BioOne COMPLETE

Contributions to the flora of the Aegean islands of Lesvos and Limnos, Greece

Author: Biel, Burkhard

Source: Willdenowia, 32(2) : 209-219

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.32.32203

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

BURKHARD BIEL

Contributions to the flora of the Aegean islands of Lesvos and Limnos, Greece

Abstracts

Biel, B.: Contributions to the flora of the Aegean islands of Lesvos and Limnos, Greece. – Willdenowia 32: 209-219. 2002. – ISSN 0511-9618.

The floristic results of journeys to the Aegean islands of Lesvos and Limnos over several years are presented. *Retama monosperma* is added to, and *Asphodeline brevicaulis* confirmed for the flora of Greece, and 14 new records for Lesvos and 31 for Limnos are given.

Introduction

Some journeys of the author to Greece and the Aegean between 1985 and 2002, at first particularly devoted to the orchid flora (Biel 1998a-b, 1999, 2000), have revealed a number of additions and confirmations to the flora of the country as compared with existing checklists and databases concerning the forthcoming "Flora hellenica" (Strid 1991, Phitos & al. 1997). Specialists for the Aegean flora, who revised herbarium specimens of the author, encouraged him to publish his findings. Further contributions to the flora of other parts of Greece are in preparation.

Lesvos. – This E Aegean islands off Asia Minor is the third-largest island of Greece (1633 km², 87 000 inhabitants in 1991). It is markedly structured by two gulfs, which are deeply carved (about 1/2 the width of the island) into the south coast: the Gulf of Kalloni with c. 21 km and the Gulf of Gera with 15 km in length. Four mountain massifs dominate the island: in the north Mt Lepetimnos (968 m), in the east Mt Amali/Kourteri (527 m), in the south Mt Olympos (967 m) and in the west Mt Ordymnos/Prof. Ilias (799 m).

Lesvos is located in a transition zone of the Mediterranean winter rain climate to the continental steppe climate of Asia Minor. Annual precipitation is relatively high (739 mm; Attika, for comparison, 400 mm). Dew is of importance especially near the sea. The maximum temperature reaches 35° C, the minimum c. 0° C (rarely to -5° C).

According to Launay (1858), Philippson (1901), Jacobshagen (1986) and Hecht (1972), the geology of Lesvos is extremely heterogeneous. Alternating strata of mica-schists, gneiss-granites and other siliceous rocks as well as various limestones and marbles dominate in the south-

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

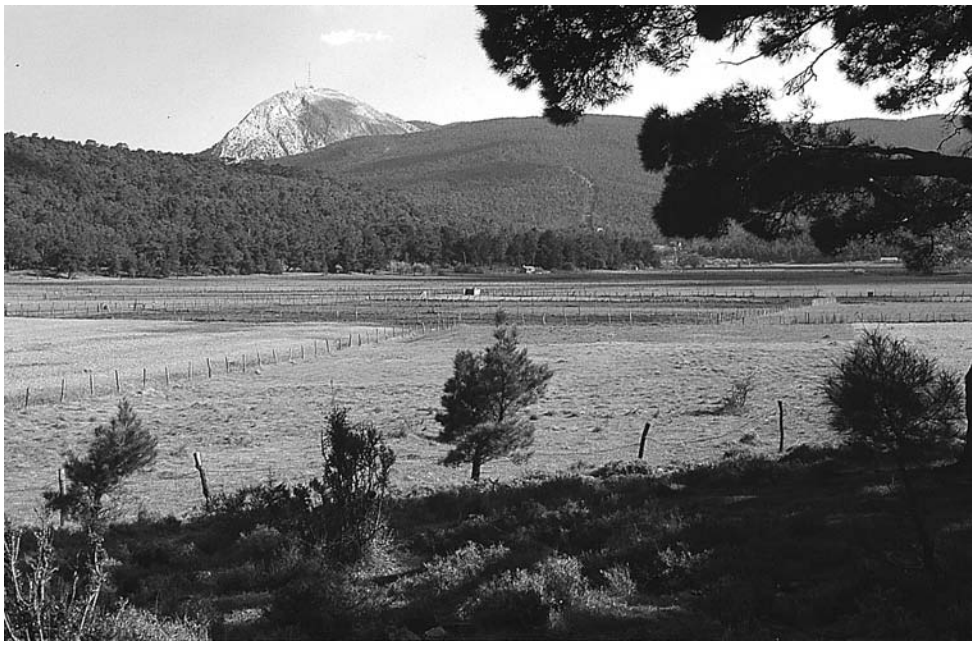


Fig. 1. Lesvos, drained former alke of Megalo Limni, in the background Mt Olympos, 967 m. – Photograph by B. Biel, 20.4.1995.

