

A STUDY ON THE FLORA AND VEGETATION OF THE VALLEY OF UZ RIVER AND ITS TRIBUTARIES

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ABSTRACT

We present a floristic summary amounting to 238 spontaneous, hydrophilic, meso-hydrophilic and some mesophyte species. The study also presents a total of 13 rare, protected or endangered species in the studied area.

Key words: cormophyte flora, vegetation, Uz River.

Introduction

The evolution of the flora and vegetation in ecosystems with excessive moisture reveals dynamic successional aspects motivated by habitat nature and human intervention (embankments, drainage and hydro-interventions). It is the reason why we returned to study the valley of Uz River and its tributaries after approx. 18 since the completion of a diploma paper (a work of the same title - 1996).

Physical and geographical characteristics of the study area: Uz River, with a length of 46 km, flows from Ciuc Mountains, crosses the Carpathian flysch area of Trotuș-Oituz to the west-east and discharges into Trotuș River in Dărmănești Depression (with a width of 14 km) off Păgubeni village. Uz River collects the waters of a basin covering an area of 475 square kilometers.

Material and method

The floristic summary as well the identification and ecological analysis of the plant communities was based on our research material from the herbarium of the Natural Sciences Museum Complex in Bacău and the information compiled from the works cited in the bibliography.

List of species: PTERIDOPHYTA: *Dryopteris filix-mas* (L.) Scott, *Equisetum arvense* L., *E. palustre* L., *E. sylvaticum* L., *E. telmateia* Ehrh., *Matteuccia struthiopteris* (L.) Tod.; SPERMATOPHYTA: *Acer campestre* L., *A. pseudoplatanus* L., *Achillea millefolium* L., *Aegopodium podagraria* L., *Agrostis stolonifera* L., *Alchemilla vulgaris* L., *Alisma plantago-aquatica* L., *Alnus glutinosa* (L.) Gaertn., *A. incana* (L.) Moench, *Alopecurus aequalis* Sobolewsky, *A. geniculatus* L.,

A. pratensis L., *Arctium lappa* L., *Asarum europaeum* L., *Beckmania eruciformis* (L.) Vill., *Bellis perennis* L., *Bidens cernua* L., *B. tripartita* L., *Bolboschoenus maritimus* (L.) Palla, *Brachypodium sylvaticum* L., *Butomus umbellatus* L., *Calamagrostis epigeios* (L.) Roth, *C. pseudophragmites* (Hall.f.) Koei, *Callitriche cophocarpa* Sendtner, *Caltha palustris* L., *Calystegia sepium* (L.) R.Br., *Campanula bononiensis* L., *C. trachelium* L., *Cardamine flexuosa* With., *Carex acutiformis* Ehrh., *C. brizoides* L., *C. caespitosa* L., *C. distans* L., *C. hirta* L., *C. remota* L., *C. rostrata* Stokes, *C. sylvatica* Huds., *C. tomentosa* L., *C. vulpina* L., *Carduus personata* L., *Carpinus betulus* L., *Carum carvi* L., *Catabrosa aquatica* (L.) P.Beauv., *Centaurea jacea* L., *Centunculus minimus* L. (10), *Cerastium arvense* L., *Cerasus avium* L., *Chenopodium botrys* L., *C. vulvaria* L. (7) *Cherophyllum hirsutum* L., *Chrysosplenium alternifolium* L., *Cichorium intybus* L., *Circaea alpina* L., *C. lutetiana* L., *Cirsium arvense* (L.) Scop., *C. canum* (L.) All., *C. lanceolatum* (L.) Scop., *C. oleraceum* (L.) Scop., *C. palustre* (L.) Scop., *Clematis vitalba* L., *Conium maculatum* L., *Cornus sanguinea* L., *Corylus avellana* L., *Crysosplenium alternifolium* L., *Cucubalus baccifer* L., *Cynosurus cristatus* L., *Daucus carota* L., *Deschampsia caespitosa* (L.) P.Beauv., *Dipsacus strigosus* Willd., *Eleocharis acicularis* (L.) Roemer et Schultes, *E. palustris* (L.) Roemer et Schultes, *Elsholtzia ciliata* (Thunb.) Hyl. (10), *Epilobium alsinifolium* Vill., *E. palustre* L., *E. hirsutum* L., *E. parviflorum* Schreb., *Epipogium aphyllum* Swartz (9), *Erigeron annuus* (L.) Pers. ssp. *strigosus* (Muhl. ex Willd.) Wagenitz, *Eriophorum latifolium* Hoppe, *Eupatorium cannabinum* L., *Euphorbia amygdaloides* L., *E. exigua* L. (10), *Festuca arundinacea* Schreb., *F. gigantea* (L.) Vill., *Filipendula ulmaria* (L.) Maxim, *Frangula alnus*

