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The Bryophyta Flora of Giresun Province Centre and Near Vicinity

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Abstract: In this study, 73 taxa were identified by the author. These belong to 28 families and 47 genera of Bryophyta. Of these, 13 taxa (*Pogonatum nanum* P.Beauv., *Encalypta alpina* Sm., *Tortula norvegica* (Web.) Wohl. & Lind., *Barbula vinealis* Brid., *Gymnostomum calcareum* Nees & Hornsch., *Grimmia donniana* Sw., *Bryum gemmiparum* De Not., *Epipterygium tozeri* (Grev.) Lind., *Pterogonium gracile* (Hedw.) Sm., *Homalia trichomanoides* (Hedw.) B.S.&G., *Cratoneuron commutatum* (Hedw.) Roth., *Scorpiurium circinatum* (Brid.) Fleisch. & Loeske, *Eurhynchium praelongum* var. *rigidum* Boul.) are new for the A4 grid-square adopted by Henderson & Prentice (1961). In addition, 20 taxa are new records for Giresun province.

Key Words: Bryophyta, Flora, Giresun

Giresun İl Merkezi ve Yakın Çevresinin Karayosunu Florası

Özet: Bu çalışmada, araştırma alanı olan Giresun ili merkez ve yakın çevresinden toplanan Karayosunu ve Ciğerothu örnekleri değerlendirilerek 28 familya ya ait 47 cins ve bunlara bağlı 73 taxon tanımlanmıştır. Bu taksonların 13 (*Pogonatum nanum* P. Beauv., *Encalypta alpina* Sm., *Tortula norvegica* (Web.) Wahl. & Lind., *Barbula vinealis* Brid., *Gymnostomum calcareum* Nees & Hornsch., *Grimmia donniana* Sw., *Bryum gemmiparum* De Not., *Epipterygium tozeri* (Grev.) Lind., *Pterogonium gracile* (Hedw.) Sw., *Homalia trichomanoides* (Hedw.) B.S.&G., *Cratoneuron commutatum* (Hedw.) Roth., *Scorpiurium circinatum* (Brid.) Fleisch. & Loeske, *Eurhynchium praelongum* var. *rigidum* Boul.) tanesi Henderson & Prentice (1961) tarafından benimsenen kareleme sistemine göre A4 karesi için yenidir. Ayrıca 20 takson da Giresun ili için yeni kayıttır.

Anahtar Sözcükler: Karayosunları, Flora, Giresun

Introduction

The study area is in the A4 grid-square according to the system adopted by Henderson & Prentice (1961). This study will therefore shed light on the flora of mosses and liverworts and contribute to the documentation of the Flora of Turkey.

Materials and Methods

The study materials were plant samples collected during studies of the area around Giresun province centre on different dates from November 1999 to March 2000.

As a result of the macroscopical and microscopical studies, the identification of the samples was done with various books on moss flora (Smith, 1980,1991),

(Watson, 1981), (Nyholm, 1981), (Vitt et al.,1988). In addition, the state of the species for the study area and for Turkey was determined by reviewing the related literature (Çetin, 1988), (Gökler & Öztürk., 1989, 1991), (Özdemir, 2000).

The samples were deposited at the Herbarium of the Department of Biology, at the Giresun Science and Arts Faculty, at Karadeniz Technical University.

Findings

The plant list is given according to the system proposed by Walther, (1983). To indicate new records for the A4 square and for Giresun province two asterisks and one asterisk respectively have been used.

BRYOPHYTA

Bryopsida

Polytrichidae

Polytrichales

Polytrichaceae

Pogonatum (Hedw.) P.Beauv

**1. *P. nanum* P.Beauv.

A4 Giresun, in the north of Giresun Castle, on soil, 100m, 02.03.2000, Öz. 380.

Central Europe, Iceland, Faroes, N. Asia, Canaries, Madeira, N. Africa.

Atrichum (Hedw.) P.Beauv.

2. *A. undulatum* P.Beauv.

