

Acarospora epilutescens Rediscovered

KERRY KNUDSEN¹

ABSTRACT. – *Acarospora epilutescens* Zahlbruckner is assigned a neotype. *Acarospora albida* H. Magnusson is made a synonym of *A. epilutescens*. Its relation to *Acarospora epilutescens sensu* Hasse and Magnusson is discussed.

INTRODUCTION

The study of the genus *Acarospora* in North America is fraught with problems (Knudsen 2004a) and each problem needs to be carefully evaluated and corrected for the progressive development of *Acarospora* studies.

Acarospora epilutescens Zahlbruckner is an especially serious problem because the confusion obscures a valid taxon of the American southwest that is under-collected and possibly rare. Due to the errors of Weber (Knudsen 2004a and 2004b), *A. epilutescens* Zahlbruckner has become a synonym of *A. schleicheri* in the North American checklist. (Esslinger, 1997). The errors of Hasse and Magnusson discussed in this paper have further obscured the taxon. Most specimens filed *A. epilutescens* in herbaria are a variation of *Acarospora strigata* (Nylander) Jatta and were distributed by Hasse or are determinations based on this error or Magnusson's elaboration of this error.

TAXONOMIC TREATMENT

Acarospora epilutescens Zahlbruckner

Acarospora epilutescens Zahlbruckner, Beihefte zum Botan. Zentralbl., 13: 161. 1902. TYPE: Palm Springs, California, USA. *H.E. Hasse N816* (W, lost). NEOTYPE (**designated here**): Palm Springs, Riverside Co., California, USA. sine date; *H.E. Hasse s.n. = Lichenes Rariores Exsiccati*, 73. (W!).

Syn nov. *Acarospora albida* H. Magnusson, Monograph of the genus *Acarospora*, Kungli Svensk Vetenskapsakademiens Handlingar, ser. 2, 8(4): 73-74. 1929. TYPE: "In montibus Texanis", Texas, USA. sine date; *C. Wright s.n.* (UPS!, holotype).

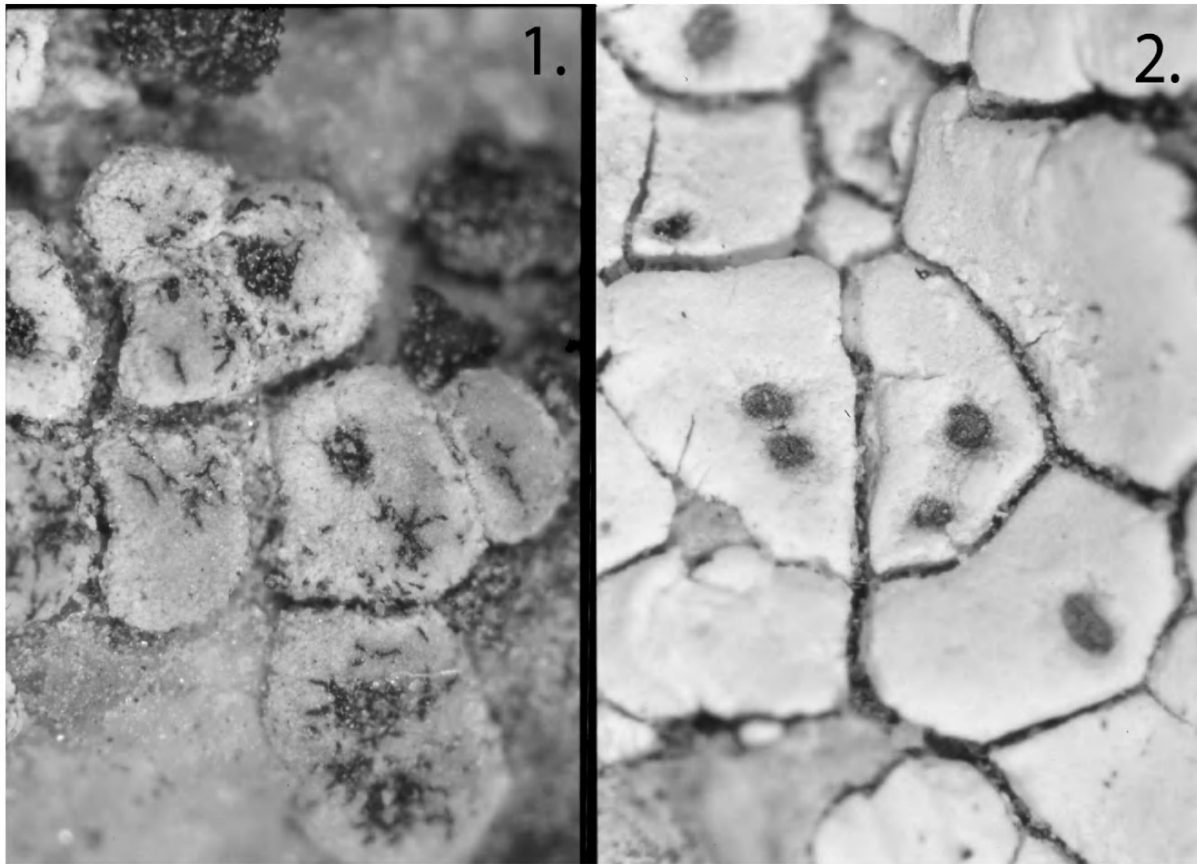
Acarospora epilutescens Zahlbruckner is known only from two locations: an un-dated collection from the east side of the San Jacinto Mountains at Palm Springs, California, from the holotype collection No. 816 by Hasse and probably another collection from the same area on a later trip by Hasse (fig. 1) used for the Zahlbruckner Exsiccati N72 (W). Zahlbruckner based the protologue on Hasse's collection No. 816. The other location is the "mountains of Texas" according to the annotation of Tuckerman on an un-dated, un-numbered Wright collection from Texas (UPS) (Fig. 2). I doubt if Zahlbruckner ever saw Wright's collection.

