

A Neglected Lichen Collection From Turkey: Berkhamsted School Expedition 1971

Volker JOHN

Pfalzmuseum für Naturkunde, Hermann-Schäfer-Strasse 17, D-67098 Bad Dürkheim, Germany

Mark R. D. SEAWARD

Department of Environmental Science, University of Bradford, Bradford BD7 1DP, UK

Jeff W. BEATTY

Culford School, Culford, Bury St Edmunds, Suffolk IP28 6TX, UK

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Abstract: Discovery of the unpublished report of the Berkhamsted School lichenological expedition to Turkey in 1971 and a reappraisal of the complementary (almost complete) collections in The Natural History Museum, London (BM), have added considerably to our knowledge of the Turkish lichen flora. In all, 171 taxa are listed, of which 21 species are new to Turkey and 220 records are new to one or more of the 11 provinces; many additional records pre-date those made as a result of the upsurge of interest in the Turkish lichen flora over the past decade.

Key Words: Lichens, flora, Turkey.

Türkiye'den İhmal Edilmiş Bir Liken Koleksiyonu: Berkhamsted Okul Gezisi 1971

Özet: Berkhamsted School'un 1971 yılında Türkiye'de düzenlediği liken ekskürsyonunda tespit edilen likenlerin yayınlanmamış olan raporunun ve Londra Doğa Müzesi'nin hemen hemen tüm koleksiyonunu kapsayan yeniden değerlendirilmelerinin sonucunda, Türkiye Liken Florası'na ait tatmin edici bilgiler elde edilmiştir. Bu çalışmanın sonucunda, Türkiye için yeni kayıt toplam 14 türün 171 taksonu listelenmiştir. 220 kayıtlarının 11 ilin biri veya birkaçı için yenidir. Son on yılda, Türkiye Liken florası üzerine artan ilginin sonucu olarak eski tarihli ek kayıtlar bu çalışma ile ortaya çıkarılmıştır.

Anahtar Sözcükler: Likenler, flora, Türkiye.

Introduction

Prior to 1988, about 100 papers dealing with lichens from Turkey had been published, but only a few included noteworthy lists of original records (1, 2). Over the past decade, several lichenologists have added considerably to our knowledge of Turkey's lichen flora, particularly of the region bordering the Mediterranean (3) and of some selected provinces (4,5,6), but considerable additional work will be required in order to achieve a more complete picture of the entire country's flora (7,8). It was pleasing therefore to find an interesting collection of lichen material based on a reasonably extensive coverage of the country, which contained relatively early first records in terms of Turkish lichenology, adding not only many new records for provinces but also new records to Turkey's flora.

The lichen collection referred to above was assembled as a consequence of an enterprising expedition to Turkey made by a member of staff and 13 students of

Berkhamsted School, Hertfordshire, England in 1971. Nine of the party were biologists and much of their time was devoted to lichenology. They travelled from England in three vehicles, crossing Belgium, Germany, Austria, Yugoslavia and Greece and reaching Istanbul after an eventful 10 days on the road. After three days' rest, they passed through Izmir and camped for six days on the coast near Ephesus where they began collecting lichens. From here they moved inland to Pamukkale and then back to the Mediterranean coast where considerable lichenology was undertaken; over the next few days the party collected more than 100 specimens on their ascent to the Anatolian Plateau. After a short stay in Ankara, the party set off for Samsun on the Black Sea coast, and from here five members of the expedition went eastwards to collect further lichen specimens. They crossed a wide flat plain to Trabzon, and from there they headed inland towards Gümüşhane, ascending to 2100 m. Here, despite continuous rainfall, they spent several hours collecting lichens. The following day they moved on to a deserted

river valley south of Erzurum, where they spent a further two days collecting lichens and flowering plants. This group collected additional lichens as they travelled back to the Black Sea, before joining up with the rest of the party on their return to Istanbul via Ankara. Their stay in Turkey had lasted just over one month, and their overall expedition 48 days.

A report of this expedition was only privately printed (9) and therefore received little publicity. A rather poor copy of this report was recently discovered in Ankara by Dr Atillâ Yıldız, who draw the attention of one of us (VJ) to this lichen material. A tentative list of lichen identifications for some of the material was included in the report, some of the material having received the attention of Mr Peter James (London) but for the most part the specimens were determined to generic level only.

Material and Methods

In all, 367 specimens were collected from 16 sites (Fig. 1), some of the packets containing more than one species. The material was deposited in the Natural History Museum, London (BM) in 1971, but since then it has not been studied. After diligent searches by two successive curators and one of us (JWB), almost all of the collection was reassembled and duly accessed before using loaned to Bradford University, Between July 1998 and June 1999, two of us (VJ and MRDS) worked on this important collection and can now provide detailed information on its content.

The samples were collected between 28 July 1971 and 15 August 1971. In the species list the collectors are abbreviated as follows:

Jeff W. Beatty (*1942): JWB

John R. Bell (*1952): JRB

David Wakefield (* 1952): DW

John P. Twytle (* 1953): JPT

The nomenclature of the lichen taxa mainly follows Nimis (10), Purvis et al. (11) and Wirth (12); for synonyms see these references. Author names are according to Brummitt and Powell (13).

