

## LICHENS FROM ICELAND IN THE COLLECTION OF SVANHILDUR SVANE

 Hörður KRISTINSSON<sup>1\*</sup>, Starri HEIÐMARSSON<sup>1</sup>, Eric Steen HANSEN<sup>2</sup>
<sup>1</sup>Icelandic Institute of Natural History, Borgum við Norðurslóð, IS-600 Akureyri, Iceland

<sup>2</sup>Botanical Museum, Natural History Museum of Denmark, University of Copenhagen, Gothersgade 130, DK-1123 Copenhagen K., Denmark

\*Corresponding author. E-mail: hkris@nett.is

## Abstract

Kristinsson H., Heiðmarsson S., Hansen E. S., 2014: Lichens from Iceland in the collection of Svanhildur Svane [Íslandijos kerpės Svanhildur Svane kolekcijs]. – Bot. Lith., 20(1): 14–18.

 Survey was made of the lichens collected by Svanhildur Svane in different parts of Iceland from 1949 to 1997 and deposited at the Botanical Museum of the University of Copenhagen (C). As a result, 11 species, *Agonimia tristicula*, *Aspicilia mashiginensis*, *Fuscidea tenebrica*, *Gyalecta flotowii*, *Lecania baeomma*, *Lithographa teserata*, *Pyrenopsis grumulifera*, *Rimularia fuscusora*, *Steinia geophana*, *Thelignya lignyota* and *Umbilicaria nylanderiana*, were recorded as new to Iceland, and 6 species were new to certain regions in Iceland as defined in the Nordic Lichen Flora.

**Keywords:** lichens, Iceland, Greenland, Svanhildur Svane.

## INTRODUCTION

 Svanhildur Jónsdóttir Svane is a botanist from Iceland, having worked most of her life at the University of Aarhus in Denmark. Within the botany she specialized mainly on lichens, and made many excursions to Iceland to collect lichens from 1949 to 1997. The results of her investigations on the Icelandic lichen flora were accumulated in her herbarium in Aarhus without being published. After her retirement from the University of Aarhus, the lichen collection was transferred to Copenhagen. In April 2008, the first author spent two weeks working on the collection from Iceland at the Copenhagen Herbarium, and borrowed some selected specimens that needed further investigation. The novelties resulting from that visit are presented below. Some of these have already been provisionally listed in a checklist of Icelandic lichens on [www.floraislands.is/PDF-skjol/Flettulisti-2009.pdf](http://www.floraislands.is/PDF-skjol/Flettulisti-2009.pdf), but without citation of specimens. Short

distribution notes are given for species, which are known from Greenland.

## MATERIALS AND METHODS

The results presented below are primarily based on microscopic examination of the collection of Svanhildur Svane deposited at the Copenhagen Herbarium (C). For some of the species hereby added to the lichen flora of Iceland samples were also discovered at the Herbarium of the Institute of Natural History in Akureyri (AMNH), and a few of the species were collected later by Anders Nordin on the Nordic Lichen Society excursion to Iceland in 2009 and are deposited at the Uppsala Herbarium (UPS). The division of Iceland into six provinces follows MOBERG (1999), with ISu for South Iceland, IVE for West Iceland, IMi for the Central Highlands, INv for the northwestern part, i.e. Vestfirðir Peninsula, INo for North Iceland and IAu for East Iceland.

## RESULTS AND DISCUSSION

## List of species

*Agonimia tristicula* (Nyl.) Zahlbr.

New to Iceland. Two specimens labelled as *Agonimia tristicula* were present in the Svane collection, one of which could be confirmed as this species. It contained several black perithecia with two-spored asci, 60–80 × 26–30 µm. No interascal filaments were present in the perithecia. It was overgrowing mosses. This species was collected again during the NLF-excursion in 2009 in Skógarnes, West Iceland by Anders Nordin (UPS, <http://www.gbif.org/occurrence/351690755>).

**Specimen examined: ICELAND, ISu:** *Árnessýsla*, near the waterfall Gullfoss in Hvítá. 9 July 1969, S. Svane 183 (C).

*Arctomia delicatula* Th. Fr.

New to IAU. In the Nordic Lichen Flora (JØRGENSEN, 2007a) this species is recorded from all regions of Iceland except IAU. In the Svane collection two specimens were found from the eastern part of the country. The related species, *Arctomia interfixa* (Nyl.) Vain., appears to be restricted to the north-western regions, IVE, INV and INO.

