Lichens, Lichenicolous and Allied Fungi of the Santa Monica Mountains, Part 5: Additions and Corrections to the Annotated Checklist

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ABSTRACT. – Fourteen fungi (6 lichens and 8 lichenicolous fungi) are newly reported for the Santa Monica Mountains. *Endococcus rugulosus* s. str. is reported as new for North America (a previous report from North America represents another taxon). *Athelia arachnoidea*, *Merismatium decolorans*, and *Sphaerellothecium cladoniae* are newly reported for California. *Ramonia ablephora*, previously only known in the mountain range from historical records, was re-discovered and is rare. Three hundred and eleven taxa (271 lichens, 36 lichenicolous fungi, and 4 allied fungi) have been reported from our surveys in the beginning of the 21st century. Seventy-five taxa not collected since 1915 are discussed (67 lichens, 2 lichenicolous fungi, 7 allied fungi), increasing the number of taxa not collected since 1915 to 94 (83 lichens, 3 lichenicolous fungi, 8 allied fungi). Combining new reports and historical records of taxa not collected since 1915, a total of 405 taxa have been reported in current series of papers from the Santa Monica Mountains (354 lichens, 39 lichenicolous fungi, and 12 allied fungi).

KEYWORDS. – Biodiversity, California, extirpation, H.E. Hasse, rare species, urbanization.

INTRODUCTION

This paper represents the fifth part in a floristic study of the Santa Monica Mountains (Knudsen 2005 & 2007a; Knudsen et al. 2008; Knudsen & Kocourková 2009b). It is comprised of additions to the official annotated checklist published in 2007 which is maintained and revised annually for the National Park Service.

Throughout this paper we discuss the collections of H.E. Hasse whose specimens, taken during the early 20th century, form the historical baseline of our checklist. Although Hasse’s collection and identification methods are the subject of another publication in this volume we provide several notes below to aid readers (Knudsen 2010). In this paper we often mention Hasse’s original determinations especially in the historical section. Hasse collections should not be annotated based on these revisions without checking the specimens individually. Hasse’s species concepts changed over time. In other cases, such as *Verrucaria* for instance, he often had no clear species concepts and several taxa may have been identified as the same species. This is in addition to the routine mistakes of determination that crop up in anyone’s career and herbarium. It is also important to recognize that his exsiccati sets were put together after his death. It is not uncommon to find several taxa distributed under a single name and number in his exsiccati. Hasse had no collection numbers and kept specimens under lot numbers which he assumed contained all the same taxon (see Knudsen 2010). Hasse’s specimens often lack specific information on where in the Santa Monica Mountains he collected them. Often they lack dates, sometimes even the year.

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The methods in this paper follow those of previous installments of the series (see Knudsen 2007a). In some reports only selected specimens are cited, if possible one from each of the two counties which encompass the Santa Monica Mountains. Species published by Hasse based on Nylander’s or Stizenberg’s notes are consistently attributed to Hasse as “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 Lichen Herbarium website (http://sanders5.ucr.edu/lichensflat_index.php) or the Consortium of North American Lichen Herbaria (http://symbiota.org/nalichens/collections/index.php). Only a small part of Hasse’s herbarium has been databased at the Farlow Herbarium (FH) at Harvard University and is available online at (http://asaweb.huh.harvard.edu:8080/databases/specimen_index.html, enter H. E. Hasse for collector).

The first author spent two weeks in October 2009 at the Farlow Herbarium revising Hasse collections. This was supplemented by a review of pertinent literature by lichenologists. Reports in the literature by recognized experts in particular genera such as Breuss (Verrucariaceae), Dibben (Pertusaria), Sudin (Arthonia), Schultz (Lichenaceae), and a few others were accepted. A review of selected Hasse collections at Minnesota (MIN) was begun through a loan. We discussed some collections at New York Botanical Garden (NY) with J. C. Lendemer.

Entries 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 “†”.

I – New Records

1. *Athelia arachnoidea* (Berk.) Jülich*

**Notes.** – *Athelia arachnoidea* is a pathogenic basidiomycete on epiphytic and lignicolous lichens occurring widely in Europe and North America, and in Tunisia in Africa (Diederich 2004a). Our specimens formed large necrotic areas with typical white hyphae, without basidia and without sclerocia, on *Lepraria santamonicae* K. Knudsen & Elix and on *Candelaria pacifica* Westberg ined. (usually corticolous), both growing on sandstone on a north slope. We know that there are also other *Athelia* species that invade lichens, but as most lichenicolous *Athelia* collections are sterile they are usually included under *A. arachnoidea*. For this reason we refer our specimens to this species until we discover fertile specimens. It is reported new for California.

**Specimens Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Malibu Creek State Park, Bulldog Motorway, north slope on *Lepraria santamonicae* on sandstone, 34°5′22″N, 118°46′02″W, 670 m, 23.xi.2009, J. Kocourková s.n. w/ K. Knudsen & T. Sagar; same location, on *Candelaria pacifica* on sandstone, K. Knudsen 11821 w/ J. Kocourkova & T. Sagar (UCR).

2. *Echinodiscus lesdainii* (Vouaux) Etayo & Diederich*

**Notes.** – Recently reported new for North America (Kocourková et al. 2010) on *Lecania cyrtella* (Ach.) Th. Fr. In the Santa Monica Mountains, the host is common especially on *Malacothamnus fasciculatus* (Torrey & A. Gray) E. Greene.


