CORMOPHYTES DIVERSITY IN THE FOREST NEAR THE MĂNĂSTIRE VILLAGE (BIRDA, TIMIȘ DEPT.)

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Abstract: *We present a conspectus of the cormophytes flora from the forest of the village Mănăstire (Birda commune, Timiș county) and some observations on the species of conservative importance, Fritillaria meleagris L., which we found here. Due to the small size of the habitat, the easily accessible area and the not informing people about the status of the species, its population is threatened with extinction. In the past, in this forest we also met Galanthus nivalis L., species of community interest, according to the Law 49/2011. The species unfortunately, today disappeared due to the same factors. The presence of the forests in this area, was also reported by Francesco GRISELINI (in the 17th century), this patch of forest of about 200 hectares being among the few surfaces that were not cut. Our data provides informations from a new location of the iconic species for nature conservation in the Banat, Fritillaria meleagris L. (COSTE & ARSENE, 2000) and from the overall biodiversity. The conservation status of this species habitat is assessing as unfavorable, the main causes being the inappropriate management and the anthropic pressures. We note that this article contains the data from the bachelor's work titled "The Biodiversity of the Flora in the Mănăstire Forest (Birda Commune)" (POPA, 2018).*

Key words: *cormophytes flora, Fritillaria meleagris, conservation, forest, Mănăstire, Birda*

INTRODUCTION

Mănăstire is a village under the administration of Birda commune (Timiș County), located on the left bank of the Bârzava River. It is positioned at the 45˚24'23" north latitude and 21˚19'57" eastern longitude. The village is bordered by Birda commune to the north, Berecuţa village to the east, Butin village to the south, and Sângeorge village to the west. The first documentary attestation of Mănăstire village dates back to 1503, when the Serbian monastery "Saint George" was built here. The settlement developed around this monastery, being inhabited by Serbs coming from Old Serbia. Most of the land in the area was the property of the monastery, and the village was mainly inhabited by Romanians, but it still retained a significant Serb community. After Banat's unification with Romania, ownership was established and the land was parcelled and distributed to the peasants (http://enciclopediaromaniei.ro).

The temperate-continental climate in the region ensures optimum conditions for agriculture. Therefore, agricultural crops have replaced natural vegetation almost entirely. In the seventeenth century, scientist Francesco GRISELINI recalls the presence of forests in this area. Unfortunately, these wooded areas were largely deforested during the communist period. Today, there are still small forest areas, like the one near Mănăstire village (http://www.e-primarii.ro). This forest is the object of our study. It is a very old oak forest that stretches over 200 ha, and is crossed by DC 173 Birda - Mănăstire (figure 1).

Figure 1. Drone image from the forest Mănăstire (2017)

MATERIAL AND METHODS

The purpose of our research was to draw up the list of species in the forest from Mănăstire village, their analysis and also the description of the representative ones. The notes and analysis of the flora were made based on field observations (mainly in the period 2017-2018), and following laboratory determination of the botanical material collected. When determining the species, we used *Flora R.S.R.* (1952-1976), CIOCÂRLAN (2009), SÎRBU *et al.* (2013). The notes on the flora are organized according to botanical families, and to the classification system presented by CIOCÂRLAN (2009). The adopted nomenclature for the denomination of species is according to CIOCÂRLAN (2009). In the presentation of each species, we have specified its valid scientific name and current synonyms, Romanian and English vernacular name, life form, geoelement and ecological indicators value (humidity, temperature and soil reaction). We used the system of SANDA *et al.* (1983) for the evaluation of the indicators and their appreciation. The abbreviations used are:

- for life forms - MM - megaphanerophyte, M - microphanerophyte, N - nanophyte, Ch - chamephyte, E - epiphyte, H - hemicryptophyte, G - geophyte, TH - biannual terophyte, Th - annual terophyte;
- for floristic elements / geoelements - Eur- European, Cont - Continental, Eua - Eurasian, Med - Mediterranean, Circ - Circumpolar, Euc - European Central, Adv - Adventive, Cosm - Cosmopolitan, Pont - Pontic, Pan - Pannonian, Balc - Balkan, Atl - Atlantic;
- the scale for Humidity (H) indicators - 1 - xerophyte, 2 - xeromesophyte, 3 - mesophyte, 4 - mesohydrophyte, 5 - hydrophyte, 6 - ultrahydrophyte, 0 - amphitolerant;

- the scale for Temperature (T) - 1 - cryophilic, 2 - microthermal, 3 - mesothermal, 3 - moderate-thermophilic, 5 - thermophilic, 0 - amphitolerant;
- the scale for soil reaction (R) - 1 - highly acidophilic, 2 - acidophilic, 3 - acidic-neutrophil, 4 - low-acidic neutrophil, 5 - neutrobasophilic, 6 - amphitolerant.

