

NYMPHEA

MUZEUL ȚĂRII CRIȘURILOR, ORADEA



2015

MUZEUL ȚĂRII CRIȘURILOR

NYMPHAEA
FOLIA NATURAE BIHARIAE
XLII

Editura Muzeului Țării Crișurilor
Oradea 2015

Orice corespondență se va adresa:

Toute correspondance sera envoyée à l'adresse:

Please send any mail to the following adress:

Richten Sie bitte jedwelche Korrespondenz an die Adresse:

MUZEUL ȚĂRII CRIȘURILOR
RO-410464 Oradea, B-dul Dacia nr. 1-3
ROMÂNIA

Redactor șef al publicațiilor M.T.C.

Editor-in-chief of M.T.C. publications

Prof. Univ. Dr. AUREL CHIRIAC

Colegiu de redacție

Editorial board

ADRIAN GAGIU

ERIKA POSMOȘANU

Dr. MÁRTON VENCZEL, redactor responsabil

Comisia de referenți

Advisory board

Prof. Dr. J. E. McPHERSON, Southern Illinois Univ. at Carbondale, USA

Prof. Dr. VLAD CODREA, Universitatea Babeș-Bolyai, Cluj-Napoca

Prof. Dr. MASSIMO OLMI, Università degli Studi della Tuscia, Viterbo, Italy

Dr. MIKLÓS SZEKERES Institute of Plant Biology, Szeged

Lector Dr. IOAN SÎRBU Universitatea „Lucian Blaga”, Sibiu

Prof. Dr. VASILE ȘOLDEA, Universitatea Oradea

Prof. Univ. Dr. DAN COGĂLNICEANU, Universitatea Ovidius, Constanța

Lector Univ. Dr. IOAN GHIRA, Universitatea Babeș-Bolyai, Cluj-Napoca

Prof. Univ. Dr. IOAN MĂHĂRA, Universitatea Oradea

GABRIELA ANDREI, Muzeul Național de Ist. Naturală “Grigora Antipa”, București

Fondator

Dr. SEVER DUMITRAȘCU, 1973

Founded by

ISSN 0253-4649

CUPRINS**CONTENT****Geology****Geologie**

IANCU ORĂȘANU: Groundwater dynamics of Beiuș Basin basement and its surrounding mountain areas	5
--	----------

Palaeontology**Paleontologie**

ERIKA POSMOȘANU: Preliminary report on the Middle Triassic sharks from Lugașu de Sus, Romania.....	19
--	-----------

Botanică**Botany**

VASILE MAXIM DANCIU & DORINA GOLBAN: The Theodor Schreiber Herbarium in the Botanical Collection of the Țării Crișurilor Museum in Oradea, Bihor County (part III).....	29
---	-----------

Zoologie**Zoology**

TAMÁS DOMOKOS: Sporadic data on the mollusc fauna of Rimetea and its environs (Trascău Mountains, Romania) with special reference to shell morphometry of <i>Alopi</i> <i>bielzii tenuis</i> (E. A. Bielz, 1861).....	121
---	------------

NYMPHAEA Folia naturae Bihariae	XLII	5 - 18	Oradea, 2015
---	-------------	---------------	---------------------

Groundwater dynamics of Beiuş Basin basement and its surrounding mountain areas ^{*)}

Iancu Orăşeanu

Association of Romanian Hydrogeologists, ianora@hotmail.com

Abstract. The Galbena crustal fracture system, along which the north-east border of Beiuş Basin basement is subsidized, strongly affected the deposits of Codru Nappes System, of Bihor Autochthon and the banatite rocks of Vlădeasa Massif. From a hydrogeological point of view, the system constitutes a major drain that collects surficial and underground waters from the mountain rim(s) while converging them into a rapid regional flow towards north-west. The thermal water reservoir of Felix -1 Mai Spa, a zone which has a reduced extension and is peculiar due to significant flow-rates and temperatures of the thermal waters from the west border of Apuseni Mountains, is structurally located at the crossing of Galbena fault system with the fault system along which the Pannonian Basin had sunk.

Key words: Beiuş basin, Galbena Fracture System, hydrogeology, thermal waters.

Introduction

„Beiuş Depression” (Sawicki, 1912), „Beiuş Basin” (Ficheux, 1933; Paucă, 1935), „Beiuş country”, (Berindei, 1967, 1977) or „Crişu Negru Depression” (Pop, 2005) name the same corridor which deeply penetrates the Apuseni Mountains being towered by Pădurea Craiului, Bihor and Codru Moma mountains and is longitudinally crossed over by Crişu Negru river. The corridor is characterized by a hilly

^{*)} Paper presented at the Central European Groundwater Conference, *Groundwater risk Assessment in Urban Areas*, October 14th-16th, 2015, Constanţa, Romania

relief, and the following geomorphology units are individualized within Beiuș Basin: Beiuș depression and Tinca-Holod depression, defined by Măgura Forăului, and Lăzărenilor hills, developed north of Holod-Topa river until Sânmartin, west of Pădurea Craiului Mountains (Pop, 2005).

Geological and structural data

The chronology of the tectonic events of this area is characterized by the overthrust of the Codru Nappe System over the Bihor Autochthon from Turonian, by the laramic eruptions of Vlădeasa Massif, the Senonian post-tectonic transgression, by the Alpine basement subsidence in Miocene and the formation of Beiuș Basin, by its further filling-up and subsequent exondation.

The basin basement is heterogenous, consisting of Mesozoic, Paleozoic and Proterozoic rocks belonging to the Codru Nappe System of the Northern Apuseni Mountains. The deposits of this system overlap the Bihor Unit formations, the overthrust face forming an alignment which defines the basin's north-east border.

The subsidence of the north-east part of the basin occurred along a NW-SE oriented crust fault, while the subsidence of the opposite part occurred on a less extended fault system (Merten et al., 2011; Săndulescu, 1994; Balintoni, 1994; Bleahu et al., 1981).

The crustal fracture where the basin's north-east part subsidence took place is revealed by a fault system that was mapped by geologists from Arieșu Mic valley up to Tășad and Befția. The system has the best morphological visibility in the Bihor Mountains, the Galbena fault, which imposed from a tectonic perspective the straight route of the homonymous valley, creating a spectacular discontinuity of the relief. Further on, we shall name this system the Galbena Fracture System, which has been well revealed by contour map images along its entire paths (Figure 1).

The Galbena system fractures develop within the overthrust face area of Codru Nappe System over Bihor Autochthon and they strongly crush the deposits of the two tectonic units and Vlădeasa eruptive rocks of the west side of the massif (Figure 2).

The sinking of the Beiuș basin basement changed the drainage direction of main surficial streams (Topa, Vida, Albioara, Sohodol) from north east – south west to north – south. The inflexion segments are setting in a straight line on the axis of Galbena Fracture System.

The Neogene filling of Beiuș Basin (Preda, 1935; Istocescu et al., 1968; Istocescu & Istocescu, 1974), consists of Badenian deposits made of a torrent complex with gravel, boulders and sands overlain by pelagian and reef deposits.

The Sarmatian base is formed of a tuffaceous diatomite complex following a succession of sedimentary deposits in carbonaceous continental – lacustrine pelagial, conglomerate and reef complex. The Pannonian base is clastic with white tuffaceous marls at the upper part followed by alternating marls and sands and compact sands.

The basement outcrops are rare within the depression area, forming islands that cross over the basin filling deposits at Măgura Forăului (Răbăganilor), near the Dopșii old abandoned church in Coșdeni and north of Calea Mare, consisting of dolomites and/or Triassic quartz sandstones. The well 4008 drilled at Corbești, Cotiglet commune, the wells 3001, 3003 and 3004 from Beiuș and the drill hole 3002 from Ștei provided significant data about the basement lithology.

The geological structure of the mountainous zone continues in Beiuș Ba-

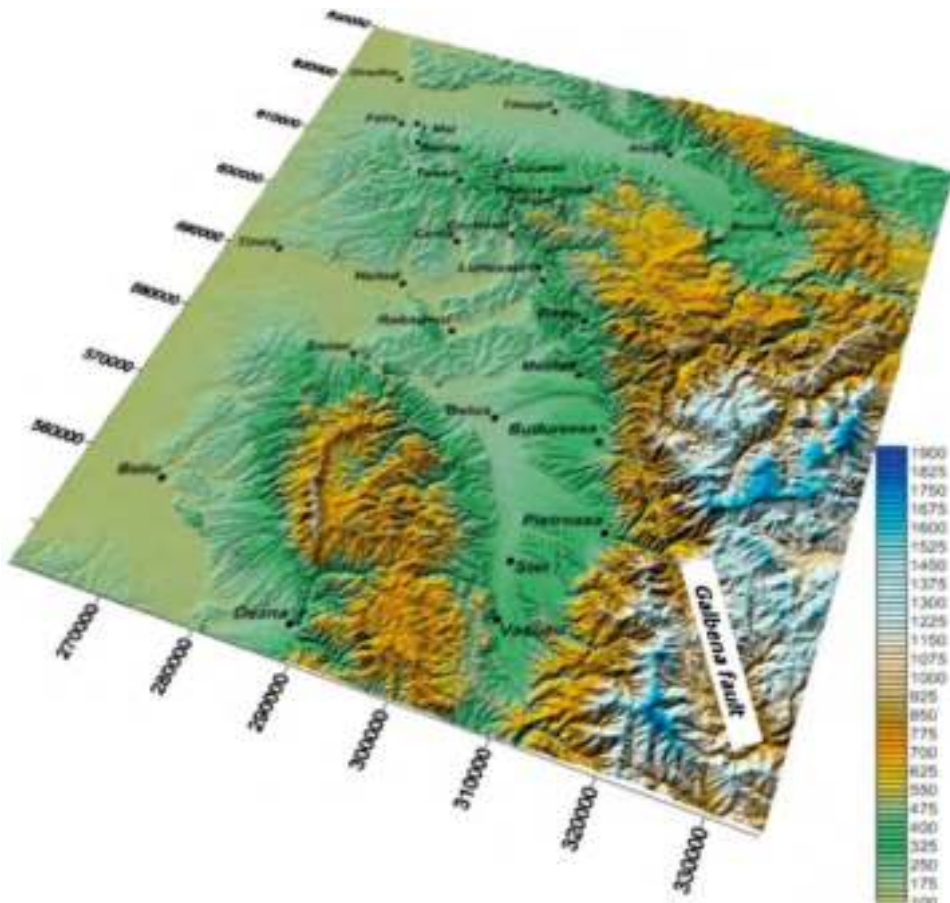


Figure 1. Contour map of the Beiuș Basin and adjacent areas

sin basement where it is expected to be identically complicated in the nappes structure, similar to the bordering zones. The picture of the northern part of the basin basement is presented by Dinu et al., 1991, by the interpretation of the geological, drilling and geophysical data, the authors published maps showing the thickness of the basin filling deposits, the structural elements and geological cross sections. These data are presented below and the structural map of the basement is integrated in the regional geological ensemble of Figure 2.

The basin basement is divided by fracture systems in blocks with different altimetry positions. The fracture systems are predominantly east–west oriented in the north sector and north west–south east in the south–east sector. The two systems are connected in the uplift Dobrești-Răbăgani sector which has a highly faulted tectonic structure because of the Neogene intrusive magmatic bodies at depth.

The basin basement shows an important axial uplift sector along Josani-Coșdeni-Rotărești-Miheleu direction, revealed by the Triassic rock outcrops from Fântâna Dopșii and shallow drill holes exploiting the thermal water of Triassic dolomites. Their rise is limited laterally by two downgoing sectors, namely Beiuș-Lupoaia to the south–west and Sitani-Ceica-Lăzăreni to the north–east, near the Corbești filling deposits having a maximum thickness of 1300 m (Fig. 3).

Hydrogeological data

The carbonate deposits occupy important intervals in the stratigraphic columns of Bihor Autochthon and Codru Nappe System. They develop over large surface areas of Pădurea Craiului, Bihor and Codru Moma mountains and of the alpine basin basement and are in direct lithologic contact with the filling deposits of the Neogene bordering basins.

The underground waters from the karstic areas of the previously mentioned mountainous massifs are involved in local karst systems which discharge through the springs, most of them located at their periphery, at the contact with Beiuș and Vad depressions (Orășeanu, 2010). They also feed the deep aquiferous accumulations of depression basement, being enclosed in the regional groundwater system drained to the west. In Beiuș Basin the Triassic dolomites form the main karst reservoir for underground water, partially thermalised. There exists a permanent recharge – drainage relation between the groundwater of Beiuș Basin basement and covering neogene filling deposits.

The supply of the aquiferous from the depression basement by the aquiferous located within the bordering mountainous zones is shown by the hydrogeological and hydrochemical data, among which we mention:

- Indium-EDTA labellings performed in 1983 by the present author toge-



Figure 2. Hydrogeological map of Beiuș Basin. Geological data are after maps published by Geological Institute of Romania, scale 1:50.000. The structure contour map of the basin is after Dinu et al., 1991.

ther with Gașpar indicated that the sinking waters of the upper tributary brooks of Topa stream in Pădurea Craiului Mountains are only partly found in Aștileu spring, a significant part being engaged in an underground flow oriented to the west through the carbonate deposits of Vad Basin basement. The hydrogeology balance drawn up for the period 1983-1985 confirmed these results (Gașpar & Orășeanu, 1987; Orășeanu, 1991).

- The tracers launched in the sink holes from the Vașcău Plateau west end occurred both in Boiu spring and in the thermal springs from its neighborhood whose geochemical footprint is strongly connected to the basin deposits (Orășeanu, 1985; Orășeanu & Mather, 2000).

- The chemical composition of the thermal waters hosted in neogene deposits of Beiuș basin indicate a significant contribution of the karst waters at their formation.

When crossing the Galbena Fracture System, the discharge through surficial courses gradually reduces, while the valleys are large and filled with alluvial sediments. The infiltration is mostly diffuse, occurring preferentially through the carbonate beds of the valleys but also through quartz slates, conglomerates and even banatites. We mention some of them:

- Galbena stream indicates the existence of permanent diffuse infiltration in the river floor along the entire course standing out the segment developed between Păuleasa spring and the confluence with Lunțoara stream;

- Boga stream indicates the presence of infiltrations within the perimeter of the homonymous holiday village situated at the intersection of Bulz fault with a fault associated to Galbena system. Between 1984-1985, when the trench for the pipeline supplying water from Valea Rea to the water power plant was excavated, at about 100m upstream from the bridge from the forestry hut, significant infiltrations of water occurred from the stream in the underground. The flow measurements and the tracer labelling indicated that the mentioned losses are not returned in the surface flows of Bulz stream up to the confluence with Galbena (Orășeanu, 1996);

- The upper courses tributaries of Nimăești, Bișele, Meziad and Sohodol streams indicate the existence of long periods of dryness;

- Iad river, on its Voivodeasa brook – bridge downstream the Iadolina waterfall sector is losing through infiltration in the rhyolite fractures more than 20% of the discharge occurring during the low water season. The survey of the infiltration areas is concluded through river gauge measurements (on relevant sectors) for the surficial drainage and through water budget calculations for the specific catchments.

The Galbena Fracture System constitutes from a hydrogeological point of view, the major drainage collecting the surface and underground waters from the

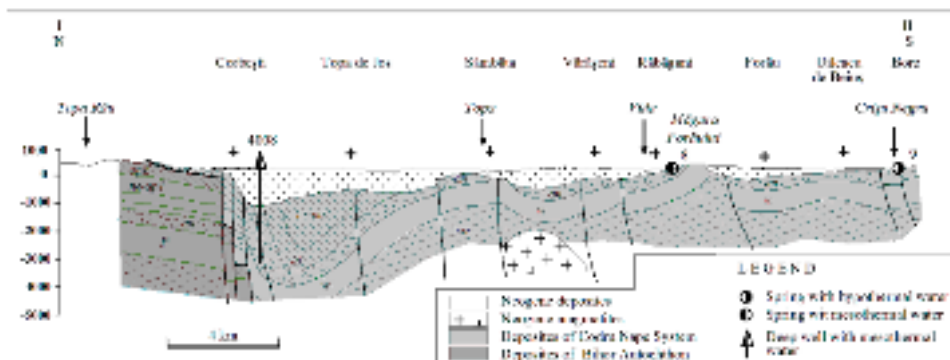


Figure 3. Cross section between Corbești – Borz. Line of section in Figure 2.

north-east mountainous border of the Beiuș basin and involves them in a rapid regional flow toward nord-west. The hydrogeological characteristics of the drain is influenced both by the evolution of the supply action of the mountain zones adjoining the system and by the volume of discharges to Beiuș basin.

Thermal water occurrences. The thermal waters of Beiuș Basin are mostly found in the Triassic dolomites. These basement rocks outcrop in many places on the south–west and north–east borders of the basin and within the basin at Răbăgani, Coșdeni and Calea Mare near Hidișelu de Sus (Figure 2). In some places from the Anisian dolomites several springs with warm water with temperature up to 24 °C emerge.

The thermal reservoir of the Triassic dolomites has been intercepted by deep wells drilled at Corbești, Beiuș and Ștei and by shallow holes from the uplift sector of basement in Coșdeni-Hidiș (Fig. 2, no. 11) - Rotărești (Fig. 2, no. 14) - Ogești (Fig. 2, no. 15, 16) area. It is to be noted that most of the drilled wells located in the filling deposits of the basin intercepted low temperature thermal waters.

The main thermal water sources are (Fig. 2 and Table 1):

-To the west of Vașcău town, at the base of the neotriassic limestones and from Crișu Negru river and Boiu stream alluvium four hypothermal springs occur: Sfărășele (Fig. 2, no. 1), Rengle, Racova (Fig. 2, no. 2) and Țucrești, with temperatures ranging between 14.5 and 17.2 °C and a cumulated flow-rate of about 15 l/s;

- Warm spring „Șapte Izvoare”(„Seven Springs”) situated along Izbucului stream upstream Valea Neagră, close to the cold spring caught to supply water for the inhabitants downstream (fig. 2, no. 3). Its temperature is 17,2 °C and flow-rate of 1.5 l/s (Orășeanu, 1996);

Table 1. Chemical composition of groundwater in the Beiuș Basin

No.	Source	Sampling date	Elev. m	t °C	Q l/s	F-	Cl-	I-	SO ₄ ⁻	HCO ₃ ⁻	Na ⁺	K ⁺	Mg ⁺⁺	Ca ⁺⁺	Fe ⁺⁺	TDS	MT
1	Sfârșeșele spring, Vașcău *)	12.12.86	295	17,2		slid	14,2	slid	105,6	317,2	69,8	1,0	u	95,4	0,1	454,6	613,2
2	Racova spring, Vașcău *)	12.12.86	305	17,0		slid	14,2	0,1	19,2	524,7	65,8	1,6	25,3	88,9	0,1	488,1	763,6
3	Seven springs, Valea Neagră *)	12.08.85	375	17,2	1,5	slid	10,6	slid	3,7	274,5	2,2	0,7	12,1	74,1	0,2	247,0	395,5
4	Beciului (Moni) spring, Curățele	27.07.95	240	16,4	10,0	0,10	3,5	slid	21,1	24,4	4,6	2,6	slid	14,8	slid	64,9	94,0
5	Florii spring, Curățele	27.07.95		16,0	1,0	slid	21,3	slid	28,8	61,0	15,4	8,8	slid	27,3	slid	201,8	201,8
6	Fântâna Popii well, Finiș	16.03.96		13,2	0,1		7,1			231,8	28,1	4,4		52,1	0,6	214,9	345,1
7	Tăul Fierbîntea spring, Căbești *)	29.10.82	220	18,0	4,0	0,2	7,1	0,1	11,5	317,2	43,0	2,5	2,0	60,9	0,2	313,8	516,4
8	Swimming pool spring, Răbăgani	14.03.96	150	24,0	15,0	0,10	7,1	slid	48,0	366,1	62,8	2,2	12,1	68,5	slid	390,8	597,8
9	Căuaci spring, Borz	13.12.86	156	13	0,5		21,3		13,4	488,0	18,4	1,6	55,4	69,7	0,2	436,0	693,2
10	CAP well, Răbăgani	14.03.96		16,6		1,00	28,4	0,20	245,8	549,1	305,5	5,6	slid	24,0	0,2	901,1	1181,7
11	Well Hidiș	1974		15,0	0,5		10,4		7,7	231,8	92,4	0,4	u	5,2	0,1	255,5	380,2
12	Well CAP, Coșdeni	14.03.96		12,6	0,25	slid	7,1	slid	slid	268,4	81,4	0,9	slid	16,0	0,4	232,3	374,2
13	Fântâna Dopsii spring, Coșdeni	14.03.96	150	15,2	1,5	0,30	7,1	slid	53,8	378,3	102,8	2,5	7,3	48,1	0,6	416,0	620,1
14	Well Rotărești	14.03.96		15,2	0,5	0,10	35,5	slid	slid	439,3	144,7	1,2	slid	32,1	slid	454,2	685,3
15	Well Ogești, downstream	14.03.96		17,0	0,25	0,10	7,1	slid	5,8	463,7	145,6	0,9	slid	26,1	slid	434,4	666,3
16	Well Ogești, centrum	14.03.96		13,2	0,1	slid	7,1	0,13	34,6	451,5	165,8	1,0	slid	16,0	0,2	457,9	690,5
17	Warm spring Toplița de Vida *)	30.11.97	230	20,8	2	0	7,1	0,1	9,6	292,8	2,3	0,4	8,5	88		268,6	442,7
18	Well Topa de Sus**)	1974					3,5		11,5	305,0	1,4	0,6	14,6	72,9	0,1	285,0	456,2
19	Well Ceica centrum	1974		19,6			42,5	0,50	u	2208,6	775,1	50,0	9,7	16,8	0,2	2108,0	3317,9
20	Peștea lake spring, 1 Mai spa***)	10.09.98	155	27,4		0,19	10,6	slid	22,6	353,2	4,4	1,6	17,5	98,2	0,4	334,0	528,1
21	Balint spring, Felix spa***)	1974					21,3		164,1	421,0	0,4	4,6	40,1	149,9	0,1	624,0	875
	Well 3001, Beiuș	01.08.99	170,9			0,10	8,5		58,6	231,8	11,1	7,2	48,1	26,8	0,1	303,6	468,5
	Well 4008, Corbești	1974	175				7,1		604,8	219,6	87,6	13,3	56,9	151,5		1054,4	1182,3

MT- total mineralisation; *) - degassing water (gas containing O₂ and N₂); **) - abandoned well; ***) - lost spring.

- On the left bank of Roșia stream, upstream the locality of Căbești, a subthermal spring known as Fierbintea pool or Țiganilor spring (fig. 2, no. 7) occurs from alluvium. The flow rate of the spring is about 4 l/s and the temperature is 18 °C (Orășeanu, 1991);

- To the west of Răbăgani locality, from the Anisian dolomites of Măgura Forăului a mesothermal spring occurs with a temperature of 24 °C and a flow-rate of about 12 l/s (Fig. 2, no. 8). The spring supplies Băi stream, which is tributary to Holod river. Until 1990 the spring was used for supplying water to a swimming pool which has been abandoned and is highly damaged (Paucă, 1958; Slăvoacă, 1974; Goina, 1978).

- At about 400m north-west of the above mentioned mesothermal spring, at the place called by the locals „Tina cea Rea”, from the clays beneath the national road backfill, a line of springs occur at 140 m elevation, with temperatures ranging between 14 -17 °C and a cumulated flow-rate of 3-5 l/s, drained towards Holod river and Ciorgău brook.

- Crișu Negru river form Borz gullet which mostly consists of Triassic dolomites. It fits the spur of Pietra Pietranilor hill and the river deepens a route containing karst forms between Uileacu de Beiuș and Borz. On the left bank of Morilor stream, near the confluence with Crișu Negru, occurred two springs in 1986, La Covaci (Fig. 2, no. 9) and the other beneath CFR bridge, their temperatures ranging between 13.2 and 13 °C and with flow-rates of about 1 l/s each.

- On the left hillside of Vida water course, at the confluence with Cornetu stream, at the northern end of Coșdeni village at an elevation of about 145 m, close to an abandoned church, the spring Fântâna Dopșii penetrates through the Anisian dolomites. In 1974 the spring flow-rate was 3 l/s and its temperature was 17 °C, in 1996 the flow-rate was 1.5 l/s and the temperature 15.2 °C, în 2015 springtime, 0.2 l/s and 13.3 °C, while in 2015 summertime the spring dried out. The diminuation of the spring flow-rate is caused by the dragging of the Vida stream valley planning works in its vicinity and by the increase of the drill holes for the exploitation of the thermal waters in the area.

- The well 4008 was drilled by IFLGS in 1965 downstream Corbești village, Cotiglet commune, on the right side of Topa river. It crossed through Pliocene (0-382 m), Sarmatian (382-1045 m), Tortonian (1045-1190 m), Triassic (1190-3040 m) and Permian deposits (3040-3303.5 m). The casing was perforated over the interval 1200-1250 m the water discharging artesian at a temperature of 34 °C and a flow-rate of 1.5 l/s. The hydrostatic level of the aquiferous was at +50m. In 1974 the water discharged at a flow rate of 3 l/s at a temperature of 37 °C and during the 2015 spring the flow rate was 0.2 l/s at 22.8 °C. The water sample collected in 1974 looked like sulphated calcium low concentration water (Table 1).

- The well 3001, drilled between 1995-1996 at Beiuș by S.C. TRANSGEX S.A., intercepted the basin basement at a depth of 988 m. It crossed Jurassic and Rhaetian deposits and after that in the interval 1580-2280 it crossed through Triassic aquiferous dolomites, the drilling operation being stopped at 2576 m when it reached the Werfenian quartzite sandstones. The level of the thermal aquiferous was situated at -18,48m (172.4 m elevation), and the temperature of the water at the drill rig bottom was 88 °C. The water from the drill hole is used to supply heating to the dwellings and in such periods the temperature of the pumped water is 84 °C (Antal et al., 2009).

- The well 3002 was drilled in 2001 at Ștei up to 2400 m depth. The drill hole penetrated the basement at 850 m, and then got directly in the triassic deposits which it crossed over up to 1600 m depth. The water is artesian (+22m) and the temperature is 63 °C.

The map of piezometric contours of the Triassic thermal aquiferous of Beiuș Basin basement elaborated on the basis of the thermal emergence elevations from the basin border and central part and of the water level elevations measured in the wells from Corbești, Beiuș and Ștei after drilling operations is shown in Figure 4. The flowing directions from the central part of the basin gravitate towards Coșdeni-Răbăgani-Borz zone, towards the springs occurring in the two erosion windows and on the banks of Crișul Negru river at Borz.

Piezometric contours are parallel with the north–east border of the basins, by passing the hills of the north–west end of Pădurea Craiului Mountains, continuing in Vad basin. Their value gradually decreases from the mountainous promontory towards Felix -1 Mai zone, the average elevation of the aquiferous from Cretaceous limestones being at 155 m (Țenu, 1981; Cohut, 2013; Paal, 2013; Orășeanu et al., 2015).

Because of the insufficient data for the west part of the basin between Răbăgani and Hidîșelu de Sus (Lăzărenilor hills), the piezometric contours are only orientative.

The Felix-1 Mai area, a reduced extension zone, peculiar for the behavior of the thermal waters with significant flow-rates and temperatures from the west side of Apuseni Mountains, is situated at the intersection of Galbena fault system with the fault system along which the Pannonian Basin subsidence occurred. The crushed zone of Galbena fracture system represents a drainage for the recharge of the thermal reservoir with cold waters.

The chemical composition of the underground waters of Beiuș basin and from the mountainous border is much varying representing the large geochemical diversity of the deposits from the basin basement and his filling (Table 1 and Fig. 5).

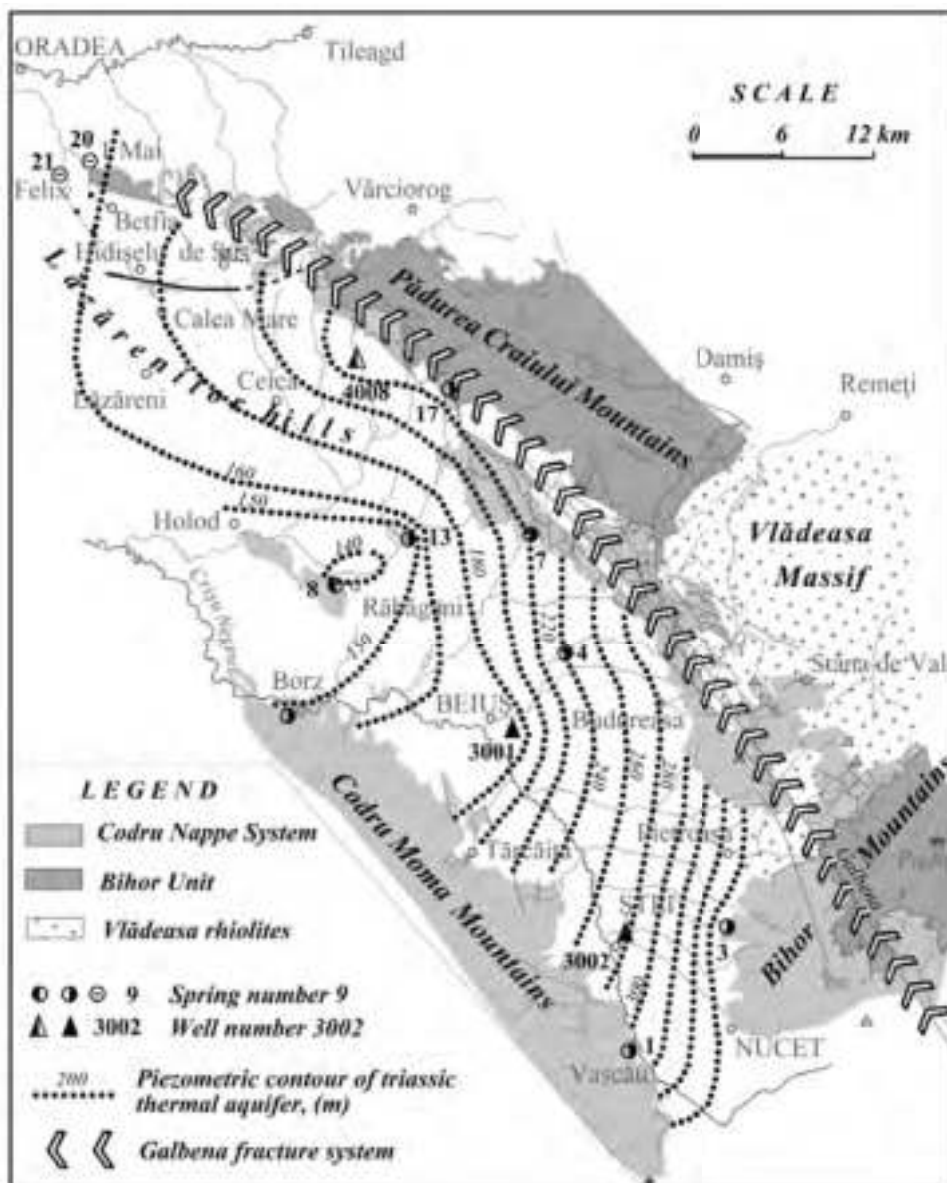


Figure 4. Piezometric contour of the Triassic aquifer in the Beiuș Basin basement.

The spring water of the Mesozoic carbonate deposits is of the Ca(Mg)-HCO_3 type, and the water of springs and wells drilled in the Neogene deposits is Na-HCO_3 type. Most of the waters from thermal sources of the basin range between these two types, indicating a mixed genesis.

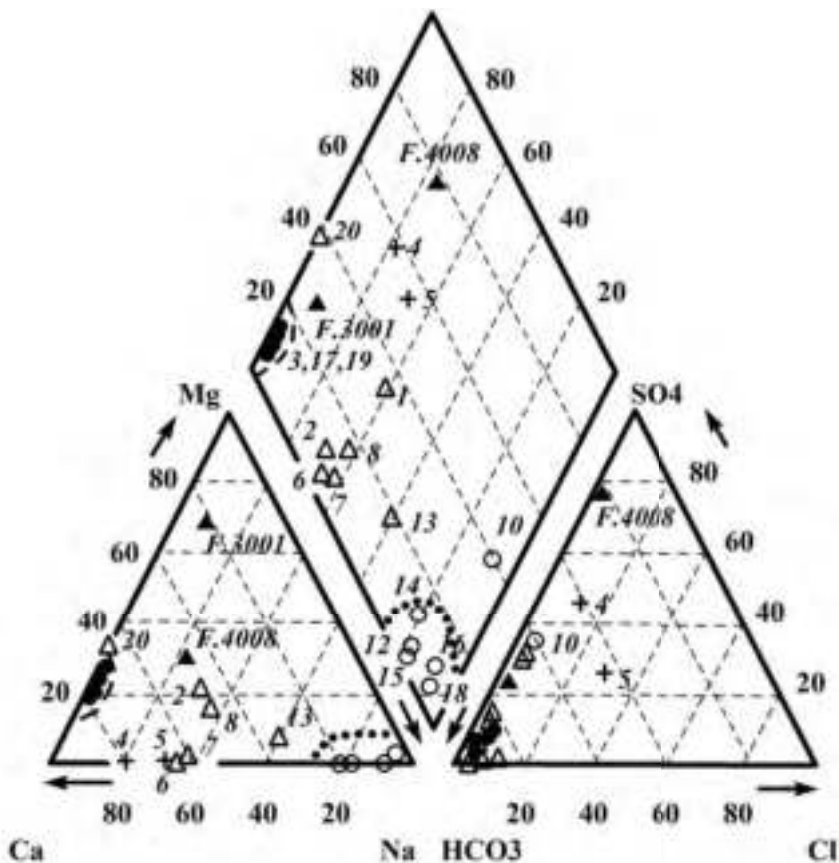


Figure 5. Chemical composition of the groundwater plotted on the Piper diagram.

The water of some of the springs and wells contains iodine (Table 1) or bromine (3 mg/l in well CAP Răbăgani) and has a high content of free H_2S (0.5 mg/l, Hidiș, Topa de Sus and 4008 Corbești wells, 0.3 mg/l, wells Ogești downstream and Ceica center and Fântâna Dopșii spring, resulted from the sedimentary deposit levigation. The water discharged from the shallow well of the central part of Ceica commune has a low CO_2 content (105.6 mg/l), result of the late mofette stage of deep Neogene eruptive bodies.

For comparison purposes, Table 1 includes the analysis performed in 1974 on the samples from Balint and Ochiul Mare springs in Felix-1 Mai Spa.

Conclusions

The subsidence of the North –East side of the Beiuș Basin basement occurred along the crustal Galbena fracture impacting the deposits situated within the overthrust area of the Codru Nappe System overlapping Bihor Unit.

Galbena crustal fracture system plays a major part in the configuration of the regional hydrogeological model. It consists of basin dipping faults while the width of the zone associated to the rock breakage is more than 1 km. The system acts as a surface and underground water drain of the impacted zones and these waters flow to the North –West supplying Felix -1Mai – Oradea geothermal system.

The seasonal variations of the precipitations cause fluctuations of the flow-rates / pressures of the water flowing through the drain and such fluctuations are found in the seasonal variations of the thermal aquiferous level of Felix -1 Mai zone.

Based on the lithology sequence of the basin basement, one can identify, from hydrogeology point of view, the aquiferous hosted by Anisian dolomites, partly thermally altered and fed from the mountainous contour and pointed out by several springs and drill holes. The aquiferous naturally discharges through the thermal springs from Răbăgani-Coșdeni alignment.

References

- Antal, C., Setel, A., & Gavrilescu, O. 2009. - *Exploitability of geothermal resources in Pannonian Depression*, Secțiunea nr. 2, Oradea, vol. 15: 1224-1261
- Balintoni, I. 1994. - Structure of the Apuseni Mountains. , vol. 75, Supplement no. 2, ALCA-PA II, Field Guidebook: 51-58.
- Berindei, I.O. 1977. - Țara Beiușului. In Berindei I.O., Măhara Gh., Pop Gr. P., Posea Aurora. 1977. Câmpia Crișurilor. Crișul Repede. Țara Beiușului. Ed. științifică și enciclopedică, București, 371 p.
- Bleahu, M., Lupu, M., Patrulius, D., Bordea, S., Stefan, A., & Stefana. P. 1981. - The structure of the Apuseni Mountains. Guide to excursion B3. XII Congress of Carpato-Balkan geological association. Ed. IGG, Bucharest. 107 p.
- Cohut, I. 2013. - Dinamica sistemului hidrogeotermal Oradea – Felix – 1Mai, *Nymphaea* **40**:109-125.
- Dinu, C., Calotă, C., Mocanu, V., & Ciulavu, D. 1991. - Geotectonic setting and the particular structural features of the Beiuș Basin, on the basis of geological and geophysical data synthesis. *Revue Roumaine Geophysique, Bucharest*, **35**: 77-87.
- Gașpar, E. & Orășeanu, I. 1987. - Natural and artificial tracers in the study of the hydrodynamics of karst. *Theoretical and Applied Karstology* **3**: 31-107.

- Istocescu, D., Mihai, A., Diaconu, M., & Istocescu, F. 1968. - Studiul geologic al regiunii cuprinse între Crișul Repede și Crișul Negru. *Dări de seamă ale ședințelor, Tectonică și geologie regională, IGG București* **55**(5): 89-106.
- Istocescu, D. & Istocescu, F. 1974. - Contribuții geologice asupra depozitelor neogene ale bazinului Crișurilor. *St. cer. geol., geofiz., geogr., Seria geologie*, 19: 115-127.
- Merten, S., Matenco, L., Focken, J.P.T., & Andriessen, P.A.M. 2011. - Toward understudying the post-collisional evolution of an orogen influenced by convergence at adjacent plate margins: Late Cretaceous-Tertiary thermotectonic history of the Apuseni Mountains. *Tectonics* **30**: 1-28.
- Orășeanu, I. 1985. - Considerations on the hydrogeology of Vașcău Plateau (Codru Moma Mountains). *Theoretical and Applied Karstology* **2**: 199-209.
- Orășeanu, I. 1991. - Hydrogeological map of the Pădurea Craiului Mountains, scale 1:50.000. (Romania). *Theoretical and Applied Karstology* **4**: 97-127.
- Orășeanu, I. 1996. - Contributions to the hydrogeology of the karst areas of the Bihor-Vlădeasa Mountains. (Hydrogeological map, 1:50.000 scale). *Theoretical and Applied Karstology* **9**: 185-214.
- Orășeanu, I. 2010. - Karst hydrogeology of the Apuseni Mountains. *Karst Hydrogeology of Romania*. Ed. Belvedere, Oradea, p. 181-324.
- Orășeanu, I. & Mather, J. 2000. - Karst hydrogeology and origin of thermal waters in the Codru Moma Mountains, Romania. *Hydrogeology Journal* **8**: 379-389.
- Orășeanu, I., & Iurkiewicz A., Malancu F. 2015. - Preliminary data concerning the dynamics of the geothermal aquifer of Felix-1 Mai Spa, Bihor Country, Romania. Proceedings of the IAHR Central European Groundwater Conference-2015, *Groundwater risk assessment in urban areas*, October 14-16, 2015, Constanța, Romania: 25-27.
- Paal, G. 2013. - Sinteza particularităților hidrogeologice ale acviferului termal de la Băile Felix-1 Mai. *Nymphaea* **40**: 83-107.
- Paucă, M. 1935. - Le bassin neogene de Beiuș. *Ann. Inst. Geol. Roum.*, 17, București.
- Paucă, M. 1958. - Izvoare termale de la vest de Munții Apuseni. *Natura* **10**(2): 5-16.
- Pop, G. 2005. - Dealurile de vest și Câmpia de vest. Ed. Univ. din Oradea, 176 p.
- Răbăgia, A. 2009. - Studii de stratigrafie secvențială a părții de nord a Bazinului Panonic pentru stabilirea evoluției tectono-stratigrafice. Rezumat teză de doctorat, Univ. București, Fac. de Geologie și Geofizică, 20 p.
- Săndulescu, M. 1994. - Overview on Romanian geology. *Romanian Journal of Tectonics and Regional Geology*, 75, Supplement no. 2, ALCAPA II Field Guidebook: 3-15.
- Slăvoacă, D., Feru, M., Geamănu, V., Simion G., Goliță, N., & Lungu, P. 1978. - Considerații hidrogeologice asupra ivirilor naturale de ape termale din Romania. *Studii tehnice și economice, Seria E – Studii de hidrogeologie*, **13**: 5-15.
- Țenu, A. 1981. - Zăcămintele de ape hipertermale din nord-vestul României. Ed. Academiei RSR, 208 p.

NYMPHAEA Folia naturae Bihariae	XLII	19 - 27	Oradea, 2015
---	-------------	----------------	---------------------

Preliminary report on the Middle Triassic sharks from Lugașu de Sus, Romania

Erika Posmoșanu

Muzeul Țării Crișurilor, Oradea, B-dul Dacia nr. 1-3, 410464

e-mail: eposmosanu@gmail.com

Abstract. Fish remains are present in the Middle Triassic sediments from Lugașu de Sus, Bihor County, North - Western Romania. Previous fish record included only a scale of *Colobodus* sp. (Jurcsak, 1978). The ichthyoliths recovered up to now from this locality represent a typical shallow marine assemblage, consisting of both chondrichthyan (*Lissodus*, *Palaeobates*) and osteichthyan (*Colobodus* sp.) fish fauna. *Lissodus* sp. is the first record of the genus from the Triassic of Romania.

Introduction

The Middle Triassic locality Lugașu de Sus is primarily known for its rich marine reptile fauna, including the prolacertiform *Tanystropheus biharicus* Jurcsak 1975. Marine reptiles: sauropterygians and cyamodontoid placodonts have been described by Jurcsak (1975, 1976, 1977, 1978), Popa et al. (1996) and Posmosanu (2008).

Microvertebrates from Lugașu de Sus have been studied only recently, previous work having dealt especially with the macrovertebrate remains. The

preliminary analyses reveal that the sediments are very rich in fish remains, given the small size of the prepared samples. Layers no. 3 and no. 4 are the most abundant in ichthyoliths, consisting of osteichthyan and chondrichthyan teeth, scales and dermal denticles. As preparation work is undergoing, a preliminary analysis of the shark remains is presented here, while the actinopterygian fishes will be the subject of another paper.

Previously described or cited fish from the Middle Triassic of Bihor

Previous work on the Lugaşu de Sus fauna revealed the presence of an osteichthyan fish, represented by a single scale of *Colobodus* sp. (Jurcsak, 1978). The other well-known Middle Triassic locality in Bihor County is Peştiş, situated in the vicinity of Lugaşu de Sus, which has yielded a more diverse fish fauna. Palaeontologist Tiberiu Jurcsak identified 3 selachian and 5 osteichthyan genera from Peştiş. The first report of selachian and osteichthyan genera from the Middle Triassic site of Peştiş (Jurcsak, 1976) was based on a tooth identified as *Hybodus reticulatus* and a scale of *Colobodus* sp. Latter, Jurcsak (1977) listed the selachians *Hybodus* sp. and *Acrodus* sp., as well as a chondrosteian fish identified as cf. *Birgeria* sp. Jurcsak (1978), and completed the list of ichthyofauna with the elasmobranchs *Hybodus* cf. *multiconus*, *Palaeobates angustissimus*, and the actinopterygians *Birgeria* sp., *Serrolepis* cf. *suevicus*, *Gyrolepis quenstedti*, *Saurichthys* sp, *Colobodus* sp. and Ganoidea indet.

Material and methods

The specimens discussed in this paper have been collected during the joint French-Romanian fieldwork, organized by Radu Huza and Dr. Jean Michel Mazin (University of Poitiers) in the summer of 1995. Eight different lithological layers were recorded for Locus Huza, Lugaşu de Sus, consisting of grey limestones, marly limestones or lumaschelles. Limited number of samples (approximately 1 kg of calcareous rocks for each layer) from the first four layers were subjected to acid preparation, respectively to weak (<10%) acetic acid. The disintegrated material was rinsed and sieved through 0,2 mm and 1 mm screens in order to separate the micro-faunal remains. This process was repeated several times. The fraction retained on the sieve was dried out and sorted under a stereomicroscope. The invertebrate and fish remains were picked from the residue using a "000" camel-hair brush and examined using a NIKON SMZ 1000 stereomicroscope.

All the specimens described in this paper are deposited in the collection of the Department of Natural Sciences, Ţării Crişurilor Museum, Oradea.

Abbreviation: MTCO – Ţării Crişurilor Museum Oradea.

Systematic palaeontology

Class Chondrichthyes Huxley, 1880
Subclass Elasmobranchii Bonaparte, 1838
Cohort Euselachii Hay, 1902
Order Hybodontiformes Zangerl, 1981
Superfamily Hybodontoidea Owen, 1838
Family Polyacrodontidae Gluckman, 1964
Genus *Palaeobates* Meyer, 1849
Palaeobates sp.
(Fig. 1 A, B)

Material: 2 isolated crowns, none of which preserved the root.

Description: The fragmentary crown MTCO 25.540/2 is a lateral tooth and has an oval shape in occlusal view. The occlusal crest is poorly developed, running longitudinally through the crown. Occlusally, the crown ornamentation consists of small, irregular, oval pits, an ornamentation typical of *Palaeobates*.

The tooth MTCO 25.542 is small; the mesiodistal extremities of the crown are more angular. The ornamentation on the occlusal surface is also composed of small, irregular oval hollows, lacking the occlusal crest.

Although these teeth resembles *Palaeobates angustissimus* Agassiz, 1838, a common species in the Lower and Upper Muschelkalk of Europe, the fragmentary nature of the specimens and the absence of roots make impossible to assign them with certainty to a species, so they are identified as *Palaeobates* sp.



Figure 1. *Palaeobates* sp. teeth, occlusal view. A. MTCO 25540/2; B. MTCO 25542.
Scale bar indicates 1 mm.

Family ?Lonchidiidae Herman, 1977

Genus *Lissodus* Brough, 1935

Type species: *Hybodus africanus* Broom, 1909

Comments: Some authors (Cuny et al., 1998; 2001) preferred the use of histological analyses by cutting thin section through the tooth crowns. Others Blazejowski (2004) showed that histological analyses did not provide taxonomic information evidencing the coexistence of Ortho- and Osteo-dentine within the single taxon, *Lissodus angulatus*. Therefore, in the case of the Lugaşu de Sus specimens, the studied material being so limited, morphological description has been preferred. The terminology used to describe the *Lissodus* teeth in this paper (see Fig. 2) follows Duffin (1985).

The scarcity of articulated specimens of *Lissodus* might be an explanation for its controversial systematic position. Some authors placed *Lissodus* and *Polyacrodus* in the Polyacrodontidae (Delsate and Duffin, 1999; Cuny et al., 1998; Milner and Kirkland, 2006), others included it in Lonchidiidae (Rees and Underwood, 2002; Blazejowski, 2004). Rees (2008) considered that *Lissodus* has

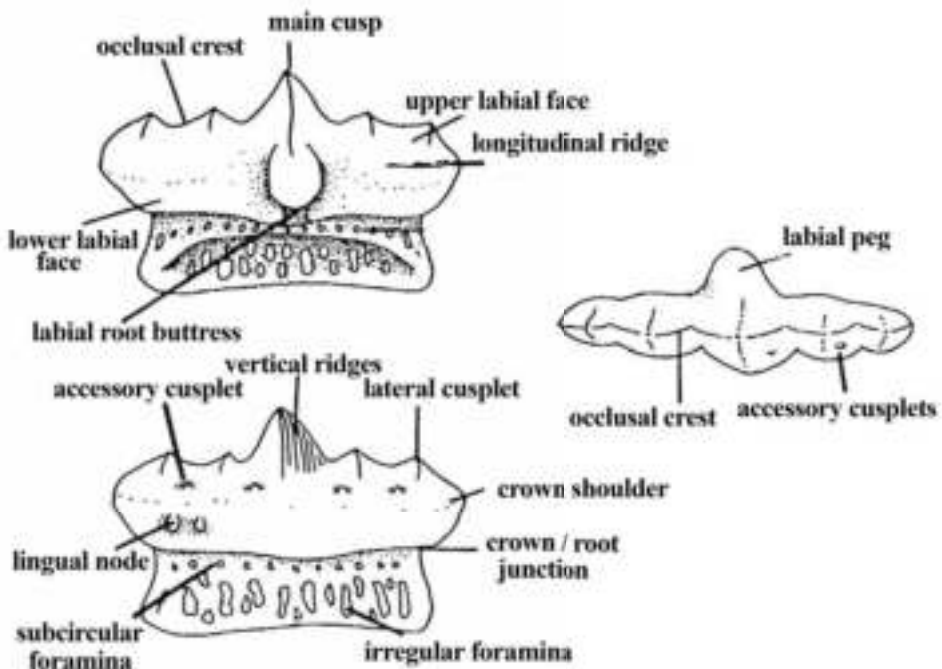


Figure 2. Terminology used for morfological description (modified after Duffin, 1985).

some unique characters but also shares characters with both the Lonchidiidae and Acrodontidae, therefore left it without family assignment.

