

Lecanora (Aspicilia) albopruinosa Looman is a synonym of *Circinaria contorta*

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ABSTRACT. – Material of *Lecanora albopruinosa* Looman was examined and found to belong to *Circinaria contorta*. This confirms the synonymy that was previously published seemingly without examination of the authentic material of *L. albopruinosa*. Further, *L. albopruinosa* Looman was found to be an illegitimate homonym of the European *L. albopruinosa* (Arnold) Nyl., which is a species of *Caloplaca*.

KEYWORDS. – Megasporaceae, North America, nomenclature, taxonomy.

INTRODUCTION

During the course of updating the taxonomy, nomenclature and distributions of lichen taxa in the USDA PLANTS online database (USDA, NRCS 2020) in 2017–2018, we encountered the name “*Aspicilia albopruinosa* (Looman)? ined.?” The presumed basionym for “*A. albopruinosa*” is *Lecanora albopruinosa* Looman, which was listed in the North American lichen checklist as “[*Lecanora albopruinosa* Looman]” under the genus *Aspicilia* A. Massal. at the time of our encounter (Esslinger 2018). The name “*A. albopruinosa*” has caused taxonomic confusion in certain online repositories such as the Consortium of North American Lichen Herbaria (CNALH 2020), which had primarily used USDA PLANTS as a taxonomic resource during our database project. Our search in CNALH, prior to a recent systematic update of taxonomy in that database (F. Bungartz, pers. comm., 18 Aug. 2020), revealed records of specimens listed as “*A. albopruinosa*”, “*L. albopruinosa* Looman” and “*L. albopruinosa* (Arnold) Nyl.”, none of which were treated as synonyms at the time. The two names of *L. albopruinosa* were also found in Index Fungorum with the Looman name listed as *nom. illeg.* and the (Arnold) Nylander name currently in *Caloplaca*. We also found *L. albopruinosa* Looman to be synonymized with *Circinaria contorta* (Hoffm.) A. Nordin, Savić & Tibell [= *Aspicilia contorta* (Hoffm.) Körber] in the Montana lichens checklist (McCune et al. 2014), but without specimen citations or discussion. The aim of the present contribution is to resolve the taxonomy of *L. albopruinosa*, specifically confirming whether it applies to material of *C. contorta*.

MATERIALS AND METHODS

We searched CNALH for specimens databased as “*Aspicilia albopruinosa*” or “*Lecanora albopruinosa*” and requested their loan for examination. Loaned material, from WIS and SRP, included two *L. albopruinosa* Looman specimens collected by J. Looman, one of which was a type (Fig. 1). Comparative material of *C. contorta* and *Caloplaca albopruinosa* was also examined from DUKE and FH. Specimens were studied at the University of North Carolina at Chapel Hill Herbarium (NCU). Material was examined under a Bausch & Lomb StereoZoom 5 dissecting microscope. Hand-cut sections of ascomata were