RESULTS AND DISCUSSIONS

Following the field trips around the forest from Mănăstire village, we identified 162 species included in the list below. The species are part of 53 botanical families, of which the most represented species are *Poaceae* (16 species), *Asteraceae* (14 species), *Rosaceae* (10 species), *Fabaceae* (10 species), *Lamiaceae* (10 species), *Ranunculaceae* (8 species).

The cormophytes flora conspectus in the forest from Mănăstire village (Birda commune):

Aceraceae

1. *Acer campestre* L. (ro. jugastru, engl. field maple) - MM-M, Eur; $H_{2,5}T_3R_3$
2. *Acer tataricum* L. (ro. arțar tătărăsc, engl. tatar maple) - M-MM, Eur (Cont); $U_{2,5}T_{3,5}R_4$

Adoxaceae

3. *Sambucus ebulus* L. (ro. boz, engl. danewort) - H, Eua (Med); $U_3T_3R_3$
4. *Sambucus nigra* L. (ro. soc, engl. elder) - MM-M, Eur (Med); $U_3T_3R_3$
5. *Viburnum opulus* L. (ro. călin, bulgăre de zăpadă, engl. guelder-rose, snowball tree) - M, Circ; $U_4T_3R_4$

Amaryllidaceae

6. *Galanthus nivalis* L. (ro. ghiocel, engl. snowdrop) - G, Euc-Med; $U_{3,5}T_3R_4$

Apiaceae

7. *Chaerophyllum bulbosum* L. (ro. baraboi, engl. tuberous-rooted chervil) - TH-H, Eur (Cont); $U_4T_{3,5}R_{4,5}$
8. *Conium maculatum* L. (ro. cucută, engl. hemlock) - TH, Eua; $U_3T_3R_3$
9. *Heracleum sphondylium* L. (ro. brânca-ursului, engl. hogweed, cow parsnip) - H, Eua; $U_4T_{2,5}R_0$
10. *Pastinaca sativa* L. (ro. păstârnac, engl. wild parsnip) - TH-H, Eua; $U_3T_4R_4$

Apocynaceae

11. *Vincetoxicum hirundinaria* Medikus (ro. iarba fiarelor, engl. white swallow-wort) - H, Eur (Med); $U_2T_4R_4$
12. *Vinca minor* L. (ro. saschiu, engl. periwinkle) - Ch, Euc-Med; $U_3T_3R_3$

Araceae

13. *Arum maculatum* L. (ro. rodul pământului, engl. lords and ladies) - G, Euc-Med; $U_{3,5}T_3R_4$

Araliaceae

14. *Hedera helix* L. (ro. iederă, engl. ivy) - N-E, Atl-Med

Aristolochiaceae

15. *Aristolochia clematitis* L. (ro. mărul lupului, engl. birthwort) - G, Med; $U_{2,5}T_{3,5}R_5$
16. *Asarum europaeum* L. (ro. piperul lupului, engl. wild spikenard) - H, Eua; $U_{3,5}T_3R_4$

Asparagaceae

17. *Ornithogalum umbellatum* L. (ro. bălușcă, engl. garden star-of-Bethlehem) - G, Med-Euc; $U_0T_{3,5}R_4$
18. *Polygonatum odoratum* Miller (ro. pecetea lui Solomon, Solomon's seal) - G, Eua (Med); $U_2T_3R_4$

Asteraceae

19. *Achillea millefolium* L. (ro. coada-șoricelului, engl. yarrow) - H, Eua; $U_3T_0R_0$
20. *Arctium lappa* L. (ro. brusture, engl. greater burdock) - TH, Eua; $U_{3,5}T_3R_4$
21. *Artemisia vulgaris* L. (ro. pelinariță, engl. mugwort) - H, Eua; $U_3T_3R_4$
22. *Cichorium intybus* L. (ro. cicoare, engl. chicory) - H, Eua; $U_3T_0R_3$
23. *Cirsium arvense* L. (ro. pălămidă, engl. creeping thistle) - G, Eua; $U_{2,5}T_3R_0$
24. *Conyza canadensis* (L.) Cronq. (ro. bătrâniș, engl. Canadian horseweed) - Th, Adv (Am.N.); $U_{2,5}T_0R_0$
25. *Erigeron annuus* (L.) Pers. (ro. bunghișor, engl. annual fleabane) - Th-TH-H, Adv (Am. N.); $U_4T_0R_4$
26. *Leucanthemum vulgare* Lam. (ro. margaretă, engl. ox-eye daisy) - H, Eua; $U_3T_0R_0$
27. *Matricharia chamomilla* L. (ro. mușețel, engl. pineapple mayweed) - Th, Eua; $U_{2,5}T_{3,5}R_5$
28. *Picris hieracioides* L. (ro. iarba găii, engl. hawkweed oxtongue) - TH-H, Eua; $U_{1,5}T_3R_4$
29. *Tussilago farfara* L. (ro. podbal, engl. coltsfoot) - G, Eua; $U_0T_3R_4$
30. *Sonchus asper* (L.) Hill. (ro. susai aspru, engl. sowthistle) - Th-TH, Cosm; $U_3T_0R_0$
31. *Taraxacum officinale* Weber ex Wiggers (ro. păpădie, engl. dandelion) - H, Pont-Pan-Balc; $U_2T_4R_{4,5}$

