

THE ECOLOGY, COENOLOGY AND CHOROLOGY OF THE ORCHID SPECIES IN THE ARGEȘ COUNTY (ROMANIA)

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Abstract. The Orchidaceae Family is the most diversified and widespread higher plant family worldwide. In Romania, orchids are found from the coastal sandy dunes of the Black Sea, to the highest rocky cliffs at an altitude over 2000 m. They grow in any type of soil (from slightly acid to basic), covering the whole range of humidity, from the driest areas to the most humid marshes and swamps. Some of them are sun-loving species, growing in full sun, in short grasslands and meadows, while others are shadow-loving species, growing hidden in the middle of the darkest forests. The paper presents 39 orchid species (from 62 species found in Romanian Flora), which can be found also in Argeș county. One explanation for the large number of species in the Argeș county could be the diversity of habitats. The orchid species described in the paper will be ordered alphabetically, accompanied by the ecology, coenology and chorology in the Argeș county. It is very important to know the distribution of orchids in our country, because in this way changes in the ecosystems can be prevented, thus ensuring the survival and perpetuation of such rare and beautiful plants.

Keywords: orchid, ecology, coenology, chorology, Argeș County.

Rezumat. Ecologia, coenologia și corologia speciilor de orhidee din județul Argeș (România). Familia Orchidaceae este cea mai diversificată și cea mai răspândită dintre familiile de plante superioare la nivel mondial. În România, orhideele sunt întâlnite de pe dunele nisipoase ale Mării Negre până la cele mai înalte stânci de la peste 2000 m altitudine. Ele cresc în orice tip de sol (de la slab acid până la basic), acoperind toate gradele de umiditate, de la regiunile uscate la cele mai umede mlaștini și pajiști. Unele dintre specii sunt iubitoare de lumină puternică crescând în plin soare, în pajiști cu ierburi joase, în timp ce altele sunt iubitoare de umbră, crescând ascunse în mijlocul celor mai întunecoase păduri. Lucrarea prezintă 39 specii de orhidee (din cele 62 citate în Flora României), care pot fi găsite și în județul Argeș. O explicație pentru numărul mare de specii de orhidee în județul Argeș poate fi diversitatea habitatelor. Speciile de orhidee vor fi descrise în ordine alfabetică, prezentându-se pentru fiecare specie ecologia, caracteristica cenotică și răspândirea în județul Argeș. Este foarte important să se cunoască răspândirea orhideelor în țara noastră, deoarece astfel pot fi împiedicate schimbările din interiorul ecosistemelor, asigurând supraviețuirea și perpetuarea acestor plante rare și extrem de frumoase.

Cuvinte cheie: orhidee, ecologie, coenologie, corologie, județul Argeș.

INTRODUCTION

The Argeș county is located in the central-southern part of the country, on the upper reaches of the Argeș River. To the North it is bordered by the Făgăraș Mountains, which unite the Argeș county with the Sibiu and Brașov counties. To the East, the ridges of Leaota Massif, the hills of the Getic plateau and part of the Romanian Plain separate the counties of Argeș and Dâmbovița. The Găvanu-Burdea plain borders Argeș county to the South with Teleorman county and to the West it borders Olt and Vâlcea counties (ALEXIU, 2008).

The Argeș county presents a varied relief, including most forms of relief: mountains, hills, plateaus, plains, gorges. It is a relief that descends in distinct steps, like a huge amphitheatre, from the height of the mountains (from the altitude of 2543 m, the Moldoveanu peak, the highest mountain peak of the Romanian Carpathians located entirely on the Argeș county territory) towards the Subcarpathian hills, plateaus and plains, up to 160 m in the Romanian plain (STANCU, 2005).

The flora of the Argeș county has a wide distribution depending on land form units and includes a series of rare, protected elements, declared natural monuments. While in other countries certain species become strictly protected, in our country, even within the national and natural parks, as well as in the protected areas, orchid species are continuously under attack. In Romania, only two orchid species are protected by law: *Nigritella rubra* (Wettst.) K. Richt. in 1938 and *Cypripedium calceolus* L. in 1939.

Out of 3136 spontaneous vascular species on the Romanian territory, 2009 species grows in the Argeș county. In the present work, we have made an ecological, coenological, chorological and zoological study of the orchids species found in the flora of Argeș county.