Since the phylogeny of *Lissodus* is still under question, the author of this paper left it as questionable Family Lonchidiidae here.

Lissodus sp.

(Fig. 3)

Material: 4 isolated crowns and one fragmentary crown (MTCO 25025/1-5). None of the specimens preserved the root.

Detailed description: antero-lateral tooth MTCO 25025/1 is one of the best preserved teeth. The crown has a mesio-distal length of 2,2 mm, a labio-lingual width of 0,9 mm and a crown height of 0,7 mm. The crown shape is almost triangular in occlusal view, a moderate labial protuberance (labial peg) can be observed, where the crown is the widest. The labial peg projects at almost a right angle to the long axis of the crown. There is an evident occlusal crest which runs mesio-distally through the length of the crown, clearly separating the lingual side from the labial side of the crown. The main cusp is situated centrally (central cusp) and is slightly inclined labially and mesially (presumed). In labial view the central cusp is low and is flanked by two rather weak lateral cusplets, which decrease in height. The cusplets are better preserved mesially, the lack of the cusplets distally is due to preservation. A strong vertical ridge descends the central cusp labially from its apex toward the labial peg, reaching the crown shoulder and is the single vertical ridge on the labial crown facet. There is a longitudinal ridge around the crown shoulder, surrounding labially and lingually the tooth at the crown shoulder. The labial part of the longitudinal ridge presents short vertical striations along the crown shoulder, especially on the labial protuberance.

Comparison of *Lissodus* sp. from Lugașu de Sus with other Triassic species from Europe

The stratigraphic range of the genus *Lissodus* is documented from Late Devonian (Frasnian) to Late Cretaceous (Maastrichtian) marine, brackish and freshwater deposits (Fisher, 2008). With the exception of *Lissodus africanus* from the Early Triassic of South Africa, based on two almost complete and several partial skeletons (Rees and Underwood, 2002) and *Lissodus cassangensis*, based on two incomplete skeletons from the Early Triassic of Angola (Antunes et al. 1990), all the other European Triassic *Lissodus* species are based on isolated teeth and

cephalic spines (Duffin, 1985; Delsate and Duffin, 1999; Rees and Underwood, 2002; Fisher 2008).

Triassic deposits of Europe contain *Lissodus* teeth or cephalic spines in Spitzbergen, Poland, Germany, Luxembourg, France, Spain, United Kingdom and Hungary (Blazejowski, 2004; Delsate and Duffin, 1999; Duffin 1985, 1993; Cuny et al., 1998; Cuny et al., 2001; Rees and Underwood, 2002; Fischer, 2008; Pla et al., 2013; Korneisel, 2015; Ősi, 2013).

Early Triassic occurrence of *Lissodus angulatus* Stensio (1921) was recorded from Scythian deposits of Spitsbergen (Blazejowski, 2004). Although *L. angulatus* possesses a longitudinal ridge and may show incipient development of lateral cusplets in anterior teeth (Blazejowski, 2004), *Lissodus* sp. from Lugaşu de Sus differs from it by having a moderate labial peg and a more reduced coronal ornament.

Teeth of *Lissodus minimus* Agassiz, 1839 are present in Middle-Late Triassic sediments in Germany, UK, France and Luxembourg (Duffin, 1985; Duffin and Delsate, 1993; Cuny et al 1998; Godefroit et al, 1998; Korneisel et al, 2015). Although the crown of *L. minimus* possesses the longitudinal ridge and 2-4 pairs of lateral cusplets, the crown is more ornamented with vertical ridges radiating from the apex of the cusp and of the lateral cusplets on both labial and lingual side of the crown, differentiating it from the Lugaşu de Sus *Lissodus* tooth.

The *Lissodus* sp. tooth from Lugaşu de Sus differs from *Lissodus nodosus* Seilacher, 1943 (Middle-Late Triassic of Germany) because the latter is lacking the longitudinal ridge and is possessing nodes along the length of the labial crown shoulder (Duffin, 1985). It also differs from *Lissodus lepagei* Duffin 1993 (Upper Triassic of Luxembourg, France, Spain), *L. lepagei* having a more crenulated occlusal crest, a distinct single cusplet on the labial peg connected to the main cusp by a vertical ridge (Duffin 1993; Cuny et al, 1998; Pla et al, 2013).

The Lugaşu de Sus tooth of *Lissodus* closely resembles *Lissodus cristatus* Delsate and Duffin, 1999 (Anisian deposits, possibly very close to the Anisian/Ladinian border of Luxembourg and France), by possessing a longitudinal ridge which surrounds labially and lingually the crown shoulder, vertical striations on the labial part of the longitudinal ridge, a low coronal profile with no ornamentation beside the course vertical ridge descending the central cusp and the labial peg projecting at right angle to the main axis of the crown. *Lissodus* sp. from Lugaşu de Sus differs from *L. cristatus* by the presence of weak lateral cusplets.

Due to the limited size of the *Lissodus cristatus* material described up to now and the few rootless teeth of *Lissodus* recovered from Lugaşu de Sus, it is more cautious to identify them as *Lissodus* sp.

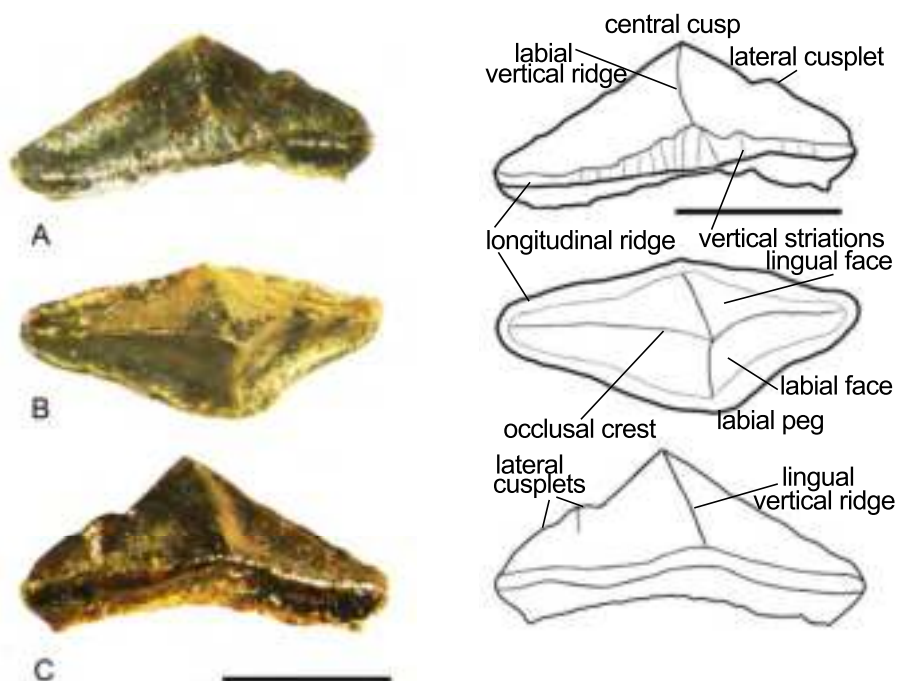


Figure 3. *Lissodus* sp., anterolateral tooth MTCO 25025/1. A. labial view, B. occlusal view, C. lingual view. Scale bar indicates 1 mm.

Conclusions

The taxonomic composition of fish remains from the Middle Triassic of Lugașu de Sus does not differ significantly from the Triassic fauna of Germany, Poland or Luxembourg. *Lissodus* Brough, 1935 is a genus already known in Europe from Triassic deposits of Spitsbergen, Germany, Poland, United Kingdom, France, Spain and Hungary. *Lissodus* sp. from the Middle Triassic of Lugașu de Sus completes the list of Triassic European species and is the first record of the genus *Lissodus* in the Triassic of Romania, as already has been announced at the 10th Romanian Symposium of Palaeontology (Posmoșanu, 2015).

The preparation of carbonate samples from Lugașu de Sus is still in progress in order to get more chondrichthyan material from these layers. Hopefully further preparation of the samples with acetic acid as well as with buffered formic acid will provide new fish fauna for the Middle Triassic of Lugașu de Sus, Bihor County, North-Western Romania.

Acknowledgements

I am fully indebted to Radu Robert Huza for his help in preparing the samples. I am grateful to Daniela Vlad, geologist at Shell Company, for her help in providing me copies of some papers I used in this study. The microscopical analyzes and photographs were possible due to the HURO 0901/024/2.5.1 project, implemented under the Hungary-Romania Cross-Border Co-operation Programme 2007-2013 (www.huro-cbc.eu), and financed by the European Union through the European Regional Development Fund.

References

- Antunes, M.T., Maisey, J. G., Marques M.M., Schaeffer, B., & Thomson, K.S. 1990. - Triassic fishes of the Cassange Depression (R.P. de Angola). *Ciências da Terra (UNL), Número Especial*, pp. 1-64.
- Blazejowski, B. 2004. - Shark teeth from the Lower Triassic of Spitsbergen and their histology. *Polish Polar Research* **25**(2): 153-167.
- Cuny, G., Martin, M., Rauscher, R., & Mazin, J.-M. 1998. - A new neoselachian shark from the Upper Triassic of Grozon (Jura, France). *Geological Magazine* **135**(5): 657-668.
- Cuny, G., Rieppel, O., & Sander, M. 2001. - The shark fauna from the Middle Triassic (Anisian) of North-western Nevada. *Zoological Journal of the Linnean Society* **133**: 285-301.
- Delsate, D., & Duffin, C.J. 1999. - A New Fish fauna from the Middle Triassic (Upper Muschelkalk) of Moersdorf (Grand Duchy of Luxembourg), *Trav. sci. Mus. Nat. hist. nat. Lux.* **32**: 5-53.
- Duffin, C.J. 1985. - Revision of the hybodont selachian genus *Lissodus* Brough (1935). *Palaontographica Abt. A* **188**: 105-152.
- Duffin, C.J. 1993. - Late triassic shark teeth (Chondrichthyes, Elasmobranchii) from Saint-Nicolas-de-Port (north-east France). *Belgian geological Survey, Professional papers*, 264. *Elasmobranches et stratigraphie*, pp 7-32.
- Duffin C.J., & Delsate, D. 1993. - The age of the Upper Triassic vertebrate fauna from Attert (Province of Luxembourg, Belgium). *Belgian Geological Survey, Professional Paper*, 264: 33-44.
- Fischer, J. 2008. - Brief synopsis of the hybodont form taxon *Lissodus* Brought, 1935, with remarks on the environment and associated fauna, *Palaontologie, Stratigraphie, Fazies* (16), *Freiberger Forschungshefte* C528, pp. 1-23.
- Godefroit, P., Cuny, G., Delsate, D., & Roche, M. 1998: - Late Triassic Vertebrates from Syren (Luxembourg). *Neues Jahrbuch Geologie Paläontologie Abhandlungen*, 210(3): 305-343.
- Korneisel, D., Gallois, R.W., Duffin, C.J., & Benton, M.J. 2015. - Late Triassic marine sharks and bony fishes from a bone bed preserved in a burrow system, from Devon, UK, *Proceedings of the Geologists' Association* **126**: 130-142.
- Jurcsak, T., 1975. - *Tanystropheus biharicus* n. sp. (Reptilia, Squamata) o nouă specie pentru fauna triasică a României, *Nymphaea* **3**: 45-52.

- Jurcsak, T., 1976. - Noi descoperiri de reptile în Triasicul de la Aleșd, *Nymphaea* **4**: 67-105.
- Jurcsak, T., 1977. - Contribuții noi privind placodonte și sauropterygienii din Triasicul de la Aleșd (Bihor, Romania), *Nymphaea* **5**: 5-30.
- Jurcsak, T. 1978. - Rezultate noi în studiul saurienilor fosili de la Aleșd, *Nymphaea* **6**: 15-60.
- Milner, A.R.C., & Kirkland, J.I. 2006. - Preliminary review of the Early Jurassic (Hettangian) freshwater Lake Dixie fish fauna in the Whitmore Point Member, Moenave Formation, in Harris et al., eds., The Triassic-Jurassic Terrestrial Transition. *New Mexico Museum of Natural History and Science Bulletin* **37**: 510–521.
- Ősi, A., Pozsgai, E., Botfalvai G., Götz A.E., Prondvai E., Makádi, L., Hajdú Zs., Csengődi, D. Czirják, G., Sebe K., & Szentesi, Z. 2013. - First report of Triassic vertebrate assemblages from Villány Hills (Southern Hungary). *Central European Geology* **56**(4): 297-335. DOI:10.1556/CEuGeol.56.20134.2.
- Pla, C., Marquez-Aliaga, A., & Botella, H. 2013. - The chondrichthyan fauna from the Middle Triassic (Ladinian) of the Iberian Range (Spain), *Journal of Vertebrate Paleontology* **33**(4): 770-785.
- Popa, E., Tallodi, E., Huza, R.R., & Mazin, J-M. 1996. - Les sites triasiques de Peștiș et de Lugaș - Bihor, Roumanie, historique et perspectives. *Nymphaea Folia Naturae Bihariae* **22**: 43-51.
- Posmoșanu, E. 2008. - Notes on a cyamodontoid maxillary from the Middle Triassic site Lugașu de Sus (W. Romania), *Nymphaea Folia Naturae Bihariae* **35**: 27-34.
- Posmoșanu, E. 2015. - First record of the genus *Lissodus* Brough, (1935) for the Triassic of Romania, In Bucur I.I., Lazăr, I. & Săsăran E. (eds), Tenth Romanian Symposium of Palaeontology, Abstracts and Field Trip Guide. Cluj-Napoca, p. 93-94.
- Rees, J. 2008. - Interrelationships of Mesozoic Hybodont sharks as indicated by dental morphology – preliminary results, *Acta Geologica Polonica*, **58** (2): 217-221.
- Rees, J., & Underwood, Ch.J. 2002. - The status of the shark genus *Lissodus* Brough, 1935, and the position of nominal *Lissodus* species within the Hybodontoidea (Selachii). *Journal of Vertebrate Paleontology*, **22**: 471-479.

NYMPHAEA Folia naturae Bihariae	XLII	29 - 120	Oradea, 2015
---	-------------	-----------------	---------------------

The Theodor Schreiber Herbarium in the Botanical Collection of Țării Crișurilor Museum in Oradea, Bihor County (part III)

Vasile Maxim DANCIU & Dorina GOLBAN

Țării Crișurilor Museum, B-dul Dacia nr. 1-3, 410464 Oradea, Romania
E-mail: contact@mtariicrisurilor.ro

Abstract. This paper continues the evaluation of data contained within the herbarium known as Theodor Schreiber's, added to the first two, one bound and one hard-covered (in Part I of this paper), and respectively to the 13 bundles (bundles I to IX plus four unnumbered, in Part II). It similarly consists of several bundles, some of them having Theodor Schreiber's name on their title page (bundles 10 to 14 and 21 to 29), a part of the complete herbarium that was included in the botanical collection of the Țării Crișurilor Museum in 1955, by transfer from High School No. 4 in Oradea (today's "Mihai Eminescu" College). The 14 bundles include herbarium sheets which contain botanized plants gathered from different collectors from that time. Their collecting is considered to date from the 19th century and the collection areas cover almost the entire Europe. The processing of the material was followed by its arrangement in an updated taxonomic classification with the mention of the accepted name and, where possible, with the location (updated if necessary), date of collection and its author (whenever mentioned and identified by signature). We thus present here 441 species belonging to 187 genera and 22 families.

Introduction

The present paper intends to highlight, in a third stage, the data and details contained in Theodor Schreiber's herbarium which were previously researched in two parts (Danciu & Golban, 2013, 2014); it also consists of bundled sheets, several of which still have Th. Schreiber's name on the opening page ("Növénygyűjtemény. készítette Schreiber Theodor IV. oszt. halgatója, Nagyvárad – 1866"), together with the names and number of species, an initial text meant to imprint a certain order to the way of grouping the botanized plants. The « Schreiber » herbarium as a whole consists of a bound and hard-covered herbarium (presented in the first part of this research), of three boxes with bundles of botanized plants (one of them was presented in the second part) and two boxes with pressed plants, not fixed on the sheets and having the corresponding labels on the sheets.

It was added to the botanical collection of the Țării Crișurilor Museum on December 15, 1955, being transferred from High School No. 4 in Oradea, former Gymnasium of the Premonstratensian Order, which has functioned around the Premonstratensian Monastery of the "Mother of Sorrows", today's "Mihai Eminescu" National College. This paper refers to the "larger" herbarium which contains three boxes with 41 bundles, out of which we presented so far the first 13 bundles (numbered from I to IX, to which we add other four unnumbered ones, all of them to be found in Box III), followed now by 14 bundles (numbered from 10 to 14 and from 21 to 29, deposited in Box I) also containing numbered pages with botanized plants. The 14 bundles consist of herbarium sheets with botanized plants of which some have undergone different levels of degradation over time or have not come to us preserved at all.

Similar to the data in the previous two parts, the plants were collected by different collectors of the time, whose names, acronyms or signatures are not always mentioned, and neither are the dates or locations of the collection of plants. Even when signatures exist and locations are mentioned, the handwriting often proved indecipherable. The collection should be dated in the 19th century, considering the dates on some of the labels.

With regard to the collection areas, most of them them belonging to the former Austro-Hungarian Empire, they are today in western European countries, too, reaching Spain, France, Belgium and western Germany, respectively Southern Italy (Sicily), Sardinia and Greece (Isle of Salamina), and eastward down to the Crimean peninsula (Odessa), Ukraine, East Prussia and Russia. To these the Central European areas of Switzerland, northern Italy, Austria, the Czech Republic, Slovakia, Poland, Hungary, Romania (Transylvania, Banat), Serbia (Vojvodina),

Bosnia-Herzegovina, Slovenia, and Croatia are added. There are also items from locations outside Europe, such as the Middle East (Syria).

As in the case of the two parts of this herbarium, among most of the collectors mentioned on the labels there are also personalities famous in the world of naturalists (herbalists) at the time, acknowledged as specialists in plant taxonomy, even if their work was more or less connected to botany (as they were physicians, pharmacists, priests, monks, teachers, military men or office workers). Many names of identified collectors (see Annex 2) appear also in the parts previously presented, but there are also new names such as Ernst Kloeber, Cardinal St. Fr. Ludwig Haynald, Julius Kováts von Szent-Lélek, C. B. Lehmann, A. Engler, Pommerot, Friedrich August Kornicke, C. Birnbacher, Fr. Oberlaitner, Johan Bolla, Ferdinand Hehsteiner, C. V. Hepperger, Antonio Bertoloni, F. Parlatore, Augusto Todaro, Christian von Steven, Edouard Timbal-Lagrave, Pierre Marie Alexis Millardet, Pedro del Campo, Antonio Costa y Cuxart, W. J. Sekera, Joseph Friedrich Knaf, Josef Friedrich Krzisch, J. Bayer, J. Delbos, W. Sonder, Heinrich Moritz Willkomm, and others. We have to mention again that, while there are names of collectors that we found nothing special about or whose signatures could not be deciphered, there are also specimens with no mention of any author.

Material and method

The examined material represents a part of the “Th. Schreiber Herbarium”, namely the part consisting of 41 bundles, included in the collection of the Țării Crișurilor Museum in Oradea, and divided in three boxes; the present study focuses on only 14 of the bundles, deposited in the first box, respectively, the bundles numbered from 10 to 14 and from 21 to 29. The 14 bundles contain sheets with botanized plants, some of which have undergone different levels of degradation over time or have not been preserved at all.

When rendering the names of the species, we considered their accepted scientific name with the mention of the reference source of their first description and their synonyms, where they were significant. To verify and update the data we used the database of the Royal Botanic Garden Edinburgh – Flora Europaea, and uBio Portal (www.ubio.org/portal/-5k); and the Plant List database (<http://www.theplantlist.org/>). When presenting the systematical units, we consulted the study of V. Ciocârlan (2000), which follows the rules and recommendations of the International Code for Botanic Cataloguing, and the site *Systema Naturae 2000* (<http://taxonomicom.taxonomy.nl>) in order to update the taxonomic classification

(the variant entered after January 26, 2014). We also mentioned the present name of the collecting location, the date and the collector's name when it was mentioned and the signature was legible.

Abbreviations used: n. = inventory number; ref. = reference index for the first description of the species; leg. = the author who collected and determined the plant; Ord.= order; Fam. = Family.

Sistematic part

Kingdom *Plantae* Haeckel, 1866

Viridiplantae Cavalier-Smith, 1981

Streptophyta

Embryophyta Endlicher, 1836

“polysporangiophytes”

Phylum Tracheophyta Sinnott, 1935 ex Cavalier-Smith, 1998

Subphylum *Lycophytina*

Clas. *Lycopodiopsida* Bartl., 1830

Ord. *Lycopodiales* Dumortier, 1829

Fam. *Lycopodiaceae* Palisot de Beauvois ex Mirbel, in Lamarck & Mirbel, 1802

Gen. *Lycopodiella* Holub, 1964

Lycopodiella inundata (L.) Holub – (n. 8233/fsc. 12, p. 5/c) Ref.: *Preslia* 21 (1964); Syn.: *Lycopodium inundatum* L; *Lepidotis inundata* (L.) Opiz; France, Cherbourg, April 1857, leg. Le Jolis, com. Haslinger .

Subphylum *Euphyllophytina*

Infraphylum “*Moniliformopses*” Kenrick & Crane, 1997, nom. inval.

Clas. *Polypodiopsida* Cronquist et al., 1966

Order *Hymenophyllales* A.B. Frank

Fam. *Hymenophyllaceae* (Bory ex Gaudich. in Freyc., 1828) Link, 1833

“hymenophylloid”

Gen. *Hymenophyllum* J.E. Smith, 1793

Hymenophyllum tunbrigense (L.) Sm. – (n. 8233/fsc. 12, p. 5/d) Ref.: *Engl. Bot. ed. 1 3: t. 162* (1794); Syn.: *Trichomanes tunbrigense* L.; *H. tunbrigense* var. *tunbrigense*; *Meringium tunbridgense* Copel.; France, Cherbourg, July 1862, leg. Le Jolis, com. Haslinger.

“core leptosporangiates”

Order *Polypodiales* Link, 1833

“eupolypods I”

Fam. *Dryopteridaceae* Ching, 1965, nom. cons.

Gen. *Dryopteris* M. Adanson, 1763, nom. cons.

Dryopteris carthusiana (Vill.) H. P. Fuchs – (n. 8233/fsc. 21, p. 14/a) Ref.: Bull. Soc. Bot. Fr. 105: 339 (1958); Syn.: *Aspidium spinulosum* Sw; *D. spinulosa* (O. F. Müll.) Kuntze; *Lastrea spinulosa* C. Presl; *Nephrodium spinulosum* Stempel; *Polystichum spinulosum* DC; unidentified location (“in monte Ohrstge Siptovia”?), July 1854, leg. Heuffel.

Dryopteris dilatata (Hoffm.) A. Gray – (n. 8233/fsc. 21, p. 13/a) Ref.: Man. Bot. ed. 1 631 (1848); Syn.: *Polystichum dilatatum* (Hoffm.) A. Schumach; *P. dilatatum* DC; *Lastrea dilatata* (Hoffm.) C. Presl; *Nephrodium spinulosum* Stempel subsp. *dilatatum* (Hoffm.) Hayek; Romania, Transsylvania, Bistrița-Năsăud, Rodna, no date, leg. Czetz.

Dryopteris filix-mas (L.) Schott – (n. 8233/fsc. 21, p. 12/a) Ref.: Gen. Fil. t. 9 (1834); Syn.: *Polystichum filix-mas* (L.) Roth; *Aspidium filix-mas* (L.) Sw; *Nephrodium filix-mas* (L.) Stempel; *Polypodium filix-mas* L; *Lastrea filix-mas* (L.) C. Presl; Romania, Transsylvania, Bistrița-Năsăud, Rodna, no date, leg. Czetz.

Gen. *Polystichum* A. W. Roth, 1799, nom. cons.

Polystichum setiferum (Forssk.) Woyn. – (n. 8233/fsc. 12, p. 5/a) Ref.: Mitt. Naturw. Ver. Steierm. 49: 181 (1913); Syn.: *Aspidium angulare* Kit. ex Willd; *A. aculeatum* Sw. pro parte; *Dryopteris aculeata* Briq; *D. setifera* (Forssk.) Woyn; *P. angulare* (Kit. ex Willd) C. Presl; *P. aculeatum* auct., non (L.) Roth; *P. aculeatum* (L.) Roth subsp. *angulare* (Kit. ex Willd) Vollm; Belgium, Vallonia, Argenteau, Liege, May 1863, coll. Cogniamp., no signature, label: “Ex herb.: Armand Thielens, D. S. N. Tirlemont” (Belgium).

“eupolypods II”

Fam. *Aspleniaceae* Newman

Gen. *Asplenium* C. Linnaeus, 1753

Asplenium ceterach L. – (n. 8233/fsc. 12, p. 5/b) Ref.: Sp. pl. 2: 1080. 1753; Syn.: *Ceterach officinarum* L; *C. officinarum* Willd; *C. officinarum* DC., France, Cherbourg, Febr. 1862, leg. Le Jolis, com. Haslinger.

Asplenium onopteris L. – (n. 8233/fsc. 12, p. 14/a) Ref.: Sp. Pl. ed. 1 1081 (1753); Syn.: *A. adiantum-nigrum* L. subsp. *onopteris* (L.) Luerss; Austria, Tirol (Poling in Salzbungischen), no date, leg. Richter L.

Asplenium serpentinum Presl. – (n. 8233/fsc. 12, p. 14/b) – Ref.: Fl. Ital. Fragm. 1: 16 (1808) Syn.: *A. fissum* Wimmer; *A. serpentinei* Tausch. *A. cuneifolium* Viv; *A. adiantum-nigrum* L. subsp. *serpentinei* (Tausch) W. D. J. Koch; *A. forsteri* Sadler; Slovakia, Bratislava (Breslau), no date, leg. Richter L.

Ord. *Salviniales* Britton, 1901
Fam. *Marsileaceae* Mirbel, 1802
Gen. *Pilularia* C. Linnaeus, 1753

Pilularia globulifera L. – (n. 8233/fsc. 21, p. 14/b) Ref.: Sp. Pl. ed. 1 1100 (1753); Netherland (southern Netherland), Schoonhoven (Brabant), July 1863, no signature, label: “Ex Herb. Armand Thielens, D. S. N., Tirlemont” (Belgium)

Infraphylum „*Radiatopses*“ Kenrick & Crane, 1997
„lignophytes“
Clas. *Spermatopsida*
Subclass *Magnoliidae* Novák ex Takhtajan, 1967
„core angiosperms“
Superorder *Lilianae* Takhtajan, 1967
Ord. *Asparagales* Link, 1829
Fam. *Amaryllidaceae* Jaume Saint-Hilaire, 1805, nom. cons.
Trib. *Galantheae* Parl., 1858
Gen. *Galanthus* C. Linnaeus, 1753

Galanthus nivalis L. – (n. 8233/fsc. 11, p. 4/a) Ref.: Sp. Pl. ed. 1 288 (1753); Syn.: *G. imperati* Bertol; *G. nivalis* subsp. *imperati* (Bertol.) Baker; Romania, Bihor, Paleu, Săldăbagiu de Munte (Szaldabagier Monti), March 4, 1863, leg. A. Steffek

Gen. *Leucojum* C. Linnaeus, 1753

Leucojum vernum L. – (n. 8233/fsc. 11, p. 5/a) Ref.: Sp. pl. 1: 289. 1753; Italy, Friuli-Venezia Giulia, Province of Udine, San Giorgio di Nogaro, 1856, leg.: Millardet

Leucojum vernum var. *carpathicum* Sims. – (n. 8233/fsc. 11, p. 1/a) Ref.: *Bot. Mag.*

45: t. 1993 1818. Syn.: *Erinosma carpathica* (Sims) Herb.; *L. carpathicum* (Sims) Sweet; *L. vernum* subsp. *carpathicum* (Sims) K. Richt.; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Leucojum vernum var. *carpathicum* Sims. – (n. 8233/fsc. 11, p. 2.) Ref.: *Bot. Mag.* 45: t. 1993 1818; Syn.: *Erinosma carpathica* (Sims) Herb.; *L. carpathicum* (Sims) Sweet; *L. vernum* subsp. *carpathicum* (Sims) K. Richt.; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Leucojum vernum var. *carpathicum* Sims. – (n. 8233/fsc. 11, p. 4/b) Ref.: *Bot. Mag.* 45: t. 1993 1818; Syn.: *Erinosma carpathica* (Sims) Herb.; *L. carpathicum* (Sims) Sweet; *L. vernum* subsp. *carpathicum* (Sims) K. Richt.; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Trib. *Narcisseae* Lam. & DC., 1806

Gen. *Narcissus* C. Linnaeus, 1753

Narcissus × *medioluteus* Mill. – (n. 8233/fsc. 11, p. 5/b) Ref.: *Gard. Dict.* ed. 8 no. 4 (1768); Syn.: *N. biflorus* Curtis; *N. poeticus* L. subsp. *biflorus* (Curtis) Cadevall; Switzerland, Canton Geneva, no date, leg. dr. Lagger (stamp: Botanischer Tauschverein in Wien)

Narcissus poeticus L. – (n. 8233/fsc. 11, p. 3/a) Ref.: *Sp. Pl.* 289 1753; Syn.: *Autogenes angustifolius* Raf.; *Helena purpureorincta* Haw.; *Hermione purpureocincta* (Haw.) M. Roem.; *N. hellenicus* Pugsley; *N. majalis* Curtis; *N. purpureocinctus* (Haw.) Spach; *N. recurvus* Haw.; *N. tripodalis* Salisb. ex Herb.; unidentified location („Karis b. Kipizna” ?), no date, leg. Tommasini.

Narcissus poeticus L. subsp. *radiiflorus* (Salisb) Baker – (n. 8233/fsc. 11, p. 1/b) Ref.: Syn.: *N. radiiflorus* Salisb.; *N. poeticus* var. *radiiflorus* (Salisb.) Baker; *N. radiiflorus* subsp. *poetarum* (Haw.) P. D. Sell; *N. serioflorens* Schur; *N. stellaris* Haw; *N. stelliflorus* Schur; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius

Narcissus pseudonarcissus L. – (n. 8233/fsc. 11, p. 3/b) Ref.: *Sp. Pl.* 289 1753; Syn.: *Ajax pseudonarcissus* (L.) Haw; Belgium, Flemish Brabant, Kortenberg (Sur de Cartenbergh), April 1863, no signature: „Ex Herb. Armand Thielens, D. S. N. Tirlemont” (Belgium). Obs.: „Tres Rare”, very rare.

Fam. Asparagaceae A. L. de Jussieu, 1789, nom. cons.

Trib. Hyacintheae Dumort., 1827

Gen. *Muscari* P. Miller, 1754

Muscari botryoides (L.) Mill. – (n. 8233/fsc. 29, p. 8/b) Ref.: Gard. Dict. ed. 8 no. 1 (1768); Syn.: *Bothryanthus heldreichii* (Boiss.) Regel; *Botryphile botryoides* (L.) Salisb.; *Czekelia transsylvanica* (Schur) Schur; *Eubotrys arvensis* Raf.; *Hyacinthus botryoides* L.; *M. carpaticum* Racib; *M. heldreichii* Boiss; Romania, Bihor, Sânmartin (“in isolda bai St. Marton in Grossvardein”), May 25, 1863, leg. A. Steffek – Ex flora hungarica – degraded specimen.

Gen. *Scilla* C. Linnaeus, 1753

Scilla bifolia L. – (n. 8233/fsc. 29, p. 8/a) Ref.: Sp. Pl. ed. 1 309 (1753); Syn.: *Adenoscilla unifolia* Texidor; *Genlisa bifolia* (L.) Raf.; *S. trifolia* Schur; *Stellaris bifolia* (L.) Moench; Romania, Bihor, Oradea (Montis de Grossvardein), May 14, 1860, leg. Steffek - Ex flora hungarica – degraded specimen.

Subfamily *Aphyllanthoideae* (Bartl., 1830) Lindl., 1846Gen. *Aphyllanthes* C. Linnaeus, 1753

Aphyllanthes monspeliensis L. – (n. 8233/fsc. 21, p. 7/c) Ref.: Sp. Pl. ed. 1 294 (1753); Syn.: *A. cantabrica* Bubani; *A. juncea* Salisb.; France, Savoie, Chambéry (“Chambéry a aprenvert.”), no date, leg. Huguenin

Fam. *Iridaceae* A. L. de Jussieu, 1789, nom. cons.Subfam. *Crocoideae*Tribe *Ixieae* Dumort., 1827Gen. *Crocus* C. Linnaeus, 1753

Crocus banaticus J. Gay – (n. 8233/fsc. 11, p. 9/b) Ref.: Bull. Sci. Nat. Geol. 25: 320 (1831); Syn.: *C. iridiflorus* Heuff; *Crociris iridiflora* (Heuff.) Schur; Romania, Bistrița-Năsăud, Năsăud, no date, leg. Porcius

Crocus cilicus Kotschy – (n. 8233/fsc. 11, p. 13/d) – Turcia, Southeastern Anatolia, Cilicia, unidentified location (“Ciliriae m. Bulgardogh” ?), August 31, 1853, leg. Kotschy (obs.: see also *C. cypricus* Boiss. & Kotschy, and *C. cvijicii* Kosanin)

Crocus flavus Weston – (n. 8233/fsc. 11, p. 11/b) Ref.: Univ. Bot. 2: 237 (1771); Syn.: *C. maesiacus* Ker Gawl; *C. aureus* Sibth. & Sm; *C. flavus* Haw., non Weston; *C. luteus* Lam; Romania, Bihor, Oradea, March 13, 1863, leg. A. Steffek – Ex Flor. Hungar.

Crocus flavus Weston – (n. 8233/fsc. 11, p. 12/a) – Ref.: Syn.: *C. aureus* Sibth. & Sm; *C. flavus* Haw., non Weston; *C. floribundus* Haw; *C. lacteus* Sabine; *C. luteus* Lam; *C. lageniflorus* Salisb; *C. moesiacus* Ker Gawl. Unidentified locality, 1856, leg. Millardet.

Crocus minimus DC. – (n. 8233/fsc. 11, p. 10/d) Ref.: Liliacées 2: t. 81 (1804); Syn.: *C. nanus* DC; *C. insularis* J. Gay pro parte; *C. insularis* Herb. pro parte; *Ixia elongata* Vahl; Italy, unidentified location (Corn a Boniface?), no date, no signature – Herbarium I. et R. Musaei Florentini.

Crocus nudiflorus Sm. – (n. 8233/fsc. 11, p. 12/b) Ref.: Engl. Bot. ed. 1 7: t. 491 (1798); Syn.: *C. multifidus* Ramond; *C. multifidus* G. Bergeret; *C. pyrenaeus* Herb; Pyrénées, no date, no signature.

Crocus reticulatus Steven ex Adams – (n. 8233/fsc. 11, p. 12/c) Ref.: Beitr. Naturk. 1: 45 (1805); Syn.: *C. variegatus* Hoppe & Hornsch; *C. vittatus* Raf; Crimea (In Tauria/Taurida Oblast/Crimean Oblast), no date, leg. Steven, com. Janka (Obs.: see also *C. sativus* L.).

Crocus reticulatus Steven ex Adams – (n. 8233/fsc. 11, p. 9/a) Ref.: Beitr. Naturk. 1: 45 (1805); Syn.: *C. variegatus* Hoppe & Hornsch; *C. vittatus* Raf; Romania, Bihor, Oradea, March 15, 1863, leg. Adolf Steffek.

Crocus vernus (L.) Hill subsp. *vernus* – (n. 8233/fsc. 11, p. 11/a) Ref.: Veg. Syst. 10: 1 (1765); Syn.: *C. vittatus* Schloss. & Vuk., non Raf; *C. heuffelianus* Herb; *C. albiflorus* Kit. subsp. *heuffelianus* (Herb) Hegi; *C. heuffelii* Körn; *C. banaticus* Heuff., non J. Gay; *C. candidus* Schloss. & Vuk; *C. uniflorus* Schur; Croatia, Flora Croatica – In Dumetis et sylvis humidus bei rario priore, April 1854, Ex herb. Lud. Farkas-Vukotinovic.

Crocus vernus (L.) Hill subsp. *vernus* – (n. 8233/fsc. 11, p. 11/c) – Ref.: Syn.: *C. banaticus* Heuff., non J. Gay; Romania, Timis, Lugoj (Specimen e manu ipsim auctori! - pr. Lugoj in Banatu lute), no date, leg. Heuffel.

Crocus vernus (L.) Hill subsp. *vernus* – (n. 8233/fsc. 11, p. 6/a) Ref.: Veg. Syst. 10: 1 (1765); Syn.: *C. banaticus* Heuff., non J. Gay; *C. banaticus* var. *versicolor* Schur; *C. discolor* Reuss; *C. duplex* Weston; *C. exiguus* Schur; *C. grandiflorus* Hegetschw.; *C. heuffelianus* Herb.; *C. heuffelii* Körn; *C. uniflorus* Schur; *C. albiflorus* Kit. subsp. *heuffelianus* (Herb) Hegi; Romania, Bihor, Oradea (Szaldabágy bei Grosswardein), Săldăbagiu, March 4, 1863, leg. Adolf Steffek – Ex flora hungarica.

Crocus versicolor Ker Gawl. – (n. 8233/fsc. 11, p. 10/c) Ref.: Bot. Mag. 28: t. 1110 (1808); Syn.: *C. cristensis* Eugène; *C. fragrans* Haw; *C. meridionalis* Risso; *C. reinwardtii* Rchb; France, Nice, no date, leg. Parlatore

Subfam. *Iridoideae*

Trib. *Irideae* Kitt., in A. Richard, 1840

Gen. *Iris* C. Linnaeus, 1753

Iris ruthenica Ker Gawl. – (n. 8233/fsc. 11, p. 10/a) Ref.: Bot. Mag. 28: t. 1123 (1808); Syn.: *I. caespitosa* Pall. ex Link; Romania, Transsylvania, no date, comm. Czetz.

Iris ruthenica Ker Gawl. – (n. 8233/fsc. 11, p. 10/b) Ref.: Bot. Mag. 28: t. 1123 (1808); Syn.: *I. caespitosa* Pall. ex Link; Romania, Transsylvania, no date, leg. Rechers, comm. Porcius.

Gen. *Gladiolus* C. Linnaeus, 1753

Gladiolus communis L. – (n. 8233/fsc. 11, p. 14/a) Ref.: Sp. Pl. ed. 1 36 (1753); Syn.: *G. byzantinus* auct., non Mill; Romania, Bihor, Oradea (G.wardein), 1860, leg. A. Steffek.

Gladiolus illyricus W. D. J. Koch – (n. 8233/fsc. 11, p. 14/b) Ref.: Syn. Fl. Germ. ed. 1 699 (1837); Syn.: *G. communis* auct., non L; unidentified location (Baule?), no date, leg. Tommasini (“Botanischer Tauschverein in Wien”).

Gladiolus imbricatus L. – (n. 8233/fsc. 11, p. 8/a) Ref.: Sp. Pl.: 37. 1753; Syn.: *Sphaerospora imbricata* (L.) Sweet; *G. apterus* Klokov; *G. crispiflorus* Herb; *G. galiciensis* Besser; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni (Gants), no date, leg. Czetz.

Gladiolus imbricatus L. – (n. 8233/fsc. 11, p. 8/b) Ref.: Sp. Pl.: 37. 1753; Syn.: *Sphaerospora imbricata* (L.) Sweet; *G. apterus* Klokov; *G. crispiflorus* Herb; *G. galiciensis* Besser; Romania, Banat, in pratis humidis Banatus, June, leg. Heuffel

Gladiolus palustris Gaudin – (n. 8233/fsc. 11, p. 14/c) Ref.: Fl. Helv. 1: 97 (1828); Italy, Trentino-Alto Adige, Sud-Tirol, Bolzano (Botzen, or Bozen), July 1860, leg. C. v. Hepperger – Label: Flora von Tirol (Botanischer Tauschverein in Wien).

Gladiolus sp. – (n. 8233/fsc. 11, p. 7/a) Ref.: Sp. Pl. ed. 1 36 (1753); no locality, date and signature (degraded specimen).

Gen. *Romulea* Maratti, 1772, nom. cons.

Romulea bulbocodium (L.) Sebast. & Mauri – (n. 8233/fsc. 11, p. 13/a) Ref.: Fl. Rom. 17 (1818); Syn.: *Trichonema bulbocodium* (L.) Ker Gawl; *R. bulbocodium* (L.) Sebast. & Mauri subsp. *clusiana* (Lange) Cout; *R. leichtliniana* Heldr. ex Halácsy; *Crocus bulbocodium* L; *Ixia bulbocodium* (L.) L; Dalmatia, no date, leg. illegible (Alntr.?).

Romulea bulbocodium (L.) Sebast. & Mauri - (n. 8233/fsc. 11, p. 13/b) Ref.: Fl. Rom. 17 (1818); Syn.: *Trichonema bulbocodium* (L.) Ker Gawl; *R. bulbocodium* (L.) Sebast. & Mauri subsp. *clusiana* (Lange) Cout; *R. leichtliniana* Heldr. ex Halácsy; *Crocus bulbocodium* L; *Ixia bulbocodium* (L.) L; Croatia, Pola, no date, leg. Tommasini („Botanischer Tauschverein in Wien“).

Romulea bulbocodium (L.) Sebast. & Mauri – (n. 8233/fsc. 11, p. 13/c) Ref.: Fl. Rom. 17 (1818); Syn.: *Trichonema bulbocodium* (L.) Ker Gawl; *R. bulbocodium* (L.) Sebast. & Mauri subsp. *clusiana* (Lange) Cout; *R. leichtliniana* Heldr. ex Halácsy; *Crocus bulbocodium* L; *Ixia bulbocodium* (L.) L; Greece, Crete, Held. 1846, no signature.

Fam. *Orchidaceae* A. L. de Jussieu, 1789, nom. cons.

Gen. *Coeloglossum* C.J. Hartman, 1820

Coeloglossum viride (L.) Hartm. – (n. 8233/fsc. 11, p. 15/c) Ref.: Handb. Skand. Fl. ed. 1 329 (1820); Syn.: *C. purpureum* Schur; *Habenaria viridis* (L.) R. Br; *Orchis viridis* L; unidentified locality, June 11, 1857, leg. illegible.

Subfam. *Epidendroideae*

Trib. *Malaxideae* Lindl., 1826

Gen. *Liparis* L.C. Richard, 1817, nom. cons.

Liparis loeselii (Linnaeus) L. C. Richard – (n. 8233/fsc. 11, p. 17/c) Ref.: Orchid. Eur. Annot. 38 (1817); Syn.: *Sturmia loeselii* (L.) Rchb; *Malaxis loeselii* (L.) Sw; *Pseudorchis loeselii* (L.) Gray; unidentified location (Poges?), no date, leg. Hausmann (degraded specimen).

Tribe *Neottieae* Lindl., 1826

Gen. *Epipactis* Zinn, 1757

Epipactis microphylla (Ehrh.) Sw. – (n. 8233/fsc. 11, p. 16/a) Syn.: *Serapias*

microphylla Ehrh.; *E. intermedia* Schur 1866; *Limodorum microphyllum* (Ehrh.) Kuntze; *Amesia microphylla* (Ehrh.) A. Nelson & J. F. Macbr.; unidentified locality, no date, leg. Richter L.

Trib. *Orchideae* Small, 1933

Subtrib. *Orchidinae* Rchb. 1841

Gen. *Dactylorhiza* Necker ex Nevski, 1937

Dactylorhiza maculata (L.) Soó – (n. 8233/fsc. 11, p. 16/c) Ref.: Nom. Nov. Gen. *Dactylorhiza* 7 1962; Syn.: *Orchis maculata* L; unidentified location, no date, leg. Hazslinszky F.

Gen. *Ophrys* C. Linnaeus, 1753

Ophrys scolopax Cav. – (n. 8233/fsc. 11, p. 16/b) Ref.: Icon. 2: 46 1793; Syn.: *Arachnites speculum* Tod.; *O. arachnites* var. *scolopax* (Cav.) Fiori & Paol.; *O. fuciflora* subsp. *scolopax* (Cav.) H. Sund.; *O. holoserica* subsp. *scolopax* (Cav.) H. Sund.; France, Aquitaine, Agen (“environs d’Agen”), no date, leg. Pommerot.

Ophrys sphegodes Mill. – (n. 8233/fsc. 11, p. 15/d) Ref.: Gard. Dict. ed. 8 no. 8 (1768); Syn.: *O. aranifera* Huds; *O. fucifera* Curtis; unidentified location, May 5, 1858, leg. illegible.

Gen. *Orchis* C. Linnaeus, 1753

Orchis militaris L. – (n. 8233/fsc. 11, p. 17/a) Ref.: Sp. Pl. ed. 1 941 (1753); Syn.: Austria, Lower Austria (Niederösterreich), May 1855, leg. Eichenfitz.

“*commelinids*”

Ord. *Poales* Small, 1903

Gen. *Airopsis* Desvaux, 1809

Airopsis tenella (Cav.) Asch. & Graebn. – (n. 8233/fsc. 28, p. 11/b) Ref.: Syn. Mitteleur. Fl. 2(1): 298 (1899); Syn.: *A. globosa* (Thore) Desv; *Briza globosa* (Ten.) Mutel; *Milium tenellum* Cav.; France [“La Teste Mai (France)”], no date, leg. Pomaret.

Gen. *Beckmannia* Host, 1805

Beckmannia eruciformis (L.) Host – (n. 8233/fsc. 22, p. 3/a) Ref.: Gram. Austr. 3: 5 (1805); Syn.: *B. cruciformis* (Sm.) Sennen; *Bruchmannia eruciformis* (L.) Nutt.; *Cynosurus eruciformis* Sol. ex Aiton; *Panicum cruciforme* Sibth. & Sm.; *Phala-*

ris eruciformis L.; Hungary, Kisuj szalás, 1856, no signature. Label: “ex herbario Jermy G.”

Beckmannia eruciformis (L.) Host – (n. 8233/fsc. 28, p. 1/b) Ref.: Gram. Austr. 3: 5 (1805); Syn: *B. borealis* (Tzvelev) Prob.; *B. cruciformis* (Sm.) Sennen; Romania, Bihor, Diosig (“In pratis paludosi prope Dioszeg, Comitatum Bihar in Hungaris”), June 16, 1861, leg. Janka.

Fam. *Cyperaceae* A. L. de Jussieu, 1789, nom. cons.

Subfam. *Caricoideae*

Gen. *Carex* C. Linnaeus, 1753

Carex appalachica J. M. Webber & P. W. Ball - (n. 8233/fsc. 14, p. 7/a) Ref.: Taxon 28(5/6): 614. 1979; no location, no date, no signature [Obs.: based on the writing on the label (see p. 7/b), the location may be Freiburg, Switzerland, and the collector Dr. Lager.

Carex atrata L. subsp. *aterrima* (Hoppe) Kelak. – (n. 8233/fsc. 14, p. 8/a) Ref.: Prodr. Fl. Böhm. 67 (1867); Syn.: *C. aterrima* Hoppe; *C. atrata* L. subsp. *atrata* var. *aterrima* (Hoppe) Fiori; *C. atrata* L. subsp. *perfusca* (V. I. Krecz.) T. Koyama; *C. perfusca* V. I. Krecz; Austria, Tirol (ad moles glaciales mont Gries), no date, leg. Dr. Lager.

Carex brunnescens (Pers.) Poir. – (n. 8233/fsc. 14, p. 6/a) Ref.: Encycl. Méth. Bot. Suppl. 3: 286 (1813); Syn.: *C. personii* Sieber; *C. personii* Sieber subsp. *persoonii*; *C. vitilis* Fr; *C. vitilis* Fr. subsp. *vitilis* (Fr.) Kalela; *Facolos brunnescens* (Pers.) Raf; *Vignea brunnescens* (Pers.) Sojak; Switzerland, In Monte Grimsula, August, leg. Dr. Lager.

Carex canescens L. – (n. 8233/fsc. 14, p. 5/a) Ref.: Sp. Pl. 974 1753; Syn.: *C. canescens* var. *fallax* Kurtz; *C. curta* var. *robustior* (Kük.) B. Boivin; *Caricina canescens* (L.) St.-Lag.; *Vignea canescens* (L.) Rchb.; Romania, Bistrița-Năsăud, Rodna (“Rodnai havatam Kaptam 1858 isobo?”); 1858, leg. Czetz.