32. *Xanthium italicum* Moretti (ro. cornuți, engl. cocklebur) - Th, Eur; $U_{3.5}\,T_4\,R_0$

Betulaceae

33. *Carpinus betulus* L. (ro. carpen, engl. hornbeam) - MM-M, Eur; $U_3\,T_3\,R_3$
34. *Corylus avellana* L. (ro. alun, engl. hazel) - M, Balc; $U_3\,T_3\,R_3$

Boraginaceae

35. *Buglossoides purpureo-caerulea* (L.) I.M. John. (ro. mărgelușe, engl. purple gromwell) - H-G, Euc-Med; $U_{2,5}\,T_4\,R_{4,5}$
36. *Myosotis arvensis* L. (ro. nu-mă-uita, engl. forget-me-not) - TH, Eua; $U_3\,T_3\,R_0$
37. *Myosotis nemorosa* Besser - (ro. nu-mă-uita, engl. forget-me-not) - TH-H, Eua; $U_5\,T_3\,R_0$
38. *Symphytum officinale* L. (ro. tătăneasă, engl. comfrey) - H, Eua; $U_4\,T_3\,R_0$
39. *Pulmonaria officinalis* L. (ro. plămânărică, engl. common lungwort) - H, Eur; $U_{3,5}\,T_3\,R_3$

Brassicaceae

40. *Alliaria petiolata* (Bieb) Cavara el Grande (*A. officinalis* Andrz.) (ro. usturoiță, engl. garlic mustard) - TH-H, Eua; $U_3\,T_3\,R_4$
41. *Capsella bursa-pastoris* (L.) Medik. (ro. traista ciobanului, engl. shepherd's-purse) - Th-TH, Cosm (Med); $U_3\,T_0\,R_0$
42. *Cardaria draba* (L.) Desv. (ro. urda vacii, engl. whitetop) - H, Eua (Med); $U_2\,T_4\,R_4$
43. *Dentaria bulbifera* L. (ro. colțișor, engl. toothwort) - G, Euc; $U_3\,T_3\,R_4$
44. *Erophila verna* (L.) Cheval. (ro. flămânzică, engl. spring draba) - Th, Eur; $U_{2,5}\,T_{3,5}\,R_0$
45. *Sinapis arvensis* L. (ro. muștar sălbatic, engl. field mustard) - Th, Eua; $U_3\,T_3\,R_3$

Cannabaceae

46. *Humulus lupulus* L. (ro. hamei, engl. common hop) - H, Eua; $U_{3,5}\,T_3\,R_4$

Caryophyllaceae

47. *Cucubalus baccifer* L. (ro. plesnitoare, engl. berry catchfly) - H, Eua; $U_{3,5}\,T_3\,R_4$
48. *Melandrium album* Miller Garke (ro. opaiț alb, engl. white campion) - Th (TH) Eua; $U_{3,5}\,T_2\,R_3$
49. *Stellaria media* (L.) Vill. (ro. roconină, engl. common chickweed) - Th (TH), Cosm; $U_3\,T_0\,R_0$
50. *Stellaria nemorum* L. (ro. steluță, engl. wood stitchwort) - H, Eur; $U_{3,5}\,T_3\,R_3$

Celastraceae

51. *Evonymus europaeus* L. (ro. salbă moale, engl. spindle tree) - M, Eur; $U_3\,T_3\,R_3$

Convolvulaceae

52. *Convolvulus arvensis* L. (ro. volbură, engl. bindweed) - G (H), Cosm; $U_{2,5}\,T_{3,5}\,R_{3,5}$

Cornaceae

53. *Cornus mas* L. (ro. corn, engl. European cornel tree) - M, Pont-Med; $U_2\,T_{3,5}\,R_4$
54. *Cornus sanguinea* L. (ro. sânger, engl. dogwood) - M, Euc; $U_3\,T_3\,R_4$

Cucurbitaceae

55. *Bryonia alba* L. (ro. mutătoare, engl. white bryony) - H, Eua; $U_{3,5}\,T_4\,R_0$