List of collecting sites:

1. Province: 09 Aydın, 27°16'E 37°50'N c. 10 m, coastal rocks & sea cliffs S of Kuşadası, 28.7. & 30.7.1971

2. Province: 20 Denizli, 29°13'E 37°55'N, c. 400 m, rocks & stones at Pamukkale & Hierapolis, 3.8. & 5.8.1971

3. Province: 07 Antalya, 32°04'E 36°31'N, c. 20 m, roadside on rock face above the sea near Alanya & Gazipaşa, 5.8 & 6.8.1971

4. Province: 33 İçel, 33°52'E 36°18'N, c. 110 m, hills by coast (basalt rocks) 10 km W of Silifke, 7.8.1971

5. Province: 33 İçel, 33°16'E 36°55'N, limestone, river valley, 40 km N of Mut, 7.8. & 8.8.1971

6. Province: 19 Çorum, 34°55'E 40°30'N, deeply cut river valley S of Çorum, 11.8.1971

7. Province: 55 Samsun, 37°30'E 41°02'N, deciduous trees near Fatsa E of Samsun, 12.8.1971

8. Province: 61 Trabzon, 39°09'E 40°50'N, 300 m, rocky outcrops in hilly area near Maçka, S of Trabzon, 12.8.1971

9. Province: 61 Trabzon, 39°38'E 40°41'N, 1080 m, pine woodland near Hamsiköy S of Trabzon, 12.8.1971

10. Province: 29 Gümüşhane, 39°32'E 40°26'N, 1500 m, rocks on exposed dry hillsides near Varzahan SE of Gümüşhane, 13.8.1971

11. Province: 25 Erzurum, 41°42'E 39°59'N, arid area near Pasinler E of Erzurum, 14.8.1971

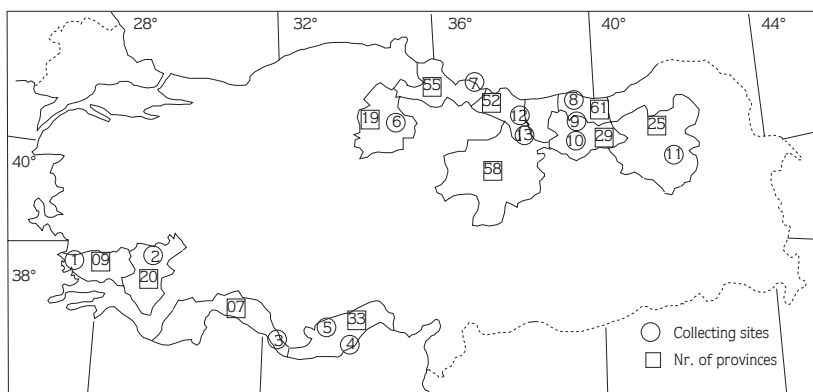


Figure 1. Position of collecting sites and number of provinces.

12. Province: 52 Ordu, 37°37'E 40°41'N, 900 m, steep hillsides by river valley, Fagus woodland, Gököy S of Ordu, 15.8.1971

13. Province: 58 Sivas, 37°50'E 40°17'N, 450 m, limestone & coniferous trees, Koyulhisar, 15.8.1971

Results

The lichen species are arranged in alphabetical order, with the following information under each species entry: number of the province in increasing order (bold numbers), number of collecting site (in italics), collector as abbreviation (see above), original collecting number of the sample as provided in the expedition report (9), and accession number of the Natural History Museum, London (BM). Species new to the Turkish flora are marked with an asterisk (*).

Acarospora cervina A. Massal.

19: 6, JPT 170, BM 521262. 20: 2, JRB 37, BM 521296. 25: 11, JRB 293, BM 008041; in JRB 204 BM 521307. 33: 5, JRB 132, BM 521265; JRB 112, BM 500940 (with *Aspicilia calcarea*); JRB 119, BM 500947; in JRB 113, BM 500941 (with *Aspicilia calcarea*); in JRB 120, BM 500948 (with *Caloplaca ochracea*)

A. glaucocarpa (Ach.) Körb.

20: 2, in JRB 38, BM 521304 (with *Aspicilia calcarea* & *Candelariella vitellina*).

A. umbilicata Bagl.

33: 4, JRB 92, BM 500889.

Agonimia tristicula (Nyl.) Zahlbr.

61: 8, in JWB 202, BM 521383 (with *Squamarina cartilaginea*).

Anaptychia ciliaris (L.) Körb. ex A. Massal.

19: 6, JPT 195, BM 521412 (with *Parmelia somloensis*). 33: 5, JWB 140, BM 521280 (with *Parmelia exasperata*); JWB 154, BM 521285 (with *Physcia biziana*); JWB 147, BM 521271.

**Arthonia stellaris* Kremp.

09: 1, in JRB 22, BM 521259.

Aspicilia caesiocinerea (Nyl. ex Malbr.) Arnold

29: 10, in JPT 260, BM 521302. 52: 12, DW 344, BM 521305.

A. calcarea (L.) Körb.

09: 1, JRB 2, BM 521256; JRB 8, BM 521360 (with *Verrucaria calciseda*). 20: 2, JRB 44, BM 521354; JRB

51, BM 521453; in JRB 38, BM 521304 (with *Acarospora glaucocarpa* & *Candelariella vitellina*); in JRB 45, BM 500904 (with *Lobothallia radiosa*); in JRB 47, BM 500905 (with *A. hoffmannii*). 29: 10, JPT 253, BM 500974; JPT 271, BM 500981. 33: 4, JRB 500888; 5, JRB 127, BM 521322; JRB 113, BM 500941 (with *Acarospora cervina*); in JRB 109, BM 500937 (with *Capolaca dolomiticola*); in JRB 110, BM 500938 (with *Candelariella aurella*); in JRB 112, BM 500940 (with *Acarospora cervina*); in JRB 116, BM 500944 (with *Aspicilia contorta*); in JRB 120, BM 500948 (with *Caloplaca ochracea*).

