

LICHENS OF KEŞAP DISTRICT (GİRESUN, TURKEY)

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In this study, 135 taxa belonging to 60 genera are reported from Keşap district, NE coast of Turkey. All are new to the district and *Acrocordia cavata* (Ach.) R. C. Harris, *Arthonia leucopellaea* (Ach.) Almq., *Bacidia arceutina* (Ach.) Arnold, *Gyalecta bififormis* (Körb.) H. Olivier and *Rhizocarpon infernulum* (Nyl.) Lynge are new records for Turkey.

Key words: flora, Giresun, lichens, Turkey

INTRODUCTION

Until 1995, 191 papers on lichens from Turkey had been published (John 1992a, b, 1995). After this time, interest in the lichen flora of Turkey has strongly increased, resulting in numerous publications, e.g. Güvenç and Öztürk (1997, 1998), Çiçek and Özdemir Türk (1998), John and Nimis (1998), John *et al.* (2000), John (2003), Karabulut and Özdemir Türk (1998), Özdemir Türk and Güner (1998), Güvenç (2001, 2002), Güvenç and Öztürk (2004), Özdemir Türk (2002, 2003), Schindler (1998), Öztürk and Kaynak (1999), Yazıcı (1999), Beril *et al.* (2001), Yıldız and John (2002), Yıldız *et al.* (2002), Öztürk and Güvenç (2003), John and Breuss (2004), Çobanoğlu and Akdemir (2004). However, the lichen flora of Turkey, and in particular the abundance and distribution of the species, are still largely unknown.

The coastal areas in the NE of Turkey differ markedly from the rest of the country by their much more humid climate (Erol 1983). This results in a differ-

ent and more profuse lichen flora, which has attracted the attention of cryptogamists since a long time (Schiffner 1896, Yazıcı 1999, John and Breuss 2004). Their studies dealt mainly with Trabzon province, while for Giresun province only a total of 174 lichen species has been reported so far (Küçük 1990, Kinalıoğlu 1999, 2005, and John and Breuss 2004, and references therein). Below the results of an extensive floristical exploration in Keşap district (Fig. 1) is presented.

DESCRIPTION OF STUDY AREA

The Keşap district is located in the eastern part of the Black Sea Region of Turkey, between 38° 27' 30" and 38° 37' 57" E and 40° 42' 30" and 40° 54' 57" N, and covers appr. 222 square kilometres. The collection stations are presented in Table 1 and their location is shown in Figure 1.

The study area has a prevailing maritime climate, and a rough topography. The highest locality is Erköy village (1,360 metres), while the lowest points are Değirmenağzı village and the seashore 6 km west of Keşap district centre (5 metres).

Unless most of Turkey, the landscape is dominated by woody vegetation (Atalay 1994). Up to the elevation of 800 metres *Corylus maxima* Miller, which is an important crop plant here, covers the area most frequently. Over 800 metres, trees of *Alnus*, *Carpinus* and *Castanea* are dominant. These plants provide suitable habitats for a rich lichen flora. The mountainous landscape has numerous rock outcrops, predominantly consisting of siliceous stone. The formation of Keşap and its environs is Upper Cretaceous except for the very narrow area of the mouth of the Keşap Stream (Erentöz 1962).

MATERIALS AND METHODS

The lichen specimens were collected on 27 sites in the Keşap district in 2004 (see Table 1). The samples were identified using various floras and identification keys (e.g. Purvis *et al.* 1992, Wirth 1995). The lichen samples are stored in the herbarium of Giresun Faculty of Sciences and Arts, Karadeniz Technical University, Giresun.