MATERIAL AND METHOD

The Orchidaceae family is one of the most diverse and widespread of the higher plant families worldwide. It contains over 30,000 species and over 200,000 hybrids. Out of 62 species identified in the Romanian Flora, 39 were cited from the Argeș county.

One explanation for the large number of species and subspecies in Argeș county could be the diversity of habitats. The taxonomic data were up-dated according to personal studies, the material in the Argeș County Museum's Herbarium and the data from other researches studies.

The following elements are presented for each species: the scientific name and the author – the nomenclature of the species uses the data from *Flora Europaea*, *Flora ilustrată a României* (CIOCĂRLAN, 2000) as well as those

from *Plante vasculare din România* (SÂRBU et al., 2013); geoelements – after CIOCÂRLAN, 2000 and SÂRBU et al. 2013; zoological category (after SÂRBU et al., 2007, DIHORU & NEGREAN, 2009) – threatened taxon, vulnerable taxon, endangered taxon; ecology (after SANDA et al., 1998) - behavior towards temperature, humidity, soil reaction; coenotic characteristic (after CIOCÂRLAN, 2000; SÂRBU et al., 2013) – association, alliance, order or class vegetation; chorology in the Argeş county – data from literature and personal observations in the field .

RESULTS AND DISCUSSION

In our country, the ecological, coenological, chorological and zoological data for orchid species are partial. More studies are required regarding their vitality, the size of the populations, their variability, the ways of multiplication in different habitats etc. Orchids are particularly beautiful plants, so they are subject to human intervention that can change the habitat and the number of the plant population. We cannot ignore the activities that can change the status of these plants over time. That is the reason why we made this inventory of orchid species from Argeş county. In the paper, the orchids will be ordered alphabetically, accompanied by the, ecology, coenology, chorology and zoological categories in Arges county, and finally the geoelement.

Ord. ORCHIDALES Raf., Fam. ORCHIDACEAE Juss.

Anacamptis pyramidalis (L.) L.C.M. Richard (*Orchis pyramidalis* L.)

Ecology: xeromesophile, thermophile, neutrophile species (U2T4R4). Coenology: in forest associations, meadows and shrubbery of *Festuco-Brometea*, *Brometalia erecti*. Chorology: Mălureni commune, Toplița locality (370 m.). Vulnerable taxon in The Red List of Romania. Ec (Med).

Cephalanthera damasonium (Miller) Druce (*Cephalanthera alba* (Crantz) Simonk., *Cephalanthera latifolia* Janch., *Cephalanthera grandiflora* Gray, *Cephalanthera pallens* Rich.)

Ecology: xeromesophile, subthermophile, sciadophile, neutrophile species (U2,5T3R4). Coenology: in forest associations of *Quercetea pubescenti-petraeae*, *Epipactido-Fagenion*. Chorology: Trivale Forest (350 m.). Eur.

Cephalanthera longifolia (L.) Fritsch (*Cephalanthera xiphophyllum* Rchb., *Cephalanthera ensifolia* Rich.)

Ecology: xeromesophile, subthermophile, sciadophile, neutrophile species (U2,5T3R4). Coenology: in forest associations of *Quercu-Fagetea*, *Epipactido-Fagenion*. Chorology: Trivale Forest (350 m.), Cîndesti (730 m.), Conțești (381 m.), Boteni (545 m.), Mihăești (405 m.), Ghimbav Mt.: Cheile Mari ale Dâmboviței (1000 m.). Eur.

Cephalanthera rubra (L.) L.C. Rich. (*Cephalanthera maravignae* Tineo, *Cephalanthera comosa* (L.) Simonk.)

Ecology: xeromesophile, subthermophile, sciadophile, neutrophile species (U2T3R4). Coenology: in woodland edges, scrubby grassland associations of *Quercu-Fagetea*, *Epipactido-Fagenion*, up to 1000 m. altitude. Chorology: Ghimbav Mt.: Cheile Mari ale Dâmboviței (1000 m.), Piatra Craiului Mt (2000 m.). Eur.

Coeloglossum viride (L.) Hartman

Ecology: xeromesophile, eurythermal, acido-neutrophile species (U2,5T0R3). Coenology: has a wide distribution at high altitudes and it can be found covering the alpine plains. In associations of *Nardetalia*, *Potentillo ternatae-Nardion*. Chorology: Buda Mt. (1500 m). Cbor.