3. *Endococcus stigma* (Körb.) Stizenb.*

**Notes.** – This lichenicolous fungus is common in California especially on *Acarospora socialis* H. Magn. (Knudsen & Kocourková 2007). We observed conidia in the specimen examined to be ca. 4 x 1 μm in size.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4′44″N, 118°38′41″W, 676 m, on brown *Acarospora* species, 5.xii.2009, J. Kocourková s.n. & K. Knudsen (UCR).
Plate 1. Lichens and lichen habitats of the Santa Monica Mountains. Figure 1, typical saxicolous community on Conejo volcanics. Figure 2, typical seasonal creek habitat. Figure 3, typical interior habitat in central part of range in Westlake area. Figure 4, Aspicilia confusa Owe-Larss. & A. Nordin (thallus often more scattered than illustrated). Figure 5, Placocarpus americanus K. Knudsen et al. Figure 6, Backbone Ridge area.
4. *Endococcus rugulosus* Nyl. s. str.*

**Notes.** – *Endococcus rugulosus* s. str. has small, dark brown, verruculose ascospores and occurs on *Verrucaria* species (Sérusiaux et al. 1999; Kocourková 2000; Kocourková & Knudsen in press.). Triebel’s circumscription of *E. rugulosus* is heterogeneous, characterized by smooth ascospores and occurring on numerous crustose genera (Triebel 1989). *Endococcus rugulosus* is reported as occurring in North America (Essling 2009), based on specimen collected on *Rhizocarpon geographicum* (L.) DC. (Sirois et al. 1988). Their report definitely refers to a different species of *Endococcus* and needs to be revised. Our collection is the first report of *E. rugulosus* s. str. from North America. The genus is obviously in need of a revision.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4.44′N, 118°38′41″W, 676 m, on *Verrucaria furfuracea*, 5.xii.2009, J. Kocourková s.n. & K. Knudsen (UCR, hb. Kocourková).

5. *Lichenconium lecanorae* (Jaap) D. Hawksw.*

**Notes.** – *Lichenconium lecanorae* is known from a large range of hosts from Asia, Europe and South America, and is probably widespread but infrequently collected in North America (Diederich 2003, 2004b; Kocourková 2000). We report it new to Santa Rosa Island.

**Specimens Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4.43′N, 118°38′43″W, 670 m, on *Xanthonoparmelia* species on sandstone, 22.xi.2009, J. Kocourková s.n. & K. Knudsen (hb. Kocourková); SANTA BARBARA CO.: Santa Rosa Island, Channel Islands National Park, above tributary of Water Canyon, below Wreck Road, 33°58′40″N 120°2′25″W, 142 m, on *Niebla homalea* on Jana’s Rock, 18.vii.2007, J. Kocourková s.n. & K. Knudsen (PRM 909707).

6. *Merismatium decolorans* (Rehm ex Arnold) Triebel

**Notes.** – *Merismatium decolorans* is a lichenized lichenicolous fungus known from a large range of hosts from Asia (China), Europe, and North America (Canada and Greenland) (Hansen & Obermayer 1999; Hafellner & Obermayer 1995; Triebel 1989). It grows on various muscicolous and terricolous lichens. In the Santa Monica Mountains we collected it on sandstone growing between squamules of the primary thallus of *Cladonia nashii* Ahti. We report it new to California.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4.44′N, 118°38′41″W, 676 m, on sandstone, on *Cladonia nashii*, 5.xii.2009, J. Kocourková s.n. & K. Knudsen (UCR).

7. *Myriospora heppii* (Nägeli ex Körb.) Hue


**Notes.** – The species is rare in southern California (Knudsen 2007c). Both Magnusson (1929) and Knudsen (2007b) who saw specimens that Hasse identified as *Acarospora aeruginosa* recognized Hasse’s species as a synonym of *Myriospora heppii*. Hasse collected the holotype of *A. aeruginosa* on sandy shale in “the foothills near the Old Soldier’s Home” in the Santa Monica Mountains (Hasse 1913; this information is lacking from packet). We recently rediscovered the species on calcareous sandstone at base of a hillside on a north slope. It was growing with a few perithecia of *Thelocarpon intermediellum* Nyl. [J. Kocourková s.n. w/ K. Knudsen & T. Sagar (UCR)]. It is worth noting that this is only the second record of *T. intermediellum* from California and it was lichenized (Knudsen & Lumbsch 2007).


8. *Ramonia ablephora* (Nyl. ex Hasse) R.C. Harris

**Notes.** – This species was originally collected in the Santa Monica Mountains and published by Hasse in his first checklist of southern California lichens (Hasse 1898). It was omitted from his flora (Hasse 1913) probably because he had sold his only specimens to New York Botanical Garden in 1905 and could not verify it for the flora. The species was considered as a historical record from the Santa Monica Mountains (Knudsen 2007a). Recently J.C. Lendemer rediscovered *Ramonia ablephora* in the San Jacinto Mountains (Lendemer et al. 2009). It is rare and currently known from only three sites in southern California, the other
two being in the Santa Monica Mountains, where we recently re-discovered it. In the field it looks similar to a Polysporina.

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4’44”N, 118°38’41”W, 676 m, on sandstone, 5.xii.2009, K. Knudsen 11839 & J. Kocourková (UCR); Malibu Creek State Park, trail to Lost Cabin, 34°5’02”N, 118°33’33”W, 244 m, on sandstone boulder along seasonal creek, 8.x.2009, K. Knudsen 11734 & T. Sagar (UCR).

9. *Sphaerellothecium cladoniae* (Alstrup & Zhurb.) Hafellner*

**Notes.** – This taxon was recently reported as new for North America as *Sphaerellothecium araneosum var. cladoniae* Alstrup & Zhurb. (Zhurbenko & Alstrup 2004) and is still included under the varietal name in the North American checklist (Esslinger 2009) but treated as a species by Hafellner (Hafellner et al. 2005). We report *S. cladoniae* new for California on *Cladonia nashii* Ahti.

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4’43”N, 118°38’43”W, 670 m, on *Cladonia nashii* on sandstone, 22.xi.2009, J. Kocourková s.n. & K. Knudsen (hb. Kocourková).