Carex capillaris L. – (n. 8233/fsc. 14, p. 12/a) Ref.: Sp. Pl. ed. 1 977 (1753); Austria, Tirol, June 1852, leg. illegible (Gerundin?), Wiener Tausch. Herbarium.

Carex capillaris L. – (n. 8233/fsc. 14, p. 12/b) Ref.: Sp. Pl. ed. 1 977 (1753); unidentified location, no date, leg. Zollinger.

Carex chlorocarpa Wimm. – (n. 8233/fsc. 14, p. 7/b) Ref.: Flora 33: 620 1849; Syn.: *C. nigra* subsp. *alpina* (Gaudin) Lemke; Switzerland, Kanton Freiburg, no date, leg. Dr. Lager.

Carex curvula All. – (n. 8233/fsc. 14, p. 14/b) Ref.: Fl. Pedem. 2: 264 (1785); Syn.: *C. tripartita* All; unidentified location (altitude 4000' – possibly southern Tirol), no date, leg. Huter (obs.: „Botanischer Tauschverein in Wien”).

Carex depressa Link subsp. *depressa* – (n. 8233/fsc. 14, p. 4/b) Ref.: Jour. für die Bot. 1799(2): 309 (1800); Syn.: *C. basilaris* Jord; *C. hallerana* Asso subsp. *depressa* (Link) Nyman; Romania, Bistrița-Năsăud, Dumbrăveni (Gants) (In Transsylvania septemionalis collectum pr. pag. Ganes), May, leg. Czetz, con. Janka (obs.: *C. transilvanica* Schur.!)

Carex depressa Link subsp. *transsilvanica* (Schur) T. V. Egorova – (n. 8233/fsc. 14, p. 4/a) Syn.: *C. transilvanica* Schur; *C. euxina* (Woronow & Marcow.) V. I. Krecz; Romania, Bistrița-Năsăud, Dumbrăveni (Gants) (Prope pagum Gants in Transsylvania), 1861, exuente majo, leg. Czetz

Carex distans L. – (n. 8233/fsc. 14, p. 10/b) Ref.: Syst. Nat. ed. 10 2: 1263 (1759); Syn.: *C. bessarabica* (SaBvul. & Rayss) Zahar; *C. distans* L. subsp. *adriatica* Degen; *C. forficula* Sennen; Romania, Transsylvania, Bistrița-Năsăud, 1859, leg. Czetz (Obs.: label includes a fragment of correspondence with Janka)

Carex elata All. subsp. *elata* – (n. 8233/fsc. 14, p. 5/b) – Ref.: Fl. Pedem. 2: 272 (1785) Syn.: *C. stricta* Gooden., non Lam; Germany, Geicosberg in Silesia, no date, leg. Wimmer.

Carex firma Host – (n. 8233/fsc. 14, p. 9/b) Ref.: Syn. Pl. Austr. 509 (1797); Syn.: *C. ferruginea* Scop. subsp. *ferruginea* var. *firma* (Host) Fiori; Switzerland, unidentified location, July, leg. Christener

Carex flerinosa Janka spec. nov. – (n. 8233/fsc. 14, p. 3/b) Romania, Bistrița-Năsăud, Dumbrăveni (“In Transsylvania, circe pagum Ganes”), no date, legit et comm. Czetz.

Carex michelii Host. – (n. 8233/fsc. 14, p. 14/a) Ref.: Syn. Pl. Austr. 507 (1797); Romania, Bistrița-Năsăud, Dumbrăveni („Gantsi határon”), 1856, no signature (possibly A. Czetz).

Carex microstyla J. Gay — (n. 8233/fsc. 14, p. 6/b) Ref.: Fl. Helv. 6: 37 1830; Syn.:

C. × microstyla J. Gay ex Gaudin; *C. foetida × brunnescens*; Switzerland, In Monte Grimsula, leg. Dr. Lagger.

Carex montana L. – (n. 8233/fsc. 14, p. 10/a) Ref.: Sp. Pl. ed. 1 975 (1753); Syn.: *C. montana* L. subsp. *csetzii* (Janka) Nyman; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni („Gantsi határ”), mai 1856, leg. Czetz (Obs.: label includes a fragment of correspondence, possibly with Janka).

Carex nigra (L.) Reichard – (n. 8233/fsc. 14, p. 11/b) Ref.: Fl. Moeno-Francofurt. 2: 96 (1778); Syn.: *C. vulgaris* Fr; *C. vulgaris* Fr. subsp. *vulgaris*; *C. fusca* All; *C. rufa* Lam; Poland, Breslau/Wroclaw (Zoblenberg in Silesia), no date, leg. Wimmer.

Carex paniculata L. – (n. 8233/fsc. 14, p. 2/b) Ref.: Cent. Pl. 1: 32 (1755); Poland, Breslau/Wroclaw („Bries. in silvis”), no date, leg. Wimmer.

Carex prolixa Fr. – (n. 8233/fsc. 14, p. 9/a) Ref.: Novit. Fl. Suec. Mantissa 3: 228. 1845; Syn.: *C. acuta × elata* (Sp. Pl. ed. 1 978 (1753); *C. acuta* L. subsp. *prolixa* (Fr.) Nyman; *C. acuta* L. var. *prolixa* (Fr.) Almq; Switzerland, Freiburg („In pago friburgensi”), June 28, leg. Dr. Lagger.

Carex tomentosa L. – (n. 8233/fsc. 14, p. 2/a) Syn.: *C. filiformis* L; *C. filiformis* auct., non L; *C. tomentosa* L. subsp. *grossmanniana* Asch; *C. tomentosa* L. subsp. *subvillosa* (M. Bieb) Nyman; Austria, Vienna, no date, leg Janka.

Carex tomentosa L. – (n. 8233/fsc. 14, p. 3/a) Syn.: *C. filiformis* L; *C. filiformis* auct., non L; *C. tomentosa* L. subsp. *grossmanniana* Asch; *C. tomentosa* L. subsp. *subvillosa* (M. Bieb) Nyman; Romania, Bistrița-Năsăud, Dumbrăveni („Gantsi határ”), May 15, 1858, no signature (label written by Czetz: „van ilig Litera A”).

Carex turfosa genuina Fr.– (n. 8233/fsc. 14, p. 8/b) Ref.: Bot. Not. 1843: 104. 1843; Syn.: *C. dematrancea* Lagger; *C. nigra* subsp. *turfosa*; *C. stricta* subsp. *turfosa*; *C. vulgaris* subsp. *dematrancea*; *C. vulgaris* var. *turfosa*; *C. × turfosa* Fr; *C. × dematrancea* Lagger; Switzerland, Freiburg (“In turfosis prope Lustarf in pago friburgens.”), no date, leg. Dr. Lagger.

Carex viridula subsp. *viridula* – (n. 8233/fsc. 14, p. 11/a) Ref.: Beitr. Naturk. 6: 83 1791; Syn.: *C. oederi* Ehrh. Poland, Breslau/Wroclaw (Lisa bei Breslau), no date, leg. Wimmer.

Carex sp. – (n. 8233/fsc. 14, p. 13.) Ref.: Sp. Pl. ed. 1 972 (1753); Romania, Transsylvania, Cluj, Turda (“In rupibus calcarei, prope Thorda Transsilvaniae”), May 15, 1845, leg. Janka.

Gen. *Kobresia* Willdenow, 1805

Kobresia myosuroides subsp. *myosuroides* – (n. 8233/fsc. 14, p. 1/a) Ref.: original publication details unknown; Syn.: *Elyna spicata* Schr; *E. bellardi* (All.) K. Koch; *Carex bellardi* All; *C. hermaphrodita* J. F. Gmel; unidentified locality, no date, leg. Huter.

Kobresia simpliciscula subsp. *simpliciscula* (Wahlenb) Mack. – (n. 8233/fsc. 14, p. 1/b) Ref.: original publication details unknown; Syn.: *K. caricina* Willd; *Elyna caricina* Mert. & W. D. J. Koch; Italy, Trentino, Monte Cengio (Mont Cenio), no date, leg. Huguenin.

Subfam. *Cyperoideae*Trib. *Scirpeae*Gen. *Eriophorum* C. Linnaeus, 1753

Eriophorum angustifolium Honck. – (n. 8233/fsc. 10, p. 6/a) Ref.: Vollst. Syst. Verz. 153 (1782); Syn.: *E. polystachion* L. pro parte; *E. angustifolium* Honck. subsp. *subarcticum* (V. N. Vassil.) Hultén; *E. latifolium* Hoppe; Belgium, Tirlemont, May 1863, no signature. Label: “Ex Herb. Armand Thielens, D. S. N., Tirlemont” (Belgium) (obs.: uncertain identification).

Fam. *Juncaceae* A. L. de Jussieu, 1789, nom. cons.Gen. *Juncus* C. Linnaeus, 1753

Juncus subnodulosus Schrank – (n. 8233/fsc. 29, p. 7/a) Ref.: Baier. Fl. 1: 616 (1789); Syn.: *J. obtusiflorus* Ehrh. ex Hoffm; Austria, Vienna, July 30, 1854, leg. J. Juratzka.

Gen. *Luzula* A. P. de Candolle, in Lamarck & A. P. de Candolle, 1805, nom. cons.

Luzula spicata (L.) DC. – (n. 8233/fsc. 29, p. 7/b) Ref.: Fl. Fr. ed. 3 3: 161 (1805); Syn.: *Juncus spicatus* L; Granland, no date, leg. Vate – „Herbar. W. Sonder“.

Luzula sudetica (Willd) Schult. – (n. 8233/fsc. 29, p. 7/c) Ref.: Oestr. Fl. ed. 2, 1: 573 1814; Syn.: *L. althii* Herbich; *L. campestris* f. *althii* (Herbich) I. Grint.; *L. nigricans* Desv.; *L. nigricans* var. *althii* (Herbich) Nyman; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Fam. *Gramineae* A. L. de Jussieu, 1789, nom. cons., nom. alt.

Gen. *Antinoria* Parl.

Antinoria agrostidea (DC) Parl. – (n. 8233/fsc. 23, p. 20/a) Ref.: Fl. Palerm. 1: 95 (1845); Syn.: *Airopsis agrostidea* (DC) DC; Italy, unidentified location, no date and signature (Label: Herbarium I. et R. Musaei Florentini).

Antinoria insularis Parl. – (n. 8233/fsc. 23, p. 19/b) Ref.: Fl. Palerm. 1: 92 1845; Syn.: *Aira insularis* (Parl.) Boiss.; Italy, Sicily, no date, no signature. Label: Herbario I. et R. Musaeii Florentini.

Gen. *Hordelymus* (Jess.) Jess. ex Harz

Hordelymus europaeus (L.) Harz – (n. 8233/fsc. 21, p. 18/b) Ref.: Samenk. 114 (1885); Syn.: *Elymus europaeus* L.; *Cuviera europaea* (L.) Koeler; *Hordeum europaeum* (L.) All; unidentified location, August 17, 1878, no signature.

Gen. *Parapholis* C. E. Hubb.

Parapholis incurva (L.) C. E. Hubb. – (n. 8233/fsc. 21, p. 17/b) Ref.: Blumea Suppl. 3: 14 (1946); Syn.: *Aegilops incurva* L.; *Lepturus incurvatus* Trin; *L. incurvus* (L.) Janch; *Pholiurus incurvatus* Hitchc; Italy, Venice, 1856, leg. v. Grabmayer.

Parapholis incurva (L.) C. E. Hubb. – (n. 8233/fsc. 21, p. 17/c) Ref.: Blumea Suppl. 3: 14 (1946); Syn.: *Aegilops incurva* L.; *Lepturus incurvatus* Trin; *Lepidurus incurvus* (L.) Janch; *Pholiurus incurvatus* Hitchc; *P. incurvus* (L.) Schinz & Thell; Greece, Crete, 1846, leg. Heldreich.

Gen. *Phippsia* (Trinius) R. Brown, 1823

Phippsia algida (Sol.) R.Br. – (n. 8233/fsc. 22, p. 4/b) Ref.: Jour. Voy. N. W. Pass. (Suppl. App.) 284 (1824); Syn.: *Agrostis algida* Phipps; *Catabrosa algida* Fr.; *Glyceria algida* (Sol.) Hartm.; Norway, Mt. Dovrefjell (“Norveg., in alpe Dovrefjell”), 1854, leg. C. Hartman

Gen. *Trisetaria* Forssk.

Trisetaria carpatica Baumg. – (n. 8233/fsc. 21, p. 17/a) Ref.: Enum. Stirp. Transsilv. 3: 263 1816; Syn.: *Helictotrichon pubescens* (Huds.) Schult. & Schult.f; *Avena baumgartenii* Steud.; *A. carpatica* Host; *Trisetum carpaticum* (Host) Roem. & Schult; Romania, Bistrița-Năsăud, Rodna, July-August 1859, leg. Czetz

Subfam. *Arundinoideae*Trib. *Arundineae* Dumort., 1824Gen. *Arundo* L.

Arundo plinii Turra – (n. 8233/fsc. 28, p. 6/b) Ref.: Farset. Nov. Gen. 11 (1765); Syn.: *A. pliniana* Turra; *Calamagrostis plinii* (Turra) J. F. Gmel.; *Donax plinii* (Turra) K. Koch; Slovenia, Koper/Capodistria, no date, no signature – comm. M. Tommasini – “Ex Herbario Florae Illyricae”.

Gen. *Molinia* Schrank, 1789

Molinia caerulea (L.) Moench – (n. 8233/fsc. 26, p. 12/a) Ref.: Meth. 183 (1794); Italy, Friuli-Venezia Giulia, Udine, Cervignano del Friuli, Strasoldo b. Palma nuova, 1856, leg. Wiclardt.

Molinia caerulea (L.) Moench – (n. 8233/fsc. 26, p. 12/b) Ref.: Meth. 183 (1794); Hungary, Rakos, no date, leg. Dr. Krzisch. – “Ex Flora Hungariae”.

Molinia caerulea (L.) Moench subsp. *arundinacea* (Schrank) H. K. G. Paul – (n. 8233/fsc. 26, p. 11/b) Ref.: Ber. Bayer. Bot. Ges. 23: 154 (1938); Syn.: *M. caerulea* (L.) Moench subsp. *altissima* (Link) Domin; *M. altissima* Link; *M. arundinacea* Schrank; *M. caerulea* (L.) Moench subsp. *litoralis* (Host) H. K. G. Paul; Austria, Vienna, August 22, 1858, leg. J. Juratzka.

Gen. *Phragmites* Adanson, 1763

Phragmites australis (Cav.) Trin. ex Steud. – (n. 8233/fsc. 22, p. 3/b) Ref.: Nomencl. Bot. ed. 2 2: 324 (1841); Syn.: *P. gigantea* J. Gay; *P. giganteus* J. Gay & Endress; *P. communis* Trin; *P. pumila* Willk; *P. vulgaris* Samp; France, Languedoc-Roussillon, Aude, Narbonne, no date, leg. Huguenin.

Gen. *Schismus* P. Beauv.

Schismus barbatus (L.) Thell. – (n. 8233/fsc. 22, p. 4/d) Ref.: Bull. Herb. Boiss. ser. 2 7: 391 (1907); Syn.: *S. marginatus* P. Beauv; *S. calycinus* Coss. & Durieu; *Koeleria cantabrica* Willk; Greece, Attica, Salamina (Isle of Salamis), no date, leg. Parlatore.

Schismus minutus (Hoffm.) Roem. & Schult. – (n. 8233/fsc. 22, p. 4/c) Ref.: Syst. Veg. 2: 584 1817 Syn.: *S. barbatus* (L.) Thell; „In lepidossi circa Gandscham (Transcaucas)“, 1829, leg. Howitzs.

Subfamily *Ehrhartoideae*Trib. *Oryzeae* Dumort.Gen *Oryza* C. Linnaeus

Oryza sativa L. – (n. 8233/fsc. 23, p. 18/b) Ref.: Sp. Pl. 333 1753; Syn.: *O. communissima* Lour.; unidentified locality, no date, no signature – comm. M. Tommasini – “Ex Herbario Florae Illyricae”.

Subfam. *Chloridoideae*Trib. *Cynodonteae* Dumort., 1824Gen. *Crypsis* W. Aiton, 1789, nom. cons.

Crypsis aculeata (L.) Aiton – (n. 8233/fsc. 23, p. 17/b) Ref.: Hort. Kew. ed. 1 1: 48 (1789); Syn.: *Agrostis aculeata* Scop.; *Anthoxanthum aculeatum* L. f.; *Antitragus aculeatus* (L.) Gaertn; Romania, Transsylvania («In collibus vasis sieresismis Transilvanie arviani inter Szamos-Ujvár és Szék), Sept. 3, 1858, leg. Janka.

Crypsis alopecuroides Lam. var. *minor* Janka – (n. 8233/fsc. 23, p. 17/c) Ref.: Fl. Germ. 167 (1806); Hungary, Jász-Nagykun-Szolnok, Karcag, Kisújszállás, Sept. 26, 1861, leg. Janka.

Gen. *Tragus* A. Haller, 1768, nom. cons.

Tragus racemosus (L.) All. – (n. 8233/fsc. 22, p. 12/a) Ref.: Fl. Pedem. 2: 241 (1785); Syn.: *Cenchrus racemosus* L.; *Lappago racemosa* (L.) Honck.; *Nazia racemosa* (L.) Kuntze; unidentified location, no date, leg. Al. Makovsky.

Trib. *Eragrostideae* Stapf, in W. H. Harvey & O. W. Sonder, 1898Subtrib. *Eleusininae* Dumort., 1829Gen. *Eragrostis* N. M. Wolf, 1776

Eragrostis collina Trin. – (n. 8233/fsc. 22, p. 7/b) Ref.: Mém. Acad. Sci. Pétersb. (Sci. phys. math.) ser. 6 1: 413 (1830); Syn.: *E. arundinacea* (L.) Roshev., non Jedwabn; *E. tatarica* (Fisch.) Roshev; *Poa collina* (Trin.) K. Koch; *P. tatarica* Fisch. ex Griseb.; Russia, Volgograd Oblast, Sarepta (“Pr. Sarepta as Wolgam inferioren”), no date, leg. A. K. Becker.

Eragrostis minor Host – (n. 8233/fsc. 28, p. 5/b) Ref.: Gram. Austr. 4: 15 (1809); Syn.: *E. suaveolens* A. K. Becker ex Claus; *E. brizoides* Costa; *E. poaeoides* P. Beauv; unidentified location, no date, leg. Roemer.

Eragrostis minor Host – (n. 8233/fsc. 22, p. 5.) Ref.: Gram. Austr. 4: 15 (1809); Syn.: *E. suaveolens* A. K. Becker ex Claus; *E. poaeoides* P. Beauv; Russia, Volgograd Oblast, Sarepta (“Sarepta – in Ross meridionali ad Wolgam inferior.”), no date, leg. A. K. Becker.

Eragrostis papposa (Dufour) Steud. – (n. 8233/fsc. 22, p. 8/a) Ref.: Nomencl. Bot. ed. 2, 1: 564 1840; Syn. Pl. Glum. 1: 263 (1854); Syn.: *Megastachya papposa* Roem. & Schult.; *Poa papposa* Dufour ex Roem. & Schult.; Austria, no date (“18..”), leg. Guisno – “Herbarium Willkommii”.

Eragrostis poaeiformis Link – (n. 8233/fsc. 28, p. 6/c) Ref.: Hort. Reg. Bot. Berol., 1: 190. 1827; Syn.: *E. minor* Host; *E. poaeoides* P. Beauv; *E. eragrostis* (L.) P. Beauv; *Echinochloa poaeoides* P. Beauv; *Poa eragrostis* L; Romania, Transsylvania (“In locis cultis Transsylvaniae”), no date, leg. Dr. Schur.

Eragrostis pilosa (L.) P. Beauv. – (n. 8233/fsc. 28, p. 6/a) Ref.: Agrost. 71 & 162 (1812); Syn.: *E. gracilis* Velen; Romania, Transsylvania, no date, leg. Janka.

Subfam. *Danthonioideae*

Gen. *Danthonia* A. P. de Candolle, in Lamarck & A. P. de Candolle, 1805, nom. cons.

Danthonia alpina Vest – (n. 8233/fsc. 26, p. 17/c) Ref.: Flora (Regensb) 4: 145 (1821); Syn.: *D. provincialis* DC; *Triodia alpina* (Vest) Roth; Romania, Cluj, Cluj-Napoca (“Clausenburg”), 1854, leg. Wolff.

Danthonia alpina Vest – (n. 8233/fsc. 26, p. 17/d) Ref.: Flora (Regensb) 4: 145 (1821); Syn.: *D. provincialis* DC; *Triodia alpina* (Vest) Roth; Austria, Vienna (“In prattis montanis Vienices”), June 8, 1857, leg. J. Bayer.

Danthonia decumbens – (n. 8233/fsc. 26, p. 17/a) Ref.: Flore Française, Troisième Édition 3: 33. 1805; Syn.: *Triodia decumbens* (L.) P. Beauv; *Sieglingia decumbens* (L.) Bernh; Austria, Vienna, June 16, 1856, leg. J. Juratzka.

Subfamily *Panicoideae*

Trib. *Andropogoneae* Dumort., 1824

Subtrib. *Anthistirinae* J. Presl, in C. Presl, 1830

Gen. *Hyparrhenia* Andersson ex Fournier, 1886

Hyparrhenia hirta (L.) Stapf – (n. 8233/fsc. 22, p. 1/b) Ref.: Fl. Trop. Afr. 9: 315 (1919); Syn.: *Andropogon hirtus* L; *A. pubescens* Vis; *Cymbopogon hirtus* (L.) Thomson;

France, Languedoc-Roussillon, Pyrénées Orientales, Banyuls, nodate, no signature.

Subtrib. *Saccharinae* Griseb., 1846
Gen. *Saccharum* C. Linnaeus, 1753

Saccharum strictum (Host) Spreng. – (n. 8233/fsc. 22, p. 8/b) Ref.: Pugillus 2: 16 (1815); Syn.: *Erianthus hostii* Griseb; *E. strictus* (Host) Bluff, Nees & Schauer; *E. adpressus* Jáv; *Andropogon strictus* Host; unidentified location (In colib. Herbiri ad Ne. gotin ierb. austr.), 1854, leg. illegible.

Subtrib. *Sorghinae* Stapf, in D. Oliver, 1917
Gen. *Sorghum* Moench, 1794, nom. cons.

Sorghum halepense (L.) Pers. – (n. 8233/fsc. 22, p. 11/a) Ref.: Syn. Pl. 1: 101 (1805); Syn.: *Andropogon halepensis* (L.) Brot; unidentified location, no date, no signature – comm. M. Tommasini – “Ex. Herbario Florae Illyricae”.

Tribe *Paniceae* R. Br., in M. Flinders, 1814
Subtribe *Digitariinae* Stapf, in D. Oliver, 1917
Gen. *Digitaria* A. Haller, 1768, nom. cons.

Digitaria ischaemum (Schreb) Muhl. – (n. 8233/fsc. 22, p. 12/b) Ref.: Descr. Gram. Amer. Sept. 131 (1817); Syn.: *D. glabra* (Schrad) P. Beauv; *Panicum ischaemum* Schreb; *P. glabrum* (Schrad) Gaudin; Romania, Bihor, Oradea, („Ad silves margines Magnum Varadinum“), Aug. 1858, leg. Janka.

Subtribe *Setariinae* Dumort., 1829
Gen. *Echinochloa* P. Beauv.

Echinochloa crus-galli (L.) P. Beauv. – (n. 8233/fsc. 22, p. 14/b) Ref.: Agrost. 53 & 161 (1812); Syn.: *Panicum crus-galli* L.; *E. crus-corvi* (L.) P. Beauv; no locality, no date, no signature.

Gen. *Panicum* C. Linnaeus, 1753

Panicum capillare L. – (n. 8233/fsc. 22, p. 13/b) Ref.: Sp. Pl. ed. 1 58 (1753); Syn.: *Chasea capillaris* (L.) Nieuwl.; *Leptoloma capillaris* (L.) Smyth; *Milium capillare* (L.) Moench; Austria, Vienna, August 6, 1855, leg. J. Juratzka (obs.: labels reversed on the sheet).

Panicum repens L. – (n. 8233/fsc. 22, p. 14/a) Ref.: Sp. Pl. ed. 2 87 (1762); Syn.: *P. arenarium* Brot.; France, Provence-Alpes-Coté d'Azur, Hyeres, August 28, 1857, leg. Huet.

Panicum undulatifolium Ard. – (n. 8233/fsc. 22, p. 13/a) Ref.: Syn.: Italy, Trentino-Alto Adige/Südtirol, Bolzano (Bozen), no date, leg. Haum (obs.: labels reversed on the sheet).

Subfam. *Pooideae*

Gen. *Catapodium*

Catapodium rigidum (L.) C. E. Hubb. – (n. 8233/fsc. 24, p. 2/b) Ref.: Fl. Bedfordshire 437 1953; Syn.: *Sclerochloa rigida* (L.) Link; *Desmazeria rigida* (L.) Tutin; *Glyceria rigida* (L.) Sm.; *Megastachya rigida* (L.) Roem. & Schult.; *Poa rigida* L.; *Scleropoa rigida* (L.) Griseb; "In Dalmatia, Crestate, 1854", no signature, com. Frauenfeld.

Gen. *Sclerochloa* P. Beauv.

Sclerochloa erbariales L. – (n. 8233/fsc. 24, p. 2/a) Ref.: Ess. Agrostogr. 98, 174, 177, pl. 19, f. 4. 1812; France, Languedoc-Roussillon, Narbonne, no date, leg. Vivilles.

Trib. *Aveneae* Dumort., 1824

Subtrib. *Alopecuridinae* Dumort., 1829

Gen. *Agrostis* C. Linnaeus, 1753

Agrostis setacea Vill. – (n. 8233/fsc. 23, p. 19/a) Ref.: Hist. Pl. Dauphiné 2: 76 1787; Syn.: *A. rupestris* All; unidentified locality, no date, leg. Timbal L. (Timbal-La-grave, Pierre Marguerite Édouard).

Agrostis stolonifera L. – (n. 8233/fsc. 23, p. 1/a) Ref.: Sp. Pl. ed. 1 62 (1753); Syn.: *Agrostis alba* auct., non L. subsp. *stolonifera* (L.) V. Jirásek; *Agrostis alba* auct., non L; *Agrostis albida* Trin; *Agrostis capillaris* Pollich, non L; Austria, Vienna, June 22, 1855, leg. J. Juratzka.

Agrostis sp. - (n. 8233/fsc. 23, p. 1/b) unidentified locality, 1858? leg. Pivoll.

Gen. *Alopecurus* C. Linnaeus, 1753

Alopecurus geniculatus L. – (n. 8233/fsc. 23, p. 15/a) Ref.: Sp. Pl. 60 1753; Syn.: *Tozzettia geniculata* (L.) Bubani; Romania, Bistrița-Năsăud, Dumbrăveni/Gancs (Pr Gancs, In Transsylvania septentrionale), no date, leg. Czetz.

Alopecurus geniculatus L. – (n. 8233/fsc. 23, p. 15/b) Ref.: Sp. Pl. 60 1753; Syn.: *Tozzettia geniculata* (L.) Bubani; Ukraine, Oblast Harkov (Charkoviae in Rossia meridionalis), no date, leg. Cserniaew (Cerniaev ?).

Alopecurus gerardii Vill. – (n. 8233/fsc. 22, p. 6/b) Ref.: Syst. Pl. Eur. 1, Fl. Delph. 5 (1786); Syn.: *Colobachne gerardi* (Vill.) Link; *Phleum gerardi* All; France, Savoye, Mont Cenis, no date, leg. Huguenin

Alopecurus pratensis L. – (n. 8233/fsc. 23, p. 14/a) Ref.: Sp. Pl. ed. 1 60 (1753); Syn.: *A. alpestris* Wahlenb. ex Steud.; *A. altissimus* Schur; *A. laxiflorus* Ovcz.; *A. obscurus* Schur.; Ukraine, Oblast Harkov (Charkoviae in Rossia meridionalis), no date, leg. Cserniaew (Cerniaev ?).

Alopecurus pratensis L. – (n. 8233/fsc. 23, p. 15/c) Ref.: Sp. Pl. 60 1753; Syn.: *Tozzettia pratensis* (L.) Savi; Romania, Bistrița-Năsăud, Dumbrăveni/Gancs (In Transsylvania septentrionale, pratis montanis, pr. pag. Gancs), May 1858, leg. Janka.

Alopecurus ruthenicus Weinm. – (n. 8233/fsc. 23, p. 14/c) Ref.: Bot. Gart. Dorpat 10. 1810; Syn.: *A. arundinaceus* Poir.; *A. nigricans* Hornem; *A. ventricosus* Pers; Russia, Volgograd, Old Sarepta (In Sarepta - Rossie australe), 1858, leg. Becker

Alopecurus utriculatus Sol. – (n. 8233/fsc. 23, p. 14/b) Ref.: Nat. Hist. Aleppo ed. 2 2: 243 (1794); Syn.: *A. anthoxanthoides* Boiss; *A. utriculatus* subsp. *utriculatus*; Italy, Trieste (Pr. Triest in litoral M. Adriatica), 1858, leg. Pivoll.

Gen. *Calamagrostis* Adanson, 1763

Calamagrostis canescens (Weber) Roth – (n. 8233/fsc. 24 - p. 12/b) Ref.: Tent. Fl. Germ. 2(1): 93 (1789); Syn.: *C. lanceolata* Roth; *Achnatherum lanceolatum* (Roth) P. Beauv.; *Arundo canescens* Weber; Austria, Vienna, July 16, 1868, leg. J. Juratzka.

Calamagrostis epigejos (L.) Roth – (n. 8233/fsc. 24 - p. 13/b) Ref.: Tent. Fl. Germ. 1: 34 (1788); Syn.: *C. gigantea* Roshev; Germany, Brandenburg flora (In listener Egasulgnva), August 7, 1856, no date, no signature – Ex herbario Schrummii.

Calamagrostis lapponica (Wahlenb) Hartm. – (n. 8233/fsc. 24, p. 13/a) Ref.: Handb. Skand. Fl. ed. 1 46 (1820); Syn. *Arundo lapponica* Wahlenb.: *Deyeuxia lapponica* (Wahlenb) Kunth; Finland (Wilhelmina Lappo am eusif), no date, leg. Dr. Lager.

Calamagrostis pseudophragmites (Haller f.) Koeler – (n. 8233/fsc. 24, p. 12/a) Ref.: Descr. Gram. 106 (1802); Syn.: *Arundo laxa* (Host.) Wahlenb.; *A. littorea* Schrad.; *C. laxa* Host; *A. pseudophragmites* Haller f.; *C. glauca* (M. Bieb) Trin; *C. littorea* DC; *C. pseudophragmites*_var. *laxa* (Host) Brand; *C. pseudophragmites* (Haller f.) Koeler subsp. *dubia* (Bunge) Tzvelev; Romania, Caraș-Severin, Mehadia, no date, leg. Heuffel.

Gen. *Phleum* C. Linnaeus, 1753

Phleum alpinum L. – (n. 8233/fsc. 23, p. 16/b) Ref.: Sp. Pl. ed. 1 59 (1753); Syn.: *P. pratense* L. subsp. *alpinum* (L.) Asch. & Graebn; France, Mt. Pyreneis Centralibus, Port Derenusque, no date, leg. Timbal L. (Timbal-Lagrange, Pierre Marguerite Édouard).

Phleum arenarium L. – (n. 8233/fsc. 23, p. 16/a) Ref.: Sp. Pl. ed. 1 60 (1753); Syn.: *Achnodon arenarius* Link; *Achnodonton arenarium* Trin.; *Chilochloa arenaria* (L.) P. Beauv; *Crypsis arenaria* Desf.; *Phalaris arenaria* (L.) Huds.; Germany, Mecklenburg-Vorpommern (bei Warnimicnoderum dan Onpsnn), no date, leg. Griewank – Flora Megapolitana.

Phleum pratense L. – (n. 8233/fsc. 23, p. 18/a) Ref.: Sp. Pl. 59 1753; Syn.: *P. vulgare* (Čelak.) Asch. & Graebn; *Plantinia pratensis* (L.) Bubani; *Stelephuros pratensis* (L.) Lunell; Germany, unidentified locality, August 7, 1856, no signature – label: Ex herbario Schrammii.

Subtrib. *Aveninae* J. Presl, in C. Presl, 1830

Gen. *Arrhenatherum* Palisot de Beauvois, 1812

Arrhenatherum elatius (L.) P. Beauv. ex J. Presl & C. Presl. – (n. 8233/fsc. 26, p. 17/b) Ref.: Fl. Cech. 17 1819; Syn.: *Avena bulbosa* Willd; Pyreneis centralis soutes les praines du lus des valles, no date, leg. Timbal-Lagrange.

Arrhenatherum elatius (L.) P. Beauv. ex J. Presl & C. Presl – (n. 8233/fsc. 28, p. 12/a) Ref.: Fl. C\$. Kechica 17 (1819); Syn.: *A. avenaceum* P. Beauv; *A. avenaceum* P. Beauv. subsp. *avenaceum*; *Avena elatior* L; Prixinae, in lapidum, no date, leg. Hofman.

Gen. *Avena* C. Linnaeus, 1753

Avena barbata Pott ex Link subsp. *barbata* – (n. 8233/fsc. 26, p. 15/c) Ref.: Jour. für die Bot. 1799(2): 315 (1800); Syn.: *A. hirsuta* Moench; *A. hirtula* Lag; *A. barbata*

Pott ex Link subsp. *hirtula* (Lag.) Tab. Morais; *Avena* Schreb. subsp. *hirtula* (Lag.) Malzev; France, Languedoc-Roussillon, Aude, Narbonne, no date, leg. Huguenin.

Avena carpatica Host – (n. 8233/fsc. 26, p. 16/c) Ref.: Icon. Descr. Gram. Austriac. 4: 18 1809; Syn.: *Helictotrichon pubescens* (Huds.) Schult. & Schult.f.; *Trisetum carpaticum* (Host) Roem. & Schult.; Romania, Transsylvania (alpen Korongyes), 1861, leg. Czetz.

Avena cavanillesii (Trin.) W. D. J. Koch – (n. 8233/fsc. 26, p. 15/b) Ref.: Fl. Germ. Helv. 797 1837; Syn.: *Trisetaria loeflingiana* (L.) Paunero; Switzerland (Pittnu, Burreir), May 1856, leg. Christ. Notar.

Avena inbrycata Claiv.? – (n. 8233/fsc. 26, p. 13/b) – Austria, Tirol, pr. Kalo (8200'), August 1856, leg. Huter.

Avena planiculmis Schrad. – (n. 8233/fsc. 26, p. 16/b) – Syn.: *Avenula planiculmis* (Schrad) W. Sauer & Cmel; *Helictotrichon planiculme* (Schrad) Henrard; Hungary, Scepusie, no date, leg. Kaldchenaes.

Avena pubescens Huds. var. *carpatica* – (n. 8233/fsc. 26, p. 16/a) Ref.: Fl. Angl., ed. 1: 42 1762; Syn.: *A. pubescens* Huds. f. *carpatica* Zapal; *A. pubescens* Huds; *Avenula pubescens* (Huds.) Dumort; Romania, Transsylvania (In Transsylvaniae septentrionalis, alpinus pr. Rodna), no date, leg. Czetz.

Avena sterilis L. subsp. *ludoviciana* (Durieu) Nyman – (n. 8233/fsc. 26, p. 13/a) Ref.: Consp. 810 (1882); Syn.: *A. ludoviciana* Durieu; unidentified location (in cuctes Volosa), no date, leg. Timbal-Lagrave.

Avena tenuis Moench – (n. 8233/fsc. 26, p. 15/a) Ref.: Methodus 195 1794; Syn.: *Ventenata dubia* (Leers) Coss. & Durieu; unidentified location, 1856, leg. Makovsky.

Gen. *Deschampsia* Palisot de Beauvois, 1812

Deschampsia cespitosa (L.) P. Beauv. – (n. 8233/fsc. 28, p. 9/a) Ref.: Ess. Agrostogr. 91 1812; Syn.: *Aira cespitosa* L; *Avena caespitosa* Caffra; *Avena cespitosa* (L.) Kuntze; *D. glauca* Hartm; Romania, Maramureş, August 7, 1857, no signature

Deschampsia cespitosa (L.) P. Beauv. – (n. 8233/fsc. 28, p. 8/b) Ref.: Agrost. 91, 160 (1812); Syn.: *Aira cespitosa* L; *A. cespitosa* L. subsp. *cespitosa*; *D. glauca*

Hartm; Romania, Bistrița-Năsăud, Dumbrăveni/Gancs (Pr. Gancs Transsylvaniae septentrionalis), June 28, 1858, leg. Czetz.

Deschampsia cespitosa (L.) P. Beauv. subsp. *alpina* (L.) Tzvelev – (n. 8233/fsc. 28, p. 11/a) Ref.: Agrost. 91, 160 (1812); Syn.: *Aira alpina* L.; *D. alpina* (L.) Roem. & Schult; Norway, Kongsvoll (or Kongsvold) (Norveg., ad Kongsvold ad alpinus Dovrensibus), July 1857, leg. C. Hartman.

Gen. *Koeleria* Persoon, 1805

Koeleria hirsuta Gaudich. – (n. 8233/fsc. 21, p. 15/a) Ref.: Alpina (Winterthur) 3: 48 (1808); Syn.: *K. flavovirens* Domin; Switzerland, Canton d'Appenzell Rhoden (ad moles glaciales Rhodeni), no date, leg. Dr. Lagger

Koeleria vallesiana (Honck.) Gaudin – (n. 8233/fsc. 22, p. 10/b) Ref.: Alpina (Winterthur) 3: 47 (1808); Syn.: *K. valesiaca* Gaudich; *K. alpicola* Gren. & Godr; Switzerland, San Grancher, Unterwallig?, no date, leg. Dr. Lagger.

Subtrib. *Phalaridinae* Fr., 1835

Gen. *Anthoxanthum* C. Linnaeus, 1753

Anthoxanthum gracile Biv. – (n. 8233/fsc. 22, p. 4/a) Ref.: Stirp. Rar. Sic. Descr. 1: t. 1, fig. 1 (1813); Italy, Palermo (in pascuis montoris calcareis), no date, leg. Todaro.

Anthoxanthum odoratum L. – (n. 8233/fsc. 22, p. 11/b) Ref.: Sp. Pl. ed. 1 28 (1753); Syn.: *Xanthonanthos odoratus* (L.) St.-Lag.; Ninius, no date, leg. Sebanto („Botanischer Tauschverein in Wien“).

Gen. *Phalaris* C. Linnaeus, 1753

Phalaris arundinacea L. – (n. 8233/fsc. 22, p. 15/b) Ref.: Sp. Pl. ed. 1 55 (1753); Syn.: *Phalaroides arundinacea* (L.) Rauschert; *Baldingera arundinacea* (L.) Dumort; *Digraphis arundinacea* (L.) Trin; *Typhoides arundinacea* (L.) Moench; no locality, no date, no signature.

Phalaris canariensis L. – (n. 8233/fsc. 22, p. 15/a) Ref.: Sp. Pl. ed. 1 54 (1753); Syn.: *P. aquatica* Delile ex Boiss.; *P. avicularis* Salisb.; *P. ovata* Moench; Italy, Friuli-Venetia Giulia, Trieste, Contovello, May 1857, no signature.

Phalaris coerulescens Desf. – (n. 8233/fsc. 22, p. 16/b) Ref.: Fl. Atl. 1: 56 (1798); Syn.: *P. aquatica* auct. lusit., non L.; *P. paradoxa* var. *coerulescens* (Desf.) Pau-

nero; France, unidentified location (Bord de ruisseau en allot d'hyern un pruy-mirs?), June 28, 1854; leg. Huet et Jacquiny.

Phalaris minor Retz. – (n. 8233/fsc. 22, p. 16/a) Ref.: Obs. Bot. 3: 8 (1783); Syn.: *P. ambigua* Fig. & De Not.; *P. aquatica* Thunb.; *P. aquatica* var. *minor* (Retz.) Mutel; *P. minor* var. *minor*; Croatia, unidentified location, no date, no signature; Ex Herbare Florae Illyricae; comm. M. Tommasini.

Phalaris paradoxa L. – (n. 8233/fsc. 22, p. 17/a) Ref.: Sp. Pl. ed. 2 1665 1763; Syn.: *P. appendiculata* Schult.; *P. obvallata* Trin.; France, Languedoc-Roussillon, Aude, Narbourn, no date, leg. Huguenin.

Trib. *Brachypodieae* Harz, 1880

Gen. *Brachypodium* Palisot de Beauvois, 1812

Brachypodium pinnatum (L.) P. Beauv. – (n. 8233/fsc. 22, p. 1/a) Ref.: Agrost. 101 & 155 (1812); Syn.: *Agropyron pinnatum* (L.) Chevall.; *Festuca pinnata* (L.) Huds.; *Tragus pinnatus* (L.) Panz.; *Triticum pinnatum* (L.) Moench; Romania, Transsylvania, 1854, leg. Czetz.

Brachypodium pinnatum (L.) P. Beauv. – (n. 8233/fsc. 22, p. 2/b) Ref.: Agrost. 101 & 155 (1812); Syn.: *Agropyron pinnatum* (L.) Chevall.; *Festuca pinnata* (L.) Huds.; *Tragus pinnatus* (L.) Panz.; *Triticum pinnatum* (L.) Moench; Romania, Banat (In rupestris montanus), June-July 16, no year, leg. Heuffel – Obs.: degraded specimen.

Brachypodium ramosum Roem. & Schult. – (n. 8233/fsc. 25, p. 13/a) Ref.: Agrost. 101 & 155 (1812); Spain, Andalucia, Siera Nevada, 1855, leg. Del Campo – com. Alioth (degraded specimen).

Brachypodium ramosum Roem. & Schult. – (n. 8233/fsc. 25, p. 13/b) Ref.: Agrost. 101 & 155 (1812); Croatia, In Dalmatia, 1854, leg. Frauenfeld (obs.: degraded specimen).

Trib. *Bromeae* Dumort., 1824

Gen. *Bromus* C. Linnaeus, 1753

Bromus brachystachys Hornung – (n. 8233/fsc. 25, p. 12. bis /b) Ref.: Flora (Regensb) 16: 417 (1833); Syn.: *B. tigridis* Boiss. & Noë; Germany, Sachsen-Anhalt, Aschersleben (pr. Ascherleben), no date, leg. J. N. Buek (obs.: degraded specimen).

Bromus commutatus Schrad. – (n. 8233/fsc. 25, p. 12. bis /a) Ref.: Fl. Germ. 353 (1806); Syn.: *Brachypodium commutatum* (Schrad) P. Beauv.; *Forasaccus commutatus* (Schrad) Bubani; *Serrafalcus commutatus* (Schrad) Bab; unidentified location, June 1857, leg. Al. Slakorosky.

Bromus erectus Huds. – (n. 8233/fsc. 25, p. 10/a) Ref.: Fl. Angl. ed. 1 39 (1762); Syn.: *B. pubiflorus* Borbás; *B. borbasii* Hack; *Bromopsis erecta* (Huds.) Fourr; *Zerna erecta* (Huds.) Gray; Austria, Vienna, June 7, 1855, leg. J. Juratzka.

Bromus squarrosus L. – (n. 8233/fsc. 25, p. 12/a) Ref.: Sp. Pl. ed. 1 76 (1753); Syn.: *B. wolgensis* Fisch. ex Jacq; *Serrafalcus squarrosus* (L.) Bab; Romania, Banat, June 2, 1856, leg. Heuffel.

Bromus tectorum L. – (n. 8233/fsc. 25, p. 10/b) Ref.: Sp. Pl. ed. 1 77 (1753); Syn.: *Anisantha tectorum* (L.) Nevski; *Zerna tectorum* (L.) Panz; Romania, Banat (In rupestribus Banatus), no date, leg. Heuffel.

Bromus valesiacus Mihi – (n. 8233/fsc. 25, p. 12/b) Switzerland, unidentified location (Montorge Phoreeid?), May 1856, leg. Christ Notar.

Trib. *Hainardieae* Greuter, in W. Greuter & K.H. Rechinger, 1967

Gen. *Pholiurus* Trinius, 1820

Pholiurus pannonicus (Host) Trin. – (n. 8233/fsc. 21, p. 18/a) Ref.: Fund. Agrost. 132 (1820); Syn.: *Rottboellia pannonica* Host; *Lepturus pannonicus* (Host) Kunth; Romania, Banat, no date, leg. Heuffel.

Trib. *Meliceae* Link ex Endl., 1830

Gen. *Glyceria* R. Brown, 1810, nom. cons.

Glyceria festucaeformis Degen ex Sommier – (n. 8233/fsc. 26, p. 9/b) Ref.: Prodr. Fl. Nov. Holl. ed. 1 179 (1810); Syn.: *G. festucaeformis* Schur; *G. festucaeformis* Reyhnhold; Russia, Volgograd Oblast, Sarepta (Pr. Sarepta ad Wolgam infer.), no date, leg. Becker.

Glyceria festucaeformis Degen ex Sommier – (n. 8233/fsc. 26, p. 11/a) Ref.: Prodr. Fl. Nov. Holl. ed. 1 179 (1810); Syn.: *G. festucaeformis* Schur; *G. festucaeformis* Reyhnhold; Croatia, Salyna (In Salinea enimba...), no date, comm. M. Tommasini – Ex Herbario Florae Illyricae.

Glyceria fluitans var. *obtusiflora* Sonder – (n. 8233/fsc. 26, p. 8/b) – Ref.: Prodr. Fl. Nov. Holl. ed. 1 179 (1810); Syn.: *G. plicata* (Fr.) Fr; Germany, Hamburg, no date, no signature – Herbar. W. Sonder.

Glyceria maxima (Hartm.) Holmb. – (n. 8233/fsc. 26, p. 8/a) Ref.: Bot. Not. 1919: 97 (1919); Syn.: *G. aquatica* (L.) Wahlenb., non (L.) J. Presl & C. Presl; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni/Gants, June 16, 1858, no signature (possibly A. Czetz).

Glyceria maxima (Hartm.) Holmb. – (n. 8233/fsc. 26, p. 9/a) Ref.: Bot. Not. 1919: 97 (1919); Syn.: *G. spectabilis* Mert. & W. D. J. Koch; *G. altissima* (Moench) Schloss. & Vuk; *G. aquatica* (L.) Wahlenb., non (L.) J. Presl & C. Presl; Italy, Trentino-Alto Adige/Südtirol, Bolzano/Bozen, no date, leg. Hausmann.

Gen. *Melica* C. Linnaeus, 1753

Melica ciliata L. subsp. *ciliata* – (n. 8233/fsc. 22, p. 9/b) Ref.: Sp. Pl. ed. 1 66 (1753); Syn.: *M. glauca* F. W. Schultz; *M. flavescens* (Schur) Simonk; *M. simulans* Klokov; *M. nebrodensis* Parl; Switzerland, unidentified location (In der amgogong non Sitton?), no date, leg. Dr. Lager

Melica uniflora L. – (n. 8233/fsc. 28, p. 5/a) Ref.: Obs. Bot. 1: 10 (1779); Romania, Bistrița-Năsăud, Dumbrăveni/Gancs (Transsylvania septentrionale, in silvis prope pag. Gancs), no date, leg. Czetz, com. Janka.

Trib. *Poeae* R. Br., in M. Flinders, 1814

Gen. *Aira* C. Linnaeus, 1753

Aira caryophyllea L. – (n. 8233/fsc. 28, p. 9/b) Ref.: Sp. Pl. ed. 1 66 (1753); Syn.: *Airella caryophyllea* (L.) Dumort.; *Aiopsis caryophyllea* (L.) Fr.; *Aspris caryophyllea* (L.) Nash; *Avena caryophyllea* (L.) Weber; *Avenastrum caryophylleum* (L.) Jess.; *Caryophyllea airoides* (L.) Opiz; *Deschampsia baetica* (Trin.) Willk. & Lange; *Fussia caryophyllea* Schur; *Salmasia multiculmis* (Dumort.) Bubani; Romania, Banat (In pascuis montanis Banates), May-June, leg. Heuffel

Aira caryophyllea L. – (n. 8233/fsc. 28, p. 8/a) Ref.: Sp. Pl. 66 1753; Syn.: *A. aggregata* Tineroy ex Bor. France, unidentified location (Colow), June 1876, leg. Timbal-Lagrange.

Gen. *Avenella* Parl.

Avenella cuprina Schur – (n. 8233/fsc. 21, p. 15/b) Ref.: Verh. Mitth. Siebenbürg.

Vereins Naturwiss. Hermannstadt 4: 85 1853; Syn.: *Deschampsia flexuosa* (L.) Trin; Romania, Transsylvania, Bistrița-Năsăud, Rodna, July 1860, leg. Czetz.