Corallorhiza trifida Chatel. (*Corallorhiza innata* R.Br., *Corallorhiza neottia* Scop.)

Ecology: mesophile, eurythermal, acidophile species (U3T0R2). Coenology: it grows in deciduous as well as coniferous forest associations of *Vaccinio-Piceetea*, *Abieti-Piceion*. Chorology: Ghimbav Mt.: Cheile Ghimbavului (950 m.), Cheile Mari ale Dâmboviței (1050 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (990 m.). Circ (Bor).

Cypripedium calceolus L. (*Cypripedium reginae* auct., non Walter)

Ecology: mesophile, subthermophile, neutrophile species (U3T3R4). Coenology: usually grows on the calcareous soil, in deciduous forest associations of *Quercu-Fagetea*. Chorology: Rucăr (750 m.), Câmpulung (600 m.). Threatened taxon at European level. Protected species in Romania. Eua.

Dactylorhiza cordigera (Fries) Soó ssp. *cordigera* (*Orchis cordigera* Fr.)

Ecology: mesohygrophile, microthermal, acidophile species (U4,5T2R2), it grows on damp to swampy nutrient-rich and low-limestone, slightly alkaline to slightly acid substrates, in full sunlight. Coenology: characteristic to associations in wet grassland, unimproved marshland of *Montio-Cardaminetea*, *Caricetalia fuscae*, *Scheuchzerio-Caricetea nigrae*, up to 1000 m. altitude. Chorology: Râiosu Mt. (1900 m.), Buda Mt. (1850 m.), Ghimbav Mt.: Cheile Mari ale Dâmboviței (1050 m.), Piatra Craiului Mt.: Dâmbovicioara (1000 m.), Iezer-Păpușa Mt.: Zănoaga (2000 m.), Făgăraș Mt.: Podul Giurgiului (2270 m.), Capra Budei (1100 m.), Lespezi Mt. (2400 m.), Podeanu Mt. (1980 m.). Est Carp-Balc (Dacian).

Dactylorhiza incarnata (L.) Soó (*Orchis strictifolia* Opiz, *Orchis lanceolata* A. Dietr., *Orchis impudica* Crantz, *Orchis incarnata* L.)

Ecology: mesohygrophile, subthermophile, euryonic species (U4T3R0). Coenology: in marshy, swampy substrates from oak to fir forests associations of *Molinion*, *Calthion*. Chorology: Râiosu Mt. 1180 m.), Buda Mt. (1900 m.), Ghimbav Mt.: Cheile Cheii (900 m.), Cheile Mari ale Dâmboviței (1050 m.), Făgăraș Mt.: Lespezi (2100 m.). Vulnerable taxon in The Red List of Romania. Eua (Med).

Dactylorhiza maculata (L.) Soó ssp. *maculata*, (*Orchis maculata* L. ssp. *maculata*)

Ecology: eurydry, eurytherm, euryonic species (U0T0R0). Coenology: it prefers full sun to shade associations, on moist to wet grassland, meadows, marshes, sphagnum bogs, on acidic substrates of *Caricetalia davallianae*, *Molinietalia*, *Scheuchzerio-Caricetalia fuscae*, up to 1000 m. altitude. Chorology: Râiosu Mt. (2180 m.),

Buda Mt. (2055 m.), Piatra Craiului Mt.: Cheile Brusturețului (1000 m.), Ghimbav Mt.: Curmătura Ghimbavului (1600 m.), Cheile Ghimbavului (1050 m.), Leaota Mt.: Romanescu Mt. (1400 m.). Eua

Epipactis atrorubens (Hoffm.) Besser, (*Helleborine rubiginosa* (Crantz) Stoj. et Stef, *Helleborine atropurpurea* (Raf.) Schinz et Thell., *Epipactis rubiginosa* (Crantz) Gaudin)

Ecology: xeromesophile, eurythermal, neutrophile species (U2T0R4). Coenology: in associations of warm and dry locations, in full sun to partial shade, on calcareous, dry to moist, often sandy substrates of *Epipactido-Fagenion*, *Pinetalia*, *Abieti-Piceion*. Chorology: Râiosu Mt. (1900 m.), Buda Mt. (2000 m.), Valea Buda (1500 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (1050 m.), Cheile Brusturețului (1000 m.), Marele Grohotiș (1650 m.), Ghimbav Mt.: Cheile Mari ale Dâmboviței (1050 m.), Pitești (350 m.), Nămăești (800 m.). Eua

Epipactis helleborine (L.) Crantz (*Epipactis viridiflora* (Hoffm.) H.Müll. pro parte, *Epipactis latifolia* (L.) All., *Helleborine viridans* Samp.)