A4 Giresun, in the northeast of the city centre, in an open habitat, on soil, 70m, 25.03.2000, Öz. 381

Turkey, Central Europe, Asia, N. Africa, Azores, Madeira, N. America.

Eubryidae

Dicranales

Dicranaceae

Dicranella (C.Müll.) Schimp.

*3. *D. heteromalla* (Hedw.) Schimp.

A4 Giresun, in the north-east of the city centre, on soil, 50m, 25.03.2000, Öz. 382.

Turkey, Europe, Caucasus, Kenya, N. America, Bolivia.

*4. *D. varia* (Hedw.) Schimp.

A4 Giresun, near Giresun Castle, on soil, 75m, 13.11.1999, Öz. 383.

Turkey, Central Europe, Faroes, Middle East, Kashmir, China, Siberia, N. America, N. Africa, Macaronesia, N. America, Guatemala, Cuba, Jamaica.

Encalyptaceae

Encalypta Hedw.

**5. *E. alpina* Sm.

A4 Giresun, in woods, roadsides, on soil-covered rock, at Giresun castle, 70m, 25.03.2000, Öz. 384.

Central Europe, Caucasus, N. & C. Asia, China, N. Africa, N. America.

*6. *E. vulgaris* Hedw.

A4 Giresun, north-east of the city centre, on rock and stones, 20-100m, 02.03.2000, Öz. 385.

Cosmopolitan.

Pottiales

Pottiaceae

Tortula Hedw.

7. *T. muralis* Hedw.

A4 Giresun, under forest, in the north of Giresun Castle, on rocks, 10m, 02.03.2000, Öz. 386.

Cosmopolitan.

**8. *T. norvegica* (Web.) Wahl. & Lindb.

A4 Giresun, north of the city centre, in an open habitat, on rock, 20m, 08.04.2000, Öz. 387.

Europe, N. Asia, Caucasus, Kashmir, N. America.

9. *T. subulata* Hedw.

A4 Giresun, Giresun Castle, in woods, on soil-covered rock, 120m, 02.03.2000, Öz. 388.

Europe, W. Asia, Kashmir, China, Algeria, N. America.

Barbula Hedw.

10. *B. convoluta* Hedw.

A4 Giresun, in the north-east of the city centre, in an open habitat, on soil and rock, 70m, 25.03.2000, Öz. 389.

Europe, Caucasus, S.E. Asia, N. Africa, N. America, Mexico, Australia.

11. *B. unguiculata* Hedw.

A4 Giresun, Giresun Castle, under forest, on wet soil, 50m, 13.11.1999, Öz. 390.

Europe, N.W. & C. Asia, S.E. Asia, N. Africa, N. America, Mexico, Australia.

**12. *B. vinealis* Brid.

A4 Giresun, in the north of Giresun Castle, on soil, in an open habitat, 60m, 02.03.2000, Öz. 391.

Europe, S. E. Asia, N. Africa, N. America, Mexico, Hawaii.

Gymnostomum Nees & Hornsch.

**13. *G. calcareum* Nees & Hornsch.

A4 Giresun, Giresun Castle, on soil-covered rocks, 120m, 25.03.2000, Öz. 392.

Europe, N.W. & C. Asia, China, N. Africa, N. America, Mexico, Australia, Tasmania, New Zealand, Tristan da Cunha.

Pleurochaete Brid.

14. *P. squarrosa* (Brid.) Lindb.

A4 Giresun, Giresun Castle, on soil, in woods, 50m, 25.03.2000, Öz. 393.

Europe, S.W. Asia, S.E. Asia, N. Africa, Kenya, N. America.

Tortella Limpr.

15. *T. fragilis* (Hook. & Wils.) Limpr.

A4, Giresun, Giresun Castle and in the north-east of the city centre, in an open habitat, on soil, 100m, 25.03.2000, Öz. 394.

Europe, Asia, Morocco, N. America.

16. *T. tortuosa* (Hedw.) Limpr.

