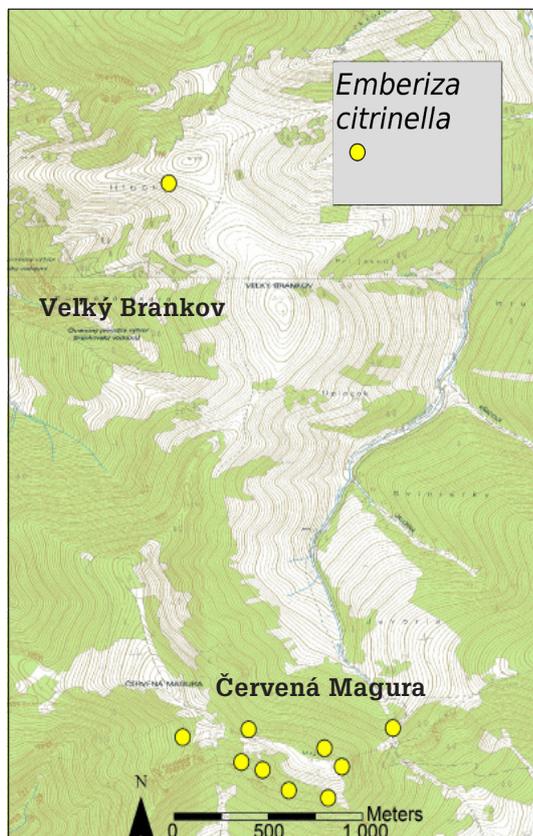
Fig. 42. Frequent occurrence of *Chloris chloris* and *Spinus spinus*.



**Fig. 43.** Frequent occurrence of *Pyrrhula pyrrhula* and *Coccothraustes coccothraustes*.



**Fig. 44.** Occurrence of *Loxia curvirostra*.



**Fig. 45.** Frequent occurrence of *Emberiza citrinella*.

#### References:

- Johnston, D.W. and Odum, E.P. 1956: Breeding bird populations in relation to plant succession in the Piedmont of Georgia. *Ecology*, **37**: 50-62.
- Karr, J.R. 1971: Structure of avian communities in selected Panama and Illinois habitats. *Ecol. Monogr.*, **41**: 207-233.
- MacArthur, R.H. 1965: Patterns of species diversity. *Biol. Rev.*, **40**: 510-533.
- Moskát, C., Hrasko, G. and Walitzky, Z. 1988: Species composition and the structure of avian communities in the Pila Mountains, North Hungary. In: *Ornithological researches in the Pila Biosphere Reserve* (ed. J. Torok), pp. 12-20. Hungarian Ornithological Society, Budapest.
- Payne, R.B. 1982: Species limits in the Indigobirds (Ploceidae, Vidua) of west Africa: Mouth mimicry, song mimicry, and description of new species. *Misc. Publ. Museum of Zoology, Univ. of Michigan*, **162**: 1-96.

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