10. *Stigmidium ramalinae* (Müll. Arg.) Etayo & Diederich*

**Notes.** – Recently reported new for North America (Kocourková et al. 2010). The ascomata are small and easily overlooked.


11. *Verrucaria dacryodes* Nyl. ex Hasse

**Notes.** – This species is apparently endemic to the Santa Monica Mountains. This represents the first collection of *Verrucaria dacryodes* since the original Hasse collections. For a description see Breuss (2007). The ascospores are usually tear-shaped. The determination was verified by Othmar Breuss. The genus *Verrucaria* is very diverse in the Santa Monica Mountains. We have recorded 20 species including those treated in this paper (Breuss 2007; Knudsen 2007a; Knudsen et al. 2008; Knudsen & Kocourková 2009b). Hasse only recognized nine species of *Verrucaria* in all of southern California, including the calciphile *Bagliettoa caliscida* (DC.) Gueidan & Cl. Roux (Hasse 1913).

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Malibu Creek State Park, trail to Lost Cabin, 34°5’02”N, 118°33’33”W, 244 m, on sandstone boulder along seasonal creek, 8.x.2009, verified by Othmar Breuss, K. Knudsen 11741 & T. Sagar (UCR, hb. Breuss).

12. *Verrucaria inornata* Servit

**Notes.** – Collected on a ridge where the water settles on shale after rains. Determined by Othmar Breuss. This is the second collection of *Verrucaria inornata* from California; the other specimen was collected from the concrete of an old ranch cistern in the Santa Ana Mountains in Riverside County (Breuss 2007).

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Malibu Creek State Park, Phantom Trail, ridge above Liberty Canyon, 34°7’01”N, 118°43’43”W, 401 m, 7.x.2009, det. by Othmar Breuss, Knudsen 11719 (H, UCR, hb. Breuss).


**Notes.** – Relatively rare in southern California, previously known from the Santa Ana Mountains (Knudsen & Kocourková 2009c) and the Channel Islands (Breuss 2007). Hasse’s concept of *Verrucaria viridula* was applied to several taxa and we have seen no evidence yet that he actually collected *V. viridula*.

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Hepatic Gulch, near Schueren Road, 34°4’43”N, 118°38’43”W, 670 m, on sandstone, 22.xi.2009, K. Knudsen 11800 (UCR).

**Notes.** – We reported this lichenicolous fungus new for North America on *Xanthoparmelia mexicana* (Gyel.) Hale from the San Jacinto Mountains in southern California (Kocourková & Knudsen 2008). This is its second collection in North America.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Hepatic Gulch, near Schuern Road, 34°4’43”N, 118°38’43”W, 670 m, on *Xanthoparmelia* species on sandstone, 22.xi.2009, J. Kocourková s.n. & K. Knudsen (hb. Kocourková).

II – Historical Records

1. *Anisomeridium biforme* (Borr.) R.C. Harris

   (Syn. *Arthopyrenia parvula* Zahlbr., *Trimmatothele umbellulariae* Herre)

   **Notes.** – Two collections of this species from the Santa Monica Mountains, annotated by R.C. Harris, were found at the Farlow Herbarium. If it still occurs in the Santa Monica Mountains, it is expected to be rediscovered in riparian woodlands in moist canyon bottoms.

   **Specimens Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, Santa Monica Canyon, vi.1914, H.E. Hasse (FH); Malibu Canyon, on *Umbellularia californica*, viii.1898, (isotype of *Arthopyrenia parvula*) H.E. Hasse 1309 (FH).

2. *Arthonia albopulverea* Nyl. †

   (Syn. *Arthonia stictella* Stizenb. ex Hasse)

   **Notes.** – This non-lichenized fungus was collected on Catalina Island on *Lonicera* species and was described as *Arthonia stictella* Stizenb. ex Hasse (Hasse 1913), but it had been previously described by Nylander. It occurs around the Mediterranean in Europe and in California in North America. Hasse collected it in the Santa Monica Mountains on the bark of a native *Cercocarpus* species, *Juglans californica* S. Watson, and near Old Soldier’s Home on an unknown host (Sundin 1999). A specimen was recently collected in San Diego on the smooth bark of young branches of *Quercus agrifolia* Nee (Knudsen 10991, NY, UCR).

   **Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, on *Juglans californica*, 1911, H.E. Hasse (FH).

3. *Arthonia granosa* B. de Lesd. †

   **Notes.** – The only report of this non-lichenized fungus from North America is a Hasse collection from Sullivan Canyon on willow bark (Sundin 1999).

   **Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Sullivan’s Canán, on *Salix* species (as *Arthonia hibernica*), H.E. Hasse (FH).

4. *Arthonia glaucella* Nyl. †

   **Notes.** – This non-lichenized fungus was collected on grounds of the Old Soldier’s Home on smooth oleander bark by Hasse in 1899 and Sundin (1999) reported collections from the Santa Monica Mountains made by Hasse on *Quercus agrifolia*, *Heteromeles arbutifolia* (Lindley) Roemer, and *Juglans californica*. Hasse usually determined this species as *Arthonia galactitella* Nyl. (Hasse 1913) or *A. punctiformis* Ach.

   **Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Old Soldier’s Home, on oleander, 1898, Hasse 898 (FH); Santa Monica Mountains, vii.1910, Lichenes Exsiccati 2 (as *Arthonia punctiformis*), H.E. Hasse (FH).

5. *Arthonia pruinascens* (Zahlbr.) Grube †

   **Notes.** – This non-lichenized fungus was described from the Santa Monica Mountains growing on *Malacothamnus fasciculatus*. The name has been often misapplied and is known with certainty only from the type (Grube 2007).

**Notes.** – Hasse reported this lichen as *Arthonia impolita* (Hoffm.) Borr. from the Santa Monica Mountains (Hasse 1913). In the Farlow Herbarium, only one collection from the range was found on *Rhus integrifolia* (Nutt.) Brewer & S. Watson. It is the most common corticolous *Arthonia* in California.

