

## Additional lichen records from Giresun Province, Turkey

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**Abstract** – A total of 299 lichen taxa are presented from 52 sampling stations in the Turkish province of Giresun. Of these 5 species are new to Turkey, viz. *Biatora cuprea*, *Collema dichotomum*, *Gyalecta foveolaris*, *Umbilicaria virginis* and *Verrucaria fusconigrescens*, and 110 species are new to Giresun.

**Key words** – biota, biodiversity, Karagöl Mountains

### Introduction

Despite intense lichenological field activity in Turkey in recent years, many areas remain poorly known with respect to their lichen biota. As to Giresun province, until now 14 research articles on its lichen biota have been published (Aslan et al. 2002, Aslan & Yazıcı 2006, Duman & Yurdakulol 2007, Halıcı & Şenkardeşler 2009, John & Breuss 2004, Kınalıoğlu 2005, 2006, 2008, Kınalıoğlu & Engin 2004, Küçük 1990, Özgen et al. 2003, Steiner 1909, Süleyman et al. 2002, Yazıcı 2006, Yazıcı & Aptroot 2008). However, these studies still do not give an adequate picture of the lichen biota of Giresun as new fieldwork by the author has shown. This provided many additions to our knowledge of the lichens of Giresun and Turkey, which are presented below.

### The Study Area

Giresun is located in the eastern part of the Black Sea region of Turkey (Fig. 1), at the boundary of the Euxianian section of the Euro-Siberian Phytogeographical Region. It is situated between 40°07' 41°08' N and 37°50' 39°12' E at altitudes ranging from sea level to 3331 m. The province has a surface of 6934 km<sup>2</sup>, mostly of rough topography. The most important altitudes of Giresun are Abdal Musa peak (3331 m), Cankurtaran peak (3278 m), Gâvur mountain peak (3067 m), Küçükkor peak (3044 m), Karagöl mountains (3107 m) and Kırkkızlar peak (3040 m). The mountainous landscape has many rock outcrops, predominantly consisting of siliceous rocks. Upper Cretaceous volcanic deposits (agglomerata, basalt, dacite, granodiorit) are mostly present in the northern of Giresun, while deposits of Oligocene and Miocene (gypsiferous, dolorite, andesite) are quite large in the southern of province. There are various glacial lakes in the Karagöl mountains. The most important of these lakes is Karagöl lake. Around Karagöl lake patches of snow and ice persist even in the summer months.

Small plains exist near the coastal area. The wide altitudinal variation, rough topography, influence of the adjacent sea, and big streams provide a wide range of climatic conditions though large parts of Giresun has an oceanic climate. Following Emberger's principles, Akman (1990) reports that the mean precipitation-temperature coefficient (Q) is 202 and the aridity index (S) is 9.5 for Giresun. The mean rainfall per year is 1271.7 mm and the rainfall regime is 'Oceanic Rain Regime Marina Type I'. The mean annual maximum temperature is 26.6°C in August, while the mean minimum temperature is 4.3°C in February. The mean annual relative humidity is 76%. The vegetation is equally varied. The northern slopes, up to 800 m, have deciduous trees of *Corylus* spp., *Alnus* spp., *Carpinus orientalis* and *Castanea sativa*. The dominant *Corylus* spp. are an important crop plant. From 800 to 1500 m *Fagus orientalis* is dominant. It is often accompanied by *Carpinus betulus*, *Picea orientalis*, *Rhododendron ponticum*, *Ulmus glabra* and *Quercus hartwissiana*. At 1500-2000 m the forest consists of *Picea orientalis* together with *Pinus sylvestris* and *Abies nordmanniana* subsp. *nordmanniana* (Anşın 1981). These provide suitable habitats for a rich lichen flora. Above 2000 m alpine meadows are dominant. The southern part of the province is mostly covered with xerophytic oak woodland and steppe vegetation.

### Materials and methods

Inventorying was done in 52 localities spread over the province (Table 1). The resulting specimens were identified following the standard identification methods and using mostly the following lichen guides: Brodo et al. 2001, Purvis et al. 1992, Wirth 1995. The samples were air dried and examined using a stereomicroscope and a light microscope. Vouchers are deposited in the herbarium of the Faculty of Science and Arts, Giresun University, Giresun, Turkey. Duplicates of some specimens studied by Etayo and Sipman are kept in their respective herbaria.

### List of species

The species are given in alphabetical order, followed by the numbers of the samples sites as in Table 1 and the substrates. An asterisk (\*) indicates a new record for Giresun province, the number sign (#) a new record for Turkey.

*Acarospora fuscata* (Nyl.) Arnold - Loc. 14, 22, 43, 50: on siliceous rock.

*Acrocordia gemmata* (Ach.) A. Massal. - Loc. 19: on *Carpinus* sp. (det. J. Etayo).

*Amandinea punctata* (Hoffm.) Coppins & Scheid. - Loc. 45, 46 (conf. H. Sipman), 24: on siliceous rock, *Berberis vulgaris*, *Erica arborea*.

- Anaptychia ciliaris* (L.) Körb. ex A. Massal. - Loc. 15, 16: on *Picea orientalis*, *Pyrus* sp.
- \**A. runcinata* (With.) J.R. Laundon - Loc. 22: on moss (det. H. Sipman).
- Arthonia cinnabarina* (DC.) Wallr. - Loc. 8, 20, 47: on *Corylus* sp.
- A. leucopellaea* (Ach.) Almq. - Loc. 24: on *Corylus* sp.
- A. radiata* (Pers.) Ach. - Loc. 20, 46, 47, 52: on *Berberis vulgaris*, *Corylus* sp.
- Aspicilia caesiocinerea* (Malbr.) Arnold - Loc. 24, 50, 51: on siliceous rock.
- A. cinerea* (L.) Körb. - Loc. 14, 16, 18, 42, 48, 50, 51: on siliceous rock.
- A. contorta* (Hoffm.) Kremp. - Loc. 14, 24, 51: on calcareous and siliceous rock.
- \**A. desertorum* (Kremp.) Mereschk. - Loc. 48: on siliceous rock.
- Bacidia arceutina* (Ach.) Rehm & Arnold - Loc. 24 (conf. J. Etayo), 21 (det. J. Etayo) on *Alnus* sp., *Fraxinus* sp.
- B. laurocerasi* (Delise ex Duby) Zahlbr. - Loc. 21, 22, 47: on *Corylus* sp., *Populus* sp. (det. J. Etayo).
- \**B. phacodes* Körb. - Loc. 21: on *Ficus* sp. (conf. J. Etayo).
- B. rubella* (Hoffm.) A. Massal. - Loc. 13: on *Prunus* sp.
- \**Baeomyces rufus* (Huds.) Rebert. - Loc. 15: on soil.
- \**Bellemerea alpina* (Sommerf.) Clauzade & Cl. Roux - Loc. 50: on siliceous rock.
- \*#*Biatora cuprea* (Sommerf.) Fr. - Loc. 48: on moss (det. H. Sipman).
- \**B. vernalis* (L.) Fr. - Loc. 48: on soil (det. H. Sipman).
- \**Buellia abstracta* (Nyl.) H. Olivier - Loc. 44: on siliceous rock (det. H. Sipman). This species is often included in *B. sequax* (Nyl.) Zahlbr. but deviates by the absence of an epilithic thallus and of pruina on the apothecia, and by its siliceous instead of calcareous substrate.
- \**B. griseovirens* (Sm.) Almb. - Loc. 47: on *Corylus* sp. (det. H. Sipman).
- \**B. subdisciformis* (Leight.) Vain. - Loc. 51: on siliceous rock.
- Brodoa intestiniformis* (Vill.) Goward - Loc. 49, 50, 51: on siliceous rock.
- Bryoria bicolor* (Ehrh.) Brodo & D. Hawksw. - Loc. 49: on siliceous rock.
- Bryoria capillaris* (Ach.) Brodo & D. Hawksw. - Loc. 1, 15: on *Abies* sp., *Picea orientalis*, *Pinus* sp. (det. H. Sipman).
- B. chalybeiformis* (L.) Brodo & D. Hawksw. - Loc. 15, 17, 51, 52, 53, 54: on *Abies* sp., *Picea orientalis*, siliceous rock.
- B. fuscescens* (Gyelnik) Brodo & D. Hawksw. - Loc. 1, 15: on *Picea orientalis*, *Pinus* sp.
- \**Caloplaca albolutescens* (Nyl.) H. Olivier - Loc. 18: on siliceous rock (det. H. Sipman).
- \**C. ammiospila* (Wahlenb.) H. Oliver - Loc. 14, 49, 51: on moss.
- C. arenaria* (Pers.) Müll. Arg. - Loc. 43, 44: on siliceous rock (conf. H. Sipman).