Cyperaceae

56. *Carex sylvatica* L. (ro. rogoz, engl. European woodland sedge) - H (HH), Circ; $U_{3,5}\,T_3\,R_4$
57. *Carex divulsa* L. (ro. rogoz, engl. grey sedge) - H, Circ; $U_{2,5}\,T_3\,R_0$
58. *Carex hirta* L. (ro. rogoz, hairy sedge, hammer sedge) - G, Circ; $U_0\,T_3\,R_0$

Dipsacaceae

59. *Dipsacus sylvestris* Hudson (ro. varga ciobanului, engl. wild teasel) - TH, Med-Euc; $U_{3,5}\,T_{3,5}\,R_4$

Dioscoreaceae

60. *Dioscorea communis* L. (ro. untul pământului, engl. black bryony) - G, Med; $U_3\,T_{3,5}\,R_4$

Equisetaceae

61. *Equisetum arvense* L. (ro. coada calului, engl. common horsetail) - G, Cosm; $U_3\,T_3\,R_0$

Euphorbiaceae

62. *Euphorbia amygdaloides* L. (ro. laptele câinelui, engl. wood spurge) - Ch, Eur (Med); $U_3\,T_{3,5}\,R_4$
63. *Euphorbia cyparissias* L. (ro. laptele câinelui, engl. spurge) - H-G, Eua; $U_2\,T_3\,R_4$

Fabaceae

64. *Astragalus glycyphyllos* L. (ro. unghia găii, engl. milk vetch) - H, Eua (Med); $U_3\,T_3\,R_4$
65. *Trifolium pratense* L. (ro. trifoi roșu, engl. red clover) - H-TH, Eua; $U_3\,T_0\,R_0$
66. *Trifolium repens* L. (ro. trifoi alb târător, engl. white clover) - H, Eua; $U_{3,5}\,T_0\,R_0$
67. *Gleditsia triacanthos* L. (ro. plătică, engl. honey locust)
68. *Lathyrus sylvestris* L. (ro. bob de țarină, engl. flat pea) - H, Eur-Med; $U_{2,5}\,T_3\,R_4$
69. *Medicago sativa* L. (ro. lucernă, engl. alfalfa) - Ch-H, Eua (Cont); $U_2\,T_3\,R_5$

70. *Melilotus officinalis* Lam. (ro. sulfină galbenă, engl. yellow sweet clover) - Th (TH), Eua; $U_{2,5}\,T_{3,5}\,R_0$
71. *Robinia pseudacacia* L. (ro. salcâm, engl. black locust) - MM, Adv; $U_{2,5}\,T_4\,R_0$
72. *Vicia cracca* L. (ro. măzăriche, engl. tufted vetch) - H, Eua; $U_3\,T_0\,R_3$
73. *Vicia grandiflora* Scop. (ro., măzăriche, engl. large yellow vetch) - Th, Pont-Cauc-Balc; $U_3\,T_3\,R_0$

Fagaceae

74. *Quercus cerris* L. (ro. cer, engl. Turkey oak) - MM (M), Med.; $U_2\,T_{3,5}\,R_3$
75. *Quercus robur* L. (ro. stejar, engl. common oak) - MM, Eur; $U_{3,5}\,T_3\,R_0$

Geraniaceae

76. *Geranium pussilum* L. (ro. ciocul berzei, engl. crane's-bill) - Th, Eur (Med); $U_{2,5}\,T_3\,R_0$
77. *Geranium robertianum* L. (ro. priboi, engl. herb robert) - Th-TH, Cosm; $U_{3,5}\,T_3\,R_3$

Hypericaceae

78. *Hypericum perforatum* L. (ro. pojarniță, St. John's-wort) - H, Eua; $U_3\,T_3\,R_0$

Juncaceae

79. *Juncus conglomeratus* L. (ro. pipirig, engl. compact rush) - H, Cosm; $U_{4,5}\,T_3\,R_3$

Lamiaceae

80. *Ajuga reptans* L. (ro. vinețică, engl. bugle) - H, Eur; $U_{3,5}\,T_{2,5}\,R_0$
81. *Galeopsis speciosa* Miller (ro. cânepiță, zabră, engl. large-flowered hemp-nettle) - Th, Eua; $U_3\,T_2\,R_0$
82. *Glechoma hederacea* L. (ro. rotungioară, engl. ground ivy) - H-Ch, Eua; $U_3\,T_3\,R_0$
83. *Glechoma hirsuta* Waldst. & Kit. (ro. rotunjoară) - H-Ch, Pont-Med; $U_{2,5}\,T_3\,R_4$
84. *Lamium purpureum* L. (ro. sugel puturos, engl. red dead-nettle) - Th, Eua; $U_3\,T_0\,R_0$
85. *Mentha longifolia* (L.) Hudson (ro. izmă proastă, engl. mint) - H, Eua; $U_{4,5}\,T_3\,R_4$
86. *Prunella vulgaris* L. (ro. busuioc de câmp, engl. selfheal) - H, Cosm; $U_3\,T_3\,R_0$
87. *Salvia nemorosa* L. (ro. salvie, jaleș de câmp, engl. sage) - H, Euc; $U_{2,5}\,T_4\,R_3$
88. *Salvia pratensis* L. (ro. salvie, engl. meadow clary) - H, Eur (Med); $U_{2,5}\,T_3\,R_5$
89. *Stachys sylvatica* L. (ro. bălbisă, engl. hedge woundwort, whitespot) - H, Eua; $U_3\,T_2\,R_0$