**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Range, on *Rhus integrifolia*, 1898, H.E. Hasse 366 (FH).

7. *Arthonia pruinosaella* Nyl. ex Hasse †

**Notes.** – This allied fungus was described from an ornamental tree identified as *Cordia caudata* (current name of taxon unknown) and a probable ornamental *Datura* (NY) in the landscape of the Old Soldier’s Home (Hasse 1913) and is currently known from a 1988 collection in Valencia, Spain, on *Nerium oleander* L. (Sundin 1999). It has not been collected in California since 1899 (Sundin 1999). Two collections from Mexico are included in the *Lichen Flora of the Greater Sonoran Desert Region* without any note on phorophytes (Grube 2007). The holotype (H-NYL 5796) was collected at the Agricultural Experimental Station in November, 1897. It is not known if the fungus is native to California or was introduced, but *Arthonia glaucella* Nyl. (see above) was collected on both non-native and native phorophytes in the Santa Monica Mountains.

**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Agricultural Experimental Station near Santa Monica, on *Cordia* species, 1898, H.E. Hasse 875 (FH).

8. *Arthonia rhoidis* Zahlbr. †

**Notes.** – This non-lichenized fungus was described from *Malosma laurina* (Nutt.) Abrams on Catalina Island from a collection by Hasse. He also collected it in the Santa Monica Mountains on *Platanus racemosa* Nutt., *Salix lapsiolepsis* Benth., *Umbellularia californica* (Hook. & Arn.) Nutt. and *Juglans californica* (Sundin 1999).

**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Canõn, on *Juglans californica*, 12.vii.1914, H.E. Hasse (FH).

9. *Arthopyrenia plumbaria* (Steinzb. ex Hasse) R.C. Harris †

**Notes.** – This non-lichenized fungus was collected on various shrubs in California (Aptroot 2002) and sometimes may be lichenized.

**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Range, xii.1899, Lichenes Exsiccati 21 [as *Porina plumbaria* (Stizenb.) Hasse], H.E. Hasse (FH).

10. *Bacidia corusans* S. Ekman

**Notes.** – This species is common on bark and twigs of shrubs on the Channel Islands. Hasse collected it on *Juglans californica* and wrote on the packet “rare”.

**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, on *Juglans californica*, iii.1915, (as *Bacidia suffusa*), H.E. Hasse (FH).


**Notes.** – Ekman reported this species from Hasse’s collections in the Santa Monica Mountains (Ekman 1996). This species is included as an admixture in a specimen determined as *Bacidina ramea* (q.v.).

12. *Bacidina ramea* S. Ekman

**Notes.** – Ekman reported several specimens collected by Hasse in the Santa Monica Mountains (Ekman 1996). It is frequent in central California.

**Specimens Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, on bark, 1909 (as *Bacidia albescens*) with *B. heterochora*, annotated by Ekman, H.E. Hasse (MIN); LOS ANGELES CO.: Topanga Canyon, on *Umbellularia californica*, 1.iii.1908, (as *Bacidia effusa*), annotated by Ekman, H.E. Hasse (MIN).

**NOTES.** – This maritime species is common on the Channel Islands and along the coast from San Diego south along Baja California. Hasse collected it on sandstone.

**SPECIMEN EXAMINED.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Range, xii.1899, Lichenes Exsiccati 4 (as *Buellia alboatra* ssp. *saxicola*), H.E. Hasse (FH).

14. *Candelariella lutella* (Vain.) Räsänen

**NOTES.** – This polysporous corticolous species was not reported from southern California in the *Lichen Flora of the Greater Sonoran Desert Region* (Westberg 2004). It appears to need high annual relative humidity. We have collected it along Burma Road on Santa Rosa Island where it is rare and in Yosemite National Park on cottonwood trees along the Merced River where it is common.

**SPECIMEN EXAMINED.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, on smooth bark, 1910, H.E. Hasse (MIN).

15. *Catillaria glauconigrans* (Tuck.) Hasse

**NOTES.** – Hasse’s original determination was confirmed via comparison with Tuckerman’s type by W.G. Farlow. The species was reported by Hasse on poison oak, *Toxicodendron diversilobum* (Torr. & A.Gray) Greene (Hasse 1913). The only specific location listed by Hasse on some labels is Sepulveda Canyon.

**SELECTED SPECIMEN EXAMINED.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, vi. 1900, H.E. Hasse (FH).

16. *Catinaria atropurpurea* (Schaer.) Vězda & Poelt

**NOTES.** – Hasse originally reported *Catinaria atropurpurea* from a non-native Lombardy Pine near Ballona in Los Angeles County (Hasse 1913). The collection below looks like it is on the bark of a native phorophyte.


17. *Collema bachmanianum* (Fink) Degel.

**NOTES.** – This taxon was identified once from a Hasse collection from the Santa Monica Mountains by M. Schultz (Schultz et al. 2004). It can be easily confused with the common *Collema tenax* (Sw.) Ach., but differs in having lobulate apothecial margins and submuriform ascospores which become pale yellow or brown when mature.


**NOTES.** – A pioneer species of terricolous habitats, *Collema limosum* was collected by Hasse in the Santa Monica Mountains (Hasse 1913; confirmed by M. Schultz, pers. comm.) but has not been collected recently. It is a rare species in California currently only known from two collections by C. Bratt and K. Knudsen from central California, but on one packet sent to Merrill, Hasse wrote that it was “common”.

**SPECIMEN EXAMINED.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Range, H.E. Hasse (FH).


**NOTES.** – Probably collected on *Juglans californica*, the species was apparently common at the beginning of 20th century. The specimen was determined by M. Schultz.

**SPECIMEN EXAMINED.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Range, iii.1909, Lichenes Exsiccati 6 (as *Collema nigrescens*), annotated by M. Schultz, H.E. Hasse (FH).