east, east and northwest of the island. Relatively extensive serpentine areas are situated in the south and southeast. Volcanic tuffs and basalt from the tertiary occur in the west and southwest of the island.

The zonal vegetation of Lesvos is a Mediterranean evergreen sclerophyllous forest (Horvat & al. 1974). Actually a *Quercus* forest *(Q. ithaburiensis* subsp. *macrolepis, Q. pubescens)* in the west and north and a *Pinus* forest *(P. brutia)* between the two gulfs, with partial areas in the north and southeast, cover large coherent areas. Olive groves of c. 465 km² (Anonymus 1995) prevail in the eastern half of the island and west of Kalloni, in the south locally extending up to 650 m. A *Castanea sativa* zone is restricted to the higher altitudes of Mt Olympos and Mt Lepetimnos. Degraded secondary shrub communities, phrygana and macchie, are widely distributed. Arable fields are confined to flat areas near the coast and the drained ground of the former inland lake Megalo Limni (Fig. 1). Almost the whole island, including the still existing forests, is intensively grazed by sheep and goats.

A comprehensive account of the history of the floristic research on Lesvos is given by Bazos & Yannitsaros (2000), starting with Joseph Pitton de Tournefort, who made a short stop at Mitilini during his journey to Armenia in 1700-02, followed by J. Dumont d'Urville (1822) in 1819, whose findings have been included by Boissier (1867-84) in the "Flora orientalis"; M. de Boissieu (1896) visited the island briefly during a cruise in 1894. The first extensive treatment of the island's flora was by C. A. Candargy (1889) and P. C. Candargy (1897, 1898, 1899a-b). Unfortunately the herbarium of Candargy father and son got lost early, thus causing considerable difficulties for later botanists (see Rechinger 1943: 852). Rechinger (1929, 1943), within the scope of his work on the "Flora aegaea", visited Lesvos twice (19.-21.5.1927 and 16.-26.5.1934). An important floristic update was included in the "Flora of Turkey and the East Aegean Islands" (Davis 1965-88). Edmondson (1982) and Nielsen (1989) provided further additions to the flora of Lesvos and very recently did so Yannitsaros (1992), Bazos & Yannitsaros (1992, 1994, 1999), Hansen & Nielsen (1993), Dinter (1995) and Chilton (2002).

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Fig. 2. Limnos, swampy area at Ormos Kondias. – Photograph by B. Biel, 22.5.1999.

Limnos. – The comparatively isolated N Aegean island of Limnos (476 km², c. 18 000 inhabitants) is situated between the Chalkidiki peninsula and the island of Lesvos (distance to the mainland 100 km northwards and 160 km westwards and c. 65 km SW off the Turkish coast near the Dardanelles).

The coastline is heavily structured by three extended bays, resulting in a western main part with two peninsulas to the south and to the east. The surface is flat, without marked relief energy. The few hilly areas, depending on the geology and subsequent erosion, are either softly rounded or forming precipitous cliffs. They only reach altitudes of 430 m in the northwest and of 259 m in the southeast. Vast coastal marshes occur, in which two brackish lakes are embedded (eastern peninsula).

Limnos takes an exceptional position concerning wind exposition. The island is situated in the prolongation of the Dardanelles, which considerably gear up the etesial (northeasterly) winds, acting as a narrow wind tunnel (for details, see Rauh 1949). The annual precipitation amounts to only 510 mm (i.e. c. 70 % of the value for the neighbouring island of Lesvos), with a maximum in December and January. This small amount of rainfall combined with the extreme winds results in a distinctive arid character of the island's mesoclimate.