*Arctomia delicatula* has previously been reported from South West and North East Greenland (DAHL, 1950; LYNGE & SCHOLANDER, 1932; ALSTRUP et al., 2009). The species is fairly common on Disko Island in Central West Greenland according to many specimens collected by P. Gelting and deposited at the Herbarium C.

**Specimens examined: ICELAND, IAU:** *Suður-Múlasýsla*, between Breiðdalsvík and Berufjörður, Streitishvarf. 16 July 1992, S. Svane 9277 A (C); *Norður-Múlasýsla*, Fell, Hrafnsgærði. 28 June 1985, S. Svane 6354–1 (C).

*Aspicilia mashiginensis* (Zahlbr.) Oxner

New to Iceland. Four specimens in the Svane collection were identified by her as *Aspicilia mastrucata* (Wahlenb.) Th. Fr. Three of these were rather small and in poor condition, but one represented, in our opinion, relatively young, but well-developed thalli of *Aspicilia mashiginensis*. This species has not been recorded from Iceland before, but one specimen collected by the first author in the eastern Central High-

lands in 2000 has been identified as *A. mashiginensis* by Björn Owe-Larsson. Both these specimens seem to be identical: grey brown thallus with elevated ridges radiating towards the margin, and elevated warts growing out from each central areole. Finally, this species was again collected during the NLF-excursion in 2009 by Anders Nordin near Kattarfoss in the River Hítará, West Iceland (UPS, <http://www.gbif.org/occurrence/351724128>).

*Aspicilia mashiginensis* has previously been reported from North East Greenland (LYNGE, 1940; THOMSON, 1997) and South West Greenland (ALSTRUP et al., 2009). **Specimens examined: ICELAND, IVE:** *Snæfellsnessýsla*: Drápuhlíðarfjall S of Stykkishólmur, 250 m. 18 July 1966, Svane 7475–4 (C); – **ICELAND, IMi:** *Central Highlands*: N of Sauðá, E of Jökulsá á Brú. 10 August 2000, Kristinsson LA-26699 (AMNH).

*Cocotrema citrinescens* P. James & Coppins

New to IVE. This species was first discovered in Iceland during the Nordic Lichen Society excursion to Iceland in 1997 (KRISTINSSON, 1999). At this occasion it was found in three localities in East Iceland. In the Svane collection there was one sample collected in the southwestern part of Iceland already in 1990, suggesting that this may be a rather widely distributed, but overlooked species in Iceland. The sample contained soralia and plenty of cephalodia, but no apothecia.

**Specimen examined: ICELAND, IVE:** *Kjósarsýsla*: Near the main road by the bridge over the River Laxá. 10 July 1990, S. Svane, 8119 A (C).

*Euopsis pulvinata* (Schaer.) Vain.

New to INV. This species has been recorded in all regions of Iceland except INV (JØRGENSEN, 2007b) and all parts of Greenland except North Greenland. One sample was verified from Vestfirðir, INV in the Svane collection.

**Specimen examined: ICELAND, INV:** *Austur-Barðastrandasýsla*: Bæjarnesfjall between Kollafjörður and Kvígindisfjörður. 10 July 1985, S. Svane 6440–8 (C).

*Fuscidea tenebrica* (Nyl.) V. Wirth & Vězda

New to Iceland. Three specimens in the Svane collection had been referred to this species. One of

the samples was very fragmentary, but two of these could be confirmed as being *Fuscidea tenebrica*.

**Specimens examined: ICELAND, IMi:** *Central Highland*: By the River Grjótakvísl NW of Lake Þórisvatn. 28 July 1972, S. Svane 1290–7 (C); – **ICELAND, IAU:** *Austur-Skaftafellssýsla*: Lón, Þorgeirsstaðir. 16 July 1992, S. Svane 9312 A (C).

***Gyalecta flotowii* Körb.**

New to Iceland. One specimen could be verified in the Svane collection. It formed a whitish thallus on the bark of *Sorbus aucuparia*, richly fertile, the apothecia 0.3 mm in diameter. The spores were 8–15 × 6.5–8 µm, and showed some cell walls with the characteristic oblique arrangement. Another specimen was discovered in AMNH collected by S. Heiðmarsson in 2003 probably on *Salix* twigs.