Gen. *Briza* C. Linnaeus, 1753

Briza maxima L. – (n. 8233/fsc. 28, p. 3/b) Ref.: Sp. Pl. ed. 1 70 (1753); Syn.: *B. dalmatica* Gand.; *B. gracilescens* Gand; France, Languedoc- Roussillon, Pyrénées Orientales, Ceret, Pot-Vendres (Port Vendres in Pyrénées orientalis), no date, leg. Pony.

Briza media L. – (n. 8233/fsc. 28, p. 3/a) Ref.: Sp. Pl. ed. 1 70 (1753); Syn.: *B. media* L.; *B. intermedia* Samp; *B. australis* Prokudin; Czech Republic (Im Cserevicser Gebirge), May 29, 1854, leg. Schneller.

Gen. *Colpodium* Trinius, 1822

Colpodium humile (M. Bieb) Griseb. – (n. 8233/fsc. 22, p. 7/a) Ref.: Fl. Ross. 4: 384 1852; Syn.: *Catabrosella humilis* (M. Bieb) Tzvelev (Bot. Z.Kur. 50: 1320; 1965); Russia, Volgograd Oblast, Sarepta (Pr. Sarepta as Wolgam inferioren), no date, leg. A. K. Becker.

Gen. *Cynosurus* C. Linnaeus, 1753

Cynosurus echinatus L. – (n. 8233/fsc. 24, p. 1/a) Ref.: Sp. Pl. 72 1753; Syn.: *Chrysurus echinatus* (L.) P. Beauv.; *Falona echinata* (L.) Dumort.; *Phalona echinata* (L.) Dumort.; France, Drome, Valence, Montchenu, Blereer, July 1854; leg. Christ Notar

Cynosurus echinatus L. – (n. 8233/fsc. 24, p. 2/c) Ref.: Sp. Pl. 72 1753; Syn.: *Chrysurus echinatus* (L.) P. Beauv.; *Falona echinata* (L.) Dumort.; *Phalona echinata* (L.) Dumort.; Italy, Trieste, May 1887, leg. Pivoll.

Cynosurus elegans Desf. – (n. 8233/fsc. 22, p. 2/a) Ref.: Fl. Atlant. 1: 82 1798; Syn.: *C. polybracteatus* auct., non Poir; *Chrysurus elegans* (Desf.) P. Beauv.; *Falona elegans* (Desf.) V. Jirásek & Chrték; France, unidentified location (heux herboux un nord de farou.), May 14, 1857, leg Huet.

Gen. *Festuca* C. Linnaeus, 1753

Festuca canescens Host. – (n. 8233/fsc. 24 - p. 7/b) Ref.: Fl. Austriac. 1: 155. 1827; Syn.: *F. laxa* subsp. *canescens* (Host) St.-Yves; Slovenia (Zaplata alyn in Krain), July 13, 1856, no signature.

Festuca canescens Host. – (n. 8233/fsc. 24 - p. 7/b) Ref.: Fl. Austriac. 1: 155. 1827; Syn.: *F. laxa* subsp. *canescens* (Host) St.-Yves; Slovenia (Zaplata alyn in Krain), July 13, 1856, no signature.

Festuca drymeja Mert. & W. D. J. Koch – (n. 8233/fsc. 24, p. 10. bis /a) Ref.: Deutschl. Fl. ed. 2, 1: 670 1823; Syn.: *Drymochloa drymeja* (Mert. & W. D. J. Koch) Holub; *F. exaltata* C. Presl; *F. montana* M. Bieb., non Sternb. & Hoppe; *Poa banatica* Kit.; *P. bannatica* Willd. ex Steud.; *P. drymeja* (Mert. & W. D. J. Koch) Heynh.; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni/Gants (Gantsi hatar), no date, no signature (leg. Czetzy, based on handwriting and locality).

Festuca flavescens Bellardi – (n. 8233/fsc. 24 - p. 10/b) Ref.: App. Fl. Pedem. 11 (1792); Syn.: *F. pumila* var. *flavescens* (Bellardi); *F. varia* subsp. *acuminata* (Gaudin) K. Richt.; *F. varia* subsp. *flavescens* (Bellardi) Hack.; Italy, Reg. Venezia, Prov. Belluno, Colle Santa Lucia (Tirol. Lisinagogosgo bei Colls. S. Lucia), no date, leg. Huter – Ex Herbario J. C. Equitis Pittoni a Dannenfeldt

Festuca gigantea (L.) Vill. – (n. 8233/fsc. 24, p. 5/a) Ref.: Hist. Pl. Dauph. 2: 110 (1787); Syn.: *Avena gigantea* (L.) Salisb.; *Bromus giganteus* L.; *B. gyganteus* Crantz; *Bucetum giganteum* Parn.; *Drymonaetes giganteus* Fourr.; *F. gigantea* var. *uliginosa* Schur; *F. pseudogigantea* Ovcz. & Shibkova; *F. triflora* (L.) Sm.; *Forasaccus giganteus* (L.) Bubani; *Lolium giganteum* (L.) Darbysh.; *Schedonorus giganteus* (L.) Holub; *S. giganteus* Gaudin ex Roem. & Schult.; *S. giganteus* (L.) Soreng & Terrell; *Trisetum flaccidum* (Hack. ex Hook.f.) R. R. Stewart; *Zerna gigantea* (L.) Panz. ex B. D. Jacks.; Austria, Vienna, May 20, 1858, leg. J. Juratzka.

Festuca gigantea (L.) Vill. – (n. 8233/fsc. 24, p. 7/a) Ref.: Hist. Pl. Dauphiné 2: 110 1787; Syn.: *Avena gigantea* (L.) Salisb.; *Bromus giganteus* L.; *Zerna gigantea* (L.) Panz. ex B. D. Jacks.; Romania, Maramureș, 1857, leg. Gubuska.

Festuca indigesta Boiss. – (n. 8233/fsc. 24, p. 4/a) Ref.: Elenchus 91 (1838); Syn.: *F. ovina* subsp. *indigesta* (Boiss.) Hack.; *F. ovina* var. *litardierei* St.-Yves; *F. ovina* subsp. *molineri* (Litard) O. Bolòs & Vigo; *F. ovina* var. *molineri* Litard.; *F. saxifraga* Miégev.; *F. segimonensis* Fuente & Ortúñez; Spain, regionis nivalis Sierra Nevadae I. d. Cueva de Panderone (cueva de Panderone, S. nev), July 1855, leg. Del Campo, com. Alioth.

Festuca meyaphylla Schur – (n. 8233/fsc. 24, p. 8/a) Ref.: Decheniana 117: 195 1964; Syn.: *F. nigrescens* Lam; *F. microphylla* (St.-Yves) Patzke; Romania, Trans-

sylvania (Campustribus alpinis graiut Transilvanica in monte Bulla am Bullafall), July, leg. Dr. Schur.

Festuca heterophylla Lam. – (n. 8233/fsc. 24, p. 10/a) Ref.: Fl. Fr. ed. 1 3: 600 (1779); Syn.: *F. heterophylla* Bertolone; *F. heterophylla* f. *leiophylla* (Hack.) Beldie; *F. nemorum* Leyss.; *F. rubra* var. *heterophylla* (Lam.) Mutel; *F. transsilvanica* Schur; *F. vulpioides* Steud.; Switzerland, Canton de Vaud, Sauvabelin, June 1856, leg. Christ. Notar.

Festuca nigricans Schleich. – (n. 8233/fsc. 21, p. 16/a) Ref.: Cat. Pl. Helv. 13 1800; Annotation: nom. nud., Simonk, Enum. Fl. Transilv. 590 (1886); Syn: *F. nigricans* Lam. ex Schleich; Romania, Transsylvania, Bistrița-Năsăud, Rodna, July 1862, leg. Czetz.

Festuca ovina L. – (n. 8233/fsc. 24 - p. 10. bis /b) Ref.: Sp. Pl. 73 1753; Syn.: *Avena ovina* Salisb.; *Bromus ovinus* Scop; *F. vulgaris* (K. Koch) Hayek; *Gnomonia ovina* (L.) Lunell. Belgium, Schoonhoven (Brabant), Juillet 1863, no signature – label: Ex Herb. Armand Thielens, B. S. N. Tirlemont (Belgium) (Obs.: wrongly identified as *Pilularia globulifera* Lin. instead of *F. ovina* L.).

Festuca pratensis Huds. – (n. 8233/fsc. 22, p. 9/a) Ref.: Fl. Angl. ed. 1 37 (1762); Syn.: *F. elatior* L.; *F. elatior* L. subsp. *elatior*; *F. elatior* L. subsp. *pratensis* (Huds.) Hack; *F. elatior* L. subsp. *arundinacea* (Schreb) Hack; *F. arundinacea* Schreb; Belgium, Hani, June 1861, no signature - Ex Herb. Armand Thielens, D. S. N. Tirlemont (Belgium).

Festuca rubra L. – (n. 8233/fsc. 24, p.5/b) Ref.: Sp. Pl. ed. 1 74 (1753); Syn.: *Avena dura* Salisb.; *Bromus glaucus* Spreng.; *F. arenaria* Osbeck; *F. glabra* Lightf.; *F. fallax* Thuill; Austria, Vienna, June 14, 1858, leg. J. Juratzka.

Festuca violacea Ser. ex Gaudin – (n. 8233/fsc. 24 - p. 8/c) Ref.: Alpina (Winterthur) 3: 57 (1808); Syn.: *F. iniopoda* Schur; *F. nigricans* (Hack.) K. Richt; *F. rubra* var. *nigricans*; *F. rubra* subsp. *violacea*; *Poa aurata* (Gaudich.) P. Beauv. ex Steud; *Schedonorus auratus* (Gaudich.) P. Beauv; *S. violaceus* (Gaudich.) P. Beauv; Romania, Transsylvania (Pr. pasonis alpin Transsilvan. In monte Butian), July, Dr. Schur.

Gen. *Hierochloe* R. Brown, 1810

Hierochloe australis (Schrad) Roem. & Schult. – (n. 8233/fsc. 23, p. 13/a) Ref.: Syst. Veg. 2: 514 1817; Syn.: *Anthoxanthum australe* (Schrad) Veldkamp; *Holcus*

australis Schrad.; Czech Republic, Teplitz, May 29, 1851, leg. illegible
Hierochloe australis (Schrad) Roem. & Schult. – (n. 8233/fsc. 23, p. 13/b) Ref.: Syst. Veg. 2: 514 1817; Syn.: *Anthoxanthum australe* (Schrad) Veldkamp; *Holcus australis* Schrad.; Italy, Trentino- Alto Adige/Sudtirolo, Bolzano/Bozen, no date, leg. Hausm.

Hierochloe odorata (L.) P. Beauv. – (n. 8233/fsc. 22, p. 17/b) Ref.: Ess. Agrostogr. Atlas: t. 12, f. 5 1812; Syn.: *Anthoxanthum nitens* (G. H. Weber) Y. Schouten & Veldkamp; *H. borealis* (Schrad) Roem. & Schult.; *H. odorata* (L.) Wahlenb.; *Holcus borealis* Schrad.; *H. odoratus* L.; Slovakia, Bratislava/Breslau, no date, leg. Ulchtrich (Botanischer Tauschverein in Wien).

Hierochloe odorata (L.) P. Beauv. – (n. 8233/fsc. 22, p. 17/c) – Ref.: Ess. Agrostogr. Atlas: t. 12, f. 5 1812; Syn.: *Anthoxanthum nitens* (G. H. Weber) Y. Schouten & Veldkamp; *H. borealis* (Schrad) Roem. & Schult.; *H. odorata* (L.) Wahlenb.; *Holcus borealis* Schrad.; *H. odoratus* L.; Russia, Volgograd Oblast, Sarepta (Sarepta – in as Wolgam inferior), no date, leg. A. K. Becker.

Hierochloe odorata (L.) Wahlenb. – (n. 8233/fsc. 23, p. 12/a) Ref.: Flora Upsalensis 8: 32. 1820; Syn.: *Avena odorata* (L.) Koeler; *H. odorata* (L.) P. Beauv.; *Holcus odoratus* L.; Germany, unidentified location, May 28, 1853, leg. Kornicke.

Hierochloe odorata (L.) Wahlenb. – (n. 8233/fsc. 23, p. 12/b) Ref.: Flora Upsalensis 8: 32. 1820; Syn.: *Avena odorata* (L.) Koeler; *H. odorata* (L.) P. Beauv.; *Holcus odoratus* L.; Romania, Cluj, Cluj-Napoca (Claudiopolis, St. György hegys in subsolis), May 1855, leg. Wolff.

Hierochloe repens (Host) P. Beauv. – (n. 8233/fsc. 22, p. 17/d) Ref.: Ess. Agrostogr. 62 1812; Syn.: *H. orientalis* Fr. & Heuff.; *H. odorata* subsp. *pannonica* Chrtek & V. Jirásek; *Anthoxanthum repens* (Host) Veldkamp; Romania, Banat (In agris arenosis ad Grebenaiz legironis Illyrico-Banaticae), aprilie-mai, leg. Heuffel.

Gen. *Lamarckia* Moench

Lamarckia aurea (L.) Moench – (n. 8233/fsc. 28, p. 12/b) Ref.: Meth. 201 (1794); Syn.: *Cynosurus aureus* L.; France, Pyrénées centralis, May 20, 1852, leg. Timbal (Timbal-Lagrave).

Gen. *Lolium* C. Linnaeus, 1753

Lolium linicola Sonder. – (n. 8233/fsc. 25, p. 1/a) Ref.: Index Seminum [Berlin] 4:

4. 1857; Syn.: *L. remotum* Schrank; Italy (Süd-Tirol?), unidentified locality (Lein-Oecher am Orchnud?), no date, leg. Hausm.

Lolium linicola Sonder. – (n. 8233/fsc. 25, p. 1/a) Ref.: Index Seminum [Berlin] 4: 4. 1857; Syn.: *L. remotum* Schrank; Italy (Süd-Tirol?), unidentified locality (Lein-Oecher am Orchnud?), no date, leg. Hausm.

Lolium temulentum L. – (n. 8233/fsc. 25, p. 1/b) – Ref.: Sp. Pl. ed. 1 83 (1753); Syn.: *L. arvense* With; *L. linicola* A. Braun; *L. triticoides* Janka; unidentified locality (Nindrusburg?), July 30, 1853, com. illegible (Scherser Bip?).

Lolium tenue L. – (n. 8233/fsc. 25, p. 2/a) Ref.: Sp. Pl. ed. 2 122 1762; Syn.: *Festuca perennis* (L.) Columbus & J. P. Sm.; *L. perenne* L.; *L. perenne* subsp. *perenne*; *L. perenne* var. *perenne*; *L. cristatum* L. ex Nyman; *L. cristatum* Pers. ex B. D. Jacks.; *L. gmelinii* Honck.; *L. trabutii* Hochr., *L. vulgare* Host; Czech Republic (In graminosis fertile bus. Boh.), Sept., leg. W. J. Sekena, Mac. Phar. Monacho-Hradecii in Boh. (label: "Botanischer Tauschverein in Wien").

Gen. *Milium* C. Linnaeus, 1753

Milium effusum L. – (n. 8233/fsc. 28, p. 16/b) Ref.: Sp. Pl. ed. 1 61 (1753); Syn.: *Agrostis effusa* Lam.; *Alopecurus effusus* Link ex Kunth; *Decandolia effusa* (Lam.) T. Bastard; *M. transsilvanicum* Schur; *M. transsilvanicum* var. *lerchenfeldianum* Schur; *Paspalum effusum* (L.) Raspail; Romania, Bistrița-Năsăud, Rodna (Pr. Rodna Transsylvaniae), no date, leg. Czetz.

Gen. *Poa* C. Linnaeus, 1753

Poa arctica R.Br. – (n. 8233/fsc. 26, p. 6/a) Ref.: Jour. Voy. N. W. Pass. (Suppl. App.) 288 (1824); Syn.: *P. cenisia* auct., non All; *P. petschorica* Roshev; *P. rigens* auct., non Hartm; *P. stricta* Lindeb., non D. Don; *P. flexuosa* Wahlenb., non Sm; Norway, in alpebus Dovrensibus, 1857, leg. C. Hartman (obs.: revised by Janka and inscribed on the label as *P. arctica* R. Br., = syn. *P. cenisia* auct., non All, instead of *P. cenisia* All.).

Poa attenuata Trin. – (n. 8233/fsc. 22, p. 10/a) Ref.: Mém. Acad. Imp. Sci. St.-Pétersbourg, Divers Savans 2: 527 1835; Syn.: *P. albertii* Regel; *P. breviligula* L. Liu; *P. crymophila* Keng; *P. dahurica* Trin.; *P. festucoides* N. R. Cui; *P. parafestuca* L. Liu; Romania, Bistrița-Năsăud, Rodna, 1856, leg. Czetz.

Poa chaixii Vill. – (n. 8233/fsc. 26, p. 3/a) Ref.: Syst. Pl. Eur. 1, Fl. Delph. 7 (1786); Syn.: *P. sudetica* Haenke; Hungary, Scepnusii, no date, leg. Kolchbreuer.

Poa chaixii Vill. – (n. 8233/fsc. 26, p. 3/b) Ref.: Syst. Pl. Eur. 1, Fl. Delph. 7 (1786); Syn.: *P. sudetica* Haenke; Romania, Arad, Lipova, Radna, 1858, no signature.

Poa collina Wolf. – (n. 8233/fsc. 26, p. 5/a) Ref.: Sp. Pl. 1: 67. 1753. (May 1, 1753); Austria, Vienna, June 7, 1855, leg. J. Juratzka.

Poa hybrida Gaudin – (n. 8233/fsc. 28, p. 1/a) Ref.: Alpina (Winterthur) 3: 46 (1808); Syn.: *P. jurana* P. A. Genty; Romania, Transsylvania, July 1858, no signature (possibly A. Czetzy).

Poa laxa Haenke – (n. 8233/fsc. 26, p. 2/b) Ref.: Beob. Reis. Riesengeb. 118 (1791); Syn.: *P. tremula* Schur; *P. x custurae* Nyár. pro parte; Romania, Transsylvania (In petrosis alpinum Transilv. An monte Bulla.), July, no year, leg. Dr. Schur.

Poa media Schur – (n. 8233/fsc. 26, p. 5/b) Ref.: Verh. Mitt. Siebenb. Ver. Naturw. 4 (Sert. Fl. Transs.): 87 (1853); Syn.: *P. ursina* Velen; *P. x custurae* Nyár. pro parte; Romania, Transsylvania (In pratis alpinis Transilvan. an munto Dealu negru), July, no year, leg. Schur.

Poa nemoralis L. – (n. 8233/fsc. 26, p. 1/b) Ref.: Sp. Pl. ed. 1 69 (1753); Syn.: *P. lapponica* Prokudin; *P. hypanica* Prokudin; Romania, Bistrița-Năsăud, Rodna, 1885, no signature (possibly A. Czetzy).

Poa olympica Schott, Nyman & Kotschy – (n. 8233/fsc. 26, p. 6/c) Ref.: Analect. Bot. 2 1854; Syn.: *P. alpina* L.; no locality, no date, no signature.

Poa palustris L. – (n. 8233/fsc. 26, p. 2/a) Ref.: Syst. Nat. ed. 10 2: 874 (1759); Syn.: *P. fertilis* Host; *P. serotina* Ehrh. ex Hoffm; Austria, Vienna (in Prater b. Wien, June 16, 1858, leg. Juratzka and Janka.

Poa palustris L. – (n. 8233/fsc. 28, p. 1/c) Ref.: Syst. Nat. ed. 10 2: 874 (1759); Syn.: *P. serotina* Ehrh. ex Hoffm; *P. tanfiljewii* Roshev; *P. volhynensis* Klokov; Germany, Flora Brandenburg und Winson, August 3, 1857, no signature – Ex herbario Schrammii.

Poa perconcinna J.R.Edm. – (n. 8233/fsc. 26, p. 2/c) Ref.: Bot. Jour. Linn. Soc. 76: 330 (1878); Syn.: *P. concinna* Gaudin, non R. Br; *P. bulbosa* L. subsp. *concin-*

na (Gaudin) Hayek; *P. molinerii* Lam. & DC., non Balb; unidentified location, May 1856, leg. illegible (stamp: Christ Notar).

Poa pratensis L. – (n. 8233/fsc. 26, p. 6/b) Ref.: Sp. Pl. ed. 1 67 (1753); Syn.: *P. pratensis* L. subsp. *attica* (Boiss. & Heldr.) Rech.f; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni/Gants, June 20, 1868, no signature (possibly A. Czetzy).

Poa pungens M. Bieb. – (n. 8233/fsc. 26, p. 1/a) Ref.: Fl. taur.-caucas. 1:65. 1808; Syn.: *Aeluropus littoralis* (Gouan) Parl.; *A. littoralis* (Gouan) Parl. subsp. *pungens* (M. Bieb) Tzvelev; *A. pungens* (M. Bieb) K. Koch; unidentified locality, no date, leg. illegible.

Gen. *Polypogon* Desfontaines, 1798

Polypogon monspeliensis (L.) Desf. – (n. 8233/fsc. 28, p. 14/a) Ref.: Fl. Atl. 1: 67 (1798); Syn.: *Alopecurus monspeliensis* L.; *Phleum monspeliense* (L.) Koeler; *P. alopecurus* Bubani; *Santia monspeliensis* (L.) Parl.; Italy, Veneto, Padova, Abano Terme (Venetiis Abano; An heissen Quellen), 1885, leg. v. Grabmayer – Ex herbario J. C. Equisit Pittoni a Dannenfeldt.

Polypogon phlacoides L. – (n. 8233/fsc. 28, p. 14/b) Ref.: Flora Atlantica 1: 66. 1798. (1800); Italy, Trieste, June 1856, leg. Pivoll.

Gen. *Sesleria* Scop.

Sesleria coeruleans Friv. – (n. 8233/fsc. 21, p. 16/b) Ref.: Flora (Regensb.) 19: 438 (1836); Syn.: *S. orbilica* (Velen.) Hayek; *S. marginata* Griseb; Romania, Transsylvania, Bistrița-Năsăud, Rodna, August 1862, leg. Czetzy.

Trib. *Stipeae*

Gen. *Oryzopsis* A. Michaux, 1803

Oryzopsis miliacea (L.) Asch. & Schweinf. – (n. 8233/fsc. 22, p. 1/c) Ref.: Mém. Inst. Égypt. 2: 169 1887; Syn.: *Milium thomasii* Duby (Bot. Gall. ed. 2, 1: 505 1828); *O. thomasii* (Duby) P. Silva; *O. miliacea* f. *thomasii* (Duby) Asch. & Graebn.; *O. miliacea* subsp. *thomasii* (Duby) K. Richt.; *Piptatherum miliaceum* (L.) Coss; *P. thomasii* (Duby) Kunth; *Stipa miliacea* (L.) Hoover; *Urachne thomasii* (Duby) Steud.; Italy, Calabria, Consezza, Paola (Genns. Pr. Paols), July 1855, leg. Dutis.

Gen. *Piptatherum*

Piptatherum coerulescens (Desf.) P. Beauv. – (n. 8233/fsc. 22, p. 6/a) Ref.: Agrost. 18 & 173 (1812); Syn.: *Milium coerulescens* Desf; *Oryzopsis coerulescens* (Desf.)

Hack; France, Provence-Alpes-Cote d'Azur, Var, Hyeres , no date, no signature, "Herbier Jordan".

Piptatherum paradoxum (L.) P. Beauv. – (n. 8233/fsc. 28, p. 16/a) Ref.: Agrost. 18 & 173 (1812); Syn.: *Oryzopsis paradoxa* (L.) Nutt; *Milium paradoxum* L; Romania, Banat (In silvis montanis Banatus), no date (Aug.), leg. Heuffel.

Trib. *Triticeae* Dumort., 1824

Gen. *Aegilops* C. Linnaeus, 1753

Aegilops speltiformis Jord – (n. 8233/fsc. 25, p. 4/b) Ref.: Jord. Publication: Ann. Sci. Nat., Bot. ser. 4, 4: 313 1855; France, unidentified locality, 18/8, leg. Timbal-Lagrave.

Gen. *Hordeum* C. Linnaeus, 1753

Hordeum marinum Huds. – (n. 8233/fsc. 25, p. 6/a) Ref.: Fl. Angl. ed. 2 1: 57 (1778); Syn.: *H. maritimum* Stokes ex With; *H. maritimum* Stokes subsp. *maritimum*; Romania, Banat (In pasenis jubfalsia Banatus), May-June, leg. Heuffel

Hordeum strictum Desf. – (n. 8233/fsc. 25, p. 6/b) Ref.: Fl. Atlant. 1: 118 1798; Syn.: *H. bulbosum* L; *Critesion bulbosum* (L.) Á. Löve; *Zeocriton strictum* (Desf.) P. Beauv.; unidentified location (Szpenpreropol?), no date, no signature

Hordeum villosum L. – (n. 8233/fsc. 25, p. 7/a) Ref.: Methodus 199 1794; Syn.: *Leymus arenarius* (L.) Hochst; Romania, Mehedinți, Orșova (Prope Orsova in Banata), July 16, 1856, leg. Janka.

Gen. *Secale* C. Linnaeus, 1753

Secale sylvestre Host – (n. 8233/fsc. 25, p. 4/a) Ref.: Gram. Austr. 4: 7 (1809); Syn.: *S. fragile* M. Bieb; unidentified locality (An Wegen. b. Pest. Jn.), no date, leg. J. Bayer.

Gen. *Triticum* C. Linnaeus, 1753

Triticum cespitosum DC. – (n. 8233/fsc. 25, p. 6/c) Ref.: Cat. Hort. Monsp. I 53; Italy, Cella Turbea, in littore Niegensi, June 1839, leg. Cesati.

Triticum phoenicoides DC. – (n. 8233/fsc. 25, p. 7/b) Ref.: Fl. Lusit. 1: 121 1804; Syn.: *Brachypodium phoenicoides* (L.) Roem. & Schult; Italy, Cella Turbea in littore Niegensi, June 1839, leg. Cesati.

“core eudicots”

Superord. *Rosanae* Takhtajan, 1967

“fabids”

Ord. *Fabales* Bromhead, 1838

Fam. *Leguminosae* A. L. de Jussieu, 1789, nom. cons.

Subfam. *Papilionoideae* (Giseke, 1792) DC., 1825

Trib. *Cytiseae* Horan., 1847

Gen. *Genista* C. Linnaeus, 1753

Genista germanica L. – (n. 8233/fsc. 27, p. 12/b) Ref.: Sp. Pl. ed. 1 710 (1753); Syn.: *Cytisus germanica* (L.) Vis.; *G. heterocantha* Schloss. & Vuk; *Scorpius spinosa* (Gilib) Moench; *Voglera germanica* (L.) Fourr.; Romania, Transsylvania, May 1855, leg. Janka.

Genista pilosa L. – (n. 8233/fsc. 27, p. 14/b) Ref.: Sp. Pl. ed. 1 710 (1753) Syn.: *G. repens* Lam.; *Genistoides tuberculata* Moench; *Spartium pilosum* (L.) Roth; *Telinaria pilosa* (L.) C. Presl; Italy (in collibus apricis prope Brojans), June 1854, leg. G. A. Pirona.

Genista sericea Wulfen – (n. 8233/fsc. 27, p. 14/c) Ref.: Collectanea 2: 167. 1788; Croatia, Karlobag (bai Karlopage), no date, no signature – Ex herb. Dr. Jos. Calas Schlosser – Flora Croatica (degraded specimen).

Genista tinctoria L. – (n. 8233/fsc. 27, p. 16.) Ref.: Sp. Pl. ed. 1 710 (1753); Syn.: *G. elatior* W. D. J. Koch; Croatia, Zagreb County, Samobor, June-August 1855, no signature – Ex herb.: Lud. Farkas-Vukotinovic – Flora Croatica.

Trib. *Fabeae* Rchb., 1832

Gen. *Vicia* C. Linnaeus, 1753

Vicia cassubica L. – (n. 8233/fsc. 21, p. 8/b) Ref.: Sp. Pl. 2: 735. 1753; Syn.: *Ervum cassubicum* (L.) Peterm.; *Vicia dadianorum* Somm. & Leview; *Vicia monosperma* K. Koch; Romania, Bihor, Oradea (in G. wardein), June 1863, leg. A. Steffek (Obs.: wrongly identified).

Trib. *Galegeae* Bronn, in B. C. J. Dumortier, 1827

Gen. *Astragalus* C. Linnaeus, 1753

Astragalus exscapus L. – (n. 8233/fsc. 27, p. 3/c) Ref.: Mantissa Alt. 275 (1771); Ukraine (Russia), Odessa Oblast, Odessa, no date, leg. Richter – com. Steffek.

Astragalus glaucus M. Bieb. – (n. 8233/fsc. 27, p. 3/a) Ref.: Fl. Taur.-Cauc. 2: 186 (1808); Syn.: *A. dealbatus* Pall. pro parte; Ukraine (Russia), Odessa Oblast, Odessa, no date, leg. Richter – com. Steffek.

Astragalus pallescens M. Bieb. – (n. 8233/fsc. 27, p. 3/b) Ref.: Fl. Taur.-Cauc. 3: 489 (1819); Ukraine (Russia), Odessa Oblast, Odessa, no date, leg. Richter L.

Trib. *Hedysareae* DC., 1825
Gen. *Caragana* Fabricius, 1763

Caragana frutex (L.) K. Koch – (n. 8233/fsc. 27, p. 7/c) Ref.: Syn.: *C. frutescens* (L.) Medik; *C. mollis* (DC) Besser; *Robinia frutex* L.; *Robinia mollis* M. Bieb.; Ukraine (Russia), Odessa, no date, leg. Richter L.

Trib. *Loteae* DC., 1825
Gen. *Anthyllis* C. Linnaeus, 1753

Anthyllis vulneraria L. – (n. 8233/fsc. 27, p. 10/c) Ref.: Sp. Pl. ed. 1 719 (1753); Syn.: *A. alpestris* Hegetschweiler-Bodmer; *A. dillenii* Schult. ex Steud.; *A. linnaei* (Sagorski) Juz.; Austria, Vienna, May 20, 1854, no signature (possibly J. Juratzka).

Anthyllis vulneraria L. – (n. 8233/fsc. 27, p. 12/a) Ref.: Sp. Pl. ed. 1 719 (1753); Syn.: *A. vulneraria* subsp. *corbierei* (C. E. Salmon & Travis) Cullen; *A. vulneraria* subsp. *linnaei* „Sagorski, p. p. A“; Romania, Transsylvania, unidentified locality (In alp. Traniae – Ecsern), no date, leg. Fronius.

Trib. *Trifolieae*
Gen. *Medicago* C. Linnaeus, 1753

Medicago falcata L. – (n. 8233/fsc. 27, p. 10/b) – Ref.: Sp. Pl. 2: 779. 1753; Syn.: *M. falcata* var. *romanica* (Prodan) Hayek; *M. romanica* Prodan; *M. sativa* L. subsp. *falcata* (L.) Arcang; Austria, Vienna (bei St. Veit), July 23, 1856, leg. J. Juratzka.

Medicago lupulina L. – (n. 8233/fsc. 27, p. 9/b) Ref.: Sp. Pl. ed. 1 779 (1753); Syn.: *Medica lupulina* Scop.; *Medicago appenina* Woods; Austria, Vienna (bei St. Veit inrst Wien), July 23, 1856, leg. J. Juratzka.

Medicago minima (L.) Bartal – (n. 8233/fsc. 27, p. 10/a) Ref.: Cat. Piante Siena 61 (1776); Syn.: *M. aschersonia* Urb; Austria, Vienna, no date, leg. J. Juratzka.

Medicago rigidula (L.) All. – (n. 8233/fsc. 27, p. 14/a) Ref.: Fl. Pedem. 1: 316 (1785); Syn.: *M. gerardii* Waldst. & Kit. ex Willd.; *M. gerardii* Willd.; *M. agrestis* Ten.; *M. cinerascens* Jord.; *M. depressa* Jord.; Romania, Banat (In valssalsis plani Banatus), no date, leg. Heuffel.

Gen. *Ononis* C. Linnaeus, 1753

Ononis pusilla L. – (n. 8233/fsc. 27, p. 7/a) Ref.: Syst. Nat. ed. 10 2: 1159 (1759); Syn.: *O. columnae* All; Switzerland, unidentified location, July 1856, leg. Christ. Notar.

Ononis striata Gouan – (n. 8233/fsc. 27, p. 9/a) Ref.: Obs. Bot. 47 (1773); Pyrénées centrales, Esquierey, Sept. 3, 1852, leg. Huet du Pavillon – Plates des Pyrénées.

Ononis variegata L. – (n. 8233/fsc. 27, p. 7/b) Ref.: Sp. Pl. ed. 1 717 (1753); Corsica, no date, leg. Cesati.

Superord. *Caryophyllanae* Takhtajan, 1967

Ord. *Caryophyllales* Juss. ex Bercht. & J. Presl, 1820

Fam. *Amaranthaceae* A. L. de Jussieu, 1789, nom. cons.

Gen. *Halimione* Aellen

Halimione verrucifera (M. Bieb) Aellen – (n. 8233/fsc. 24, p. 9 /b) Ref.: Verh. Naturf. Ges. Basel 49: 129 (1938); Syn.: *Atriplex verrucifera* M. Bieb; *A. glauca* Pall.; *Obione verrucifera* (M. Bieb) Moq; Ukraine (Odes'ka oblast'), Odessa, no date, leg. Richter.

Gen. *Halimocnemis* C.A. Meyer, in Ledebour, 1829

Halimocnemis volvox (Pall.) C. A. Mey. – (n. 8233/fsc. 28, p. 15/b) Ref.: Flora Altaica 1: 383. 1829; Syn.: *H. triandra* (Pall.) Moq.; *Petrosimonia triandra* (Pall.) Rech; *P. volvox* (Pall.) Bunge; *Polycnemum triandrum* Pall.; *P. volvox* Pall.; Romania, Cluj, Turda (Torda ad salinas), August 1860, leg. Dr. Ludovicus Haynald, Episcopus Transsylvaniensis; stamp: Botanischer Tauschverein in Wien.

Gen. *Halimus* Wallr.

Halimus pedunculatus (L.) Wallr. – (n. 8233/fsc. 28, p. 2/b) Ref.: Crit. 117 1822; Syn.: *Chenopodium pedunculatum* (L.) E. H. L. Krause; Germany, District of Rostock, Mecklenburg-Vorpommern, Warnemünde (Warnemunde in der Opsnn. Flor Megapolidans), no date, leg. Griewank; stamp on label: J. Frh. Leithner in Wien

Gen. *Kochia* Roth

Kochia procumbens L. – (n. 8233/fsc. 26, p. 7..) no locality, no date, no signature.

Gen. *Orthosporum* (R. Br.) T. Nees

Orthosporum kochii Knaf ex Gel. – (n. 8233/fsc. 26, p. 4/a) Ref.: Fl. Bohm. p. 152 (1871); Syn.: *O. kochii* Mihi; Czech Republic, Bohemia (Jaromierz in Boh.), no date, leg. Dr. Knaf.

Subfam. *Amaranthoideae*Trib. *Amarantheae* Rchb., 1832Gen. *Amaranthus* C. Linnaeus, 1753

Amaranthus albus L. – (n. 8233/fsc. 13, p. 4/a) Ref.: Syst. Nat. ed. 10 2: 1268 (1759); Syn.: *A. graecizans* Cutanda; *Glomeraria alba* (L.) Cav; Spain, Seville (In rudentis c. nob. Sevilla), no date (18..), leg. Bontelou – Label: Herbarium Willkommii.

Amaranthus graecizans subsp. *silvestris* (Vill.) Brenan – (n. 8233/fsc. 13, p. 4/b) Ref.: Watsonia 4: 273 1961; Syn.: *A. silvestris* L.; *A. silvestris* Vill; Austria, Vienna, Aug. 17, 1858, leg. J. Juratzka.

Amaranthus retroflexus L. – (n. 8233/fsc. 13, p. 3/b) Ref.: Sp. Pl. 991 1753; Syn.: *A. bulgaricus* Kov; *A. spicatus* Lam.; *A. strictus* Ten.; *Galliaris retroflexa* (L.) Nieuw-l.; Spain, Catalonia, Llobregat basin (Camper del Llobregat), 18.., leg. Costa – Herbarium Willkommii.

Subfam. *Chenopodioideae*Trib. *Atripliceae* Duby, 1828Gen. *Atriplex* C. Linnaeus, 1753

Atriplex crassifolia C. A. Mey. – (n. 8233/fsc. 26, p. 10/a) Ref.: C. A. Mey. in Ledebour, Icon. Pl. 1. 1829; France, Cherbourg, Sept. 1862, leg. Le Jolis, com. Haslinger.

Atriplex laciniata L. – (n. 8233/fsc. 25, p. 3/b) Ref.: Sp. Pl. ed. 1 1053 (1753); Syn.: *A. arenaria* J. Woods; *A. maritima* L.; *A. sabulosa* Rouy; *Chenopodium laciniatum* Thunb.; *Schizotheca laciniata* Fourr.; unidentified locality, 18/6, leg. Timbal-Lagrave.

Atriplex littoralis L. – (n. 8233/fsc. 24, p. 11/a) Ref.: Sp. Pl. ed. 1 1054 (1753); Syn.: *A. laciniata* auct., non L.; *Chenopodium littorale* Thunb.; *Schizotheca littoralis*

Fourr.; Romania, In Transsylvania teritoris, September 17, 1856, leg. Janka (degraded specimen).

Atriplex littoralis L. – (n. 8233/fsc. 26, p. 10/b) Ref.: Sp. Pl. ed. 1 1054 (1753); Syn.: *Chenopodium littorale* (L.) Thunb.; *A. laciniata* auct., non L; *Schizotheca littoralis* (L.) Gourr. (nom. illegit.); France, Cherbourg, August 1862, leg. Le Jolis, com. Haslinger.

Atriplex nitens Schkuhr – (n. 8233/fsc. 28, p. 2/a) Ref.: Handb. ed.1 3: 541 (1803); Syn.: *A. acuminata* Waldst. & Kit; no locality, no date, no signature.

Atriplex portulacoides L. – (n. 8233/fsc. 28, p. 2/c) Ref.: Sp. Pl. 1053 1753; Syn.: *Chenopodium portulacoides* (L.) Thunb; *Halimione portulacoides* (L.) Aellen; *Halimus portulacoides* (L.) Dumort.; *Obione portulacoides* (L.) Moq.; France, Aquitaine, Gironde, Arcachon, La Teste-de-Buch [La Teste (France). In pratis sanis], Sept. 1853, leg. J. Delbos.

Atriplex prostrata (Boucher) ex DC. – (n. 8233/fsc. 24, p. 3/b) Ref.: Fl. Fr. ed. 3 387 (1805); Syn.: *A. latifolia* Wahlenb; *A. hastata* auct., non L; *A. deltoidea* Bab; *A. triangularis* Willd; no locality, no date, no signature (degraded specimen).

Atriplex prostrata (Boucher) ex DC. – (n. 8233/fsc. 25, p. 5/a) Ref.: Fl. Fr. ed. 3 387 (1805); Syn.: *A. latifolia* Wahlenb; *A. hastata* auct., non L; *A. deltoidea* Bab; *A. triangularis* Willd; no locality, no date, no signature

Atriplex rosea L. – (n. 8233/fsc. 25, p. 11/b) Ref.: Sp. Pl. ed. 2 1493 (1763); Syn.: *A. alba* Scop. (nom. invalid); *Chenopodium roseum* (L.) E. H. L. Krause; *Schizotheca rosea* (L.) Fourr.; *Teutliopsis rosea* (L.) Celak.; Austria, Vienna, August 30, 1861, leg. Dr. Rauscher (stamp on label: Botanischer Tauschverein in Wien).

Trib. *Camphorosmeae* Moq., 1840

Gen. *Bassia* Allioni, 1766

Bassia laniflora (S. G. Gmel.) A. J. Scott – (n. 8233/fsc. 25, p. 11/a) Ref.: Feddes Repert. 89: 108 (1978); Syn.: *Kochia arenaria* (P. Gaertn., B. Mey. & Scherb) Roth; *K. laniflora* (S.G.Gmel.) Borbás; Gunin, Sept. 18, 1856, leg. Hrzisch – Ex Flora Hungariae (stamp on label: Botanischer Tauschverein in Wien); degraded specimen.

Gen. *Camphorosma* C. Linnaeus, 1753

Camphorosma annua Pall. – (n. 8233/fsc. 28, p. 13.) Ref.: Reise ed. 1 3: 603 (1776); Syn.: *C. ovata* Waldst. & Kit; no locality, no date, leg. Janka.

Trib. *Chenopodieae* Dumort., 1829Gen. *Chenopodium* C. Linnaeus, 1753

Chenopodium album L. – (n. 8233/fsc. 28, p. 4/b) Ref.: Sp. Pl. ed. 1 219 (1753); Syn.: *Atriplex alba* (L.) Crantz; *Botrys alba* (L.) Nieuwl; no locality, no date, no signature.

Chenopodium ambrosioides L.– (n. 8233/fsc. 24 - p. 11/b) Syn.: *Ambrina ambrosioides* (L.) Spach; *Atriplex ambrosioides* (L.) Crantz; *Blitum ambrosioides* (L.) Beck; *C. anthelminticum* auct., non L.; *C. integrifolium* Vorosch; *Dysphania ambrosioides* (L.) Mosyakin & Clemants; *Orthosporum ambrosioides* (L.) Kostel; *Roubieva anthelmintica* (L.) Hook. & Arn; *Teloxys ambrosioides* (L.) W. A. Weber; *Vulvaria ambrosioides* (L.) Bubani; Romania, Banat (In ruderalis ad passas), August-Sept., leg. Heuffel.

Chenopodium botrys L. – (n. 8233/fsc. 25, p. 9/b) Ref.: Sp. Pl. ed. 1 219 (1753); Syn.: *Dysphania botrys* (L.) Mosyakin & Clemants; unidentified locality (bei Cynitsf), July 27, 1857, leg. Al. Slakosvsky.

Chenopodium hybridum L. – (n. 8233/fsc. 28, p. 7.) Ref.: Sp. Pl. ed. 1 219 (1753); Syn.: *Atriplex hybrida* Crantz; *Botrys hybrida* (L.) Nieuwl; *Chenopodium angulatum* Curtis ex Steud.; *Chenopodium angulosum* Lam.; no locality, no date, no signature

Chenopodium intermedium L. – (n. 8233/fsc. 26, p. 4/b) Ref.: Sp. Pl. 1: 218. 1753 (May 1, 1753); Syn.: *C. rubrum* var. *intermedium* (Mert. & W. D. J. Koch) Jauzein; unidentified location (illegible), no date, no signature.

Chenopodium polyspermum L. – (n. 8233/fsc. 24, p. 6/a) Ref.: Sp. Pl. ed. 1 220 (1753); Syn.: *Anserina betifolia* Montandon; *Atriplex polysperma* (L.) Crantz; *C. acutifolium* Sm.; *C. angustifolium* Gilib.; *C. bisaeriale* Menyh.; *C. marginatum* Spreng. ex Hornem.; *C. polispermum* Neck.; *C. polyspermum* var. *polyspermum*; *Lipandra atriplicoides* (Less.) Moq.; *L. polysperma* (L.) S. Fuentes, Uotila & Borsch; *Oligandra atriplicoides* Less.; *Vulvaria polysperma* (L.) Bubani; Romania, Bistrița-Năsăud, Dumbrăveni/Gants (Prope pagum Gants in Transsylvania), no date, leg. Czetz.

Chenopodium rubrum L. – (n. 8233/fsc. 28, p. 10/a) Ref.: Sp. Pl. ed. 1 218 (1753); Syn.: *Blitum rubrum* (L.) C. A. Mey; *Oxybasis rubra* (L.) S. Fuentes, Uotila & Borsch. 2012; no locality, no date, no signature

Chenopodium urbicum L. – (n. 8233/fsc. 24 - p. 6/b) Ref.: Sp. Pl. ed. 1 218 (1753); Syn.: *Anserina urbica* (L.) Montandon; *Atriplex urbica* (L.) Crantz; *C. chrysomenalospersum* Zuccani; *C. deltoideum* Lam.; *C. intermedium* Mert. & W. D. J. Koch; *C. melanospermum* Wallr.; *C. microspermum* Wallr.; *C. urbicum subsp. urbicum*; *Vulvaria deltoidea* Bubani; Germany, Brandenburg, Rhinow, Febr. 5, 1858, no signature – Brandenburg flora – Ex herbario Schrummii.

Trib. *Corispermeae* Moq., 1840

Gen. *Corispermum* C. Linnaeus, 1753

Corispermum canescens Kit. – (n. 8233/fsc. 24, p. 9. /a) Ref.: Österreichs Fl. ed. 2 1: 7 (1814); Nomencl. Bot. [Steudel] 473. 1821; Syn.: *C. borysthenicum* Andrz.; *C. stenopterum* Klokov; *C. ucrainicum* Iljin; Hungary, Budapest (Pest), no date, leg. Richter.

Corispermum hyssopifolium L. – (n. 8233/fsc. 13, p. 2/b) Ref.: Sp. Pl. ed. 1 4 (1753); Syn.: *C. hyssopifolium* var. *hyssopifolium*; *C. patens* Fisch. ex Roem. & Schult.; unidentified location, no date, leg. Richter.

Corispermum intermedium Schweigg. – (n. 8233/fsc. 13, p. 3/a) Ref.: Königsberger Arch. Naturwiss. Math. 1: 211 1812; Syn.: *C. gallicum* Iljin; *C. leptopterum* (Asch.) Iljin; *C. hyssopifolium* auct. eur. centr., non L; *C. hyssopifolium* var. *leptopterum* Asch.; Russia, Kaliningrad Region (Königsberg), August-September 1859, no signature (stamp: Königsberg; stamp on label: Botanischer Tauschverein in Wien).

Corispermum marschallii Steven – (n. 8233/fsc. 13, p. 2/a) Ref.: Mém. Soc. Imp. Naturalistes Moscou 5: 336 1814; Syn.: *C. bracteatum* Viv.; *C. elatum* Host; *C. intermedium* Rchb.; Hungary, Budapest (Pesth); Aug. 1850, leg. Kovats, com. Steffek.

Corispermum nitidum Kit. – (n. 8233/fsc. 26, p. 14/a) Ref.: Österreichs Fl. ed. 2 1: 7 (1814); Syn.: *C. calvum* Klokov; *C. microspermum* Host; *C. nitidulum* Klokov; *C. purpurascens* Host; *C. tenue* Link; Gran., In Arena, 1860, leg. Dr. S. Ceichtrnye (obs.: Botanischer Tauschverein in Wien).

Corispermum nitidum Kit. – (n. 8233/fsc. 26, p. 14/b) Ref.: Österreichs Fl. ed. 2 1: 7 (1814); Syn.: *C. calvum* Klokov; *C. microspermum* Host; *C. nitidulum* Klokov;

C. purpurascens Host; *C. tenue* Link; Hungary, Budapesta, Pest (Im plugsande), August 1861, leg. J. Bayer (obs.: Botanischer Tauschverein in Wien).

Subfam. *Polycnemoideae*

Gen. *Polycnemum* C. Linnaeus, 1753

Polycnemum arvense L. – (n. 8233/fsc. 13, p. 2/c) Ref.: Sp. Pl. 1: 35. 1753; Syn.: *P. minus* Kitt; *P. minus* J.Lloyd; no locality, no date, no signature.

Polycnemum arvense L. – (n. 8233/fsc. 24, p. 3/a) Ref.: Sp. Pl. ed. 1 35 (1753); Syn.: *P. minus* J.Lloyd; Romania, Cuj, Turda (Torda), August 1853, leg Wolff.

Polycnemum arvense L. – (n. 8233/fsc. 28, p. 4/a) Ref.: Sp. Pl. ed. 1 35 (1753); Syn.: *P. minus* Kitt.; no locality, no date, no signature.

Polycnemum heuffelii Láng – (n. 8233/fsc. 28, p. 15/a) Ref.: Syll. Pl. Nov. Ratisbon. (Königl. Baier. Bot. Ges.) 2: 219 (1828); Romania, Hunedoara, Beriu/Sasz Bereny, 1854, leg. Richter L.

Polycnemum majus A. Braun – (n. 8233/fsc. 25, p. 3/a) Ref.: Flora (Regensb.) 24: 151 (1841); Syn.: *P. arvense* subsp. *majus* (A.Braun) Briq.; *P. arvense* v. *Majus*; Austria, unidentified locality, September 19, 1852, leg. J. Juratzka.

Polycnemum verrucosum Láng – (n. 8233/fsc. 28, p. 10/b) Ref.: Syll. Pl. Nov. Ratisbon. (Königl. Baier. Bot. Ges.) 1: 179 (1824); unidentified location, August 22, 1857, leg. Al. Slakorvsky.