Ecology: mesophile, subthermophile, acido-neutrophile species (U3T3R3). It has a high tolerance of various ecological conditions. Coenology: it grows in most diverse habitats, in deciduous or coniferous forests associations, on roadsides, in meadows of *Fagetalia sylvaticae*, *Epipactido-Fagenion*, *Abieti-Piceion*. Chorology: Trivale Forest (300 m.), Râiosu Mt. (1800 m.), Buda Mt. (1700 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (1050 m.), Ghimbav Mt.: Cheile Ghimbavului (1100 m.), Cheile Rudăriței (900 m.), Iezer-Papusa Mt.: Cheile Mici ale Dâmboviței (950 m.), Leaota Mt.: Romanescu Mt. (1400 m.), Valea Bădenilor (750 m.). Eua

Epipactis microphylla (Ehrh.) Swartz (*Helleborine microphylla* (Ehrh.) Schinz et Thell.)

Ecology: mesophile, thermophile, neutrophile species (U3T3,5R4). Coenology: it prefers shady sites, on deep moist, calcareous substrates, in dens deciduous forests associations, rarely coniferous forests association of *Epipactido-Fagenion*, up to 1500 m. altitude. Chorology: Râiosu Mt. (1700 m.), Buda Mt. (1800 m.), Valea Buda (1550 m.), Piatra Craiului Mt. (1850 m.). Eur-Med.

Epipactis palustris (L.) Crantz (*Helleborine palustris* (L.) Schrank)

Ecology: mesohygrophytes, micro-mesothermes, neutrophile species (U4,5T3R4). Coenology: in associations of alkaline, neutral and also moderately acid substrates. It prefers swampy, marshy, alkaline habitats of *Caricion davallianae*, *Molinion*. Chorology: Câmpulung (650 m.). Eua.

Epipactis purpurata Sm. (*Epipactis varians* (Crantz) Fleischm. et Rech., *Epipactis sessilifolia* Peterm., *Epipactis violacea* (Dur.-Duq.) Boreau)

Ecology: mesophile, thermophile, neutrophile species (U3T3R4). Coenology: in associations of shady sites on deep, heavy moist, acidic to neutral substrates, in beech and coniferous forests of *Fagetalia*. Chorology: Boteni (550 m.). Ec-Subatl.

Epipogium aphyllum Swartz, (*Epipogium gmelinii* Rich.)

Ecology: mesophile, microthermal, acido-neutrophile species (U3T2,5R3). Coenology: in associations in coniferous and deciduous forests of *Symphyto-Fagion*, *Vaccinio-Piceetea*. Chorology: Leaota Mt.: Culmea Zacotelor (1500 m.), Piatra Craiului Mt. (1800 m.). Endangered taxon in The Red List of Romania. Eua.

Goodyera repens (L.) R. Br., (*Peramium repens* (L.) Salisb. ex C.C.Curtis)

Ecology: mesophile, eurythermals, euryionics (U3T0R0). Coenology: in associations along the mountain river beds, in subalpine areas of *Pinetalia*, *Dicrano-Pinion*, *Abieti-Piceion*. Chorology: Cheile Cheii (950 m.), Cheile Ghimbavului (1050 m.). Endangered taxon in Red List of Romania. Circ.

Gymnadenia conopsea (L.) R. Br. (*Orchis conopsea* L.)

Ecology: mesohygrophyte, eurythermal, neutrophile species (U4T0R4). Coenology: in associations in mountain meadows and pastures, limestone grassland and marshes of *Molinietalia. Brometalia erecti*. Chorology: Râiosu Mt. (2100 m.), Buda Mt. (2200 m.), Râiosu river valley to the sheepfold (1950 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (1050 m.), Cheile Brusturețului (1100 m.), Cerdacul Stanciului (1800 m.), Marele Grohotiș (1650 m.), Leaota Mt.: Cheile Ghimbavului (1100 m.). Eur

Gymnadenia odoratissima (L.) L.C.M. Richard (*Orchis odoratissima* L.)