20. *Fuscopannaria crustacea* P.M. Jørg.

**NOTES.** – The type specimens of this species (FH!) were collected by Herre in the Santa Cruz Mountains, where the species was probably common. Though not included in the *Lichen Flora of the Greater Sonoran Desert Region* treatment of *Fuscopannaria* (Jørgensen 2002), Jørgensen annotated one
Hasse collection from Santa Monica Mountains as *F. crustacea*. Hasse frequently collected *F. californica* (Tuck.) P.M. Jørg. Many cyanolichens become more common northwards from central California to British Columbia, but are rare in southern California.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, i.1899, Lichenes Exsiccati 17 (as Parmeliella lepidota), H.E. Hasse (FH!)


**NOTES.** – There are two collections of *Heppia lutosa* from the Santa Monica Mountains from 1895 made by Hasse in FH, both numbered 159, and determined by C.M. Wetmore.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, on soil, 1895 (as *H. despreauxii*), H. E. Hasse 159 (FH).

22. *Hypogymnia gracilis* McCune

**NOTES.** – Bruce McCune annotated a Hasse collection of *Hypogymnia* from the Santa Monica Mountains as *Hypogymnia gracilis* (NY).

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, iv.1912, H. E. Hasse (NY).

23. *Koerberia sonomensis* (Tuck.) Henssen

**NOTES.** – This cyanolichen grows on silicate rocks in moist conditions and the only known modern record from southern California is from the Channel Islands (Schoeninger 2002). Hasse reported it from Topanga Canyon (Hasse 1913).

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, 1909, H.E. Hasse (MIN).


**NOTES.** – This is a common species along the coast and on the Channel Islands of southern California and Baja California in Mexico. It occurs on the bark of various shrubs and trees as well as dead cacti, though is now often reduced to small populations and has been extirpated in some areas by coastal development (Egea & Torrente 1994).

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, on *Rhus integrifolia*, 1898, H.E. Hasse (FH).


**NOTES.** – The species was collected by Hasse on *Juglans californica* mixed with *Lecania crytella* (Ach.) Th. Fr. It is frequent on the Channel Islands.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, 1899, (as *Lecanora dimera*), det. by P. van den Boom, H.E. Hasse (FH).

26. *Lecania inundata* (Hepp ex Körb.) M. Mayrhofer

**NOTES.** – Collected by Hasse once on a hard rock type, not sandstone or granite.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, Rustic Canyon, xi.1906, (as *Lecanora polytropa*), H.E. Hasse (FH).

27. *Lecania rabenhorstii* (Hepp) Arnold

**NOTES.** – Collected by Hasse once on sandy shale; this species is infrequent in California.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, (as *Lecania arenaria*), H.E. Hasse 4148 (FH).


**NOTES.** – Hasse collected it on hard silicate rock. The varietal status is dubious.

**SPECIMEN EXAMINED.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, Santa Ynez Canyon, 1900, H.E. Hasse 742 (FH, isotype).
29. Lecanora crenulata Hook ex. Smith

Notes. – Lecanora hagenii and L. crenulata can look similar in southern California and are distinguished by ascospore width. Hasse’s specimen was on sandstone.

Specimen Examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, iv.1907, Lichenes Exsiccati 240 (as L. hagenii), annotated by L. Śliwa, H.E. Hasse (FH).

30. Lecanora subcarnea (Lilj.) Ach.

Notes. – This is a common saxicolous species on the north Channel Islands and on the coast of Baja California, Mexico.

Specimen Examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, 1.x.1906, Lichenes Exsiccati 217 (as Lecanora sordida), H. E. Hasse (FH).

31. Lecidea berengeriana (A. Massal.) Nyl.

Notes. – Hasse collected Lecidea berengeriana on moss on sandstone in the Santa Monica Mountains. He did not know the species and misdetermined it as a Toninia. The Farlow Herbarium has several Hasse collections of this species, all probably from Topanga Canyon.

Specimen Examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, 1895, H. E. Hasse 348 (FH).

32. Lecidea erythrophaea Flörke ex Sommerf.

Notes. – Hasse collected Lecidea erythrophaea in the canyons of the Santa Monica Mountains, including Topanga and Rustic Canyons, where it was apparently common at beginning of 20th century on the smooth bark of willows, Rhus species, and Umbellularia californica. We found the ascospore size to be in the lower range of variation that M. Schmull has recorded from European specimens (M. Schmull, pers. comm.)

Specimen Examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, Rustic Canyon, on Salix sp., 1.X.1906, H.E. Hasse (FH).

33. Lempholemma polyanthes (Bernh.) Malme

Notes. – Schultz (2004) reported Lempholemma polyanthes from Hasse’s exsiccati.

34. Leptogium biatorinum (Nyl.) Leight.

Notes. – One Hasse collection (ASU) from the Santa Monica Mountains was identified as Leptogium biatorinum by M. Schultz (Jørgensen & Nash 2004).

35. Letharia columbiana (Nutt.) J.W. Thomson

Notes. – We have reported Letharia vulpina (L.) Hue from the Santa Monica Mountains (Knudsen 2007) but Hasse’s Lichenes Exsiccati 64 (FH) is a large specimen of L. columbiana, a montane species in southern California, usually occurring above 6000 feet. It was probably a relic of the Little Ice Age or an early cooler moister period (for a similar example see Pseudocyphellaria anomala Brodo & Ahti in Knudsen & Kocourková 2009b).

Specimen Examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, iv.1910, Lichenes Exsiccati 64 (as L. vulpina), H.E. Hasse (FH).