Limnos is chiefly volcanic in origin with roughly 80 % of its surface consisting of trachytes, phonolites and volcanic tuffs of different character and extent (Launay 1858, Papp 1953, Jakobshagen 1986). Tertiary sediments of marly clay and loess loam can be found mainly in the lowlands. Extensive silty, alluvial plains and the sandy, salty to brackish soils by the lakes in the hinterland of the large bays and on the eastern peninsula are of major importance.

About 30-40 % of the island's surface are cultivated, occupied mainly by cereal fields and vineyards, orchards (partially abandoned) and cattle pastures. The cultivation of oat and barley on arid fields, used for improving cattle food supply during the dry summer, is a particular feature of Limnos. The remainder of the island (including swampy areas) is continuously grazed by sheep, goats, horses and donkeys, making thorny phrygana prevailing from the sea shore to the hill tops

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

without recognisable altitudinal differences. *Sarcopoterium spinosum, Ballota acetabulosa, Euphorbia characias, Stachys cretica* and others dominate on dry volcanic substrates, *Coridothymus capitatus* covers predominantly marl and loess, often accompanied by *Cistus creticus, Fumana thymifolia, Helichrysum italicum, Onobrychis arenaria* and *Teucrium capitatum.* Extensive temporary marshes are found along the shallow lakes and bays, with dominating sedges and rushes (Fig. 2). Woody vegetation on Limnos is represented only by a few small and fragmentary remnants of macchie south of Ag. Dimitrios (poor *Quercus coccifera* stands) and north of Kornos (sparse *Spartium junceum* heathland), and some oak groves near Kondias and Kondopouli. In addition there are some small pine afforestations in different places, mostly by settlements.

Little is known about the floristic inventory of the island and only very little has been published up to now. Even though (according to Rechinger 1943) Sibthorp, Tozer (1891) and Butcher (in Turrill 1922) have collected on Limnos already at an early stage, a basic stock of the flora was first recorded by Rechinger (1929) during his stay on 22.-28.5.1927. The publication of Rauh (1949) is an important addition. A few further taxa are listed by Economidou (1981).

Material and methods

The island of Lesvos was visited by the author eight times: 13.-26.5.1993, 31.3.-19.4.1995, 7.-14.6.1995, 15.-31.3.1996, 15.5.-2.6.1996, 1.-8.3.1997, 2.-12.4.1998 and 31.5.-7.6.2000. On these excursions 494 taxa have been recorded at about 650 sites, 129 herbarium samples and 235 voucher photographs have been taken. The island of Limnos was visited twice by the author, on 15.-24.5.1998 and 16.-23.4.1999; 301 taxa have been recorded at 83 sites, 56 herbarium samples and 74 voucher photographs have been taken. The majority of the vouchers, especially of critical taxa, has been revised by Arne Strid, Göteborg, and Henry Nielsen, Copenhagen. The voucher specimens are deposited in the herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (B).

1. New or redeemed records for Greece

Retama monosperma (L.) Boiss. [Syn.: *Lygos monosperma* (L.) Heywood]
Greece, North Aegean Islands, Nomos of Lesvos, island of Limnos, c. 2.2 km SE of Kaminia (UTM square LE51.82), foot of a steep dune slope with phrygana, S of a brook valley with wetland, on sand and stony marl, 10 m, 21.5.1998, *Biel* (voucher photograph, see Fig. 3); ibid., three individuals partly in full flower, 19.4.1999, *Biel BB-LI99.039* (B).

Retama monosperma is a white-flowered broom shrub *(Fabaceae),* growing up to a height of 3 m, with a W Mediterranean-Atlantic distribution. A quite old shrub is encountered on Limnos, with c. 10 m in diameter and c. 3 m of height, with five main stems each of 10-15 cm in diameter, at the foot of a steep dune c. 100 m behind the coast line. Two younger individuals, c. 1 m of height, grow nearby, c. 50 m apart.