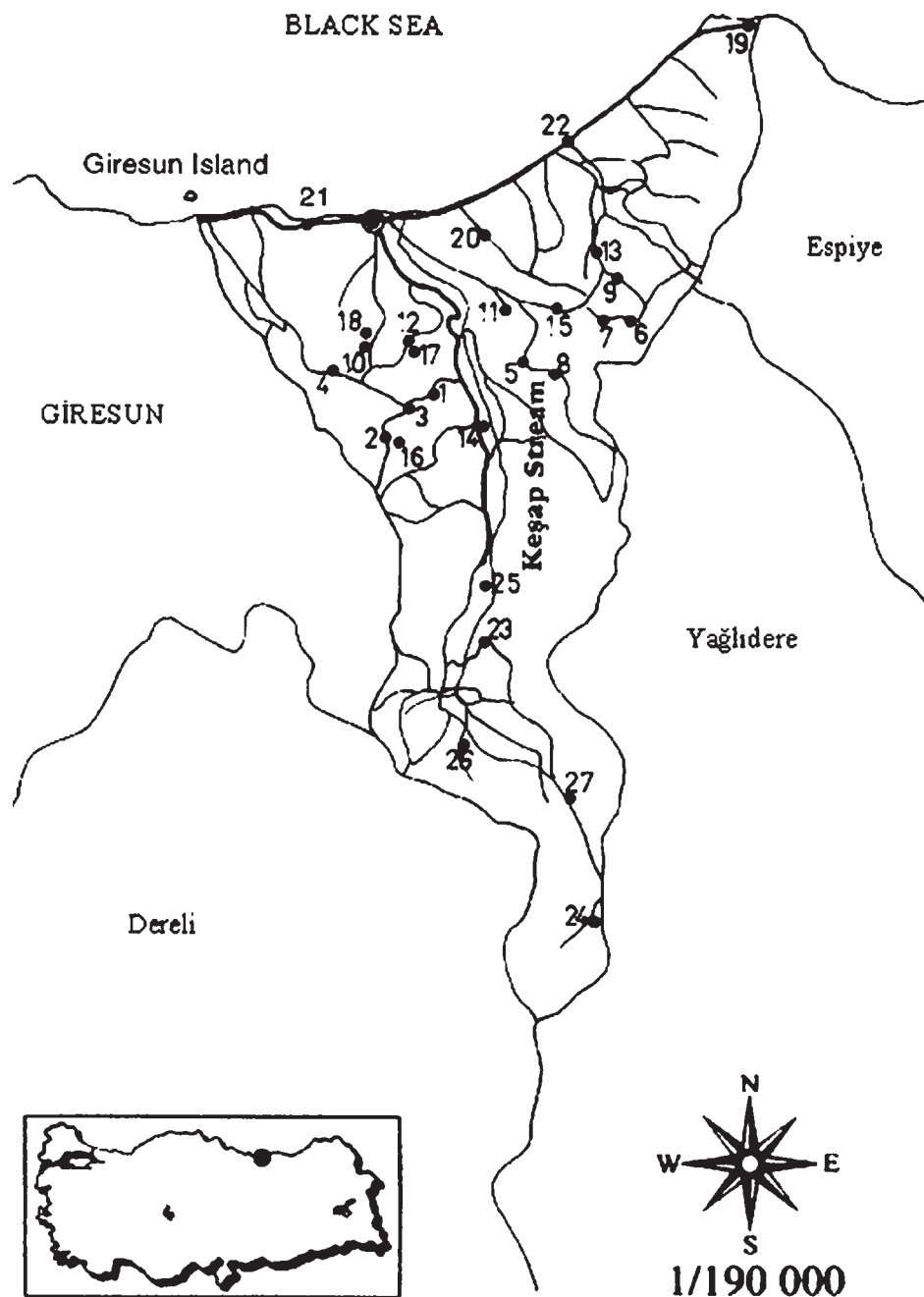


Fig. 1. The study area. Localities indicated by numbers (1–27)

Table 1
Collecting sites

Localities	Altitude (m)	Latitude	Longitude	Date of collection
1. Alataş village, roadside	250	38°32'60"	40°51'56"	13.3.2004
2. Bayrambey village	450	38°30'14"	40°51'24"	13.3.2004
3. Demirci village	350	38°31'24"	40°51'56"	14.3.2004
4. Kayabaşı village	200	38°30'42"	40°53'18"	14.3.2004
5. Çakırlı village, stream bank	320	38°33'30"	40°52'00"	27.3.2004
6. Gürpınar village	300	38°35'15"	40°54'22"	27.3.2004
7. Kurbanpınar village	450	38°36'18"	40°53'34"	27.3.2004
8. Tongel village	440	38°34'12"	40°52'21"	27.3.2004
9. Saraycık village	350	38°34'54"	40°54'36"	19.5.2004
10. Sayca village	500	38°30'21"	40°52'46"	19.5.2004
11. Taflancık village	300	38°33'30"	40°53'34"	19.5.2004
12. Dokuztepe village	350	38°31'30"	40°52'46"	3.4.2004
13. Balıklısu village	300	38°33'36"	40°54'30"	3.4.2004
14. E of Küçükgeriş village, Keşap stream bank	400	38°32'48"	40°51'8"	3.4.2004
15. Sancaklıtepe village	300	38°34'12"	40°54'35"	3.4.2004
16. E of Bayrambey village	530	38°30'25"	40°30'35"	10.4.2004
17. SE of Dokuztepe village	390	38°31'32"	40°52'48"	10.4.2004
18. N of Sayca village	400	38°31'47"	40°53'59"	10.4.2004
19. Değirmenağzı village, sea shore	5	38°37'35"	40°58'11"	26.7.2004
20. Karakoç village	105	38°33'10"	40°54'18"	26.7.2004
21. 6 km west of Keşap District centre, sea shore	5	38°27'30"	40°54'57"	26.7.2004
22. Yolağzı village	45	38°35'10"	40°56'11"	26.7.2004
23. Ceylanpınar village	600	38°35'12"	40°46'40"	25.8.2004
24. Erköy village	1,360	38°35'01"	40°43'48"	25.8.2004
25. E of Halkalı village, stream bank	515	38°33'10"	40°52'30"	25.8.2004
26. Geçit village	720	38°32'48"	40°46'13"	25.8.2004
27. Geçit village between Erköy village	950	38°34'20"	40°42'30"	25.8.2004