A. cinerea (L.) Körb.

52: 12, JRB 335, BM 521313; JRB 337, BM 521269.

A. contorta (Hoffm.) Kremp.

07: 3, JRB 71, BM 500919 (with *A. hoffmannii*). 09: 1, JRB 27, BM 521321. 33: 5, JRB 116. BM 500944 (with *A. calcarea*).

A. hoffmannii (Ach.) Flagey

07: 3, JRB 73, BM 500920; in JRB 68, BM 500916 (with *Verrucaria nigrescens*); in JRB 71, BM 500919 (with *A. contorta*). 19: 6, JPT 179, BM 500963; in JPT 158, BM 500955 (with *Pertusaria leucosora*); in JPT 192; BM 521263. 20: 2, JRB 47, BM 500905 (with *A. calcarea*). 25: 11, JRB 284, BM 521248. 29: 10, JPT 282, BM 521345 (with *Rhizoplaca melanophthalma* & *R. chrysoleuca*). 33: 5, JRB 114, Bm 500942; JRB 118, BM 500946.

Bryoria fuscescens (Gyeln.) Brodo & D. Hawksw.

58: 13, JPT 358, BM 521292; in JPT 359; BM 521288.

**Bryoria nadvornikiana* (Gyeln.) Brodo & D. Hawksw.

61: 9, in JWB 240, BM 521286; in JWB 244, BM 521291.

Buellia badia (Fr.) A. Massal.

29: 10, in JPT 263, BM 521268.

B. disciformis (Fr.) Mudd

52: 12, JWB 324, BM 521290 (with *Lecanora albella* & *Lecidella elaeochroma*).

Caloplaca aurantia (Pers.) J. Steiner

07: 3, JRB 70, BM 521394. 09: 1, JRB 3, BM 521253; JRB 7, BM 521255; JRB 14, BM 500899 (with *C. ochracea*); JRB 24, BM 521279; JRB 26, BM 521300. 20: 2, JRB 36, BM 521293.

C. biatorina (A. Massal.) J. Steiner

07: 3, JRB 67, BM 500915 (with *Verrucaria fuscella*). 25: 11, JRB 294, BM 521307 (with *Acarospora cervina*, *Candelariella corallina* & *Xanthoria elegans*).

C. cerina (Ehrh. ex Hedw.) Th. Fr.

33: 5, in JRB 121, Bm 500949 (with *Physcia leptalea*). 61: 9, in JWB 226, BM 521420.

C. chalybaea (Fr.) Müll. Arg.

33: 5, JRB 131, BM 521261.

C. dolomiticola (Hue) Zahlbr.

09: 1, in JRB 5, BM 500894 (with *Lecanora pruinosa*); in JRB 13, BM 500898 (with *Lecanora demissa*). 20: 2, JRB 52, BM 521260. 25: 11, JRB 288, BM 521301 (with *Lecanora muralis*). 33: 5, JRB 109, BM 500937 (with *Aspicilia calcarea* & *Lecanora dispersa*).

C. flavescens (Huds.) J. R. Laundon

07: 3, JRB 64, BM 500912; in JRB 68, BM 500916 (with *Verrucaria nigrescens*). 33: 5, JRB 135, BM 521266 (with *C. xantholyta*); JRB 134, BM 521278; JRB 138, BM 521275.

C. flavovirescens (Wulfen) Dalla Torre & Sarnth.

20: 2, JRB 53, BM 521295. 61: 8, in JWB 200, BM 521257.

C. herbidella (Hue) H. Magn.

61: 9, JWB 238, BM 521350 (with *Lecanora chlarotera*).

C. holocarpa (Ehrh. ex Ach.) A. E. Wade

33: 5, in JRB 119, BM 500947.

C. lactea (A. Massal.) Zahlbr.

58: 13, JPT 365, BM 521264.

C. ochracea (Pers.) J. Steiner

09: 1, in JRB 14, BM 500899 (with *C. aurantia*). 33: 5, JRB 111, BM 500939; JRB 120, BM 500948 (with *Acarospora cervina*, *Aspicilia calcarea* & *Candelariella aurella*).

C. saxicola (Hoffm.) Nordin

09: 1, JRB 9, BM 521258 (with *Lecanora pruinosa*).

C. xantholyta (Nyl.) Jatta

20: 2, JRB 40, BM 521276. 33: 5, JRB 137, BM 521274; in JRB 135, BM 521266.

Candelariella aurella (Hoffm.) Zahlbr.

19: 6, JPT 174, BM 500962 (with *Miriquidica deusta*); in JPT 192, BM 521263. 33: 5, JRB 110, BM 500938 (with *Aspicilia calcarea*); in JRB 120, BM 500948 (with *Caloplaca ochracea*).

C. coralliza (Nyl.) H. Magn.

25: 11, in JRB 294, BM 521307.

C. vitellina (Hoffm.) Müll. Arg.

19: 6, JPT 160, BM 500596 (with *Miriquidica deusta* & *Rhizocarpon geographicum*); JPT 161, BM 521297 (with *Parmelia pulla*); in JPT 192, BM 521263. 20: 2, JRB 38, BM 521304 (with *Acarospora glaucocarpa* & *Aspicilia calcarea*). 29: 10, in JPT 263, BM 521268. 58: 13, in JPT 352, BM 521443.