- C. cerina* (Ehrh. ex Hedwig) Th. Fr. - Loc. 48 (det. H. Sipman), 17, 30, 44, 46, 51: on *Pyrus* sp., grass, moss, soil, siliceous rock.
- \**C. cerina* var. *chloroleuca* (Sm.) Th. Fr. - Loc. 48: on grass (conf. H. Sipman).
- \**C. cerinella* (Nyl.) Flagey - Loc. 21: on *Salix* sp.
- C. crenularia* (With.) J.R. Laundon - Loc. 46: on siliceous rock.
- C. crenulatella* (Nyl.) H. Olivier - Loc. 44: on siliceous rock (det. H. Sipman).
- \**C. decipiens* (Arnold) Blomb. & Forss. - Loc. 7: on mortar.
- C. ferruginea* (Huds.) Th. Fr. - Loc. 45: on *Erica arborea*.
- C. flavorubescens* (Huds.) J.R. Laundon - Loc. 13: on *Carpinus* sp.
- C. flavovirescens* (Wulfen) DT. & Sarnth. - Loc. 5, 7, 11, 36: on calcareous rock, *Corylus* sp., mortar.
- C. herbidella* (Hue) H. Magn. - Loc. 1, 13, 15, 21, 39, 40: on *Picea orientalis*, *Pinus* sp., *Prunus* sp., *Salix* sp.
- C. holocarpa* (Ehrh. ex Ach.) Wade - Loc. 5, 10, 30: on calcareous rock, mortar.
- C. irrubescens* (Arnold) Zahlbr. - Loc. 5, 11: on siliceous rock.
- C. lactea* (A. Massal.) Zahlbr. - Loc. 8, 11, 14, 47: on calcareous rock.
- \**C. pollinii* (A. Massal.) Jatta - Loc. 47: on *Corylus* sp. (det. J. Etayo).
- C. teicholyta* (Ach.) J. Steiner - Loc. 7: on mortar.
- C. velana* (A. Massal.) Du Rietz - Loc. 44: on siliceous rock.
- Candelaria concolor* (Dicks.) B. Stein - Loc. 13, 46: on *Berberis vulgaris*, *Prunus* sp. (det. H. Sipman).
- Candelariella aurella* (Hoffm.) Zahlbr. - Loc. 5, 7, 10, 11, 13, 14, 24, 26, 30, 42, 43, 44, 46: on calcareous rock, mortar, siliceous rock.
- C. coralliza* (Nyl.) H. Magn. - Loc. 14, 17, 30, 48, 51: on siliceous rock.
- C. reflexa* (Nyl.) Lettau - Loc. 8, 12, 25: on *Corylus* sp., on garden fence, *Prunus* sp.
- C. vitellina* (Nyl.) Lettau - Loc. 11, 14, 18, 29, 30, 32, 42, 43, 44, 50, 51: on mortar, siliceous rock.
- \**Catapyrenium cinereum* (Pers.) Körb. - Loc. 48: on soil (det. H. Sipman).
- \**C. rufescens* (Ach.) Breuss - Loc. 45: on soil.
- Catillaria chalybeia* (Borrer) A. Massal. - Loc. 44: on siliceous rock (det. H. Sipman).
- Cetraria aculeata* (Schreb.) Th. Fr. - Loc. 1, 40, 49, 51: on soil.
- \**C. ericetorum* Opiz - Loc. 14: on soil.
- C. islandica* (L.) Ach. - Loc. 14, 49, 50, 51: on soil.
- Cetrelia cetrarioides* (Delise ex Duby) W.L. Culb. & C.F. Culb. - Loc. 15: on *Pinus* sp.
- C. olivetorum* (Nyl.) W.L. Culb. & C.F. Culb. - Loc. 14: on *Picea orientalis*.