RESULTS

The encountered species are listed in alphabetical order followed by localities and substrates. All are new records for the district. New records for Turkey are indicated with an asterisk (*).

Acarospora fuscata (Nyl.) Arnold – Loc. 19: on siliceous rocks

Acarospora macrospora (Hepp) A. Massal. – Loc. 19: on calcareous rocks

- **Acrocordia cavata* (Ach.) R. C. Harris – Loc. 1: on *Juglans regia* (det. H. Sipman)
Arthonia cinnabarina (DC.) Wallr. – Loc. 20, 22: on *Corylus maxima*
 **Arthonia leucopellaea* (Ach.) Almq. – Loc. 3: on *Corylus maxima*, Loc. 4: on *Castanea* sp.
Arthonia radiata (Pers.) Ach. – Loc. 12, 18: on *Corylus maxima*, Loc. 12: on *Malus* sp.
Arthothelium spectabile Flotow ex A. Massal. – Loc. 7: on *Alnus* sp. and on *Corylus maxima*
Aspicilia calcarea (L.) Mudd – Loc. 2: on calcareous rocks
Aspicilia contorta (Hoffm.) Kremp. – Loc. 6, 23: on calcareous rocks
 **Bacidia arceutina* (Ach.) Arnold – Loc. 2: on *Fraxinus* sp. (det. H. Sipman), Loc. 10: on siliceous rocks (det. H. Sipman)
Bacidia laurocerasi (Duby) Zahlbr. – Loc. 27: on *Carpinus* sp., Loc. 14: on *Laurocerasus officinalis* (det. H. Sipman)
Bacidia rubella (Hoffm.) A. Massal. – Loc. 19: on *Alnus* sp., Loc. 24: on *Carpinus* sp., Loc. 12: on *Quercus* sp.
Buellia erubescens Arnold – Loc. 7: on *Alnus* sp. and on *Carpinus* sp.
Buellia stellulata (Tayl.) Mudd – Loc. 19: on siliceous rocks
Caloplaca arenaria (Pers.) Müll. Arg. – Loc. 12: on siliceous rocks
Caloplaca atroflava (Turner) Mong. – Loc. 11: on siliceous rocks (det. H. Sipman)
Caloplaca cerina (Hedw.) Th. Fr. – Loc. 15, 21: on siliceous rocks
Caloplaca crenularia (With.) J. R. Laundon – Loc. 19, 21: on siliceous rocks
Caloplaca crenulatella (Nyl.) H. Olivier – Loc. 6: on siliceous rocks
Caloplaca flavescens (Huds.) J. R. Laundon – Loc. 3, 12, 15, 18, 24: on calcareous rocks, Loc. 14: on mortar, Loc. 22: on concrete
Caloplaca flavorubescens (Huds.) J. R. Laundon – Loc. 27: on *Carpinus* sp.
Caloplaca flavovirescens (Wulfen) DT. et Sarnth. – Loc. 11, 23, 25: on siliceous rocks
Caloplaca herbidella (Hue) H. Magn. – Loc. 25 on *Carpinus* sp., Loc. 4: on *Corylus maxima*, Loc. 22: on *Fraxinus* sp.
Caloplaca holocarpa (Ehrh. ex Ach.) Wade – Loc. 7, 10: on concrete, Loc. 18: on mortar influenced wall, Loc. 9, 15: on siliceous rocks
Caloplaca irrubescens (Arnold) Zahlbr. – Loc. 12: on siliceous rocks
Caloplaca lactea (A. Massal.) Zahlbr. – Loc. 5, 10: on siliceous rocks, Loc. 22: on concrete
Candelariella aurella (Hoffm.) Zahlbr. – Loc. 7: on concrete, Loc. 10, 12, 25: on siliceous rocks
Candelariella coralliza (Nyl.) H. Magn. – Loc. 15: on siliceous rocks
Candelariella reflexa (Nyl.) Lettau – Loc. 3, 9, 12, 22: on *Corylus maxima*, Loc. 3: on *Laurocerasus officinalis*, Loc. 26: on *Juglans regia*, Loc. 10: on *Malus* sp.
Candelariella vitellina (Hoffm.) Müll. Arg. – Loc. 15: on siliceous rocks
Candelariella xanthostigma (Ach.) Lettau – Loc. 9: on *Corylus maxima*, Loc. 21: on siliceous rocks
Cetrelia olivetorum (Nyl.) W. L. Culb. et C. F. Culb. – Loc. 23, 24: on mosses
Chrysothrix candelaris (L.) J. R. Laundon – Loc. 27: on *Alnus* sp., Loc. 25: on *Carpinus* sp., Loc. 10, 12: on *Malus* sp., Loc. 24: on *Mespilus* sp., Loc. 2, 3, 10, 26: on *Prunus avium*
Cladonia caespitica (Pers.) Flörke – Loc. 24: on *Alnus* sp. (det. H. Sipman)
Cladonia coniocraea (Flörke) Spreng. – Loc. 5: on *Alnus* sp., Loc. 6: on *Malus* sp., Loc. 18, 27: on mosses, Loc. 13, 15, 23: on decaying wood
Cladonia convoluta (Lam.) P. Cout. – Loc. 12, 19: on mosses, Loc. 5: on soil
Cladonia fimbriata (L.) Fr. – Loc. 6: on soil