(Syn. Maronea constans var. sublecideina A. Zahlbr. ex Hasse)

Notes. – Hasse’s specimens were collected in the area of Sherman Oaks on the bark of a Cercocarpus species. The specimen cited below is acid deficient (LaGreca 2006) and does not contain alectorialic acid as stated in the Lichen Flora of the Greater Sonoran Desert Region (Nash & Ryan 2007). It may represent a different taxon and needs further study using modern collections from the Santa Monica Mountains (Harris 2006), but so far no existing populations have been discovered.
37. *Megaspora verrucosa* (Ach.) Hafellner & V. Wirth

**Notes.** – This is another species of the montane element in the lichen biota of the Santa Monica Mountains and has probably been extirpated from the range.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, 1.x.1900, on bark, *Lichenes Exsiccati* 244 (as *Pertusaria wulfenii*), H.E. Hasse (FH).

38. *Massalongia microphylliza* (Nyl. ex Hasse) Henssen

**Notes.** – The species was described from the Santa Monica Mountains with the only modern collection made by B.D. Ryan on Catalina Island. We do not know the current location of his specimen (Nash 2002).

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, iv.1902, *Lichenes Exsiccati* 20, annotated by Henssen, H.E. Hasse (FH); Topanga Canyon, 1908, H.E. Hasse (FH).

39. *Niebla ceruchis* Rundel & Bowler

**Notes.** – This species was found as a mixture in a specimen with *Schismatoma pluriloculare* (Zahlbr.) Zahlbr. on *Rhus integrifolia*. Because *Niebla ceruchis* often occurs with *N. cephalota* (Ach.) Rundel & Bowler, which still is found in a small part of the range, this species will likely be rediscovered.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: beach near Santa Monica, on *Rhus integrifolia*, 1898, H.E. Hasse (FH).

40. *Opegrapha atra* Pers.

**Notes.** – From southern California this species was previously reported from San Miguel Island on the basis of collections made by T.H. Nash and determined by D. Ertz (Knudsen 2009).

**Specimen Examined.** – U.S.A. CALIFORNIA. SANTA MONICA MOUNTAINS, on *Platanus racemosa*, 1898 (as “*Opegrapha scripta f. victa*”), H.E. Hasse (MIN).

41. *Opegrapha herbarum* Mont.

**Notes.** – Though *Opegrapha umbellulariae* Zahlbr. was found on the smooth bark of *Umbellularia californica*, Hasse also collected *O. herbarum* on *U. californica*. *Opegrapha herbarum* is the most common *Opegrapha* species on trees and rock in central and southern California.

**Specimen Examined.** – U.S.A. CALIFORNIA. SANTA MONICA MOUNTAINS, on *Umbellularia californica*, 1895, (as *O. lichenoides*), H.E. Hasse 693 (FH).

42. *Opegrapha niveoatra* (Borr.) J.R. Laundon

**Notes.** – This species is known from the Santa Monica Mountains from at least two collections, one by Hasse at NY on *Quercus agrifolia*, determined by J.C. Lendemer, and a collection on *Juglans californica* collected by Leighton, probably a local botanist (FH). *Opegrapha vulgata* (Ach.) Ach. is separated from *O. niveoatra* by its longer conidia (Ertz & Egea 2007). They are sympatric in California based on distributional notes supplied by Damien Ertz.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, St. Ynez Canyon, on oak, (as *Arthonia impolita chiodectonoides*), H.E. Hasse 863 (NY); Santa Monica Mountains, on *Juglans californica* (as *O. pulicaris*), Leighton 404 (FH).

43. *Opegrapha umbellulariae* Zahlbr.

**Notes.** – This species was described from the bark of *Umbellularia californica* in the Santa Monica Mountains. It has been collected recently in Santa Barbara County by S. Tucker and verified by D. Ertz (Ertz & Egea 2007; S. Tucker, pers. comm.)
44. Opegrapha vulgata Ach.

Notes. – See Opegrapha niveoatra for differences with that taxon. A number of specimens at FH had no conidia and could be either species. The New York Botanical Garden has a specimen with conidia determined by J.C. Lendemer.

Specimen examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, Santa Monica Canyon, vi.1914, annotated by J.C. Lendemer, H.E. Hasse (NY).

45. Opegrapha xerica Torrente & Egea

Notes. – This species is widespread in the northern hemisphere and was collected by Hasse in the Santa Monica Mountains.

Specimen examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, vi.1914, Lichenes Exsiccati 39 (as O. atorimalis), H.E. Hasse (FH).

46. Peltula obscurans var. deserticola (Zahlbr.) Wetmore

Notes. – Hasse collected a very fine specimen of this variety on volcanic rock in Topanga Canyon. We are somewhat skeptical about the reduction of Peltula deserticola Zahlbr. to varietal status.

Specimen examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, vi.1913, Lichenes Exsiccati 60, annotated by C. M. Wetmore, H.E. Hasse (FH); Topanga Canyon, on trap rock (volcanic), 1904, annotated by C.M. Wetmore, H.E. Hasse 3018 (FH).

47. Peltula zahlbruckneri (Hasse) Wetmore

Notes. – This species usually occurs on granite. One Hasse collection is from volcanic rock in Topanga Canyon.

Selected specimen examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, Topanga Canyon, at 4 Oaks, annotated by C.M. Wetmore, H.E. Hasse (FH).

48. Pertusaria chiodectonoides Bagl. ex A. Massal.

Notes. – Reported by Dibben (1980) from Hasse collections from Rustic and Sepulveda Canyons in MICH-FINK and originally reported by Hasse as Pertusaria nolens Nyl. (Hasse 1913).

49. Pertusaria lecanina Tuck.

Notes. – This species is common on Quercus species and was reported by Dibben (1980) from a Hasse collection in US.

Specimen examined. – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, viii.1905, Lichenes Exsiccati 18, H.E. Hasse (FH).

50. Pertusaria leioplaca DC.

(Syn. Pertusaria leucostoma (Bernh.) Mass.)

Notes. – Reported by Dibben (1980) from Hasse collections, one from Topanga Canyon, at LAM.