- Chysothrix candelaris* (L.) J.R. Laundon - Loc. 13, 15, 24, 26, 29: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Picea orientalis*, *Prunus* sp.
- \**Cladonia arbuscula* (Wallr.) Flot. - Loc. 49: on soil.
- C. caespitica* (Pers.) Flörke - Loc. 15, 36, 47: on soil.
- C. cervicornis* subsp. *verticillata* (Hoffm.) Ahti - Loc. 49: on soil.
- C. coniocraea* (Flörke) Spreng. - Loc. 1, 5, 7, 14, 15, 30, 32, 35, 36, 40, 47, 49, 51: on moss, soil.
- C. convoluta* (Lam.) P. Cout. - Loc. 13, 14: on moss, soil.
- C. fimbriata* (L.) Fr. - Loc. 7, 11, 14, 15, 22, 24, 30, 35, 36, 38, 40, 42, 49, 51: on moss, soil.
- C. foliacea* (Huds.) Willd. - Loc. 13: on moss.
- C. furcata* (Huds.) Schrad. - Loc. 22 (det. T. Ahti), 1, 11, 14, 24, 36, 40, 49: on moss, soil.
- C. glauca* Flörke - Loc. 36, 47, 51: on soil.
- \**C. humilis* (With.) J.R. Laundon - Loc. 22 (det. T. Ahti): on soil.
- C. macilenta* Hoffm. - Loc. 45 (1447), 46, 49: on soil.
- C. uncialis* (L.) Weber ex F.H. Wigg. - Loc. 51: on soil.
- \**C. pleurota* (Flörke) Schaer. - Loc. 45: (det. T. Ahti), on soil.
- C. pocillum* (Ach.) O.J. Rich. - Loc. 11, 24, 26: on soil.
- C. pyxidata* (L.) Hoffm. - Loc. 22, 45 (det. T. Ahti), 48 (det. H. Sipman), 5, 13, 14, 17, 18, 30, 36, 38, 42, 47, 48, 49, 52: on moss, soil.
- \**C. ramulosa* (With.) J.R. Laundon - Loc. 22: on moss (det. T. Ahti).
- C. rangiferina* (L.) Weber ex Wigg. - Loc. 11, 14, 17, 22, 32, 35, 43, 47, 49, 51: on moss, soil.
- C. rangiformis* Hoffm. - Loc. 51: on soil.
- C. subulata* (L.) Wigg. - Loc. 30, 36: on soil.
- \**C. stellaris* (Opiz) Pouzar & Vězda - Loc. 49, 51: on soil.
- \**Collema crispum* (Huds.) Web. ex Wigg. - Loc. 43: on mortar (det. H. Sipman).
- \*#*C. dichotomum* (With.) Coppins & J.R. Laundon - Loc. 45: on siliceous rock (det. H. Sipman).
- C. flaccidum* (Ach.) Ach. - Loc. 5, 6, 7, 8, 10, 11, 13, 16, 18, 29, 30, 38, 43: on *Corylus* sp., moss, siliceous rock.
- C. subflaccidum* Degel. - Loc. 24: on *Corylus* sp. (det. H. Sipman).
- C. subnigrescens* Degel. - Loc. 22, 43, 44, 47: on siliceous rock.
- Cornicularia normaerica* (Gunn.) Du Rietz - Loc. 14, 50, 51: on siliceous rock.
- \**Dermatocarpon arnoldianum* Degel. - Loc. 51: siliceous rock.
- D. intestiniforme* (Körb.) Hasse - Loc. 50, 51: on siliceous rock.
- D. miniatum* (L.) Mann - Loc. 24, 30, 50, 51: on siliceous rock.
- Dimelaena oreina* (Ach.) Norman - Loc. 50: on siliceous rock.

- \**Diploschistes actinostomus* (Ach.) Zahlbr. - Loc. 46: on siliceous rock (det. H. Sipman).
- \**D. diacapsis* (Ach.) Lumbsch - Loc. 16, 32, 42, 51: on moss, soil.
- D. muscorum* (Scop.) R. Sant. - Loc. 45: on siliceous rock (det. H. Sipman).
- D. scruposus* (Schreb.) Norman - Loc. 1, 14, 16, 51: on siliceous rock.
- \**Diplotomma alboatrum* (Hoffm.) Flot. - Loc. 45: on *Erica arborea*.
- \**Enterographa hutchinsiae* (Leight.) A. Massal. - Loc. 47: on *Corylus* sp. (det. H. Sipman).
- \**Ephebe lanata* (L.) Vain. - Loc. 50, 51: on siliceous rock.
- Evernia divaricata* (L.) Ach. - Loc. 1, 15, 30, 32: on *Alnus* sp., on *Morus* sp., *Picea orientalis*, *Pinus* sp., *Prunus* sp.
- E. prunastri* (L.) Ach. - Loc. 1, 15, 13, 40, 42: on *Abies* sp., *Carpinus* sp., *Pinus* sp., *Prunus* sp.
- \**Flavocetraria nivalis* (L.) Kärnefelt & Thell - Loc. 49: on soil.
- Flavoparmelia caperata* (L.) Hale - Loc. 5, 7, 8, 9, 12, 13, 15, 21, 22, 23, 24, 26, 27, 28, 29, 30, 32, 34, 36, 37, 39, 40, 47, 52: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Ficus* sp., *Picea orientalis*, *Pinus* sp., *Prunus* sp., garden fence, moss, siliceous rock.
- \**Fuscidea kochiana* (Hepp) V. Wirth & Vězda - Loc. 14: on siliceous rock.
- \**Fuscopannaria leucophaea* (Vahl) P.M. Jørg. - Loc. 24: on soil (det. H. Sipman).
- Graphis scripta* (L.) Ach. - Loc. 11, 29, 32: on *Carpinus* sp., Loc. 27 (det. J. Etayo), 6, 7, 8, 24, 25, 28, 30, 34, 35, 40, 47, 52: on *Corylus* sp., *Juglans regia*, *Malus* sp., *Quercus* sp., garden fence.
- \*#*Gyalecta foveolaris* (Ach.) Schaer. - Loc. 48: on soil (det. H. Sipman).
- Heterodermia speciosa* (Wulfen) Trevis. - Loc. 42: on moss (det. H. Sipman).
- Hypogymnia physodes* (L.) Nyl. - Loc. 1, 10, 13, 14, 15, 25, 30, 32, 42, 50, 51: on *Abies* sp., *Alnus* sp., *Corylus* sp., *Picea orientalis*, *Pinus* sp., *Prunus* sp., siliceous rock.
- H. tubulosa* (Schaerer) Havaas - Loc. 1, 10, 13, 32, 42: on *Abies* sp., *Alnus* sp., *Carpinus* sp., *Malus* sp., *Pinus* sp., *Prunus* sp.
- H. vittata* (Ach.) Parr. - Loc. 12: on moss.
- Hypotrachyna revoluta* (Flörke) Hale - Loc. 12: on *Prunus* sp.
- \**Lecania erysibe* (Ach.) Mudd - Loc. 43: on mortar.
- \**L. inundata* (Körb.) M. Mayrhofer - Loc. 44: on siliceous rock (det. H. Sipman).
- \**L. naegelii* (Hepp) Diederich & van den Boom - Loc. 12, 26, 34: (det. H. Sipman), 21 (det. J. Etayo): on *Corylus* sp. *Prunus* sp.
- Lecanora albella* (Pers.) Ach. - Loc. 1, 13, 15, 16, 39, 42: on *Carpinus* sp., *Corylus* sp., *Juglans* sp., *Picea orientalis*, *Prunus* sp.