Ecology: xero-mesophile, eurythermal, basiphile species (U2,5T0R5). Coenology: it grows in grassland, marshes, mountain pastures. It prefers moist to damp, calcareous substrate, in half-shadow to full sunlight associations of *Calamagrostion variae*, *Potentillo ternatae-Nardion*. Chorology: Râiosu Mt. (1800 m.), Buda Mt. (1900 m.), Piatra Craiului Mt.: Marele Grohotiș (1650 m.), Făgăraș Mt.: Prislopu (1950 m.). Euc

Hammarbya paludosa (L.) O. Kuntze, (*Malaxis paludosa* (L.) Sw.)

Ecology: mesohygrophyte, microthermal, acidophile species (U4T2R2). Coenology: it prefers swampy habitats associations of *Rynchosporion albae*. Chorology: Brusturet, Cheile Cheii (950 m.). Vulnerable taxon in The Red List of Romania. Eua.

Hermidium monorchis (L.) R. Br.

Ecology: eurydry, thermophile, neutrophile species (U0T3R4). Coenology: it prefers wet meadows, mostly in low to sub alpine associations of *Eriophorion latifolii*, *Caricion davallianae*, *Molinion coeruleae*. Chorology: Iezer-Păpușa Mt. (1800 m.). Vulnerable taxon in Red List of Romania. Eua.

Limodorum abortivum (L.) Swartz

Ecology: xeromesophile, thermophile, neutrophile species (U2,5T4R4). Coenology: it grows in thermophilous deciduous and coniferous (especially pine) woodland, scrub and grassy clearings associations of *Fraxino-Cotinetalia*,

Quercetalia pubescentis. Chorology: Curtea de Argeș, in Târnița forest (400 m.). Vulnerable taxon in Red List of Romania. Euc-Med.

Liparis loeselii (L.) L.C.M. Richard (*Pseudorchis loeselii* (L.) Gray)

Ecology: hygrophile, termophile, neutrophile species (U5T3R4). Coenology: it grows in humid bogs or swamp associations of *Caricion davallianae*, *Eriophorion latifolii*. Chorology: Piatra Craiului Mt.: Cheile Brusturetului (1050 m.). Threatened taxon at European level. Circ.

Listera ovata (L.) R. Br.

Ecology: mesophile, eurythermal, neutrophile species (U3,5T0R4). Coenology: it grows in forests, shrubbery, woody deciduous clearing associations of *Symphyto-Fagion*, *Galio-Carpinion*, *Alnion incanae*. Chorology: Trivale Forest (350 m.), Ghimbav Mt.: Cheile Cheii (950m.), Cheile Mari ale Dâmboviței (1050 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (1000 m.), Cheile Brusturetului (1050 m.), Dobrogea: Ciobani forest (250 m.). Eua (Med).

Malaxis monophyllos (L.) Sw. (*Microstylis monophyllos* (L.) Lindley, *Ophrys monophyllos* L.)

Ecology: mesohygrophile, microthermal, acidophile species (U4T2R2). Coenology: it grows on damp meadows near water springs, woody coniferous or deciduous clearings, forest cuts associations of *Scheuchzeria-Caricetea fuscae*. Chorology: Iezer-Păpușa Mt.: Strâmtu Mt (1300 m.). Vulnerable taxon in Red List of Romania. Circ.

Neottia nidus-avis (L.) L.C.M. Richard

Ecology: mesophile, termophile, acido-neutrophile species (U3,5T3R3). Coenology: it grows on soils rich in humus, in shady forests associations of *Quercus-Fagetalia*, *Fagetalia sylvaticae*. Chorology: Trivale Forest (350 m.), Râiosu Mt. (1700 m.), Buda Mt. (1850 m.), Valea Buda (800 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (1000 m.), Cheile Brusturetului (1050 m.), Ghimbav Mt.: Cheile Ghimbavului (950 m.), Cetățeni (500 m.). Eua.