- Cladonia furcata* (Huds.) Schrad. – Loc. 17: on mosses
Cladonia pocillum (Ach.) O. J. Rich. – Loc. 12: on mosses (det. H. Sipman)
Cladonia pyxidata (L.) Hoffm. – Loc. 2, 3, 6, 12, 23: on mosses, Loc. 16: on soil
Cladonia rangiformis Hoffm. – Loc. 19, 23: on mosses, Loc. 2, 11 (det. H. Sipman), 18: on soil
Collema cristatum (L.) F. H. Wigg. – Loc. 9: on mosses
Collema flaccidum (Ach.) Ach. – Loc. 3: on *Alnus* sp., Loc. 1, 14, 26: on mosses, Loc. 6, 22, 25, 26: on siliceous rocks
Collema nigrescens (Huds.) DC. – Loc. 19: on siliceous rocks
Collema subflaccidum Degel. – Loc. 24: on *Carpinus* sp., on *Castanea* sp. and on *Mespilus* sp., Loc. 16: on *Juglans regia*
Collema subnigrescens Degel. – Loc. 16, 19: on siliceous rocks
Dermatocarpon miniatum (L.) Mann – Loc. 16: on siliceous rocks
Diploschistes scruposus (Schreb.) Norm. – Loc. 17: on siliceous rocks
Evernia prunastri (L.) Ach. – Loc. 13, 24: on *Alnus* sp., Loc. 24: on *Carpinus* sp., Loc. 10: on *Malus* sp. and on *Prunus avium*
Flavoparmelia caperata (L.) Hale – Loc. 27: on *Carpinus* sp., Loc. 1, 2, 3, 6, 9, 11, 12, 13, 14, 15, 16, 18, 22, 23: on *Corylus maxima*, Loc. 26: on *Castanea* sp., Loc. 9: on *Diospyros kaki*, Loc. 2: on *Fraxinus* sp., Loc. 9, 12: on *Malus* sp., Loc. 12: on *Prunus avium*, Loc. 17: on *Populus* sp., Loc. 6, 16: on *Salix* sp., Loc. 19: on siliceous rocks, Loc. 24: on *Mespilus* sp. and *Carpinus* sp., Loc. 15: on *Pyrus* sp.
Graphis scripta (L.) Ach. – Loc. 24, 27: on *Alnus* sp. and on *Castanea* sp., Loc. 1, 2, 3, 4, 6, 10, 11, 12 (det. H. Sipman), 13, 14, 15, 16, 18, 19, 22, 23, 25: on *Corylus maxima*
**Gyalecta bififormis* (Körb.) H. Oliver – Loc. 24: on *Carpinus* sp.
Hypogymnia physodes (L.) Nyl. – Loc. 13, 26, 27: on *Alnus* sp., Loc. 24, 25: on *Carpinus* sp., Loc. 9, 10, 15: on *Corylus maxima*, Loc. 1, 2, 18: on siliceous rocks
Hypotrachyna revoluta (Flörke) Hale – Loc. 11, 13: on *Corylus maxima*, Loc. 10: on *Populus* sp.
Lecania crytella (Ach.) Th. Fr. – Loc. 8: on *Fraxinus* sp.
Lecanora allophana (Ach.) Nyl. – Loc. 2: on *Juglans regia*
Lecanora argentata (Ach.) Malme – Loc. 19, 27: on *Alnus* sp., Loc. 23: on *Carpinus*, Loc. 4: on *Castanea* sp., Loc. 22: on *Citrus nobilis*, Loc. 6, 7, 8, 11, 12, 15, 18, 22, 25: on *Corylus maxima*, Loc. 11, 19: on *Populus* sp., Loc. 2: on *Ficus* sp. and on *Fraxinus* sp., Loc. 24: on *Juglans regia*, Loc. 10: on *Malus* sp., Loc. 12, 20: on *Prunus avium*
Lecanora campestris (Schaer.) Hue – Loc. 24: on siliceous rocks
Lecanora carpinea (L.) Vain. – Loc. 25: on *Carpinus* sp.
Lecanora cenisia Ach. – Loc. 21: on siliceous rocks
Lecanora chlarotera Nyl. – Loc. 13, 16, 19: on *Alnus* sp., Loc. 27: on *Carpinus* sp. and on *Castanea* sp., Loc. 2, 6, 9, 10, 15, 18, 22: on *Corylus maxima*, Loc. 8: on *Fraxinus* sp., Loc. 10, 15, 20, 26: on *Malus* sp., Loc. 6, 10: on *Populus* sp., Loc. 20: on *Tilia* sp.
Lecanora conizaeoides Nyl. ex Cromb. – Loc. 10: on *Malus* sp.
Lecanora dispersa (Pers.) Sommerf. – Loc. 13: on *Corylus maxima*
Lecanora intumescens (Rebent.) Rabenh. – Loc. 2: on *Corylus maxima* and on *Fraxinus* sp.
Lecanora polytropa (Ehrh. ex Hoffm.) Rabenh. – Loc. 24: on siliceous rocks
Lecanora subcarpinea (Lilj.) Ach. – Loc. 11: on *Corylus maxima*
Lecanora symmicta (Ach.) Ach. – Loc. 27: on *Alnus* sp., Loc. 25: on *Carpinus* sp.
Lecidea fuscoatra (L.) Ach. – Loc. 6: on siliceous rocks
Lecidella carpathica Körb. – Loc. 2, 10: on siliceous rocks