- L. albescens* (Hoffm.) Branth & Rostr. - Loc. 22: on siliceous rock (det. H. Sipman).
- L. allophana* Nyl. - Loc. 15, 26: on *Carpinus* sp., *Picea orientalis*.
- L. argentata* (Ach.) Malme - Loc. 28 (det. J. Etayo), 1, 5, 7, 8, 9, 10, 13, 15, 16, 21, 23, 24, 25, 26, 29, 30, 34, 36, 42, 47, 52: on *Abies* sp., *Alnus* sp., *Carpinus* sp., *Corylus* sp., garden fence, *Juglans regia*, *Malus* sp., *Morus* sp., *Prunus* sp., *Picea orientalis*, *Quercus* sp., *Salix* sp.
- \**L. bolcana* (Pollich) Poelt - Loc. 48, 49, 50: on siliceous rock.
- L. campestris* (Schaer.) Hue - Loc. 17 (det. H. Sipman), 22, 43, 44, 47, 49, 50, 51: on mortar, siliceous rock.
- L. carpinea* (L.) Vain. - Loc. 19, 31: on *Carpinus* sp., *Corylus* sp.
- L. cenisia* Ach. - Loc. 5, 29, 48, 50: on siliceous rock.
- L. chlarotera* Nyl. - Loc. 7 (det. J. Etayo), 33 (det. H. Sipman), 13, 25, 27, 28, 34, 36, 42, 47: on *Carpinus* sp., *Corylus* sp., *Juglans regia*, *Malus* sp.
- \**L. crenulata* (Dicks.) Hook. - Loc. 43: on mortar.
- L. dispersa* (Pers.) Sommerf. - Loc. 7, 43: on mortar.
- L. gangaloides* Nyl. - Loc. 44: on siliceous rock.
- \**L. hagenii* (Ach.) Ach. - Loc. 5: on *Juglans regia*.
- L. intumescens* (Rebenth.) Rabenh. - Loc. 25, 47: on *Corylus* sp., *Juglans regia*.
- L. polytropha* (Hoffm.) Rabenh. - Loc. 1, 47, 50, 51: on siliceous rock.
- L. rupicola* (L.) Zahlbr. - Loc. 5, 18, 51: on siliceous rock.
- Lecanora saligna* (Schr.) Zahlbr. - Loc. 15: on *Picea orientalis*.
- L. subcarpinea* (Lilj.) Ach. - Loc. 15, 19: on *Abies* sp., *Carpinus* sp.
- L. symmicta* (Ach.) Ach. - Loc. 15 (det. H. Sipman), 31, 32, 42, 47: on *Abies* sp., *Alnus* sp., *Corylus* sp., *Malus* sp., *Picea orientalis*, *Rhododendron luteum*, garden fence.
- \**Lecidea atrobrunea* (Ramond ex Lam. & DC.) Schaer. - Loc. 14, 18, 48: on siliceous rock.
- \**L. exigua* Chaub. - Loc. 5, 47: on *Corylus* sp. (det. J. Etayo).
- L. fuscoatra* (L.) Ach. - Loc. 14: on siliceous rock.
- \**L. tessellata* Flörke - Loc. 50: on siliceous rock.
- Lecidella achristotera* (Nyl.) Hertel & Leuckert - Loc. 20: on *Corylus* sp. (det. J. Etayo).
- L. carpathica* Körb. - Loc. 44 (det. H. Sipman), 14, 18, 41, 50, 51: on siliceous rock.
- L. elaeochroma* (Ach.) M. Choisy - Loc. 1, 5, 7, 8, 9, 10, 12, 13, 14, 15, 16, 21, 23, 24, 25, 26, 27, 29, 30, 31, 32, 34, 36, 37, 39, 40, 47, 52: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Juglans regia*, *Malus* sp., *Morus* sp., *Picea orientalis*, *Prunus* sp., *Populus* sp., *Quercus* sp., *Rhododendron luteum*, garden fence.

- L. stigmatea* (Ach.) Hertel & Leuckert - Loc. 22, 23, 26, 32, 42, 50: on siliceous rock.
- \**L. viridans* (Flot.) Körb. - Loc. 46: on siliceous rock (det. H. Sipman).
- \**L. wulfenii* (Hepp) Körb. - Loc. 48: on moss (det. H. Sipman).
- Lepraria incana* (L.) Ach. - Loc. 7, 8: on *Corylus* sp., on soil.
- Lobaria pulmonaria* (L.) Hoffm. - Loc. 13, 19: on *Carpinus* sp.
- Leptogium cyanescens* (Rabenh.) Körb. - Loc. 6, 8, 11, 32, 42: on *Carpinus* sp., *Corylus* sp, moss, siliceous rock.
- L. gelatinosum* (With.) J.R. Laundon - Loc. 7, 51: on soil.
- L. lichenoides* (L.) Zahlbr. - Loc. 43 (det. H. Sipman), 5, 11, 17, 30, 32, 37, 38: on moss, siliceous rock, soil.
- L. saturninum* (Dicks.) Nyl. - Loc. 11: on siliceous rock.
- Lobaria pulmonaria* (L.) Hoffm. - Loc. 15: on *Picea orientalis*.
- Lobothallia radiosa* (Hoffm.) Hafellner - Loc. 50: on siliceous rock.
- \**Melanelia hepatizon* (Ach.) A. Thell - Loc. 49: on soil.
- M. stygia* (L.) Essl. - Loc. 11, 46: on siliceous rock.
- Melanohalea elegantula* (Zahlbr.) O. Blanco et al. - Loc. 45, 50: on siliceous rock.
- M. exasperata* (De Not.) O. Blanco et al. - Loc. 13, 30: on *Morus* sp., *Prunus* sp.
- M. exasperatula* (Nyl.) O. Blanco et al. - Loc. 30, 47: on *Morus* sp., *Prunus* sp., *Quercus* sp.
- Melanelixia glabratula* (Lamy) O. Blanco et al. - Loc. 2, 14: on *Picea orientalis*, *Prunus* sp.
- M. subargentifera* (Nyl.) O. Blanco et al. - Loc. 8, 12, 13, 25, 26, 31, 32, 34, 42, 47: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Prunus* sp., *Rhododendron luteum*.
- M. subaurifera* (Nyl.) O. Blanco et al. - Loc. 9, 12, 24, 25, 27, 28, 29, 30, 31, 32, 34, 47, 48: on *Alnus* sp., *Corylus* sp., *Malus* sp., *Morus* sp., *Prunus* sp.
- Micarea prasina* Fr. - Loc. 22: on soil (det. H. Sipman).
- \**Nephroma laevigatum* Ach. - Loc. 15: on *Picea orientalis* (det. J. Etayo).
- Ochrolechia parella* (L.) A. Massal. - Loc. 13: on *Prunus* sp.
- \**O. pallescens* (L.) A. Massal. - Loc. 13, 19: on *Carpinus* sp., *Prunus* sp.
- Opegrapha atra* Pers. - Loc. 3, 6, 22, 38 (det. J. Etayo), 24, 47, 52: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Juglans regia*.
- O. rufescens* Pers. - Loc. 39: on *Corylus* sp.
- O. vulgata* (Ach.) Ach. - Loc. 47: on *Juglans regia* (det. J. Etayo).
- Ophioparma ventosum* (L.) Norman - Loc. 51: on siliceous rock.
- Parmelia saxatilis* (L.) Ach. - Loc. 10, 14, 15, 16, 18, 48, 49, 50, 51: on *Malus* sp., *Picea orientalis*, siliceous rock.



