

Lichens, Lichenicolous and Allied Fungi of the Santa Monica Mountains, Part 4: Additions and Corrections to the Annotated Checklist

KERRY KNUDSEN¹ & JANA KOCOURKOVÁ²

ABSTRACT. – Seventy-six fungi (53 lichens, 20 lichenicolous fungi, and 3 allied fungi) are reported new for the Santa Monica Mountains for a revised total of 316 taxa comprising 288 lichens, 25 lichenicolous fungi, and 3 allied fungi. The new species *Lichenodiplis rinodinicola* is described. *Rhizocarpon subpostumum* is reported new for North America. *Lecanora impudens*, *Lichenodiplis lecanorae* (see comments below), *Lichenocodium xanthoriae*, *Phaeosporobolus alpinus* and *Phoma cladoniicola* are reported new for California. *Endococcus matzeri* is verified from California. Seven species not collected since 1915, *Arthonia subdispuncta*, *Placopyrenium heppioides*, *Pseudocyphellaria anomala*, *Sphaerellothecium breussii*, *Thelenella hassei*, *T. inductula*, and *T. sychnogonioides*, are discussed, increasing the number of species not collected since 1915 to 18 taxa with a total of 50 or more expected when our study of historical records is completed. *Acarospora schleicheri*, previously only known from frequent historical records, was re-discovered and is rare.

INTRODUCTION

This paper represents the fourth part in an on-going floristic study of the Santa Monica Mountains (Knudsen 2005 & 2007; Knudsen et al. 2008). It represents additions and corrections of the official annotated checklist published in 2007 which is maintained and revised annually for the National Park Service.

The methods in this contribution follow those of previous installments of the series (see Knudsen 2007) and our previous studies of lichenicolous fungi (Knudsen et al. 2009; Kocourková & Knudsen 2009a). In some reports only selected specimens are cited, one from each of the two counties which encompass the Santa Monica Mountains if possible. Species published by Hasse based on Nylander's or Stizenberg's notes are consistently attributed to Nyl. ex Hasse or Stizenb. ex Hasse (see Knudsen & Lendemer 2006). More information on most individual specimens and other collections from the Santa Monica Mountains is available online at the UCR http://sanders5.ucr.edu/lichensflat_index.php or the Consortium of North American Lichen Herbaria <http://symbiota.org/nalichens/collections/index.php>.

I. – NEW SPECIES

Lichenodiplis rinodinicola Kocourk. & K. Knudsen sp. nov.

MYCOBANK #515362.

Conidiomata pycnidia, lichenicola, immersa ad erumpescentia, ad partem apicalem brunnea, ad partem inferiorem hyalina, ovoidea vel cylindrica, 40–50 × 50–80 µm diam. Cellulae conidiogenae cylindricae sed lageniformes, 4–7–10 µm longae, 2.0–3.5 µm latae. Conidia 1-septata, palide brunnea, late ellipsoidea, 7.5–9.0 µm longa, 3–4.0(–4.5) µm lata, cum parietibus tenuibus.

¹KERRY KNUDSEN – The Herbarium, Department of Botany and Plant Sciences, University of California at Riverside, Riverside, CA 92521-0124, U.S.A. – e-mail: kk999@msn.com

²JANA KOCOURKOVÁ – Faculty of Environmental Sciences, Department of Ecology, Czech University of Life Sciences Prague, Kamýcká 129, CZ–165 21 Praha 6 - Suchbát, Czech Republic – e-mail: jkocourkova@fzp.czu.cz

TYPE: **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, Leo Carillo State Park, Nicolas Flats, near the lake, 34°03'50"N, 118°54'35"W, 434 m, on *Quercus agrifolia*, on apothecia of *Rinodina* sp., 14.viii.2008, *J. Kocourková* 7323 & *K. Knudsen* (PRM 915674, holotype).

DESCRIPTION. – Conidiomata pycnidial, arising singly, scattered, immersed at first but becoming erumpent with the uppermost third, ellipsoidal, dark brown at upper 1/3, hyalin below, 50–80 × 40–50 μm; brown upper third of wall 5–6 μm thick, composed of 2 layers of cells, hyaline wall 4–5(–6) μm thick, of only 1 layer of hyaline thin-walled cells bearing conidiogenous cells; no well-defined ostiolum, opening by a disintegration of the upper wall to release the conidia. Conidiogenous cells lageniform to cylindrical, lining almost the whole pycnidial cavity, hyaline, (4–)7–10 × 2–3.5 μm. Conidia holoblastic, cylindrical to ellipsoidal, pale brown, 1-septate, thin and smooth-walled, apex rounded, base truncate with narrow 1 μm wide scar, often hardly visible, 7.5–9 × 3–4(–4.5) μm.

ETYMOLOGY. – Named after the host genus.

ECOLOGY. – The species occurs in the apothecial disc of the host. It may suppress the development of ascospores (similar to the infection caused by *Lichenodiplis lecanorae* (Vouaux) Dyko & D. Hawksw.). Most likely the host is *Rinodina santa-monicae* H. Magn.

DISTRIBUTION. – *Lichenodiplis rinodinicola* is currently known only from the type locality.

DISCUSSION. – The conidia of *Lichenodiplis rinodinicola* were consistently 7.5–9 μm × 3–4(–4.5) μm wide. *Lichenodiplis lichenicola* D. Hawksw. & Dyko, the other known *Lichenodiplis* species on *Rinodina*, described from the corticolous *R. septentrionalis* Malme in Norway (Hawksworth & Dyko 1979) differs from *L. rinodinicola* in having conidia which are longer and narrower, 9.5–13 × 2.5–3 μm and longer conidiogenous cells 8.5–17 × 2–2.5 μm.

Lichenodiplis lecanorae has smaller and narrower conidia 4–7.5 × 2–3 μm, and grows on different host genera (*Caloplaca*, *Diploschistes*, *Evernia*, *Imshaugia*, *Lecania*, *Lecanora*, *Lecidea*, *Lecidella*, *Micarea*, *Mycoblastus*, *Pertusaria*, *Schismatomma* and *Tephromela* (Kocourková 2000), but the type is growing on *Caloplaca cerina* (Ehrh. ex Hedw.) Th. Fr. (Hawksworth & Dyko 1979). According to Hawksworth & Dyko (1979) and Diederich (2003), the current concept of *L. lecanorae* is heterogenous and encompasses multiple taxa.

II. – NEW RECORDS

Entries for each taxon are arranged alphabetically by genus and species. Lichenicolous fungi are denoted with an asterisk “*” following the name while non-lichenized fungi treated with lichens are denoted with a dagger “†”.

1. *Abrothallus tulasnei* M. S. Cole & D. Hawksw.*

NOTES. – We currently do not consider *A. tulasnei* a synonym of *A. caerulescens* Kotte like Diederich (2004) because we accept the amyloid reaction of mycelium as a good specific character.

SPECIMEN EXAMINED. – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Xanthoparmelia* species, 14.viii.2009, *J. Kocourková* & *K. Knudsen* (PRM 915681).

2. *Acarospora schleicheri* (Ach.) A. Massal.