Liliaceae

90. *Fritillaria meleagris* L. (ro. lalea pestriță, engl. snake's head fritillary) - G, Eur; $U_4\,T_{3,5}\,R_4$
91. *Gagea lutea* (L.) Ker-Gawl. (ro. laptele păsării, engl. yellow star of Bethlehem) - G, Eua; $U_3\,T_3\,R_3$
92. *Polygonatum hirtum* (Bosc ex Poir.) Pursh (*Polygonatum latifolium* Desf.) (ro. pecetea lui Solomon, engl. broadleaf Solomon's seal) - G, Pont-Pan-Balc; $U_3\,T_{3,5}\,R_4$
93. *Scilla bifolia* L. (ro. viorele, engl. scilla) - G, Eur; $U_{3,5}\,T_3\,R_4$

Moraceae

94. *Morus alba* L. (ro. dud alb, engl. white mulberry) - MM, Adv; $U_2\,T_{3,5}\,R_4$

Oleaceae

95. *Fraxinus excelsior* L. (ro. frasin, engl. ash) - MM, Eur; $U_3\,T_3\,R_4$
96. *Fraxinus ornus* L. (ro. mojdrean, engl. manna ash) - MM, Med; $U_{1,5}\,T_{3,5}\,R_5$
97. *Ligustrum vulgare* L. (ro. lemn câinesc, engl. privet) - M, Eua (Med); $U_{2,5}\,T_3\,R_3$

Orchidaceae

98. *Platanthera bifolia* (L.) L.C.M. Richard (ro. stupiniță, engl. lesser butterfly-orchid) - G, Eua (Med); $U_{3,5}\,T_0\,R_3$

Oxalidaceae

99. *Oxalis stricta* L. (ro. măcrișul iepurelui, engl. sorrel) - H, Adv; $U_{3,5}\,T_0\,R_0$

Papaveraceae

100. *Chelidonium majus* L. (ro. rostopască, engl. celandine) - H, Eua; $U_3\,T_3\,R_4$
101. *Corydalis cava* L. (ro. brebenei, engl. hollow corydalis) - G, Euc; $U_3\,T_3\,R_0$

Plantaginaceae

102. *Plantago lanceolata* L. (ro. pătlagină, engl. plantain) - H, Eua; $U_3\,T_0\,R_0$
103. *Plantago major* L. (ro. pătlagină mare, engl. greater plantain) - H, Eua; $U_3\,T_0\,R_0$

Poaceae

104. *Alopecurus pratensis* L. (ro. coada vulpii, engl. meadow foxtail) - H, Eua; $U_4\,T_3\,R_0$
105. *Arrhenatherrum elatius* (L.) Beauv ex J. et C. Presl (ro. ovăscior, engl. false oat-grass) - H, Eua; $U_3\,T_3\,R_4$
106. *Brachypodium sylvaticum* (Huds.) P.Beauv. (engl. false-brome) - H, Eua (Med); $U_3\,T_3\,R_4$
107. *Bromus arvensis* L. (ro. obsigă, engl. field brome) - Th-TH, Eua (Med); U2,5 T3 R0
108. *Bromus hordeaceus* L. (ro. obsigă engl. soft brome) - Th-TH, Eua (Med); $U_0\,T_3\,R_0$
109. *Bromus inermis* Laysser (ro. obsigă, engl. smooth brome) - H, Eua (Cont); $U_{2,5}\,T_4\,R_4$