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Mill., *Fritillaria meleagris* L., *Galium palustre* L. ssp. *palustre*, *Geranium palustre* L., *G. robertianum* L., *Geum montanum* L., *G. urbanum* L., *Glecoma hederacea* L., *Glyceria maxima* (Hartm.) Holmbg., *G. fluitans* (L.) R.Br., *G. notata* Chevall., *Gymnadenia odoratissima* (L.) L.C.M. Richard (9), *Heracleum sphondylium* L., *Hippophae rhamnoides* L., *Holcus lanatus* L., *Humulus lupulus* L., *Hypericum perforatum* L., *Impatiens noli-tangere* L., *I. glandulifera* Royle, *Inula britannica* L., *I. helenium* L., *Isolepis setacea* (L.) R.Br., *Juncus articulatus* L., *J. buffonius* L., *J. conglomeratus* L., *J. effusus* L., *J. inflexus* L., *J. tenuis* Willd.(10), *Lemna minor* L., *L. trisulca* L., *Leontodon autumnale* L., *Lolium perenne* L., *Lotus corniculatus* L., *Lychnis flos-cuculi* L., *Lycopus europaeus* L., *L. exaltatus* L., *Lysimachia nummularia* L., *L. punctata* L., *L. vulgaris* L., *Lythrum salicaria* L., *L. virgatum* L., *Matricaria discoidea* D.C., *Medicago lupulina* L., *Melandrium album* L., *Mentha aquatica* L., *M. arvensis* L., *M. longifolia* (L.) Hudson, *M. pulegium* L., *Molinia coerulea* (L.) Moench., *Myosotis scorpioides* L., *Myosoton aquaticum* (L.) Moench, *Myricaria germanica* (L.) Desv., *Myriophyllum verticillatum* L., *Narostutium officinalis* R.Br., *Oenanthe aquatica* (L.) Poir., *Peucedanum carvifolium* Vill., *Petasites albus* L., *P. hybridus* (L.) Gaertn., *P. kablikianus* Tausch (9), *P. paradoxus* (Retz.) Baumg. (9), *Phleum pratense* L., *Phragmites australis* (Cav.) Trin., *Picea abies* L., *Plantago lanceolata* L., *Poa annua* L., *P. palustris* L., *P. pratensis* L., *Polygonum bistorta* L., *P. hydropiper* L., *P. lapathifolium* L., *P. mite* Schrank, *P. persicaria* L., *Populus alba* L., *Potamogeton crispus* L., *P. lucens* L., *P. pectinatus* L., *Potentilla anserina* L., *P. reptans* L., *P. supina* L., *Prunella vulgaris* L., *Prunus spinosa* L., *Pulicaria vulgaris* L., *Pyrus pyraser* L., *Ranunculus acris* L. ssp. *acris*, *R. repens* L., *R. sceleratus* L., *Ranunculus trichophyllus* Chaix, *Rhinanthus minor* L., *Rorippa austriaca* (Crantz) Besser, *R. sylvestris* (L.) Besser, *R. pyrenaica* (L.) Reichenb. (11), *Rosa canina* L., *Rubus caesius* L., *Rumex acetosa* L., *R. conglomeratus* Murr., *R. crispus* L., *R. hidrolapatum* Hudson, *R. obtusifolius* L., *R. sanguineus* L., *Sagittaria sagittifolia* L., *Salix alba* L., *S. capraea* L., *S. cinerea* L., *S. elaeagnos* Scop., *S. fragilis* L., *S. purpurea* L., *S. triandra* L., *Saguisorba officinalis* L., *Sanicula europaea* L., *Saponaria officinalis* L., *Saxifraga cymbalaria* L., *Schoenoplectus lacustris* (L.) Palla, *S. tabernaemontani* (Gmel) Palla, *S. triqueter* L., *Scirpus sylvaticus* L., *Scrophularia nodosa* L., *Sium latifolium* L., *Solanum dulcamara* L., *Sparganium erectum* L., *Spirodela polyrhiza* (L.) Scleichen, *Stachys palustris* L., *S. sylvatica* L.,

Stellaria nemorum L., *S. media* (L.) Vill., *Symphytum officinale* L., *Tamarix ramosissima* Ledeb., *Tanacetum vulgare* L., *Taraxacum hoppeanum* (Kit.) Griseb.(9), *Telekia speciosa* (Schreb.) Baum., *Thalictrum lucidum* L., *Trifolium fragiferum* L., *T. hybridum* L., *T. repens* L., *Trollius europaeus* L., *Tussilago farfara* L., *Typha angustifolia* L., *T. latifolia* L., *Urtica dioica* L., *Valeriana officinalis* L., *Verbena officinalis* L., *Veronica anagalis-aquatica* L., *V. beccabunga* L., *Viburnum opulus* L., *Viola biflora* L.

Flora analysis: statistically, the flora of Uz River and its tributaries outlines the presence of a relatively high number of taxons (238 species) compared with the analyses conducted in similar works (4, 5, 8) on other rivers from the mountainous and submontane area of Moldavia. For all species the locations are indicated in the phytocological tables.

In the Dărmănești Depression, the following adventive species are more rarely encountered: *Elsholtzia ciliata*, *Erigeron annuus* ssp. *strigosus*, *Impatiens glandulifera*, *Dipsacus strigosus*, iar dintre cormofitele identificate unele species figurează ca plante rare, periclitare sau vulnerabile: *Fritillaria meleagris*, *Saxifraga cymbalaria*, *Centunculus minimus*, *Elsholtzia ciliata*, *Euphorbia exigua*, *Juncus tenuis*, *Chenopodium vulvaria*, *Epipogium aphyllum*, *Gymnadenia odoratissima*, *Petasites kablikianus*, *P. paradoxus*, *Taraxacum hoppeanum*, *Rorippa pyrenaica*.