NOTES. – Though once common in some areas of the Santa Monica Mountains based on the abundance of Hasse collections (FH), we treated this species as only a historical record (Knudsen et al. 2008) and were happy to find a small extant population. The rarity of this species as well as other terricolous lichens in modern southern California is due to the degradation of terricolous sites by invasive weeds, grazing, nitrate pollution, recreation, and fire or through urban development of suitable habitat.

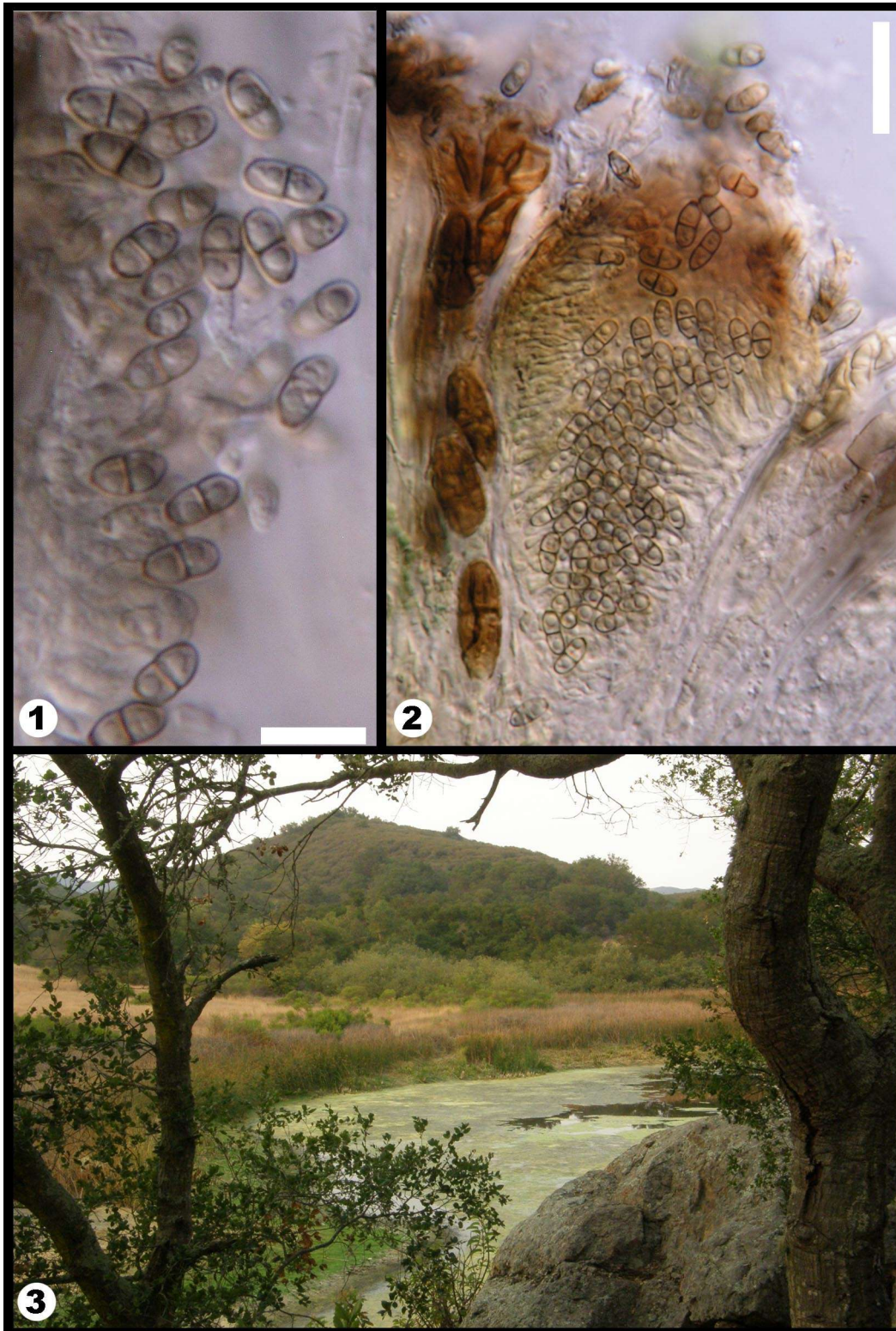


Plate 1. *Lichenodiplis rinodinicola* (figures 1 and 2 from holotype). Figure 1, conidia and conidiogenous cells (scale = 10 μm). Figure 2, section of pycnidium (scale = 20 μm). Figure 3, type locality.