Subfam. *Salicornioideae*

Trib. *Salicornieae*

Gen. *Salicornia* C. Linnaeus, 1753

Salicornia europaea L. – (n. 8233/fsc. 13, p. 1/a) Ref.: Sp. Pl. ed. 1 3 (1753); Syn.: *S. herbacea* (L.) L; Belgium, Bards de Ilscant, March 1863; no signature - Ex Herb. Armand Trielens, D. S. N. Tirlemont (Belgium).

Salicornia europaea L. – (n. 8233/fsc. 13, p. 1/b) Ref.: Sp. Pl. ed. 1 3 (1753); Syn.: *S. herbacea* (L.) L; Belgium, Bards de Ilscant, March 1863; no signature - Ex Herb. Armand Trielens, D. S. N. Tirlemont (Belgium).

Subfam. *Salsoloideae*

Trib. *Salsoleae*

Gen. *Salsola* C. Linnaeus, 1753

Salsola kali L. – (n. 8233/fsc. 13, p. 18/c) Ref.: Sp. Pl. ed. 1 222 (1753); Syn.: *Kali tragus* Scop.; *S. aptera* Iljin; *S. praecox* Litv; *S. pontica* Iljin; Belgium, Flemish Region, Ostend (Oostende), Aug. 1863, Ex Herb.: Armand Thielens, D. S. N., Tirlemont (Belgium).

Salsola kali L. – (n. 8233/fsc. 13, p. 5/a) Ref.: Sp. Pl. ed. 1 222 (1753); Syn.: *Kali tragus* Scop.; *S. aptera* Iljin; *S. praecox* Litv; *S. pontica* Iljin; Belgium, Flemish Region, Ostend (Oostende), Aug. 1863, Ex Herb.: Armand Thielens, D. S. N., Tirlemont (Belgium).

Salsola kali L. – (n. 8233/fsc. 25, p. 9/a) Ref.: Sp. Pl. ed. 1 222 (1753); Syn.: *S. aptera* Iljin; *S. pontica* Iljin; *S. praecox* Litv; Austria (bei Grossburg?), August 1863, leg. Haslinger.

Trib. *Suaedeae*

Gen. *Suaeda* Forsskål ex Scopoli, 1777, nom. cons.

Suaeda maritima (L.) Dumort. – (n. 8233/fsc. 13, p. 1/c) Ref.: Fl. Belg. 22 1827; Syn.: *Schoberia maritima* P. G. M; *S. maritima* (L.) C. A. Mey; *Chenopodium maritimum* L; *Dondia maritima* (L.) Druce; *Lerchea maritima* (L.) Kuntze; *Salsola maritima* (L.) M. Bieb; Croatia, Dalmatia (Boule), no date, no signature (stamp on label: Botanischer Tauschverein in Wien), leg. possibly M. Tommasini.

Family Caryophyllaceae A. L. de Jussieu, 1789, nom. cons.

Gen. *Eremogone*

Eremogone procera (Spreng.) Rchb. – (n. 8233/fsc. 29, p. 3/c) Ref.: Icon. Fl. Germ. Helv. 5: 33 1841; Syn.: *Arenaria procera* Spreng.; unidentified location, no date, leg Wolff.

Subfam. *Alsinoideae*

Trib. *Alsineae* Lam. & DC., 1806

Gen. *Arenaria* C. Linnaeus, 1753

Arenaria ciliata L. – (n. 8233/fsc. 29, p. 3/b) Ref.: Sp. Pl. ed. 1 425 (1753); Alps, Piedmont., no date, no signature.

Arenaria grandiflora L. – (n. 8233/fsc. 29, p. 9/a) Ref.: Syst. Nat. ed. 10 2: 1034 (1759); France, Languedoc-Roussillon, Pyrénées Orientales (T'ont de Comps), July 31, 1852, leg. Huet du Pavillon – Plantes des Pyrénées.

Arenaria grandiflora L. – (n. 8233/fsc. 29, p. 20/c) Ref.: Syst. Nat. ed. 10 2: 1034 1759; Syn.: *Alsine grandiflora* Crantz; unidentified location (Polanes prope in Meihven), June 6, 1851, leg. A. Makovsky.

Arenaria procumbens Vahl – (n. 8233/fsc. 29, p. 11/b) Ref.: Symb. Bot. 1: 50 1790; Syn.: *A. geniculata* Poir.; *Cherleria geniculata* Samp.; *Minuartia geniculata* (Poir.) Thell.; *M. procumbens* (Vahl) Asch.; *Rhodalsine geniculata* (Poir.) F. N. Williams; *R. procumbens* J. Gay; *R. geniculata* var. *procumbens* (Vahl) Dubuis; Italy, Sardinia, Corsini, no date, leg. Cesati.

Arenaria rubra L. – (n. 8233/fsc. 29, p. 5/b) Ref.: Sp. Pl. 1: 423. 1753; Syn.: *Alsine rubra* (L.) Crantz; *Buda rubra* (L.) Desv.; *Corion rubrum* N. E. Br.; *Lepigonum rubrum* (L.) Wahlenb.; *Melargyra rubra* (L.) Raf.; *Spergularia rubra* (L.) J. Presl & C. Presl; *Spergula rubra* (L.) D. Dietr.; *Tissa rubra* (L.) Britton; France, Languedoc-Roussillon, Pyrénées Orientales, Massif du Carlit, Pyrénées [Lac Carlitz (Pyrénées)], no date, no signature.

Arenaria purpurascens Ramond ex DC. – (n. 8233/fsc. 29, p. 5/c) Ref.: Fl. Fr. ed. 3 4: 785 (1805); Syn.: *Alsinanthus purpurascens* (Ramond ex DC) Desv.; *Arenaria pyrenaica* Rouy & Foucaud; *Assoella purpurascens* (Ramond ex DC) J. M. Monts; *Cerastium purpurascens* Fenzl; *Dufourea purpurascens* (Ramond ex DC) Gren; France, Languedoc-Roussillon, Pyrénées Orientales [Pic de Gedes (Pyrénées)], no date, no signature.

Arenaria serpyllifolia L. – (n. 8233/fsc. 29, p. 14/b) Ref.: Sp. Pl. 1: 423. 1753 (1 May 1753); Syn.: *A. sphaerocarpa* Jordan var. *viscosa*; *A. sphaerocarpa* Ten.; *A. serpyllifolia* var. *viscida* (Loisel.) DC.; *Alsinella serpyllifolia* Crantz; *Alsinella serpyllifolia* Gray; unidentified location, august 1856, leg. Christ. Notar.

Arenaria serpyllifolia L. subsp. *leptoclados* (Rchb) Nyman – (n. 8233/fsc. 29, p. 16/a) Ref.: Consp. 115 (1878); Syn.: *A. leptoclados* (Rchb.) Guss; *A. leptoclados* (Rchb.) Guss. subsp. *minutiflora* (Loscos) H. Lindb; *A. minutiflora* Loscos; Neutorge in pago, fr. Gurgend, no date, leg. Dr. Lager.

Arenaria tenuifolia L. – (n. 8233/fsc. 29, p. 16/b) Ref.: Syn.: *Alsine tenuifolia* (L.) Crantz; *A. tenuifolia* (L.) Crantz subsp. *tenuifolia*; *A. tenuifolia* (L.) Crantz subsp. *tenuifolia* var. *tenuifolia*; *Minuartia hybrida* (Vill.) Schischk; *M. tenuifolia* (L.) Hiern, non Nees ex Mart; *M. tenuifolia* (L.) Hiern, non Nees ex Mart. subsp. *tenuifolia*; Spain, Granada, Cerro del Sol (Cerro del sol bei Granada), June 10, 1857, Del Campo, com. Alioth.

Gen. *Bufonia* C. Linnaeus, 1753

Buffonia annua DC. – (n. 8233/fsc. 29, p. 1/b) Ref.: Fl. Franc. (DC. & Lamarck), ed. 3. 4: 768. 1805; France, Rhône-Alpes, Rhône, Lyon (Lyon a la Pope), no date, leg. Dr. Lager.

Buffonia macrosperma J. Gay – (n. 8233/fsc. 29, p. 1/c) Ref.: Mutel, Fl. Dauphiné ed. 2, 88. 1848; Syn.: *Bufonia paniculata* Dubois; *B. spicata* Delarbre; *Buffonia tenuifolia* Vill. (non L.); Switzerland, Valais (Canton Wallis, Ardaub), no date, leg. Dr. Lagger.

Gen. *Cerastium* C. Linnaeus, 1753

Cerastium arvense L. – (n. 8233/fsc. 29, p. 18/a) Ref.: Sp. Pl. ed. 1 438 (1753); Syn.: *Alsine arvensis* (L.) E. H. L. Krause; *Cerastium strictum* L.; *Centunculus arvensis* (L.) Scop.; Austria, Stiria, Badegreszd, June 3, 1850, leg. J. C. Eques Pittoni a Dannenfeldt.

Cerastium arvense L. – (n. 8233/fsc. 29, p. 11/a) Ref.: Sp. Pl. ed. 1 438 (1753); Syn.: *Alsine arvensis* (L.) E. H. L. Krause; *Centunculus arvensis* (L.) Scop.; *Cerastium strictum* L.; *Leucodonium arvense* (L.) Opiz; *Stellaria arvensis* (L.) Gray; Romania, Caraș-Severin, Teregova (In pratis pr. Teregova Banatus), July 19, 1856, leg. Janka.

Cerastium dubium (Bastard) Guépin – (n. 8233/fsc. 29, p. 18/b) Ref.: Mitt. Thür. Bot. Ges. 1(1): 98 (1949); Syn.: *C. anomalum* Waldst. & Kit; no locality, no date, no signature.

Cerastium dubium (Bastard) Guépin – (n. 8233/fsc. 29, p. 20/b) Ref.: Mitt. Thür. Bot. Ges. 1(1): 98 (1949); Syn.: *C. anomalum* Waldst. & Kit; Romania, Banat (In agris et arvis Banatus), no date, leg. Heuffel.

Cerastium glomeratum Thuill. – (n. 8233/fsc. 29, p. 9/b) Ref.: Fl. Env. Paris ed. 2: 226 1799; Syn.: *Alsine glomerata* (Thuill.) E. H. L. Krause; *Stellaria glomerata* Jess.; Hungary (Aus Ungarn; in Nuslwrissna burgens Romitas gusainnt und untrgrfsniltnam), June 21, 1857, leg. Hillebrand.

Cerastium ligusticum Viv. subsp. *ligusticum* – (n. 8233/fsc. 29, p. 12/c) Ref.: Elench. Pl. Horti Bot. 15 (1802); Syn.: *C. campanulatum* Viv; *C. campanulatum* Viv. subsp. *campanulatum*; Italy, Tuscany, Firenze, no date, no signature – Herbarium I. et R. Musaei Florentini.

Cerastium pumilum Curtis subsp. *glutinosum* (Fr.) Jalas – (n. 8233/fsc. 29, p. 12/a) Ref.: Ann. Bot. Fenn. 20: 110 (1983); Syn.: *C. glutinosum* Fr; *C. pallens* F. W. Schultz; Austria, Tirol (Triesat ai aslassi dall Aria.), 1856, leg. aflorasadell. – Ex Herbario J. C. Equitis Pittoni a Dannenfeldt.

Cerastium sylvaticum Waldst. & Kit. – (n. 8233/fsc. 29, p. 14/a) Ref.: Pl. Rar. Hung. 1: 100 (1802); Syn.: *Alsine silvatica* (Waldst. & Kit.) E. H. L. Krause; *Cerastium*

umbrosum Kit; *Stellaria silvatica* (Waldst. & Kit.) Jess.; Romania, Banat (In acaribus hunidiuschis Banatus), no date, leg. Heuffel.

Gen. *Minuartia* C. Linnaeus, 1753

Minuartia graminifolia (Ard) Jáv. – (n. 8233/fsc. 29, p. 5/a) Ref.: Sched. Fl. Hung. Exsicc. 2: 22 (1914); Syn.: *Alsine graminifolia* Bluff, Nees & Schauer; *Arenaria graminifolia* Ard.; *Minuartia graminifolia* subsp. *hungarica* Jáv; *Pettera graminifolia* (Ard) Rchb.; Romania, Cluj, Turda (Torda in Transsylvania), 1857, leg. Wolff.

Gen. *Moehringia* C. Linnaeus, 1753

Moehringia flaccida Schloss. & Vuk. – (n. 8233/fsc. 29, p. 3/a) Ref.: Fl. Croat. 352 1869; Croatia, unidentified location, no date, leg. Dr. Schlosser.

Moehringia muscosa L. – (n. 8233/fsc. 29, p. 1/a) Ref.: Sp. Pl. ed. 1 359 (1753); Syn.: *Arenaria muscosa* (L.) Medik.; *A. muscosa* Bonnier & Layens; *A. sperguloides* (Mutel) Mutel; Romania, Banat (In angroposibus ambrosis Banatus. Mg.), no date, leg. Heuffel.

Gen. *Sagina* C. Linnaeus, 1753

Sagina procumbens L. – (n. 8233/fsc. 29, p. 12/b) Ref.: Sp. Pl. ed. 1 128 (1753); Syn.: *Alsine procumbens* Crantz; *Alsinella procumbens* Bubani; *Sagina fasciculata* Poir; *S. corsica* Jord; Alps pedemont, no date, no signature.

Gen. *Stellaria* C. Linnaeus, 1753

Stellaria borealis Bigelow – (n. 8233/fsc. 29, p. 1/c) Ref.: Fl. Boston. ed. 2 182 (1824); Syn.: *S. calycantha* auct. eur., non (Ledeb) Bong; *S. apetala* Boreau; unidentified locality (Gnufner Pnn. Pnetun), April 1856, leg. Christ. Notar.

Stellaria bulbosa Wulfen – (n. 8233/fsc. 29, p. 11/c) Ref.: in Jacq. Coll. iii. 21 (1789); Syn.: *Pseudostellaria europaea* Schaeftl; Italy, Friuli-Venezia Giulia, Gorizia/Gorz (in Panourtze, bey Gorz), no date, no signature, comm. M. Tommasini – Ex herbario Florae Illyricae.

Stellaria cerastoides L. – (n. 8233/fsc. 29, p. 5/d) Ref.: Sp. Pl. 1: 422 422 1753; Syn.; *Cerastium cerastoides* (L.) Britton; *C. stellarioides* Hartm.; *C. stellarioides* Hegetschw; *Dichodon cerastoides* (L.) Rchb.; *Provancheria cerastoides* (L.) B. Boivin; *Stellaria elegans* Ser.; France, Languedoc-Roussillon, Pyrénées Orientales [Pert de Bonacque (Pyrénées)], no date, no signature.

Stellaria graminea L. – (n. 8233/fsc. 29, p. 20/d) Ref.: Sp. Pl. ed. 1 422 (1753); Syn.: *Alsine graminea* (L.) Britton; *Cerastium gramineum* (L.) Crantz; Romania, Transsylvania (A Mezőség = Transylvanian Plain), July 1855, leg. Janka.

Subfam. *Caryophylloideae*

Trib. *Caryophylleae* Lam. & DC., 1806

Gen. *Dianthus* C. Linnaeus, 1753

Dianthus aciphyllus Sieber ex Ser. – (n. 8233/fsc. 21, p. 7/d) Ref.: Prodr. 1: 358 (1824); Syn.: *Dianthus arboreus* L., nom. ambig; Hungary, Budapest (Pest – Bot. Part.); no date, leg. Richter.

Dianthus diminutus L. – (n. 8233/fsc. 21, p. 10/a) Ref.: Sp. Pl., ed. 2. 1: 587 1762; Syn.: *Petrorhagia prolifera* (L.) P. W. Ball & Heywood; *Caryophyllus diminutus* Christm.; *Dianthus prolifer* L.; *Kohlrauschia diminuta* Rchb.; *Silene prolifera* E. H. L. Krause; *Tunica prolifera* (L.) Scop.; Romania, Banat, no date, leg. Richter.

Dianthus monspessulanus L. – (n. 8233/fsc. 21, p. 5/a) Ref.: Amoen. Acad. 4: 313 (1759); Syn.: *Dianthus hyssopifolius* L. pro parte; *D. marsicus* Ten; no locality, September 1887, leg. Mihajasse.

Dianthus polymorphus M. Bieb. – (n. 8233/fsc. 21, p. 4/a) Ref.: Fl. Taur.-Caucas. 1: 324 1808; Syn.: *D. atratus* Beaupr. ex Ser.; *D. autumnalis* Kit.; *D. bessarabicus* (Kleopow) Klokov; *D. dichotomus* Pall.; *D. diutinus* Kit; *D. platyodon* Klokov; no locality, no date, no signature.

Gen. *Gypsophila* C. Linnaeus, 1753

Gypsophila muralis L. – (n. 8233/fsc. 21, p. 11/a) Ref.: Sp. Pl. 408 1753; Syn.: *Dichoglottis muralis* Jaub. & Spach; *Gypsophila agrestis* Pers.; *G. arvensis* Borkh. ex Steud.; *Psammophiliella muralis* (L.) Ikonn.; *Silene muralis* E. H. L. Krause; unidentified location (Koros Nan...), 1863, leg. Steffek.

Gypsophila petraea (Baumg.) Rchb. – (n. 8233/fsc. 21, p. 5/c) Ref.: Fl. germ. excurs. 801. 1832; Syn.: *Banffya petraea* Baumg.; *Gypsophila transsylvanica* Spreng.; Romania, Transsylvania (in alpibus Barcenfibus Transilvanie), no date, leg. Rekes T., com. Czetz.

Gypsophila rigida L. – (n. 8233/fsc. 21, p. 2/a) Ref.: Sp. Pl. 408 1753; Syn.: *Petrorhagia saxifraga* (L.) Link; *Petrorhagia saxifraga* subsp. *saxifraga* (L.) Link; *P. rigida* Link; *Gypsophila saxifraga* L.; *Kohlrauschia saxifraga* (L.) Dandy; *Tunica*

rigida (L.) Boiss; *T. saxifraga* (L.) Scop; Croatia, unidentified locality, June-August 1855, no signature – Label: Ex herb. Lud Farkas- Vukotinovic; Flora Croatica.

Gen. *Saponaria* C. Linnaeus, 1753

Saponaria sicula Raf. subsp. *sicula* – (n. 8233/fsc. 21, p. 5/b) Ref.: Specch. Sci. 2: 7 (1814); Syn.: *S. depressa* Biv; *S. depressa* sensu Halácsy, non Biv; Ex Nabrodibus a Eullonio; leg. A. Bertoloni.

Trib. *Drypideae* Fenzl, in S. F. L. Endlicher, 1840

Gen. *Drypis* C. Linnaeus, 1753

Drypis spinosa L. – (n. 8233/fsc. 21, p. 6.) Ref.: Sp. Pl. ed. 1 413 (1753); unidentified location, no date, no signature, comm. M. Tommasini – Ex herbario Florae Illyricae.

Trib. *Sileneae*

Gen. *Agrostemma* C. Linnaeus, 1753

Agrostemma githago L. – (n. 8233/fsc. 21, p. 7/a) Ref.: Sp. Pl. ed. 1 435 (1753); Syn.: *Lychnis githago* (L.) Scop; *Githago segetum* Link; *Silene githago* E. H. L. Krause; Belgium, Flemish Brabant, Tienen/Tirlemont, June 1863, no signature – Label: Ex Herb. Armand Thielens, D. S. N. Tirlemont (Belgium).

Gen. *Lychnis* C. Linnaeus, 1753

Lychnis alpina L. – (n. 8233/fsc. 21, p. 8/a) Ref.: Sp. Pl. ed. 1 436 (1753); Syn.: *Silene suecica* (Lodd) Greuter & Burdet; *Lychnis suecica* Greuter & Burdet; *Viscaria alpina* (L.) G. Don; unidentified location, no date, leg. Huter.

Lychnis alpina L. – (n. 8233/fsc. 21, p. 2/b) Ref.: Sp. Pl. ed. 1 436 (1753); Syn.: *Viscaria alpina* (L.) G. Don; Italy, Alp. Pedemont, no date, no signature.

Gen. *Silene* C. Linnaeus, 1753

Silene armeria L. – (n. 8233/fsc. 21, p. 2/c) Ref.: Sp. Pl. ed. 1 420 (1753); Syn.: *S. lituanica* Zapal; *Atocion armeria* (L.) Raf.; Italy, Trentino-Alto Adige/Südtirol, Bolzano (Bozen), no date, leg. Hausm.

Silene ciliata Pourr. – (n. 8233/fsc. 21, p. 1/b) Ref.: Syn.: *S. perinica* Hayek; Spain (Pyrénées), no date, no signature.

Silene conica L. – (n. 8233/fsc. 21, p. 7/b) Ref.: Sp. Pl. ed. 1 418 (1753); Syn.: *Conosilene conica* (L.) Fourr.; *Cucubalus conicus* (L.) Lam; *Lychnis conica* (L.) Scop;

Belgium, Flemish Region, Ostend, (Dunes Ostende), July 1862, no signature – Label: Ex Herb.: Armand Thielens, D. S. N. Tirlemont (Belgium).

Silene gallica L. – (n. 8233/fsc. 21, p. 10/b) Ref.: Sp. Pl. ed. 1 417 (1753); Syn.: *Corone gallica* Fourr.; *Silene anglica* L.; *S. giraldii* Guss; *S. linophila* Rothm; *S. transtagana* Cout; Poland, Lesser Poland, Kraków, Krzeszowice (in Galliz), July 6, 1855, leg. Billimek.

Silene italica (L.) Pers. – (n. 8233/fsc. 21, p. 5/d) Ref.: Syn. Pl. 1: 498 (1805); Romania, Transsylvania, Bistrița-Năsăud, Rodna (In subalpinis Rodninsibus Transsilvanie), July 1854, leg. Czetz.

Silene lerchenfeldiana Baumg. – (n. 8233/fsc. 21, p. 3/b) Ref.: Enum. Stirp. Transs. 1: 398 (1816); M. Rasovati kemen, no date, leg. Baumg.

Silene nocturna L. – (n. 8233/fsc. 21, p. 4/b) Ref.: Sp. Pl. ed. 1 416 (1753); Syn.: *S. boullui* Jord; *S. micropetala* Lag. subsp. *boullui* (Jord) Rouy & Foucaud; France, Languedoc-Roussillon, Narbonne, no date, leg. Timbal L.

Silene nutans subsp. *livida* (Willd) Jeanm. & Bocquet – (n. 8233/fsc. 21, p. 1/a) Ref.: Candollea 38: 291 1983; Syn.: *S. livida* Willd; unidentified location, no date, no signature, comm. M. Tommasinii – Ex herbario Florae Illyrae.

Silene rupestris L. – (n. 8233/fsc. 21, p. 3/a) Ref.: Sp. Pl. 421 1753; Syn.: *Cucubalus saxatilis* Lam.; unidentified location, no date, no signature; label: Ex C. Birnbacher Herbarie.

Silene transilvanica Schur var. *alpina* – (n. 8233/fsc. 21, p. 9) Ref.: Sp. Pl. ed. 1 416 (1753); Syn.: *S. nutans* L. subsp. *dubia* (Herbich) Zapal; *S. nutans* L. var. *alpina* Otth; *S. dubia* Herbich; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius

Subfamily *Paronychioideae*

Tribe *Polycarpeae*

Gen. *Spergularia* (Persoon) J. S. Presl & K. B. Presl, 1819, nom. cons.

Spergularia media (L.) C. Presl. – (n. 8233/fsc. 29, p. 20/a) Ref.: Vers. Darstell. Alsin. 18 1833; Syn.: *Alsine marginata* Fenzl; *A. marginata* Rchb.; *A. marginata* C. A. Mey.; Romania, Transsylvania, Sighisoara, no date, leg. Fronius.

Fam. *Polygonaceae* A. L. de Jussieu, 1789, nom. cons.

Subfam. *Polygonoideae*

Trib. *Polygonaceae*Gen. *Fallopia* Adanson, 1763

Fallopia dumetorum (L.) Holub – (n. 8233/fsc. 29, p. 19) Ref.: Folia Geobot. Phytotax. (Praha) 6: 176 (1971); Syn.: *Polygonum dumetorum* L.; *Fagopyrum dumetorum* (L.) Schreb; *Bilderdykia dumetorum* (L.) Dumort; no locality, no date, no signature.

Gen. *Polygonum* C. Linnaeus, 1753

Polygonum alpestre Schur – (n. 8233/fsc. 29, p. 15/b) Ref.: Oesterr. Bot. Z. 11: 290. 1861; Syn.: *Bistorta officinalis* subsp. *officinalis* Raf; *Persicaria bistorta* (L.) Samp; *Polygonon bistortum* St. Lag; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Polygonum arenarium Waldst. & Kit. – (n. 8233/fsc. 29, p. 4/a) Ref.: Pl. Rar. Hung. 1: 69 (1801); Syn.: *Polygonum janatae* Klokov; *P. pseudoarenarium* Klokov; *P. venantium* Clementi; unidentified location, no date, no signature.

Polygonum aviculare L. – (n. 8233/fsc. 29, p. 6) Ref.: Sp. pl. 1:362. 1753; Syn.: *P. agreste* Sumner; *P. aphyllum* Krock.; *P. araraticum* Kom.; *P. heterophyllum* Lindm; Romania, Alba Iulia/Karlsburg (In pratis. Albam Carolina Karlsburg; Transsylvaniae), July 28, 1856, leg. Janka – degraded specimen.

Trib. *Rumiceae*Gen. *Oxyria* J. Hill, 1765

Oxyria digyna (L.) Hill – (n. 8233/fsc. 29, p. 15/a) Ref.: Hort. Kew. 158 (1768); Syn.: *Acetosa digyna* (L.) Mill.; *Donia digyna* (L.) R. Br.; *Lapathum digynum* (L.) Lam.; *Rumex digynus* L.; Romania, Bistrița-Năsăud, Rodna (Prope Rodnam Transsylvaniae), no date, leg. Czetz.

Gen. *Rumex* C. Linnaeus, 1753

Rumex bucephalophorus L. – (n. 8233/fsc. 29, p. 15/c) Ref.: Sp. Pl. ed. 1 336 (1753); Syn.: *Acetosa bucephalophora* (L.) Fourr; *Bucephalophora aculeata* Pau; *Lapathum bucephalophorum* (L.) Lam; *Rumex platycarpus* Batt.; Spain, Cran, no date, leg. Costa.

Rumex divaricatus L. – (n. 8233/fsc. 29, p. 2.) Ref.: Sp. Pl. ed. 2 477 1762; Syn.: *R. pulcher* L. subsp. *divaricatus* (L.) Murb; *R. pulcher* subsp. *woodsii* (De Not.) Archang; *R. woodsii* De Not.; Croatia, unidentified locality, no date, no signature – Ex herb. Dr. Jos. Calas. Schlosser – Flora Croatica.

Rumex palustris Sm. – (n. 8233/fsc. 29, p. 17.) Ref.: Fl. Brit. 1: 394 (1800); Romania, Transsylvania (Prope pagum Magyar Nemegeye in Transsylvania), no date, leg. Czetz.

Subclas. *Magnoliidae* Novák ex Takhtajan, 1967
 Superord. *Asteranae* Takhtajan, 1967
 Ord. *Ericales* Dumortier, 1829
 Fam. *Primulaceae* Batsch ex Borkh., 1797, nom. cons.
 Subfam. *Myrsinoideae*
 Trib. *Anagallideae* Dumort., 1827
 Gen. *Anagallis* C. Linnaeus, 1753

Anagallis arvensis L. – (n. 8233/fsc. 12, p. 13/b) Ref.: Sp. Pl. 148 1753; Syn.: *A. verticillata* All.; *Lysimachia arvensis* (L.) U. Manns & Anderb; Romania, Transsylvania, July 1856, leg. Janka.

Anagallis foemina Mill. – (n. 8233/fsc. 12, p. 1/a) Ref.: Gard. Dict. ed. 8 no. 2 (1768); Syn.: *A. caerulea* Schreb., non L.; *A. arvensis* L. subsp. *caerulea* Hartm; *A. arvensis* L. subsp. *foeminea* (Mill.) Schinz & Thell; Belgium, Tirlemont, April 1863, no signature, label: Ex herb. Armand Thielens, D. S. N. Tirlemont (Belgium) – obs.: Rare.

Anagallis tenella (L.) L. – (n. 8233/fsc. 12, p. 6/d) Ref.: Syst. Veg. ed. 13 165 (1774); France, Cherbourg, July 1862, leg. Le Jolis, com. Haslinger.

Anagallis tenella (L.) L. – (n. 8233/fsc. 23, p. 11/b) Ref.: Syst. Veg. ed. 13 165 (1774); Syn.: *Lysimachia tenella* L.; Belgium, Beggynedyk, July 1863, no signature – label: Ex . Herb. Armand Thielens, D. S. N., Tirlemont (Belgium) (label switched with that of the next specimen).

Trib. *Cyclamineae* Dumort., 1827
 Gen. *Cyclamen* C. Linnaeus, 1753

Cyclamen purpurascens Mill. – (n. 8233/fsc. 12, p. 12/b) – Ref.: Gard. Dict. ed. 8 no. 2 (1768); Syn.: *C. europaeum* L.; Austria, Vienna, July 25, 1855, leg. J. Juratzka.

Tribe *Glauceae* Dumort., 1827
 Gen. *Glaux* C. Linnaeus, 1753

Glaux maritima L. – (n. 8233/fsc. 12, p. 3/d) Ref.: Sp. Pl. ed. 1 207 (1753); Romania, Transsylvania (In Transsilvaniae humuli salsis), no date, leg. G. Wolff.

Glaux maritima L. – (n. 8233/fsc. 12, p. 6/a) Ref.: Sp. Pl. ed. 1 207 (1753); Syn.: *Lysimachia maritima* (L.) Galasso, Banfi & Soldano; France, Normandy, Manche, Cherbourg, June 25, 1862, no signature – Label: Herb. A. Le Jolis.

Trib. *Lysimachieae* Rchb., 1837
Gen. *Lysimachia* C. Linnaeus, 1753

Lysimachia nemorum L. – (n. 8233/fsc. 12, p. 4/d) Ref.: Sp. Pl. ed. 1 148 (1753); France, Cherbourg, May 1862, leg. Le Jolis, com. Haslinger.

Lysimachia nemorum L. – (n. 8233/fsc. 23, p. 10/a) Ref.: Sp. Pl. 148 1753; Syn.: *Ephemerum nemorum* Rchb.; *Lerouxia nemorum* Mérat; *L. nemorum* Mérat; Belgium, Brabant, Lubbeek, June 1863, no signature – label; Ex . Herb. Armand Thielens, D. S. N., Tirlemont (Belgium).

Lysimachia otani Asso – (n. 8233/fsc. 23, p. 9/b) Ref.: Syn. Pl. Arag. 22 1779; Syn.: *L. ephemerum* L; France, Pyrénées Centrales, Haute-Garonne, Bagnères de Luchon, 1859, leg. Timbal-Lagrave.

Lysimachia otani Asso – (n. 8233/fsc. 23, p. 10/c) Ref.: Syn. Pl. Arag. 22 1779; Syn.: *L. ephemerum* L; France, Pyrénées Centrales, Haute-Alpes, Crevoux, Aug. 1876, leg. Timbal-Lagrave.

Lysimachia punctata L. – (n. 8233/fsc. 12, p. 8/a) Ref.: Sp. Pl. ed. 1 147 (1753); Syn.: *L. verticillaris* Spreng; no locality, no date, no signature.

Lysimachia thyrsoiflora L. – (n. 8233/fsc. 23, p. 11/c) Ref.: Sp. Pl. ed. 1 147 (1753); Syn.: *Naumburgia thyrsoiflora* (L.) Rchb; Belgium, Brabant, Lubbeek, June 1863, no signature – label; Ex . Herb. Armand Thielens, D. S. N., Tirlemont (Belgium) (label switched with that of the next specimen).

Lysimachia verticillata (Greene) Hand.-Mazz. – (n. 8233/fsc. 12, p. 7/d) Ref.: Notes from the Royal Botanical Garden, Edinburgh 16(77): 80. 1928; Syn.: *Steironema verticillatum* Greene; Austria, Linz, no date, leg. com. Steffek.

Lysimachia vulgaris L. – (n. 8233/fsc. 12, p. 9.) Ref.: Sp. Pl. 1: 146 146 1753; Romania, Timiș (Banat), Lugoj, August 31, 1856, leg. Janka

Gen. *Trientalis* C. Linnaeus, 1753

Trientalis europaea L. – (n. 8233/fsc. 12, p. 2/c) Ref.: Sp. Pl. ed. 1 344 (1753); Belgium, Pui de Spa, June 1851, no signature; label: Ex herb.: Armand Thielens, D. S. N. Tirlemont (Belgium); obs.: very rare.

Subfam. *Primuloideae* (Batsch ex Borkh., 1797) Kostel., 1834
Trib. *Androsaceae* Rchb. ex Pax, in H.G.A. Engler, 1905
Gen. *Androsace* C. Linnaeus, 1753

Androsace alpina (L.) Lam. – (n. 8233/fsc. 12, p. 10/b) Ref.: Fl. Franç. 3: 642 1778;
Syn.: *Aretia pennina* Murith; Italy, In Monte Gries, no date, leg. Dr. Lager

Androsace carnea L. – (n. 8233/fsc. 12, p. 12/a) Ref.: Sp. Pl. ed. 1 142 (1753);
Syn.: *A. laggeri* A.Huet; *Aretia carnea* (L.) Bubani; *Primula laggeri* (A. Huet) Voss;
Switzerland, Valais, La Fouly (Fouly, 7500'), July 1856, leg. (stamp Crist. Notar).

Androsace ciliata DC. – (n. 8233/fsc. 12, p. 10/a) Ref.: Fl. Fr. ed. 3 3: 441 (1805);
Syn.: *Aretia ciliata* (DC) Loisel; France, Port d'Or (Pyrénées australis), no date,
leg. Huet de Pavillon.

Androsace chamaejasme Wulfen – (n. 8233/fsc. 12, p. 7/c) Ref.: Collect. Bot. 1:
194 (1787); Syn.: *A. villosa* L. subsp. *chamaejasme* (Wulfen) Rouy; Austria, Styria,
Offenburg ruins (Ofenburg), no date, leg. Bilimek (stamp on label: Botanischer
Tauschverein in Wien).

Androsace elongata L. – (n. 8233/fsc. 12, p. 7/b) Ref.: Sp. Pl. ed. 2 1668 (1763);
no locality, no date, leg. illegible.

Androsace elongata L. – (n. 8233/fsc. 12, p. 8/b) Ref.: Sp. Pl. ed. 2 1668 (1763);
unidentified location, no date, leg. Al. Makovsky.

Androsace glacialis (Hegetschw.) Hoppe – (n. 8233/fsc. 12, p. 8/c) – Ref.: Fl.
Germ. Helv. ed. 2, 2: 670 1844; Syn.: *A. alpina* (L.) Lam; Austria, Tirol (unidentified
location, 9000-9700'), August 28, 1857, leg. F. Simony.

Androsace hedraeantha Griseb – (n. 8233/fsc. 12, p. 11/a) Ref.: Spicil. Fl. Rumel.
2: 3 (1844); Syn.: *Aretia rubra* Schleich. ex Steud; *A. hedraeantha* Nym; *A. alpina*
Wulf; *Primula hedraeantha* Kuntze; unidentified location, no date, no signature

Androsace maxima L. – (n. 8233/fsc. 12, p. 15/b) Ref.: Species Plantarum 1:141.
1753; Syn.: *A. maxima* Desf; *A. turczaninowii* Freyn; *Aretia maxima* (L.) Bubani;
Primula maxima (L.) Kuntze; Switzerland, unidentified locality, June 1856, leg. (pa-
rafa: Crist. Notar).

Androsace obtusifolia All. – (n. 8233/fsc. 12, p. 12/c) Ref.: Fl. Pedem. 1: 90 (1785);
Syn.: *Primula obtusifolia* E. H. L. Krause; Austria, Lienz, Matri in Osttirol, 6600-
7200', Aug. 28, 1856, leg. F. Simony.

Androsace septentrionalis L. – (n. 8233/fsc. 12, p. 6/e.) Ref.: Sp. Pl. ed. 1 142 (1753); Carpathians, no date, leg. Richter.

Androsace vandellii (Turra) Chiov. – (n. 8233/fsc. 12, p. 10/c) – Ref.: Gior. Bot. Ital. nov. ser. 26: 27 (1919); Syn.: *A. argentea* (C. F. Gaertn.) Lapeyr; *A. imbricata* auct., non Lam; *A. tomentosa* Clairv; France, Port de Vernarque/Haute Garonne, no date, leg. Huguenin.

Androsace vandellii (Turra) Chiov. – (n. 8233/fsc. 12, p. 12/d) Ref.: Gior. Bot. Ital. nov. ser. 26: 27 (1919); Syn.: *A. argentea* (C. F. Gaertn.) Lapeyr; *Aretia argentea* Gaertn; France, Pyrénées australes, Port d'Or, no date, leg. Huet du Pavillon.

Androsace villosa L. – (n. 8233/fsc. 12, p. 7/a) Ref.: Sp. Pl. 142 1753; Syn.: *A. penicillata* Schott, Nyman & Kotschy; *A. taurica* Ovcz; *A. koso-poljanskii* Ovcz; Slovenia, Carniola istorica/Carniola (Kranjska; Krain; Carniola), June 1862, no signature - Collection Baron Nicomed Raffern.

Androsace vitaliana (L.) Lapeyr. – (n. 8233/fsc. 23, p. 10/b) Ref.: Hist. Pl. Pyrénées 94 1813; Syn.: *Aretia vitaliana* (L.) L. (Syst. Veg. ed. 13 162 1774); *Vitaliana primuliflora* Bertol; *Gregoria vitaliana* (L.) Duby; *Primula vitaliana* L.; Fendelberg, Zerinnatt, no date, leg. Dr. Lager.

Trib. *Primuleae*

Gen. *Cortusa* C. Linnaeus, 1753

Cortusa matthioli L. – (n. 8233/fsc. 12, p. 4/a) Ref.: Sp. Pl. ed. 1 144 (1753); Italy, Susa, Piemont, July 1858, leg. Kastren, com. Alioth (Karsten ?).

Cortusa pubens Schott, Nyman & Kotschy – (n. 8233/fsc. 23, p. 7/b) Ref.: Analect. Bot. 17 1854; Syn.: *Cortusa matthioli* L; Romania, Transsylvania, Mt. Rodnei (In alpibus Rotnensibus, Transsylvania, alt. 4000-6500 ped.), no date, leg. Czetz.

Gen. *Primula* C. Linnaeus, 1753

Primula auricula L. – (n. 8233/fsc. 23, p. 8/a) – Syn.: *Aretia auriculata* (L.) Link; *Auricula lutea* (Vill.) Opiz; *Auricula-ursi auricula* (L.) Soják; *Primula balbisii* Lehm; *Primula lutea* Vill.; Austria, Vienna, May 13, 1858, leg. J. Juratzka.

Primula auricula L. – (n. 8233/fsc. 12, p. 13/a) Ref.: Sp. Pl. 143 1753; Syn.: *Aretia auriculata* (L.) Link; *Auricula lutea* (Vill.) Opiz; Romania, Mehedinți, Băile Herculane (Banat), no date, leg. Heuffel.

Primula carpathica Fuss – (n. 8233/fsc. 23, p. 9/a) Ref.: Verh. Mitth. Siebenbürg. Vereins Naturwiss. Hermannstadt x. (1859) 149 (IK); Syn.: *P. carpathica* (Griseb. & Schenk) Fuss; *P. elatior* (L.) Hill subsp. *carpathica* (Griseb. & Schenk) W. W. Sm. & Forrest; *P. elatior* subsp. *carpathica* Nyman; *P. elatior* var. *carpathica* Nikolic; *P. elatior* (L.) Hill subsp. *elatior*; Romania, Transsylvania (In alp. Transsylvania – Budislav), no date, leg. Fronius.

Primula carpathica Fuss – (n. 8233/fsc. 23, p. 11/a) Ref.: Verh. Mitth. Siebenbürg. Vereins Naturwiss. Hermannstadt x. (1859) 149 (IK); Syn.: *P. carpathica* (Griseb. & Schenk) Fuss; *P. elatior* (L.) Hill subsp. *carpathica* (Griseb. & Schenk) W. W. Sm. & Forrest; Romania, Transsylvania, Bistrița-Năsăud, Rodna (In alpebus Rodnansibus Transsylvaniae, alt. 3500-7200 pm.), July 1862, leg. Czetzy.

Primula elatior (L.) Hill – (n. 8233/fsc. 12, p. 1/c) Ref.: Veg. Syst. 8: 25 (1765); Belgium, Tirlemont, April 1868, no signature; label: Ex herb. Armand Thielens, D. S. N. Tirlemont (Belgium) – obs.: very rare.

Primula farinosa L. – (n. 8233/fsc. 12, p. 2/b) Ref.: Sp. Pl. ed. 1 143 (1753); unidentified location, May 22, 1856, leg. Eichenfets.

Primula latifolia Lapeyr. – (n. 8233/fsc. 12, p. 3/c) Ref.: Hist. Abr. Pyr. 97 (1813); Syn.: *P. graveolens* Hegetschw.; *P. hirsuta* sensu Vill., non All; *P. graveolens* Hegetschw.; Switzerland, St. Gallen, Eichberg (Monte Albula, Bhutic lul.), no date, no signature; stamp: Fer. Hehsteiner in Eichberg.

Primula glutinosa Wulfen – (n. 8233/fsc. 12, p. 3/d) Ref.: Fl. Austr. 5: 41 (1778); Austria, Valber Tauren (9900'), August 9, 1857, leg. F. Simony.

Primula graveolens Hegetschw. – (n. 8233/fsc. 23, p. 6/b) Ref.: Fl. Schweiz 194 1839; Syn.: *P. latifolia* Lapeyr.; Switzerland, cant. Graubünden (Il monte Albula), no date, leg. Dr. Lagger.

Primula halleri J. F. Gmel. – (n. 8233/fsc. 12, p. 4/b) Ref.: Onomat. Bot. Compl. 7: 407 (1775); Syn.: *P. longiflora* All; Switzerland, Valais (la monte Gitziberg in Decuria Gombsensi), no date, leg. Dr. Lagger (stamp on label: Botanischer Tauschverein in Wien).

Primula minima L. – (n. 8233/fsc. 12, p. 4/c) Ref.: Sp. Pl. ed. 1 143 (1753); In Alpi Trania. Szuru, no date, leg. Frounz. (Fronius ?).

Primula variabilis Bastard – (n. 8233/fsc. 12, p. 11/b) Ref.: Suppl. Fl. Maine-et-

Loire 26 1812; Syn.: *P. vulgaris* subsp. *vulgaris*; unidentified location, August 2, 1856, no signature.

Primula variabilis Bastard – (n. 8233/fsc. 12, p. 11/c) Ref.: Suppl. Fl. Maine-et-Loire 26 1812; Syn.: *P. vulgaris* subsp. *vulgaris*; Austria, Steiermark, Graz-Umgebung, Aug. 15, 1856, no signature.

Primula veris L. – (n. 8233/fsc. 12, p. 1/b) Ref.: Sp. Pl. ed. 1 142 (1753); Syn.: *P. officinalis* (L.) Hill; Belgium, Tirlemont, April 1863, no signature; label: Ex herb. Armand Thielens, D. S. N. Tirlemont (Belgium).

Primula veris L. subsp. *columnae* (Ten.) Lüdi – (n. 8233/fsc. 12, p. 10/d) Ref.: Ill. Fl. Mitteleur. ed. 1 5(3): 1752 (1927); Syn.: *P. suaveolens* Bertol; *P. columnae* Ten; *P. veris* L. subsp. *suaveolens* (Bertol.) Gutermann & Ehrend. (Oesterr. Bot. Z. 122:268. 1973); unidentified location, no date, leg. Wolff.

Primula vulgaris Huds. – (n. 8233/fsc. 23, p. 7/a) Ref.: Fl. Angl. ed. 1 70 (1762); Syn.: *P. acaulis* (L.) Hill; *P. veris* var. *acaulis* L.; Romania, Banat (In dunitis et sylvis montani Banatas), no date, leg. Heuffel.

Gen. *Soldanella* C. Linnaeus, 1753

Soldanella montana Willd. – (n. 8233/fsc. 12, p. 2/a) Ref.: Enum. Pl. Horti Berol. 192 (1809); Austria, Lower Austria, Langenlois, no date, leg. Andorfer. – stamp: Botanischer Tauschverein in Wien.

Soldanella pusilla Baumg. – (n. 8233/fsc. 12, p. 3/a) Ref.: Enum. Stirp. Transs. 1: 138 (1816); unidentified location, no date, leg. Frounz.

Soldanella pusilla Baumg. – (n. 8233/fsc. 12, p. 3/b) Ref.: Enum. Stirp. Transs. 1: 138 (1816); Switzerland, unidentified locality, no date, leg. Dr. Lager.

Subfam. *Theophrastoideae* (Bartl., 1830) A. DC., in A. P. de Candolle & A. L. P. P. de Candolle, 1844

Trib. *Samoleae*

Gen. *Samolus* C. Linnaeus, 1753

Samolus valerandi L. – (n. 8233/fsc. 12, p. 6/c) Ref.: Sp. Pl. ed. 1 171 (1753); Italy, Trentino/Südtirol, no date, leg. Elfomann an Nurnberg (stamp on label: Botanischer Tauschverein in Wien)

„Lamiids»

Ord. *Lamiales* Bromhead, 1838Fam. *Labiatae* A. L. de Jussieu, 1789, nom. cons., nom. alt.Subfam. *Ajugoideae*Trib. *Ajugeae* Benth., 1829Gen. *Ajuga* C. Linnaeus, 1753

Ajuga chamaepitys (L.) Schreb. – (n. 8233/fsc. 10, p. 11/b) Ref.: Pl. Vert. Unilab. 24 (1773); Hungary, Budapest (bei Pest auf acskes), no date, leg. Lanz.

Ajuga reptans L. – (n. 8233/fsc. 10, p. 17/b) Ref.: Sp. Pl. ed. 1 561 (1753); Belgium, Tirlemont, April 1863, no signature, label: Ex Herb. Armand Thielens, D. S. N., Tirlemont (Belgium) (degraded specimen)

Trib. *Teucrieae*Gen. *Teucrium* C. Linnaeus, 1753

Teucrium aureum Schreb. – (n. 8233/fsc. 10, p. 1/c) – Ref.: Pl. Verticill. Unilab. Gen. Sp. 43 1774; Syn.: *T. flavicans* Lam; *T. flavescens* Schreb; *T. polium* subsp. *aureum* (Schreb) Arcang; *Polium aureum* (Schreb) Moench; France, Alpes-Maritimes, Villefranche-sur-Mer (Pyrénées Orientales), no date, no signature.

Teucrium polium L. – (n. 8233/fsc. 10, p. 6/b) Ref.: Sp. Pl. ed. 1 566 (1753); Syn.: *T. commune* Rouy; S-te Locia pros Narbonna, no date, no signature.

Teucrium scordium subsp. *scordioides* (Schreb) Arcang. - (n. 8233/fsc. 10, p. 7/a); Ref.: Pl. Verticill. Unilab. Gen. Sp. 37 1774; Bull. Soc. Sci. Nancy ser. 3 9: 411 (1908); Syn: *T. scordioides* Schreb; *T. petkovii* Urum; unidentified locality, no date, no signature, comm. M. Tommasini; label: Ex herbario Florae Illyricae

Subfam. *Lamioideae*Trib. *Lamieae* Coss. & Germ., 1845Gen. *Galeopsis* C. Linnaeus, 1753

Galeopsis segetum Neck. – (n. 8233/fsc. 10, p. 12.) Ref.: Hist. Comment. Acad. Elect. Theod.-Palat. 2: 474 (1770); Syn.: *G. dubia* Leers; *G. ladanum* L. subsp. *ladanum* var. *segetum* (Neck.) Fiori; *Ladanum ochroleucum* (Lam.) Slavíková; Belgium, provinces du Limbourg, d'Anvers, Campine, July 1863, no signature; label: Ex Herb. Armand Thielens, D. S. N., Tirlemont (Belgium).

Galeopsis tetrahit L. – (n. 8233/fsc. 10, p. 13.) Ref.: Sp. Pl. ed. 1 579 (1753); Syn.: *G. praecox* Jord; *G. reichenbachii* Reut; *Tetrahit nodosum* Moench; Austria, Stiria (Steiermark), Graducisa, Sept. 8, 1852, leg. J. C. Eques Pittoni a Dannenfeldt.

Gen. *Lamium* C. Linnaeus, 1753

Lamium amplexicaule L. – (n. 8233/fsc. 10, p. 10/b) Ref.: Sp. Pl. ed. 1 579 (1753); Syn.: *L. stepposum* Kossko; no locality, no date, no signature.