A summary of plant communities from the valley of Uz River and its tributaries

I. LEMNETAEA MINORIS Bolos et Masclans 1955

Lemnetalia Bolós et Masclans 1955

Lemnion minoris Bolós et Masclans 1955

1. *Lemnetum minoris* Oberd. ex T. Müller et Görs 1960

II. POTAMETEA Tx. et Prsg 1942

Potametalia W.Koch 1926

Magnopotamion Vollmar 1947

2. *Myriophyllo* – *Potametum lucentis* Soó 1934

3. *Potametum lucentis* Hueck 1931 subas.

potametum pectinati (Carten. 1955)

Callitricho - Batrachietalia Passarge 1964

Ranunculion aquatilis Passarge 1964

4. *Callitrichetum polymorphae* Soó 1947

III. PHRAGMITI – MAGNOCARICETEA Klika in Klika et Novak 41

Phragmitetalia Koch 1926

Phragmition communis Kock 1926
 5. *Phragmitetum vulgaris* Soó 1927
 6. *Typhetum angustifoliae* Pignatti 1953
 7. *Typhetum latifoliae* Lang 1973
Magnocaricetalia elatae Pignatti 1953
Magnocaricion elatae Koch 1926
 8. *Eleocharitetum palustris* Ubrizsy 1948
Bolboschoenetalia maritimi Eggler 1933
Cirsio brachycephali – Bolboschoenion (Passarge 1978) Mucina
 9. *Bolboschoenetum maritimi* Eggler 1933

IV. MONTIO – CARDAMINETEA Br.-Bl. et Klika 1948
Cardamino – Chrysosplenietalia Hinterlang 1992
Caricion remotae Kastner 1941
 10. *Cardamino flexuosae – Saxifragetum cymbalariae* Mititelu et Barabaş 1994

V. MOLINIO – ARRHENATHERETEA
 R.Tx.1937
Molinetalia caeruleae Kock 1926
Calthion palustris R.Tx. 1937
 11. *Ranunculo repentis – Calthetum palustris* Chifu et al. 2006
 12. *Epilobio – Juncetum effusi* Oberd. 1957
 13. *Scirpetum sylvatici* Ralski 1931
Arrhenatheretalia R.Tx.1931
Cynosurion R.Tx.1947
 14. *Trifolio – Lolietum perennis* Krippelova 1967
Potentillo – Polygonetalia R.Tx.1947
Potentillion anserinae R.Tx. 1947
 15. *Junco inflexi – Menthetum longifoliae* Lohmeyer 1953
 16. *Agrostietum stoloniferae* Burduja et al.1956
 17. *Potentilletum anserinae* Felföldy 1942

VI. GALIO – URTICETEA Passarge ex Kopecky 1969
Convolvuletalia sepium R.Tx. 1950 em. Mucina 1993
Petasition officinalis Sillinger 1933
 18. *Telekio – Petasitetum hybridi* (Morariu 1967) Resm. et Raşiu 1974
 19. *Carduetum personatae* (Dihoru 1965) Hadac 1969

VII. SALICETEA PURPUREAE Moor 1958
Salicetalia purpureae Moor 1958
Salicion albae Soó 1930
 20. *Salicetum albae* Issler 1926
 21. *Salicetum triandrae* Malcuit ex Noifalise in Lebrun et al. 1955
Salicion elaeagno-daphnoides (Moor1958) Gras in Mucina et al. 1993

22. *Salici elaeagni – Hippophaetum* Br.-Bl. in Volk 1939
 23. *Salici purpureae – Myricaritetum* Moor 1958

VIII. QUERCO – FAGETEA Br.-Bl. et Vlieger in Vlieger 1937
Alno – Fraxinetalia (Oberd. 1953) Passarge et Hoffmann 1968
Alnion incanae Pawlowski in Pawlowski et Wallisch 1928
 24. *Stellario nemorum – Alnetum glutinosae* Lohmeyer 1957
 25. *Telekio speciosae – Alnetum incanae* Coldea 1990

Plant zoning

As a result of the study of the aquatic and swamp vegetation of Uz River and its tributaries we can group the phytocoenoses encountered, depending on the water and substrate factor in the following areas:

Proper aquatic and swamp vegetation areas/zones

- a. The subzone of natant aquatic vegetation
Lemnetum minoris Oberd. ex T. Müller et Görs 1960
- b. The subzone of submersed-natant aquatic vegetation
Myriophyllo – Potametum lucentis Soó 1934
Potametum lucentis Hueck 1931 subas. *potametum pectinati* (Carten.1955) Chifu et al.'06
Callitrichetum polymorphae Soó 1947
- c. The subzone of emergent and swamp hydrophytic vegetation
Phragmitetum vulgaris Soó1927
Typhetum angustifoliae Pignatti 1953
Typhetum latifoliae Lang 1973
Eleocharitetum palustris Ubrizsy 1948
- d. The subzone of hygrophytic vegetation
Bolboschoenetum maritimi Eggler 1933
Cardamino flexuosae – Saxifragetum cymbalariae Mititelu et Barabaş 1994
Ranunculo repentis - Calthetum palustris Chifu et al. 2006
Epilobio – Juncetum effusi Oberd.1957
Scirpetum sylvatici Ralski 1931

Zones with terrestrial vegetation

- a. The subzone of meso-hygrophila vegetation
Junco inflexi – Menthetum longifoliae Lohmeyer 1953
Potentilletum anserinae Felföldy 1942
Agrostietum stoloniferae Burduja et al. 1956
Trifolio – Lolietum perennis Krippelova 1967
Telekio – Petasitetum hybridi (Morariu 1967) Resm. et Raşiu 1974