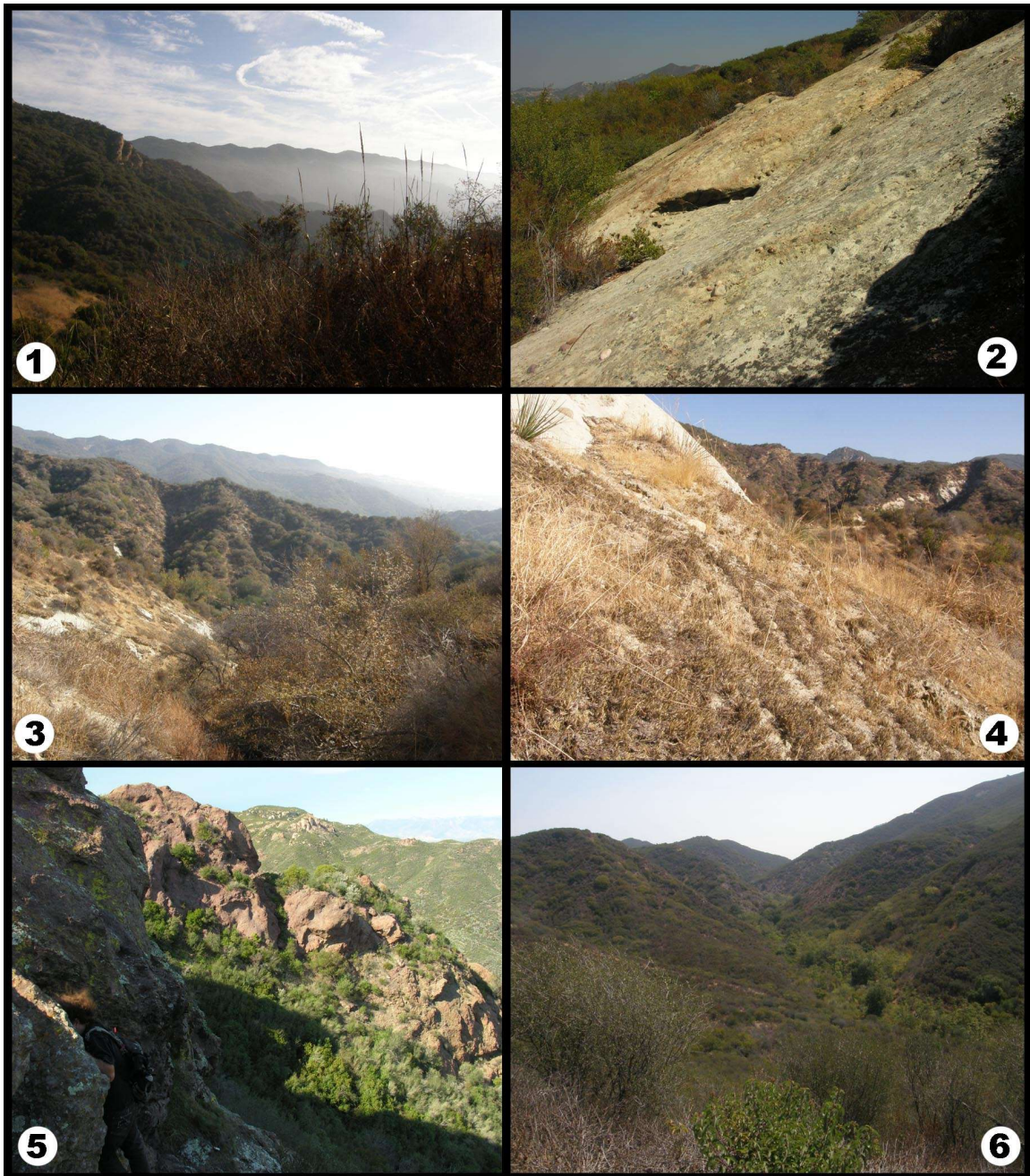


Plate 2. Lichen habitats of the Santa Monica Mountains. Figure 1, Backbone Ridge whose high point is Sandstone Peak. Figure 2, Sandstone slabs near Saddle Peak. Figure 3, Santa Ynez Canyon with exposed limestone lenses. Figure 4, Typical remnant soil habitat on thin-soiled slope with *Selaginella bigelovii* and invasive non-native grass, Conejo Open Space, Westlake. Figure 5, Conejo Mountain. Figure 6, Sycamore Canyon, Point Mugu State Park.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12" N, 118°51'8" W, 297 m, 24.xi.2008, K. Knudsen 10706 & J. Kocourková (UCR).

3. *Arthonia beccariana* (Bagl.) Stizenb. †
(syn. *Arthothelium pruinasces* Zahlbr.)

NOTES. – This non-lichenized fungus was collected on *Heteromeles arbutifolia* (Lindley) Roemer, *Juglans californica* S. Watson, *Malacothamnus fasciculatum* (Torrey & A. Gray) E. Greene, and *Umbellularia californica* (Hook & Arn.) Nutt. by Hasse (Sundin 1999). It frequently occurs on the smooth bark of thin young branches of *Quercus agrifolia* Nees.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°6'31"N, 118°55'10"W, 355 m, on *Quercus agrifolia*, 28.v.2008, K. Knudsen 9621 (UCR).

4. *Arthonia infectans* Egea & Torrente

NOTES. – This lichenized *Arthonia* forms a white crust on rocks. The site on volcanic rock on Point Dume is only the third known population of this species. It was described from the central coast in Monterey County, California (Egea & Torrente 1995) and occurs on Santa Rosa Island (K. Knudsen 8721 & J. Kocourková, UCR). It was originally described as a juvenile parasite on *Lecanographa* but in the Santa Monica Mountains it was a juvenile parasite on *Llimonaea cerebriformis* (Egea & Torrente) Sparrius. Like *A. gerhardii* Egea & Torrente and *A. verrucosa* Egea & Torrente, we observed *A. infectans* has curved filiform conidia, 13–20 × 1 µm.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume Nature Reserve, 34°0'8"N, 118°48'30"W, 10 m, on rock wall, 1.vi.2009, K. Knudsen 11215 & T. Sagar (UCR).

5. *Arthonia pinastri* Anzi†

NOTES. – This non-lichenized *Arthonia* was collected on the caudex of *Coreopsis gigantea* (Kellogg) H.M. Hall, a distinctive shrub occurring along the coast and the western edge of the Santa Monica Mountains to Conejo Mountain (see *A. subdispuncta* Nyl. ex Hasse in historical section below). This phorophyte is a common substrate for lichens on the Channel Islands, but rarely supports any lichens in the Santa Monica Mountains, probably because of lower annual relative humidity. Circumstantial evidence suggests that the Santa Monica Mountains have become more arid in a short time frame of possibly two hundred years or less. This would have a definite effect on lichen distribution and could eradicate relict species from earlier moister periods.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: hillside above Pacific Coast Highway, west of Yerba Buena Road, 34°3'24"N, 118°58'5"W, 14 m, on *Coreopsis gigantea*, 24.v.2009, K. Knudsen 11156 (UCR); north slope of Conejo Mountain, 34°11'21"N, 119°1'1"W, 99 m, 12.i.2008, J.C. Lendemer 11444 & K. Knudsen (NY, UCR).

6. *Arthonia tetramera* Stizenb. ex Hasse†

NOTES. – This non-lichenized fungus usually occurs on the smooth bark of *Quercus agrifolia* and has been collected on *Pinus* at Point Lobos State Reserve by Anders Tehler (Sundin 1999). It is a California endemic with its type locality on Catalina Island (Hasse 1913).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, K. Knudsen 9635 (UCR).

7. *Arthonia xanthoparmeliarum* Etayo*

NOTES. – This lichenicolous fungus occurring on *Xanthoparmelia* species in South America was recently reported new for North America from southern California (Kocourková 2009).

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Rocky Oaks, 34°5'54"N, 118°48'45"W, 531 m, 14.viii.2009, on *Xanthoparmelia* sp., *J. Kocourková* & *K. Knudsen* (PRM 915668, UCR). VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°6'12"N, 118°51'7"W, 291 m, 24.xi.2008, on *X. mexicana*, *J. Kocourková* & *K. Knudsen* (PRM 915480).

8. *Aspicilia confusa* Owe-Larss. & A. Nordin

NOTES. – This is a common species in southern California.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hennessey (NPS land), N of Mulholland, south of Castro Crest, on N-slope, 34°5'58"N, 118°47'8"W, 445 m, on sandstone, 5.iv.2009, *K. Knudsen* 11171 (UCR).

9. *Bactrospora patellarioides* (Nyl.) Almq.

NOTES. – This lichen is rare in the Santa Monica Mountains. Hasse originally collected it in Santa Ynez Canyon on *Heteromeles arbutifolia* in 1903 and described it as *Bacidia clemantis* Hasse (Hasse 1910, 1913). This is the first modern collection in the range and occurred on the smooth mature bark of *Quercus agrifolia*.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, 14.viii.2009, on *Quercus agrifolia*, *K. Knudsen* 11590 & *J. Kocourková* (UCR), *J. Kocourková* & *K. Knudsen* (PRM 915680).

10. *Bagliettoa calciseda* (DC.) Gueidan & Cl. Roux

NOTES. – This calciphile was collected on a calcareous site on a ridge above Santa Ynez Canyon.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Los Angeles County: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on limestone, 6.iv.2008, *K. Knudsen* 9556 w/ *J. Kocourková* & *B. Landis* (UCR).

11. *Buellia prospersa* (Nyl.) Riddle

NOTES. – This saxicolous species is endemic to Sonoran Mexico and coastal southern California. It is a rare species in the Santa Monica Mountains, known only from Point Dume State Reserve in a maritime community on volcanic rock.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume State Reserve, 34°0'8"N, 118°48'30"W, 10 m, on rock wall, 1.vi.2009, *K. Knudsen* 11209 & *T. Sagar* (UCR).

12. *Caloplaca persimilis* Wetm.

NOTES. – This infrequent species was collected on rough mature bark of a trunk of *Quercus agrifolia*.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, *K. Knudsen* 9660 (UCR).