A4 Giresun, in the north of Giresun Castle, on soil, open habitat, 50m, 02.03.2000, Öz. 395.

Cosmopolitan.

Grimmiaceae

Schistidium Brid.

*17. *S. apocarpum* complex.

A4 Giresun, Giresun Castle, on soil, in forest, 50m, 02.03.2000, Öz. 396.

Cosmopolitan.

Grimmia Hedw.

**18. *G. donniana* Sw.

A4 Giresun, in the south of Giresun Castle, in forest, on rock, 60m, 13.11.1999, Öz. 397.

Europe, Caucasus, E. Asia, N. America, N. Africa, Greenland, S. America, Antarctica.

*19. *G. pulvinata* (Hedw.) Sw.

A4 Giresun, in an open habitat, on rocks in the south of Giresun Castle, 80m, 13.11.1999, Öz. 398.

Cosmopolitan.

20. *G. trichophylla* Grev.

A4, Giresun, in the south of the city centre and Giresun Castle, on rocks, in woods, 80m, 13.11.1999, Öz. 399.

Cosmopolitan.

Funariaceae

Funaria Hedw.

21. *F. hygrometrica* Hedw.

A4 Giresun, Giresun Castle, on concrete and rocks, on soil-covered rocks, 10m, 08.04.2000, Öz. 400.

Cosmopolitan.

Bryaceae

Bryum Hedw.

22. *B. capillare* Hedw.

A4 Giresun, Giresun Castle, in the north of the city centre, on soil, 120m, 02.03.2000, Öz. 401.

Cosmopolitan.

*23. *B. argenteum* Hedw.

A4 Giresun, Giresun Castle, on soil, on soil-covered rocks, in an open habitat, 90m, 11.12.1999, Öz. 402.

Cosmopolitan.

*24. *B. pseudotriquetrum* (Hedw.) Gaertn., Meyer & Scherb.

A4 Giresun, in the north of Giresun Castle, in woods, on soil, 50m, 11.12.1999, Öz. 403.

Europe, Asia, W. Africa, America, Greenland, Australia.

**25. *B. gemmiparum* De Not.

A4 Giresun, Giresun Castle, in the south of the city centre, in an open habitat, near water, on soil, 50m, 14.11.1999, Öz. 404.

Europe, Caucasus, India, Yunnan, Tunisia, Algeria, Morocco, Macaronesia, America.

Epipterygium (Grev.) Lindb.

**26. *E. tozeri* (Grev.) Lindb.

A4 Giresun, Giresun Castle, on soil, 120m, 25.03.2000, Öz. 441.

Europe, Lebanon, Caucasus, Morocco, N. America.

Mniaceae

Mnium Hedw.

27. *M. marginatum* (With.) Brid. ex P.Beauv.

A4 Giresun, in the north of Giresun Castle, in woods, near water, on soil, 70m, 08.04.2000, Öz. 405.

Europe, C. Asia, Caucasus, N. America, Greenland.

Plagiomnium T.Kop.

28. *P. affine* (Bland.) T.Kop.

A4 Giresun, Giresun Castle, on wet soil-covered rocks, 20m, 08.04.2000, Öz. 406.

Europe, Turkey, Iran.

29. *P. elatum* (B.S. & G.) T.Kop.

A4 Giresun, in the west of Giresun Castle, in woods, on wet soil, 100m, 02.03.2000, Öz. 407

Europe, Turkey.

30. *P. undulatum* (Hedw.) T.Kop.

A4 Giresun, in the west of the city centre, on soil, in an open habitat, 120m, 02.03.2000, Öz. 408.

Europe, Asia, N. & W. Africa, Macaronesia.

Isobryales

Leucodontaceae

Leucodon Hedw.

*31. *L. sciuroides* (Hedw.) Sm.

A4 Giresun, west of Giresun Castle, on soil-covered rocks, 50m, 02.03.2000, Öz. 409.

Europe, N. Africa.