- P. sulcata* Taylor - Loc. 12, 13, 14, 15, 28, 30, 31, 32, 36, 39, 40, 42, 49: on *Alnus* sp., *Corylus* sp., *Malus* sp., *Picea orientalis*, *Prunus* sp., garden fence, siliceous rock.
- \**Parmelina quercina* (Willd.) Hale - Loc. 16: on *Pyrus* sp.
- P. tiliacea* (Hoffm.) Hale - Loc. 15, 31, 51: on *Picea orientalis*, siliceous rock.
- Parmotrema perlatum* (Huds.) M. Choisy - Loc. 13, 17, 24, 29, 39, 42, 47: on *Carpinus* sp., *Quercus* sp., *Pinus* sp., *Prunus* sp., siliceous rock, soil.
- Peltigera canina* (L.) Willd. - Loc. 14, 49: on soil.
- P. collina* (Ach.) Schrad. - Loc. 1, 8, 13, 24, 30, 34, 36, 40, 42, 47: on soil.
- P. didactyla* (With.) J.R. Laundon - Loc. 5, 26, 37, 49, 50: on soil.
- P. horizontalis* (Huds.) Baumg. - Loc. 11, 24: on moss.
- P. leucophlebia* (Nyl.) Gyeln. - Loc. 49, 51: on soil.
- \**P. lepidophora* (Vain.) Bitter - Loc. 48 (det. H. Sipman).
- P. malacea* (Ach.) Funck - Loc. 13, 30, 34: on soil.
- P. membranacea* (Ach.) Nyl. - Loc. 34, 43: on soil.
- P. polydactylon* (Neck.) Hoffm. - Loc. 16, 26, 34, 50: on moss, soil.
- P. praetextata* (Flörke ex Sommerf.) Zopf - Loc. 11, 15, 16, 24, 30, 32, 34, 47, 51: on moss, soil.
- P. rufescens* (Weiss) Humb. - Loc. 48 (det. H. Sipman), 6, 11, 14, 16, 17, 22, 24, 26, 29, 32, 42, 46, 49, 51: on moss, soil.
- P. venosa* (L.) Baumg. - Loc. 1, 49, 51: on soil.
- Pertusaria albescens* (Huds.) M. Choisy & Werner - Loc. 10, 13: on *Alnus* sp., *Carpinus* sp.
- P. amara* (Ach.) Nyl. - Loc. 12, 39, 42: on *Malus* sp., *Prunus* sp., garden fence.
- P. flavicans* Lamy - Loc. 50: on siliceous rock.
- P. flavida* (DC.) J.R. Laundon - Loc. 24: on *Alnus* sp.
- P. lactea* (L.) Arnold - Loc. 11, 26, 36, 41, 42, 50: on siliceous rock.
- P. leucosora* Nyl. - Loc. 43: on siliceous rock (det. H. Sipman).
- P. pertusa* (Weigel) Tuck. - Loc. 13, 14, 42: on calcareous rock, *Malus* sp., *Prunus* sp.
- P. pustulata* (Ach.) Duby - Loc. 21, 47: on *Alnus* sp., *Juglans* sp.
- \**Phaeographis inusta* (Ach.) Müll. Arg. - Loc. 22: on *Alnus* sp. (det. H. Sipman).
- \**P. lyellii* (Sm.) Zahlbr. - Loc. 21: on *Alnus* sp.
- Phaeophyscia ciliata* (Hoffm.) Moberg - Loc. 13: on *Prunus* sp.
- P. endophoeniceae* (Harm.) Moberg - Loc. 26, 39: on *Carpinus* sp., *Juglans* sp.
- P. orbicularis* (Neck.) Moberg - Loc. 2 (det. J. Etayo), Loc. 44 (det. H. Sipman), 5, 8, 9, 11, 12, 15, 16, 21, 23, 24, 25, 26, 28, 30, 36, 42, 52: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Ficus* sp., *Juglans regia*, *Malus* sp.,

- Morus* sp., *Picea orientalis*, *Prunus* sp., *Pyrus* sp., *Salix* sp., siliceous rock.
- P. pusilloides* (Zahlbr.) Essl. - Loc. 24, 26, 32, 42: on *Carpinus* sp., *Corylus* sp., *Juglans regia*.
- \**P. sciastra* (Ach.) Moberg - Loc.16: 18, 32, 50: on siliceous rock.
- Physcia adscendens* (Fr.) H. Olivier - Loc. 9, 12, 15, 23, 25, 28, 29, 30, 32, 33, 34, 36, 42, 47, 52: on *Corylus* sp., *Ficus* sp., *Juglans regia*, *Malus* sp., *Morus* sp., *Prunus* sp., *Picea orientalis*, siliceous rock.
- P. aipolia* (Ehrh. ex Humb.) Hampe - Loc. 1, 9, 12, 13, 16, 21, 29, 30, 32, 34, 36, 37, 39, 42, 52: on *Alnus* sp., *Corylus* sp., *Juglans* sp., *Malus* sp., *Picea orientalis*, *Prunus* sp., *Pyrus* sp.
- \**P. caesia* (Hoffm.) Hampe ex Fűrnr. - Loc. 46: on siliceous rock.
- P. dubia* (Hoffm.) Lettau - Loc. 14, 29, 32, 48, 51: on siliceous rock.
- P. semipinnata* (J.F. Gmel.) Moberg - Loc. 12, 16, 20, 23, 30: on *Corylus* sp., *Ficus* sp., *Populus* sp., *Prunus* sp., siliceous rock.
- P. stellaris* (L.) Nyl. - Loc. 9, 16, 23, 25, 26, 30, 31, 36, 39: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Ficus* sp., *Juglans* sp., *Malus* sp., *Prunus* sp.
- P. tenella* (Scop.) DC. - Loc. 23, 42, 47: on *Corylus* sp., siliceous rock.
- P. tribacia* (Ach.) Nyl. - Loc. 17, 18: on moss, siliceous rock (det. H. Sipman).
- Physconia distorta* (With.) J.R. Laundon - Loc. 2 (det. J. Etayo), Loc. 17 (det.H. Sipman), 9, 10, 13, 16, 28, 36, 39: on *Alnus* sp., *Corylus* sp., *Juglans* sp., *Malus* sp., *Picea orientalis*, *Prunus* sp., *Pyrus* sp., siliceous rock.
- \**P. muscigena* (Ach.) Poelt - Loc. 18, 22: on soil (det. H. Sipman).
- \**P. perisidiosa* (Erichsen) Moberg - Loc. 9: on *Prunus* sp.
- \**P. subpulverulenta* (Szat.) Poelt - Loc. 22: on siliceous rock (det. H. Sipman).
- \**P. venusta* (Ach.) Poelt - Loc. 19: on *Mespilus* sp. (det. J. Etayo).
- \**Placynthium nigrum* (Huds.) Gray - Loc. 44: on siliceous rock (conf. H. Sipman).
- \**P. bucekii* (Nádv. & Servít) Breuss - Loc. 44: on siliceous rock (det. H. Sipman).
- Platismatia glauca* (L.) W.L. Culb. & C.F. Culb. - Loc. 5, 10, 11, 15: on *Alnus* sp., moss, siliceous rock, soil.
- \**Polysporina simplex* (Davies) Vežda - Loc. 44: on siliceous rock (conf. H. Sipman).
- Porina aenea* (Wallr.) Zahlbr. - Loc. 24, 39, 42, 46: on *Berberis vulgaris*, *Juglans regia*, *Mespilus* sp.
- \**P. chlorotica* (Ach.) Müll. Arg. - Loc. 51: on rock.
- Porpidia albocaerulescens* (Wulf.) Hertel & Knoph - Loc. 5, 36: on siliceous rock.