The species is accompanied by *Ammophila arenaria* agg., *Anchusa italica, Anthyllis hermanniae, Calicotome villosa, Cnicus benedictus, Euphorbia paralias, Evax pygmaea, Helichrysum stoechas* subsp. *barrelieri, Lathyrus sphaericus, Lotus cytisoides, Ononis spinosa* subsp. *antiquorum, Ophrys sicula, Rumex bucephalophorus* subsp. *aegaeus, Senecio vulgaris, Sideritis romana, Teucrium polium* subsp. *capitatum, Thymus capitatus* and *Valantia hispida.*

Retama monosperma has to be qualified as naturalized on Limnos, as the habitat is located far from cultivated areas (closest settlement is Kaminia at a distance of c. 2.2 km) and the main plant is very old and has obviously given rise to two young individuals, despite occasional grazing.

Asphodeline brevicaulis (Bertol.) Baker
Greece, East Aegean Islands, Nomos of Lesvos, c. 2 km NNW of Agra (UTM square MD 13.77), on grazed, fallow slope, bordered by a wall of natural stones, with solitary *Quercus* trees and

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Fig. 3. *Retama monosperma* (L.) Boiss., old shrub near Kaminia, Limnos. – Photograph by B. Biel, 21.5.1998.

shrubs of *Prunus, Rosa* and *Rubus* on soil over porphyr and basalt, 530 m, 20 flowering individuals, 23.5.1996, *Biel* (voucher photograph, see Fig. 4); ibid., 10 flowering individuals, 1.6.2000, *Biel BB-LE00.009* (B).

Asphodeline brevicaulis (Bertol.) Baker is an orange-yellow-flowered geophyte, up to 70 cm high. It differs from other taxa of the genus in particular by a repeatedly ramified inflorescence. According to Matthews & Tuzlaci (1984) the area of distribution, so far known, ranges from W and S Anatolia over Palestine and Syria as far as N Iraq, or possibly Iran. In Lesvos, the species is accompanied by *Allium nigrum, Anthemis arvensis, Aristolochia hirta, Asparagus acutifolius, Centaurea cyanus, Conium maculatum, Dracunculus vulgaris, Eryngium campestre, Fritillaria pontica, Legousia pentagonia, Matricaria recutita, Moenchia mantica, Opopanax hispidus, Orchis sancta, Paeonia mascula, Papaver rhoeas, Rosa canina* agg., *Rubus sanctus, Sarcopoterium spinosum, Urtica dioica* and *Vicia villosa* subsp. *eriocarpa.*

Within Greece the species was exclusively listed by Candargy (1897: 451) for Lesvos: "*A. brevicaulis* Bert. – Loco Probatar ad Chydaera", without further data. If "Chydaera" can be iden-

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Fig. 4. *Asphodeline brevicaulis* (Bertol.) Baker near Agra, Lesvos. – Photograph by B. Biel, 23.5.1996.

tified with the hamlet "Xidhra" (NW of Agra), this is most likely the same or a neighbouring locality as given above. Hence the occurrence of *A. brevicaulis* in the "Flora hellenica" area has been confirmed after 99 years (herbarium specimens by Candargy do not exist, see Diemar & Seberg 1989).

2. New and confirmed old records for the flora of Lesvos and Limnos

Acer sempervirens L.
LESVOS: 2.1 km WSW Agiasos, (UTM: MD42.35), 740 m, 6.6.2000, *Biel BB-LE00.078* (B). – Previously mentioned for Lesvos by Yannitsaros & Bazos (1993: 133) and Chilton (2002: 2) but without specimen citation.

Alisma plantago-aquatica L.
LESVOS: 0.6 km NE Dipi, (UTM: MD52.19), 5 m, 6.6.2000, *Biel* (obs.).

This observation confirms the report by Candargy (1898: 188 as *"Alisma Plantago"*) in the chapter "Plantes plus ou moins communes dans l'ile de Lesbos".

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Anchusa italica Retz.
LIMNOS: SE Kaminia, (LE51.82), 10 m, 19.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Asplenium obovatum Viv.
LIMNOS: NW Thanos, (LE31.54), 150 m, 22.5.1998, *Biel BB-LI98.028* (B). – Not previously recorded from Limnos.

Centaurium pulchellum (Sw.) Druce
LESVOS: 2.8 km SW Loutropoli Thermis, (MD53.35), 270 m, 2.6.2000, *Biel BB-LE00.021* (B). – Previously only listed for Lesvos by Chilton (2002: 11) but without specimen citation.