Pterogonium Sm

**32. *P. graciale* (Hedw.) Sm.

A4 Giresun, west of Giresun Castle, on soil-covered rocks, 50m, 02.03.2000, Öz. 409.

Europe, Algeria.

Neckeraceae

Homalia (Brid.) B., S. & G.

**33. *H. trichomanoides* (Hedw.) B., S. & G.

A4 Giresun, in the west of the city centre, in forest, on soil, 20m, 12.12.1999, Öz. 411

Europe, S.E. Asia, N. America.

Thuidiales

Leskeaceae

Lescuraea Hedw.

*34. *Lescuraea incurvata* (Hedw.) Lawton.

A4 Giresun, in the north of Giresun Castle, on soil-covered rocks, 14.11.1999, Öz. 412.

Europe, N. & C. Asia, S.E. Asia, N. America.

Thamniaceae

Thamnobryum Nieuwl.

*35. *T. alopecurum* (Hedw.) Gang.

A4 Giresun, Giresun Castle, on soil, 100m, 08.04.2000, Öz. 413.

Europe, Asia, N. America, N. Africa.

Thuidiaceae

Thuidium B., S. & G.

36. *T. tamariscinum* B., S. & G.

A4 Giresun, in the north and west of the city centre, on soil-covered rocks and rocks, 30m, 08.04.2000, Öz. 414.

Europe, N. & C. Asia, Japan, Algeria, N. America, Greenland.

Hypnobryales

Amblystegiaceae

Cratoneuron (Sull.) Spruce

**37. *C. commutatum* (Hedw.) Roth.

A4 Giresun, Giresun Castle, on soil, in woods, 90m, 02.03.2000, Öz. 415.

Europe, W. Asia, S.E. Asia, N. Africa, N. America, Greenland.

Scorpiurium Schimp.

**38. *S. circinatum* (Brid.) Fleisch. & Loeske

A4 Giresun, Giresun Castle, on soil, 02.03.2000, Öz. 416.

Europe, Iran.

Calliergonella (Hedw.) Loeske

39. *C. cuspidata* (Hedw.) Loeske

A4 Giresun, west of Giresun Castle, in an open habitat, on wet soil, 40m, 02.03.2000, Öz. 417.

Europe, Asia, N. Africa, N. America, Jamaica, Argentina, Australia, New Zealand.

Brachytheciaceae

Homalothecium B., S. & G.

40. *H. lutescens* (Hedw.) Robins.

A4 Giresun, in the west of the city centre, in an open habitat, on rocks and tree trunk, 120m, 12.12.1999, Öz. 418.

Cosmopolitan.