110. *Calamagrostis epigejos* (L.) Roth. (ro. trestie de câmp, engl. bushgrass) - G, Eua; U_2 T_3 R_0
111. *Dactylis glomerata* L. (ro. golomăț, engl. cocksfoot grass) - H, Eua; U3 T0 R4
112. *Elymus repens* (L.) Gould (ro. pir, engl. quackgrass) - G, Circ; U_0 T_0 R_0
113. *Festuca pratensis* L. (ro. păiuș de livadă, engl. fescue) - H, Eua; U3,5 T2 R0
114. *Festuca rupicola* Heuffel (ro. păiuș, engl. fescue) - H, Eua (Cont); $U_{1,5}$ T_4 R_4
115. *Holcus lanatus* L. (ro. iarba cailor, engl. common velvet grass) - H, Cosm; $U_{3,5}$ T_3 R_0
116. *Lolium perenne* L. (ro. iarbă de gazon, raigras, engl. perennial ryegrass) -H, Cosm; U_3 T_3 R_0
117. *Poa annua* L. (ro. hirușor, engl. annual bluegrass) - Th-TH, Cosm; $U_{3,5}$ T_0 R_0
118. *Poa nemoralis* L. (ro. iarbă deasă, engl. wood bluegrass) - H, Circ; U_3 T_3 R_0
119. *Setaria viridis* (L.) Beauv. (ro. mohor, engl. green foxtail) - Th, Cosm; U_2 $T_{3,5}$ R_0

Polygonaceae

120. *Fallopia convolvulus* (L.) Á.Löve (ro. hrișcă urcătoare, engl. black bindweed) - Th, Circ; $U_{2,5}$ T_3 R_3
121. *Polygonum aviculare* L. (ro. troscot, engl. knotgrass) - Th, Cosm; U2,5 T0 R3
122. *Polygonum persicaria* L. (ro. iarbă roșie, engl. redshank) - Th, Cosm; $U_{4,5}$ T_3 R_0
123. *Rumex crispus* L. (ro. dragavei, engl. curled dock) - H, Eua; U_4 T_3 R_0

Primulaceae

124. *Lysimachia numularia* L. (ro. gălbăjoară, engl. creeping Charlie) - Ch, Eur, U_4 T_3 R_3
125. *Primula verris* L. (ro. ciubotica-cucului, engl. cowslip) - H, Eua; U_3 T_2 R_5

Ranunculaceae

126. *Anemone nemorosa* L. (ro. floarea paștilor, engl. wood anemone) - G, Circ; $U_{3,5}$ T_3 R_0
127. *Anemone ranunculoides* L. (ro. păștiță, engl. yellow anemone) - G, Eur; $U_{3,5}$ T_3 R_4
128. *Clematis vitalba* L. (ro. curpen, engl. old man's beard) - N-E, Euc (Med); U_3 T_3 R_3
129. *Ficaria verna* L. (ro. untișor, engl. fig wort) - H, Eua; $U_{3,5}$ T_3 R_3
130. *Hepatica nobilis* Schreber (ro. trei răi, engl. liverleaf) - H, Circ; U_3 T_3 R_4
131. *Isopyrum thalictroides* L. (ro. găinuși) - G, Euc; U_3 $T_{3,5}$ R_3
132. *Ranunculus auricomus* L. (ro. piciorul cocoșului, engl. goldilocks buttercup) - H, Eua; $U_{3,5}$ T_3 R_3
133. *Ranunculus repens* L. (ro. piciorul cocoșului, engl. creeping buttercup) - H, Eua (Med); U_4 T_0 R_0

Rhamnaceae

134. *Frangula alnus* Miller (ro. crușin, engl. alder buckthorn, glossy buckthorn) - M, Eua; U_4 T_3 R_3

Rosaceae

135. *Agrimonia eupatoria* L. (ro. turiță mare, engl. agrimony) - H, Eua; $U_{2,5}$ T_3 R_4
136. *Crataegus monogyna* L. (ro. păducel, engl. hawthorn) - M, Eua; $U_{2,5}$ $T_{3,5}$ R_3
137. *Fragaria vesca* L. (ro. fragi de pădure, engl. wild strawberry) - H, Eua; U_3 $T_{2,5}$ R_0
138. *Geum urbanum* L. (ro. cerențel, engl. herb bennet) - H, Med (Circ); U_3 T_3 R_4
139. *Potentilla argentea* L. (ro. scrântitoare, engl. silverweed) - H, Eua; U_2 T_4 R_2
140. *Potentilla reptans* L. (ro. cinci degete, engl. creeping cinquefoil) - H, Eua; $U_{3,5}$ T_4 R_4
141. *Rosa canina* L. (ro. măceș, engl. dog-rose) - N, Eur; U_2 T_3 R_3
142. *Rubus caesius* L. (ro. mur de miriște, engl. bramble) - H-N, Eur; $U_{4,5}$ T_3 R_4
143. *Prunus cerasifera* L. (ro. corcoduș, engl. bird cherry) - M, Pont-Balc; U_2 T_4 R_0
144. *Pyrus pyraster* (L.) Burgsd (ro. păr sălbatic, engl. wild pear) - M-MM, Eur; U_2 T_3 R_4