Lecidella elaeochroma (Ach.) M. Choisy – Loc. 20, 27: on *Alnus* sp., Loc. 20: on *Ficus* sp., Loc. 1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 16, 18, 22, 25: on *Corylus maxima*, Loc. 3: on *Prunus avium*, Loc. 10, 20: on *Pyrus* sp., Loc. 11: on *Diospyros kaki* and on *Ficus* sp., Loc. 6: on *Malus* sp., Loc. 14, 15, 17, 18: on *Populus* sp.

Lepraria incana (L.) Ach. – Loc. 1, 3, 22: on siliceous rocks

Leprocaulon microscopicum (Vill.) Gams – Loc. 14: on soil (det. V. John)

Leptogium cyanescens (Rabenh.) Körb. – Loc. 2, 3, 11, 16: on mosses

Leptogium lichenoides (L.) Zahlbr. – Loc. 9, 24, 26: on mosses

Leptogium saturninum (Dicks.) Nyl. – Loc. 3, 4, 14: on *Corylus maxima*, Loc. 2, 26: on siliceous rocks

Lobaria pulmonaria (L.) Hoffm. – Loc. 24, 27: on *Carpinus* sp.

Melanelia subargentifera (Nyl.) Essl. – Loc. 27: on *Carpinus* sp., Loc. 4, 9, 12, 13, 18, 22: on *Corylus maxima*, Loc. 10: on *Malus* sp., Loc. 3, 7: on *Prunus avium*

Melanelia subaurifera (Nyl.) Essl. – Loc. 4, 8, 11, 13, 16, 22: on *Corylus maxima*, Loc. 24: on *Mespilus* sp., Loc. 25: on *Carpinus* sp., Loc. 26: on *Prunus avium*, Loc. 27: on *Alnus* sp.