Cetrelia cetrarioides (Delise ex Duby) W. Culb. & C. Culb.

52: 12, JRB 338, BM 521251; JWB 313, BM 521282 (spot test of medulla C-and KC-).

C. olivetorum (Nyl.) W. Culb. & C. Culb.

61: 9, in JWB 234, BM 521252 (spot test of medulla C + red).

Cladonia chlorophaea (Flörke ex Sommerf.) Spreng.

52: 12, JRB 329, BM 521283.

C. fimbriata (L.) Fr.

52: 12, JWB 310, BM 521346.

C. pocillum (Ach.) Grognot

09: 1, JRB 31, BM 521329. 19: 6, JPT 180, BM 521325; JPT 185, BM 521326. 29: 10, JPT 256, BM 500977 JPT 270, BM 521284; JWB 222, BM 500967 (with *Verrucaria fuscella*); 9, JWB 228, BM 521323.

C. pyxidata (L.) Hoffm.

25: 11, JRB 301, BM 521338.

C. rangiormis Hoffm.

09: 1, JRB 23, BM 521270; JRB 20, BM 521357. 19: 6, JPT 184, BM 500964 (with *Peltigera rufescens*); JPT 186, BM 521328; JPT 176, BM 521316.

Clauzadea immersa (Hoffm.) Hafellner & Bellem.

33: 5, JRB 115, BM 500943.

C. metzleri (Körb.) Clauzade & Cl. Roux ex D. Hawksw.

07: 3, JRB 66, BM 500914 (with *Squamarina cartilaginea*).

Collema cristatum (L.) Weber ex Wigg.

07: 3, JRB 77, BM 500924. 33: 4, JRB 91, BM 500882 (with *C. tenax*); 5, JRB 123, BM 500951.

C. subflaccidum Degel.

29: 10, JPT 255, BM 500976. 52: 12, JRB 328, BM 521287.

C. tenax (Sw.) Ach.

07: 3, JRB 69, BM 500917. 25: 11, JRB 292, BM 521407 (with *Toninia sedifolia*); JRB 291, BM 500984. 33: 1, JRB 94, BM 521281; 4, in JRB 1, BM 500882 (with *C. cristatum*). 61: 8, in JWB 204, BM 521376.

Dermatocarpon minutum (L.) Mann

19: 6, JPT 178, BM 521333. 29: 10, JPT 254, BM 500975. 61: 8, JWB 208, BM 521334.

Disploschistes ocellatus (Vill.) Norm.

20: 2, JRB 35, BM 521335.

Diplotomma epipolium (Ach.) Arnold

20: 2, JRB 46, BM 521277.

Dirina cretacea (Zahlbr.) Tehler

09: 1, JRB 6, BM 521254. 61: 8, JWB 211, BM 521306.

Endocarpon adscendens (Anzi) Müll.Arg.

07: 3, JRB 65, BM 500913.

Evernia prunastri (L.) Ach.

52: 12, JWB 320, BM 521337.

Fulgensia subbracteata (Hoffm.) Räsänen

20: 2, JRB 39, BM 251356.

Haematomma ochroleucum (Necker) J. R. Laundon

07: 3, JRBB 48, BM 008038; JRB 55, BM 008049; JRB 86, BM 008028.

Heterodermia speciosa (Wulfen) Trev.

61: 9, JWB 232, BM 008027.

Hypogymnia austerodes (Nyl.) Räsänen

29: 10, JPT 280, BM 521310.

H. physodes (L.) Nyl.

58: 13, JPT 355, BM 521336.

H. vittata (Ach.) Parr.

58: 13, in JPT 363, BM 521340. 61: 9, JWB 234, BM 521252 (with *Cetrelia olivetorum*).

Lecanora albella (Pers.) Ach.

52: 12, in JWB 324, BM 521290.

L. argentata (Ach.) Malme

52: 12, JWB 311, BM 521335.

L. bolcana (Pollini) Poelt

19: 6, JPT 164, BM 500958; JPT 189, BM 521339; JPT 191, BM 521330; JPT 192, BM 521263 (with *Candelariella vitellina*, *C. aurella* & *Aspicilia hoffmannii*). 58: 13, JPT 347, BM 521344 (with *Miriquidica deusta*), JPT 352, BM 521342 (with *Miriquidica deusta*, *Candelariella vitellina* & *Lecidella carpathica*); in JPT 367, BM 521443.

L. chlarotera Nyl.

61: 9, in JWB 238, BM 521350.

L. crenulata Hook.

19: 6, JPT 193, BM 521343. 29: 10, JPT 257, BM 500978 (with *L. muralis*). 33: 5, in JRB 117, BM 500945 (with *Toninia tristis*); in JRB 119, BM 500947 (with *Acarospora smaragdula*).

L. demissa (Flot.) Zahlbr.

09: 1, JRB 13, BM 500898 (with *Caloploca dolomiticola*, *Lepraria flavescens*, *Physcia leptalea* & *Solenopora candicans*).

L. dispersa (Pers.) Sommerf.

33: 5, in JRB 109, BM 500937 (with *Capolaca dolomiticola*).

L. expallens Ach.

52: 12, JWB 315, BM 521289; JWB 316, BM 008046.

L. frustulosa (Dicks.) Ach.

19: 6, JPT 190, BM 521312. 25: 11, JRB 287, BM 521352.

