

Supporting Information

Vicol, I. 2016. Ecological pattern of lichen species abundance in mixed forests of Eastern Romania. Ann. For. Res. 59(2): _-_.

Table 1 The number of sampled trees within each investigated habitat type

Host trees	Total number of trees from different genera										
	R4404		R4125	R4120		R4126		R4157		Total number of sampled trees	
	Medeleni	Ciritei-Mircești	Crujana	Stuhoasa-Suhărău	Tudora	Ciornohal-Călărași	Roșcani-Trifești	Uricani	Breana-Roșcani		Pogănești-Suceveni
<i>Quercus</i>	15	12	10	1	1	14	8	10	16	10	97
<i>Acer</i>	1	-	1	-	2	-	-	1	-	-	5
<i>Cerasus avium</i>	-	-	-	-	-	1	-	2	-	-	3
<i>Fagus sylvatica</i>	-	-	4	15	7	-	-	-	-	-	26
<i>Fraxinus</i>	-	-	1	-	5	1	8	-	-	4	19
<i>Carpinus betulus</i>	-	-	-	-	1	-	-	-	-	-	1
<i>Populus</i>	-	4	-	-	-	-	-	-	-	-	4
<i>Tilia</i>	-	-	-	-	-	-	-	3	-	2	5
Total number of trees	16	16	16	16	16	16	16	16	16	16	160

Legend: R4125 (Moldavian mixed forests with sessile oak (*Quercus petraea*), beech (*Fagus sylvatica*), small-leaved linden (*Tilia cordata*) and *Carex pilosa*) represented by Crujana Natural Forest Reserve; R4126 (Moldavian mixed forests with sessile oak (*Quercus petraea*), beech (*Fagus sylvatica*), silver linden (*Tilia tomentosa*) and *Carex brevicollis*) represented by Ciornohal-Călărași, Roșcani-Trifești and Uricani natural forest reserves; R4157 (Danubian-west-pontic steppe forests of pedunculate oak (*Quercus pedunculiflora*) and *Acer tataricum*) represented by Breana-Roșcani and Pogănești-Suceveni natural forest reserves; R4404 (Mixed danubian-panonic forests with common oak (*Quercus robur*), ash (*Fraxinus* sp.), elm (*Ulmus* sp.) and *Festuca gigantea*) represented by Ciritei-Mircești and Medeleni natural forest reserves; R4120 (Moldavian mixed forests with beech (*Fagus sylvatica*), silver linden (*Tilia tomentosa*), and *Carex brevicollis*) represented by Stuhoasa-Suhărău and Tudora natural forest reserves

Table 2 The host tree measurements on diameters and the rhytidome crevice depth within each investigated habitat types

Characteristics of sampled trees	Investigated forest natural reserves									
	R4404		R4125	R4120		R4126		R4157		
	Medeleni	Ciritei- Mircești	Crujana	Stuhoasa- Suhărau	Tudora	Ciornohal- Călărași	Roșcani- Trifești	Uricani	Breana- Roșcani	Pogănești- Suceveni
<i>Quercus</i> * (m)	2.40±0.67	2.17±0.55	1.83±0.48	1.16***	2.70***	1.41±0.52	1.31±0.35	1.55±0.19	0.97±2.25	1.25±0.37
<i>Quercus</i> ** (cm)	2.25±0.74	1.91±0.79	2.04±2.09	0.55±0.31	2.55±0.33	1.77±1.00	1.21±0.68	2.31±1.04	1.53±0.53	1.47±0.87
<i>Acer</i> * (m)	1.61***	-	1.79***	-	1.34±0.01	-	-	1.57***	-	-
<i>Acer</i> ** (cm)	1.35±0.50	-	0.62±0.22	-	0.97±0.30	-	-	0.57±0.22	-	-
<i>Cerasus avium</i> * (m)	-	-	-	-	-	1.39***	-	1.50±0.39	-	-
<i>Cerasus avium</i> ** (cm)	-	-	-	-	-	-	-	1.10±0.84	-	-
<i>Fagus sylvatica</i> * (m)	-	-	1.67±0.51	2.13±0.60	1.88±0.55	-	-	-	-	-
<i>Fagus sylvatica</i> ** (cm)	-	-	0.60±0.27	0.92±0.43	-	-	-	-	-	-
<i>Fraxinus</i> * (m)	-	-	1.35***	-	1.28±0.34	1.03***	1.05±0.10	-	-	1.06±0.27
<i>Fraxinus</i> ** (cm)	-	-	0.60±0.11	-	0.53±0.30	0.37±0.01	0.97±0.38	-	-	0.62±0.41
<i>Carpinus betulus</i> * (m)	-	-	-	-	1.11***	-	-	-	-	-
<i>Populus</i> * (m)	-	3.58±0.91	-	-	-	-	-	-	-	-
<i>Populus</i> ** (cm)	-	3.06±2.00	-	-	-	-	-	-	-	-
<i>Tilia</i> * (m)	-	-	-	-	-	-	-	1.35±0.17	-	1.16±0.35
<i>Tilia</i> ** (cm)	-	-	-	-	-	-	-	1.53±0.75	-	0.71±0.39