Crepis neglecta L. s.l.
LESVOS: 1.5 km NNE Plomari, (MD41.56), 90 m, 5.6.2000, *Biel BB-LE00.043* (B). – First record, the population is in all parts more and longer pilose than the type, similar to *C. micrantha* Czerep.

Echinaria capitata (L.) Desf.
LIMNOS: 1 km ESE Dafni, (LE42.33), 150 m, 20.4.1999, *Biel BB-LI99.048* (B). – Not previously recorded from Limnos.

Euphorbia platyphyllos L.
LESVOS: 1 km ESE Neohori, (MD42.20), 350 m, 9.6.1995, *Biel* (obs.). – Not previously recorded from Lesvos.

Euphorbia rigida M. Bieb.
LESVOS: 1.6 km N Plomari, (MD41.46), 270 m, 4.4.1995, *Biel* (photo no. 9/32); 2.7 km SE Agiasos, (MD42.74), 470 m, 8.4.1998, *Biel* (photo no. 27/5); 2.8 km NE Megalohori, (MD42.61), 800 m, 4.6.2000, *Biel* (obs.). – Listed for Lesvos by Dinter (1995) and Chilton (2002: 10); substantiated here by the cited photographs.

Filago pygmaea L.
LIMNOS: Mirina, S village border above port bay, (LE31.35), 30 m, 17.4.1999, *Biel BB-LI99.010* (B). – Not previously recorded from Limnos, up to now its northernmost occurrence in Greece.

Herniaria cinerea DC.
LIMNOS: S Mirina, (LE31.35), 30 m, 17.4.1999, *Biel BB-LI99.011* (B). – Not previously recorded from Limnos.

Iris albicans Lange
LESVOS: 2.0 km SW Megalohori, (MD41.37), 380 m, 17.4.1995 & 5.3.1997, *Biel* (photo no. 12/19). – Several populations on abandoned olive terraces, fully naturalized; not previously recorded.

Lathyrus sphaericus A. J. Retzius
LIMNOS: SE Kaminia, (LE51.82), 10 m, 19.4.1999, *Biel BB-LI99.042* (B). – Not previously recorded from Limnos.

Lomelosia divaricata (Jacq.) Greuter & Burdet
LIMNOS: SW Plaka, (LE62.48), 40 m, 23.5.1998, *Biel* (photo no. 3/36). – Not previously recorded from Limnos.

Lupinus micranthus Guss.
LIMNOS: WSW Kondopouli, (LE52.60), 30 m, 23.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Lysimachia dubia Sol.
LESVOS: 1.9 km NE Dipi, (MD53.20), 15 m, 1.6.2000, *Biel BB-LE00.007* (B). – Mentioned for

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Lesvos by Yannitsaros & Bazos (1993: 133) without further details, occurrence substantiated here by the cited specimen.

Lythrum borysthenicum (Schrank) Litv.
Limnos: SSW Mirina, (LE31.34), 2 m, 16.5.1998, *Biel BB-LI98.006* (B). – Not previously recorded from Limnos.

Malabaila aurea (Sm.) Boiss.
Lesvos: 2.4 km ENE Andissa, (MD14.34), 30 m, 13.6.1995, *Biel* (obs.). – Not previously recorded from Lesvos.

Malope malacoides L.
Limnos: SW Plaka, (LE62.48), 40 m, 23.5.1998, *Biel BB-LI98.033* (B). – Not previously recorded from Limnos.

Matthiola sinuata (L.) R. Br.
Limnos: SSW Mirina, (LE31.34), 50 m, 16.5.1998, *Biel BB-LI98.035* (B). – Not previously recorded from Limnos.

Melilotus italicus (L.) Lam.
Limnos: N village border Mirina, (LE31.46), 3 m, 17.5.1998, *Biel* (photo no. 1/20). – Not previously recorded from Limnos.