13. *Caloplaca stanfordensis* H. Magn.

NOTES. – This species was collected on rough mature bark of a trunk of *Quercus agrifolia*.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, *K. Knudsen* 9661 (UCR).

14. *Catillaria lenticularis* (Ach.) Th. Fr.

NOTES. – This saxicolous species is relatively rare in the Santa Monica Mountains, reported on “slate rock” by Hasse (1913) and the modern collection was on shale.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Latigo Canyon, 34°3'34"N, 118°46'34"W, 361 m, 24.v.2009, K. Knudsen 11150 (UCR).

15. *Cercidospora caudata* Kernst.*

NOTES. – *Cercidospora caudata* s. l. is common on the apothecia of *Caloplaca squamosa* (B. de Lesd.) Zahlbr. and *C. subsoluta* (Nyl.) Zahlbr. in southern California (Etayo et al. 2007).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on *Caloplaca* species, 24.xi.2008, J. Kocourková 7347 & K. Knudsen (hb. Kocourková).

16. *Cercidospora macrospora* (Uloth) Hafellner & Nav.-Ros.*

NOTES. – This lichenicolous fungus is common in southern California, especially above 5000 feet.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on *Lecanora muralis*, 24.xi.2008, J. Kocourková 7349 & K. Knudsen (hb. Kocourková).

17. *Cladonia maritima* K. Knudsen & Lendemer

NOTES. – This species was originally reported as *Cladonia cervicornis* (Ach.) Flot. (Knudsen 2007). It is rare in the Santa Monica Mountains, currently only known from Zuma Ridge (Knudsen & Lendemer 2009a).

18. *Cliostomum griffithii* (Sm.) Coppins

NOTES. – This species was reported by Hasse from the Santa Monica Mountains from various barks as *Catillaria tricolor* (With.) Th. Fr. (Hasse 1913).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, Sycamore Canyon, 34°8'10"N, 119°0'15"W, 213 m, on *Malacothamnus fasciculatum*, 2.vi.2009, K. Knudsen 11120 & T. Sagar (UCR).

19. *Collema nigrescens* (Hudson) DC.

NOTES. – This species is infrequent on *Quercus agrifolia* in the region.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, K. Knudsen 9630 (UCR).

20. *Collempsidium sublitorale* (Leighton) Grube & B. D. Ryan

NOTES. – This is the only intertidal lichen we have found so far along the shores of the Santa Monica Mountains. It occurred on a large flat rock slab with barnacles and algae.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Sequit Point, 34°2'34"N, 118°56'12"W, 0 m, 13.viii.2009, K. Knudsen 11577 w/J. Kocourková & T. Sagar (UCR).

21. *Dactylospora pleiosperma* Triebel*

NOTES. – This lichenicolous fungus, which occurs on *Lecanora caesiorubella* Ach., was previously known in California only from Santa Cruz and Santa Rosa Islands (Hafellner 2004). Recently, we collected it in Los Osos in San Luis Obispo County (*K. Knudsen 9928* & *J. Kocourková*, UCR).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, Wood Canyon, 34°7'38"N, 119°0'51"W, 383 m, on *Lecanora caesiorubella* on *Quercus agrifolia*, 13.viii.2009, *J. Kocourková* & *K. Knudsen* (PRM 915667).

22. *Dimelaena thysanota* (Tuck.) Hale & W.L. Culb.

NOTES. – This is part of the montane flora more common at higher elevations that occur in the Santa Monica Mountains. Determinations by John Sheard.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, Santa Ynez Canyon 34°5'28"N, 118°34'48"W, 390 m, on tilted calcareous lenses, 24.xi.2008, *K. Knudsen 10699* w/ *J. Kocourková* & *T. Sagar* (UCR). VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on Conejo volcanics, 28.v.2008, *K. Knudsen 9646* (UCR).

23. *Dimelaena weberi* Sheard

NOTES. – This saxicolous species occurs on Conejo volcanics on Conejo Mountain. This species was misidentified as *Rinodina parasitica* H. Mayrh. & Poelt, which is removed from the checklist (Knudsen 2007). Determination by John Sheard.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: north side of Conejo Mountain, 34°11'33"N, 119°0'8"W, 63 m, 8.ii.2006, *K. Knudsen 5143.1* (UCR), *K. Knudsen 5143.2* (UCR).

24. *Endococcus matzeri* D. Hawks. & Iturr.*

NOTES. – This fungus is symbiotic on *Buellia* species and was recently described from Antarctica (Hawksworth & Iturriaga 2008). Previously, in a complicated case of nomenclature, this taxon was treated incorrectly as *Endococcus buelliae* (C. W. Dodge) Matzer because of confusion about which of the two fungi in the type specimen was the holotype of *Orbicula buelliae* C. W. Dodge (Hawksworth & Iturriaga 2008). In the resolution of this problem, *O. buelliae* became *Sphaerellothecium buelliae* (C.W. Dodge) D. Hawksw. & Iturr., a totally different and as yet poorly understood species, and *Endococcus buelliae* became an obligatory synonym which had been applied incorrectly to an undescribed taxon which was then described as *E. matzeri*.

Previously *Endococcus buelliae* was reported from Baja California and California (Kainz & Triebel 2002). We verified our specimens using the revised description of *E. matzeri*, which stresses the ornamentation of the ascospore walls, and can report *E. matzeri* as occurring in southern California and in one collection on a new host, *Mobergia angelica* (Stizenb. ex Hasse) H. Mayrh. & Sheard. *Sphaerellothecium buelliae* is not yet known from California or North America.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. SANTA BARBARA CO: Santa Rosa Island, Channel Islands National Park, close to NPS housing at margin of Cherry Canyon, 33°59'53"N, 120°3'51"W, 92 m, on *Buellia venusta*, 18.vii.2007, *J. Kocourková* & *K. Knudsen* (PRM 909682). VENTURA CO.: Santa Monica Mountains, Westlake Village, Conejo Open Space, near Lake Elenor Dam, deep-cut ravine in slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 289 m, on *Mobergia angelica*, 24.xi.2008, *K. Knudsen 10967* w/ *J. Kocourková* & *T. Sagar* (UCR).

25. *Hyperphyscia adglutinata* (Flörke) H. Mayrhofer & Poelt

NOTES. – This species is common on *Quercus agrifolia* and *Juglans californica*.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Latigo Canyon, 34°4'53"N, 118°47'45"W, 562 m, on *Juglans californica*, 5.iv.2009, *K. Knudsen 11163* (UCR).

26. *Intralichen baccisporus* D. Hawksw. & M.S. Cole.*

NOTES. – This lichenicolous fungus is probably frequent on saxicolous *Caloplaca* species in California.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Caloplaca bolacina*, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915679).

27. *Lecanactis salicina* Zahlbr.

NOTES. – The species was originally described from collections by Hasse on willows in “Rustic Canyon” in the Santa Monica Mountains (Hasse 1913) and is rare in the range. The modern collection was found on *Coreopsis gigantea* at Point Dume and is epruinose. The end cells are usually longer than the center cells with a total of 3-4 septa. In our specimen the end cells sometimes become divided by additional septa thus making the ascospore 5-6 septate rather than 3-4 septate.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume Nature Reserve, 34°0'8"N, 118°48'30"W, 10 m, on *Coreopsis gigantea* on rock wall, 1.vi.2009, K. Knudsen 10669 & T. Sagar (UCR).