Legend: * the average and standard deviation of the perimeters; ** the average and standard deviation of the rhytidome crevice depth;***the perimeters of a single tree

Table 3 The host trees identified within each habitat type

Habitat type	Investigated nature reserve	Identified host trees
R4404	Medeleni FR (Iași County)	<i>Q. robur</i> , <i>A. campestre</i>
	Ciritei-Mircești FR (Iași County)	<i>Q. robur</i> , <i>Populus alba</i> L.
R4125	Crujana FR (Suceava County)	<i>F. sylvatica</i> , <i>Acer pseudoplatanus</i> L., <i>Quercus</i> sp.
R4120	Stuhoasa Suharău FR (Botoșani County)	<i>F. sylvatica</i> , <i>Quercus</i> sp.
	Tudora FR (Botoșani County)	<i>Acer platanoides</i> L., <i>Fraxinus</i> sp., <i>F. sylvatica</i> , <i>Carpinus betulus</i> L., <i>Quercus</i> sp.
R4126	Ciornohal-Călărăși FR (Botoșani County)	<i>Q. pedunculiflora</i> , <i>Q. petraea</i> Liebl., <i>Q. robur</i> , <i>Cerasus avium</i> (L.) Moench (<i>Prunus avium</i> L.), <i>Q. cerris</i> L., <i>F. excelsior</i>
	Roșcani-Trifești FR (Iași County)	<i>Q. petraea</i> , <i>Q. robur</i> , <i>F. excelsior</i>
	Uricani FR (Iași County)	<i>A. campestre</i> , <i>Q. pedunculiflora</i> , <i>T. tomentosa</i> , <i>C. avium</i>
R4157	Pogănești-Suceveni FR (Galați County)	<i>Q. cerris</i> , <i>Q. petraea</i> , <i>Q. robur</i> , <i>Fraxinus</i> sp., <i>T. tomentosa</i>
	Breana-Roșcani FR (Galați County)	<i>Q. pedunculiflora</i> , <i>Q. cerris</i> , <i>Q. robur</i> , <i>Q. pubescens</i>

Legend: see the legend of the Table 1

Table 4 List of the lichen species relative abundance (%) and their distribution within investigated forest habitat types