Neofuscelia loxodes (Nyl.) Essl. – Loc. 19, 21: on siliceous rocks

Nephroma parile (Ach.) Ach. – Loc. 27: on *Carpinus* sp.

Normandina pulchella (Borrer) Nyl. – Loc. 5: on *Alnus* sp., Loc. 14: on *Corylus maxima*

Opegrapha atra Pers. – Loc. 12: on *Alnus* sp., Loc. 1, 10, 11, 12, 13, 16, 18, 22: on *Corylus maxima*, Loc. 14, 20: on *Juglans regia*, Loc. 19: on siliceous rocks

Opegrapha rufescens Pers. – Loc. 3: on *Corylus maxima* (det. H. Sipman) and on *Pyrus* sp., Loc. 2, 16: on *Juglans regia* (det. H. Sipman)

Opegrapha saxatilis DC. – Loc. 19: on siliceous rocks

Opegrapha varia Pers. – Loc. 3: on mortar influenced wall, Loc. 26: on *Prunus avium*, Loc. 15: on siliceous rocks

Opegrapha vulgata Ach. – Loc. 22: on *Corylus maxima*, Loc. 11: on *Diospyros kaki*

Parmelia saxatilis (L.) Ach. – Loc. 17: on *Corylus maxima*

Parmelia sulcata Taylor – Loc. 27: on *Alnus* sp., Loc. 24: on *Carpinus* sp., Loc. 3, 12, 13, 17: on *Corylus maxima*, Loc. 16, 26: on *Juglans regia*, Loc. 9: on *Malus* sp., Loc. 7, 11, 26: on *Prunus avium*

Parmelia tiliaceae (Hoffm.) Ach. – Loc. 13: on *Corylus maxima*

Parmotrema chinense (Osbeck) Hale et Ahti – Loc. 23, 24: on *Carpinus* sp.

Peltigera collina (Ach.) Schrad. – Loc. 23: on *Carpinus* sp., Loc. 5, 6, 9, 11, 12, 13, 15, 26: on mosses

Peltigera degenii Gyeln. – Loc. 25: on mosses

Peltigera polydactyla (Neck.) Hoffm. – Loc. 23: on mosses

Peltigera praetextata (Flörke ex Sommerf.) Zopf – Loc. 16, 18, 23, 26: on mosses

Peltigera rufescens (Weiss) Humb. – Loc. 14: on mosses

Pertusaria amara (Ach.) Nyl. – Loc. 27: on *Alnus* sp., Loc. 4, 22: on *Corylus maxima*

Pertusaria flavicans Lamy – Loc. 19: on siliceous rocks

Pertusaria lactea (L.) Arnold – Loc. 19: on siliceous rocks

Pertusaria pertusa (Weigel) Tuck. – Loc. 24, 25: on *Carpinus* sp., Loc. 11: on *Corylus maxima*, Loc. 19: on siliceous rocks

Pertusaria pustulata (Ach.) Duby – Loc. 22, on *Alnus* sp. – Loc. 10, 16, 18, 22: on *Corylus maxima*, Loc. 11, on *Diospyros kaki*, Loc. 2, 14: on *Juglans regia*, Loc. 2: on *Prunus avium*, Loc. 12: on *Quercus* sp.

Pertusaria velata (Turner) Nyl. – Loc. 7: on *Corylus maxima*

Phaeographis dendritica (Ach.) Müll. Arg. – Loc. 20, 22: on *Corylus maxima*

Phaeophyscia orbicularis (Neck.) Moberg – Loc. 2, 12, 19: on *Alnus* sp., Loc. 2, 8, 12, 16, 17, 18: on *Corylus maxima*, Loc. 10, 20: on *Fraxinus* sp., on *Morus* sp. and on *Tilia* sp., Loc. 1, 22, 26: on *Juglans regia*, Loc. 18, 19: on *Populus* sp., Loc. 22: on *Salix* sp.

Phaeophyscia pusilloides (Zahlbr.) Essl. – Loc. 22: on *Alnus* sp., Loc. 1, 3, 12, 16: on *Corylus maxima*, Loc. 14, 15: on *Populus* sp.