L. muralis (Schreb.) Rabenh.

07: 3, JRB 56, BM 500908. 20: 2, JRB 41, BM 500903. 25: 11, in JRB 288, BM 521301; JRB 290, BM 521351; JRB 296, BM 521273. 29: 10, JPT 257, BM 500978 (with *L. crenulata*). 33: 5, JRB 122, BM 500950; JWB 146, BM 521319. 52: 12, DW 341, BM 500986; DW 346, BM 521347; JRB 334, BM 521341 (with *Lecidella stigmatea*). 58: 13, JPT 361, BM 521353. 61: 8, JWB 221, BM 521331; JWB 217, BM 521332; JWB 219, BM 521318.

**L. persimilis* (Th. Fr.) Nyl.

61: 8, JWB 199, BM 521398 (with *Lecidella elaeochroma* & *Rinodina exigua*).

L. pruinosa Chaub.

09: 1, JRB 5, BM 500894 (with *Caloplaca dolomiticola*); in JRB 9, BM 521258.

L. pulicaris (Pers.) Ach.

52: 12, in JWB 309, BM 521358.

L. rupicola (L.) Zahlbr.

58: 13, JPT 348, BM 521294.

Lecidea lurida Ach.

07: 3, JRB 76, BM 500923. 19: 6, JPT 188, BM 008014. 20: 2, JRB 42, BM 521359. 61: 8, JWB 212, BM 008018.

Lecidella carpathica Körb.

58: 13, in JPT 352, BM 521342.

L. elaeochroma (Ach.) M. Choisy

33: 5, in JRB 105, BM 521393. 52: 12, in JWB 324, BM 521290. 61: 8, in JWB 199, BM 521398.

L. stigmatea (Ach.) Hertel & Leuckert

52: 12, in JRB 334, BM 521341; DW 343, BM 008048. 58: 13, in JPT 350, BM 521435; JPT 366, BM 008025; in JPT 367, BM 521443.

L. viridans (Flotow) Körb

19: 6, JPT 171, BM 500960.

Lepraria caesia (de Lesd.) J. R. Laundon

19: 6, JPT 165, BM 008024.

* *L. flavescens* Clauzade & Cl. Roux

09: 1, in JRB 13, BM 500898 (with *Lecanora demissa*).

L. nivalis J. R. Laundon

07: 3, JRB 58, BM 008019, JRB 60, BM 008040; JRB 85, BM 008029.

L. rigidula (Hue) TØnsberg

52: 12, JRB 336, BM 008044 (with *Leproloma vouauxii*). 58: 13, JPT 362, BM 008043.

Leproloma vouauxii (Hue) J. R. Laundon

29: 10, JPT 267, BM 008026. 52: 12, in JRB 336, BM 008044.

Leptogium lichenoides (L.) Zahlbr.

19: 6, JPT 169, BM 008012. 33: 5, JRB 126, BM 008036. 61: 8 JWB 220, BM 008022.

L. plicatile (Ach.) Leight.

07: 3, JRB 50, BM 008023.

Lobaria pulmonaria (L.) Hoffm.

52: 12, JWB 318, BM 008042.

L. scrobiculata (Scop.) DC.

61: 9, JWB 241, BM 008020.

Lobothallia radiosa (Hoffm.) Hafellner

20: 2, JRB 45, BM 500904 (with *A. calcarea*). 25: 11, JRB 289, BM 521314. 29: 10, JPT 265 BM 521308. 33: 5, JRB 108, BM 500936 (with *Verrucaria nigrescens*).

Menegazzia terebrata (Hoffm.) A. Massal.

52: 12, JWB 306, BM 521428; in JWB 309, BM 521358.

Micarea prasina Fr.

55: 7, JWB 197, 008013.

Miriquidica deusta (Stenh.) Hertel & Rambold

19: 6, in JPT 160, BM 500956 (with *Candelariella vitellina*); in JPT 174, BM 500962 (with *Candelariella aurella*); JPT 181, BM 008050. 29: 10, JPT 260, BM 521302 (with *Aspicilia caesiocinerea*). 58: 13, JPT 367, BM 521443 (with *Rhizocarpon geographicum*, *Lecanora bolcana*, *Lecidella stigmatea* & *Candelariella vitellina*); in JPT 347, BM 521344; in JPT 349, BM 521434; in JPT 351, BM 521373; in JPT 352, BM 521342.

Nephroma parile (Ach.) Ach.

52: 12, JWB 307, BM 521404.

Ochrolechia pallescens (L.) A. Massal.

52: 12, JWB 312, BM 521431; JWB 304, BM 521415 (This taxon is in need of revision. Specimens cited are growing on tree bark, with C + red disc.)

Parmelia attica (Leuckert, Poelt & B. Schwarz) Essl.

19: 6, JPT 156, BM 008034; JPT 159, BM 008017.

P. caperata (L.) Ach.

52: 12, JWB 309, BM 521358 (with *Menegazzia terebrata* & *Lecanora pulicaris*); JWB 321, BM8008. 61: 9, JPT 231, BM 008030.

P. conspersa (Ehrh. ex Ach.) Ach.

29: 10, JPT 264, BM 008006; 274 JPT, BM 008015. 52: 12, JRB 331, BM 008009. 61: 9, JWB 230, BM 008005.

P. exasperata De Not.

33: 5, in JWB 140, BM 521280; JWB 149, BM 008033.

P. exasperatula Nyl.

58: 13, JPT 357, BM 008016.