Moenchia mantica (Torn.) Bartl.
Limnos: 3.9 km NE Mirina, (LE31.77), 30 m, 18.5.1998, *Biel* (obs.); SSE Kaminia, (LE51.72), 40 m, 19.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Muscari commutatum Guss.
Limnos: SSE Kaspakas, (LE32.60), 100 m, 22.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Muscari weissii Freyn
Lesvos: 1.5 km SSW Megalohori, (MD41.38), 480 m, 16.5.1993, *Biel* (photo no. 3/11); SE Agiasos, (MD42.74), 640 m, 10.6.1995, *Biel* (obs.). – Not previously recorded from Lesvos.

Limnos: 3.9 km NE Mirina, (LE31.77), 30 m, 18.5.1998, *Biel* (photo no. 1/33); 3.9 km SSE Kaminia, (LE51.72), 40 m, 19.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Nasturtium officinale R. Br.
Limnos: S Kondias, (LE40.19), 90 m, 22.5.1998, *Biel BB-LI98.030* (B). – Not previously recorded from Limnos.

Ononis reclinata L.
Limnos: N Sardes, (LE42.06), 100 m, 20.5.1998, *Biel BB-LI98.022* (B). – Not previously recorded from Limnos.

Ononis viscosa subsp. *breviflora* (DC.) Nyman
Lesvos: 4.8 km SSW Loutropoli Thermis, (MD53.23), 360 m, 2.6.2000, *Biel BB-LE00.023* (B); 0.8 km NE Mitilini, (MD62.29), 30 m, 13.5.1993, *Biel* (obs.); 1.8 km NNE Plomari, (MD41.56), 60 m, 8.6.1995, *Biel* (obs.). – Listed by Candargy (1898: 192 as *"O. breviflora"*) in the chapter "Plantes plus ou moins communes dans l'ile de Lesbos", recently also by Chilton (2002: 13). These reports are substantiated here by the cited specimens.

Parietaria lusitanica L.
Limnos: NW Kaminia, (LE51.55), 100 m, 21.5.1998, *Biel* (photo no. 3/7). – Not previously recorded from Limnos.

Paronychia chionaea Boiss.
Lesvos: 2.2 km SW Loutropoli Thermis, (MD53.35), 230 m, 2.6.2000, *Biel BB-LE00.018* (B). – Listed by Candargy (1898: 114) in the chapter "Espéces plus ou moins rares et variétés nou-

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

velles", with the localities "Olympos 1000-1150 m, Liacas, Petrovouni 200 metr." – Occurrence on Lesvos substantiated here by the cited specimen.

Petrorhagia dubia (Rafin.) G. López & Romo
Limnos: S Kondias, (LE40.19), 100 m, 22.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Plantago cretica L.
Limnos: NW Plaka, (LE63.40), 5 m, 23.5.1998, *Biel BB-LI98.031* (B). – Not previously recorded from Limnos.

Polygonum maritimum L.
Limnos: N village border Mirina, (LE31.46), 3 m, 17.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Pterocephalus plumosus (L.) Coulter
Limnos: S Mirina, (LE31.35), 30 m, 16.5.1998, *Biel BB-LI98.003* (B). – Not previously recorded from Limnos.

Quercus cerris L.
Limnos: Mirina, slope at the ascent to the castle, (LE31.36), 60 m, 16.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Rosmarinus officinalis L.
Limnos: 1.3 km NW Livadohori, (LE41.49), 60 m, 21.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Rosularia serrata (L.) A. Berger
Lesvos: 2.2 km SW Loutropoli Thermis, (MD53.35), 230 m, 2.6.2000, *Biel BB-LE00.017* (B). – Listed by Candargy (1898: 182 under "*Umbilicus serratus* (L.) DC. – Udj") in the chapter "Espèces plus ou moins rares et variétés nouvelles". In case the place name "Udja" is identical with the contemporary "Outza", the above cited locality would be situated only c. 7 km northwest, in rock crevices in a brook ravine with periodically running water. Specimens from cultivated and probably escaped plants, where cited by Hansen & Nielsen (1993: 150). Without substantiation by cited specimens the species was also listed by Chilton (2002: 8). The above cited record confirms the indigenous status of the species in Lesvos already claimed by Hansen & Nielsen (1993: 150).

Rumex crispus L.
Limnos: NE Mirina, (LE31.68), 20 m, 17.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Scorzonera crocifolia Sibth. & Sm.
Limnos: 3.9 km NE Mirina, (LE31.77), 30 m, 18.4.1999, *Biel* (photo no. 4/38). – Not previously recorded from Limnos.