- \**P. cinereoatra* (Ach.) Hertel & Knoph - Loc. 43: on siliceous rock (det. H. Sipman).
- \**P. flavicunda* (Ach.) Gowan - Loc. 50: on siliceous rock.
- Punctelia subrudecta* (Nyl.) Krog - Loc. 2: on *Prunus* sp. (det. J. Etayo), 10: on siliceous rock.
- Protoblastenia rupestris* (Scop.) J. Steiner - Loc. 7, 47: on calcareous rock, mortar.
- \**Protopannaria pezizoides* (Weber) P.M. Jørg. & S. Ekman - Loc. 40, 49: on soil.
- Protoparmelia badia* (Hoffm.) Hafellner - Loc. 50: on siliceous rock.
- Protoparmeliopsis muralis* (Schreb.) M. Choisy - Loc. 5, 6, 9, 14, 16, 18, 24, 26, 30, 32, 41, 42, 43, 44, 48, 49, 51: on calcareous rock, mortar, siliceous rock.
- \**Pseudephebe minuscula* (Nyl. ex Arnold) Brodo & D. Hawksw. - Loc. 50: on siliceous rock.
- Pseudevernia furfuracea* (Ach.) var. *ceratea* D. Hawksw. - Loc. 15: on *Picea orientalis*.
- P. furfuracea* (L.) Zopf var. *furfuracea* - Loc. 14, 19, 51: on *Abies* sp., *Carpinus* sp., siliceous rock.
- \**Psora decipiens* (Hedw.) Hoffm. - Loc. 49, 51: on soil.
- \**Pyrenula laevigata* (Pers.) Arnold - Loc. 19: on *Carpinus* sp. (conf. J. Etayo).
- P. nidita* (Weigel) Ach. - Loc. 6, 21: *Corylus* sp.
- Ramalina farinacea* (L.) Ach. - Loc. 2, 3, 9, 12, 13, 17, 24, 26, 28, 30, 39, 47, 51, 52: on *Alnus* sp., *Carpinus* sp., *Corylus* sp., *Juglans* sp., *Morus* sp., *Prunus* sp., siliceous rock.
- R. fastigiata* (Pers.) Ach. - Loc. 19: on *Carpinus* sp.
- R. fraxinea* (L.) Ach. - Loc. 5, 13, 15, 16, 39: on *Carpinus* sp., *Morus* sp., *Picea orientalis*, *Prunus* sp., *Pyrus* sp.
- R. pollinaria* (Westr.) Ach. - Loc. 18, 48, 49, 50, 51: on siliceous rock.
- \**R. polymorpha* (Lilj.) Ach. - Loc. 18, 41, 48, 49, 50, 51: on siliceous rock.
- \**Rhizocarpon badioatrum* (Flörke ex Spreng.) Th. Fr. - Loc. 50: on siliceous rock.
- \**R. geminatum* Körb. - Loc. 50, 51: on siliceous rock.
- R. geographicum* (L.) DC. - Loc. 1, 14, 16, 17, 24, 30, 32, 42, 48, 49, 50, 51: on siliceous rock.
- \**R. lecanorinum* Anders - Loc. 16, 30, 42: on siliceous rock.
- \**R. subgeminatum* Eitner - Loc. 47: on siliceous rock.
- Rhizoplaca chrysoleuca* (Sm.) Zopf. - Loc. 18, 48, 50, 51: on siliceous rock.
- R. melanophthalma* (DC.) Leuckert & Poelt - Loc. 18, 50, 51: on siliceous rock.
- \**Rinodina atrocinerea* (Sm. ex Hook.) Körb. - Loc. 43: on siliceous rock.

- \**R. mniaraea* (Ach.) Körb. - Loc. 51: on moss.  
*R. oxydata* (A. Massal.) A. Massal. - Loc. 23: on siliceous rock (det. H. Sipman).  
 \**R. pyrina* (Ach.) Arnold - Loc. 3, 24, 29: on *Corylus* sp.  
*R. sophodes* (Ach.) A. Massal. - Loc. 20, 39: on *Corylus* sp., *Prunus* sp.  
*R. teichophila* (Nyl.) Arnold - Loc. 43: on siliceous rock.  
 \**R. trachytica* (A. Massal.) Bagl. & Carr. - Loc. 44: on siliceous rock (det. H. Sipman).  
*Roccella phycopsis* Ach. - Loc. 44: on siliceous rock.  
*Sarcogyne regularis* Körb. - Loc. 16: on calcareous rock.  
*Schaereria fuscocinerea* (Nyl.) Clauzade & Cl. Roux - Loc. 50: on siliceous rock.  
 \**Scoliciosporum umbrinum* (Ach.) Arnold - Loc. 20, 43 (det. H. Sipman), 49 (conf. H. Sipman): on siliceous rock.  
 \**Sporastatia polyspora* (Nyl.) Grummann - Loc. 48: on siliceous rock (det. H. Sipman).  
 \**S. testudinea* (Ach.) A. Massal. - Loc. 48, 50: on siliceous rock (det. H. Sipman).  
*Squamarina cartilaginea* (With.) P. James - Loc. 51: on soil.  
 \**Staurothele areolata* (Ach.) Lettau - Loc. 48: on calcareous rock (det. H. Sipman).  
 \**Strigula glabra* (A. Massal.) V. Wirth - Loc. 12 (det. H. Sipman), 29 (det. J. Etayo): on *Carpinus* sp., *Corylus* sp. This species is reported from Turkey by Roux et al. (2004).  
 \**Tephromela armeniaca* (DC.) Hertel & Rambold - Loc. 50: on siliceous rock.  
*T. atra* (Huds.) Hafellner - Loc. 14, 41, 49, 51: on siliceous rock.  
*Thallinocarpon nigritellum* (Lettau) P. M. Jørg. - Loc. 44: on siliceous rock (det. H. Sipman).  
 \**Thamnotia vermicularis* (Sw.) Schaer. - Loc. 50: on soil.  
 \**Thelotrema lepadinum* (Ach.) Ach. - Loc. 44: on siliceous rock.  
 \**Toninia aromatica* (Sm.) A. Massal. - Loc. 43: on mortar (det. H. Sipman).  
 \**T. squalida* (Ach.) A. Massal. - Loc. 45, 46: on siliceous rock, soil (det. H. Sipman).  
 \**Tremolecia atrata* (Ach.) Hertel - Loc. 5: on siliceous rock (det. H. Sipman).  
 \**Trapelia coarctata* (Sm.) M. Choisy - Loc. 24: on siliceous rock (det. H. Sipman).  
 \**Umbilicaria aprina* Nyl. - Loc. 48: on siliceous rock (det. H. Sipman).  
 \**U. cinerascens* (Arnold) Frey - Loc. 48, 51: on siliceous rock.  
*U. cylindrica* (L.) Delise ex Duby - Loc. 17, 48 (det. H. Sipman), 14, 16, 18, 51: on siliceous rock.