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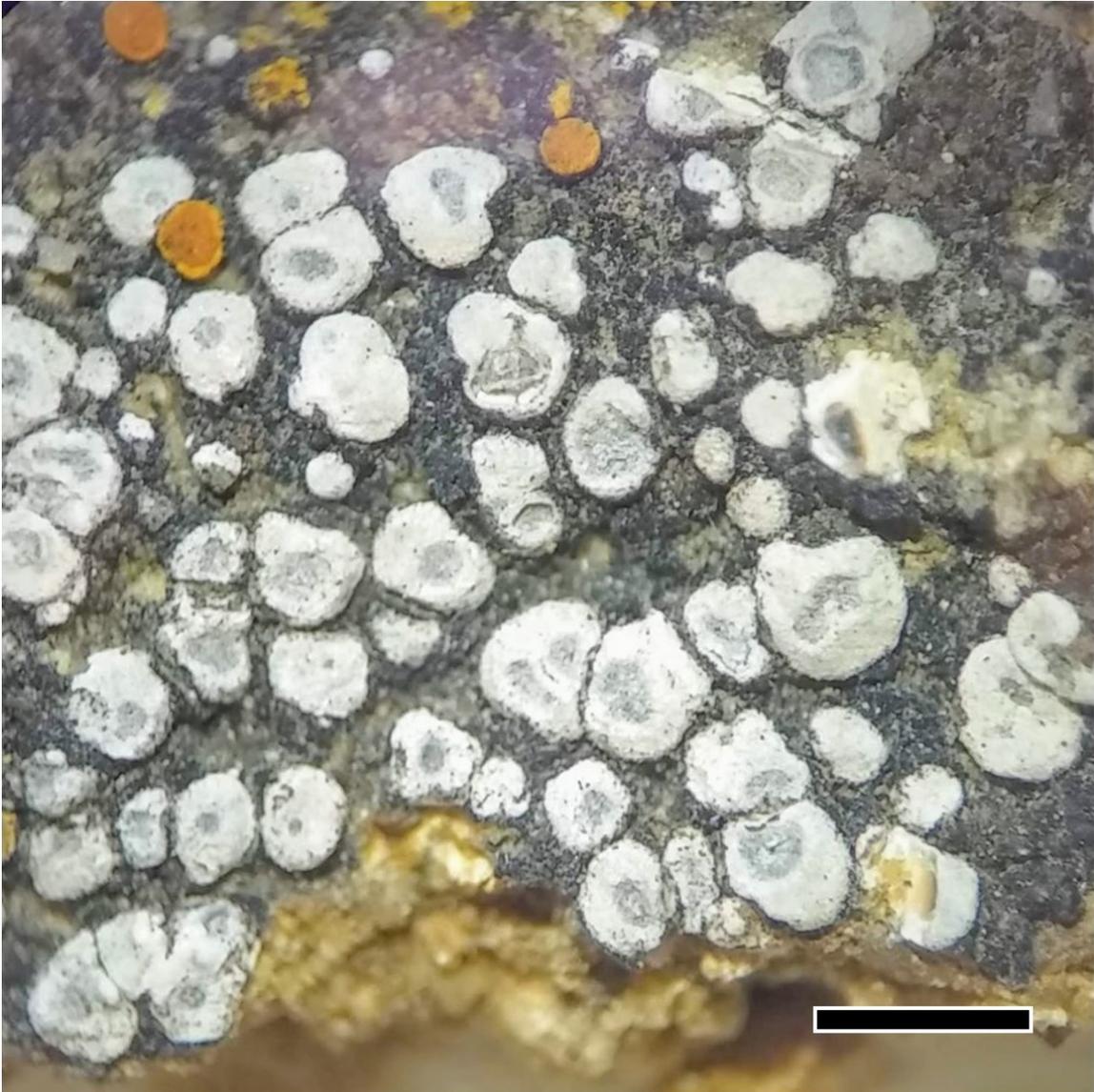


Figure 1. Morphology of isotype of *Lecanora albopruinosa* (Looman 600409, WIS). Scale = 2 mm.

mounted in water and 10% KOH, then examined under an Olympus CX43 compound microscope. Chemistry was studied with KOH spot tests. Specimen observations were compared with those of the borrowed reference specimens as well as taxonomic treatments in the literature.

RESULTS

All specimens identified as “*L. albopruinosa* Looman” or “*Aspicilia albopruinosa*” that we examined were found to belong to *Circinaria* Link, but various species, including one that is presumably undescribed (M. Sohrabi, pers. comm., 5 May 2018; see Appendix I). *Circinaria* was separated from *Aspicilia* based on the larger, broadly ellipsoid to subglobose spores that number < 8 per ascus, and shorter conidia (Nordin et al. 2010). Both Looman specimens were determined to be *C. contorta* after comparison with reference specimens of *C. contorta* and published treatments (Ekman & Froberg 1988; Owe-Larsson et al. 2007), in agreement with McCune et al. (2014). Thus, we formally treat *Lecanora albopruinosa* Looman as a synonym of *Circinaria contorta*.

DISCUSSION

In the mid-20th century Jan Looman published *L. albopruinosa* as a new lichen species from Saskatchewan, Canada, giving it the name *Lecanora (Aspicilia) albopruinosa* Looman (Looman 1962). The name *L. albopruinosa* was not in use when Looman published the name as Arnold's epithet had been combined in *Caloplaca* nearly 50 years prior (Olivier 1909). Further, *C. albopruinosa* (Arnold) H. Olivier is a European lichen (Wilk 2011) that was neither reported from North America at Looman's time (Hale & Culberson 1960) nor does it appear in the current North American lichen checklist (Esslinger 2019).

Looman placed *L. albopruinosa* in *Aspicilia*, which at that time was recognized as a subgrouping within the large genus *Lecanora* Ach. *Aspicilia* is distinguished from *Lecanora* by having immersed apothecia with I- ascus apical domes and often moniliform paraphyses (Owe-Larsson et al. 2007). Looman's description fits the above concept of *Aspicilia* in sharing those traits. Recently, *L. albopruinosa* Looman was listed as a synonym of *Circinaria contorta* (\equiv *Aspicilia contorta* (Hoffm.) Körb.) by McCune et al. (2014), and this was subsequently reflected in Esslinger (2019). Looman's description matches that of *C. contorta* (as *A. contorta*) in Owe-Larsson et al. (2007), which supports the synonymy. Our observations now confirm it.