- *41. *H. nitens* (Hedw.) Robins.
A4 Giresun, Giresun Castle, on rocks, in an open area, 100m, 12.12.1999, Öz. 419.
Europe, Caucasus, N. & C. Asia, N. America, Greenland.
42. *H. sericeum* (Hedw.) B., S. & G.
A4 Giresun, in the west of the city centre, on rock, 90m, 02.03.2000, Öz. 420.
Cosmopolitan.
- Brachythecium** B., S. & G.
- *43. *B. glareosum* (Spruce.) B., S. & G.
A4 Giresun, Giresun Castle, on soil, in woods, 20m, 12.12.1999, Öz. 421.
Europe, C. & N. Asia, N. America, S.E. Asia.
- *44. *B. mildeanum* (Spruce) Schimp. ex Milde.
A4 Giresun, Giresun Castle, in woods, on soil, 15m, 12.12.1999, Öz. 422.
Europe, N. Asia, N. America, Azores.
45. *B. rivulare* B., S. & G.
A4 Giresun, Giresun Castle, in woods, on soil, on rock, on tree trunk, 40m, 12.12.2000, Öz. 423.
Europe, N. America, Asia
46. *B. rutabulum* (Hedw.) B., S. & G.
A4 Giresun, in the south of Giresun Castle, in woods, on soil, 30m, 02.03.2000, Öz. 424.
Europe, N. Asia, N. America.
- *47. *B. plumosum* (Hedw.) B., S. & G.
A4 Giresun, Giresun Castle, in woods, on tree trunk, on rocks, 50m, 02.03.2000, Öz. 425.
Turkey, cosmopolitan.
- Pseudoscleropodium** (Limpr.) Fleisch.
47. *P. purum* (Hedw.) Fleisch.
A4 Giresun, Giresun Castle, in the west of the city centre, in woods, on soil, 60m, 25.03.2000, Öz. 427.
Cosmopolitan.
- Cirriphyllum** Grout
49. *C. crassinervium* (Tayl.) Loeske & Fleisch.
A4 Giresun, Giresun Castle, on soil, 90m, 08.04.2000, Öz. 428.
Europe, Caucasus, Japan, Algeria.
- *50. *C. piliferum* (Hedw.) Grout
A4 Giresun, Giresun Castle, on soil, in woods, 80m, 02.03.2000, Öz. 429.
Europe, N. & C. Asia, Japan, N. Africa, N. America, Greenland.
- Rhynchostegium** B., S. & G.
51. *R. riparioides* (Hedw.) C.Jen.
A4 Giresun, Giresun Castle, in the west of the city centre, on soil, in an open habitat, 100m, 25.03.2000, Öz. 430.
Cosmopolitan.
- Eurhynchium** B., S. & G.
- *52. *E. hians* (Hedw.) Sande Lac.
A4 Giresun, in the south of the city centre, in Giresun Castle, on soil, 100m, 12.12.1999, Öz. 431.
Europe, S.W. & S.E. Asia, N. Africa, N. America.
- *53. *E. praelongum* (Hedw.) B., S. & G.
A4 Giresun, Giresun Castle, on soil-covered rocks, in woods, 50m, 12.12.1999, Öz. 432.
Europe, N. Asia, China, Japan, N. Africa, N. America.
- **54. *E. praelongum* var. *rigidum* Boul.
A4 Giresun, Giresun Castle, in woods, on soil-covered rocks, 40m, 12.12.2000, Öz. 433.
Europe, N. Africa.
55. *E. pulchellum* (Hedw.) Jenn.
A4 Giresun, in the west of the city centre, in an open habitat, on soil, on rock, 150m, 12.12.2000, Öz. 434.
Cosmopolitan.
56. *E. striatum* (Hedw.) Schimp.
A4 Giresun, in the west of Giresun Castle, on soil, in woods, 120m, 02.03.2000, Öz. 435.
Europe, N. Africa, Japan.
- Rhychostegiella** (B., S. & G.) Limpr.
57. *R. tenella* (Dicks.) Limpr.
A4 Giresun, in the west of the city centre, in an open habitat, on rock, 200m, 18.12.1999, Öz. 436.
Europe, N. America.
- Plagiotheciaceae**
- Plagiothecium** B., S. & G.
- *58. *P. succulentum* (Wils.) Lindb.
A4 Giresun, in the east of the city centre and at Giresun Castle, in woods, among the grasses, on soil, 100m-200m, 18.12.1999, Öz. 437.
Europe, N. America, Japan.

Hypnaceae

Platygyrium B., S. & G.

59. *P. repens* (Brid.) B., S. & G.

A4 Giresun, Giresun Castle, in woods, on tree, 120m, 25.03.2000, Öz. 438.

A2, B6, Europe, N. & C. Asia, Japan, N. America.

Hypnum Hedw.

60. *H. cupressiforme* Hedw.

A4 Giresun, locality, 18.12.1999, Öz. 439.

Cosmopolitan.

*61. *H. cupressiforme* var. *resupinatum* (Tayl. ex Spruce) Hartm.

A4 Giresun, in the west of the city centre, on soil, in woods, 100m, 08.04.2000, Öz. 440.

Europe, S.W. & S.E. Asia, N. Africa, N. America.

Marchantiopsida

Marchantiales

Conocophalaceae

62. *Conocephalum conicum* (L.) Dum.