Acarospora epilutescens is a yellow *Acarospora* of the subgenus *Xanthothallia*. The areoles are covered with a fine pruinose coating that appears to be weddelite (Giordani et al., 2003). The yellow cortex is not visible until the areoles are wetted (Fig. 1).

The areoles are contiguous, ca. 0.3-1.0 mm. across, relatively thin, about 0.3-0.5 mm thick, broadly attached, with the lower surface under the rim ecorticate and white. The upper cortex is yellow, presumably containing rhizocarpic acid, and 30-50µm thick. The algal layer is composed of algal cells ±10µm in a continuous and even stratum ca. 100µm thick. The medulla's height varies with height of areole, is opaque in water and continuous with attaching plectenchyma. The upper surface of disc is relatively flat, round, blackish, and about 0.1-0.2 across. The hymenia I inspected are ca. 100-110µm high, the epihymenia 15µm thick, yellowish brown, paraphyses coherent in water, 1.5-2.0 in diameter at base and little expanded at apex. The

¹Kerry Knudsen: University of Riverside Herbarium, Department of Botany, University of California at Riverside, Riverside, California 92591 USA. – e-mail: kk999@msn.com

Fig. 1. Neotype of *Acarospora epilutescens* Zahlbruckner, Hasse s.n. (W), detail of pruinose areoles with surface crisscrossed with an undetermined fungus. **Fig. 2.** Holotype of *Acarospora albida* H. Magnusson, Wright s.n. (UPS), detail of densely pruinose areoles. (Photographs by R. Schoeninger)



asci are elongated clavate and polyspored. The mature spores I observed are broadly ellipsoid, $4.0\text{--}4.2 \times 2.0\text{--}2.5\mu\text{m}$. The only clear difference between my observations and the protologue is the height of the hymenium which Zahlbruckner described as “ $170\text{--}180\mu\text{m}$.” I have found large variation in hymenial heights in some species of *Acarospora*, while in other species the hymenial height is uniformly within a range of ca. $40\mu\text{m}$ in variation. Due to the lack of material, no conclusion can be drawn about this discrepancy between my observations and protologue. Since the protologue appears to be based on one specimen from California, only the collection of new specimens will allow an accurate understanding of the range of variation in the taxon.

The holotype Hasse designated as No. 816 (Zahlbruckner 1902) was undated (Magnusson 1929b). Zahlbruckner did not designate the location of the herbarium where it was deposited. Magnusson reported it at Vienna (Magnusson 1929b) and a search by Othmar Bruess could not locate it. The Zahlbruckner exsiccate (fig. 1) did not differ from Wright collection except its surface is crisscrossed with an undetermined fungus common on *Acarospora* species in California. The Zahlbruckner exsiccate at W is designated as the neotype. Because the Zahlbruckner exsiccate is not No. 816 it is assumed to be a later collection.

Herbaria with the Zahlbruckner exsiccata N73 should not automatically assume they have *Acarospora epilutescens* unless areoles have at least a fine white pruinose covering which when wetted reveals the yellow cortex of the areole. The reason for this warning is a serious case of mis-determinations has plagued this rare species. Hasse collected *Acarospora epilutescens*, with areoles of *Acarospora strigata* (Nylander) Jatta of the variation where the pruina is thin exposing the brown cortex. This variation is common on sun-baked granite on the east side of the San Jacinto Mountains. Hasse thought this was the species Zahlbruckner described. Throughout his career Hasse determined as *A. epilutescens* all epruinose or lightly pruinose squamules of *A. strigata*. Nonetheless herbaria should not automatically annotate them as *A. strigata* without checking for the real *A. epilutescens*.

Confused by both Zahlbruckner’s description and Hasse’s determinations, as well as mixture of species in the holotype, Magnusson described epruinose or lightly pruinose squamules of *A. strigata sensu* Hasse as *A.*

epilutescens (Magnusson 1929b), glossing over the lack of yellow in areoles he studied while mentioning in holotype *A. epilutescens* was mixed with a yellow *Acarospora*. He never corrected his error.