- \**U. decussata* (Vill.) Zahlbr. - Loc. 48, 51: on siliceous rock.  
 \**U. deusta* (L.) Baumg. - Loc. 14, 51: on siliceous rock.  
 \**U. grisea* Hoffm. - Loc. 18: on siliceous rock.  
*U. nylanderiana* (Zahlbr.) H. Magn. - Loc. 18: on siliceous rock.  
 \**U. subglabra* (Nyl.) Harm. - Loc. 50: on siliceous rock.  
 \**U. vellea* (L.) Hoffm. - Loc. 48, 51: on siliceous rock.  
 \*#*U. virginis* Schaer. - Loc. 48: on siliceous rock (det. H. Sipman).  
 \**Usnea articulata* (L.) Hoffm. - Loc. 14, 15: on *Abies* sp., *Pinus* sp.  
*U. esperantiana* P. Clerc - Loc. 1: on *Pinus* sp. (det. H. Sipman).  
*U. florida* (L.) Weber ex F.H. Wigg. - Loc. 1: on *Pinus* sp. (det. H. Sipman).  
*U. hirta* (L.) Weber ex F.H. Wigg. - Loc. 1: on *Pinus* sp.  
 \**U. scabrata* Nyl. - Loc. 1: on *Pinus* sp. (det. H. Sipman).  
*U. longissima* Ach. - Loc. 14, 15: on *Abies* sp., *Pinus* sp.  
 \*#*Verrucaria fusconigrescens* Nyl. - Loc. 44: on siliceous rock (det. H. Sipman).  
 \**V. muralis* Ach. - Loc. 42, 47: on mortar, siliceous rock (det. H. Sipman).  
*V. nigrescens* Pers. - Loc. 5, 7, 24, 47: on calcareous rock, mortar, siliceous rock.  
*Vulpicida pinastri* (Scop.) Mattson & Lai - Loc. 15: on *Pinus* sp.  
*Xanthoparmelia conspersa* (Ehrh. ex Ach.) Hale - Loc. 5, 11, 15, 22, 23, 26, 29, 31, 32, 41, 42, 43, 44, 50, 51: on siliceous rock.  
*X. loxodes* (Nyl.) O. Blanco et al. - Loc. 45: on siliceous rock.  
*X. pulla* (Ach.) O. Blanco et al. - Loc. 14, 22, 43, 44, 50, 51: on siliceous rock.  
*X. stenophylla* (Ach.) Ahti & D. Hawksw. - Loc. 22, 24, 26, 43, 44, 50, 51: on siliceous rock.  
*X. tinctina* (Maheu & A.Gillet) Hale - Loc. 26, 32, 41, 42, 46: on siliceous rock.  
*X. verruculifera* (Nyl.) O. Blanco et al. - Loc. 22, 45: on siliceous rock.  
*Xanthoria calcicola* Oxner - Loc. 43, 44, 50: on siliceous rock.  
*X. candelaria* (L.) Th. Fr. - Loc. 15, 21, 36, 46: on *Alnus* sp., *Berberis vulgaris*, *Corylus* sp., *Juglans regia*.  
*X. elegans* (Link) Th. Fr. - Loc. 15, 41, 48, 51: on siliceous rock.  
*X. parietina* (L.) Th. Fr. - Loc. 9, 12, 22, 23, 24, 27, 29, 30, 31, 33, 34, 36, 39, 46, 47, 52: on *Corylus* sp., *Ficus* sp., *Juglans regia*, *Malus* sp., *Morus* sp., *Populus* sp., *Prunus* sp., *Quercus* sp., siliceous rock.

### Results and Discussion

The five species reported here as new for Turkey, *Biatora cuprea*, *Collema dichotomum*, *Gyalecta foveolaris*, *Umbilicaria virginis* and *Verrucaria fusconigrescens*, appear to be rather widespread elsewhere and have probably been overlooked previously. *Biatora cuprea* (syn. *Lecidea cuprea* Sommerf.)

was known from Scotland, Scandinavia and North America, *Collema dichotomum* (syn. *Collema fluviatile* (Huds.) Steud., *Leptogium rivulare* sensu auct. brit.) from often inundated habitats at various sites in Europe and the former U.S.S.R., *Gyalecta foveolaris* from mosses, soil and rocks in uplands, rarely coastal areas in North England, Scotland, Europe and North America. *Verrucaria fusconigrescens* was collected from siliceous rocks at the sea shore in locality 44 (sea shore, Gülburnu). It is reported to grow commonly on sunny siliceous rocks in the sublittoral zone on seashores in Europe and N America (Purvis et al. 1992). The coastlines of Turkey are valuable areas in the terms of lichen biota, but the areas have been neglected so far for lichens. Further species rarely recorded in Turkey so far include *Biatora vernalis*, *Buellia abstracta*, *Collema polycarpon* subsp. *corcyrense*, *Staurothele catalepta*, *Toninia squalida*, *Umbilicaria aprina* and *Staurolemma omphalarioides*. According to the literature (see introduction), 328 lichen taxa are reported from Giresun. Together with the additional records from this study the number of lichen taxa known from Giresun now reaches 431. However, additional studies remain necessary to complete the inventory of the lichen biota of Giresun. Especially the southernmost regions of the province are poorly explored. The wide altitudinal range, rough topography and maritime influence of Giresun offer a wide range of niches so that a rich lichen biodiversity can be expected.

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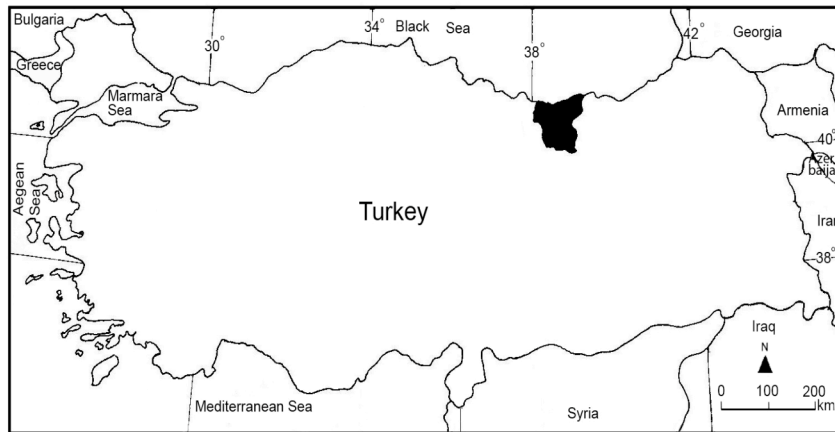


Figure 1. Map of Turkey showing Giresun province.