Nigritella nigra (L.) Reich. fil.

Ecology: xeromesophile, criophile, neutrophile species (U2,5T1,5R4). Coenology: it prefers full sun, on calcareous substrates, alpine meadows associations of *Elyno-Seslerietea*. Chorology: Râiosu Mt. (2100 m.), Piatra Craiului Mt. (2000 m.). Vulnerable taxon in The Red List of Romania. Protected species in Romania. Eua-arct-alp.

Nigritella rubra (Wettst.) K. Richter (*Nigritella nigra* (L.) Rchb. fil. ssp. *rubra* (Wettst.) Beauverd)

Ecology: xeromesophile, euritherme, basiphile species (U2,5T0R5). Coenology: it prefers full sun, on calcareous substrates, alpine meadows associations of *Seslerietalia*, *Nardetalia*. Chorology: Buda Mt.: Polița lui Vodă (1850 m.), Piatra Craiului Mt. (2000 m.). Vulnerable taxon in The Red List of Romania. Protected species in Romania. Est-alp-Carp.

Orchis coriophora L. ssp. *coriophora*

Ecology: mesohygrophile, euritherme, neutrophile species (U4T0R4). Coenology: it grows in marshy meadows from the plains to the beech forests associations of *Arrhenatherion elatioris*, *Molinion coeruleae*. Chorology: Trivale Forest (350 m.). Euc (Med).

Orchis laxiflora Lam. ssp. *elegans* (Heuffel) Soó (*Orchis elegans* Heuff.)

Ecology: mesohygrophile, micromesotherme, euryionics species (U4T3R0). Coenology: it grows in marshy meadows and meadows from the plains to the beech forests associations of *Molinietalia*, *Magnocaricion elatae*, *Eriophorion latifolii*, *Calthion*. Chorology: Leaota Mt. (1950 m.), Poiana Narciselor Negrași (200 m.). Vulnerable taxon in The Red List of Romania. Pont-Pan.

Orchis mascula (L.) L. ssp. *signifera* (Vest) Soó (*Orchis signifera* Vest, *Orchis speciosa* Host)

Ecology: mesophile, termophile, neutrophile species (U3T3R4). Coenology: from meadows to mountain pastures and woods, in full sun or shady areas. In woodland and grassland associations of *Arrhenatherion elatioris*, *Carpinion betuli*, *Quercus-Fagetalia*. Chorology: Râiosu Mt. (1950 m.), Buda Mt. (2050 m.), Valea Buda (1700 m.), Piatra Craiului Mt.: Valea Dâmboviței (1000 m.), Rucăr (650 m.). Endangered taxon in The Red List of Romania. Eur.

Orchis militaris L.

Ecology: mesophile, termophile, neutrophile species (U3T3R4). Coenology: it grows in dry or damp meadows, woodland edges associations of *Alno-Padion*, *Festucetalia valesiaca*, *Molinietalia*. Chorology: Ghimbav Mt.: Valea Ghimbavului (1000 m.), Câmpulung (650 m.), Zăbava Mt. (1050 m.), Boteni (550 m.), Leordeni (230 m.), Conțești in Valea Râncăciovului (370 m.). Vulnerable taxon in The Red List of Romania. Eua.

Orchis morio L. ssp. *morio*

Ecology: xero-mesophile, mesotherme, neutrophile species (U2,5T3R4). Coenology: it grows in meadows, bushes, forest cuts associations of *Arrhenatheretalia*, *Festuco-Brometalia*, *Mesobromion*. Chorology: Trivale Forest (350 m.), Ghimbav Mt.: Cheile Mari ale Dâmboviței (1050 m.). Vulnerable taxon in The Red List of Romania. Eur.

Orchis purpurea Hudson

Ecology: xero-mesophile, micro-mesotherme, neutrophile species (U2,5T4R4). Coenology: it is found in warmer, dry grassland, deciduous margins forest associations of *Orno-Cotinion*, *Quercetalia pubescentis*, *Fagetalia*, *Quercion petraeae*. Chorology: Câmpulung (650 m.), Boteni (550 m.), Conțești (350 m.). Vulnerable taxon in The Red List of Romania. Euc.

Orchis ustulata L.