51. Pertusaria pustulata (Ach.) Duby

Notes. – Reported by Dibben (1980) from Hasse collections, one from Topanga Canyon, at BM, LAM, MICH.

52. Pertusaria xanthodes Mull. Arg.

Notes. – Reported by Dibben (1980) from Hasse collection at WIS.

53. Phlyctis speirea G. Merr.

Notes. – The species was reported as Phlyctis argena by Hasse (1913) who collected it in Rustic Canyon and at the top of Santa Ynez Canyon on smooth oak bark.
54. **Physcia stellaris** (L.) Nyl.  
**Notes.** – This is another common corticolous species which is currently known only from historical records.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, vi.1906, Lichenes Exsiccati 68 (as *Physcia pulverulenta pityrea*), det. by T.L. Esslinger and annotated by S. La Greca, H.E. Hasse (FH).

55. **Physconia enteroxantha** (Nyl.) Poelt  
**Notes.** – The species has probably not been extirpated from the Santa Monica Mountains, but *Physconia isidiigera* (Zahlbr. ex Herre) Essl. predominates.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, viii.1906, Lichenes Exsiccati 68 (as *Physcia pulverulenta pityrea*), det. by T.L. Esslinger and annotated by S. La Greca, H.E. Hasse (FH).

56. **Physconia perisidosa** (Erichs.) Moberg  
**Notes.** – Collected by Hasse growing on moss and identified by T.L. Esslinger.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, 1904, H.E. Hasse (MIN).

57. **Polychidium muscicola** (Sw.) Gray  
**Notes.** – Hasse reported *Polychidium muscicola* on sandstone in Topanga Canyon (Hasse 1913). The species is represented by three collections at the Farlow Herbarium, none of which had specific locations in the range.

58. **Psorotichia montinii** (A. Massal.) Forss.  
**Notes.** – This is a small species, which can be easily overlooked. Hasse’s collection is on sandstone from Topanga Canyon.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, Topanga Canyon, ii.1910, (as *Pyrenopsis polycoccum*) H.E. Hasse 1278 (FH).

59. **Rhizocarpon macrosporum** Räsänen  
**Notes.** – *Rhizocarpon macrosporum* is common in the mountains of southern Califórnia and the collection from the Santa Monica Mountains is on granite, which is rare in the eastern portion of the range above Hollywood. Because of the substrate, it was probably rare in the range in Hasse’s period, and, like *Lecidea cinerata* Zahlbr. (Knudsen 2007), may have been extirpated by development. *Rhizocarpon macrosporum* is part of the montane element of the lichen biota of the Santa Monica Mountains.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: Santa Monica Mountains, iv.1899, Lichenes Exsiccati 72 (as *Rhizocarpon geographicum*), H.E. Hasse (FH).

60. **Schismatomma pluriloculare** (Zahlbr.) Zahlbr.  
**Notes.** – No undisturbed habitat exists on the beaches west of the city of Santa Monica along base of the Santa Monica Mountains. The area has been transformed by roads, houses, businesses, and even landslides. We suspect the cited specimen was collected in this area on *Rhus integrifolia*, a common shrub on the coast.  
**Specimen Examined.** – **U.S.A. CALIFORNIA.** LOS ANGELES CO.: beach near Santa Monica, on *Rhus integrifolia* with *Niebla ceruchis*, 1898, H.E. Hasse (FH).
61. *Schismatomma redivunta* (Hasse) Tehler

**Notes.** – In his revision of *Schismatomma*, Tehler (1993) examined five specimens from the Santa Monica Mountains collected by Hasse on *Juglans californica* (FH, US) and on *Umbellularia californica*, one from Santa Ynez Canyon (FH).

62. *Scoliciosporum umbrinum* (Ach.) Arnold

**Notes.** – Hasse collected *Scoliciosporum umbrinum* on sandstone. It is infrequent in southern California, but is expected to be rediscovered in the range.


63. *Sigridea californica* (Tuck.) Tehler

(Syn. *Dirina hassei* Zahlbr., *Schismatomma californicum* (Tuck.) Zahlbr.)

**Notes.** – Under both of the above synonyms, Hasse reported this species as “sparingly on *Quercus agrifolia*” and on *Malosma laurina* near the beach in the Santa Monica Mountains (Hasse 1913). The species is frequent along the coast and on the Channel Islands and is one of few lichens regularly found on *Eucalyptus* trees.

64. *Solenopsora crenata* (Herre) Zahlbr.

**Notes.** – Hasse reported *Solenopsora candicans* (Dickson) J. Steiner from Catalina Island on calcareous rock and from the Santa Monica Mountains on trap rock, i.e. volcanic rock (Hasse 1913). It is possible the Santa Monica Mountain collections were *S. crenata* (Herre) Zahlbr. which is more common in central California and on the Channel Islands. No specimens were found at FH.

65. *Sphinctrina turbinata* (Pers. ex Fr.) De Not.*

**Notes.** – Hasse collected *Sphinctrina turbinata* on a *Pertusaria* species on *Quercus agrifolia* but misdetermined the specimen as *S. microcephala* Nyl. Hasse (1913) reported *S. turbinata* only on a *Thelomma* species from Ballona Bluffs along Ballona Creek, a site that has been disturbed and which was the type locality of *Lecidea hassei* Zahlbr. and *Lecania fructigena* Zahlbr. This specimen is in FH and his identification was correct: *S. turbinata* occurring on a totally unexpected host. It is possible that the *Thelomma* was growing with one of the saxicolous *Pertusaria* species and *S. turbinata* crossed over to the *Thelomma*.

**Specimens Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, 1899, H.E. Hasse (MIN); LOS ANGELES CO.: Ballona Bluff, 1905, (on *Thelomma*) H.E. Hasse (FH).