Lamium maculatum L. – (n. 8233/fsc. 10, p. 11/a) Ref.: Sp. Pl. ed. 2 809 (1763); Syn.: *L. columnae* Ten; *L. foliosum* Crantz; *L. laevigatum* L.; *L. tomentosum* auct., non Willd; Belgium, valley of the Meuse, August 1862, no signature; label: Ex Herb. Armand Thielens, D. S. N., Tirlmont (Belgium).

Lamium orvala L. – (n. 8233/fsc. 10, p. 9/a) Syn.: *Orvala lamioides* DC; Slovenia, Ljubljana (Carniola, prope Labacum), May 1862, no signature; label: Aus der Pflanzensammlung des Baron Nicomed Raffern. (Botanicher Tauschverein in Wien).

Lamium purpureum var. *incisum* (Willd) Pers. – (n. 8233/fsc. 10, p. 2/b) – Ref.: Sp. Pl. ed. 1 579 (1753); Syn.: *L. incisum* Pers; *L. hybridum* auct. non Vill; *L. dissectum* With; Italy, unidentified location (En aprutiis nais. el. Orjui), no date, leg. Cesati.

Gen. *Leonurus* C. Linnaeus, 1753

Leonurus marrubiastrum L. – (n. 8233/fsc. 10, p. 1/b) – Ref.: Sp. Pl. ed. 1 584 (1753); Syn.: *Chaiturus marrubiastrum* L; *C. leunuorides* Wild; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Gen. *Melittis* C. Linnaeus, 1753

Melittis melissophyllum L. – (n. 8233/fsc. 10, p. 8.) Ref.: Sp. Pl. ed. 1 597 (1753); Syn.: *M. sylvestris* Lam; no locality, no date, no signature.

Gen. *Stachys* C. Linnaeus, 1753

Stachys pradica (Zanten.) Greuter & Pignatti. – (n. 8233/fsc. 10, p. 2/a) Ref.: Giorn. Bot. Ital. 113: 361 1979 publ. 1980; Syn: *Betonica hirsuta* L; *B. monieri* Gouan; *Stachys monieri* (Gouan) P. W. Ball; *S. densiflora* Benth; *S. hirsute* (L.) Della Torre & Sarnth; France, unidentified locality (Moiet-Ceucs?), no date, leg. Huguenin.

Stachys recta L. – (n. 8233/fsc. 10, p. 18/a) Ref.: Mantissa 82 (1767); Syn.: *S. nitens* Janka; *S. transsilvanica* Schur; Austria (Prope Visofnnen, Lower Austria), no date, leg. Janka (degraded specimen).

Stachys recta L. – (n. 8233/fsc. 10, p. 18/b) – Ref.: Mantissa 82 (1767) Syn.: *S. nitens* Janka; *S. transsilvanica* Schur; no locality, no date, no signature (degraded specimen).

Tribe *Marrubieae* Vis., 1847
Gen. *Sideritis* C. Linnaeus, 1753

Sideritis hissopifolia L. – (n. 8233/fsc. 10, p. 3/a) Ref.: Sp. Pl. ed. 1 575 (1753); Syn.: *S. endressii* auct. gall., non Willk; *S. brachycalyx* Pau; *S. cantabrica* Sennen & Elias; Vivace. Montagne de Grenier, au-dessus du hameau da la Plagne, no date, no signature.

Subfam. *Nepetoideae*
Trib. *Elsholtzieae* Burnett, 1835
Gen. *Elsholtzia* Willdenow, 1790

Elsholtzia ciliata (Thunb) Hyl. – (n. 8233/fsc. 10, p. 16/a) Ref.: Bot. Not. 1941: 129 (1941); Syn.: *E. cristata* Willd; *E. patrinii* (Lepech.) Garcke; Aus der Flora Galiziens, Polen, Brody, August, leg. Kloeblner.

Trib. *Mentheae* Dumort., 1827
Subtrib. *Menthinae* Endl., 1838
Gen. *Clinopodium* C. Linnaeus, 1753

Clinopodium menthifolium subsp. *ascendens* (Jord) Govaerts – (n. 8233/fsc. 23, p. 4/b); Ref.: World Checklist Seed Pl. 3(1): 17 1999; Syn.: *Melissa intermedia* Baumg; *Calamintha intermedia* (Baumg.) Heinr. Braun; *Satureja intermedia* (Baumg.) Heinr. Braun; *Calamintha sylvatica* subsp. *ascendens* (Jord) P. W. Ball; Romania, Transsylvania, Bistrița-Năsăud, Dumbrăveni/Gants (prope pagum Gants in Transsylvania), August 1860, leg. Czetz.

Gen. *Horminum* C. Linnaeus, 1753

Horminum pyrenaicum L. – (n. 8233/fsc. 10, p. 16/b) Ref.: Sp. Pl. ed. 1 596 (1753); Germany, Saxonia-Anhalt, Elforan in Neimberg, no date, no signature.

Gen. *Mentha* C. Linnaeus, 1753

Mentha longifolia (L.) L. – (n. 8233/fsc. 23, p. 4/a) Ref.: Fl. Monsp. 19 1756; Syn.: *M. longifolia* (L.) Huds.; *M. sylvestris* L.; *M. rotundifolia* Sole [Illegitimate]; *M. trans-*

silvanica Schur; *M. mollissima* (Schübl. & G. Martens) Borkh. ex Heinr. Braun; Switzerland, Geneva (Inter parentos pago genevensi), no date, leg. Dr. Lager.

Gen. *Thymus* C. Linnaeus, 1753

Thymus comosus Heuff. ex Griseb. – (n. 8233/fsc. 10, p. 7/b) Ref.: Arch. Naturgesch. (Berlin) 18(1): 328 (1852); Syn.: *T. chamaedrys* Fr. subsp. *comosus* (Heuff. ex Griseb) Nyman; *T. serpyllum* f. *transsilvanicus* (Schur) Lyka; Romania, Transsylvania, no date, leg. Porcius, com. Schur.

Thymus comosus Heuff. ex Griseb. – (n. 8233/fsc. 10, p. 7/c) Ref.: Arch. Naturgesch. (Berlin) 18(1): 328 (1852); Syn.: *Thymus transsilvanicus* Schur; *Thymus comosus* var. *transsilvanicus* (Schur) Borbás; Romania, Bistrița-Năsăud, Rodna, no date, leg. Porcius.

Thymus pannonicus All. – (n. 8233/fsc. 10, p. 15/a) Ref.: Auct. Syn. Stirp. Horti Taur. 6 (1773); Syn.: *T. auctus* (Lyka) Borza; *T. kosteleckyanus* Opiz; Croatia, unidentified location, no date, no signature; label: Ex herb. Dr. Jos. Calas. Schlosser, - Flora Croatica (degraded specimen).

Thymus serpyllum L. – (n. 8233/fsc. 23, p. 3/a) Ref.: Sp. Pl. ed. 1 590 (1753); Syn.: Syn.: *Origanum serpyllum* (L.) Kuntze (1891); *Serpyllum vulgare* Fourr. (1869); *T. campestris* Salisb. (1796); no locality, no date, no signature.

Gen. *Ziziphora* C. Linnaeus, 1753

Ziziphora capitata L. – (n. 8233/fsc. 10, p. 3/b) – Ref. Sp. Pl. 21 1753; Syn.: *Cunila capitata* form. *sibirica* (Suppl. Pl. 87 1782); no locality, no date, no signature.

Subtrib. *Nepetinae* Coss. & Germ., 1845

Gen. *Glechoma* C. Linnaeus

Glechoma hederacea L. – (n. 8233/fsc. 23, p. 2.) Ref.: Sp. Pl. ed. 1 578 (1753); Syn.: *G. hindenburgiana* Graebn; *Nepeta glechoma* Benth; *N. hederacea* (L.) Trevir.; Romania, Bihor, Oradea (Grossvardein), April 1863, leg. A. Steffek – Ex flora hungarica (uncertain identification).

Gen. *Dracocephalum* C. Linnaeus, 1753

Dracocephalum nutans L. – (n. 8233/fsc. 10, p. 10/c) Ref.: Sp. Pl. ed. 1 596 (1753); Syn.: *Ruyschiana nutans* (L.) House; *Zornia nutans* (L.) Moench; Hungary, Pest, no date, leg. Richter L. – degraded specimen.

Subtrib. *Salviinae* Endl., 1838

Gen. *Salvia* C. Linnaeus, 1753

Salvia pratensis L. – (n. 8233/fsc. 10, p. 17/a) Ref.: Sp. Pl. ed. 1 25 (1753); no locality, no date, no signature (degraded specimen).

Salvia verticillata L. – (n. 8233/fsc. 10, p. 7/a) Ref.: Sp. Pl. ed. 1 26 (1753); Syn.: *S. peloponnesiaca* Boiss. & Heldr.; no locality, July 1860, leg. Steffek, Ex florae hungarica (degraded specimen).

Subfam. *Scutellarioideae*

Gen. *Scutellaria* C. Linnaeus, 1753

Scutellaria albida L. – (n. 8233/fsc. 10, p. 5/b) Ref.: Mantissa Alt. 248 (1771); Syn.: *S. pallida* M. Bieb.; *S. woronowii* Juz.; unidentified locality, July 18, 1846, leg. Janka.

Scutellaria alpina L. subsp. *supina* (L.) Richardson – (n. 8233/fsc. 10, p. 1/a) Ref.: Bot. Jour. Linn. Soc. 65: 262 (1972); Syn.: *S. lupulina* L.; *S. supina* L.; *S. verna* Besser; Romania, Transsylvania, Aiud (prope Nagy Enyeo), July 1860, leg. Dr. Pava.

Scutellaria altissima L. – (n. 8233/fsc. 10, p. 10/a) Ref.: Sp. Pl. ed. 1 600 (1753); Romania, Băile Herculane (In prope ad Thermis Herculis in Banatis), no date, leg. Heuffel.

Scutellaria minor Huds. – (n. 8233/fsc. 10, p. 11/c) Ref.: Fl. Angl. ed. 1 232 (1762); Belgium, Aerschot, June 1862, no signature, Label: Ex Herb. Armand Thielens, D. S. N., Tirlemont (Belgium).

Fam. *Plantaginaceae* A. L. de Jussieu, 1789, nom. cons.

Gen. *Paederota* C. Linnaeus, 1758

Paederota bonarota (L.) L. – (n. 8233/fsc. 27, p. 13/b) Ref.: Opera Var. 200 200 1758; Syn.: *Veronica bonarota* L.; Austria, unidentified location (Schlera in pinctirol – 5500-5800'?), August 2, 1855, leg. F. Simony.

Subfam. *Antirrhinoideae* (Pers., 1807) Kostel., 1834

Trib. *Antirrhineae* Dumort., 1827

Gen. *Antirrhinum* C. Linnaeus, 1753

Antirrhinum sempervirens Lapeyr. – (n. 8233/fsc. 27, p. 11/a) Ref.: Fig. Fl. Pyr. 1: 7 (1795); Syn.: *A. majus* subsp. *sempervirens* (Lapeyr.) Malag.; *A. molle* St.-Amans; *Orontium sempervirens* Pers.; Hautes-Pyrénées (Miers du cimetiere de Gedre), Sept. 1852; leg. Huet du Pavillon – Plantes des Pyrénées.

Gen. *Linaria* P. Miller, 1754

Linaria supina Desf. – (n. 8233/fsc. 27, p. 11/b) Ref.: Flora Atlantica 2: 44. 1798; Syn.: *L. supina* (L.) Chaz; *L. pyrenaica* DC; Pyrénées (Protr de Molls), no date, no signature.

Subfam. *Digitalidoideae* (Augier, 1801 ex Martinov, 1820) Luer., 1882

Trib. *Veroniceae*

Gen. *Veronica* C. Linnaeus, 1753

Veronica acinifolia L. var. *ciliata* mihi – (n. 8233/fsc. 27, p. 2/a) Ref.: Sp. Pl. ed. 2 19 (1762); Croatia (in Krentz), May 1855; Ex herb. Lud. Farkas-Vukotinovic – Flora Croatica.

Veronica agrestis L. – (n. 8233/fsc. 27, p. 13/a) Ref.: Sp. Pl. ed. 1 13 (1753); Syn.: *Cardia agrestis* (L.) Dulac; *Cochlidiosperma agreste* (L.) Opiz; *Pocilla agrestis* (L.) Fourr.; Romania, Bihor, Oradea (Grossvardein/Grvardein), March 7, 1860, leg. A. Steffek – Flora Hungar.

Veronica alpina L. var. *integrifolia* – (n. 8233/fsc. 27, p. 4/b) Ref.: Sp. Pl. ed. 1 11 (1753); Syn.: *V. alpina* L. subsp. *alpina*; *V. integrifolia* Schrank; Romania, Transsylvania, Rodna, no date, leg. Porcius.

Veronica anagallis-aquatica L. – (n. 8233/fsc. 27, p. 15/a) Ref.: Sp. Pl. ed. 1 12 (1753); Syn.: *V. anagallis* auct; *V. aquatica* L.; Belgium, Vallonia, Namur, Marche les Dames, March 1863; Ex herb. Armand Thielens, D. S. N., Tirlemont (Belgium).

Veronica austriaca L. – (n. 8233/fsc. 27, p. 6/a) Ref.: Syst. Nat. ed. 10 2: 849 (1759); Syn.: *V. dentata* F. W. Schmidt; *V. maxima* Mill; no location, no date, leg. Schniler.

Veronica chamaedrys L. – (n. 8233/fsc. 27, p. 6/b) Ref.: Sp. Pl. ed. 1 13 (1753); Syn.: *Cardia ciliata* Dulac; *V. bibarbata* Stokes; *V. chamaedrya* St.-Lag; *Veronicella chamaedrys* Fourr.; no location, no date, leg. illegible.

Veronica hederifolia L. – (n. 8233/fsc. 27, p. 17/c) Ref.: Sp. Pl. 1: 13-14 13 1753; Syn.: *V. sublobata* M. A. Fisch; Romania, Bihor, Oradea (inbavall in Grossvardein), March 27, 1863, leg. Steffek.

Veronica longifolia L. – (n. 8233/fsc. 27, p. 4/a) Ref.: Sp. Pl. ed. 1 10 (1753); Syn.: *V. septentrionalis* Boriss; *V. transilvanica* Schur; Romania, Transsylvania, Năsăud, no date, leg. Porcius.

Veronica montana L. – (n. 8233/fsc. 27, p. 13/c) Ref.: Cent. Pl. 1: 3 (1755); Belgium, Vallonia, Liege, Spa, June 1862; Ex herb. Armand Thielens, D. S. N., Tirlemont (Belgium) – obs.: degraded specimen and possibly erroneous identification.

Veronica nivalis Schur. – (n. 8233/fsc. 27, p. 15/c) Ref.: Verh. Mitth. Siebenbürg. Vereins Naturwiss. Hermannstadt 4: 55 1853; Romania, Transsylvania, Rodna, August 1858, leg. Czetz.

Veronica praecox All. – (n. 8233/fsc. 27, p. 15/b) Ref.: Auct. Fl. Pedem. 5 (1789); Syn.: *Cardia praecox* (All.) Dulac; *Cochlidiosperma praecox* (All.) Opiz; *Omphalospora praecox* (All.) Fourr.; Belgium, Vallonia, Obourg call. Martinis, June 1863; Ex herb. Armand Thielens, D. S. N., Tirlemont (Belgium).

Veronica prostrata L. – (n. 8233/fsc. 27, p. 17/b) Ref.: Sp. Pl. ed. 2 22 1762; Syn.: *Cardia prostrata* Dulac; *V. prostrata* subsp. *prostrata*; no locality, no date, no signature.

Veronica regabunga – (n. 8233/fsc. 27, p. 17/a) no locality, no date, no signature.

Subfam. *Globularioideae* (DC., in Lamarck & A. P. de Candolle, 1805) Luer., 1882

Gen. *Globularia* C. Linnaeus, 1753

Globularia nudicaulis L. – (n. 8233/fsc. 12, p. 16/a) Ref.: Sp. Pl. ed. 1 97 (1753); Syn.: *G. alpina* Salisb.; unidentified location, May 9, 1862, leg. Oberlaitner – (stamp on label: Botanischer Tauschverein in Wien).

Globularia vulgaris L. – (n. 8233/fsc. 12, p. 16/b) Ref.: Sp. Pl. ed. 1 96 (1753); Syn.: *G. bisnagarica* L; Belgium, unidentified location, June 1862, Ex Herb.: Armand Thielens, D. S. N. Tirlemont (Belgium).

Fam. *Verbenaceae* Jaume Saint-Hilaire, 1805, nom. cons.

Trib. *Verbeneae*

Gen. *Verbena* C. Linnaeus, 1753

Verbena supina L. – (n. 8233/fsc. 27, p. 15/d) Ref.: Sp. Pl. ed. 1 21 (1753); Syn: *Heliotropium deserti* Vatke; *V. procumbens* Forssk.; *V. radicans* Moench; unidentified locality (Kis uj onallcas), no date, leg. Janka.

Ord. Gentianales Lindley, 1833

Fam. *Rubiaceae* A. L. de Jussieu, 1789, nom. cons.

Subfam. Rubioideae

Trib. Rubieae

Gen. *Callipeltis* C. Steven, 1829

Callipeltis cucullaris (L.) Rothm. – (n. 8233/fsc. 29, p. 15/d) Ref.: Feddes Repert. 50: 72 (1941); Syn: *Callipeltis cucullaria* DC; Spain, Siera da Godor, no date, leg. Bourgeau – Costa.

“*campanulids*”

Order Apiales Nakai, 1930

Fam. Umbelliferae A. L. de Jussieu, 1789, nom. cons., nom. alt.

Subfam. Apioideae

Gen. *Pachypleurum* Ledebour, Fl. Altaic. 1: 296. 1829.

Pachypleurum alpinum Ledeb. – (n. 8233/fsc. 27, p. 8/b) Ref.: Fl. Altaic. 1: 297 297 1829; Syn.: *Ligusticum mutellinoides* (Crantz) Vill; *Neogaya simplex* (L.) Meisn; Austria, Vienna, August 15, 1857, leg. J. Juratzka.

Trib. Apieae Takht. ex V. M. Vinogr., 2004

Gen. *Bupleurum* C. Linnaeus, 1753

Bupleurum angulosum L. – (n. 8233/fsc. 29, p. 10/a) Ref.: Sp. Pl. ed. 1 236 (1753); Syn.: *B. pyrenaicum* Willd.; *B. pyrenaicum* Gouan; *Tenoria pyrenaea* Spreng.; France, Languedoc-Roussillon, Pyrénées (Esquiersy), no date, no signature (leg. possibly Huet du Pavillon).

Bupleurum caricinum Rchb. – (n. 8233/fsc. 29, p. 10/b) Ref.: Iconogr. Bot. Pl. Crit. 9: f. 1109 1831; Syn.: *B. ranunculoides* L; *B. ranunculiformis* St.-Lag.; *B. ranunculoideum* St.-Lag.; *Selinum rauunculoides* E. H. L. Krause; *Tenoria caricifolia* Bubani; France, Languedoc-Roussillon, Pyrénées Orientales, Entrée de la Valles d'Eynes, August 20, 1852, leg. Huet du Pavillon – Plantes des Pyrénées.

Trib. *Caucalideae* Spreng., in J.J. Roemer & J.A. Schultes, 1820
Gen. *Caucalis* C. Linnaeus, 1753

Caucalis muricata Bisch – (n. 8233/fsc. 29, p. 13.) Ref.: Sp. Pl.: 241 (1753); Syn.: *C. platycarpus* L; *C. platycarpus* subsp. *muricata* Holub; *C. platycarpus* var. *muricata* (Bisch. ex Celak.) V. N. Tikhom.; *C. lappula* Grande; Austria, Vienna, July 8, 1855, leg. J. Juratzka.

Trib. *Peucedaneae* (W. D. J. Koch, 1824) Dumort., 1827
Gen. *Peucedanum* C. Linnaeus, 1753

Peucedanum carvifolia Vill. – (n. 8233/fsc. 10, p. 4/a) Ref.: Prosp. Pl. Dauph. 25 (1779); Syn.: *P. chabraei* (Jacq.) Rchb; *P. podolicum* (Besser) Eichw; Austria, Vienna, July 20, 1858, leg. J. Juratzka (obs.: degraded specimen).

Trib. *Scandiceae*

Gen. *Anthriscus* Persoon, 1805, nom. cons.

Anthriscus caucalis M. Bieb. – (n. 8233/fsc. 27, p. 8/a) Syn.: *A. vulgaris* Pers., non Bernh; *A. scandicina* Mansf; *Cerefolium anthriscus* (L.) Beck; *Chaerophyllum anthriscus* (L.) Crantz; Romania, Banat, June-July, leg. Heuffel.

Trib. *Tordylieae*

Gen. *Tordylium* C. Linnaeus, 1753

Tordylium maximum L. – (n. 8233/fsc. 10, p. 5/a) Ref.: Sp. Pl. ed. 1 240 (1753); Romania, Bihor, Oradea (Grosswardein), 1870, leg. Steffek.

Subfam. *Saniculoideae*

Trib. *Saniculeae*

Gen. *Astrantia* C. Linnaeus, 1753

Astrantia carniolica Jacq. – (n. 8233/fsc. 10, p. 4/b) Ref.: Fl. Austr. 5: 31 (1778); Slovenia, Recca Rauna in Idria, no date, leg. illegible

Ord. *Asterales* Link, 1829

Fam. *Campanulaceae* A. L. de Jussieu, 1789, nom. cons.

Subfam. *Campanuloideae*

Trib. *Campanuleae* Dumort., 1827

Gen. *Campanula* C. Linnaeus, 1753

Campanula cenisia L. – (n. 8233/fsc. 23, p. 6/a) Ref.: Sp. Pl. ed. 2 1669 (1763); Syn.: *Campanula rosulata* Vuk.; Switzerland, Uri, unidentified locality, Sept. 1854, leg. Christ. Notar.

Campanula eliptica Kit. – (n. 8233/fsc. 12, p. 15/c) Syn.: *C. elipitica* Kit.; Croatia, unidentified location, no date, no signature; Ex herb. Dr. Jos. Calas. Schlosser – Flora Croatica.

Campanula nicaeensis Roem. & Schult. – (n. 8233/fsc. 12, p. 17/a) Ref.: Systema Vegetabilium 5: 126. 1819 (Dec 1819); France, Nice, no date, no signature - Herbarium I. et R. Musaeii Florentinii.

Campanula longifolia Schloss. & Vuk. – (n. 8233/fsc. 12, p. 17/b) Ref.: Syll. Fl. Croat. 72. 1857; unidentified location, no date; Ex Herb. Dr. Jos. Calas. Schlosser – (Flora Croatica).

Campanula rhomboidalis L. – (n. 8233/fsc. 23, p. 5/b) Ref.: Sp. Pl. ed. 1 165 (1753); Syn.: *C. rubra* auct.; *C. songeonii* Chabert; *C. venosa* Willd.; unidentified location (in Grindnbswald?), 1856, leg. illegible.

Trib. *Phyteumateae* Dumort., 1827Gen. *Phyteuma* C. Linnaeus, 1753

Phyteuma ovatum Honck. – (n. 8233/fsc. 23, p. 5/a) Ref.: Vollst. Syst. Verz. 1: 653 (1782); Romania, Bistrița-Năsăud, Rodna (in Rodnenfibund Transilvanie), July-August 1856, leg. Czetz.

Trib. *Wahlenbergieae*Gen. *Wahlenbergia* H.A. Schrader ex A. W. Roth, 1821, nom. cons.

Wahlenbergia gracilis (G. Forst.) A. DC. – (n. 8233/fsc. 12, p. 15/a) Ref.: Monogr. Campan. 142 1830; Syn.: *C. gracilis* G. Forst; *Wahlenbergia marginata* (Thunb) A. DC; Switzerland, Freiburg, no date, leg. Dr. Lagge.

Family *Compositae* Giseke, 1792, nom. cons., nom. alt.Subfamily *Asteroideae*Tribe *Anthemideae* Cass., 1819Subtribe *Achilleinae* K. Bremer & Humphries, 1993

Gen. *Achillea* C. Linnaeus, 1753

Achillea macrophylla L. – (n. 8233/fsc. 13, p. 15/b) Ref.: Sp. Pl. ed. 1 898 (1753); Syn.: *Ptarmica macrophylla* (L.) DC; Austria, unidentified location, no date, no signature – Ex C. Birnbacher Herbario.

Achillea millefolium L. – (n. 8233/fsc. 13, p. 15/c) Ref.: Sp. Pl. ed. 1 899 (1753); Syn.: *Chamaemelum millefolium* (L.) E. H. L. Krause; Hungary, Vas, Szombathely (Nagy Szombathely), July 18, 1856, leg. Dr. Krzisch. - Ex Florae Hungariae.

Achillea millefolium var. *setacea* (Waldst. & Kit.) W. D. J. Koch – (n. 8233/fsc. 13, p. 14/b) Ref.: Fl. Germ. et Helv. (2): 373. 1837; Austria, Vienna (Liminoull juispsum St. Mart indum Belvederi), June 27, 1854, leg. J. Juratzka.

Achillea nobilis L. – (n. 8233/fsc. 13, p. 15/a) Ref.: Sp. Pl. ed. 1 899 (1753); Syn.: *Chamaemelum achilleum* E. H. L. Krause; Crape Dlha, July 18, 1856, leg. Dr. Krzisch, Ex Florae Hungariae.

Achillea odorata L. – (n. 8233/fsc. 13, p. 16/a) Ref.: Syst. Nat. ed. 10 2: 1225 (1759); Syn.: *A. microphylla* Willd; *A. odorata* var. *microphylla* (Willd) Willk; *A. odorata* ssp. *pectinata* (Lam.) Briq; unidentified location, no date, comm. M. Tommasini.

Subtrib. *Artemisiinae* Less., 1830Gen. *Artemisia* C. Linnaeus, 1753

Artemisia laciniata Willd. – (n. 8233/fsc. 13, p. 7/a) Ref.: Sp. Pl. 3: 1843 (1803); Syn.: *A. laciniatiformis* Kom.; unidentified location, Sept. 15, 1855, leg. Adolf Engler.

Artemisia rupestris L. – (n. 8233/fsc. 13, p. 8.) Ref.: Sp. Pl. 2: 847 1753; unidentified location, 1855, leg. (c. Banse).

Subtrib. *Chrysantheminae* (Cassini, in F. Cuvier, 1823 ex Lindl., in Loudon, 1829) Less., 1830

Gen. *Chrysanthemum* C. Linnaeus, 1753

Chrysanthemum alpinum L. – (n. 8233/fsc. 13, p. 18/b) Ref.: Sp. pl. 2:889. 1753; Syn.: *Leucanthemopsis alpina* (L.) Heywood subsp. *alpine*; *Leucanthemum alpinum* (L.) Lam; *Tanacetum alpinum* (L.) Sch. Bip. subsp. *alpinum*; Slovakia, Tatra Mountains, Bodice, Sept. 6, 1858, leg. illegible (obs.: degraded specimen).

Subtrib. *Tanacetinae*Gen. *Tanacetum* C. Linnaeus, 1753

Tanacetum vulgare L. – (n. 8233/fsc. 13, p. 16/b) Ref.: Sp. Pl. ed. 1 844 (1753); Syn.: *Chrysanthemum tanacetum* Karsch, non Vis; *C. vulgare* (L.) Bernh., non (Lam.) Gaterau; *Pyrethrum vulgare* (L.) Boiss; Austria, Vienna, Aug. 1857, leg. J. Juratzka.

Trib. *Astereae* Cass., 1819Subtrib. *Asterinae* Dumort., 1827Gen. *Aster* C. Linnaeus, 1753

Aster tripolium L. – (n. 8233/fsc. 13, p. 6/b) Ref.: Sp. Pl. ed. 1 872 (1753); Syn.: *Tripolium vulgare* Nees; Germany, Brandenburg Flora, unidentified location, September 10, 1858, no signature – Ex herbario Schrammii.

Trib. *Gnaphalieae* Lecoq & Juill., 1831Subtrib. *Gnaphaliinae* Dumort., 1829Gen. *Filago* C. Linnaeus, 1753

Filago pyramidata L. – (n. 8233/fsc. 13, p. 13/b) Ref.: Sp. Pl. ed. 1 1199 [1230] (1753); Syn.: *F. spathulata* C. Presl; *Gifola spathulata* (C. Presl) Rchb; Italy, Friuli-Venezia Giulia, Triest (bei Triest), no date, leg. Pivoll.

Gen. *Micropus* C. Linnaeus, 1753

Micropus erectus L. – (n. 8233/fsc. 13, p. 18/a.) Ref. Sp. Pl. 2: addenda, 1230 (1753); Syn.: *Bombycilaena erecta* (L.) Smoljan; *M. erectus* L. subsp. *erectus*; France, Alpes-Maritimes, Provence-Alpes-Cote d'Azur, Villefranche-sur-Mer, July 1859, leg. Huet du Pavillon, Pyrénées Orientales.

Trib. *Heliantheae* Cass., 1819Subtrib. *Coreopsidinae* Dumort., 1829Gen. *Bidens* C. Linnaeus, 1753

Bidens cernua L. – (n. 8233/fsc. 13, p. 10/a) Ref.: Sp. Pl. ed. 1 832 (1753); Syn.: *B. cusickii* Greene; *B. dentata* (Nutt.) Wiegand; *B. elliptica* (Wiegand) Gleason; Czech Republic, Namiest, September 7, 1855, leg. Roemer - Namiest.

Trib. *Inuleae* Cass., 1819Gen. *Inula* C. Linnaeus, 1753

Inula ensifolia L. – (n. 8233/fsc. 13, p. 11/b) Ref.: Sp. Pl. ed. 1 883 (1753); Syn.: *Aster ensifolius* Scop.; Austria, Vienna, July 28, 1854, leg. J. Juratzka.

Inula germanica L. – (n. 8233/fsc. 13, p. 9.) Ref.: Sp. Pl. ed. 1 883 (1753); Syn.: *Aster germanicus* (L.) Cav.; *Inula media* W. D. J. Koch; Germany, Erfurt, August 5, 1847, leg. Schrammii – Brandenburg Flora.

Inula spiraeifolia L. – (n. 8233/fsc. 13, p. 6/a) – Ref.: Syst. Nat. ed. 10 2: 1219 (1759); Syn.: *I. squarrosa* L.; Italy, Trentino-Alto Adige/Südtirol, Riva del Garda (Prope Riva), no date, no signature; stamp: Herbarium Petri Portae.

Gen. *Pulicaria* J. Gaertner, 1791

Pulicaria dysenterica (L.) Bernh. – (n. 8233/fsc. 13, p. 12/b) Ref.: Syst. Verz. Erfurt 153 (1800); Syn.: *P. uliginosa* Steven ex DC., non Gray; Italy, Friuli-Venezia Giulia, Valle di Zaule (bei Zaule), Aug. 20, 1857, no signature.

Trib. *Senecioneae*

Subtrib. *Senecioninae* Dumort., 1827

Gen. *Senecio* C. Linnaeus, 1753

Senecio crucifolius L. – (n. 8233/fsc. 13, p. 10/b); Germany, Brandenburg Flora, unidentified location, Sept. 7, 1858, no signature – Ex herbario Schrammii.

Senecio pyrenaicus L. – (n. 8233/fsc. 13, p. 18/d) Ref.: Iter Hisp. 304 (1758); Syn.: *S. tournefortii* Lapeyr.; *S. tournefortii* Lapeyr. subsp. *tournefortii*; *S. tournefortii* Lapeyr. subsp. *tournefortii* var. *tournefortii*; France, Pyrénées (Esquicroi), no date, leg. Huet du Pavillon.

Subfam. *Carduoideae*

Trib. *Cardueae* Cass., 1819, nom. corr.

Subtrib. *Carduinae* Dumort., 1827

Gen. *Jurinea* Cassini, 1821

Jurinea cyanooides (L.) Rchb. – (n. 8233/fsc. 13, p. 11/a) Ref.: "Rchb., Fl. Germ. Excurs. 1831." 290 1831; Prod. 6: 676 (1838); Syn.: *Carduus cyanooides* L.; *Cirsium cyanooides* Hill; Germany, Brandenburg Flora, unidentified location, Febr. 11, 1858, no signature – Ex herbario Schrammii.

Subfam. *Cichorioideae*

Trib. *Lactuceae* Cass., 1819

Subtrib. *Crepidinae* Dumort., 1827
Gen. *Crepis* C. Linnaeus, 1753

Crepis foetida subsp. *rheadifolia* (M. Bieb) Čelak. – (n. 8233/fsc. 13, p. 12/a) Ref.: Prodr. Fl. Böhmen 190, 785 - 1871; Syn.: *Barkhausia rheadifolia* (M. Bieb) Rchb.; *B. rheadifolia* M. Bieb.; *Crepis rheadifolia* M. Bieb.; *Anisoderis rheadifolia* (M. Bieb) Fisch. & C. A. Mey.; Italy, Friuli-Venezia Giulia, Triest, no date, leg. Pivoll.

Crepis paludosa (L.) Moench - (n. 8233/fsc. 13, p. 17/b) Ref.: Sp. Pl. 535 1794; Syn.: *Geracium paludosum* Rchb; Germany, Sachsen-Anhalt, Dessau-Wörlitzer Gartenreich (In pratis uliginosis ad S. Georgium), June 1, 1856, leg. Bolla.

Crepis setosa Haller f. – (n. 8233/fsc. 13, p. 14/a) Ref.: Arch. Bot. (Roemer) 1(2): 1 (1797); Syn.: *C. hispida* Waldst. & Kit; Romania, Transsylvania, no date, com. Steffek.

Subtrib. *Hypochaeridinae* Less., 1832
Gen. *Hypochaeris* C. Linnaeus, 1753

Hypochaeris helvetica Wulfen – (n. 8233/fsc. 13, p. 16/c) – Ref.: in Jacq. Misc. ii. 25. ii. 25; Syn.: *Achyrophorus helveticus* Less.; Slovakia, Mt. Tatra, Bodice (Bodicer Spitz in der Slichen Tatra), Sept. 6, 1858, leg. illegible.

Subtrib. *Lactucinae* Dumort., 1827
Gen. *Lactuca* C. Linnaeus, 1753

Lactuca serriola L. – (n. 8233/fsc. 13, p. 17/a) Ref.: Cent. Pl. 2: 29 (1756); Syn.: *L. dubia* Jord; *L. scariola* L.; *L. sylvestris* Lam.; Switzerland, Canton Geneva, no date, leg. Dr. Lagger.

Subtrib. *Sonchinae* Rouy, 1927
Gen. *Sonchus* C. Linnaeus, 1753

Sonchus arvensis L. – (n. 8233/fsc. 13, p. 13/a) Ref.: Sp. Pl. ed. 1 793 (1753); Syn.: *S. vulgaris* Rouy; *S. vulgaris* Rouy subsp. *vulgaris*; Italy, Friuli-Venezia Giulia, Triest (propre Tergestum), no date, leg. Pivoll.

Conclusions (Part III)

This third part of the publication on Th. Schreiber's herbarium continues the evaluation of the floristic material it contains, this time focusing on the content

of the first box where, similar to the third box (presented in Part II - Danciu & Golban, 2014), there are sheets with botanized plants arranged in numbered bundles, and their numbering continues the presentation of the second part of this herbarium (which ended at bundle no. IX), starting with bundles nos. 10, 11, 12, 13 and 14, and followed by the bundles numbered 21, 22, 23, 24, 25, 26, 27, 28, and 29, summing up 14 bundles (see Charts 1 & 2). Regarding the numbering of bundles, respectively its ordering, this time we deal with the original numbering, using Arabic numerals, as compared to the numbering of the previous bundles (in Part II) which used Latin numerals (written in pencil from I to IX), representing a numbering remade in order to rearrange in their initial order the bundles which have lost their title page, using the original Arabic numeral (a numbering which eventually remained uncompleted, leaving four unnumbered bundles).

Without reiterating the details regarding the origin of this herbarium and the still unclarified identity of its owner, as some of them were already presented (Danciu & Golban, 2013, 2014), yet we do mention that it hypothetically was in the possession of Th. Schreiber, a former fourth grade student of the then Gymnasium of the Premonstratensian Monastery in Oradea (then High School No. 4 and today's "Mihai Eminescu" National College in Oradea), the bundles being arranged in January 1866. It is its very oldness that determined the representatives of the museum (Tiberiu Jurcsák and Toma Béczy), the specialists who identified it, to take it over in 1955 considering that the best place for the botanized flora samples discovered at the former High School no. 4 should be in the botanical collection of the Natural Sciences Department of the Țării Crișurilor Museum. There have been references to this acquisition and mentions of this herbarium over time, which showed both its oldness (it dates from the second half of the 19th century) and the celebrity at the time of some of its collectors, but also possible errors regarding the identification of the plants or the preservation condition of the botanized material, as well as some annotations found on the labels (Marossy A., 1973).

Similar to the previous parts, following the presentation of the taxonomic situation and the details inferred by the labels indicating the taxon, date and location, where identified, as well as the name of the collector, we find that the collection area covered almost the entire Europe, that is, countries in its West (Spain, France, Belgium), in the North (Finland, Sweden, Germany, Poland), in Central Europe (Switzerland, Austria, the Czech Republic, Slovakia, Hungary, Romania, Serbia), in the East (Russia, Ukraine), and the South (Greece, Croatia, Slovenia, Italy). The way the herbarium is arranged in bundles is identical to that presented in Part II, this time being 14 bundles, which consist of herbarium sheets with 441 species.

The flora material collected also represents various areas, the data on labels sometimes displaying geographical aspects (Plantes des Pyrénées, Pyrénées Orientales, Pyrénées Centrales, Pyrénées australis, Alpes-Maritimes, Alpes pedemont, Karpaten), other times national characters (Flora Croatica, Flora Illyricae, Flora Hungarica, Flora Galiziens, Flora von Tyrol, Brandenburg Flora); among the identified collectors there are names of a certain fame at that time, being specialized for certain areas. As in previously presented cases, we are positive that there are still locations whose names were not accessible or not mentioned, and difficulties of this kind were encountered also when trying to identify the authors (see Annex 2). Thus, in the bundles in the first box, we came across a number of collectors, famous in those days, such as:

- in Spain, we found Antonio Cipriano Costa y Cuxart (1817-1886), author of a paper on the flora of Catalonia (Costa, 1864) and Pedro del Campo (1852- ?), a botanical collector in the province of Granada.

- in France, there are important collectors such as F. G. Alioth (1819-1878), a French physician and Swiss naturalist, botanical collector in central-western Europe; Eugene Bourgeau (1813-1877), born in Haute-Savoie, France, who as a young man worked at the Botanical Gardens in Lyon and later became a collector from various areas in France, Spain, Italy, Northern Africa, and Canada; Joseph Delbos (1824-1882), a former professor of mineralogy at the Faculty of Sciences in Nancy, author of a study on the distribution of plants in the department of Gironde (France); Alfred Huet de Pavillon (1829-1907), a French botanist, brother of Eduard Huet de Pavillon, himself a botanist, too, and with whom he worked, was the author of a study on the flora of the Pyrénées; Auguste Huguenin (1780-1860), a professor of natural history in Chambéry, Savoie, botanical collector in that part of France, but also in Switzerland and Italy; A. Fr. Le Jolis (1823-1904), a merchant, judge and botanist, founding member of the National Society of Natural Sciences and Mathematics in Cherbourg; Pierre Marie Alexis Millardet (1838-1902), a French botanist, professor of botany at the universities of Strasbourg, Nancy and Bordeaux, the creator of the fungicide called „bordelese sap”; Édouard Timbal-Lagrave (1819-1888), a French pharmacist and botanist specializing in the study of the flora of the Pyrénées, author of a herbarium housed at the Natural History Museum in Toulouse.

-in Belgium there is again the name of Armand Thielens (1833-1878), the owner of a herbarium which helped him with his study on the medical flora of Belgium (Thielens, 1862).

- in Italy there are several names with a certain fame in the field of botany, of which we mention Antonio Bertoloni (1775-1869), a physician and botanist,

head of the chair of botany at the University of Bologna; Mutius von Tommasini (1794-1879), an Italian botanist, civil servant in the Istria County and mayor of Trieste, collector of the flora of the region (northern Italy, Croatia); Vincenzo de Cesati (1806-1883), born in Milan, former manager of the Botanical Gardens of Naples, whose botanical collections are preserved at the University of Rome; Felippo Parlatore (1816-1877), a Sicilian botanist and physician, born in Palermo, author of the first study on the flora of Sicily and of many other works on botanical topics, who, after travelling throughout Italy, Switzerland, France, and Scandinavia, became professor of botany at the Museum of Natural Sciences and manager of the Botanical Gardens in Florence; Agostino Todaro (1818-1892), a botanist born in Palermo, where he has spent all his life, becoming professor of botany and manager of the local Botanical Gardens; Giulio Andrea Pirona (1822-1895), a botanist and naturalist, school teacher and preserver at the Civic Museum in Udine, later president of the Venetian Institute of Sciences, Literature and Arts; Pietro Porta (1832-1923), a priest known as „the botanist of Valvestino”, who kept in touch with many botanists of the time such as Franz Hausmann, better known as the author of a study on the flora of Tyrol and who, together with his friends Roperto Huter (1834-1919) and Gregorio Rigo (1841-1922), collected and studied the flora of South Tyrol and other regions.

- in Switzerland, among the more important names we mention Franz Josef Lager (1802-1870), a Swiss botanist and botanical collector in several European countries besides Switzerland (such as Germany, Austria, France, Italy); Heinrich Zollinger (1818-1859), a Swiss botanist, yet famous for his expedition in the Dutch Indies, leaving major collections, besides the one in Switzerland (in Solothurn), in the Herbarium in Paris and in the Dutch National Herbarium (the universities of Leiden and Utrecht). Other names of botanical collectors to be mentioned here are Christian Christener (1810-1872), F. C. Rechsteiner and Christ. Notar.

- in northern Europe, in countries like Germany, Sweden and Norway, we find names of herbalists such as Adolf Engler (1844 -1930), a professor of botany and manager of the Botanical Gardens Wrocław and Berlin; Ernst Boll (1817-1868), a German naturalist, author of the Mecklenburg flora; J. N. Buek (1736-1812), a German pharmacist and herbalist, specialized in the region of Frankfurt upon Oder, author of the study “Flora Francofurtana”; Otto W. Sonder (1812-1881), born in Hamburg, author of a study on the local flora (Flora Hamburgensis), and co-author (together with W. H. Harvey) of a study on the flora of some colonial territories in South Africa (Flora Capensis - 7 volumes); G. Griewank (1828-1895), a botanical collector in the northern regions of Germany; Hermann Karsten (1817-1908), a German botanist and taxonomist, former professor at the agricultural college in

Berlin and the University of Vienna; F. A. Kornicke (1828-1908), a well-known and appreciated botanist, founder of the „Prussian Botanical Club” whose mission was to promote knowledge of the flora of East Prussia and Pomerania; C. B. Lehmann (1811-1875), a German pharmacist and botanist for the Magdeburg region, but also for areas in Switzerland, Upper Italy, Trieste, Vienna, and Prague; Heinrich Moritz Willkomm (1821-1895), a German physician and herbalist who collected plants in Germany, Spain and Portugal; C. F. H. Wimmer (1803-1868), a German botanist, author of studies on the flora of Silesia; and the collector Baron Nicomed Rastern.

- in Sweden and Norway we came across the name of Carl Hartman (1824-1884), a Swedish botanist, author of a study on Scandinavian flora, who had a fruitful cooperation with the Italian botanist F. Parlatore with regard to the botanical research of the Scandinavian region;

- in central Europe, on the today territories of Slovakia, Austria, Hungary, Slovenia, Croatia, Serbia, Romania (Transylvania and Banat) and Western Ukraine (Galicia), back when they were part of the Austro-Hungarian Empire, there are the names of the following botanists: A. Makowsky (1833-1908), Wilhelm Siegmund (1821-1897), and J. F. Knaf (1801-1865) in the Czech Republic; Johann Bolla (1806-1881), a well-known botanist and entomologist of Serbian origin, and Wilhelm August Schneller (1807-1886), an officer and amateur botanist, collector in the area of Bratislava, but also in Serbia (Vojvodina) and Slovakia. In Hungary we can mention F. A. Hazslinszky von Hazslin (1818-1896), a German native from Slovakia, botanical collector for areas in both Hungary and Slovakia, Lajos Ludwig Richter (1844-1917), a liberal collector who worked in Budapest, collector of plants from an extended area (in Hungary, Slovakia, Switzerland, Romania, Iran and Algeria), author of a huge herbarium, and also Jermy Gusztav (1833-1900), and J. F. Krzisch (1812-1875). In Austria we find the names of Jacob Juratzka (1821-1878), a botanist mainly interested in Northern Austria, Victor Janka (1837-1890), officer and botanist, curator of the department of botany at the National Museum in Budapest, Dominik Bilimek (1813-1884), minister and professor of natural history for the military academies of the Austrian Empire, Franz Hausmann (1810-1878), author of a famous work on the “Flora of Tyrol”, Georg von Frauenfeld (1807-1873), a naturalist involved in the development of the Natural History Museum in Vienna, as well as J. N. Bayer (1802-1870), Carl Birnbacher, Josef Braunstingel, A. Grabmayr, H. Haslinger, and C. von Hepperger. In Croatia it is worth mentioning the name of Liudjevit Farkas Vukotinovic (1813-1893), a politician and herbalist, author of the herbarium *Flora Regni Croatiae*. For the Romanian territories of Transylvania and Banat, then included in the Austro-Hungarian Empire, among

the botanical collectors (several of them already mentioned in the previous parts) there are Florian Porcius (1816-1906) and Antal Czetetz (1801-1865), for the Bistrița-Năsăud region, Julius (Gyula) Wolff (1844-1921), for the Cluj–Turda area, Adolf Steffek (1834-?), for the area of Bihor–Oradea, Ferdinand Schur (1799-1878), Alexis von Pavai (1820-1874), Lajos Haynald (1816-1891), for the regions in Central Transylvania, Janos A. Heuffel (1800-1857), and W. Wolfner for the region of Banat. For the area of western Ukraine we find the name of Ernst Kloeber.

- in Eastern Europe, on the territories of Russia and Ukraine, we find the names of Christian von Steven (1781-1863), a Finnish botanist who travelled south in the European Russia, settled in Crimea where he founded the famous Botanical Gardens of Nikitski, and A. K. Becker (1818-1901), a German botanist who travelled along the Volga, describing many endemic species of the Russian flora. We can also mention here the names of Howitzs (in Transcaucasia) and Cserniaew (Cerniaev).

- for the southern-eastern European area, including Greece and several locations in Asia Minor (Anatolia, in Turkey), we mention the name of Karl Georg Theodor Kotschy, an Austrian botanist and explorer who went on field trips to Greece, Cyprus and Asia Minor.

A considerable number of the identified collectors left also studies and notes, many of them on aspects of the flora areas where they obtained their samples, while others related to vegetal morphology or systems, or to the connections between plants and medicine or pharmacology (Bertoloni, 1838, 1858-1862; Buek, 1801, no date; Bayer, 1869; Cesati, 1881; Costa y Cuxart, 1864; Engler & Gilg, 1924; Fronius, 1857-1858; Griewank, 1856; Hausmann, 1851; Hazslinszky, 1866, 1868; Heuffel, 1858 a, b; Huet du Pavillon, 1853; Huguenin, 1851; Huter, Porta & Rigo, 1908; Le Jolis, 1860, 1874; Karsten, 1880–1883, 1886; Kloeber, no date; Kovats, 1844-1850; Janka, 1858; Parlatore, 1838, 1843, 1845; Pirona, 1855; Porcius, 1878, 1885; Porta, 1912; Schur, 1866; Steffek, 1864; Steven, 1856-1857; Thielens, 1862; Timbal-Lagrave, 1854, 1860, 1861, 1872, 1875, 1879, 1886, Todaro, 1858, 1866; Willkomm, 1852, Wimmer, 1832, 1840). Some of them were authors or co-authors of guides, atlases, or botanical works that could have a local, regional or national character, enriching the specialized literature of that time (Cesati, Passerini, Gibelli, 1869-1886; Christener, 1863; Engler & Drude, 1896-1928; Karsten, 1895; Kotschy et al., 1845; Parlatore & Caruel, 1848-1896; Schlosser & Farkas-Vukotinovic, 1869; Steven, 1822, Timbal-Lagrave & Bucquoy, 1881; Timbal-Lagrave, Gautier, Jeanbernat, 1879; Timbal-Lagrave & Jeanbernat, 1876; Timbal-Lagrave & Baillet, 1862, Timbal-Lagrave & Marçais, 1889; Willkomm, 1875, 1873, 1882; Wimmer & Grabowski, 1827-1829; Wimmer, 1866). Others

were referred to in articles, studies or monographs, reflecting the importance of their contribution (Baillet, 1889; Bojor et al., 1989; Bresciani, 1922; Cesati, 1881; Dalla Fior, 1950; Hermann, 1970; Lizoň, 1982); Schneider, 2008.