28. *Lecania naegelii* (Hepp) Diederich & van den Boom

NOTES. – The species was reported on various barks in the Santa Monica Mountains by Hasse (1913). It is infrequent.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, Sycamore Canyon, 34°8'10"N, 119°0'15"W, 213 m, on *Malacothamnus fasciculatum*, 2.vi.2009, K. Knudsen 11125 & T. Sagar (UCR).

29. *Lecanora confusa* Almb.

NOTES. – The thallus of this species was often completely leprose on smooth bark of the shrub *Malosma laurina* (Nutt.) Abrams.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park: Ranch Center Road on Hidden Pond Trail, near the water tank on ridge between Wood Canyon and Sycamore Canyon., 34°8'2"N, 119°0'37"W, 212 m, on *Malosma laurina*, 13.ix.2009, K. Knudsen 11549 w/J. Kocourková & T. Sagar (UCR).

30. *Lecanora impudens* Degel.

NOTES. – We collected a small amount of this lichen with apothecia on *Malacothamnus fasciculatum*. It is new to California and its distribution in the state is unknown. The identification was verified by J.C. Lendemer (NY) who also confirmed that the collection contains atranorin and chloroatranorin with TLC.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, upper La Jolla Valley, 34°6'37"N, 119°01'46"W, 270 m, 13.ix.2009, K. Knudsen 11573 w/J. Kocourková & T. Sagar (UCR).

31. *Lecanora munzii* K. Knudsen & Lendemer

NOTES. – This species is described in this volume (Knudsen & Lendemer 2009b) and is rare on wood in the Santa Monica Mountains in Griffith Park in Los Angeles.

32. *Lecidea fuscoatrina* Hertel & Leuckert

NOTES. – This saxicolous lichen is part of the montane lichen flora of the Santa Monica Mountains that is usually found at higher elevations in southern California. This species is frequent in the San Jacinto Mountains above 2000 meters.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks: near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on Conejo volcanics, 24.xi.2008, K. Knudsen 10704 w/ J. Kocourková & T. Sagar (UCR).

33. *Leptochidium albociliatum* (Desmaz.) M. Choisy

NOTES. – This is a common lichen in the mountains of southern California and was reported from the Santa Monica Mountains by Hasse (1913) but is rare in the range.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on Conejo volcanics, 24.xi.2008, K. Knudsen 10701 w/ J. Kocourková & T. Sagar (UCR), J. Kocourková 7350 w/ K. Knudsen & T. Sagar (hb. Kocourková).

34. *Leptogium californicum* Tuck.

NOTES. – This is a common lichen in the mountains of southern California and was reported from the Santa Monica Mountains by Hasse (1913) but is infrequent in the range.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space: slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on soil over rock, 24.xi.2008, K. Knudsen 10702 w/ J. Kocourková & T. Sagar (UCR).

35. *Leptogium plicatile* (Ach.) Leighton

NOTES. – Rare, collected on limestone, probably in same the general area where Hasse collected it (Hasse 1913).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on limestone, 6.iv.2008, K. Knudsen 9551 w/ J. Kocourková & B. Landis (UCR).

36. *Lichenocodium erodens* M.S. Christ. & D. Hawksw.*

NOTES. – This is a common fungus on a variety of lichens. We do not consider it to be a principally saprobic fungus.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Xanthoparmelia cumberlandia*, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915671); same locality, on *Evernia prunastri*, J. Kocourková & K. Knudsen (PRM 915672).

37. *Lichenocodium xanthoriae* M.S. Christ.*

NOTES. – This fungus was originally described on *Xanthoria polycarpa*, its most common host (Christiansen 1956) and occurs on many species of Teloschistaceae. In the Czech Republic, *L. xanthoriae* is one of the first lichenicolous fungi usually found in disturbed habitats after lichens have returned. It is reported new for California and on a new host, *Xanthoria tenax* L. Lindblom.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. RIVERSIDE CO.: Santa Ana Mountains, Santa Rosa Plateau, near Clinton Keith Road, 33°33'02"N, 117°15'53"W, 563 m, on *Xanthoria tenax*, 11.x.2008, K. Knudsen 10433 (UCR). VENTURA CO.: Point Mugu State Park, Wood Canyon, 34°7'38"N, 119°0'51"W, 383 m, on *Xanthomendoza fulva*, 13.viii.2009, J. Kocourková w/ K. Knudsen & T. Sagar (UCR).

38. *Lichenostigma cosmopolites* Hafellner & Calat.*

NOTES. – This is a common species throughout southern California on *Xanthoparmelia* species.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: above Little Sycamore Canyon Road on unnamed National Park Service land, 36°6'44"N, 118°54'59"W, 671 m, 9.ix.2006, K. Knudsen 7155 & R. Muertter (UCR).

39. *Lichenothelia renobalesiana* D. Hawksw. & V. Atienza*

NOTES. – We recently reported this lichenicolous fungus new to North America from the Santa Monica Mountains (Kocourková & Knudsen 2009b).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on *Bagliettoa calciseda* on limestone, 6.iv.2008, K. Knudsen 9660.2 w/ J. Kocourková & B. Landis (UCR).

40. *Lichenodiplis lecanorae* (Vouaux) Dyko & D. Hawksw.*

NOTES. – We consider this species a new report for California. The previous report of *L. lecanorae*, S. Tucker 34307 (SBBG), Montecito, Santa Barbara Co., on *Pertusaria* (Tucker & Ryan 2006) probably represents another taxon, possibly a *Minutoexcipula*.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Caloplaca cerina*, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915674, in specimen of *Lichenodiplis rinodinicola*).

41. *Llimonaea cerebriformis* (Egea & Torrente) Sparrius

NOTES. – This maritime lichen is rare and known from only a handful of locations in California. It occurs only on Point Dume in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume Nature Reserve, 34°0'8"N, 118°48'30"W, 10 m, on rock wall, 1.vi.2009, K. Knudsen 11214 & T. Sagar (UCR).

42. *Muellerella erratica* (A. Massal.) Hafellner & V. John*

NOTES. – This lichenicolous fungus was previously treated as *M. pygmaea* var. *athallina* (Müll. Arg.) Triebel. An earlier report of *M. lichenicola* (Sommerf. ex Fr.) D. Hawksw. is revised to *M. erratica*. (Knudsen 2007).

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on *Verrucaria muralis*, 6.iv.2008, K. Knudsen 9660.2 w/ J. Kocourková & B. Landis (UCR); Leo Carrillo State Park, Arroyo Sequit, 34°3'53"N, 118°55'56"W, 83 m, on *Lecanora subimmergens*, 13.viii.2009, J. Kocourková & K. Knudsen (PRM915678).

43. *Ochrolechia arborea* (Kreyer) Almb.

NOTES. – The species is rare on the bark of *Quercus agrifolia*.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Quercus agrifolia*, 14.viii.2009, K. Knudsen 11588 & J. Kocourková (UCR).

44. *Peltigera rufescens* (Weiss) Humb.

NOTES. – This species is rare in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, 24.xi.2008, K. Knudsen 10705.1 & J. Kocourková (UCR).