**Specimens examined: ICELAND, IMi:** *Central Highlands*: Biskupstungur, N of Blönduvað. 28 July 2002, Starri Heiðmarsson LA-29763 (AMNH); – **ICELAND, INv:** *Barðastrandasýsla*: Vatnsfjörður, on the western slopes. 10 July 1985, S. Svane 6464–2 (C).

***Gyalidea fritzei* (Stein) Vězda**

New to IAU. This species was first recorded in Iceland from Surtsey, where it is widely distributed on the lava fields frequently visited by birds (KRISTINSSON & HEIDMARSSON, 2009). One specimen from the eastern coast of Iceland was present in the Svane collection. It was growing on rock near the lighthouse. This is the only specimen recorded outside Surtsey in Iceland.

**Specimens examined: ICELAND, ISu:** *Vestmannaeyjar Islands*: Surtsey, on lava rock in the western crater. 1990, Kristinsson LA-25447 (AMNH); Surtsey, on a vertical rift wall. 1994, Kristinsson LA-25365 (AMNH); Surtsey, SE of the western crater. 21 July 1998, Kristinsson LA-28808 (AMNH); Surtsey, on an oblique face of palagonite tuff. 19 July 2006, Kristinsson LA-30966 (AMNH); – **ICELAND, IAU:** *Suður-Múlasýsla*: Between Breiðdalsvík and Berufjörður, Streitishvarf, near the lighthouse. 16 July 1992, S. Svane 9290 A (C).

***Lecania baeomma* (Nyl.) P. James & J.R. Laundon**

New to Iceland. One specimen was found in the Svane collection correctly identified. It consisted mostly of a yellowish to white, very thin, sterile thal-

lus with bluish grey soralia. One large, thick apothecium was also present, dark brown to black and convex, 1 mm across. One-septate spores were seen, 11–15 × 3–5 µm.

**Specimen examined: ICELAND, IVe:** *Snæfellsnessýsla*: SW of Snæfellsjökull, Dritvík. 12 July 1974, S. Svane 2173–11 (C).

***Lithographa tesserata* (DC.) Nyl.**

New to Iceland. Three specimens are in the Svane collection, two of these very small, but apparently correctly identified. The thallus is creamy white, consisting partly of scattered areolae, partly of a contiguous, areolate thallus. All specimens are fertile, with black, elongated apothecia with central slit that is occasionally triangular. The species has previously been reported from South West Greenland (ALSTRUP, 1979).

**Specimens examined: ICELAND, ISu:** *Árnessýsla*: Heiðin há, N of Selvogur. 3 July 1951, S. Svane 6754-2 (C); – **ICELAND, IVe:** *Gullbringusýsla*: Hólmskraun, SE of Reykjavík. 8 August 1958, S. Svane 6865–3 (C); *Mýrasýsla*: Norðurárdalur, Grábrókarhraun. 19 July 1966, S. Svane 7483–4 (C).

***Pyrenopsis grumulifera* Nyl.**

New to Iceland. Two specimens in the Svane collection were labelled as *Pyrenopsis myriospora* E. Dahl, which is a synonym to *Pyrenopsis grumulifera* Nyl. We could verify the identification of one of these samples, from Hveravellir. It contained more or less closed apothecia with paraphyses and numerous ascospores within the asci. The size of ascospores was 4–5 × 2–3 µm. No apothecia were seen in the other sample, but a note from S. Svane within the sample stating the number and size of the ascospores indicated correct identification by her. *P. grumulifera* is known from South West and Central West Greenland (ALSTRUP, 1979).

**Specimens examined: ICELAND, IVe:** *Kjósarsýsla*: Kollafjörður, Mógilsá. 1 August 1969, S. Svane 290–4 (C); – **ICELAND, IMi:** *Central Highland*: Hveravellir on Kjölur. August 1951, S. Svane 6810–2 (C).

***Pyrenopsis haemalella* (Nyl.) Blomb. & Forsell**

New to ISu, IVe and INv. *Pyrenopsis haemalella* was first recorded from Iceland by P. M. JØRGENSEN

(2007b), based on two specimens from the Central Highlands. In the Svane collection six specimens had been identified as *Pyrenopsis impolita* (Th. Fr.) Forsell or *P. rhodosticta* (Taylor) Müll. Arg. In our opinion at least three of these belong to *P. haemalella*. They have open apothecia, eight-spored asci and a hymenium reacting I+ blue-green.