Silene gallica L.
Limnos: 2.0 km NW Kaspakas, (LE32.41), 20 m, 22.4.1999, *Biel* (obs.). – Not previously recorded from Limnos.

Stellaria pallida (Dumort) Piré
Limnos: S village border above port bay, Mirina, (LE31.35), 30 m, 17.4.1999, *Biel BB-LI99.005* (B). – Not previously recorded from Limnos.

Torilis webbii Jury
Limnos: SW Lihna, (LE51.19), 5 m, 21.5.1998, *Biel BB-LI98.024* (B). – Not previously recorded from Limnos.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Vitis vinifera subsp. *sylvestris* (C. C. Gmel.) Hegi
LIMNOS: WSW Kondopouli, (LE52.60), 30 m, 23.5.1998, *Biel* (obs.). – Not previously recorded from Limnos.

Acknowledgements

Particular thanks are due to the hospitable inhabitants of the islands of Lesvos and Limnos, to Prof. Arne Strid, Copenhagen/Göteborg, and Dr Thomas Raus, Berlin, for valuable information to the flora of the islands and literature references, Arne Strid and Henry Nielsen, Copenhagen, for the determination of herbarium samples, and J. A. Bazos, Athens, for a joint day of excursion on Lesvos. Special thanks are due to Arne Strid for allowing the evaluation of regional floristic additions by means of the "Flora hellenica" database administered in Göteborg.