45. *Peltula omphaliza* (Nyl. ex Eckf.) Wetmore

NOTES. – This species is infrequent in the Santa Monica Mountains. Wetmore (1970) reported one Hasse collection from the range.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, off Schuere Road, Saddle Peak area, 34°4'43"N, 118°38'54"W, 698 m, on volcanic rock, 12.iii.2005, *K. Knudsen 3042* (UCR). VENTURA CO.: Party Rock, 34°6'37"N, 118°54'22"W, 698 m, on volcanic rock, 8.ii.2006, *K. Knudsen 5152.3 w/J. Kocourková & T. Sagar* (UCR).

46. *Phaeosporobolus alpinus* R. Sant., Alstrup & D. Hawksw.*

NOTES. – This lichenicolous fungus is reported new for California.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on corticolous *Pertusaria* species, 14.viii.2009, *J. Kocourková & K. Knudsen* (PRM 915670, UCR).

47. *Phaeophyscia orbicularis* (Necker) Moberg

NOTES. – This species is frequent in mixed corticolous communities on oaks, though not dominant.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, *K. Knudsen 9676* (UCR).

48. *Phoma cladonicola* Diederich, Kocourk. & Etayo*

NOTES. – This lichenicolous coelomycete bleaches the squamules of *Cladonia* species and produces easily seen pycnidia with abundant non-septate hyaline conidia 4.7–5.9 × 2.4–3.0 μm (for more information and illustrations see Diederich et al. (2007)). We report it new to California from Summit Peak on West Anacapa Island and from the Santa Monica Mountains on *Cladonia chlorophaea* (Flörke ex Sommerf.) Spreng. Interestingly, so far we have not found it on any of the species endemic to California like *C. nashii* Ahti.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'12"N, 118°51'8"W, 297 m, on *Cladonia chlorophaea*, 24.xi.2008, *K. Knudsen 10705.1 w/J. Kocourková & T. Sagar* (UCR); West Anacapa Island, Channel Islands National Park, ridge east of Summit Peak, 34°0'44"N, 119°25'42"W, 270 m, common on *C. chlorophaea*, 3.xii.2008, *K. Knudsen 10869* (UCR, PRM 911595).

49. *Physcia clementei* (Sm.) Lyngbe

NOTES. – This lichen is rare in southern California and on the Channel Islands. A single thallus was found mixed in a Xanthorian community on the endemic California walnut.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga Canyon along Highway 27, 34°8'30"N 118°55'6"W, 362 m, on *Juglans californica*, 15.viii.2004, *K. Knudsen 1548.1* (UCR).

50. *Placocarpus americanus* K. Knudsen, Breuss & Kocourk.

NOTES. – We recently described this new lichenicolous lichen from the Santa Monica Mountains (Knudsen et al. 2009).

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, Agoura Hills, near Kanaan Dume Road, 34°08'37"N, 118°46'00"W, 267 m, on *Lecanora muralis*, early stage of infection, 12.i.2008, *J.C. Lendemer 11461 & K. Knudsen* (NY, UCR). VENTURA CO.: Santa Monica Mountains, Conejo Open Space, near Lake Elenor Dam, on slope above Highway 23 West, 35°39'50"N, 121°15'46"W, 291 m, on *Lecanora muralis* and Conejo volcanics, 24.xi.2008, *K. Knudsen 10711 w/J. Kocourková & T. Sagar* (LI, PRM 859105, UCR).

51. *Placopyrenium noxium* Breuss

NOTES. – The species occurred on Conejo volcanics and was parasitic on *Aspicilia* species, though previously known as parasitic only on *Staurothele areolata* (Ach.) Lettau. This is the fourth known population in California (Breuss 2009; Knudsen & Kocourková *in press*). The conidia were shorter than previously reported (5 µm) and the ascospores smaller (10–12 × 7.5–8 µm) (Breuss 2002), the areoles more adnate, but Cécile Gueidan sequenced the specimen and determined the species.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on Conejo volcanic, 28.v.2008, K. Knudsen 9656 (LI, PRM, UCR).

52. *Placopyrenium stanfordii* (Herre) K. Knudsen (syn. *Placopyrenium zahlbruckneri* (Hasse) Breuss)

NOTES. – This species was originally collected in Topanga Canyon in Los Angeles County by Hasse in 1910 (Breuss 2009). It is infrequent in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'10"N, 118°51'13"W, 296 m, on Conejo volcanics on soil(?), 2.vi.2009, K. Knudsen 11241 (UCR).

53. *Placynthium nigrum* (Hudson) Gray

NOTES. – This species is rare in the Santa Monica Mountains. It grows on limestone.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on limestone, 6.iv.2008, K. Knudsen 9552.2 w/J. Kocourková & B. Landis (UCR).

54. *Psorotichia schaeereri* (A. Massal.) Arnold

NOTES. – This species was collected on calcareous rock and is rare.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Simi Hills, Daryton Canyon, ridge south of Quiet Hills, on calcareous rock, 18.xii.2005, F. Landis *s.n.* (UCR).

55. *Ramalina subleptocarpha* Rundel & Bowler

NOTES. – This species is dominant on chaparral in Point Mugu State Park.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Magu State Park, Sycamore Canyon, Ranch Center Road, 34°8'10"N, 119°0'15"W, 213 m, on *Malacothamnus fasciculatum*, 2.vi.2009, K. Knudsen 11022 & T. Sagar (UCR).

56. *Rhizocarpon subpostumum* (Nyl.) Arnold

NOTES. – This species is reported new for North America and is rare in the Santa Monica Mountains. Alan Fryday made the identification, qualifying it as “cf. *subpostumum*” and said “I have a number of specimens that fit the description of this species but they are morphologically variable and I suspect that more than one taxon is involved. Your collection has unusually large ascospores...30–33 µm.” According to Fryday, the species is quite frequent in the northeast of North America but has not been reported.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: slope across the road and below turnoff for parking area for Sandstone Peak, 34°6'38"N, 118°55'38"W, 609 m, on Conejo volcanics, 24.v.2009, K. Knudsen 11160 (MSC, UCR).

57. *Rinodina pacifica* Sheard

NOTES. – This species is rare in the Santa Monica Mountains, occurring in a shaded riparian habitat near the ocean. Determined by John Sheard.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Arroyo Sequit, 34°2'54"N, 118°55'58"W, 65 m, 27.ix.2005, *K. Knudsen 3724.2* & *M. Knudsen* (UCR).

58. *Rinodina santa-monicae* H. Magn.

NOTES. – This species is frequent on oaks in mixed corticolous communities.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, *K. Knudsen 9625* (UCR).

59. *Sarcogyne regularis* Körb.

NOTES. – This species is rare in the Santa Monica Mountains due to the scarcity of calcareous substrates.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on limestone, 6.iv.2008, *K. Knudsen 9559 w/J. Kocourková & B. Landis* (UCR).

60. *Sarcopyrenia bacillosa* (Nyl. ex Hasse) Nav.-Ros. & Hladun*

NOTES. – This lichenicolous fungus was originally discovered in the Santa Monica Mountains by Hasse near the Old Soldier's Home. Previously known only from the original collections, *S. bacillosa* has recently been collected in Richmond in central California (Knudsen & Lendemer 2006), San Diego [*Knudsen 10999* (UCR)] and in the Santa Monica Mountains. All three specimens were parasitic on *Acarospora socialis* H. Magn.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'10"N, 118°51'13"W, 296 m, 24.xi.2008, *J. Kocourková w/ K. Knudsen & T. Sagar* (PRM 915677); approximately same location, 2.vi.2009, *K. Knudsen 11240* (UCR).