A4 Giresun, north of Giresun Castle, in forest, on wet soil and soil-covered rocks, 40m, 08.04.2000, Öz. 16.

Europe, Asia, N. America, N. Africa

Lunulariaceae

63. *Lunularia cruciata* (L.) Lindb.

A4 Giresun, in the north of Giresun Castle, near water, on soil, in woods, 40m, 02.03.2000, Öz. 17.

Europe, Caucasus, Iran, N. Africa, America, Australia, Russia.

Marchantiaceae

64. *Marchantia polymorpha* L.

A4 Giresun, Giresun Castle, on the stream banks, 50m, 25.03.2000, Öz. 18.

Cosmopolitan.

Metzgeriales

Metzgeriaceae

65. *Metzgeria furcata* (L.) Dum.

A4 Giresun, in Giresun Castle, on wet soil, 30m, 02.03.2000, Öz. 19.

Cosmopolitan.

Pelliaceae

66. *Pellia endiviifolia* (Dicks.) Dum.

A4 Giresun, north of Giresun Castle, on stream banks, 90m, 25.03.2000, Öz. 20

Cosmopolitan.

Fossombronica

67. *Fossombronica pusilla* (L.) Nees.

A4 Giresun, Giresun Castle, north of the city centre, on wet soil, 30m, 18.12.1999, Öz. 21.

Europe, N. & S. America.

Jungermanniales

Geocalycaceae

*68. *Lophocolea bidentata* (L.) Dum.

A4 Giresun, Giresun Castle, on stream bank, 20m, 02.03.2000, Öz. 22.

Europe, Africa, China.

Scapaniaceae

69. *Scapania undulata* (L.) Dum.

A4 Giresun, in the north of Giresun Castle, on stream banks, 30m, 18.12.1999, Öz. 23

Europe, Korea, Japan, Greenland, Tunisia, N. America.

Lepidoziaceae

70. *Bazzania trilobata* (L.) S. Gray.

A4 Giresun, Giresun Castle, near the water, on wet soil-covered rocks, 40m, 08.04.2000, Öz. 24.

Europe, C. Asia, Japan, Greenland, N. America

Porellaceae

71. *Porella plathyphylla* (L.) Pfeiff.

A4 Giresun, in the north of Giresun Castle, on bark, 40m, 02.03.2000, Öz. 28.

Cosmopolitan.

Frullaniaceae

72. *Frullania tamarisci* (L.) Dum.

A4 Giresun, in the north of the city centre, on soil-covered wet rocks, 50m, 08.04.2000, Öz. 28.

Europe, C. Asia, China.

Lejeuneaceae

*73. *Lejeunea cavifolia* (Ehrh.) Lindb.

A4 Giresun, in the north of Giresun Castle, on wet soil, 80m, 08.04.2000, Öz. 27.

Europe, C. Asia, N. Africa.

Discussion and Results

In this study, a total of 73 taxa belonging to the *Bryopsida* (*Musci*) (61 taxa) and *Marchantiopsida* (*Hepaticopsida*) (12 taxa) were determined. The plants belonging to the *Musci* class were distributed among 16 families and 61 taxa, while the *Marchantiopsida* class comprises 12 families and 12 taxa. The distribution of the *Bryopsida* taxa according to family is shown in Table 1.

In Table 1, the first 7 families make up 77% of the total taxa in the study area and the other 9 families constitute 27%.

In Table 2, a comparison between the studies carried out in the Black Sea region and the Mediterranean region shows that the number of species of *Pottiaceae* family members which display acrocarpous development in the Mediterranean, is higher than in the Black Sea region and since acrocarpous species have dentate leaves and grow in the form of close pads, they can endure long periods of heat and dryness better than pleurocarpous species in the Black Sea region (Çetin & Yurdakulol, 1988), (Çetin, 1989), (Çetin & Uçar, 1997), (Özdemir & Çetin, 1999).