Carduetum personatae (Dihoru 1965) Hadac 1969
 b. The subzone of bushes and hygrophila forests
Salicetum albae Issler 1926
Salicetum triandrae Malcuit ex Noirfalise in Lebrun et al. 1955
Salici elaeagni – *Hippophaetum* Br.- Bl. in Volk 1939
Salici purpureae - *Myricarietum* Moor 1958
Stellario nemorum - *Alnetum glutinosae* Lohmeyer 1957
Telekio spciosae – *Alnetum incane* Coldea 1990

Description of plant communities

Natant aquatic vegetation: this group comprises floating hydrophylic phytocenoses from the central or litoral area of ponds in which the water, even at fluctuating levels, does not dry out.

Lemnetum minoris Oberd. ex T.Müller et Görö 1960: develops on the pool water surface and is sometimes very dense or with gaps between plants. They are spread in the area close to the castle, by the road to Lapoş, at Bălătău, at the end of the reservoir.

Survey number	1	2	3	4
Survey surface area in dcp	3	10	15	30
Coverage (%)	100	70	80	70
<i>Lemna minor</i>	5	3	4	4
<i>Lemna trisulca</i>	-	+	+	+
<i>Alisma plantago-aquatica</i>	+	-	+	+
<i>Phragmites australis</i>	+	+	-	+
<i>Schoenoplectus tabernaemontani</i>	-	-	+	+

Submersed-natant aquatic vegetation: the phytocenoses of this group hold emergent and submersed species covering running or stagnant waterholes of about one metre depth.

Myriophyllo* – *Potametum lucentis Soo 1934: phytocenoses encountered on pools after landslides. Habitat: pool in Bălătău lake, natural pool on Căpuria rivulet.

Survey number	1	2
Survey surface area in square meters	10	30
Coverage (%)	50	70
<i>Myriophyllum verticillatum</i>	+	1
<i>Potamogeton pectinatus</i>	2	2
<i>Alisma plantago-aquatica</i>	+	+
<i>Lemna minor</i>	2	1
<i>Typha angustifolia</i>	+	+
<i>Schoenoplectus tabernaemontani</i>	+	-
<i>Chara</i> sp.	-	+

Potametum lucentis
 Hueck 1931 sub *potametosum pectinati* (Cartensen 1955) Chifu et al. 2006. It grows in slowly flowing shallow waters, on a silty-sandy substrate. Habitat:

the tributary of Izvorul Negru at Sălătruc, on Apa Roşie rivulet at Poiana Lobert, on Mogheruş rivulet at Poiana Uzului.

Survey number	1	2	3
Survey surface in dcp	5	12	8
Coverage (%)	50	70	50
<i>Potamogeton pectinatus</i>	3	2	3
<i>Potamogeton lucens</i>	+	2	-

Callitrichetum polymorphae Soó 1947: occupies up to 10 sqm in shallow slowly draining pools. There are a few species depending on the nature of the substrate and the water pH. It is not affected by water level decreasing. Habitat: on

rivulet Negru rivulet at Bălătău, on a hill rivulet at Sălătruc, on Soveto rivulet at Poiana Uzului, on Bărzăuța at the forest range.

Survey number	1	2	3	4
Survey surface area in dcp	5	7	10	3
Water depth in cm	10	15	15	10
<i>Callitriche cophocarpa</i>	3	4	3	4
<i>Lemna minor</i>	-	-	1	+
<i>Potamogeton pectinatus</i>	1	+	-	+
<i>Ranunculus trichophyllus</i>	-	+	-	-
<i>Alisma plantago-aquatica</i>	-	-	+	-

Emergent and swamp hydrophytic vegetation: phytocoenoses of dense and high reeds in the coastal zone where water recedes periodically. The size of the area occupied by each phytocoenosis, the installation speed and the persistence depend on the water depth, the nature of the substrate and the speed of clogging in the wetland.

Phragmitetum vulgaris Soó 1927: occupying relatively small areas at the margin of ponds/pools

or in the alluvial cones of coastal springs. It forms almost pure phytocoenoses sometimes with a characteristic multilayered structure, with the dominant species in the upper layer. Habitat: Dărmănești towards the area of juncture with Trotuș, Sălătruc river towards the den, the road to Lapoș, pool off Păgubeni village, pool on Izvorul Alb rivulet.

Survey number	1	2	3	4	5
Survey surface area in square meters	100	150	80	100	50
Water depth in cm	20	15	15	20	10
<i>Phragmites australis</i>	3	4	4	3	5
<i>Schoenoplectus lacustris</i>	2	+	1	1	+
<i>Lycopus europaeus</i>	+	+	-	+	-
<i>Butomus umbellatus</i>	-	+	+	+	-
<i>Galium palustre</i>	+	+	-	+	-
<i>Lythrum salicaria</i>	+	+	+	-	-
<i>Epilobium hirsutum</i>	-	-	+	+	-
<i>Stachys palustris</i>	+	+	-	+	-
<i>Myosotis scorpioides</i>	-	+	+	+	-
<i>Alisma plantago-aquatica</i>	-	+	-	+	-

Typhetum angustifoliae Pignatti 1953: in the study area, the phytocoenoses are spread on the insular areas of some pools found in alluvial cones, in wetlands caused by landslides or in pools fed by

hilly springs. Habitat: pools in Păgubeni, Sălătruc at Bălătau, Poiana Uzului and Valea Uzului.