61. *Schizopelte californica* Th. Fr.

NOTES. – This species is rare in the Santa Monica Mountains, known only from Point Dume Nature Reserve, where the population is small.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume Nature Reserve, 34°0'8"N, 118°48'30"W, 10 m, on rock wall, 1.vi.2009, *K. Knudsen 11213 & T. Sagar* (UCR).

62. *Sphinctrina leucopoda* (Pers. ex Fr.) De Not.*

NOTES. – The species was collected in the understory of an oak woodland.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, Wood Canyon, 34°7'38"N, 119°0'51"W, 383 m, on *Lecanora gangaleoides*, 13.viii.2009, *J. Kocourková w/ K. Knudsen & T. Sagar* (PRM 915676).

63. *Staurothele drummondii* (Tuck.) Tuck.

NOTES. – The species is apparently rare in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: below Sandstone Peak, 34°0'7"N, 118°56'0"W, 883 m, on steep drainage of volcanic bedrock, 11.iii.2005, *K. Knudsen 2487* (UCR).

64. *Staurothele elenkinii* Oxner.

NOTES. – This species is rare in the Santa Monica Mountains, found on HCl+ rock. It is verified as occurring in California (Tucker & Ryan 2006).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, ridge between upper La Jolla Valley and Wood Canyon along truck trail, 34°6'39"N, 119°01'36"W, 267m, 13.viii.2009, K. Knudsen 11576.1 w/ J. Kocourková & T. Sagar (UCR).

65. *Stigidium epistigmellum* (Nyl. ex Vouaux) Kocourk. & K. Knudsen*

NOTES. – The holotype of this fungus was originally collected by Hasse on *Caloplaca luteominia* (Tuck.) Zahlbr. in the Santa Monica Mountains. We recently revised this species and it is rare in the Santa Monica Mountains, though it is common on the Channel Islands (Kocourková & Knudsen 2009a).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Caloplaca bolacina*, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915673).

66. *Syzygospora physciacearum* Diederich*

NOTES. – This lichenicolous fungus was collected on *Physcia dimidiata* (Arnold) Nyl. The species is infrequent in southern California. *Physcia dimidiata* is a new host.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N 118°54'35"W, 434 m, on *Physcia dimidiata*, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915675).

67. *Thelenella modesta* (Nyl.) Nyl.

NOTES. – This species is rare in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Mugu State Park, upper La Jolla Valley, 34°6'37"N, 119°01'46"W, 270 m, 13.viii.2009, on *Malacothamnus fasciculatum*, K. Knudsen 11573 & J. Kocourková (UCR).

68. *Trapeliopsis steppica* McCune & Camacho

NOTES. – This sorediate species, with distinctive green soredia, is known from two sites in the Santa Monica Mountains. We have also collected it in the Santa Ana Mountains (K. Knudsen 9277, UCR).

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Malibu Creek State Park, along Backbone Trail, south of Stunt Road, steep north-facing sandstone slabs, 34°4'59"N, 118°40'3"W, 576 m, 9.ix.2006, K. Knudsen 7718 R. Muertter (UCR). VENTURA CO.: Point Mugu State Park, ridge between upper La Jolla Valley and Wood Canyon along truck trail, 34°6'39"N, 119°01'36"W, 267 m, 13.viii.2009, K. Knudsen 11576.2 w/ J. Kocourková & T. Sagar (UCR).

69. *Verrucaria muralis* Ach.

NOTES. – This species was collected on limestone on ridge above Santa Ynez Canyon.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga State Park, 34°5'41"N, 118°33'4"W, 552 m, on limestone, 6.iv.2008, K. Knudsen 9553 w/ J. Kocourková & B. Landis (UCR).

70. *Verrucaria rupicola* (B. de Lesd.) Breuss

NOTES. – This small-spored species was recently revised by Breuss (2007). It was previously collected by Hasse in the Santa Monica Mountains (O. Breuss, pers. comm.).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Point Magu State Park, Sycamore Canyon. Ranch Center Trail, in hills, 34°8'3"N, 118°58'54"W, 173 m, on sandstone boulder, 2.vi.2009, K. Knudsen 11234 & T. Sagar (UCR).

71. *Vouauxiella lichenicola* (Linds.) Petrak & Syd.*

NOTES. – This species is frequent on *Lecanora* species in southern California.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, on *Lecanora cicumborealis* on oak, 14.viii.2009, J. Kocourková & K. Knudsen (PRM 915674, in specimen of *Lichenodiplis rinodinicola*).

72. *Xanthomendoza fulva* (Hoffm.) Søchting, Kärnefelt & S. Kondr.

NOTES. – This is a common species especially on oaks.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga Canyon along Highway 27, 34°7'38"N, 118°35'36"W, 383 m, on *Juglans californica*, 15.ix.2004, K. Knudsen 1548.4 (UCR). VENTURA CO.: Point Mugu State Park, Wood Canyon, 34°7'38"N, 119°0'51"W, 383 m, on *Quercus agrifolia*, 13.viii.2009, J. Kocourková w/ K. Knudsen & T. Sagar (UCR).

73. *Xanthomendoza hasseana* (Räsänen) Søchting, Kärnefelt & S. Kondr.

NOTES. – This lichen is rare in mixed corticolous communities on oaks in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks: ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, K. Knudsen 9614 (UCR).

74. *Xanthoparmelia verruculifera* (Nyl.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch

NOTES. – This lichen occurs in small populations in mixed saxicolous communities.

SPECIMENS EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Leo Carrillo State Park, Nicolas Flat, 34°3'50"N, 118°54'35"W, 434 m, 14.viii.2009, J. Kocourková & K. Knudsen s.n. (UCR). VENTURA CO.: Thousand Oaks, near Lake Elenor Dam, Conejo Open Space, slope above Highway 23 South, 34°8'10"N, 118°51'13"W, 296 m, 24.xi.2008, K. Knudsen 10712 w/ J. Kocourková & T. Sagar (UCR).

75. *Xanthoria candelaria* (L.) Th. Fr.

NOTES. – This common maritime species is rare in the Santa Monica Mountains.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Point Dume Nature Reserve, 34°0'8"N, 118°48'30"W, 10 m, on rock wall, 1.vi.2009, K. Knudsen 11208 & T. Sagar (UCR).

76. *Xanthoria parietina* (L.) Th. Fr.

NOTES. – This common species is rare in southern California.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. VENTURA CO.: Thousand Oaks, ranch along Hidden Valley Road, 34°8'30"N, 118°55'6"W, 362 m, on *Quercus agrifolia*, 28.v.2008, K. Knudsen 9614 (UCR).