We present below other references (some of them also mentioned in the previous studies), related to the areas of the flora samples in this herbarium, respectively by authors whose works are considered to be important to complete the material we have here, out of which several were published in the 19th century (the time period when the herbarium was organized) or later, such as: Arcangeli, 1882; Arvet-Touvet, 1888; Arvet-Touvet & Gautier, 1908, 1910; Baillet & Timbal-Lagrange, 1861; Bienick, 1998; Boll, 1860; Ciocârlan, 2000; Coldea, 1990; Crăciun, 1962; Drude, 1887; Eggers, 1860; Engler & Prantl, 1887; Fiori, 1923-1929; Guenther, Grabowski, Wimmer, 1824; Halácsy, 1894; 1896, 1901-1904; Hallier, 1879; Hartman, 1820, 1852; Huber, Wallnofer, Wilhalm, 2012; Jeanbernat, 1873; Jeanbernat & Timbal-Lagrange, 1875; Nyarady, 1950, 1963; Pignatti, 1982; Prodan, 1924, 1948; Prodan & Buia, 1966; Resmeriță, 1975, 1979, 1981; Resmeriță & Rațiu, 1983; Rodet & Baillet, 1872; Simonkai, 1881; Steudel, 1821-1824; Steudel & Hochstetter, 1826; Thellung, 1912.

We can conclude that this study continues the presentation of the period collection of botanized samples contained in the Th. Schreiber Herbarium, namely of the bundles in Box I, numbered from 10 to 14, and from 21 to 29 respectively (see Chart 1-2), with details about the author's identity and the condition of the herbarium which basically remains the same as stated before. Our presentation includes species of the Kingdom Fungi, Phylum Ascomycota (Class Lecanoromycetes) and the Kingdom Plantae, Phylum Tracheophyta, Infraphylum „Moniliformopses” (Class Polypodiopsida), respectively, Infraphylum „Radiatopses” (Class Spermatopsida, Subclass Magnoliidae), representing a number of 441 species, belonging to 187 genera and 22 families.

Appendix 1. Data on the labels of the herbarium sheet regarding several missing species

Species	Taxonomy	Location, data and author
<i>Spiranthes autumnalis</i> Richb. – (n. 8233/fsc. 11, p. 17/b) Ref.: De Orchid. Eur. 37 1817. Syn.: <i>S. spiralis</i> (L.) Chevall.	Asparagales, Orchidaceae, Orchidoideae, Cranichideae, Spiranthinae, Spiranthes	– unidentified location (Pesonsrburg?), Aug. 23, 1857, leg. illegible
<i>Apera spica-venti</i> (L.) P. Beauv. – (n. 8233/fsc. 24, p. 1/b) Ref.: Agrost. 31 & 151 (1812); Syn.: <i>Agrostis spica-venti</i> L.	Poales, Poaceae, Pooideae, Poeae, Poinae, Apera	Austria, Vienna, July 27, 1855, leg. J. Juratzka
<i>Hierochloe alpina</i> (Sw.) Roem. & Schult. – (n. 8233/fsc. 22, p. 16.) Ref.: Syst. Veg. 2: 515 1817; Syn.: <i>Anthoxanthum monticola</i> (Bigelow) Veldkamp	Poales, Gramineae, Pooideae, Poeae, Hierochloe	Lappon, Tornens, Enontekis, 1857, leg. C. Hartman
<i>Festuca</i> sp. – (n. 8233/fsc. 24, p. 4/b)	Poales, Gramineae, Pooideae, Poeae, Festuca	– unidentified location, 1856, no signature - Ex Herbario J. C. Equitis Pittoni a Dannenfeldt
<i>Melilotus procumbens</i> Besser – (n. 8233/fsc. 27, p. 18/a) Ref.: Enum. Pl. 30. 1821; Syn.: <i>Trigonella procumbens</i> (Besser) Rchb.	Fabales, Leguminosae, Papilionoideae, Trifolieae, Melilotus	Romania, Arad, Semlac/Szemlak, no date, leg. Dr. Wolfner
<i>Laburnum alpinum</i> (Mill.) Bercht. & J. Presl – (n. 8233/fsc. 27, p. 1.) Ref.: Rostlinár 3: 99 (1835); Syn.: <i>Cytisus alpinus</i> Mill.	Fabales, Leguminosae, Papilionoideae, Cytiseae, Laburnum	No locality, no date, leg. Richter L.
<i>Primula villosa</i> Wulfen – (n. 8233/fsc. 12, p. 6/b) Ref.: Fl. Austr. 5: 41 (1778); Syn.: <i>P. commutata</i> Schott	Ericales, Primulaceae, Primuloideae, Primuleae, Primula	Austria, Stiria. Herberstein, Solo porphyric. May, leg. J. C. Eques de Pittoni a Dannenfeldt
<i>Soldanella alpina</i> L. – (n. 8233/fsc. 12, p. 12/e.) Ref.: Sp. Pl. ed. 1 144 (1753)	Ericales, Primulaceae, Primuloideae, Primuleae, Soldanella	Austria, Graz, no date, no signature (stamp on label: Botanischer Tauschverein in Wien)

Wulfenia carinthiaca Jacq. – (n. 8233/fsc. 27, p. 2/b) Ref.: Misc. Austr. Bot. 2: 60 (1781)	Lamiales, Plantaginaceae, Digitalidoideae, Veroniceae, Wulfenia	Austria, Carinthia, Kuhwegalpe im Galthale, Kalkbaden, July, comm. Eq. de Pittoni
--	---	--

Appendix 2. Table botanical collectors identified from herbarium Schreiber - Part III

Full Name	Abbreviation	Alternative names	Dates	Countries, provinces, regions
Alioth, Fredrich Sigmund	Alioth	F.S. Alioth	1819-1878	France, Spain, Germany, Italy, Switzerland
Andorfer	Andorfer			Austria (Langenlois)
Bayer, Johann Nepomuk.	J. Bayer	Joh. N. Bayer.	1802-1870	Hungary, Romania
Becker, Alexander K.	A. K. Becker	A. K. Becker	1818-1901	Russia, Ukraine
Bertoloni, Antonio	A.Bertoloni.	Antonio Bertoloni	1775-1869	Italy
Bilimek , Dominik	Bilimek	Dominik Bilimek	1813-1884	Austria
Birnbacher, (Karl) Carl	Birnbacher	C. Birnbacher		Austria (Klagenfurt - Carinthia)
Boll, Jacob	Boll	J. Boll	1828-1880	Austria, Switzerland
Boll, Ernst Friedrich August	Boll	Ernst Boll	1817-1868	Germany
Bolla, Johann	Bolla	Johann Bolla; Ján Bolla	1806-1881	Slovakia
	Bontelou			Spain
B o u r g e a u , Eugène	Bourgeau; Bourg.	M. E. Bourgeau; E. Bourgeau	1813-1877	France, Italy, Spain
Braunstingel, Josef	Braunstingel	J. Braunstingel		Germany, Austria
Buek, Johannes Nicolaus	J. N. Buek	J o h a n n e s Nicolaus Buek	1736-1812	Germany
Campo, Pedro del	Del Campo	P. del Campo	1852?	Spain

Cesati, Vincenzo, Barone de	Cesati;			
Ces.	Vincenzo de Cesati	1806-1883	Italy	
Cerniaev	Cserniaew (Cerniaev)			Russia, Ukraine
	C.Seichtmge			
Costa y Cuxart, Antonio Cipriano	Costa	A. C. Costa y Cuxart	1817-1886	Spain
Christener, Christian	Christener	Christian Christener,	1810-1872	Switzerland
	Christ. Notar			Switzerland
Czetz, Anton (Antal)	Czetz	Anton Czetz, Antal Czetz	1801-1865	Hungary, Romania (Transylvania)
Delbos Joseph	J. Delbos	Joseph Delbos	1824-1882	France
	Eichenfets			Serbia
Engler, Adolf	Adolf Engler	H. G. A. Engler	1844 -1930	Germany
	Eusren			Czech Republic
Frauenfeld, Georg Ritter von	Frauenfeld	Georg von Frauenfeld	1807-1873	Austria, Croatia
Fronius, Franz Friedrich	Fronius	Franz Friedrich Fronius	1829-1886	Romania (Transylvania)
Fuchs, H.	H. Fuchs	H. Fuchs		
Grabmayr, A.	Grabmayer	A. Grabmayr		Austria, Italy
Graf, Rainer	Graf	Rainer Graf	1811-1872	
	Gränenfeld			Croatia
Griewank, Gustav	Griewank	G. Griewank	1828-1895	Germany
	Gubuska (?)			Romania (Maramureş)
Haynald, Cardinal Stefan Franz Ludwig (Lajos)	Haynald	Haynald, Lajos	1816-1891	Hungary, Italy, Romania (Banat – Transylvania)
Hartman, Carl	C. Hartman	Hartman, Carl	1824-1884	Norway, Sweden
Hazlinszky von Hazslin, Friedrich August	Hazlinszky; Hazsl.	F. A. Hazslinszky von Hazslin	1818-1896	Hungary, Slovakia

Hausmann , Franz von Baron	Hausm.	F, Hausmann	1810-1878	Austria, Italy
H. Haslinger	Hasliger			Austria
	Haun.			Italy (Tirol)
Hehsteiner, Fer.	Fer. Hehsteiner			
H e l d r e i c h , Theodor Heirich Herman von	Heldreich; Heldr.	Theodor Heldreich; T. H. H. Heldreich	1822-1902	Germany, Greece
Hepperger, C.V.	Hepperger	C. v. Hepperger		Austria
Heuffel, Johann	Heuffel; Heuff.	Ioan Heuffel, Janos A. Heuffel	1800-1857	Romania (Banat), Hungary, Austria
	Hillarof			
	Hofman			
	Howitsz			(Transcaucasia)
Huet de Pavillon, Alfred	Huet de Pavillon.	A. Huet de Pavillon.	1829-1907	France (Pyrenes)
Huet du Pavillon, Edouard	E. Huet	E. Huet du Pavillon	1819-1908	F r a n c e , Switzerland
Huter, Rupert	Huter	Rupert Huter	1834-1919	Austria, Italy (Ti- rol), Spain
Huguenin, Auguste	Huguenin	A. Huguenin	1780-1860	France (Savoie)
Janka, Victor von	Janka	Victor Janka	1837-1890	Austria, Hungary, Romania (Trans- sylvania)
Jermy, Gusztav	Jermy Gusztav	Jermy G.	1833-1900	Hungary
Le Jolis, Auguste Francois	Le Jolis	A. Fr. Le Jolis,	1823-1904	France, Belgium, Austria
Juratzka, Jakob (Jacob)	J. Juratzka	Jacob Juratzka	1821-1878	Austria, Hungary, Romania (Trans- sylvania)
Karsten, Her- mann	Kastren	G. K. W. Hermann Karsten	1817-1908	Germany
Karsten, Hermann	Kastren	G. K. W. H e r m a n n Karsten	1817-1908	Germany

Kloeber, Ernst	Kloeber	Ernst Kloeber		Poland, Ukraine (Galizia)
	Kolchbreuer			Hungary
	Kaldchenaes			
Kornicke, Friedrich August	Kornicke Korn.	F. A. Kornicke	1828-1908	Germany
Kotschy, Karl Georg Theodor	Kotschy	K. G. T. Kotschy	1813-1866	Greece, Syria, Turkey (Anatolia)
Kovats von Szent-Lelek, Julius	J. v. Kovats	Gyula Kovats Julius Kovatss	1815-1873	Hungary, Austria
Knaf, Joseph (Josef) Friedrich	Dr. Knaf	Knaf J. F.	1801-1865	Czech Republic
Krzisch, Josef Friedrich	Dr. Krzisch.	J. F. Krzisch	1812-1875	Hungary, Romania (Transsylvania)
Lagger, Franz Josef	Dr. Lagger	F.-J. Lagger	1802-1870	Switzerland, France,
Lanz	Lanz		1868	Hungary
Lehmann, C.B.	Lehmann	C.B. Lehmann	1811-1875	Germany
Leithner, Joseph, Baron von	J. Leithner	Baron von Leithner	1809-?	Austria, Hungary
Makowsky, Alexander	Makowsky	A. Makowsky	1833-1908	Czech Republic (Moravia)
	Mane			
	Mihajasse			
Millardet, Pierre Marie Alexis	Millardet	P. M. A. Millardet	1838-1902	France
	Morandell.			Italy (Tirol)
Müller, Heinrich Ludwig Hermann	Müller			
H. Mull.	Hermann Müller	1829-1883	Germany	
Oberleitner, Franz	Oberleitner	F. Oberleitner	1829-1897	Austria, Germany
Ortmann, Johan	Ortmann	Johan Ortmann		
Pavai, Alexis von	Pavai	Alexis von Pavai	1820-1874	Hungary, Romania (Transylvania, Aiud)
Parlatore, Filippo	Parlatore	F. Parlatore	1816-1877	

Italy, France				
	Pidaus			
Pirona, Giulio Andrea	Pirona	G. A. Pirona	1822-1895	Italy
Pittoni, Joseph Claudium	J. C. Equus a Pittoni.	Josef Claudius Equitis Pittoni a Dannenfeldt	1797-1878	Austria
	Pivoll			Italy
	Pommerot			France
	Pomaret			France
	L. Pony			
Porcius, Florian	Porcius Porcoli	F. Porcius Por- coli	1816-1906	R o m a n i a , (Transylvania)
Porta, Pietro	Porta	Pietro Porta	1832-1923	Italy
	Preuer			Croatia (Istria)
Rasten, Nicomed Baron	N i c o m e d Rastern	Baron Nicomed Rastern		Germany (Bran- denburg)
Rekes T.	Rekes T.			Romania (Trans- sylvania)
Rheinfoseus, Jinnah	Rheinfoseus	J i n n a h Rheinfoseus		
Richter, Ludwig (Lajos)	Richter L.	Ludwig Richter Richter Lajos	1844-1917	Hungary, Slovakia, Switzerland, Russia, Romania
Rauscher, Robert	Rauscher	R. Rauscher	1806-1890	N. Austria
Rechsteiner, F.C.	Rechsteiner		1839	Switzerland
Roemer, Carl	Roemer	Roemer C.	1818-1891	Germany
Siegmund, Wilhelm	W i l h e l m Siegmond	W. Siegmund	1821-1897	Czech Republic, Germany
Schlosser von Klekowski, Joseph Calasenz	J o s e p h C a l a s e n z S c h l o s s e r (Schloss.)	J. C. Schlosser [Ritter von Klekowski]	1808-1882	Croatia, Austria, Czech Republic
Schneller ,Wilhelm August	Schneller	Wilhelm August Schneller	1807-1886	Czech Republic, Slovakia, Serbia (Voivodina)
	Schniler			
Schramm, Otto Christoph	Schramm	O. C. Schramm	1791-1863	Germany

Simony, F.	F. Simony		1813-1896	Austria
Slakorosky, Al.	Al.Slakorosky			Czech Republic (Boemia)
Schur, Pfilipp J o h a n n Ferdinand	Schur	F e r d i n a n d Schur	1799-1878	Austria, Germany, Romania (Trans- sylvania)
	Sebato			
Sonder, Otto Wilhelm	W. Sonder Sond.	O. W. Sonder	1812-1881	Austria, France, Germany, Italy, Norway
Seckera, Wenzel Johann	Sekena	W. J. Sekena	? - 1875	Czech Republic (Bohemia)
Steffek, Adolf	Adolf Steffek	Adolf Steffek	1834-?	Hungary, Romania (Transsylvania)
Steven, Christian von	Steven	Christian von Steven	1781-1863	Russia, Ukraine (Crimea)
Thielens, Armand	Thielens	A r m a n d Thielens	1833-1878	Belgium
Timbal-Lagrave, Pierre Marguerite Édouard	Timbal-Lagrave Timb.- Lagr.	É d o u a r d Timbal-Lagrave	1819-1888	France
Todaro, Agostino	Todaro Tod.	A g o s t i n o Todaro	1818-1892	Italy
T o m m a s i n i , Muzio Giuseppe Spirito de'	M. Tommasini (Tomm.)	Mutius von Tommasini	1794-1879	Italy, Croatia, B o s n i a -Herzegovina
	Vate			
	Vivlles			France
Vukotinovic, Liudjevit Farkas	Lud. Farkas- Vukotinovic Vuk.	Liudjevit Farkas Vukotinovic	1813-1893	Croatia
	Wiclardt			Italy
W i l l k o m m , Heinrich Moritz	Willkomm Willk.	Heinrich Moritz Willkomm	1821-1895	Germany, Spain
W i m m e r , C h r i s t i a n Friedrich Heinrich	Wimmer Wimm.	C. F. H. Wimmer	1803-1868	Germany (Silesia)
Wolff, Julius (Gyula)	Wolff	J. Wolff		

G. Wolff.	1844-1921	H u n g a - ry, Romania (Transsylvania)		
Wolfner, Wilhelm	Dr. Wolfner	Wolfner	- 1858?	Austria, Romania (Arad)
Z o l l i n g e r , Heinrich	Zollinger	H e i n r i c h Zollinger	1818-1859	Switzerland

References

- Arcangeli, G. 1882. - Compendio della flora italiana. (Loescher) Torino.
- Arvet-Touvet, C. 1888. - Hieracium des Alpes françaises ou occidentales de l'Europe. Lyon, Genève, (Henri George) Bâle, (J. Lechevalier) Paris.
- Arvet-Touvet, C., Gautier G. 1908. - Hieraciotheca gallica et hispanica, Exicata a 20 fascicoles (1897-1908).
- Arvet-Touvet, C., Gautier G. 1910. - Hieraciotheca Gallica et Hispanica: Table des espèces, variétés et synonymes du genre Hieracium, Parts 1-20.
- Baillet, C., Timbal-Lagrave, E. 1861. - Essai monographique sur les espèces du genre Galium des environs de Toulouse. Toulouse
- Baillet, C. C. 1889. - Notice sur la vie et les travaux d'Edouard Timbal-Lagrave. (Imp. Douladoure-Privat) 35 pp.
- Bayer, J. N. 1869. - Praterflora: Beschreibung der im K. K. Prater und in der Brigittenau Ausserhalb der Garten Wildwachsenden und Angebauten Pflanzen. (Braumüller) Vienna.
- Bertoloni, A. 1838. - Plantae novae vel minus cognitae horti botanici bononiensis, 2 voll. (Tiocchi) Bologna.
- Bertoloni, A. 1858-1862. - Flora Italica cryptogama, 2 vol. (Cenerelli) Bologna.
- Bienick, H. 1998. - Brodie [Brody], Galicia (from Slownik Geograficzny, 1880-1902). PGSCA Bulletin, April 1998.
- Bojor, O., Hodoroga, A., Svoboda, C. 1989. - Istorical cercetărilor botanice și a plantelor medicinale din județul Bistrița-Năsăud. File de Istorie - Anuarul Muzeului de Istorie Bistrița 6, Studii și Comunicări: 276
- Boll, E. Fr. A. 1860. - Flora von Mecklenburg. 404 pp.
- Brands, S. J. (comp.) 1989. - Systema Naturae 2000. The Taxonomicon. Universal Taxonomic Services, Zwaag, The Netherlands [<http://taxonomicon.taxonomy.nl/>] (Last updated 26 January 2014).
- Bresciani, G. 1922. - Don Pietro Porta, botanico. Il Nuovo Trentino 130.
- Buek, J. N. - Hortus Francofortanus oder Verzeichnis der in meinem Garten cultivierten Gewächse mit Hinzufügung der in der Nähe Frankfurts wildwachsenden.
- Buek, J. N. 1801. - Flora Francofurtana.
- Cesati, V. 1881. - Cenni biografici sovra Antonio Bertoloni e Giuseppe Giacinto Moris. (Regia Accademia delle Scienze) Napoli.

- Cesati, V., Passerini G., Gibelli G. 1869-1886 - *Compendio della flora italiana*, vol. 1-35. (Vallardi) Milano.
- Ciocărlan V. 2000. – *Flora ilustrată a României. Pteridophyta et Spermatophyta*. (Ceres) București.
- Coldea Gh. 1990. - *Munții Rodnei. Studiu geobotanic*. (Edit. Academiei Române) București.
- Costa y Cuxart, A.C. 1864. – *Introducción à la flora de Cataluña y catálogo razonado de las plantas observadas en esta región*. (Imprenta del Diario de Barcelona) Barcelona, 343 pp.
- Crăciun F. 1962. – *Plante medicinale și aromatice cultivate*. Direcția generală plante medicinale - CENTROCOOP, București, 124 pp.
- Christener, C. 1863. – *Die Hieracien der Schweiz*. Bern, 42 pp.
- Dalla Fior, G. 1950. - *Don Pietro Porta*. Trento.
- Danciu, V. M., Golban D. 2013. – *The Theodor Schreiber Herbarium in the Botanical Collection of the Țării Crișurilor Museum in Oradea, Bihor County (part I)*. *Nymphaea* 40: 19-63.
- Danciu, V. M., Golban D. 2014. – *The Theodor Schreiber Herbarium in the Botanical Collection of the Țării Crișurilor Museum in Oradea, Bihor County (part II)*. *Nymphaea* 41: 5-86.
- Drude, O. 1887. – *Atlas der Pflanzenverbreitung*. (Justus Perthes) Gotha.
- Eggers, G. 1860. – *Flora excursoria: botanisches Taschenbuch zum Gebrauche auf Excursionen in Mecklenburg*. Neustrelitz.
- Engler, A., Prantl, K. 1887. – *Die Natürlichen Pflanzenfamilien nebst ihren Gattungen und wichtigeren Arten, insbesondere den Nutzpflanzen, unter Mitwirkung zahlreicher hervorragender fachgelehrten begründet*. (W. Engelmann) Leipzig.
- Engler, A., Drude, O. 1896-1928. – *Die Vegetation der Erde: Sammlung pflanzengeographischer Monographien*. (W. Engelmann) Leipzig.
- Engler, A., Gilg, E. 1924. – *Syllabus der Pflanzenfamilien*. (Borntraeger) Berlin, 420 pp.
- Fiori, A. 1923-1929. – *Nuova flora analitica d'Italia*, vol. 1-2. (Ricci) Firenze.
- Griewank, G. 1856. – *Kritische Studien zur Flora Mecklenburgs*. Rostock.
- Guenther, C., Grabowski, H., Wimmer, F. 1824. – *Enumeratio stirpium phanerogamarum quæ in Silesia sponte proveniunt*. Breslau.
- Fronius, Fr. 1857-1858. – *Flora von Schäßburg, ein Beitrag zur Flora von Siebenbürgen*. Schäßburger Gymnasialprogramm.
- Halácsy, E. 1894. – *Botanische Ergebnisse einer im Auftrage der Hohen Kaiserl. Akademie der Wissenschaften unternommenen Forschungsreise in Griechenland*. (F. Tempisky) Vienna.
- Halácsy, E. 1901-1904. – *Conspectus florae Graecae, Sumptibus Guilelmi Engelmann, 1901-1904 [i. e. 1900-1904]*.
- Halácsy, E. 1896. – *Flora von Niederösterreich. Zum Gebrauche auf Excursionen und zum Selbstunterricht bearbeitet von Eugen von Halácsy*. (F. Tempisky) Prague.
- Hallier, E. 1879. – *Flora von Deutschland, Gefässkrytogamen*. (Fr. Eugen Köhler) Gera-Untermhaus.
- Hartman, C. 1852. - *Annotationes de plantis Scandinavicus herbarii Linnaeani in musaeo Societ. Linnaeanae Londin. asservati*. (P. J. Norstedt) Stockholm.
- Hartman, C. J. 1820. - *Handbok i Skandnaviens flora, innefattande sveriges och norrignes vexter, till och med mossorna. Med inledning, af handlande grunderna for botanikens*

- studium, samt tvanne plancher. (Z. Haeggstrom) Stockholm.
- Hausmann Fr. 1851. – Flora von Tirol. (Wagner) Innsbruck.
- Hazslinszky F. 1866. - A Borsai Pietros havasi viranya. Math. Termtud. Közl. 4: 144-164.
- Hazslinsky F. 1868. - Die alpine Flora der Alpe Pietrosz bei Borsa. Allg. Bot. Zeit. 26: 129-140.
- Herbich, Fr. 1860. – Beiträge zur Flora von Galizien. Vorgelegt in der Sitzung vom 1. August 1860.
- Hermann, U. 1970. - Der Botaniker Friedrich August Körnicke (1828-1908). Kurzbiographie sowie Verzeichnis seiner Veröffentlichungen. Decheniana 122: 379-384.
- Heuffel, J. 1858. – Diagnosen neuer oder verwechselter Pflanzen des Banates. Zeitschrift für Natur- und Heilkunde in Ungarn 22, 25.
- Heuffel, J. 1858. – Enumeratio plantarum in Banatu Temesiensi sponte crescentium et frequentius cultarum. Verhandlungen des Zoologisch-Botanischen Vereins Wien: 39–240.
- Huber, O., Wallnofer B., Wilhalm Th. 2012. – Die Botanik in Südtirol. (Raetia) Bozen.
- Huet du Pavillon, A. 1853. – Description de quelques plantes nouvelles de Pyrénées, suivie de l'indication de localités non indiqués dans Flore française de Grenier et Godron. (P.-A. Bonnant) 8 pp.
- Huguenin, A. 1851. – Enumeratio plantarum exsiccatarum quae ex collectione A. Huguenin (à Chambéry, Savoie): pro mutua commutatione offeruntur. Vapinci, apud Delaplace.
- Huter, R., Porta P., Rigo G. 1908. - Herbar-Studien. Wien.
- Le Jolis, A. Fr. 1860. – Plantes vasculaires des environs de Cherbourg.
- Le Jolis, A. Fr. 1874. – De la rédaction des flores locales au point de vue de la géographie botanique.
- Lizoň, P. 1982. - Johann Bolla (1806 - 1881). Čes. Mykol. 36: 248-250.
- Lipinski, T. 1851-1865. – Monograph of Brody. Warsaw Library.
- Karsten, H. 1880–1883. – Deutsche Flora. Pharmazeutisch-medizinische Botanik. Ein Grundriss der systematischen Botanik zum Selbststudium für Ärzte, Apotheker und Botaniker. (Spaeth) Berlin.
- Karsten, H. 1886. - Illustriertes Repetitorium der pharmaceutisch-medicinischen Botanik und Pharmacognosie. (Springer) Berlin.
- Karsten, H. 1895. – Flora von Deutschland, Oesterreich und der Schweiz mit Einschluss der fremdländischen medicinisch und technisch wichtigen Pflanzen, Drogen und deren chemisch-physiologischen Eigenschaften. Für alle Freunde der Pflanzenwelt. (Köhler) Gera-Untermhaus.
- Klober, E. - Flora of Brody, researched by Ernst Klober.
- Körnicke, F. A., Klotzsch, J. F. 1858. - Die Vegetation des zollvereinten und nördlichen Deutschlands. In: Viehbahn, G. von (ed.): Statistik des zollvereinten und nördlichen Deutschlands. (G. Reimer) Berlin: 849-896.
- Körnicke, F. A. 1873. - Systematische Übersicht der Cerealien und monocarpischen Leguminosen in Ähren, Rispen, Früchten und Samen aus dem ökonomisch-botanischen Garten der Königlichen Preußischen Landwirtschaftlichen Academie zu Poppelsdorf bei Bonn, ausgestellt in Wien im Jahre 1873. Bonn, 55 pp.
- Kotsch, Th., Boissier, E., Hohenacker, A. R. Fr. 1845. – Plantarum Persiae Australis. Esslingen, Stuttgart.
- Kováts, G. 1844-1850. – Az ausztriai birodalom, különösen Magyarország és Erdély ritkább szárított növényei. Vienna.

- Jeanbernat, E-M-J. 1873. – Une excursion scientifique aux sources de la Garonne et de la Noguéra Pallaresa (Catalogne).
- Jeanbernat, E-M-J., Timbal-Lagrave, É. 1875. – Exploration scientifique des environs de Montolieu (Aude). (L. et J.-M. Douladoure) Toulouse.
- Jeanbernat, E-M-J., Timbal-Lagrave, É. 1879. – Le Massif du Laurenti, Pyrénées françaises, géographie, géologie, botanique. (Asselin) Paris.
- Janka, V. 1858. – Zur Flora von Siebenburgen. *Plant. Syst. Evol.* 8 (4) : 135-136.
- Marossy, A. 1973. – Un ierbar de 100 de ani în depozitul Muzeului Țării Crișurilor. *Nymphaea* 1: 21-29.
- Nyarady A. 1950. - Adnotațiuni și date noi la cunoașterea răspândirii unor specii și forme de graminee din Munții Rodnei. *St. Cerc. St. Cluj*.
- Nyarady A. 1963. - Contribuții la studiul și cartarea pajiștilor subalpine din Munții Rodnei. *Acta Bot. Berti* 2: 819-824
- Parlatore, F. 1838. – Flora Panormitana, a study of the flora of Sicily, part 1 (ca. 1838).
- Parlatore, F. 1843. – Lezioni di botanica comparata. (Societa Tipograf.) Firenze.
- Parlatore, F. 1845. – Flora palermitana ossia descrizione delle piante che crescono spontanee nella Valle di Palermo. *Accademia nazionale di scienze lettere e arti di Palermo*.
- Parlatore, F., Caruel T. 1848-1896. - Flora italiana, vol. 1-10. (Le Monnier) Firenze.
- Pignatti, S. 1982. - Flora d'Italia, vol. 1-3. (Edagricole) Bologna.
- Pirone, G. A. 1855. – Julii Andreae Pirone Florae forojulienensis syllabus. (L. Vendrame) Utini.
- Porcius F. 1878. - Enumeratio plantarum phanerogamicarum districtus Naszodiensis. Cluj.
- Porcius F. 1885. - Flora din fostul district românesc al Năsăudului în Transsylvania. *Analele Academiei Române, Seria II, 7, Secția II, Memorii și notițe*: 99.
- Porta, P. 1912. - Specie nuove, ibridi e varietà scoperte da don Pietro Porta solo o in compagnia degli amici Huter e Rigo. *Rivista Tridentina*.
- Prodan J. 1924. – Cele mai rentabile plante medicinale din Romania. (Tipografia Pernat și Depozit de Hârtie) Cluj, 50 pp.
- Prodan I. 1948. - Fânețe și pășuni din nordul Transilvaniei – studiu floristic, ecologic și agricol. *Anal. Fac. Agron. Cluj* 12 (supliment): 1-163.
- Prodan I., Buia, A. 1966. - Flora mică ilustrată a României. (Editura Agro-Silvică) 676 pp.
- Resmeriță I. 1975. - Synthèse de la végétation de la province Maramureș, Roumanie. *Phytoécologie* 2 (3-4): 336-348.
- Resmeriță I. 1979. - Flora rezervației naturale Pietrosul Mare, I. *Studia Univ. Babeș-Bolyai* 24 (2): 8-14.
- Resmeriță I. 1981. - Vegetația rezervației naturale Pietrosul Mare, II. *Studia Univ. Babeș-Bolyai* 26 (1): 3-11.
- Resmeriță I., Rațiu O. 1983. - Contribuții la cunoașterea vegetației alpine din Munții Rodnei. *Contribuții Botanice*: 99-109.
- Rodet, H. J. A., Baillet, C. 1872. – Botanique agricole et médicale, ou Etude des Plantes qui intéressent principalement les médecins, les vétérinaires et les agriculteurs. Paris.
- Schlosser, J. C., Farkas-Vukotinovic, L. 1869. – Flora Croatica: exhibens stirpes phanerogamas et vasculares cryptogamas quae in Croatia, Slavonia et Dalmatia sponte crescunt nec non illas quae frequentissime coluntur.

- Schneider, E. 2008. - 150 years since the publication of "Flora of Sighișoara" F. F. Fronius. Sighișoara News: 29-30.
- Schur, J. F. 1866. – Enumeratio plantarum Transsilvaniae: exhiben: stirpes phanerogamas sponte crescentes atque frequentius cultas, cryptogamas vasculares, charceas, etiam muscos hepaticasque. (G. Braumüller) Vienna, 984 pp. 65.
- Simonkai L. 1881. - Nagyvárad és a Sebes Körös felsőbb vidéke. Mathem. Term. tud. Közl. 16.
- Simonkai L. 1890. - Nagyvárad és vidékének növényvilága. Budapest.
- Steffek, A. 1864. – Übersicht der Grosswardein bis jetzt beobachteten Phanerogamen. Ost. Bot. Z. 14: 169-187.
- Steudel, E. T. 1821-1824. - Nomenclator botanicus seu Synonyma plantarum universalis : enumerans ordine alphabetico nomina atque synonyma, tum generica tum specifica et a Linnaeo et a recentioribus de re botanica scriptoribus plantis phanerogamis imposita. (J. G. Cotta) Stuttgart, Tübingen.
- Steudel, E., Hochstetter C. F. 1826, – Enumeratio plantarum Germaniae Switzerlandeque indigenarum. (Cotta) Stuttgart, Tübingen.
- Steven C. 1822. – Monographia Pedicularis. Memoires de la Société imperiale des naturalistes de Moscou 6.
- Steven C. 1856-1857. – Verzeichnis der auf der taurischen Halbinsel wildwachsenden Pflanzen. (Univ.) Moscow.
- Thellung, A. 1912. – La flore adventice de Montpellier. (E. Le Maout) Cherbourg.
- Thielens, A. 1862. – Flore medicale belge. (A. Lacroix) Verboeckhoven, Bruxelles.
- Timbal-Lagrange, É. 1861. – Étude sur quelques Cistes de Narbonne. Toulouse, 53 pp.
- Timbal-Lagrange, É. 1854. – Etudes sur la Flore d'Aquitaine genre Viola: Mémoires sur 99 hybrides de la famille des Orchidées. (Chauvin) Toulouse.
- Timbal-Lagrange, É., Bucquoy, E. 1881. – Essai monographique sur les Dianthus des Pyrénées Françaises. (Soc. agricole, scientifique et littéraire des Pyrénées-Orientales) Perpignan.
- Timbal-Lagrange, É. 1854. – Botanique. Note sur une espèce nouvelle du genre Senecio. Société des lettres, sciences et arts de l'Aveyron.
- Timbal-Lagrange, É. 1860. – Des variations que présentent les espèces du genre Orchis et principalement l'Orchis tenoreana. (L. Martinet).
- Timbal-Lagrange, É. 1875. – Deuxième excursion dans les Corbières orientales, Saint-Victor, le col d'Estrem. (Tuchan Vingrau).
- Timbal-Lagrange, É., Gautier G., Jeanbernat E. 1879. – Du Ligularia sibirica Cass. dans les Pyrénées.
- Timbal-Lagrange, É., Jeanbernat, E. 1876. – Du Polypodium vulgare L. et de l'hybridité dans les fougères. (L. et J.-M. Douladoure) 11 pp.
- Timbal-Lagrange, É., Baillét, C. C. 1862. – Essai monographique sur les espèces du genre Galium des environs de Toulouse. (C. Douladoure) 35 pp.
- Timbal-Lagrange, É. 1886. – Essai monographique sur la espèce du genre Scorzonera L. de la flore française. 16 pp.
- Timbal-Lagrange, É. 1860. – L'Herbier de Marchand et Lapeyrouse. Bulletin de la Société botanique de France. (L. Martinet) Paris, 12 pp.
- Timbal-Lagrange, É. 1861. – Essai monographique sur les espèces, variétés et hybrides du

- genre *Mentha* L., qui sont cultivées ou qui croissent spontanément dans les Pyrénées centrales et dans la partie supérieure du Bassin Sous-Pyrénéen (Haute-Garonne). (Martinet) 24 pp.
- Timbal-Lagrave, É., Fihol, E. 1862. – Études sur quelques cépages cultivés dans les départements de la Haute-Garonne et de Tarn-et-Garonne. (C. Douladoure) 13 pp.
- Timbal-Lagrave, É. 1872. – Étude sur les *Hieracium* de Lapeyrouse, et sur leur synonymie (Toulouse, juin 1870). (E. Martinet) Toulouse.
- Timbal-Lagrave, É. 1864. – Une excursion botanique de Bagnères-de-Luchon à Castanès (en Aragon) par le port de Vénasque, la Penna-Blanca et la vallée de Lessera, faite les 15, 16 et 17 juillet 1863. Bulletin de la Société botanique de France 11, 24 pp.
- Timbal-Lagrave, É. 1872. – Excursion botanique aux environs de Saint-Paul-de-Fenouillet et à Cases de Pena dans les Corbières. Toulouse.
- Timbal-Lagrave, É., Baillet, C.C., Jeanbernat, E.-J.-M. 1864. – „Une excursion botanique sur le massif de Cagire et dans la haute vallée du Ger (Hte-Garonne). (Rouget frères et Delahaut) Toulouse, 27 pp.
- Timbal-Lagrave, É., Marçais E. 1889. – Essai Monographique Sur les Especies Francaises du Genre *Heracleum*. (Kessinger Publishing) 24 pp.
- Todaro, A. 1858. – Nuovi generi e nuove specie di piante coltivate nel Real Orto Botanico di Palermo. (Pagando e Piola) Palermo.
- Todaro, A. 1866. – Synopsis plantarum acotyledonearum vascularium sponte provenientium in Sicilia insulisque adjacentibus. (Lao) Palermo.
- Willkomm, M. 1852. – Icones et descriptiones plantarum novarum criticarum et rariorum Europae Austro-occidentalis praecipue Hispaniae. (A. H. Payne) Leipzig.
- Willkomm, M., Lange J. 1870 – Prodrömus florum hispanicae, seu synopsis methodica omnium plantarum in Hispania. (E. Schweizerbart) Stuttgart.
- Willkomm, M. 1873. – Atlas der Botanik. (Brockhaus) Leipzig.
- Willkomm, M. 1875. – Forstliche Flora von Deutschland und Oesterreich. Leipzig.
- Willkomm, M. 1882. – Führer in das Reich der Pflanzen etc.
- Wimmer, C. F. H., Grabowski H. E. 1827-1829. – Flora Silesiae. Bratislava, apud G. T. Kom 1827-29.
- Wimmer, C. F. H. 1832. – Flora von Schlesien: Handbuch zur bestimmung und kennniss der phanerogamischen gewächse dieser provinz, nebst einer gedrängten einleitung in die pflanzenkunde. (A. Rücker) Berlin.
- Wimmer, C. F. H. 1840. – Flora von Schlesien, preußischen und österreichischen Antheils.
- Wimmer, C. F. H. 1866. – *Salices europaeae*. Bratislava.
- xxx - The Plant List - www.theplantlist.org/
- xxx - Flora Europaea - the full version of which is held in the PANDORA taxonomic data base system at the Royal Botanical Garden Edinburgh (rbg-web2.rbge.org.uk/FE/fe.html).

NYMPHAEA Folia naturae Bihariae	XLII	121 - 143	Oradea, 2015
---	-------------	------------------	---------------------

Sporadic data on the mollusc fauna of Rimetea and its environs (Trascău Mountains, Romania) with special reference to shell morphometry of *Alopi*a *bielzii tenuis* (E. A. Bielz, 1861)

Tamás Domokos

Rábay u. 11, H-5600 Békéscsaba, Hungary

Email: tamasdomokos@freemail.hu

Abstract. During a six-day fieldwork in 2006, 2007, 2009 and 2014, in the Eastern Apuseni mountains, I collected 50 terrestrial and one aquatic snail species, i.e., 151 new units altogether. Among them *Spelaeodiscus triaria* Rossmässler, 1839, *Alopi*a *bielzii tenuis* (E. A. Bielz, 1861), *Bielzia coeruleans* (M. Bielz, 1851), *Clausilia dubia f. gratiosa* Sajó, 1968, *Cochlodina orthostoma* (Menke, 1830), *Vestia elata* Rossmässler, 1836, *Discus perspectivus* (Mühlfeld, 1818) are worth mentioning. In the investigated area, the number of Carpathian endemic species is 12 (24%). From malacological point of view, this area is characterized by *Alopi*a *bielzii tenuis* (E. A. Bielz, 1861 – because of its distribution area) and *Euomphalia strigella* (Draparnaud, 1801 – in consequence of its constancy). The author points out that the shell sizes and the arithmetic mean values of the height of *Alopi*a *bielzii tenuis* (E.A. Bielz, 1861) increase southwards, as well as the elongations of *Alopi*a *bielzii tenuis* and *clathrata* decrease with the increase of shell widths. The series subspecies (Turda–*Alopi*a *bielzii tenuis*, Zadiel–*Alopi*a *bielzii clathrata*) shows a startling morphological resemblance.

Keywords: Carpathian endemism, elongation, frequency distribution, statistical calculation.

Introduction

The Trascău Mountains (1200 km²) running north-east and south-west are situated on the south-eastern part of the Apuseni Mountains bordered by the Arieş River, the Ampoi River, the Metaliferi Mountains and the Câmpia Transilvaniei on the North on the South, on the West and on the East, respectively. Rimetea is on the northeast part of the mountains in Alba County (Fig. 1).

In the Trascău Mountains, Upper Jurassic limestone complex and a great variety of tectonic and exokarst formations (valleys, gorges, rock faces, cliffs and caves) were developed. Dâmbău (1368 m), Ardaşcheia (1250 m), Salaş (1148 m) and Piatra Secuiului (1129 m) etc. are the highest peaks. The annual rainfall in the Trascău Mountains ranges between 600 and 700 mm (at 400–500 m), while the snowfall in the region exceeds 1000 mm. The mean annual temperature is 7–8 °C in the basin (400–500 m) and 5 °C in the mountain region (about 1000 m). First of all, on the south and the north sides of the east-westward gorges the temperature may produce surprising differences (Dimap).

This area has not been investigated as thoroughly as Turda (Torda) and its periphery, in the first place the Turda Gorge (=Tordai hasadék, Cheile Turzii) (Csiki 1906; Rotarides 1941; Soós 1943; Grossu 1955, 1981a, 1981b, 1993; Bába & Kovács 1975; Vánca 2006; Gagiú 2007). In his well-known summary work, Csiki (1906) enumerated the following taxa: *Alopiá bielzii tenuis* including var. *intermedia*, var. *madensis* and var. *potaişsanensis*, *Bulgarica vetusta*, *Campylea faustina*, *Cochlodina marisi*, *Discus perspectivus*, *Hygromia transsylvanica*, *Mastus bielzi*, *Pupilla muscorum*, *Pupilla triplicata*, *Pyramidula rupestris*, *Spelaeodiscus triaria trinodis*, *Vallonia pulchella* and *Vertigo pygmaea*. The genus *Alopiá* is one among the many endemic taxa in the Carpathian Mountains. The previous taxonomical data about it come inter alia from Westerlund 1884, Kimakowicz 1894, Wagner 1922, Soós 1928, 1943, Grossu 1981b, Nordsieck 2008 and Fehér et al. 2013.

Description of the sampling sites in chronological order

1. Rimetea (Torockó) — 4 km N of the village, scum of the Rimetea brook close to the bridge on the connecting road (Coll.: László Sarkadi) 11 September 2006
2. Rimetea (Torockó) — 4 km N of the village, hornbeam forest of the Rimetea brook close to the bridge on the connecting road (Coll.: László Sarkadi). The gleaning site is relatively a shady habitat covered with forest litter. 11 September 2006

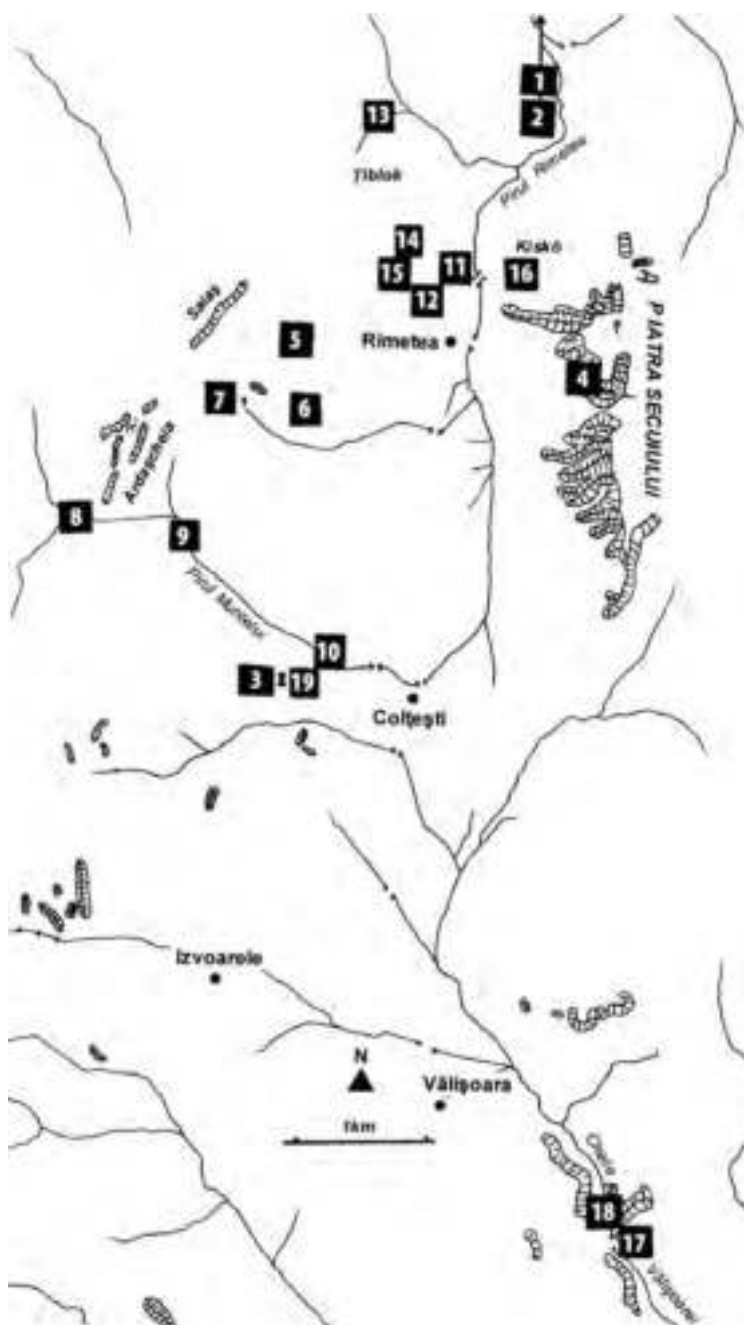


Figure 1. The hydrographic sketchmap of the studied area with the sampling sites in chronological order.