Physcia adscendens (Fr.) H. Olivier – Loc. 10: on *Castanea* sp., Loc. 13, 15, 16, 22: on *Corylus maxima*, Loc. 20: on *Ficus* sp., Loc. 17: on *Populus* sp.

Physcia aipolia (Ehrh. ex Humb.) Hampe – Loc. 13: on *Diospyros kaki*

Physcia dubia (Hoffm.) Lettau – Loc. 10: on *Fraxinus* sp.

Physcia semipinnata (J. F. Gmel.) Moberg – Loc. 4, 5: on *Corylus maxima*, Loc. 10: on *Malus* sp.

Physcia stellaris (L.) Nyl. – Loc. 5: on *Alnus* sp., Loc. 2, 7, 13, 15: on *Corylus maxima*, Loc. 13, on *Diospyros kaki*, Loc. 2: on *Laurocerasus officinalis*, Loc. 9: on *Malus* sp., Loc. 16, 22: on *Salix* sp.

Physcia tenella (Scop.) DC. – Loc. 23: on *Carpinus* sp., Loc. 2, 5, 7, 8, 9, 13: on *Corylus maxima*, Loc. 16, 17, 22: on *Salix* sp.

Physcia tribacia (Ach.) Nyl. – Loc. 15, 16: on *Corylus maxima*, Loc. 2: on *Ficus* sp., Loc. 3: on *Prunus avium*, Loc. 19: on siliceous rocks

Physconia distorta (With.) J. R. Laundon – Loc. 12: on *Corylus maxima*, Loc. 13: on *Diospyros kaki*

Porina aenea (Wallr.) Zahlbr. – Loc. 11: on *Corylus maxima*, Loc. 4: on *Castanea sativa* (det. H. Sipman)

Porpidia albocaerulescens (Wulf.) Hertel et Knoph – Loc. 1, 5 (det. H. Sipman) – Loc. 14: on siliceous rocks

Porpidia macrocarpa (DC.) Hertel et Schwab – Loc. 2, 5: on siliceous rocks

Protoblastenia rupestris (Scop.) J. Steiner – Loc. 9: on calcareous rocks

Protoparmelia badia (Hoffm.) Häfellner – Loc. 14: on siliceous rocks

Protoparmeliopsis muralis (Schreb.) M. Choisy – Loc. 12, 17, 18: on siliceous rocks, Loc. 3: on mortar influenced wall

Pyrenula nidita (Weigel) Ach. – Loc. 25: on *Alnus* sp., Loc. 24: on *Carpinus* sp., Loc. 2, 5, 6, 10, 14, 22, 23: on *Corylus maxima*, Loc. 12: on *Quercus* sp.

Pyrenula subelliptica (Tuck) R. C. Harris – Loc. 12: on *Quercus* sp. (det. H. Sipman)

Ramalina farinacea (L.) Ach. – Loc. 17, 27: on *Alnus* sp., Loc. 24: on *Carpinus* sp., Loc. 11, 12: on *Corylus maxima*, Loc. 10: on *Malus* sp., Loc. 7: on *Prunus avium*

Rhizocarpon concentricum (Davies) Beltr. – Loc. 5: on siliceous rocks

Rhizocarpon geographicum (L.) DC. – Loc. 2, 24: on siliceous rocks

**Rhizocarpon infernulum* (Nyl.) Lynge – Loc. 5: on siliceous rocks (det. H. Sipman)

Rhizocarpon umbilicatum (Ramond) Flagey – Loc. 23: on siliceous rocks

Rinodina sophodes (Ach.) A. Massal. – Loc. 13: on *Corylus maxima*

Roccella phycopsis Ach. – Loc. 19, 21: on siliceous rocks

Sarcogyne regularis Körb. – Loc. 23: on concrete, Loc. 6: on siliceous rocks

Tephromela atra (Huds.) Häfellner – Loc. 10: on *Castanea* sp., Loc. 18, 19: on siliceous rocks

Verrucaria nigrescens Pers. – Loc. 23, 25: on siliceous rocks

Xanthoparmelia conspersa (Ehrh. ex Ach.) Hale – Loc. 19, 21: on siliceous rocks

Xanthoria calcicola Oxner – Loc. 19, 21: on siliceous rocks

Xanthoria candelaria (L.) Th. Fr. – Loc. 8, 13, 15, 16, 18, 22: on *Corylus maxima*, Loc. 2: on *Juglans regia*, Loc. 6, 3: on *Malus* sp., Loc. 1, 3: on *Prunus avium*

Xanthoria parietina (L.) Th. Fr. – Loc. 2, 11, 13, 18: on *Corylus maxima*, Loc. 13: on *Diospyros kaki*, Loc. 22: on *Citrus nobilis*, on *Fraxinus* sp., on *Juglans regia* and on *Salix* sp., Loc. 20: on *Morus* sp., on *Prunus avium* and on *Tilia* sp., Loc. 17, 20: on *Populus* sp.