The number of taxa of the members belonging to such

families as *Brachytheciaceae* with pleurocarpous growth is quite high. In addition, the taxa of *Bryaceae*, *Grimmiaceae*, *Mniaceae*, *Amblystegiaceae*, and *Hypnaceae* families are widespread in the A4 square.

According to Table 3, the Black Sea region of Turkey is dominated by Jungermanniales (*Lepidoziaceae*, *Geocalyceae*, *Frullaniaceae*, *Scapaniaceae*, *Porellaceae*, and *Lejeuneaceae*).

According to Henderson's grid system, the number of new records from the study area for the A4 square is 13 (*Pogonatum nanum*, *Encalypta alpina*, *Tortula norvegica*, *B. vinealis*, *Gymnostomum calcareum*, *Grimmia donniana*, *Bryum gemmiparum*, *Epipterygium tozeri*, *Pterogonium gracile*, *Homalia trichomanoides*, *Cratoneuron commutatum*, *Scorpiurium circinatum*, and *Eurhynchium praelongum* var. *rigidum*). Twenty taxa are new records for Giresun province.

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BRYOPSIDA FAMILIES	Number of taxa	Percentage of taxa according to the total number of taxa
Brachytheciaceae	18	29.67
Pottiaceae	10	16.39
Bryaceae	5	8.19
Grimmiaceae	4	6.55
Mniaceae	4	6.55
Amblystegiaceae	3	4.91
Hypnaceae	3	4.91
Polytrichaceae	2	3.27
Dicranaceae	2	3.27
Encalyptaceae	2	3.27
Thamniaceae	2	3.27
Leucodontaceae	2	3.27
Funariaceae	1	1.63
Leskeaceae	1	1.63
Neckeraceae	1	1.63
Plagiotheciaceae	1	1.63
TOTAL	61	100

Table 1. Distribution of Bryopsida Taxa According to Family.

Table 2. The Comparison of Bryopsida Taxa Distribution According to Family.

BRYOPSIDA FAMILIES	Giresun centre		Trabzon and Environs		Sinop and Environs		Antalya and Environs		Yedigöller and Environs	
	NT	%	NT	%	NT	%	NT	%	NT	%
Brachytheciaceae	18	29.67	22	18.00	23	20.50	14	15.50	15	17.40
Pottiaceae	10	16.39	13	10.65	12	10.70	32	35.50	12	13.60
Bryaceae	5	8.19	6	4.90	6	5.40	4	4.40	2	2.20
Grimmiaceae	4	6.55	8	6.55	3	2.60	-	-	-	-
Mniaceae	4	6.55	7	5.73	6	5.40	-	-	8	9.09
Hypnaceae	3	4.91	11	9.00	10	8.90	3	3.30	8	9.09

NT: Number of Taxa

Table 3. The Comparison of Marchantiopsida Taxa Distribution According to Family.

MARCHANTIOPSIDA FAMILIES	Giresun and near vicinity		Trabzon (Altındere)		Artvin Environs		Sinop Environs	
	NT	%	NT	%	NT	%	NT	%
Conocophalaceae	1	8.3	1	3.03	1	6.25	1	5.25
Marchantiaceae	1	8.3	2	6.06	1	6.25	2	10.5
Lunulariaceae	1	8.3	1	3.03	1	6.25	-	-
Pelliaceae	1	8.3	2	6.06	1	6.25	2	10.5
Metzgeriaceae	1	8.3	2	6.06	2	12.5	1	5.25
Codontiaceae	1	8.3	1	3.03	-	-	1	5.25
Lepidoziaceae	1	8.3	2	6.06	-	-	-	-
Geocalyceae	1	8.3	4	12.12	3	18.7	3	15.7
Frullaniaceae	1	8.3	2	6.06	1	6.25	2	10.5
Scapaniaceae	1	8.3	3	9.09	1	6.25	-	-
Porellaceae	1	8.3	4	12.1	2	16.25	1	5.25
Lejeuneaceae	1	8.3	2	6.06	-	-	1	5.25

NT: Number of Taxa

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