To further complicate the recognition of the true *A. epilutescens* Magnusson, earlier in his study of yellow *Acarospora* in North America (1929a), included Wright's collection as a paratype when he described *Acarospora subalbida* from a Hasse collection from Topanga Canyon in the Santa Monica Mountains in Los Angeles County, California. *Acarospora subalbida* H. Magnusson is actually a heavily pruinose variation of *Acarospora socialis* H. Magnusson and specimens of it from the Santa Monica Mountains were identified by Hasse as *A. xanthophana* (Nylander) Jatta form *dealbata* Tuckerman. For an authentic example of this form of heavily pruinose yellow *Acarospora*, see *Knudsen 1558* (UCR, hb. Lendemer) collected in the same area of the Santa Monica Mountains. *A. xanthophana* var. *dealbata* not determined by Hasse or not from Santa Monica Mountains are usually a variation of *A. strigata*. The main differences between the two species is *Acarospora socialis* H. Magnusson develops a thick stipe and corticate underside in mature squamules while *A. epilutescens* has areoles with narrow ecorticate underside broadly attached. The pruina on *A. socialis* often varies from a thick to thin coating and more often is completely lacking. It should be noted here that I use the name *A. socialis* H. Magnusson based on my own developing research. The most common yellow *Acarospora* in California, *Acarospora socialis* is included in *Acarospora bella* (Nylander) Jatta by Clauzade and Roux (1991). But I feel at this stage in my research *A. bella/A. xanthophana* is actually a terricolous yellow species of high elevations in the mountains of Bolivia and Chile, with rhizohyphae. It does not include at least two taxa occurring in Mexico and North America: *A. chrysops* (Tuckerman) H. Magnusson, and *A. socialis* H. Magnusson.

Magnusson was bothered by the fine weddellite pruina and apothecia of Wright's collection and changed his mind about it being *A. subalbida*. In his monograph (1929b) he described the new species *Acarospora albida* based on Wright's single collection. I recognize that Wright's specimen is the same species as Zahlbruckner's *A. epilutescens*, and designate *A. albida* is a synonym of the basionym *A. epilutescens*.

CONCLUSION

With this problem untangled, we can look clearly at *Acarospora epilutescens*. It is so far known from only two or three historic collections at two locations. Because of the distance between the two locations-- Palm Springs, California and some unknown mountains in Texas---I hope for its rediscovery in the field. Now that the taxon is clearly delineated, we may also find it determined as another species in herbaria. Only new specimens will allow a fuller evaluation of the species and its relation to other species of the Subgenus *Xanthothallia*.

ACKNOWLEDGEMENTS

I thank the ASU Lichen Herbarium where the author examined many yellow *Acarospora* types and specimens on loan from W, UPS and other herbaria for the Sonoran flora project. I thank T.L. Esslinger and G. Moore for their reviews. I thank S.C. Tucker for her corrections.

LITERATURE CITED

- Clauzade, L. & Roux, C. 1981. Les *Acarospora* De L'Europe Occidentale et La Region Mediterraneenne. Bulletin de la Musee Histoire Marseille, 41: 41-93.
- Esslinger, T.L. 1997. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. North Dakota State University: <http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm> (First posted 1 December 1997, Most Recent Update July 17, 2002), Fargo, North Dakota.
- Giordani, P., Modenesi, P. & Tretiach, M. 2003. Determinant factors for the formation of the calcium oxalate minerals, weddellite and whewellite, on surface of foliose lichens. The Lichenologist, 35: 255-270.
- Knudsen, K. 2004a. A Preliminary Study of *Acarospora smaragdula* var. *lesdainii* in California. Opuscula Philolichenum, 1: 21-24.
- Knudsen, K. 2004b. A Study of *Acarosporas* in the Lichen Flora of the Santa Cruz Peninsula by A.W.C.T. Herre. Bulletin of the California Lichen Society, 11:1: 10-15.
- Magnusson, H. 1929a. The Yellow Species of *Acarospora* in North America. Mycologia, 21:249-260.
- Magnusson, H. 1929b. Monograph of the genus *Acarospora*. Kungli Svensk Vetenskapsakademiens Handlingar, ser. 2, 8(4): 1-400.
- Zahlbruckner, A. 1902. Diagnosen neuer und ungenugend beschriebener kalifornischer Flechten. Beihefte Zum Botanischen Centralblatt, 13(1): 149-163.



Knudsen, Kerry. 2005. "Acarospora epilutescens rediscovered." *Opuscula philolichenum* 2, 11–14.

View This Item Online: <https://www.biodiversitylibrary.org/item/333960>

Permalink: <https://www.biodiversitylibrary.org/partpdf/381845>

Holding Institution

James Lendemer

Sponsored by

James Lendemer

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: James Lendemer

License: <https://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <http://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.