**Table 1.** The collecting localities.

	Locality	Coordinates	Altitude (m)	Date
1.	Dereli, NW of Koçkayası yaylası	40° 34' 12" N 38° 29' 20" E	2000	1 Sept. 2003
2.	Keşap, Geçit village	40° 46' 13" N 38° 32' 48" E	720	25 Aug. 2004
3.	Keşap, between Geçit village and Erköy village	40° 42' 30" N 38° 34' 20" E	950	25 Aug. 2004
4.	Keşap, Ceylanpınar village	40° 46' 40" N 38° 35' 12" E	600	25 Aug. 2004
5.	Dereli, Eğriambar village	40° 45' 49" N 38° 29' 09" E	450	14 Apr. 2005
6.	Dereli, Çalca village	40° 46' 57" N 38° 28' 05" E	210	14 Apr. 2005
7.	Dereli, Küçükahmetli village,	40° 42' 35" N 38° 27' 41" E	350	14 Apr. 2005
8.	Dereli, Yıldız village	40° 42' 31" N 38° 29' 38" E	680	14 Apr. 2005
9.	Dereli, entrance of Yıldız village	40° 42' 24" N 38° 28' 52" E	470	14 Apr. 2005
10.	Dereli, Akaya village	40° 43' 22" N 38° 24' 41" E	585	14 Apr. 2005
11.	Dereli, entrance of Köknarlı village	40° 46' 09" N 38° 26' 06" E	360	14 Apr. 2005
12.	Dereli, Tepeköknarlı village	40° 47' 28" N 38° 26' 44" E	605	14 Apr. 2005
13.	Dereli, Güce village	40° 36' 17" N 38° 27' 03" E	1190	6 May 2005
14.	Dereli, Koçkayası Yaylası	40° 34' 24" N 38° 29' 08" E	1985	6 May 2005
15.	Dereli, Aymaç place	40° 34' 23" N 38° 24' 56" E	1830	6 May 2005
16.	Dereli, Uzundere	40° 31' 24" N 38° 21' 18" E	1565	6 May 2005
17.	Dereli, Tamdere	40° 30' 14" N 38° 21' 02" E	1690	6 May 2005



18.	Between Dereli and Şebinkarahisar, Eğribel geçidi	40° 27' 28" N 38° 24' 03" E	2220	6 May 2005
19.	Keşap, S of Erköy village	40° 42' 46" N 38° 35' 20" E	1330	3 Nov. 2005
20.	Keşap, SW of Dokuztepe village	40° 52' 55" N 38° 31' 13" E	360	3 Nov. 2005
21.	Keşap, W of Yolağzı village	40° 56' 07" N 38° 34' 22" E	29	12 Dec. 2006
22.	Keşap, Değirmenağzı village	40° 58' 2" N 38° 38' 33" E	12	12 Dec. 2006
23.	Piraziz, Aydere village	40° 56' 33" N 38° 06' 46" E	156	30 Mar. 2006
24.	Piraziz, Gökçeali village	40° 54' 24" N 38° 05' 39" E	422	30 Mar. 2006
25.	Piraziz, Örnekköy village	40° 52' 44" N 38° 05' 57" E	648	30 Mar. 2006
26.	Piraziz, W of Çayırköy village	40° 52' 24" N 38° 03' 57" E	745	30 Mar. 2006
27.	Piraziz, Hasanşeyh village	40° 53' 33" N 38° 07' 43" E	425	31 Mar. 2006
28.	Piraziz, entrance of Bozat	40° 52' 32" N 38° 04' 51" E	543	31 Mar. 2006
29.	Piraziz, Esentepe village	40° 52' 34" N 38° 07' 50" E	616	31 Mar. 2006
30.	Piraziz district, Güneyköy village	40° 53' 07" N 38° 03' 52" E	632	31 Mar. 2006
31.	Piraziz, between Çayırköy village and Çakıryatak hill	40° 51' 53" N 38° 02' 59" E	978	31 Mar. 2006
32.	Piraziz, Çakıryatak hill	40° 51' 21" N 38° 01' 27" E	1186	31 Mar. 2006
33.	Bulancak, Yıldızköy village	40° 53' 30" N 38° 10' 15" E	110	5 May 2006
34.	Bulancak, Bahçeli village	40° 48' 44" N 38° 08' 54" E	380	5 May 2006
35.	Bulancak, Alibeyköy village	40° 45' 29" N 38° 08' 37" E	440	5 May 2006
36.	Bulancak, near the Kovanlık	40° 44' 42" N 38° 07' 45" E	525	5 May 2006

37.	Bulancak, Esenköy village	40° 48' 53" N 38° 07' 60" E	571	5 May 2006
38.	Bulancak, Sofulu village	40° 44' 13" N 38° 07' 41" E	700	5 May 2006
39.	Bulancak, between Bayındır village and Sofulu village	40° 44' 15" N 38° 08' 19" E	795	5 May 2006
40.	Bulancak, Güzelyurt village	40° 44' 45" N 38° 08' 57" E	850	5 May 2006
41.	Bulancak, NW of Bayındır village	40° 43' 30" N 38° 08' 01" E	1070	5 May 2006
42.	Bulancak, Bayındır village	40° 43' 22" N 38° 08' 12" E	1112	5 May 2006
43.	W of city centre, Ayvasıl pleace, sea shore	40° 55' 37" N 38° 18' 45" E	10	25 May 2006
44.	Espiye, Gülburnu, sea shore	40° 57' 50" N 38° 39' 14" E	1	10 June 2006
45.	Center, NW slope of Gedikkaya hill	40° 54' 31" N 38° 45' 50" E	185	10 June 2006
46.	Center, SE slope of Gedikkaya hill	40° 54' 35" N 38° 24' 48" E	190	10 June 2006
47.	SW of Giresun city centre, entrance of Boztekke village	40° 54' 20" N 38° 19' 24" E	5	24 Dec. 2007
48.	Dereli, Karagöl mountains	40° 35' 51" N 38° 10' 30" E	3050	29 Jul. 2007
49.	Dereli, northern slopes of Karagöl mountains	40° 31' 3" N 38° 10' 02" E	2810	29 Jul. 2007
50.	Dereli, near the Karagöl lake	40° 31' 9" N 38° 10' 39" E	2752	29 Jul. 2007
51.	Dereli, E of Kuzugözü Yayalası	40° 34' 42" N 38° 29' 21" E	2000	9 Aug. 2008
52.	Center, Uzgur village	40° 52' 34" N 38° 21' 06" E	265	5 Apr. 2006.