Survey number	1	2	3	4
Survey surface area in square meters	150	80	100	200
Water depth in cm	20	10	20	40
<i>Typha angustifolia</i>	4	3	3	4
<i>Butomus umbellatus</i>	+	-	-	-
<i>Lycopus europaeus</i>	-	+	+	+
<i>Phragmites australis</i>	-	+	1	-
<i>Alisma plantago-aquatica</i>	+	-	-	+
<i>Lythrum salicaria</i>	+	-	+	+
<i>Myosotis scorpioides</i>	+	-	-	+

Typhetum latifoliae Lang 1973: on the valley of Uz River, the phytocoenoses of this community are met in old pools, slowly flowing swamps at Dărmănești on a clogged up brook, off Poiana

Uzului village and in the pool on Soveto rivulet at Valea Uzului.

Survey number	1	2	3
Survey surface area in square meters	350	200	400
Water depth in cm	30	20	30
<i>Typha latifolia</i>	4	5	4
<i>Lycopus europaeus</i>	+	+	+
<i>Butomus umbellatus</i>	+	-	+
<i>Alisma plantago-aquatica</i>	+	+	+
<i>Stachys palustris</i>	+	-	+
<i>Lytrum salicaria</i>	-	+	+
<i>Myosotis scorpioides</i>	+	-	-
<i>Symphytum officinale</i>	+	-	-

Eleocaritetum palustris Ubrizsy 1948: insular phytocoenoses at the margin of some slowly flowing pools fed by water coming from hilly springs. Habitat: Sălătruc and the road to Lapoş.

Survey number	1	2
Survey surface area in square meters	2	2
Water depth in cm	10	5
<i>Eleocharis palustris</i>	4	4
<i>Veronica anagallis-aquatica</i>	+	+
<i>Bolboschoenus maritimus</i>	+	+
<i>Lysimachia nummularia</i>	+	+
<i>Alopecurus geniculatus</i>	+	-
<i>Agrostis stolonifera</i>	-	+
<i>Alisma plantago-aquatica</i>	+	-

Hygrophytic vegetation: groups of phytocoenoses with higher species, developing on flat lands around the pools or in micro-depressions. deposits and swampy meadows. Habitat: Sălătruc on Izvorul Negru, Poiana Uzului on Izvorul Alb, Valea Uzului on Mogheroş and Soveto rivulet.

Bolboschoenetum maritimi Egger 1933: phytocoenoses strips along pools with alluvial

Survey number	1	2	3	4
Survey surface area in square meters	10	20	50	30
Water depth in cm	10	10	20	10
<i>Bolboschoenus maritimus</i>	4	4	3	5
<i>Lytrum salicaria</i>	+	+	+	+
<i>Alisma plantago-aquatica</i>	+	+	-	+
<i>Myosotis scorpioides</i>	+	+	-	+
<i>Galium palustre</i>	+	+	+	+
<i>Lycopus exaltatus</i>	+	-	-	+
<i>Eleocharis palustris</i>	-	+	+	-
<i>Agrostis stolonifera</i>	-	+	-	+
<i>Rorippa sylvestris</i>	+	-	+	-

Cardamino flexuosae* – *Saxifragetum cymbalariae Mititelu et Barabaş 1994: phytocoenoses present in alluvial cones at the junction of some hill springs in the upper area of Izvorul Negru, in the lower area, with beech and alder forests of Nemira Mountains

Survey number	1	2	3
Altitude in meters	800	800	900
Survey surface area in square meters	4	4	4
<i>Saxifraga cymbalaria</i>	3	3	2
<i>Chrysosplenium alternifolium</i>	1	+	1

<i>Cardamine flexuosa</i>	+	+	1
<i>Epilobium alsinifolium</i>	+	+	-
<i>Stellaria nemorum</i>	-	+	+
<i>Viola biflora</i>	+	-	+
<i>Circaea alpina</i>	+	-	+
<i>Caltha palustris</i>	-	-	+
<i>Impatiens noli-tangere</i>	+	+	-
<i>Myosoton aquaticum</i>	+	-	-
<i>Ranunculus repens</i>	+	-	-
<i>Brachythecium rivulare</i>	+	+	+
<i>Mnium punctatum</i>	+	+	+
<i>Pellia epiphylla</i>	-	-	+
<i>Polytrichum commune</i>	+	+	-
<i>Mnium undulatum</i>	+	-	+

Ranunculo repentis – Calthetum palustris
Chifu et al. 2006: encountered in the upper half of Uz basin, the phytocoenoses of this community are

on alluvial soils Habitat: Ocloș, Valea Uzului on Mogheroș rivulet, Poiana Lobertș on Bărzăuța rivulet.

Survey number	1	2	3
Survey surface area in square meters	15	10	20
Coverage (%)	70	70	50
<i>Caltha palustris</i>	3	4	3
<i>Cirsium oleraceum</i>	+	-	1
<i>Scirpus sylvaticus</i>	1	+	+
<i>Ranunculus repens</i>	+	+	+
<i>Alchemilla vulgaris</i>	+	+	+
<i>Lychnis flos-cuculi</i>	+	-	+
<i>Galium palustre</i>	+	+	+
<i>Deschampsia caespitosa</i>	-	+	+
<i>Myosotis scorpioides</i>	+	-	+
<i>Lysimachia vulgaris</i>	-	+	-

Epilobio – Juncetum effusi Oberd.1957:
plant community with hygrophila phytocoenoses of aluvial soils accumulated by retaining some rivulets.