Rubiaceae

145. *Cruciata laevipes* Miller. (ro. smântânică, engl. crosswort) - H, Eua; $U_{2,5}$ T_3 R_3
146. *Galium aparine* L. (ro. turiță, engl. cleavers) - Th, Circ; U_3 T_3 R_3

Salicaceae

147. *Populus alba* L. (ro. plop alb, engl. white poplar) - MM-M, Eua; $U_{3,5}$ T_3 R_3

Scrophulariaceae

148. *Scrophularia nodosa* L. (ro. bubernic, iarbă neagră, engl. figwort) - H, Eua
149. *Veronica chamaedrys* L. (ro. stejerel, engl. germander speedwell) - H, (Ch), Eua; U_3 T_0 R_0
150. *Veronica persica* L. (ro. ventrilică, engl. common field-speedwell) - Th, Adv (Asia de SV); U_3 T_0 R_4
151. *Veronica scutellata* L. (ro. șopârliță, engl. marsh speedwell) - H (HH), Circ; U_4 T_3 R_4

Solanaceae

152. *Physalis alkekengi* L. (ro. păpălău, engl. bladder cherry, Chinese lantern) -H, Adv (Am N); U_3 T_3 R_4
153. *Solanum dulcamara* L. (ro. lăsnicior, engl. bittersweet) - Ch-N, Eua (Med); $U_{4,5}$ T_3 R_4

Tiliaceae

154. *Tilia tomentosa Moench* (*Tilia argentea* L.) (ro. tei argintiu, engl. common lime) - MM, Balc-Pan; $U_{2,5}\,T_{3,5}\,R_3$
Ulmaceae
155. *Ulmus glabra* L. (ro. ulm, engl. wych elm) - M (MM), Eua; $U_4\,T_3\,R_3$
156. *Ulmus laevis* L. (ro. velniș, engl. European white elm) - MM (M), Eur; $U_4\,T_3\,R_3$
Urticaceae
157. *Urtica dioica* L. (ro. urzică, engl. common nettle) - H, Cosm; $U_3\,T_3\,R_4$
Verbenaceae
158. *Verbena officinalis* L. (ro. verbină, engl. vervain, herb of the cross, prostrate verbena) - H, Cosm; $U_{2,5}\,T_3\,R_0$
Violaceae
159. *Viola odorata* L. (ro. toporaș, engl. sweet violet) - H, Alt-Med; $U_{2,5}\,T_{3,5}\,R_4$
160. *Viola reichenbachiana* Jord. ex Boreau (ro. toporași, colțunii popii, engl. early dog-violet) - H, Eua; $U_3\,T_{2,5}\,R_3$
Vitaceae
161. *Vitis sylvestris* L. (ro. viță sălbatică, engl. European wild grape) - M-E, Pont-Med; $U_{3,5}\,T_{4,5}\,R_4$
162. *Parthenocissus inserta* (A.Kern.) Fritsch. (viță de Canada, false Virginia-creeper) - Pont-Med; $U_{3,5}\,T_{4,5}\,R_{4,5}$

Cormophytes flora analysis

By studying the flora according to categories of life forms, we have noted that hemi-cryptophyte species are predominant (e.g. *Fragaria vesca* L., *Symphytum officinale* L., *Chelidonium majus* L., *Veronica chamaedrys* L.). This category brings together perennial species that survive the unfavourable season through the regenerative buds located on the surface of the soil, protected by the leaf rosettes, the organic debris or the snow cover. Hemi-cryptophytes are followed by phanerophytes, a category which groups trees and shrubs (e.g. *Quercus robur* L., *Acer campestre* L., *Fraxinus excelsior* L., *Robinia pseudacacia* L.). Geophytes (perennials that survive winter through subterranean bulb organs, rhizomes, tubers) are well represented as well: *Anemone nemorosa* L., *Dentaria bulbifera* L., *Corydalis cava* L., *Scilla bifolia* L., etc. A similar presence have the annual terophytes. Among these, we mention species like *Geranium pussilum* L., *Lamium purpureum* L., *Veronica persica* L., *Polygonum aviculare* L. Biannual terophytes are less represented. Terophytes are biological forms that survive the unfavourable season through seeds.

In terms of phyto-geographical elements, the Eurasian species, predominant in the flora of our country, are the best represented species (e.g. *Crataegus monogyna* L., *Asarum europaeum* L., *Gagea lutea* (L.) Ker-Gawl., *Agrimonia eupatoria* L.). They are followed by the European species (e.g. *Ulmus laevis* L., *Pulmonaria officinalis* L., *Evonymus europaeus* L., *Ajuga reptans* L.). Also noteworthy is the participation in species of cosmopolitans, the most widespread category in the world (e.g. *Urtica dioica* L., *Geranium robertianum* L., *Sonchus asper* (L.) Hill, *Capsella bursa-pastoris* (L.) Medik.). The other categories are less represented.