Ecology: xero-mesophile, mesotherme, euryionics species (U2,5T3R0). Coenology: spread to the gorun level to spruce level, through the meadow associations of *Arrhenatheretalia*, *Brometalia erecti*, *Festuco-Brometalia*, *Mesobromion*. Chorology: Dâmbovicioara-Cheile Cheii (1000 m.). Vulnerable taxon in The Red List of Romania. Eur.

Platanthera bifolia (L.) L.C.M. Richard (*Orchis bifolia* L., *Platanthera solstitialis* Boenn. ex Rchb.f.)

Ecology: mesophile, euritherme, acido-neutrophile species (U3,5T0R3). Coenology: it is found in grasslands, woodlands, deciduous or mixt forests, in hill pastures associations of *Molinietalia*, *Quercu-Fagetea*. Chorology: Trivale Forest (50 m.), Râiosu Mt. (2000 m.), Buda Mt. (1950 m.), Valea Buda in the beech forest (1800 m.), Ghimbav Mt.: Cheile Mari ale Dâmboviței (1000 m.), Piatra Craiului Mt. (1550 m.), Leaota Mt. (1900 m.). Eua (Med).

Platanthera chlorantha (Custer) Reichenb. (*Orchis montana* auct., vix F.W.Schmidt.)

Ecology: mesophile, micro-mesotherme, acido-neutrophile species (U3,5T3R3). Coenology: it grows in humid meadows associations of *Quercetea pubescentis*, *Alnion incanae*, *Molinietalia*. Chorology: Trivale Forest (350 m.), Piatra Craiului Mt.: Cheile Dâmbovicioarei (950 m.), Cheile Brusturetului (1050 m.), Boteni (550 m.). Eua (Med).

Pseudorchis albida (L.) A. Löve et D. Löve (*Orchis albida* (L.) Scop, *Leucorchis albida* (L.) E.Mey. ssp. *albida*, *Gymnadenia albida* (L.) Rich.)

Ecology: xero-mesophile, cryophile, neutrophile species (U2,5T1R4). Coenology: it prefers heather moorlands, alpine pastures associations of *Caricion curvulae*, *Potentillo ternatae-Nardion*. Chorology: Râiosu Mt. (2200 m.), Buda Mt. (2150 m.), Piatra Craiului Mt. (2000 m.), Iezer-Păpușa Mt. (1950 m.), Leaota Mt.: Culmea Leaota (2100 m.). Endangered taxon in The Red List of Romania. Eua (Circ).

Spiranthes spiralis (L.) Chevall., (*Neottia spiralis* (L.) Sw., *Spiranthes autumnalis* Rich.)

Ecology: xeromesophile, micro-mesotherme, euryionic species (U2T3,5R0). Coenology: it grows in meadows, woodland edges, bushes associations of *Molinion coeruleae*. Chorology: Dâmbovicioara – Cheile Cheii (1000 m.), Cocu-Popești (330 m.). Endangered taxon in The Red List of Romania. Atl-Med.

Traunsteinera globosa (L.) Rchb., (*Orchis broteroana* Rivas Goday & Bellot, *Orchis globosa* L.)

Ecology: mesophile, microthermal, neutrophile species (U3T2R4). Coenology: can be found from the gorun floor to the subalpine floor, through the meadows, woodland edges associations of *Elyno-Seslerietea*, *Trisetopolygonion*. Chorology: Ghimbav Mt.: Cheile Cheii (1050 m.), Cheile Mari ale Dâmbovitei (1000 m.). Vulnerable taxon in The Red List of Romania. Euc.

CONCLUSIONS

To protect endangered species, it is crucial to explore their ecology and their chorology. In the last few decades, many European countries have reported a decrease in the diversity of vascular plants in many regions or countries due to the strong anthropo-zoogenic impact. The demographics growth, the tourism, the economic activities, exert pressure on many natural ecosystems, reducing the biodiversity in an alarming way. That is why a current requirement for many populated European countries is represented by biodiversity preservation.

In the paper, we try to identify the orchids species from Argeș county, to indicate the vulnerable, endangered and protected species and thus to prevent the decrease or even the disappearance of their populations or species trying to avoid the stage when they will be in full decline or even near extinction. Out of 39 orchids species identified in Argeș county, 21 belong to different zoological categories. Thus, it is very important to keep the habitats where these wonderful orchid species are found.

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