Species	R4404		R4125	R4120		R4126		R4157		
	Med	Cir-Mir	Cru	Stu-Suh	Tud	Cio-Cal	Ros-Tri	Uri	Bre-Ros	Pog-Suc
1. <i>Acrocordia gemmata</i> (Ach.) Mass.	4.34	2.07	5.43	6.17	-	-	-	-	-	-
2. <i>Anaptychia ciliaris</i> (L.) Körb. ex Mass.	-	-	-	-	-	-	1.05	-	4.87	0.34
3. <i>Arthopyrenia lapponina</i> Anzi	-	-	17.39	-	-	-	-	-	-	-
4. <i>Bacidia polychroa</i> (Th. Fr.) Körb.	-	2.90	-	-	-	-	-	-	-	-
5. <i>Buellia schaereri</i> De Notr.	-	-	-	-	-	-	-	-	-	0.34
6. <i>Candelaria concolor</i> (Dicks.) Stnr.	-	-	-	-	-	-	7.91	-	6.41	-
7. <i>Candelariella vitellina</i> (Hoffm.) Müll. Arg.	-	-	-	-	-	-	-	-	-	3.80
8. <i>Chrysorix candelaris</i> (L.) J. R. Laudon	-	-	-	-	-	-	4.22	-	-	-
9. <i>Eoplyrenula leucoplaca</i> (Wallr.) R. C. Harris (1973)	-	-	-	-	-	-	0.52	-	0.25	-
10. <i>Evernia mesomorpha</i> Nyl.	-	-	-	-	-	-	-	-	-	5.19
11. <i>Flavoparmelia caperata</i> (L.) Hale	-	-	4.34	-	-	-	-	-	0.25	-
12. <i>Graphis scripta</i> (L.) Ach.	11.95	-	31.52	58.02	36.41	-	-	-	-	-
13. <i>Hypotrachyna sinuosa</i> (Sm.) Hale	-	-	-	-	-	0.52	-	-	-	-
14. <i>Lecanora sambuci</i> (Pers.) Nyl.	-	-	-	-	-	1.58	-	-	-	-
15. <i>Lecanora subintricata</i> (Nyl.) Th. Fr.	-	-	17.39	-	-	0.52	1.84	-	0.51	4.84
16. <i>Lecidella elaeochroma</i> (Ach.) M. Choisy	-	-	1.08	-	-	1.58	3.43	-	4.87	16.60
17. <i>Melanelia exasperatula</i> (Nyl.) Essl.	-	-	-	-	-	12.69	3.69	-	-	-
18. <i>Melanelia glabra</i> (Schaer.) Essl.	-	-	-	-	-	1.05	2.37	-	-	-
19. <i>Melanelia olivacea</i> (L.) Essl.	-	-	-	-	-	-	0.26	-	2.30	2
20. <i>Melanelia soredata</i> (Ach.) Goward & Ahti	-	-	-	-	-	-	-	-	1.02	15
21. <i>Opegrapha vulgata</i> Ach.	-	-	4.34	-	-	-	-	-	-	-
22. <i>Parmelia sulcata</i> Taylor	-	-	-	-	-	3.17	-	-	8.71	0.69
23. <i>Parmelina tiliacea</i> (Hoffm.) Hale	-	-	-	-	-	1.58	0.52	-	-	-
24. <i>Phaeophyscia nigricans</i> (Flk.) Moberg.	44.56	89.62	-	-	8.64	4.76	36.41	90.47	-	2.07
25. <i>Phaeophyscia orbicularis</i> (Näck.) Moberg.	22.82	5.39	-	-	35.80	16.40	6.86	1.58	-	-
26. <i>Phlyctis agelaea</i> (Ach.) Flot.	-	-	-	-	2.46	-	-	-	-	-
27. <i>Physcia adscendens</i> (Fr.) Oliv.	-	-	-	-	-	10.58	6.59	-	6.92	6.22
28. <i>Physcia aipolia</i> (Ehrh. ex Humb.) Fűrnr.	-	-	-	-	-	-	0.26	-	18.55	13.14
29. <i>Physcia dubia</i> (Hoffm.) Lett.	1.08	-	-	-	12.96	-	-	-	-	-
30. <i>Physcia semipinnata</i> (J. F. Gmelin) Moberg.	1.08	-	-	-	-	-	-	-	-	-
31. <i>Physcia stellaris</i> (L.) Nyl. em Harm.	-	-	-	-	-	1.05	-	-	-	2.42
32. <i>Physcia tenella</i> (Scop.) DC. in Lam. & DC.	-	-	-	-	-	-	0.26	-	-	-
33. <i>Physconia distorta</i> (With.) J. R. Laudon	-	-	-	-	-	0.52	1.05	-	18.46	3.80
34. <i>Physconia enteroxantha</i> (Nyl.) Poelt.	-	-	-	-	-	39.68	13.98	-	25.64	25.25
35. <i>Pleurosticta acetabulum</i> (Necker) Elix & Lumbsch.	-	-	-	-	-	-	-	-	0.76	0.34
36. <i>Porina borreri</i> (Trevis.) D. Hawksw. & P. James	-	-	-	-	-	-	-	4.76	-	-