Nordin et al. (2010) resurrected the genus *Circinaria* based on molecular phylogenetic analyses of the Megasporaceae, citing *C. contorta* as the type species. *Circinaria contorta* was first described by Hoffman (1790) as *Verrucaria contorta*. No type was designated, but a lectotype was subsequently selected from one of Hoffman's illustrations by Ekman and Froberg (1988). To date, Species Fungorum lists a total of 40 synonyms of *C. contorta*. *Lecanora (Aspicilia) albopruinosa* Looman adds to this list.

TAXONOMY

Circinaria contorta (Hoffm.) A. Nordin, S. Savic & Tibell, Mycologia 102: 1341. 2010. \equiv *Verrucaria contorta* Hoffm., Descr. pl. cl. crypt. 1(4): 97. 1790 ["Hoffm. 1790: Descript. et Adumbrat. Plant. Lich., vol.2, T 22:4"]. **TYPE:** illustration published by Hoffman (1790: T22:4[digital image!], lectotype designated by Ekman & Froberg 1998: 215³).

= *Lecanora (Aspicilia) albopruinosa* Looman *nom. illeg.* (Art. 53.1), The Bryologist 65: 300. 1962. **TYPE: CANADA. SASKATCHEWAN:** Saskatchewan Landing, elev. 2600 ft [792 m], 6 Jun. 1960, on calcareous sandstone, *J. Looman 600409* (SCS[n.v.], holotype; WIS!, isotype).

ACKNOWLEDGEMENTS

We thank the curators of DUKE, FH, SRP and WIS for lending material for study, and Carol Ann McCormick and Shanna Oberreiter of NCU for coordinating loan requests. Mohammed Sohrabi provided helpful insight into the genus *Circinaria* as well as examined material. Ted Esslinger kindly provided literature reporting where the lectotype of *C. contorta* was designated; Stephan Ekman, Jefferson Prado and James Lendemer helped clarify this leptotypification. Frank Bungartz and one anonymous reviewer provided helpful comments to an earlier draft of this paper; and we thank the Editor for making structural changes that improved the flow of this paper. This study was conducted as part of a contract between UNC-Chapel Hill and USDA NRCS to update the taxonomy, nomenclature and distribution of lichens occurring in the contiguous United States and outlying areas. Therefore, we thank Doug Goldman and Gerry Moore for the opportunity to carry out this project, and Alan Weakley for acting as the project's Principal Investigator.

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³After consulting Hoffman (1790), we found that Ekman & Froberg (1998) inadvertently cited volume two, not volume 1(4), in their leptotypification. Given that all other information provided in the lectotypification was correct and unambiguous, we treat this as a lapsus and automatically correctible error. The correct citation is given here.

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APPENDIX I – SPECIMENS LISTED AS *ASPICILIA ALBOPRUINOSA* OR *LECANORA ALBOPRUINOSA* IN CNALH EXAMINED FOR THIS STUDY

Specimen of Circinaria arida examined. – **U.S.A. COLORADO.** GRAND CO.: 6 km NW of Kremmling on Highway 40, 40°6' N, 106°25' W; T2N R81W S26, windswept, low calcareous ridge in broad valley, with scattered *Penstemon caespitosus* and *Artemisia nova*, elev. 2300 m, 17 Jun. 1995, on rock, *R. Rosentreter 9344* (SRP, originally identified as *Aspicilia albopruinosa*).

Specimens of Circinaria contorta examined. – **U.S.A. WYOMING.** CONVERSE CO.: [no locality given on label] open prairie vegetation on slopes with S-SW exposure, elev. 6000 ft [1829 m], 28 Jun. 1961, on sandstone, *J. Looman s.n.* (SRP, originally identified as *Lecanora albopruinosa*).

Specimen of Circinaria sp. nov. examined. – **U.S.A. IDAHO.** BUTTE CO.: 15 miles north of Howe, ID, *Artemisia nova* flats, 43°45' N, 113°00' W, elev. 5000 ft [1524 m], 15 Jul. 1992, on calcareous limestone gravels, *Rosentreter 7628b* (SRP, originally identified as *Aspicilia albopruinosa*).

Specimen of Circinaria sp. examined. **MONGOLIA. CHOGNO-TARNA UUL:** [no locality or habitat given on label] 26 Jun. 1983, *S. Huneck MVR 83-196* (SRP, originally identified as *Aspicilia albopruinosa*).