**Specimens examined:** ICELAND, ISu: *Árnessýsla*: Biskupstungur, Haukadalur, by the hot spring Geysir. 9 July 1969, S. Svane 180–2 (C); – ICELAND, IVe: *Kjósarsýsla*: Kjós, canyon near Tindastaðir. 1 August 1972, S. Svane 1345–1 (C); – ICELAND, INv: *Austur-Barðastrandasýsla*: Reykhólasveit, Bjarkarlundur. 27 July 1969, S. Svane 287–3 (C).

***Rimularia fuscosora*** Muhr & Tønsberg

New to Iceland. It is only known from one locality near Skaftafell, growing on bark of *Betula pubescens*. The specimen contains numerous, dark brown, spherical soralia, but no mature apothecia. Known from South Greenland (ALSTRUP et al., 2009)

**Specimen examined:** ICELAND, IAu: *Austur-Skaftafellssýsla*: Öraefi, Morsárdalur NW og Skaftafell. 5 July 1974, S. Svane 2063–6 (C, AMNH).

***Steinia geophana*** (Nyl.) Stein

New to Iceland. Two specimens were seen in the Svane collection. One was overgrowing a dead part of *Peltigera leucophlebia* (Nyl.) Gyeln., the other was growing on or around a young thallus of *Baeomyces rufus* (Huds.) Rebent. Both were richly fertile, forming semiglobose, black apothecia with reddish brown epithecium and almost spherical ascospores, 6–7.5 × 5–6.5 µm.

*Steinia geophana* is known from South West and Central West Greenland (ALSTRUP, 1986; ALSTRUP et al., 2009; KRISTINSSON et al., 2010).

**Specimens examined:** ICELAND, ISu: *Árnessýsla*: East of Þingvallavatn, Miðfell. On mosses around *Baeomyces rufus*. 23 June 1966, Svane 7449–4 (C); – ICELAND, IAu: *Norður-Múlasýsla*: Fljótsdalshérað, Hrafnsgærði. On dead *Peltigera leucophlebia*. 11–14 July 1992, Svane 9231 A (C).

***Thelidium submethorium*** (Vain.) Zschacke

New to INv. The genus *Thelidium* was discovered recently in Iceland. *T. submethorium*, along with

*T. methorium* (Nyl.) Hellb. and *T. cf. papulare* were listed in IVe (HEIDMARSSON et al., 2012). The specimen has a brown thallus, moderate involucrellum and one-septate, hyaline spores 25–28 µm long.

**Specimen examined:** ICELAND, INv: *Vestur-Ísafjarðarsýsla*: Arnarfjörður, Dynjandisvogur in Borgarfjörður. Along the River Dynjandisá. 26 July 1969, S. Svane 263–1 (C).

***Thelignya lignyota*** (Wahlenb.) P.M. Jørg. & Henssen

New to Iceland. Two specimens of the Svane collection were identified by her as *Porocyphus dispersus* E. Dahl, which is a synonym of *Thelignya lignyota*. One of these could be verified as that species. The apothecia had a bright blue-green epithecium as well as the upper part of the hymenium, and the size of ascospores were 7–10 × 5–6.5 µm. The species was collected again near Kattarfoss in the River Hítará in West Iceland during the NLF-excursion to Iceland in 2009 by Anders Nordin (UPS, <http://www.gbif.org/occurrence/328333999>). *T. lignyota* has previously been reported from South West and Central West Greenland (DAHL, 1950; ALSTRUP, 1986; HANSEN, 2004; ALSTRUP et al., 2009).

**Specimen examined:** ICELAND, IVe: *Snæfellsnesýsla*: SW of Snæfellsjökull, Dritvík. 12 July 1974, S. Svane 2071–3 (C).

***Umbilicaria nylanderiana*** (Zahlbr.) H. Magn.

New to Iceland. This species was collected by S. Svane in two localities close to the farm Hrafnsgærði, where she was brought up, along the River Lagarfljót in the eastern part of Iceland. That is the only locality of the species known in Iceland.

*U. nylanderiana* is widely distributed in South East, Central West and North West Greenland (HANSEN, 2002, 2004, 2012).

**Specimens examined:** ICELAND, IAu: *Norður-Múlasýsla*: Hrafnsgærði, Fellum, cliffs within the protected area. 28 June 1985, S. Svane 6362–3 (C); Hrafnsgærði, Fellum, along the River Lagarfljót. 29 June 1985, S. Svane 6371–1 (C).