37. <i>Punctelia subrudecta</i> (Nyl.) Krog.	-	-	-	-	-	2.11	-	-	-	-
38. <i>Pyrenula nitida</i> (Weig.) Ach.	-	-	4.34	35.80	2.46	-	-	-	-	-
39. <i>Ramalina pollinaria</i> (Westr.) Ach.	-	-	-	-	-	-	-	-	-	0.34
40. <i>Stigmidium microspilum</i> (Körb.) D. Hawksw.	-	-	-	-	1.23	-	-	-	-	-
41. <i>Tomasellia arthonioides</i> (Trev.) Mass.	-	-	16.30	-	-	-	-	-	-	-
42. <i>Xanthoria fallax</i> (Hepp.) Arn.	-	-	-	-	-	0.52	5.27	3.17	-	-
43. <i>Xanthoria parietina</i> (L.) Th. Fr.	14.13	-	-	-	-	1.58	3.43	-	4.10	8.30

Legend: Med = Medeleni Forest Natural Reserve; Cio-Cal = Ciornohal-Călărași Forest Natural Reserve; Stu-Suh = Stuhuoaasa-Suhărau Forest Natural Reserve; Cru = Crujana Forest Natural Reserve; Tud = Tudora Forest Natural Reserve; Cir-Mir = Ciritei-Mircești Forest Natural Reserve; Ros-Tri = Roșcani-Trifești Forest Natural Reserve; Uri = Uricani Forest Natural Reserve; Bre-Ros = Breana-Roșcani Forest Natural Reserve; Pogănești-Suceveni Forest Natural Reserve; - = there are no available data; R4125 (Moldavian mixed forests with sessile oak (*Quercus petraea*), beech (*Fagus sylvatica*), small-leaved linden (*Tilia cordata*) and *Carex pilosa*) represented by Crujana Natural Forest Reserve; R4126 (Moldavian mixed forests with sessile oak (*Quercus petraea*), beech (*Fagus sylvatica*), silver linden (*Tilia tomentosa*) and *Carex brevicollis*) represented by Ciornohal-Călărași, Roșcani-Trifești and Uricani natural forest reserves; R4157 (Danubian-west-pontic steppe forests of pedunculate oak (*Quercus pedunculiflora*) and *Acer tataricum*) represented by Breana-Roșcani and Pogănești-Suceveni natural forest reserves; R4404 (Mixed danubian-panonic forests with common oak (*Quercus robur*), ash (*Fraxinus* sp.), elm (*Ulmus* sp.) and *Festuca gigantea*) represented by Ciritei-Mircești and Medeleni natural forest reserves; R4120 (Moldavian mixed forests with beech (*Fagus sylvatica*), silver linden (*Tilia tomentosa*), and *Carex brevicollis*) represented by Stuhuoaasa-Suhărau and Tudora natural forest reserves

Table 5 Results of the Mann-Whitney U test as respect differences between habitat types based on lichen species abundances

Forest habitat types	R4125	R4126	R4157	R4404	R4120
R4125	-	0.38	0.50	0.90	0.53
R4126	25	-	0.64	0.36	0.15
R4157	25	81	-	0.53	0.09
R4404	10	19	20	-	0.71
R4120	9	19	15	8	-

Legend: see legend of the Table 1

Table 6 SIMPER analysis performed on lichen species abundances in overall forest habitats (lichen species which have recorded value lower than 0.01 have not shown within below table)

Species	SIMPER analysis
<i>Phaeophyscia nigricans</i>	0.44
<i>Graphis scripta</i>	0.43
<i>Physconia enteroxantha</i>	0.23