III. – HISTORICAL RECORDS

1. *Arthonia subdispuncta* Nyl. ex Hasse†

NOTES. – This non-lichenized species appears to be restricted to the caudex of *Coreopsis gigantea* and was recently rediscovered on East Anacapa Island (Knudsen 2008). Its type locality was the top of Point Dume, an area almost completely covered with houses, and so far we have not re-collected it in the Santa Monica Mountains. The species appears to need a higher relative annual humidity than is now found in the Santa Monica Mountains and it is for now treated as a historical record (see *A. pinastris* above).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: bluffs of Point Dume, on *Coreopsis gigantea*, H.E. Hasse (FH, PH, NY).

2. *Placopyrenium heppioides* (Zahlbr.) Breuss

NOTES. – Hasse collected the only known specimens of this squamulose species in Topanga Canyon in the Santa Monica Mountains. It can be easily mistaken for a *Dermatocarpon* but differs in a number of characters from species in that genus (Breuss 2009). So far we have been unsuccessful in rediscovering *P. heppioides* and it is treated as a historical record.

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga Canyon, H.E. Hasse (FH, MIN).

3. *Pseudocyphellaria anomala* Brodo & Ahti

NOTES. – This macrolichen is probably extinct in the Santa Monica Mountains and a relic when Hasse discovered it in 1907. It is one of a number of macrolichens, like *Bryoria fremontii* (Tuck.) Brodo & D. Hawksw., that were almost certainly common in southern California during the Pleistocene and maybe into the Little Ice Age that ended in the middle 19th century (Matthes 1939), but have disappeared as the climate has grown warmer and drier. These macrolichens are now common further north in California. Previously, the most southern location of *P. anomala* in California was an unverified collection by C. Bratt from Santa Barbara County (Ryan & Galloway 2002).

SPECIMEN EXAMINED. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Topanga Canyon, on rocks, i.1907, H.E. Hasse (NY, identified as *Sticta weigelii*).

4. *Sphaerellothecium breussii* K. Knudsen, Kocourk. & Etayo*

NOTES. – This lichenicolous fungus was recently described from southern California and is currently known from the Santa Monica Mountains only from historical collections by Hasse (Knudsen et al. 2009). Its host, *Placidium lacinulatum* (Ach.) Breuss, is now infrequent in the Santa Monica Mountains.

5. *Thelenella hassei* (Zahlbr.) H. Mayrhofer

(basionym, *Microglæna hassei* Zahlbr.)

NOTES. – This species was collected by Hasse principally on *Juglans californica* as well as on *Prunus ilicifolia* (Nutt.) Walp. (Hasse 1913; Mayrhofer 2002).

6. *Thelenella inductula* (Nyl. ex Hasse) H. Mayrhofer

(basionym, *Verrucaria inductula* Nyl. ex Hasse)

NOTES. – This saxicolous species was collected by Hasse, possibly at only one locality several times. (Hasse 1913; Mayrhofer 2002).

7. *Thelenella sychnagonioides* (Zahlbr.) R.C. Harris

(basionym, *Microglæna sychnagonioides* Zahlbr.)

NOTES. – This species was collected by Hasse on the smooth bark of *Quercus agrifolia* and *Juglans californica* (Hasse 1913; Mayrhofer 2002).

CONCLUSION

More than any other mountain range in southern California, the Santa Monica Mountains have been affected by human development. The original biological unity of the mountains has been completely transformed over the last one hundred and fifty years. The Los Angeles-Santa Monica slopes and San Fernando Valley slopes are almost totally subdivided and urbanized. Air pollution has affected parts of the range, sometimes drastically as in the Los Angeles area, especially in the 1950s. Fires have become frequent in most areas. Development continues throughout the range in competition with the acquisition and incorporation of land into the public trust.

Currently, we report 316 taxa comprising 288 lichens, 25 lichenicolous fungi, and 3 allied fungi. We expect this total diversity number to increase for the Santa Monica Mountains as we continue our ongoing inventory.

We are still studying the historic collections of Hasse prior to 1915 and expect the species known only from historic records to easily exceed 50 taxa. We suspect the original total species diversity was much higher at the beginning of 20th century.

We have begun actively collecting lichenicolous fungi in the Santa Monica Mountains. Lichenicolous fungi generally occur in habitats with long ecological continuity (Hawksworth 2003). So far we have reported 25 species with several undescribed species awaiting description. This is less than ten per cent of the total current lichen biota, a percentage we consider too small, indicative of both our limited collecting and of disturbance to habitats. Probably the biggest limiting factor for lichenicolous fungi diversity in the Santa Monica Mountains is increased fire frequency. It is believed fire frequency was probably once as low as every 125 years (John Tiszler, pers. comm.), but now fire frequency in many areas is 20 years or less. While much of the vegetation can rapidly recover from fires we have observed a decrease in corticolous lichen diversity in areas with accelerated fire frequency. In the Santa Monica Mountains many corticolous lichens are relatively rare or possibly extinct, especially those reported by Hasse as common on chaparral (Hasse 1913), and frequently burned areas may be totally lacking in corticolous lichens. This causes a decrease in available hosts for lichenicolous fungi as well as depleting reproductively viable populations of lichenicolous fungi, which are often not abundant even in undisturbed habitats. Fires in areas with heavy chaparral also leads to the decrease in lichens on rock outcrops and boulders, further decreasing populations of saxicolous lichens and their lichenicolous fungi.

Intertidal lichens are proving rare on the southern California coast in undisturbed habitats, with algae dominant. We spent considerable time looking for intertidal lichens along the coast of the Santa Monica Mountains. We found only *Collempsidium sublitorale* at one site. Overall the shoreline has been heavily disturbed by road building and housing developments.

Like shards, relatively undisturbed microhabitats are scattered across the landscape, some of which were already natural refugia like moist north slopes, rare geological deposits, or old-growth chaparral. These are often rich in lichen species, some which have become relics, either through the randomness of natural history, human intervention, or a combination of both. As collectors, we cannot predict what we may discover on a new rock outcrop, around the next turn on an old abandoned truck trail, or in an old walnut woodland that has escaped fire. Lichenologists who visited the Santa Monica Mountains in the 20th century after Hasse were generally disappointed with the lack of lichen diversity and the development in some habitats like Topanga Canyon often collected by Hasse. But when we drive on freeways through Los Angeles before dawn to beat the traffic, on our way to collect in the Santa Monica Mountains, we are always filled with excitement, wondering what we will discover.

ACKNOWLEDGEMENTS

We thank our reviewers J. Etayo and B. Hodkinson. We thank A. Fryday (MSC) for identifying *Rhizocarpon subpostumum*, C. Gueidan (Centraalbureau voor Schimmelcultures) for sequencing and identifying *Placopyrenium noxium*, J.C. Lendemer (NY) for help in many ways, R. Muerter for pictures of Conejo Mountain and sandstone slabs near Saddle Peak, J.W. Sheard (SASK) for revising *Rinodina* determinations, D. Magney for his support through a donation to the UCR Herbarium, NPS bryologist T. Sagar for guiding us on many of our excursions, B. Landis for showing us calcareous sites, and NPS ecologist J. Tiszler for his constant support of our research. We are grateful to Z.

Pouzar (Praha, CZ) for checking the Latin diagnosis. The work of K. Knudsen was supported by an Academic Fellowship from the Santa Monica Mountains Fund for the continuing study of the lichen biota of the Santa Monica Mountains. The work of J. Kocourková was supported by the Faculty of Environmental Sciences, Czech University of Life Sciences Prague.

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