66. *Stigmidium epixanthum* Hafellner*

**Notes.** – This is a wide-spread lichenicolous fungus on *Acarospora socialis* in southern California. We expect it to be rediscovered.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, iv.1910, Lichenes Exsiccati 127 (as *Acarospora xanthophana*), H.E. Hasse (FH).


(Syn. *Thelopsis subporinella* Nyl. ex Hasse)

**Notes.** – This lichen was collected by Hasse on *Umbellularia californica*.


68. *Thrombium aoristum* (Nyl.) Arnold

**Notes.** – Hasse reported *Thrombium epigaeum* (Pers.) Wallr. from the Santa Monica Mountains. The specimens that we have seen are in horrible shape, just dust. Othmar Breuss did get a good specimen from the Santa Monica Mountains and determined *T. aoristum* new for North America (Breuss 2002). The only specimen of *T. epigaeum* from California we have seen was recently collected at Point Loma.
(Knudsen & Kocourková 2009a). We are skeptical of other reports based on Hasse and Fink and we have not seen a report from Butte County determined by Shirley Tucker (Tucker & Ryan 2006).

69. **Toninia ruginosa** ssp. **pacific**a Timdal

**Notes.** – Hasse collected *Toninia ruginosa* ssp. *pacific*a Timdal (Timdal 2002) on sandstone and usually determined it as *T. aromatic*a (Sm.) A. Massal. (Hasse 1913). We have not collected *T. ruginosa* ssp. *pacific*a yet in the Santa Monica Mountains, but expect its rediscovery. Hasse collected *T. aromatic*a from Ballona Bluffs in Los Angeles County, an area which has been channelized and industrialized, but determined it as *T. cummulata* (Sommerf.) T. Fries. *Toninia aromatic*a has previously been reported from the Santa Monica Mountains (Knudsen 2007) where it appears to be rare at beginning of the 21st century, though it is quite common on the Channel Islands and to the south in the Santa Ana Mountains. Hasse’s reports of *T. coeruleonigric*ans (Lightf.) T. Fries are usually *T. submex*ic*ana* B. de Lesd., which he collected in the Santa Monica Mountains and which has also been reported in the 21st century (Knudsen 2007).

**Selected Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Mountains, (as *Toninia coeruleonigric*ans), H.E Hasse (FH).

70. **Verrucaria amylacea** Hepp

**Notes.** – Othmar Breuss determined a Hasse specimen of *Verrucaria amylacea* at W (Breuss, pers. comm.). All W collections examined by Breuss lacked specific locations in the Santa Monica Mountains. All *Verrucaria* species are expected to be rediscovered.

71. **Verrucaria dolosa** Hepp

**Notes.** – We have not collected this species yet, but it is expected. The specimen that we examined was identified as *Verrucaria integrell*a Nyl. by Nylander. Hasse reported *V. integrell*a from shale in the Santa Monica Mountains (Hasse 1913). We follow Breuss (2007) in separating *V. floerkeana* from *V. dolosa*. One Hasse collection at W was identified by Othmar Breuss as *V. dolosa* (Othmar Breuss, pers. comm.).


72. **Verrucaria floerkeana** Dalla Torre & Sarnth.

**Notes.** – Othmar Breuss determined a Hasse specimen as *Verrucaria floerkeana* at W (Breuss, pers. comm.). He reported it also from the Channel Islands (Breuss 2007).

73. **Verrucaria macrostoma** Duf. ex DC.

**Notes.** – Othmar Breuss determined a Hasse specimen as *Verrucaria macrostoma* at W (Breuss, pers. comm.).

74. **Verrucaria nigrescens** Pers.

**Notes.** – Othmar Breuss determined a Hasse specimen of *Verrucaria nigrescens* at W (Breuss, pers. comm.).

75. **Xanthomendoza fallax** (Hepp ex Arnold) Sochting, Kärnefelt & S. Kondr.

**Notes.** – The Hasse specimen was apparently collected on *Quercus agrifolia*.

**Specimen Examined.** – U.S.A. CALIFORNIA. LOS ANGELES CO.: Santa Monica Range, vii.1906, Lichenes Exsiccati 122 (as *Xanthoria lychnea*), H.E. Hasse (FH!)
CONCLUSION

We keep three separate diversity lists for the Santa Monica Mountains. The first is a list of all species of fungi studied by lichenologists (lichens, lichenicolous fungi, and selected allied fungi) that have been verified as occurring or having occurred in the Santa Monica Mountains. It is assumed that with the rapid changes of urbanization and the fragmentation and reduction of undisturbed habitats in southern California that no new fungus species studied by lichenologists have migrated into the range. This first list should give us a probable baseline of all the species that occurred in the range at the beginning of the 20th century. We report a total of 405 such taxa from the Santa Monica Mountains (354 lichens, 39 lichenicolous fungi, and 12 allied fungi). Though comparisons with Hasse’s findings are hard to make. He reported 300 taxa, including a large number infraspecific taxa (many of which were misidentified or reported under names that have subsequently been synonymized) from the Santa Monica Mountains (Hasse 1913). The second list is comprised of those taxa only known from historical collections made before 1915. Some taxa, especially many saxicolous lichens, may have been equally rare in Hasse’s time, and will eventually be rediscovered, like Ramonia ablephora reported in this paper. But a majority of these species may have been extirpated from the Santa Monica Mountains. We report a total of 94 such taxa (83 lichens, 3 lichenicolous fungi, 8 allied fungi). The third list is the consists of taxa documented as currently occurring in the range as a result of surveys at the beginning of the 21st century. We report a total of 311 such taxa (271 lichens, 36 lichenicolous fungi, and 4 allied fungi). This number represents our baseline for the beginning of the 21st century. The possible disappearance of 94 taxa from the biota of the Santa Monica Mountains cannot be attributed to one cause. Development, grazing, invasive plants, flood control, fire, mining, climate change and air pollution have all had effects. This needs further study.

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LITERATURE CITED