3. Colțești (Torockószentgyörgy) — Cetatea Trascăului castle ruin, 1 km W of the settlement. I took samples in the sunny foot of the fortress walls. The biotope faces the west and is covered with rock vegetation.
29 October 2007
4. Rimetea (Torockó) — Piatra Secuiului, 1.5 km SE of the commune, low cliff wall in the vicinity of a rock glacier on the western hillside. This biotope consists of outspread rock vegetation.
29 October 2007
5. Rimetea (Torockó) — Skirts of beech-wood (~750 m asl) under Salaș cliff 1.5 km W of the settlement. It is a typical stony and humid forest litter biotope.
15 Jun 2009
6. Rimetea (Torockó) — 2 km SW of the inhabited area, a slope with loess vegetation facing to the south. It is a sunny and dry biotope
15 June 2009
7. Rimetea (Torockó) — Marshy spot (*Mentha*, *Equisetum*, *Scirpus*) of the Hermit spring (3 dm³/min, 800 m asl). I gleaned from broken vegetable fragments, small branches and twigs.
15 June 2009
8. Rimetea (Torockó) — Ardașcheia, great burdock on the right-hand-side of the Muntelui/Havas/Snowy brook at the intersection of red tourist trail marking (red stripe and blue cross) and the brook (700 m asl). It is an open and shady biotope 4 km far from the settlement.
15 June 2009
9. Colțești (Torockószentgyörgy) — Alder spot on both side of the Muntelui/Snowy brook with marsh vegetation close to the bridge and 3 km far from the settlement.
15 June 2009
10. Colțești (Torockószentgyörgy) — Valea Muntelui. The sampling site is a rubbish reach of the brook, approximately 1 km far from the Presbyterian Church.
15 June 2009
11. Rimetea (Torockó) — This site is difficult to access, in a marshy area N of the settlement.
9 July 2014

12. Rimetea (Torockó) — a natural orchard (550 m asl) or a cultural ecosystem on the northern part of the inhabited area, a habitat with litter and fine woody debris.
10 July 2014
13. Rimetea (Torockó) — Northern slope of the Țiblok hill, alder spot on both side of the Miner brook, along the tourist pathway of yellow triangle trail marking. It is a humid and shady woodland (beech, hornbeam, ash, robinia) biotope. The ground was covered with great burdock, forest litter, moss rubble and standing dead tree.
10 July 2014
14. Rimetea (Torockó) — The first couloir (about 4 m deep) by the side of Miner rout, about 0.5 km N of the settlement. This shrub-wooded sampling site is exposed to north. The soil was hidden under dead leaves of the forest (robinia, maple, willow).
10 July 2014
15. Rimetea (Torockó) — Dry and sunny, with loess vegetation, which is mowed from time to time. The biotope (575 m asl) is about 200 m north of the tourist bollard along the pathway marked with yellow triangle.
10 July 2014
16. Rimetea (Torockó) — Kiskő/Small rock (according to the residents), which is a cliff outcrop (~ 475 m asl) facing to the north, with white-red broken fragments of rocks vegetation. I took plotless sample via mass (only 1 dm³).
10 July 2014
17. Vălișoara — Rezervația naturală Cheile Vălișoarei. The sampling site is at the foot of the rock wall and the ledge in the surroundings of the bridge. The examined biotope faced to the south-west and was covered with scum washed off the rock wall. Via mass (2 dm³) and singling collection.
11 July 2014
18. Vălișoara — At the left-hand-side of the Vălișoarei brook, N of the bridge between Vălișoara and Poiana Aiudului.
19. Colțești (Torockószentgyörgy) — Cetatea Trascăului de la Colțești, foot of the fortress wall, rock vegetation. Via mass (2 dm³) and via singling representation sampling.
11 July 2014

Material and methods

1. Collecting procedure

Snail specimens were collected by manual singling (30 minutes) as well as via mass (2–3 dm³, vs. sampling sites 14, 15 and 16) from dry fallen leaves, parched grass and rock vegetation, scum, standing dead trees, litters, fine woody debris and rock ledges moreover one rock-glacier. After cleaning and drying, I selected out and identified the shells resulted from fieldworks. In order to determine the species, I used the taxonomic books and articles by Soós (1943), Grossu (1981a, 1983), Kerney et al. (1983), Nordsieck (2006, 2007 and 2008) and Welter-Schultes (2012). Then I took the specimens one by one and drew up a checklist of the molluscs according to Grossu (1993). My list does not take the subspecies and the different forms into consideration with the exception of clausiliid shells. In their case, I used the nomenclature of Nordsieck (2006, 2007 and 2008).

2. Shell morphometry of *Alopi* *bielezii tenuis* and *clathrata*

I gleaned populations from stony biotope on different dates from the following sites:

- Turda, Cheile Turzii, stony biotope exposed to the north (1985: Munții Gilăului-Muntele Mare). This sample can be found in the Mollusca collection of the Munkácsy Mihály Museum in Békéscsaba, Hungary.
- Colțești, Cetatea Trascăului, foot of the fortress wall, stony and partly shady biotope (2014: Munții Trascău).
- Vălișoara, foot of wall rock, south-west exposition (2014: Munții Trascău).
- Pietroasa, Piatra Bulzului, shaded slope beneath the SSW cliffs (2010: Munții Bihor-Vlădeasa).

The sample sizes of the *Alopi* *bielezii tenuis* populations were 11, 38, 79 and 24, respectively (Tables 6 and 7). Between four elements of this group of samples, the distances were different. Colțești ~ 19 km (SSW), Vălișoara ~ 22 km (SSW), however Pietroasa ~ 80 km (W) from Cheile Turzii.

I used intact and matured shells for the measurements of the height (H) and width (W) of the shells with the help of a caliper with 0.1 mm accuracy. Sources of potential error of measuring were: read-off, relative elasticity of the shell,

crack of the shell, incorrect placing of the shell in the slide-gauge. Thereafter I drew the height as well as the width distribution curves of the preceding populations with 1 mm (H) and 0.1 (W) mm interclass intervals (Figs. 2–9), and made the tables with size distribution characteristics (Tables 2–7). In Fig. 8 and Fig. 9 I set the shell morphological parameters of *Alopi*a *bielzii tenuis* (Romania, Cheile Turzii — dat.:1985, number of cases: 11) and *Alopi*a *bielzii clathrata* (Slovakia, Zadiel, gorge — dat.: 2011, number of cases: 50) side by side. Fig. 8 and 9 show the height (11–15 mm) and width (3.2 - 3.9) distribution curves related to the three series of *Alopi*a *bielzii clathrata* (number of cases: 1st: 50, 2nd: 44, 3rd: 42). Finally, I calculated the elongations (H/W) referred to two subspecies, i.e., to *Alopi*a *bielzii tenuis* (Turda, Vălișoara) and *Alopi*a *bielzii clathrata* (Zadiel) (Fig. 10).

Results and discussion

1. Taxa

During this malacological survey, 51 Mollusc taxa (50 terrestrial and one freshwater snails) and 149 new units were found in the Trascău Mountains, in Rimetea and its environs (Tables 1/a, 1/b). Terrestrial malacofauna of the studied area includes 12 endemic Carpathian species (24%) as well as 12 clausiliid taxa (24%) similar to collecting locality Scărița Belioara (Poșaga de Sus, Munții Gilăului- Muntele Mare — Bába & Sárkány-Kiss 2001) situated approximately 15-20 km NW of my sampling sites. In the above-mentioned paper, Bába & Sárkány (2001) enumerated 48 taxa in spite of they used 10x25x25 cm quadrat plots and ethylene-glycol soil traps. Roughly sixty per cent of the taxa agrees with one another (Sørensen index ~ 0.49). 14 of the identified taxa (29%) are Carpathian endemic species or subspecies: *Alopi*a *bielzii tenuis*, *Argna parreyssi*, *Balea/Pseudalinda stabilis*, *Campylea faustina*, *Clausilia dubia f. gratiosa*, *Cochlodina marisi*, *Deroceras rodnae*, *Helicigona/Drobacia banatica*, *Orcula jetschini*, *Pupilla bigranata*, *Spelaeodiscus triaria*, *Trichia bielzi*, *Vitrea transsylvanica*, *Vitrea subrimata* (Bába & Sárkány-Kiss 2001). Sørensen index of the Carpathian endemic species of Rimetea and Poșaga de Sus is ~ 0.44.

In the comments of the checklist (see below) there are some taxonomic, zoogeographical, bibliographical and interspecific association (constancy, dominance) information relating to the individual species to be detailed.

Because of arid weather as well as sampling method, some riparian ubiquitous and hygrophilous forest dwellers are absent in the studied area.

2. Biometrical investigation of *Alopia* subspecies

First of all I met success with repeated measurement of parameters resulted from different series of various biotopes (Colțești, Zadiel) (Figs. 2–5). The differences between M-formed frequency curves of the width (W) are significant. M-formed curves refer to the fact that the Colțești sample originated from a biotope with mixed microclimate (Fig. 3).

I measured surprisingly low values of height (H) and width (W) in consequence of colder microclimate in the Cheile Turzii, which is directed to east-west (Figs. 6, 7).

Figures 6, 7 and Tables 6 and 7 illustrate that the arithmetic mean values increase, however the height (H) curves shift towards larger values head for south in the Trascău Mountains. Pietroasa series collected on the western part of the Bihor Mountains shows the highest mean values of shell width and height. Width (W) values of Colțești and Vălișoara sampling sites present a not decided difference.

As it is seen in Figs. 8 and 9, the subspecies (Turda — *Alopia bielzii tenuis* and Zadiel — *Alopia bielzii clathrata*) series shows a startling morphological resemblance.

Morphometric and statistical properties show trifling small differences, only height (H) mode of Colțești series presents about 3% difference (Tables 2–5). On the other hand, the difference among modes of Zadiel series may be just like 10% too.

Because of the breakdown of apex, many individuals of Zadiel series show declining tendency (Tables 4, 5).

End values:

Colțești → Min—Max: 13.3—17.7 X 3.7—4.3 mm (Soós 1943; 11.4—18.5 X 3.3—4.5 mm).

Zadiel → Min—Max: 11.0—14.6 X 3.2—4.0 mm (Soós 1943; 11.6—14.8 X 3.4—4.0).

Deviation in case of H is only 1-2 mm (Colțești) respectively some millimetres (Zadiel), in case of W is merely some 0.1 mm/ tenth millimetres (to a few tenths of a millimetre).

Comparison of shell height (H) and width (W) of Turda and Zadiel series as well as elongation (H/W) of Turda, Zadiel and Vălișoara can be found in Fig. 8–10. The most interesting one is the relationship between elongation and width (Fig.10). The elongation of *Alopia bielzii tenuis* and *clathrata* decreases with the increasing shell width, distribution/regression of *Alopia bielzii tenuis* (Vălișoara) and *Alopia bielzii clathrata* (Zadiel) well differentiates from one other, against this

Turda H/W and W values of shell take one's place among values of Zadiel (Fig. 10). Therefore there is a need for the approval of the shell sculpture/ribs. According to Grossu (1993) in the Cheile Turzii *Alopiu bielzii clathrata* is found.

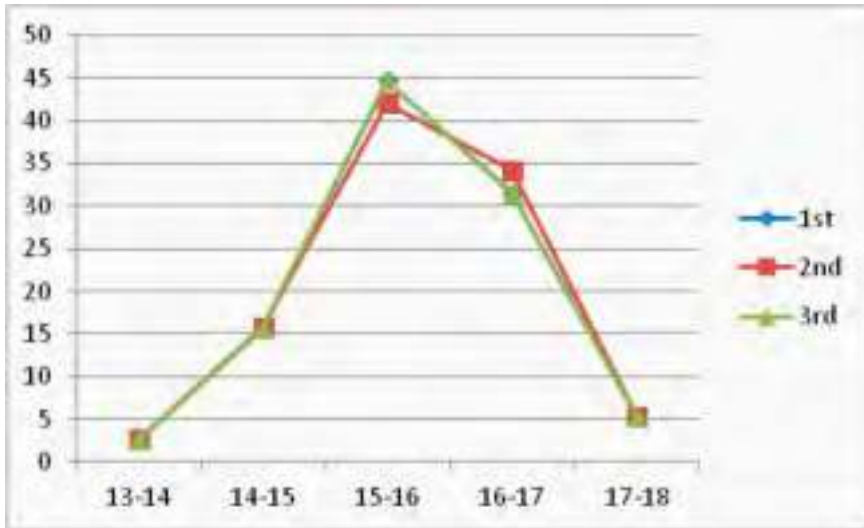


Figure 2. Frequency (0→50%) distribution curves of height (13–18 mm) of *Alopiu bielzii tenuis* in Colțești (Three series resulted by way of repetition).

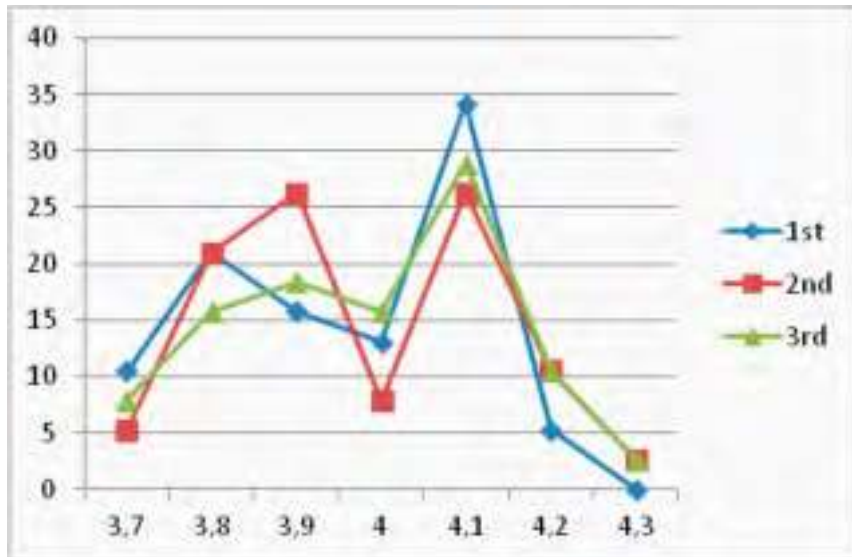


Figure 3. Frequency (0→40 %) distribution curves of width (3.7– 4.3 mm) of *Alopiu bielzii tenuis* in Colțești (Three series resulted by way of repetition).

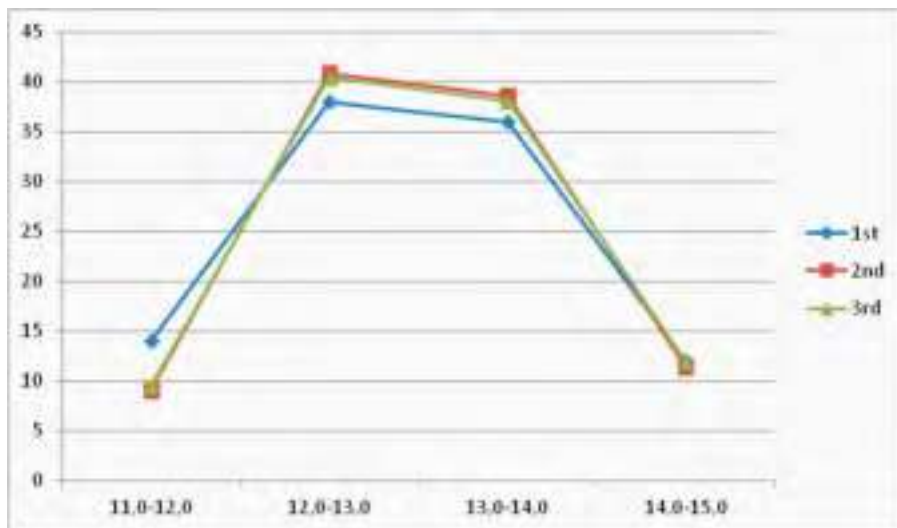


Figure 4. Frequency (0→45%) distribution curves of height (11–15 mm) of *Alopia bielzii tenuis* in Zadiel.

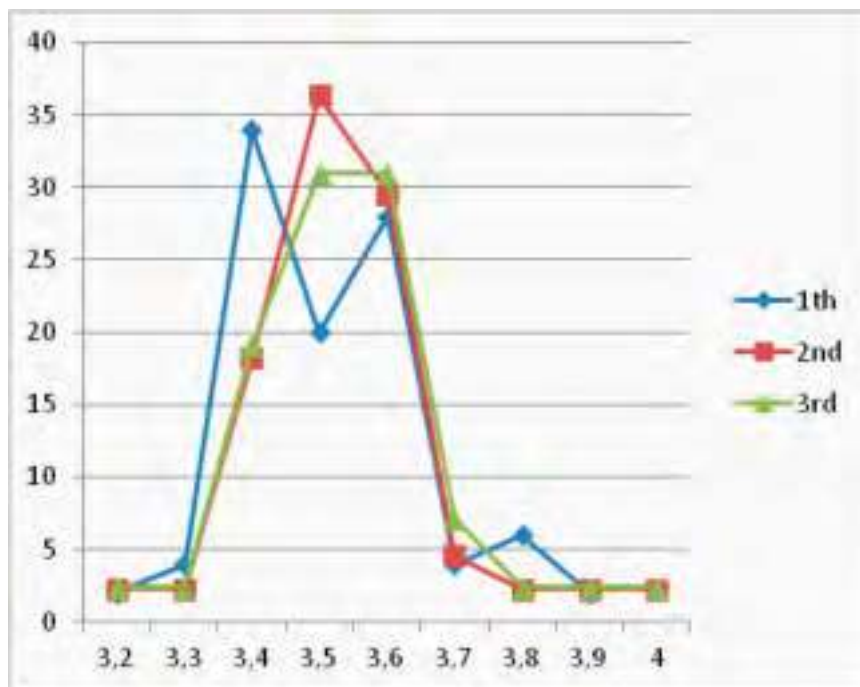


Figure 5. Frequency (0→40 %) distribution curves of width (3.2–4.0 mm) of *Alopia bielzii tenuis* in Zadiel.

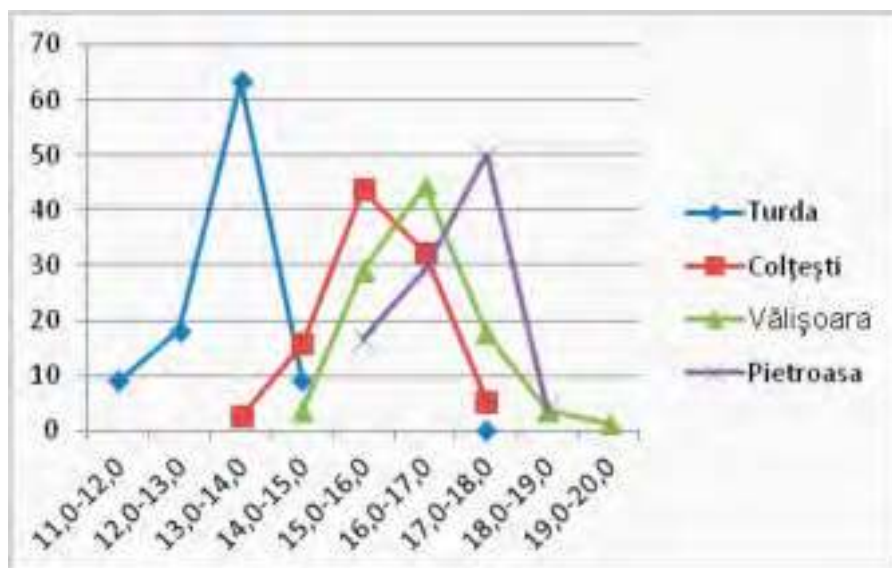


Figure 6. Frequency (0→70 %) distribution curves of height (11–20 mm) of *Alopia bielzii tenuis*.

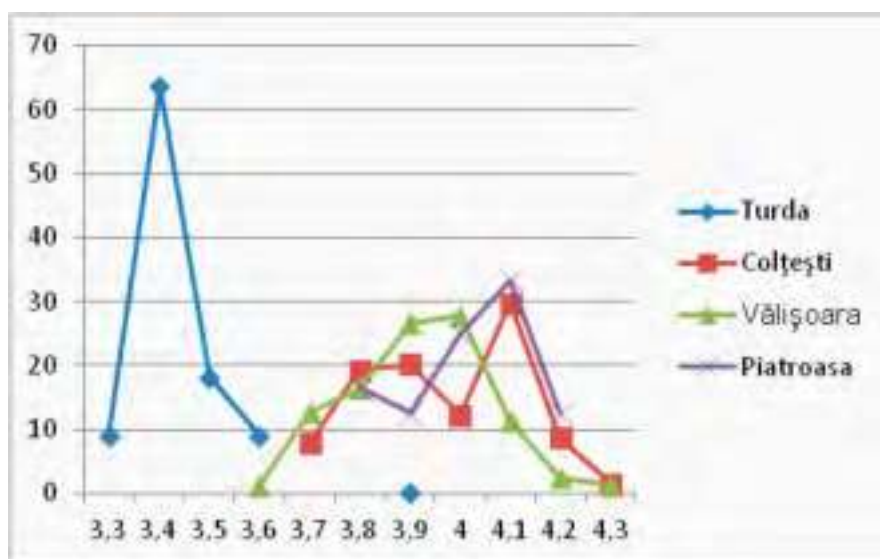


Figure 7. Frequency (0→70 %) distribution curves of width (3.3–4.3 mm) of *Alopia bielzii tenuis*.

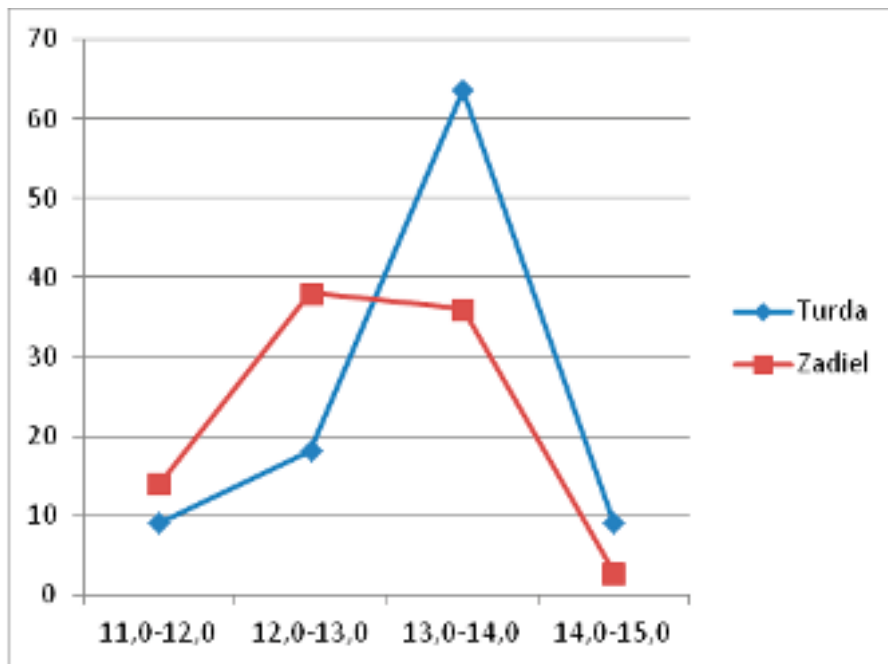


Figure 8. Frequency (0→70 %) distribution curves of height (11–15 mm) of *Alopia bielzii tenuis* and *clathrata*.

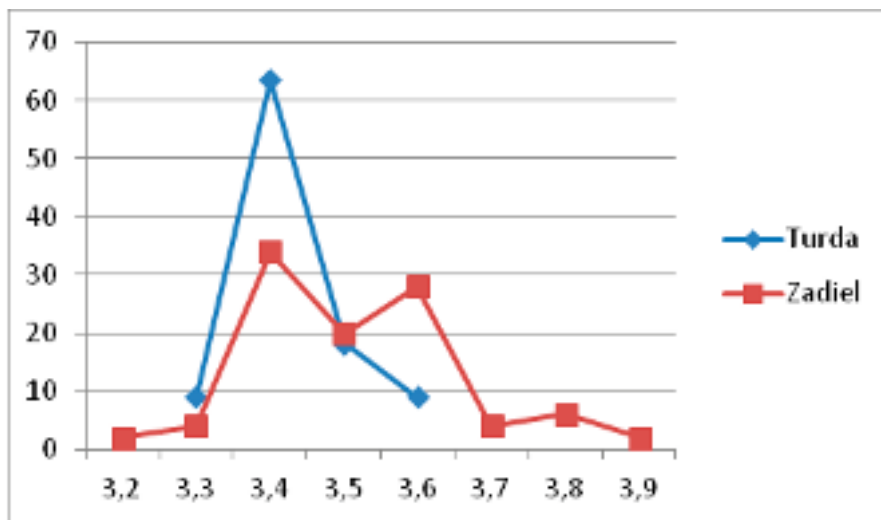


Figure 9. Frequency (0→70) distribution curves of width (3.2–3.9 mm) *Alopia bielzii tenuis* and *clathrata*.

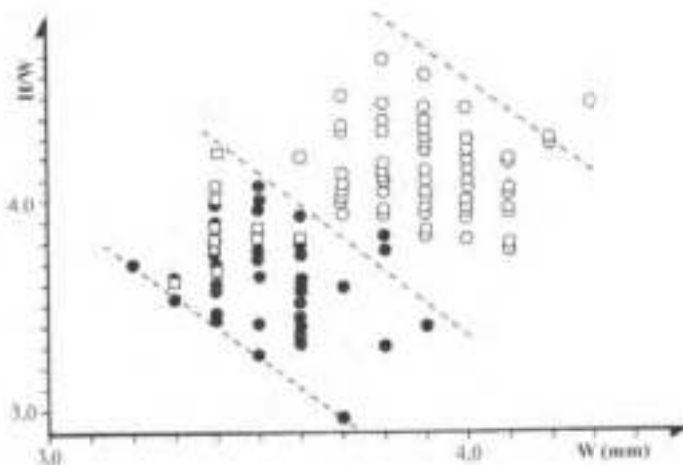


Figure 10. Elongation (H/W) as a function of shell width (3.2→4.3 mm) for the different collection sites and subspecies (● = Slovakia, Zadiel – *Alopia bielzii clathrata*; □ = Romania, Turda, Cheile Turzii – *Alopia bielzii tenuis*; ○ = Romania, Vălișoara, Cheile Vălișoarei – *Alopia bielzii tenuis*).

Check list in systematic order of the mollusks (Grossu 1993)

Class Gastropoda

Subclass Pulmonata

Familia Planorbidae Rafinesque, 1815

● *Anisus leucostoma* (Millet, 1813)

Comments: It is found only in scum on sampling site No.1.

Familia Succinaeidae Beck, 1857

● *Oxyloma elegans* (Risso, 1826)

Comments: In this area, it is difficult to tell *Succinea putris* or *Oxyloma elegans* apart based on shell morphology.

Familia Cochlicopidae Pilsbry, 1900

- *Cochlicopa lubrica* (O.F. Müller, 1774)

Comments: This species is rare in the studied area.

Familia Orculidae Pilsbry, 1913

- *Sphyradium doliolum* (Bruguière, 1792)

Familia Pyramidulidae Wenz, 1923

- *Pyramidula rupestris* (Draparnaud, 1801)

Familia Valloniidae, Morse, 1864

- *Vallonia costata* (O.F. Müller, 1774)
- *Vallonia pulchella* (O.F. Müller, 1774)

Familia Spelaeodiscidae Zilch, 1960

- *Spelaeodiscus triaria* Rossmässler, 1839

Comments: It was collected only in Rezervația naturală Cheile Vălișoarei.

Familia Vertiginidae Fitzinger, 1833

- *Truncatellina cylindrica* (Férussac, 1822)

Familia Pupillidae Turton, 1821

- *Pupilla muscorum* (Linnaeus, 1758)
- *Pupilla triplicata* (Studer, 1820)

Comments: I collected only from the sampling site No.19 (Rezervația naturală Cheile Vălișoarei).

Familia Chondrinidae Steenberg, 1925

- *Granaria frumentum* (Draparnaud, 1801)
- *Chondrina clienta* (Westerlund, 1883)

- *Chondrula tridens* (O.F. Müller, 1774)

Comments: This is a very variable species in the Trascău Mountains: on sampling site No. 1: 13.4x5.4 mm, No. 4: 10.2x3.3 mm, Cheile Turzii: 12.4– 6.7x5.5–3.3 mm (scum!). A revision of this species is required.

- *Merdigera obscura* (O.F. Müller, 1774)

Familia Clausiliidae Schmidt, 1857

- *Alopiä bielzii tenuis* (E.A. Bielz, 1861)

Comments: Among clausiliids this species has the greatest abundance.

- *Cochlodina laminata* (Montagu, 1803)

- *Cochlodina orthostoma* (Menke, 1830)

Comments: This species is known only from sampling site No. 5 (under Salaş cliff).

- *Cochlodina marisi* A. Schmidt, 1857

Comments: According to Grossu (1993): "*C. marisi* is only in the Southern Carpathians: Deva, Cheile Turzii and northern Oltenia." Bába & Sárkány-Kiss 2001 prognosticated from Scarița Belioara (Poșaga de Sus). I found it on the southern part of Mții Apuseni, from Șiria to Vălișoara (Domokos 2014).

- *Ruthenica filograna* (Rossmässler, 1836)

Comments: It is frequent in the Western Carpathian Mountains. The dimension of shells is very varied. I agree with Paál-Gergely 2009–2010 that *Ruthenica galinae* (Bielz, 1861) is an invalid species. In my opinion, this taxon is only one of the many forms.

- *Clausilia dubia* Draparnaud, 1805

- *Clausilia dubia f. gratiosa* Sajó, 1968

Comments: New localities: Rimetea Kiskő (No. 16) and Rezervația naturală Cheile Vălișoara (No. 17).

- *Laciniaria plicata* Draparnaud, 1805

- *Balea biplicata* (Montagu, 1803)

Comments: This genus is in Grossu's catalogue (Grossu, 1993) as *Balea biplicata*. According to Nordsiek's opinion (2007) it is *Alinda biplicata*.

- *Balea stabilis* (L. Pfeiffer, 1847)

Comments: According to Nordsiek's view (2007) it is *Pseudalinda stabilis*.

- *Vestia elata* Rossmässler, 1836

Comments: During my field trip unique samples (No. 13) were collected.

- *Bulgarica vetusta* (Rossmässler, 1836)

Comments: It is very rare in the environs of Rimetea, but relatively common on the western part of Apuseni Mountains (Domokos & Lennert 2007; Domokos et al. 2010; Deli & Domokos 2011).

Familia Ferussaciidae Bruguière, 1883

- *Cecilioides acicula* (O.F. Müller, 1774)

Comments: From scum turned up only (On the sampling site No. 1).

Familia Endodontidae Pilsbry, 1894

- *Discus perspectives* (Mühlfels, 1818)

Comments: It is a unique occurrence in hornbeam forest (Sampling site No. 2, 13.) in the Munții Apuseni (Bába & Kovács 1975; Bába & Sárkány-Kiss 2001; Deli & Domokos 2011; Domokos & Vánca 2005; Domokos & Lennert 2007; Domokos et al. 2010; Domokos 2014; Lengyel & Paál-Gergely 2009–2010).

Familia Vitrinidae Fitzinger, 1833

- *Phenacolimax/ Vitrina pellucida* (O.F. Müller, 1774)

- *Phenacolimax annularis* Studer, 1820

Familia Arionidae Gray, 1841

- *Arion subfuscus* Draparnaud, 1801

Comments: It is determined based on the specimens' morphology and colour.

Familia Zonitidae Mörch, 1864

- *Zonitoides nitidus* (O.F. Müller, 1774)
- *Vitrea transsylvanica* (Clessin, 1877)
- *Vitrea diaphana* (Studer, 1820)
- *Vitrea crystallina* (O.F. Müller, 1774)
- *Aegopinella minor* (Stabile, 1864) or *Aegopinella epipedostoma* (Fagot, 1869).

Comments: The systematic status of all two *Aegopinella* species is doubtful due to the lack of anatomical investigation. *Aegopinella epipedostoma* was mentioned by Lengyel & Páll-Gergely (2009–2010) from Bihor Mountains.

- *Aegopinella pura* (Adler, 1830)

Familia Limacidae Rafinesque, 1815

- *Bielzia coerulans* (M. Bielz, 1851)

Comments: It is collected from rock-glacier at Piatra Secuiului (Sampling site No. 4).

Familia Bradybaenidae Pilsbry, 1939

- *Bradybaena fruticum* (O.F. Müller, 1774)

Familia Helicidae Rafinesque, 1815

- *Helicella obvia* (Menke, 1828)
- *Perforatella dibothrion* (M. Kimakowicz, 1890)
- *Monachoides vicina* (Rossmässler 1842)

Comments: This species is absent from the Munții Codru-Moma. (Domokos & Lennert, 2007) The young *Monachoides vicina* individuals are easily confused with *Hygromia/Lozekia transsylvanica* (Westerlund, 1876) or *Hygromia/Kovacsia ko-*

vacsi Varga & Pintér, 1972 individuals.

● *Zenobiella rubiginosa* (A. Schmidt, 1853)

● *Euomphalia strigella* (Draparnaud, 1801)

Comments: Widespread in the investigated area.

● *Lozekia transsylvanica* (Westerlund, 1876)

Comments: The second clad (k-2) of the *Kovacsia kovacsi* can be found in the Pădurea Craiului, Codru-Moma and Zărand Mountains (Fehér et al, 2008). In the studied area its presence is doubtful due to lack of anatomical investigation.

● *Drobacia/Helicigona banatica* (Rossmässler, 1838)

Comments: This species is widespread in the Apuseni Mountains (Domokos & Lennert, 2007; Domokos et al. 2010).

● *Campylea faustina* (Rossmässler, 1835)

● *Cepaea vindobonensis* (Férussac, 1821)

● *Helix pomatia* Linnaeus, 1758

● *Helix lutescens* (Rossmässler, 1837)

Comment: In the studied area and in the Apuseni Mountains it is rare and absent in the Codru-Moma Mountains (Domokos & Lennert, 2007).

Acknowledgements

I wish to thank Miklós Szekeres and Tamás Deli, who were generous in helping me to determine the species from the Familia Clausiliidae (M.Sz.) and the *Vitrea* genus (T. D.) and providing various data (T.D.). I thank to László Sarkadi, who put two samples from Rimetea at my disposal. Last but not least, I am grateful to Márton Venczel and István Lányi for their comments on the manuscript and for the editorial work (M.V. and A.G.).

Table 1/a Sampling sites and terrestrial snail taxa of the study area. Endemic Carpatian species are pressed from list with bold tipe (Bába 1982, Walter-Schultes 2012)

No	Taxa	Sampling sites									
		1	2	3	4	5	6	7	8	9	10
1	<i>Aegopinella minor</i>	•	•		•			•			
2	<i>Aegopinella pura</i>										
3	<i>Alinda biplicata</i>								•	•	
4	<i>Alopi</i> <i>bielzii tenuis</i>			•	•						
5	<i>Arion subfuscus</i>									•	
6	<i>Bielzia</i> <i>coerulans</i>				•						
7	<i>Bradybaena fruticum</i>	•			•						
8	<i>Bulgarica vetusta</i>				•						
9	<i>Campylea</i> <i>faustina</i>				•				•		
10	<i>Cecilioides acicula</i>	•									
11	<i>Cepaea vindobonensis</i>			•	•						
12	<i>Chondrina clienta</i>			•	•						
13	<i>Chondrula tridens</i>	•		•	•						
14	<i>Clausilia dubia</i>										
15	<i>Clausilia dubia</i> <i>f. cratiosa</i>										
16	<i>Cochlicopa lubrica</i>	•									
17	<i>Cochlodina laminata</i>		•			•				•	
18	<i>Cochlodina</i> <i>marisi</i>			•	•			•			
19	<i>Cochlodina orthostoma</i>					•					
20	<i>Discus perspectivus</i>	•	•								
21	<i>Euomphalia strigella</i>	•	•	•	•	•					
22	<i>Granaria frumentum</i>			•			•				
23	<i>Helicella obvia</i>			•			•				
24	<i>Helicigona/Drobacia</i> <i>banatica</i>	•				•			•	•	
25	<i>Helix lutescens</i>	•									•
26	<i>Helix pomatia</i>			•			•				
27	<i>Hygromia/Lozekia</i> <i>f. transsylvanica</i>	•									
28	<i>Laciniaria plicata</i>					•				•	
29	<i>Merdigera obscura</i>					•					
30	<i>Monachoides vicina</i>								•		
31	<i>Oxyloma elegans</i>	•									
32	<i>Perforatella</i> <i>dibothrion</i>		•			•					
33	<i>Phenacolimax /Vitrina pellucida</i>		•		•	•				•	
34	<i>Phenacolimax annularis</i>				•						
35	<i>Pupilla muscorum</i>	•			•						
36	<i>Pupilla triplicata</i>										
37	<i>Pyramidula rupestris</i>										
38	<i>Ruthenica filograna</i>	•			•				•		
39	<i>Pseudalinda</i> <i>stabilis</i>		•		•	•					
40	<i>Spelaeodiscus</i> <i>triaria</i>										
41	<i>Sphyradium doliolum</i>	•			•	•			•	•	
42	<i>Tuncatellina cylindrica</i>				•						
43	<i>Vallonia costata</i>										
44	<i>Vallonia pulchella</i>	•									
45	<i>Vestia</i> <i>elata</i>										
46	<i>Vitrea crystallina</i>								•		
47	<i>Vitrea diaphana</i>					•					
48	<i>Vitrea</i> <i>transsylvanica</i>										
49	<i>Zenobiella rubiginosa</i>	•									
50	<i>Zonitoides nitidus</i>	•									
Number of taxa		17	7	9	18	11	3	2	7	7	1

Table 1/b Sampling sites and terrestrial snail taxa of the study area. Endemic Carpathian species are pressed from list with bold tipe (Bába 1982, Walter-Schultes 2012)

	Taxa	Sampling sites									1 -19
		11	12	13	14	15	16	17	18	19	
1	<i>Aegopinella minor</i>		●	●							6
2	<i>Aegopinella pura</i>			●							1
3	<i>Alinda biplicata</i>			●							3
4	<i>Alopi</i> <i>bielzii tenuis</i>						●			●	4
5	<i>Arion subfuscus</i>										1
6	<i>Bielzia</i> <i>coerilans</i>										1
7	<i>Bradybaena fruticum</i>	●							●		4
8	<i>Bulgarica vetusta</i>										1
9	<i>Campylea</i> <i>faustina</i>										2
10	<i>Cecilioides acicula</i>										1
11	<i>Cepaea vindobonensis</i>		●				●			●	5
12	<i>Chondrina clienta</i>						●	●		●	5
13	<i>Chondrula tridens</i>						●				4
14	<i>Clausilia dubia</i>				●						1
15	<i>Clausilia</i> <i>d. f. cratiosa</i>						●	●			2
16	<i>Cochlicopa lubrica</i>										1
17	<i>Cochlodina laminata</i>			●							4
18	<i>Cochlodina</i> <i>marisi</i>		●		●		●	●			7
19	<i>Cochlodina orthostoma</i>										1
20	<i>Discus perspectivus</i>			●							3
21	<i>Euomphalia strigella</i>	●	●	●				●		●	10
22	<i>Granaria frumentum</i>					●	●	●		●	6
23	<i>Helicella obvia</i>		●				●	●		●	6
24	<i>Drobacia</i> <i>banatica</i>			●							5
25	<i>Helix lutescens</i>										2
26	<i>Helix pomatia</i>	●	●	●			●	●		●	8
27	<i>Laciniaria plicata</i>		●		●						4
28	<i>Lozekia</i> <i>f. transsylvanica</i>										1
29	<i>Merdigera obscura</i>										1
30	<i>Monachoides vicina</i>										1
31	<i>Oxyloma elegans</i>								●		2
32	<i>Perforatella</i> <i>dibothrion</i>			●							3
33	<i>Phenacolimax pellucida</i>			●				●			6
34	<i>Phenacolimax annularis</i>							●			2
35	<i>Pupilla muscorum</i>							●		●	4
36	<i>Pupilla triplicata</i>									●	1
37	<i>Pyramidula rupestris</i>						●			●	2
38	<i>Ruthenica filograna</i>			●			●	●			6
39	<i>Pseudalinda</i> <i>stabilis</i>			●							4
40	<i>Spelaeodiscus</i> <i>triaria</i>							●			1
41	<i>Sphyradium doilolum</i>										4
42	<i>Tunecatellina cylindrica</i>									●	2
43	<i>Vallonia costata</i>					●					1
44	<i>Vallonia pulchella</i>						●	●		●	4
45	<i>Vestia</i> <i>elata</i>			●							1
46	<i>Vitrea crystallina</i>										1
47	<i>Vitrea diaphana</i>										1
48	<i>Vitrea</i> <i>transsylvanica</i>			●							1
49	<i>Zenobiella rubiginosa</i>										1
50	<i>Zonitoides nitidus</i>								●		2
Number of taxa		3	7	14	3	2	9	16	3	12	151

Table 2. Size distribution parameters of H (height) of the measured *Alopia bielzii tenuis* population (s: sunny biotope, sh: shady biotope, m: sunny and shady biotope: N: number of cases, AM: arithmetic mean, MO: mode, Min: minimum value, Max: maximum value, d: range of measuring, σ : standard deviation, V: variance).

S. sites	Series H	N	AM	Mo	Min	Max	d	σ	V
Colțești	1. st.	38	15,66	15,2	13,3	17,7	4,4	0,86	0,75
	2. nd.	38	15,66	15,7	13,4	17,7	4,3	0,86	0,74
	3. rd.	38	15,68	16,1	13,4	17,7	4,3	0,86	0,74

Table 3. Size distribution parameters of W (width) of the measured *Alopia bielzii tenuis* population (For list of abbreviations see Table 2).

S. site	Series W	N	AM	Mo	Min	Max	d	σ	V
Colțești	1. st.	38	3,95	4,1	3,7	4,2	0,5	0,15	0,02
	2. nd.	38	3,97	4,1	3,7	4,3	0,6	0,15	0,02
	3. rd.	38	3,98	4,1	3,7	4,3	0,6	0,15	0,02

Table 4. Size distribution parameters of H (height) of the measured *Alopia bielzii clathrata* population (For list of abbreviations see Table 2).

S. site	Series H	N	AM	Mo	Min	Max	d	σ	V
Zadiel	1.st.	50	12,8	12,5/13,3	11,0	14,6	3,6	0,83	0,67
	2.nd.	44	12,9	12,5/13,3	11,0	14,6	3,6	0,78	0,61
	3.rd.	42	12,9	12,5-13,3	11,0	14,6	3,6	0,79	0,63

Table 5. Size distribution parameters of W (width) of the measured *Alopia bielzii clathrata* population (For list of abbreviations see Table 2).

S. site	Series W	N	AM	Mo	Min	Max	d	σ	V
Zadiel	1. st.	50	3,51	3,4	3,2	3,9	0,7	0,14	0,02
	2. sd.	44	3,53	3,5	3,2	4,0	0,8	0,14	0,02
	3. rd.	42	3,54	3,5/3,6	3,2	4,0	0,8	0,14	0,02

Table 6. Comparison of shell height (H) of from *Alopia bielzii tenuis* populations of different habitats (For list of abbreviations see Table 2).

S. sites	Exposure	N	AM	Mo	Min	Max	d	σ	V
Turda	E–W (sh.)	11	13,26	13–14	12,0	14,4	2,4	0,67	0,45
Colțești	W–SW (m.)	38	15,66	15–16	13,4	17,7	4,3	0,86	0,74
Vălișoara	W (s.)	79	16,33	16–17	14,6	19,3	4,7	0,88	0,78
Pietroasa	S–SW (sh.)	24	16,82	17–18	15,7	18,1	2,7	0,67	0,44

Table 7. Comparison of shell width (W) of from *Alopia bielzii tenuis* populations of different habitats (For list of abbreviations see Table 2).

S. sites	Exposure	N	AM	Mo	Min	Max	d	σ	V
Turda	E–W (sh.)	11	3,42	3,4	3,3	3,6	0,3	0,08	0,00
Colțești	W–SW (m.)	38	3,97	4,1	3,7	4,3	0,6	0,16	0,25
Vălișoara	W (s.)	79	3,91	4,0	3,6	4,3	0,7	0,14	0,02
Pietroasa	S–SW (sh.)	24	4,01	4,1	3,8	4,2	0,4	0,13	0,01

References

- Bába, K. & Kovács, Gy. 1975 – Adatok a Királyhágó környéke, a révi szurdokvölgy és a Tordai-hasadék Mollusca-faunájához (Román Szocialista Köztársaság). – *Soosiana* **3**: 27–34.
- Bába, K. & Sárkány-Kiss, A. 2001 – The malacofauna of the Bélavára – Scărița Belioara mountain (Bihar Mountains, Romania). – *Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft*, **9**: 21–25.
- Csiki, E. 1906 – Mollusca. In: Fauna Regni Hungariae, II. (Mollusca). Királyi Magyar Természettudományi Társulat, **6**: 1–44. Budapest.
- Deli, T. & Domokos, T. 2011 – An isolated occurrence of *Alopiopsis bilzii tenuis* (E.A. Bielz) (Mollusca, Gastropoda, Clausiliidae) in the Bihor-Vlădeasa Mountains (Romania). – *Nymphaea*, **38**: 129–136.
- Domokos, T. & Vánca, K. 2006 – Malacofaunistical and ecological data from the Troaş Valley. – *Tiscia*, **35**: 17–26.
- Domokos, T. & Lennert, J. 2007 – Standard faunistical work on the mollusks of Codru-Moma Mountains (Romania). – *Nymphaea*, **34**: 67–96.
- Domokos, T., Lennert, J. & Venczel, M. 2010 – Data on the Mollusc fauna of Pădurea Craiului Mountains (Romania). – *Nymphaea* **37**: 103–170.
- Domokos, T. 2014 – Malacofaunistical, ecological and shell morphometrical observations at two castle ruins (Cetatea Șiria and Cetatea Șoimos) in the Zărand Mountains, Romania. – *Nymphaea*, **41**: 87–102.
- Fehér, Z., Varga, A., Deli, T., Domokos, T., Szabó, K., Bozsó, M. & Péntes, Zs. 2008 – Filogenetikai vizsgálatok védett puhatestűeken. In: Forró, L. (Ed.): A Kárpát-medence állatvilágának kialakulása. 183–200. Budapest
- Fehér, Z., Németh, L., Nicoara, A. & Szekeres, M. 2013 – Molecular phylogeny of the land snail genus *Alopiopsis* (gastropoda: Clausiliidae) reveals multiple inversions of chirality. – *Zoological journal of the Linnean Society* **167**: 259–272.
- Gagiu, A. 2007 – The mollusks collection of Alexandru V. Gossu in Țării Crișurilor Museum, Oradea – *Nymphaea* **34**: 97–122.
- Gossu, A. V. 1955 – Fauna Republicii Populare Romîne. Mollusca, Gastropoda, Pulmonata III/1. București.
- Gossu, A. V. 1981a – Gastropoda Romaniae. Vol. **3**. București.
- Gossu, A. V. 1981b – Caracteristica gastropodelor din Munții Apuseni. – *Nymphaea* **8-9**: 428–431.
- Gossu, A. V. 1983 – Gastropoda Romaniae. Vol. **4**. București.
- Gossu, A. V. 1993 – The catalogue of the Mollusks from Romania. – *Travaux du Museum d'Histoire naturelle „Grigore Antipa”* **33**: 291–366.
- Kimakowicz, M. 1894 – Prodröm zu einer Monographie des *Clausilia*-Subgenus *Alopiopsis* H. et A. Adams. Beitrag zur Mollusken-Fauna Siebenburgens III. – *Verhandlungen und Mitteilungen des Siebenbürgischen Verein für Naturwissenschaften zu Hermannstadt*, **43**: 19–58. Hermannstadt/Sibiu.
- Kerney, M. P., Cameron, A. D. & Jungbluth, J. H. 1983 – Die Landschnecken Nord- und Mitteleuropas. – Verlag Paul Parey, Hamburg und Berlin
- Lengyel, G. D. & Páll-Gergely, B. 2009–2010 – Notes on the landsnail (Gastropoda) and harvestman (Opiliones) fauna of Bihor and Vlădeasa Mountains, Romania. – *Studii și Comunicări Seria Științele Naturii* **9–11**: 91–111. Satu Mare

- Nordsieck, H. 2006 – Systematics of the genera *Macrogastra* Hartmann 1841 and *Julica* Nordsieck 1963, with the description of new taxa. – *Archiv für Molluskenkunde* **135**: 49–71.
- Nordsieck, H. 2007 – *Balea* Gray 1824 and *Alinda* H & A. Adams are separated as genera (Gastropoda, Stylommatophora: Clausiliidae). – *Mitteilungen der Deutschen Malakozoologischen Gesellschaft* **77/78**: 27–30.
- Nordsieck, H. 2008 – The systematics of the genus *Alopi* H. & A. Adams 1855 (Gastropoda, Stylommatophora: Clausiliidae). – *Mitteilungen der Deutschen Malakozoologischen Gesellschaft* **79/80**: 7–18.
- Pelbárt, J. 2000 – Magyarország recens Mollusca faunájának tudományos név szótára. – Grafon Kiadó, Nagykovácsi.
- Rotarides, M. 1941 – Erdély csigafaunájának állatföldrajzi érdekességei. Tiergeographische Charakterzüge der Schneckenfauna Siebenbürgens – *Állattani Közlemények* **38**: 92–112.
- Soós, L. 1928 – Az *Alopi*-nem. – *Annales Historico-Naturales Musei Nationalis Hungarici* **25**: 261–426.
- Soós, L. 1943 – A Kárpát-medence Mollusca-faunája. – In: Magyarország természetrajza, I. Állattani rész. Magyar Tudományos Akadémia, Budapest.
- Váncsa, K. 2006. – A Magyar Természettudományi Múzeum Mollusca-gyűjteményében található Kovács Gyula-féle kollekciónak romániai vonatkozásai. – *A Békés Megyei Múzeumok Közleményei* **28**: 41-60.
- Wagner, A. 1922 – Systematisches Verzeichnis der mir heute bekannten Arten und Formen der Clausiliiden. – *Annales Zoologici Musei Polonici Historae Naturalis* **1(2-3)**: 77–95.
- Welter-Schultes, F. 2012 – European non-marine mollusks, a guide for species identification. Planet Poster Editions, Göttingen.
- Westerlund, C. A. 1884 – Fauna der in der paläarctische Region (Europa, Kaukasien, Sibirien, Turan, Persien, Kursistan, Armenien, Mesopotamien, Kleinasien, Syrien, Arabien, Egypten, Tripolis, Tunesien, Algerien, und Marocco) lebenden Binnenconchylien. IV. Gen. *Balea* Prid. & *Clausilia* Dr. Karlskrona.