DISCUSSION

A total of 135 lichen species was determined from 27 sites in the Keşap district. Consultation of the existing literature (Küçük 1990, Kınalıoğlu 1999, 2005, John and Breuss 2004) showed that all of these species are new records for the district. In addition, *Acrocordia cavata*, *Arthonia leucopellaea*, *Bacidia arceutina*, *Gyalecta biformis*, *Pyrenula subelliptica* and *Rhizocarpon infernulum* appeared to be new records for Turkey. The best represented genera were *Caloplaca* (12 species), *Lecanora* (12 species), *Cladonia* (8 species), *Physcia* (7 species) and *Pertusaria* (6 species). The most commonly observed species are: *Flavoparmelia caperata*, *Lecanora argentata*, *L. chlarotera*, *Lecidella elaeochroma*, *Phaeophyscia orbicularis* and *Graphis scripta*, while 56 species were found only once.

Table 2
A presentation of the altitudinal distribution of the lichens

Altitude (m)	Number of species
5	34
45	24
105	9
200	9
250	12
300	75
320	13
350	56
390	11
400	32
440	7
450	36
500	23
515	14
530	19
600	27
720	14
950	15
1,360	21

The present study lists all of the 174 lichen species known from Giresun province. It is thought that our study contributes to complete the lichen flora of Giresun province on a large scale.

The altitudinal distribution of the species is presented in Table 2.

A total of 75 lichen species was observed to be exclusively epiphytic, 48 exclusively saxicolous, and only one terricolous. In addition, 1 species (*Cladonia coniocraea*) was both epiphytic and on decaying wood, 3 species (*Cladonia convoluta*, *C. pyxidata*, *C. rangiformis*) epiphytic and on soil, and 11 species (*Candelariella xanthostigma*, *Hypogymnia physodes*, *Leptogium saturnium*, *Opegrapha atra*, *Pertusaria pertusa*, *Physcia tribacia*, *Tephromela atra*, *Collema flaccidum*, *Flavoparmelia caperata*, *Bacidia arceutina*) epiphytic and saxicolous.

Table 3 shows the commonest phorophytes in Keşap district and the numbers of epiphytic lichens counted on them. It shows that *Corylus maxima* was the tree that houses most lichen species. It is followed by *Carpinus* and *Alnus*. The trees, on

Table 3
The common phorophytes in Keşap district

Phorophytes	Epiphytic lichen	Localities
<i>Corylus maxima</i>	44	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23
<i>Carpinus</i> sp.	26	7, 23, 24, 25, 27
<i>Alnus</i> sp.	24	2, 3, 5, 7, 12, 13, 14, 16, 17, 19, 20, 22, 24, 25, 26, 27
<i>Malus</i> sp.	15	3, 6, 9, 10, 12, 15, 20, 26
<i>Prunus avium</i>	15	1, 2, 3, 7, 10, 11, 12, 20, 26
<i>Juglans regia</i>	12	1, 2, 14, 16, 20, 22, 24, 26
<i>Fraxinus</i> sp.	10	2, 8, 10, 20, 22
<i>Populus</i> sp.	9	6, 10, 11, 14, 15, 17, 18, 19, 20
<i>Diospyros kaki</i>	9	9, 11, 13
<i>Castanea</i> sp.	8	4, 10, 24, 26, 27
<i>Ficus</i> sp.	5	2, 20
<i>Salix</i> sp.	5	6, 16, 22
<i>Mespilus</i> sp.	4	10, 20
<i>Quercus</i> sp.	4	12
<i>Laurocerasus officinalis</i>	3	2, 3, 14
<i>Pyrus</i> sp.	3	2, 15
<i>Tilia</i> sp.	3	20
<i>Citrus nobilis</i>	2	22
<i>Morus</i> sp.	2	10, 20

which few species have been found, are infrequently observed.

The 35 saxicolous species prefer only siliceous rocks. The commonest species of the seashores were *Xanthoria calcicola* and *Xanthoparmelia conspersa*. They were observed in extensive mats on exposed siliceous rocks.

*

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