- P. glabratula* (Lamy) Nyl.
52: 12, JWB 314, BM 008031; JWB 319, BM 008007. 61: 9, in JWB 240, BM 521286.
- P. pulla* Ach.
19: 6, in JPT 161, BM 521297. 29: 10, JPT 261, BM 008011.
- P. somloensis* Gyeln.
19: 6, JPT 175, BM 008010; in JPT 195, BM 521412.
- P. subaurifera* Nyl.
58: 13, JPT 363, BM 521340 (with *Hypogymnia vittata*).
- Parmeliopsis ambigua* (Wulfen) Nyl.
58: 13, JPT 356, BM 008037.
- Parmotrema arnoldii* (Du Rietz) Hale
61: 9, JWB 240, BM 521286 (with *Bryoria nadvornikiana* & *Parmelia glabratula*).
- P. chinense* (Osbeck) Hale & Ahti
52: 12, JWB 322, BM 008035.
- **P. stuppeum* (Taylor) Hale
61: 9, JWB 245, BM 521399.
- Peltigera horizontalis* (Huds.) Baumg.
61: 9, JWB 229, BM 521419.
- P. polydactyla* (Neck.) Hoffm.
52: 12, JRB 333, BM 521411; DW 342, BM 521454.
- P. praexextata* (Flörke ex Sommerf.) Zopf
52: 12, JWB 317, BM 521391.
- P. rufescens* (Weiss) Humb.
19: 6, in JPT 184, BM 500964 (with *Cladonia rangiformis*). 29: 10, JPT 249, BM 500970. 52: 12, JRB 332, BM 521417.
- Pertusaria amara* (Ach.) Nyl.
19: 6, JPT 182, BM 521385.
- P. aspergilla* (Ach.) J. R. Laundon
29: 10, JPT 278, BM 500982.
- **P. constricta* Erichsen
09: 1, JRB 22, BM 521259 (with *Arthonia stellaris*).
- P. flavicans* Lamy
29: 10, JPT 281, BM 521388.
- P. leucosora* Nyl.
19: 6, JPT 158, BM 500955 (with *Aspicilia hoffmannii* & *Rhizocarpon geographicum*). 29: 10, JPT 252, BM 500973; JPT 259, BM 521379. 61: 8, JWB 201, BM 500965.
- Phaeophyscia constipata* (Norrlin & Nyl.) Moberg
61: 8, JWB 205, BM 521299.
- P. orbicularis* (Neck.) Moberg
25: 11, JRB 299, BM 521406.
- Physcia adscendens* (Fr.) H. Olivier
09: 1, JRB 11, BM 521445. 33: 5, JWB 152, BM 521427; JWB 144, BM 521423.
- P. aipolia* (Ehrh. ex Humb.) Fűrnr.
33: 5, JRB 103, BM 521426; JRB 105, BM 521393 (with *Lecidella elaeochroma*); in JRB 106, BM 500934 (with *P. stellaris*).
- P. albinea* (Ach.) Nyl.
07: 3, JRB 54, BM 500907. 58: 13, JPT 351, BM 521373 (with *Rhizocarpon geographicum* & *Miriquidica deusta*).
- P. biziana* (A. Massal.) Zahlbr.
33: 5, JRB 107, BM 500935 (with *P. leptalea* & *Xanthoria parietina*); JWB 151, BM 521418 (with *Xanthoria parietina* & *Physcia leptalea*); JWB 153, BM 521382; in JWB 154, BM 521285; JRB 104, BM 521389; JWB 139, BM 521425; in JRB 106, BM 500934 (with *P. stellaris*).
- P. dubia* (Hoffm.) Lettau
19: 6, JPT 194, BM 521396. 25: 11, JRB 297, BM 521433 (with *Xanthoria elegans*).
- P. leptalea* (Ach.) DC.
09: 1, in JRB 13, BM 500898 (with *Lecanora demissa*). 33: 4, JRB 101, BM 521410; 5, JRB 121, BM 500949 (with *Caloplaca cerina*); in JRB 107, BM 500935 (with *P. biziana*); in JRB 125, BM 500953 (with *Xanthoria parietina*); in JWB 151, BM 521418.
- P. stellaris* (L.) Nyl.
33: 5, JRB 106, BM 500934 (with *P. aipolia* & *P. biziana*); in JRB 125, BM 500953 (with *Xanthoria parietina*). 58: 13, JPT 364, BM 521430. 61: 9 JWB 226, BM 521420 (with *Caloplaca cerina*).
- P. wainioi* Räsänen
52: 12, JRB 339, BM 521380 (This taxon is regarded by some authors as a morph of *Physcia caesia* (Hoffm.) Fűrnr.).

Physconia distorta (With.) J. R. Laundon

52: 12, JWB 327, BM 521403; JWB 325, BM 521432; JWB 308, BM 521361; JWB 323, BM 521370; JWB 326, BM 521369.

P. muscigena (Ach.) Poelt

19: 6, JPT 177, BM 521303; JPT 163, BM 521381; JPT 187, BM 521422. 25: 11, JRB 300, BM 521413. 29: 10, JPT 276, BM 521405; JPT 269, BM 521421.

Placidium rufescens (Ach.) A. Massal.

29: 10, JPT 277, BM 521311.

Placocarpus schaeferi (Fr.) O. Breuss

33: 5, JWB 142, BM 500954.

Placynthium nigrum (Huds.) Gray

61: 8, JWB 203, BM 521441.

* *Porocyphus coccodes* (Flot.) Körb.