ACKNOWLEDGEMENTS

This research was made possible through grant DK-TAF-4284 from the SYNTHESYS Project <http://>

www.synthesys.info/, which is financed by European Community Research Infrastructure Action under the FP6 „Structuring the European Research Area“ Programme.

## REFERENCES

- ALSTRUP V., 1979: Notes on selected Greenlandic lichens. – *Botanisk Tidsskrift*, 74: 155–163.
- ALSTRUP V., 1986: Contributions to the lichen flora of Greenland. – *International Journal of Mycology and Lichenology*, 3: 1–16.
- ALSTRUP V., KOCOURKOVÁ J., KUKWA M., MOTIEJŪNAITĖ J., BRACKEL WV., SUIJA A., 2009: The lichens and lichenicolous fungi of South Greenland. – *Folia Cryptogamica Estonica*, 46: 1–24.
- DAHL E., 1950: Studies in the macrolichen flora of South West Greenland. – *Meddelelser om Grønland*, 150: 1–176.
- HANSEN E.S., 2002: Lichens from Inglefield Land, NW Greenland. – *Willdenowia*, 32: 105–125.
- HANSEN E.S., 2004: Notes on some new and interesting Greenland lichens VI. – *Graphis Scripta*, 15: 1–6.
- HANSEN E.S., 2012: Lichens from five localities in South-East Greenland and their exposure to climate change. – *Bibliotheca Lichenologica*, 108: 123–134.
- HEIDMARSSON S., ALSTRUP V., HÖGNABBA F., MOTIEJŪNAITĖ J., NORDIN A., PYKÄLÄ J., SUIJA A., TIMDAL E., WESTBERG M., 2012: Floristic news from the NLF Iceland excursion 2009. – *Graphis Scripta*, 24(1): 19–25.
- JØRGENSEN P.M., 2007a: Arctomiaceae. – In: *Nordic Lichen Flora*, 3: 9–11. – Uddevalla.
- JØRGENSEN P.M., 2007b: Lichinaceae. – In: *Nordic Lichen Flora*, 3: 46–76. – Uddevalla.
- KRISTINSSON H., 1999: The 12th meeting of the Nordic Lichen Society in Eiðar, Iceland 1997. – *Graphis Scripta*, 11(1): 13–21.
- KRISTINSSON H., HEIDMARSSON S., 2009: Colonization of lichens on Surtsey 1970–2006. – *Surtsey Research*, 12: 77–80.
- KRISTINSSON H., ZHURBENKO M., HANSEN E.S., 2010: Panarctic checklist of lichens and lichenicolous fungi. – In: *CAFF Technical Report*, 20: 1–120. – Akureyri.
- LYNGE B., 1940: Lichens from North East Greenland collected on the Norwegian scientific expeditions in 1929 and 1930. II. Microlichens. – *Skrifter om Svalbard og Ishavet*, 81: 1–143.
- LYNGE B., SCHOLANDER P.F., 1932: Lichens from North East Greenland collected on the Norwegian scientific expeditions in 1929 and 1930. I. – *Skrifter om Svalbard og Ishavet*, 41: 1–116.
- MØBERG R., 1999: Provinces and maps. – In: *Nordic Lichen Flora*, 1: 17–19. – Uddevalla.
- THOMSON J.W., 1997: American arctic lichens. II. The microlichens. – *Wisconsin*.

## ISLANDIJOS KERPĖS SVANHILDUR SVANE KOLEKCIJOJE

**Hörður KRISTINSSON, Starri HEIDMARSSON, Eric Steen HANSEN**

### Santrauka

Svanhildur Svane, islandų kilmės Danijoje dirbusios lichenologės kerpių kolekcija laikoma Kopenhagos universiteto Botanikos muziejaus herbariume (C). Patikrinus dalį šios kolekcijos, kuri buvo surinkta įvairiose Islandijos vietovėse tarp 1949 ir 1997 metų, buvo nustatyta, kad tarp surinktų pavyzdžių yra 11 rūšių kerpės, kurios iki šiol Islandijoje nebuvo

aptiktos: *Agonimia tristicula*, *Aspicilia mashiginensis*, *Fuscidea tenebrica*, *Gyalecta flotowii*, *Lecania baeomma*, *Lithographa tesserrata*, *Pyrenopsis grumulifera*, *Rimularia fuscocora*, *Steinia geophana*, *Thelignya lignyota* ir *Umbilicaria nylanderiana*. Dar šešios rūšys buvo naujos atskiriems šalies regionams.