Habitat: Valea Uzului on Sovato, hill spring toward Lapoș, Bălătau lake, Dărmănești under the bridge.

Survey number	1	2	3	4
Survey surface area in square meters	6	4	8	3
Coverage (%)	70	60	80	50
<i>Juncus effusus</i>	2	3	4	2
<i>Epilobium palustre</i>	1	1	+	1
<i>Juncus articulatus</i>	1	+	+	+
<i>Deschampsia caespitosa</i>	+	+	+	+
<i>Ranunculus repens</i>	+	+	+	-
<i>Myosotis scorpioides</i>	+	-	+	-
<i>Lychnis flos-cuculi</i>	-	+	+	-
<i>Equisetum palustre</i>	-	-	+	-
<i>Eleocharis palustris</i>	+	-	+	+
<i>Phleum pratense</i>	+	+	-	+

Scirpetum sylvatici Ralski1931: emcuntered on newly formed alluvia. Habitat: pool formed from

the landslide on Mogheoroș rivulet, Bălătau lake, Dărmănești at the bridge.

Survey number	1	2	3
Survey surface area in square meters	8	10	10
Coverage (%)	90	100	100
<i>Scirpus sylvaticus</i>	5	5	5
<i>Lytrum salicaria</i>	+	+	+
<i>Myosotis scorpioides</i>	+	+	+
<i>Lychnis flos-cuculi</i>	+	+	+
<i>Galium palustre</i>	+	+	+
<i>Equisetum palustre</i>	-	-	+
<i>Ranunculus repens</i>	+	-	+
<i>Caltha palustris</i>	-	+	-
<i>Epilobium palustre</i>	+	-	-

Vegetația mezo – higrofilă: formed of phytocoenoses specific to temporarily flooded plain with medium height species.

margin of pools and hollows with coastal springs. Habitat: Ocloș, Valea Uzului, on the way to Lapoș, Sălătruc.

Juncus inflexi – Menthetum longifoliae
Lohmeyer 1953: phytocoenoses of weeds on the

Survey number	1	2	3	4
Survey surface area in square meters	15	30	10	20
Coverage (%)	90	100	80	100
<i>Juncus inflexus</i>	2	3	2	3
<i>Mentha longifolia</i>	2	2	1	2
<i>Rorippa sylvestris</i>	+	+	+	-
<i>Ranunculus repens</i>	+	+	+	+
<i>Agrostis stolonifera</i>	+	+	+	+
<i>Potentilla anserina</i>	-	+	-	+
<i>Pulicaria vulgaris</i>	-	+	-	+
<i>Verbena officinalis</i>	-	+	-	+
<i>Rumex crispus</i>	-	-	-	+

Potentilletum anserinae Felföldy 1942: phytocoenoses encountered along road trenches with high levels of wetness and limited spread. Habitat:

Ocloș, Valea Uzului, Lapoș, Brătulești – Dărmănești.

Survey number	1	2	3	4
Survey surface area in square meters	50	100	50	50
Coverage (%)	90	90	100	100
<i>Potentilla anserina</i>	4	4	4	5
<i>Lolium perenne</i>	+	+	1	+
<i>Ranunculus repens</i>	+	+	-	+
<i>Juncus inflexus</i>	+	-	+	+
<i>Poa annua</i>	+	+	+	-
<i>Plantago major</i>	-	-	+	+
<i>Rorippa sylvestris</i>	+	+	+	-
<i>Potentilla reptans</i>	-	+	-	+
<i>Matricaria discoidea</i>	+	-	+	+
<i>Prunella vulgaris</i>	-	-	+	+

Agrostietum stoloniferae Burduja et al.1956: flood plain phytocoenoses with wet alluvial soils.

Habitat: Ocloș, Valea Uzului, Poiana Uzului, Sălătruc, Lapoș.

Survey number	1	2	3	4	5
Survey surface area in square meters	300	150	200	150	100

Coverage (%)	80	100	90	100	80
<i>Agrostis stolonifera</i>	4	5	4	5	3
<i>Poa pratensis</i>	+	-	+	+	1
<i>Trifolium repens</i>	+	+	+	+	+
<i>Rorippa sylvestris</i>	-	+	-	+	+
<i>Alopecurus pratensis</i>	+	+	+	-	+
<i>Trifolium fragiferum</i>	+	+	+	+	-
<i>Potentilla reptans</i>	+	-	-	+	+
<i>Daucus carota</i>	-	-	+	+	+
<i>Ranunculus repens</i>	+	-	+	+	+
<i>Lotus corniculatus</i>	+	+	-	-	+
<i>Holcus lanatus</i>	-	-	+	+	-
<i>Medicago lupulina</i>	+	-	-	+	+

1967: **Trifolio – Lolietum perennis** Krippelova
phytocoenoses from the flood plain of Uz

River which form meadows. Habitat: Ocloș, Valea Uzului, Poiana Uzului, Sălătruc, Păgubeni.