61: 8, JWB 204, BM 521376 (with *Collema tenax*); JWB 209, BM 521375; JWB 206, BM 521439.

* *Porpidia musiva* (Körb.) Hertel & Knoph

52: 12, JRB 330, BM 008032.

Protoblastenia ruperstris (Scop.) J. Steiner

61: 8, in JWB 216, BM 521436.

Pseudevernia furfuracea (L.) Zopf

33: 5, JWB 150, BM 521424. 58: 13, JPT 353, BM 521451; in JPT 360, BM 500988 (with *Usnea hirta*).

Psora decipens (Hedw.) Hoffm.

07: 3, JRB 61, BM 008051; JRB 72, BM 008045; JRB 74, BM 500921; JRB 81, BM 500927. 09: 1, JRB 28, BM 008047.

P. testacea Hoffm.

07: 3, JRB 63, BM 500911.

Ramalina farinacea (L.) Ach.

52: 12, JWB 305, BM 521416.

R. roesleri (Schaerer) Hue

61: 9, JWB 246, BM 521409.

R. distinctum Th. Fr.

19: 6, JPT 183, BM 521368.

R. geminatum Körb.

29: 10, JPT 250, BM 500971.

R. geographicum (L.) DC.

19: 6, JPT 155, BM 521371; in JPT 158, BM 500955 (with *Pertusaria leucosora*); in JPT 160, BM 500956 (with *Candelariella vitellina*). 29: 10, JPT 251, BM 500972. 58: 13, JPT 349, BM 521434 (with *Miriquidica deusta* & *Rinodina teichophila*); JPT 350, BM 521435 (with *Lecidella stigmathea*); in JPT 351, BM 521373; in JPT 367, BM 521443. 61: 8, JWB 213, BM 521437.

R. petraeum (Wulfen) A. Massal.

61: 8, JWB 210, BM 521390.

* *R. sublucidum* Räsänen

19: 6, JPT 166, BM 500959; in JPT 173, BM 500961 (with *R. umbilicatum*).

R. umbilicatum (Ramond) Flagey

19: 6, JPT 173, BM 500961 (with *R. sublucidum*).

R. viridiatum (Wulfen) Körb.

29: 10, JPT 263, BM 521268 (with *Candelariella vitellina* & *Buellia badia*).

Rhizoplaca chrysoleuca (Sm.) Zopf

25: 11, JPT 283, BM 521317. 29: 10, in JPT 282, BM 521345.

R. melanophthalma (Ramond) Leuckert & Poelt

29: 10, in JPT 282, BM 521345.

R. peltata (Ramond) Leuckert & Poelt

25: 11, JRB 286, BM 521349. 29: 10, JPT 275, BM 521320.

Rinodina exigua Gray

55: 7, JWB 196, BM 521442. 61: 8, in JWB 199, BM 521398.

R. teichophila (Nyl.) Arnold

58: 13, in JPT 349, BM 521434.

Solenopsora candidans (Dickson) J. Steiner

09: 1, JRB 10, BM 500895; in JRB 13, BM 500898 (with *Lecanora demissa*).

* *S. liparina* (Nyl.) Zahlbr.

07: 3, JRB 57, BM 500909.

* *S. vulturiensis* A. Massal.

07: 3, JRB 62, BM 500910.

Squamarina cartilaginea (With.) P. James

07: 3, JRB 84, BM 500930; JRB 75, BM 500922; in JRB 66, BM 500914 (with *Clauzadea metzleri*). 09: 1, JRB 29, BM 521384; JRB 16, BM 521448; JRB 18, BM

521450; JRB 1, BM 521366; JRB 15, BM 521456. 19: 6, JPT 162, BM 500957. 20: 2, JRB 33, BM 521444; BM 521438; JRB 43, BM 521452. 33: 4, JRB 100, BM 500887. 61: 8, JWB 202, BM 521383 (with *Agonimia tristicula*).

S. gypsacea (Sm.) Poelt

07: 3, JRB 83, BM 500929.

S. lentigera (Weber) Poelt

07: 3, JRB 87, BM 500931. 25: 11, JRB 302, BM 008039. 33: 5, JRB 130, BM 521362.

Synalissa symphorea (Ach.) Nyl.

25: 11, JRB 298, BM 008021 (with *Toninia toniniana*).

Tephromela atra (Huds.) Hafellner ex Kalb

29: 10, JPT 258, BM 500979.

Toninia candida (Weber) Th. Fr.

29: 10, JPT 262, BM 521367. 33: 5, JRB 133, BM 521372.

T. sedifolia (Scop.) Timdal

07: 3, JRB 78, BM 521414; JRB 79, BM 500925; JRB 80, BM 500926; JRB 82, BM 500928. 09: 1, JRB 19, BM 521449. 19: 6, JPT 168, BM 521400; JPT 172, BM 521377; JPT 157, BM 521364; JPT 167, BM 521408. 25: 11, in JRB, 292, BM 521407. 29: 10, JPT 272, BM 521402. 61: 8, JWB 218, BM 521397.

* *T. toniniana* (A. Massal.) Zahlbr.

25: 11, JPT 268, BM 521401; in JRB 298, BM 008021 (with *Synalissa symphorea*).

T. tristis (Th. Fr.) Th. Fr.

09: 1, JRB 12, BM 521447. 33: 5, JRB 117, BM 500945 (with *Lecanora crenulata*).

Usnea filipendula Stirt.

61: 9, JWB 244, BM 521291 (with *Bryoria nadvornikiana*).