Following the analysis of the ecological indicators, we have found the following: in terms of humidity, most species are mesophytes, followed by xero-mesophytes and mesohydrophytes; in terms of temperature, most species are mesotherms, followed by amphitolerants and moderate-thermophilic, and in terms of pH, low-acidic neutrophils, amphitolerant and acidic-neutrophiles are predominant. From an ecological point of view, we can thus state that the species are mesophyte (in terms of humidity), mesotherms (in terms of temperature) and low-acidic neutrophils (in terms of soil reaction).

We identified the snake's head population, estimated at about 20 individuals, in the spring of 2017 (figures 2, 3). The access to the forest is easy, the road to Mănăstire village passes through the forest, and this has influenced, in time, the size of the population, the species being frequently harvested by the locals, which is why we consider it very important to inform them about the state

of the species. The nearest population of *Fritillaria meleagris* was reported (ARVAT, 1977; SORAN, 1954) in the forest between Liebling and Cerna (about 15-17 km N-E).

Figure 2. *Fritillaria meleagris* L. (photo by Denisa POPA, 2017)

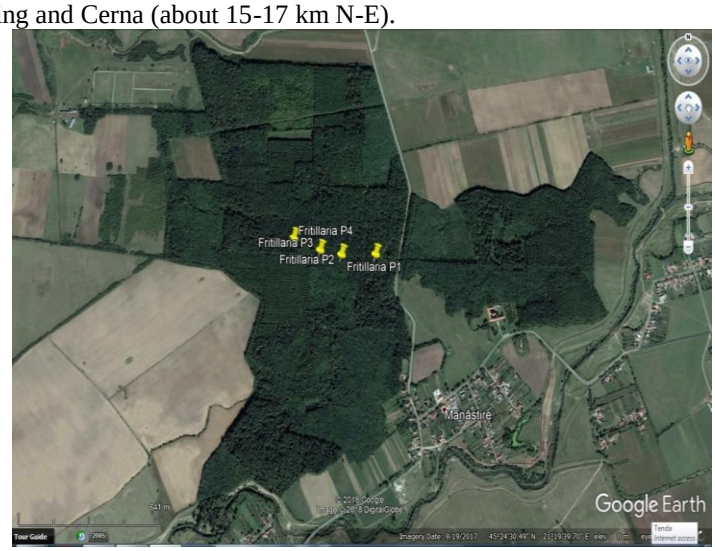

Figure 3. The points we found the species *Fritillaria meleagris* (Google Earth)

In the studied area we have identified also 11 non-native plants (SÎRBU & OPREA, 2011): *Conyza canadensis* (L.) Cronq., *Erigeron annuus* (L.) Pers., *Gleditsia triacanthos* L., *Medicago sativa* L., *Robinia pseudacacia* L., *Morus alba* L., *Oxalis stricta* L., *Prunus cerasifera* L., *Veronica persica* L., *Physalis alkekengi* L., *Parthenocissus inserta* (A.Kern.) Fritsch.

Other observed aspects in this forest: the development of impressive nettle populations, in garbage areas, from the outskirts; the rapid expansion of acacia, due to habitat degradation and reduced specific competition, the existence of old and vigorous ivy specimens that grow very well here, covering entirely the high stems of old trees, the natural regeneration of several species.

The conservation status of this forest is unfavourable because it is not properly maintained, the cuts are chaotic, there are garbage deposits, traces of fire, fallen trees, and the composition in the species is poor. We consider that a series of measures are needed to improve this situation, such as solving problems with landowners for rational wood exploitation, cleaning and remediation works to preserve typical species, applying hygiene treatments, performing some regenerative cuts, informing locals about the presence of special species that must be preserved.

CONCLUSIONS

The cormophytes flora in the forest from Mănăstire village (belonging to Birda commune, Timiş County) is represented by 162 species. Overall, our results are consistent with those of very close research areas: SORAN (1954), for the Soca forest, and ARVAT (1977), for the Cerna-Liebling forest.

Families important in terms of the number of species are *Poaceae, Asteraceae, Rosaceae, Fabaceae, Lamiaceae, Ranunculaceae*.

The most common species are *Quercus robur, Carpinus betulus, Acer campestre, Acer tataricum, Fraxinus excelsior, Cornus sanguinea, Rosa canina*.

Among the life forms, the hemicryptophytes, phanerophytes, geophytes and annual terophytes are best represented. The Eurasian species are the predominant floristic elements. It is worth mentioning the significant presence of cosmopolitans.

Fritillaria meleagris is of interest from a conservative aspect. Its population has been probably diminished in recent years, mainly due to the harvesters. In this respect, we consider that measures of rising awareness and active involvement of locals in the preservation of the species habitat are necessary.

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