Survey number	1	2	3	4	5
Survey surface area in square meters	300	250	200	300	200
Coverage (%)	100	100	80	90	100
<i>Lolium perenne</i>	3	3	2	3	3
<i>Trifolium repens</i>	2	2	1	1	2
<i>Poa pratensis</i>	+	+	+	+	+
<i>Agrostis stolonifera</i>	+	+	+	+	+
<i>Medicago lupulina</i>	+	+	+	+	-
<i>Prunella vulgaris</i>	+	+	+	+	+
<i>Plantago lanceolata</i>	+	+	-	+	+
<i>Lotus corniculatus</i>	+	+	+	-	+
<i>Taraxacum officinale</i>	+	+	-	-	+
<i>Cynosurus cristatus</i>	-	+	+	+	-
<i>Bellis perennis</i>	+	+	-	+	-
<i>Daucus carota</i>	-	+	-	+	+
<i>Achillea millefolium</i>	+	+	+	-	-
<i>Leontodon autumnale</i>	+	-	+	+	-

1967)Resm. et Rațiu 1974: **Telekio – Petasitetum hybridi** (Morariu)
phytocoenoses which occur on alluvial deposits along the Uz River and

Izvorul Negru spring. Habitat: Poiana Uzului, Sălătruc and Bălătau lake.

Survey number	1	2	3
Survey surface area in square meters	30	50	30
Coverage (%)	100	100	100
<i>Telekia speciosa</i>	2	2	3
<i>Petasites hybridus</i>	3	3	2
<i>Cirsium oleraceum</i>	+	+	+
<i>Filipendula ulmaria</i>	+	+	+
<i>Ranunculus repens</i>	+	+	+
<i>Calystegia sepium</i>	-	+	+
<i>Eupatorium cannabinum</i>	+	-	-
<i>Valeriana officinalis</i>	-	+	+
<i>Heracleum sphandilium</i>	-	+	-

1969: **Carduetum personatae** (Dihoru 1965) Hadac
plant groups on alluvial soils. Habitat: Valea

Uzului, Poiana Uzului, Sălătruc toward Bălătau, Lapoș.

Survey number	1	2	3	4
Survey surface area in square meters	20	10	15	10
Coverage (%)	80	70	80	70
<i>Carduus personata</i>	4	4	4	4
<i>Tussilago farfara</i>	+	+	-	+
<i>Arctium lappa</i>	-	+	+	-
<i>Urtica dioica</i>	+	-	-	+
<i>Stellaria media</i>	+	+	+	-
<i>Melandrium album</i>	-	+	+	-
<i>Petasites albus</i>	+	-	+	+
<i>Trifolium repens</i>	+	-	+	+

The vegetation of bushes and hygrophilic forests: represents the group of woody phytocoenoses growing on flood plain pebbles and consisting of willows and alders.

Salicetum albae Issler 1926: phytocoenoses shaped as riverside coppices. Habitat: Dărmănești at the bridge, Bălătau lake, Poiana Uzului on Izvorul Negru.

Survey number	1	2	3
Consistency	0.4	0.3	0.4
<i>Salix alba</i>	3	2	3
<i>Salix fragilis</i>	+	+	+
<i>Salix purpurea</i>	+	+	+
<i>Populus alba</i>	+	-	+
<i>Alnus glutinosa</i>	+	-	+
<i>Cornus sanguinea</i>	-	+	+
<i>Rubus caesius</i>	+	+	+
<i>Rosa canina</i>	+	-	-
<i>Clematis vitalba</i>	+	+	-
<i>Agrostis stolonifera</i>	+	+	+
<i>Ranunculus repens</i>	+	+	+
<i>Trifolium repens</i>	+	+	+
<i>Potentilla anserina</i>	-	+	+
<i>Glechoma hedracea</i>	-	-	+
<i>Rumex saguineus</i>	+	+	-
<i>Lysimachia nummularia</i>	+	-	+

Salicetum triandrae Malcuit ex Noirfalise in Lebrun et al. 1955: phytocoenoses shaped as riverside coppices. Habitat: Sălătruc on Izvorul

Negru, Poiana Loberț on Bărzăuța, Valea Uzului on Uz.

Survey number	1	2	3
Consistency	0.4	0.5	0.4
<i>Salix triandra</i>	3	3	3
<i>Salix viminalis</i>	+	+	+
<i>Salix purpurea</i>	+	1	+
<i>Viburnum opulus</i>	+	-	-
<i>Rubus caesius</i>	+	-	+
<i>Solanum dulcamara</i>	+	+	+
<i>Agrostis stolonifera</i>	2	+	1
<i>Mentha longifolia</i>	-	+	+
<i>Stellaria nemorum</i>	+	+	+
<i>Ranunculus repens</i>	-	+	+

<i>Epilobium hirsutum</i>	+	-	+
<i>Lycopus europaeus</i>	+	-	+

Salici elaeagni – Hippophaetum Br.-Bl. in Volk 1939: pioneering phytocoenosis consisting of bushes colonising the old alluvial deposits at Uz

river mouth. Habitat: Brătulești – Dărmănești, Păgubeni in the flood plain, Dărmănești.