U. hirta (L.) Weber ex Wigg.

58: 13, JPT 359, BM 521288 (with *Bryoria fuscescens*); JPT 360, BM 500988 (with *Pseudevernia furfuracea*).

U. florida (L.) Weber ex Wigg.

61: 9, JWB 247, BM 500968.

Verrucaria calciseda DC.

09: 1, JRB 17, BM 521446; in JRB 8, BM 521360.

V. fuscella (Turner) Winch

07: 3, in JRB 67, BM 500915 (with *Caloplaca biatorina*). 61: 8, JWB 216, BM 521436 (with *Protoblastenia rupestris*); in JWB 222, BM 500967 (with *Cladonia pocillum*).

V. marmorea (Scop.) Arnold

33: 4, JRB 95, BM 500884.

V. muralis Ach.

61: 8, JWB 200, BM 521257 (with *Caloplaca flavovirescens*).

V. nigrescens Pers.

07: 3, JRB 49, BM 500906; JRB 68 BM 500916 (with *Aspicilia hoffmannii* & *Caloplaca flavescens*). 33: 5, JRB 128, BM 521440; JRB 129, BM 521387; in JRB 108, BM 500936 (with *Aspicilia radiosa*).

V. tectorum (A. Massal.) Körb.

52: 12, DW 340, BM 500985.

* *V. viridula* (Schrad.) Ach.

20: 2, JRB 59, BM 521378.

Xanthoria elegans (Link) Th. Fr.

25: 11, JRB 295, BM 521298; in JRB 294, BM 521307; in JRB 297; 521433. 29: 10, JPT 248, BM 500969; JRB 283, BM 521272. 33: 5, JWB 148, BM 521267.

X. parietina (L.) Th. Fr.

09: 1, JRB 4, BM 521395. 33: 5, JRB 102, BM 521363; in JRB 107, BM 500935 (with *Physcia biziana*); JRB 125, BM 500953 (with *Physcia leptalea* & *P. stellaris*); JWB 141, BM 521455; JWB 143, BM 521365; JWB 145, BM 521386; in JWB 151, BM 521418.

* *X. ucrainica* S. Kondratyuk

25: 11, JRB 303, BM 521374.

In addition to the above, of those collections mentioned in the 1971 report (9), 4 packets can be determined only to generic level (nos. 21, 93, 215 & 354), 12 packets do not contain lichens or cannot be determined due to inadequacy of the material (nos. 25, 30, 70, 88, 89, 97, 98, 124, 207, 266, 285 & 345), and 21 packets (nos. 32, 58, 60, 85, 96, 165, 223, 224, 225, 227, 233, 235, 236, 237, 239, 242, 243, 267, 336 & 362), some of which had been tentatively named, have not been located in the BM.

As a consequence of this paper, the following species records for the 11 provinces visited during the 1971 Expedition have been determined:

	Number of species in this paper	New species for province
07 Antalya	25	11
09 Aydın	22	18
19 Çorum	30	30
20 Denizli	17	12
25 Erzurum	21	15
29 Gümüşhane	32	32
33 İçel	37	31
52 Ordu	32	29
55 Samsun	2	2
58 Sivas	21	21
61 Trabzon	40	19

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References

1. John, V., Türkiye Likenleri. I. Türkiye likenleri ile ilgili literatür-Pfalzmuseum für Naturkunde, Bad Dürkheim: 1-14, (1992).
2. John, V., Türkiye Likenleri. IV. Türkiye likenleri ile ilgili literatürlere ilaveler.-Pfalzmuseum für Naturkunde, Bad Dürkheim: 1-10, (1995).
3. John, V., Preliminary catalogue of lichenized and lichenicolous fungi of Mediterranean Turkey.-Bocconea 6: 173-216, (1996).
4. Çiçek, A. & Özdemir Türk, A., Lichen flora of Sakarya province (Turkey).-Tr. J. Botany 22: 99-119, (1998).
5. Özdemir Türk, A. & Güner, H., The lichens of the Yıldız Mountains in Turkey.- In: Öztürk, M. A., Seçmen, Ö. & Görk, G. (eds.) Plant life in Southwest and Central Asia: 454-471, (1996). Bornova, İzmir.
6. Yazıcı, K., Lichen flora of Trabzon. -Tr. J. of Botany 23: 97-112 (1999).
7. John, V., UTM-grid mapping and distribution patterns of lichens in Turkey.-In: Öztürk, M. A., Seçmen Ö. & Görk, G. (eds.) Plant life in Southwest and Central Asia: 440-453, (1996). Bornova, İzmir.
8. John, V., Lichen mapping in Turkey.- Stuttgarter Beitr. Naturk. Ser. A., Nr. 456: 125-129, Stuttgart (1990).
9. Beatty, J. W., Report of the Berkhamsted School lichenology expedition to Turkey 1971.-Unpublished draft, Berkhamsted School: 1-18, 1 map, (1971).
10. Nimis, P. L., The lichens of Italy. An annotated catalogue.- Museo Regionale di Scienze Naturali, Torino, Monografie 12: 1-897, (1993).
11. Purvis, O. W., Coppins B. J. & James, P. W., checklist of lichens of Great Britain and Ireland.-British Lichen Society, London: 1-79, (1994).
12. Wirth, V., Die Flechten Baden-Württembergs.-Ulmer, Stuttgart: 1-1006, (1995).
13. Brummitt, R. K. & Powell, C. E., Authors of plant names.-Royal Botanical Gardens, Kew: 1-732, (1992).