References

Anonymus 1995: Distribution of the country's area by basic categories of landuse. – Athens.
Bazos, I. & Yannitsaros, A. 1992: A contribution to the flora and vegetation of the islets Tokmakia and Prasologos (Lesvos, Greece). – Proc. 14th Panhell. Biol. Conf., Nicosia-Cyprus: 153-156.
— & — 1994: Floristic investigation of some vernal pools of Lesvos (East Aegean, Greece). – Proc. 16th Panhell. Biol. Conf., Volos: 27-29.
— & — 1999: Pteridophyte flora of Lesvos (East Aegaean islands, Greece). – Edinburgh J. Bot. **56:** 421-448.
— & — 2000: The history of botanical investigations in Lesvos island (East Aegean, Greece). – Biologia Gallo-Hellenica, Suppl. Vol. **26:** 55-68.
Biel, B. 1998a: Die Orchideenflora der Insel Lesvos (Griechenland). – J. Europ. Orchid. **30:** 251-443.
— 1998b: Die Orchideenflora der Insel Lesvos (Griechenland). Berichtigung zu: Jour. Eur. Orchid. 30(2): 251-443. 1998. – J. Europ. Orchid. **30:** 659.
— 1999: Anmerkungen zur Taxonomie im *Ophrys scolopax*- und *Ophrys umbilicata*-Komplex am Beispiel der Insel Lesvos. – Ber. Arbeitskreises Heimischer Orchid. **16 (1):** 52-65.
— 2000: Zur Orchideenflora der Insel Limnos. – Ber. Arbeitskreises Heimischer Orchid. **17(2):** 51-78.
Boissier, E. 1867-84: Flora orientalis **1-5.** – Geneva, etc.
Boissieu, M. de 1896: Quelques notes sur la flore d'Orient. – Bull. Soc. Bot. France **43:** 283-290.
Candargy, C. A. 1889: Flore de l'ile de Lesbos. Plantes sauvages et cultivées. – Zürich.
Candargy, P. C. 1897: Flore de l'ile de Lesbos. – Bull. Soc. Bot. France **44:** 140-162, 369-373, 449-462.
— 1898: Flore de l'ile de Lesbos. – Bull. Soc. Bot. France **45:** 108-115, 181-192.
— 1899a: La végétation de l'ile de Lesbos (Mytilène) – 1re Thèse présentée a la faculté des sciences de Paris. – Lille.
— 1899b: La végétation de l'ile de Lesbos (Mytilène). – Rev. Gén. Bot. **11:** 268-280, 310-329, pl. 12-16.
Chilton, L. 2002: Plant list for Lesvos. – Hunstanton.
Davis, P. H. (ed.) 1965-88: Flora of Turkey and the East Aegean Islands **1-10.** – Edinburgh.
Diemar, S. & Seberg, O. 1989: Biographical and bibliographical notes on C. A. and P. C. Candargy. – Taxon **38:** 569-575.
Dinter, I. 1995: Botanische Studienwanderreise. Perlen der Ägäis – die Inseln Lesbos und Chios in der Ägäis – vom 10.-24. April 1995. – [sine loco].
Dumont D'Urville, J. 1822: Enumeratio plantarum quas in insulis archipelagi aut littoribus ponti-euxini, annis 1819 et 1820 collegit atque detexit. – Parisiis.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Economidou, E. 1981: Le milieu terrestre de l'ile de Limnos et ses reliques de forets. – Biol.-Ecol. Médit. **8(3-4):** 129-138.
Edmondson, J. R. 1982: Additions to the flora of Lesvos and its off-shore islets. – Ann. Musei Goulandris **5:** 33-53.
Hansen, A. & Nielsen, H. 1993: Contribution to the flora of Lesvos (Mitilini), Greece. – Willdenowia **23:** 143-156.
Hecht, J. 1972: Zur Geologie von Südost-Lesbos (Griechenland). – Z. Deutsch. Geol. Ges. **123:** 423-432.
Horvat, I., Glavac, V. & Ellenberg, H. 1974: Die Vegetation Südosteuropas. – Stuttgart & New York.
Jakobshagen, V. 1986: Geologie von Griechenland. – Stuttgart & Berlin.
Launay, L. de 1858: La géologie des iles de Mételin (Lesbos), Lemnos et Thasos. – Paris.
Matthews, V. A. & Tuzlaci, E. 1984: *Asphodeline* Reichb. – Pp. 88-97 in: Davis, P. H. (ed.), Flora of Turkey and the East Aegean Islands **8.** – Edinburgh.
Nielsen, H. 1989: Contribution to the flora of Lesbos (Mitilini). – M. Sc. thesis, Univ. Copenhagen, Copenhagen.
Papp, A. 1953: Erläuterungen zur Geologie der Insel Lemnos. – Ann. Géol. Pays Hellen. **5:** 1-25.
Philippson, A. 1901: Der Gebirgsbau der Ägäis und seine allgemeinen Beziehungen. – Verh. 7. Int. Geographenkongr. Berlin 1899. – Berlin.
Phitos, D., Strid, A. & Snogerup, S. (ed.) 1997: Flora hellenica **1.** – Koenigstein.
Rauh, W. 1949: Klimatologie und Vegetationsverhältnisse der Athos-Halbinsel und der ostägäischen Inseln Lemnos, Evstratios, Mytilene und Chios. – Sitzungsber. Heidelberger Akad. Wiss. Math.-Naturwiss. Kl. [o.J.]: 511-615.
Rechinger, K. H. 1929: Beitrag zur Kenntnis der Flora der ägäischen Inseln und Ostgriechenlands. – Ann. Naturhist. Mus. Wien **43:** 269-340.
— 1943: Flora aegaea. Flora der Inseln und Halbinseln des Ägäischen Meeres. – Akad. Wiss. Wien Math.-Naturwiss. Kl, Denkschr. **105(1).**
Strid, A. 1991: The Flora Hellenica Project. – Bot. Chron. **10:** 81-94.
Tozer, H. F. 1890: The islands of the Aegean. – Reprint 1976, Chicago.
Turrill, W. B. 1922: A contribution to the flora of the Nearer East. – Bull. Misc. Inform. **1922:** 291-298.
Yannitsaros, A. 1992: A contribution to the adventive flora of Lesvos (E Aegean, Greece). – Proc. 14th Panhell. Biol. Conf., Nicosia-Cyprus: 157-159.
— & Bazos, I. 1993: The flora of Lesvos and the studies of P. C. Candargy. – Proc. 15th Conference Hellen. Soc. Biol. Sci., Florina-Kastoria: 131-134.

Address of the author:
Burkhard Biel, Am Judengarten 3, D-97204 Höchberg; e-mail: B_Biel@gmx.de

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use