Survey number	1	2	3
Surface in square meters	150	250	200
<i>Hippophae rhamnoides</i>	3	3	3
<i>Salix purpurea</i>	-	1	+
<i>Myricaria germanica</i>	+	+	+
<i>Salix triandra</i>	+	-	-
<i>Calamagrostis pseudophragmites</i>	1	+	+
<i>Lysimachia nummularia</i>	+	-	+
<i>Chenopodium borys</i>	+	+	-
<i>Potentilla supina</i>	-	+	+
<i>Prunella vulgaris</i>	+	+	+

Salici purpureae – Myricarietum Moor 1958: a type of pioneering phytocoenosis common in flood lands on gravels with sandy alluvia.

Habitat: Sălătruc at the junction of Izvorul Negru with Uz River and in Dărmănești on Uz.

Survey number	1	2
Survey surface area in square meters	70	100
Coverage (%)	50	60
<i>Myricaria germanica</i>	3	3
<i>Salix purpurea</i>	+	1
<i>Lysimachia nummularia</i>	+	+
<i>Ranunculus repens</i>	+	+
<i>Potentilla anserina</i>	-	+
<i>Calamagrostis pseudophragmites</i>	-	+
<i>Lytrum virgatum</i>	+	-
<i>Rumex sanguineus</i>	-	+

Stellario nemorum – Alnetum glutinose Lohmeyer 1957: plant community with phytocoenoses developed in the flood plain of Uz River and its tributaries. Habitat: Sălătruc on Izvorul

Negru, Poiana Uzului on Izvorul Alb, at the end of the lake on Uz.

Survey number	1	2	3
Consistency	0.5	0.6	0.4
<i>Alnus glutinosa</i>	4	4	3
<i>Stellaria nemorum</i>	+	+	+
<i>Alnus incana</i>	-	+	-
<i>Acer campestre</i>	+	+	-
<i>Salix fragilis</i>	+	+	+
<i>Evonymus europaeus</i>	+	-	+
<i>Crataegus monogyna</i>	+	-	+
<i>Cornus sanguinea</i>	-	+	+
<i>Hedera helix</i>	+	-	+
<i>Cornus sanguinea</i>	+	+	+
<i>Salix triandra</i>	-	-	+
<i>Impatiens noli-tangere</i>	-	+	-
<i>Stachys sylvatica</i>	+	+	+
<i>Geum urbanum</i>	-	+	+
<i>Ranunculus repens</i>	+	+	+
<i>Mentha longifolia</i>	+	-	+
<i>Lysimachia vulgaris</i>	-	+	-
<i>Lysimachia nummularia</i>	+	+	+
<i>Telekia speciosa</i>	+	+	-
<i>Aegopodium podagraia</i>	+	-	+
<i>Brachypodium sylvaticum</i>	-	+	+
<i>Geranium robertianum</i>	+	+	-

1990: *Telekia speciosae* – *Alnetum incanae* Coldea
phytocoenoses populating the upper area of

the valley. Habitat: Ocloș, Valea Uzului, Bărzăuța,
Izvorul Negru.

Survey number	1	2	3	4
Consistency	0.7	0.8	0.8	0.7
<i>Alnus incana</i>	3	4	4	3
<i>Telekia speciosa</i>	+	+	+	+
<i>Alnus glutinosa</i>	+	+	+	+
<i>Picea abies</i>	-	+	+	-
<i>Carpinus betulus</i>	-	+	-	+
<i>Pyrus pyraister</i>	+	+	+	+
<i>Acer pseudoplatanus</i>	-	+	+	-
<i>Cerasus avium</i>	-	+	+	-
<i>Cornus sanguinea</i>	+	-	+	+
<i>Corylus avellana</i>	+	-	+	+
<i>Evonymus europaeus</i>	+	+	+	-
<i>Prunus spinosa</i>	-	+	-	+
<i>Aegopodium podagraria</i>	+	+	+	+
<i>Stachys sylvatica</i>	+	-	+	+
<i>Circaea lutetiana</i>	+	+	-	-
<i>Salvia glutinosa</i>	+	+	+	+
<i>Brachypodium sylvaticum</i>	+	+	+	+
<i>Prunella vulgaris</i>	-	+	+	-
<i>Stellaria nemorum</i>	+	-	+	+
<i>Sanicula euopaea</i>	+	+	-	-
<i>Euphorbia amygdaloides</i>	+	+	+	-
<i>Epilobium montanum</i>	+	+	-	-
<i>Lysimachia nummularia</i>	-	+	+	+
<i>Geum montanum</i>	-	+	+	+
<i>Glecoma hederacea</i>	+	-	+	+
<i>Geranium robertianum</i>	+	+	+	-

The analysis of the vegetation of Uz river and its tributaries outlines its intra-zone character specific to the mountainous given by high bushes and hydrophilic forests: *Salicetum albae*, *Salicetum triandrae*, *Salicetum purpurae* – *Myricarietum*, *Stellario nemorum* – *Alnetum glutinosae*, *Telekio speciosae* – *Alnetum incanae*. Along the years of observations, even if the human factor was active, the existence of the 25 plant communities was not jeopardized. However, zonal and structural changes were registered.

Conclusions

Summarizing the data published and our personal results, we present a floristic summary amounting to 238 spontaneous, hydrophilic, mesohydrophilic and some mesophyte species. The study also presents a total of 13 rare, protected or endangered species in the studied area.

The summary of plant communities was compiled based on reference literature and personal phytocenologic research. The 25 plant associations are based on a number of 84 phytocenologic surveys belonging to 8 classes, 13 orders and 14 alliances.

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