

霧多布湿原の地衣類

韓国淑明女子大学自然科学研究所
文 光喜

要旨

本調査は、霧多布湿原の地衣相を明らかにすることを目的とする。これまでに同地域で採集され国立科学博物館に保管されている標本および1999年9月に行った追加調査で得られた標本約860点をもとに検討した結果、53属145種1亜種3品種の地衣類を確認した。

Abstract

As the results of taxonomic study of ca 860 specimens collected in Kiritappu Marsh and its adjacent areas, 149 (53 genera 145 species 1 subspecies 2 forma) taxa of lichens are recognized. The number of species is rather small when it is compared with those from Kushiro Marsh or from Mt. Akan. This small number could be caused by the absent of saxicolous habitat and the lack of high mountains which provide more species rich habitats. Most of the taxa found in the present area are common in lowland of other areas in Hokkaido. One specimen of the genus *Ocellularia*, a corticolous crustose lichen, is very interesting taxonomically. It has sorediate white thallus with submuriform spores and contains psoromic acid. This species will be described as new to science after additional study. One species of *Usnea* has sorediate branches and contains salazinic acid. It resembles *U. fragilescens* Lynge, but has different chemistry. *Parmotrema tinctorum* is a new record for the lichen flora in Hokkaido.

方法

本研究は、霧多布湿原で1997年7月に荒川が採集した地衣標本398点と文が1999年9月に実施した再調査時に採集した463点をもとに行った。収集した資料は全て水洗後乾燥さく葉標本として国立科学博物館に保管した。調査地点は図1に示したとおりである。地衣類成分の検出は呈色反応(color reaction)、薄層クロマトグラフ法(Thin Layer Chromatography)、紫外線照射法(fluorescence analysis)と顕微化学的手法(microchemical test)を用いた。

結果

本調査で霧多布湿原には53属145種1亜種3品種が生育していることがわか

った。Bacidia, Buellia, Caloplaca, Lecanora, Lecidea, Lecidella, Lepraria, Micarea, Ocellularia, Rinodina, Pseudopyrenula, Thelotrema 等の固着地衣は日本における分類学的研究が進んでいないので、まちがいなく同定できた種以外はリストからは除外した。

1. 採集地点のりすと。() 内は調査地点を示す。

Chanai (A1): Prov. Kushiro: Chanai, Hamanaka-cho, Akkeshi-gun (43°06'N, 145°00' E). On bark of Quercus crispula; elevation about 40 m. September 3, 1999

Chiripu-mura to Akkeshi-cho 70 (A2): Prov. Kushiro: ca 6 km of Chiripu-mura to Akkeshi-cho, Akkeshi-gun (43°00'N, 145°01' E). Elevation about 70 m. September 3, 1999

Chiripu-mura to Akkeshi-cho 50 (A3): Prov. Kushiro: ca 9 km of Chiripu-mura to Akkeshi-cho, Akkeshi-gun (43°00'N, 145°00' E). The forest preserve of Abies sachalinensis. On bark of Abies sachalinensis; elevation about 50 m. September 3, 1999

Fukushima (A4): Prov. Kushiro: Fukushima, Biwase-mura, Hamanaka-cho, Akkeshi-gun (43°05'N, 145°00' E). On bark of Abies sachalinensis; elevation about 75 m. September 1, 1999

Hillside Abies sachalinensis (A5): Prov. Kushiro: Hillside faced to Kiritappu Marsh, Hamanaka-cho, Akkeshi-gun (43°04'N, 145°02' E). Secondary forest dominated by Abies sachalinensis and Picea glehnii. Elevation 20-40 m. September 2, 1999

Hillside Alnus hirsuta (A6): Prov. Kushiro: Hillside faced to Kiritappu Marsh, Hamanaka-cho, Akkeshi-gun (43°04'N, 145°03' E). Secondary forest with scattered Alnus hirsuta. Elevation 20-40 m. September 2, 1999

Kiritappu (A7): Prov. Kushiro: 2.8 km S of Kiritappu-mura, Hamanaka-cho, Akkeshi-gun (43°04'N, 145°05' E). Elevation about 10 m. September 1, 1999

Riverside (A8): Prov. Kushiro: Riverside of Tokitai, Hamanaka-cho, Akkeshi-gun (43°02'N, 144°58' E). Elevation about 50 m. September 3, 1999

Sakaki (A9): Prov. Kushiro: 2 km S of Sakaki-machi, Hamanaka-cho, Akkeshi-gun (43°06'N, 145°06' E). On bark of Quercus crispula; elevation about 10 m. September 1, 1999

2. 確認できた種は以下の通りである。

1. Anaptychia isidiza (Kurok.) Kurok.; occasional, on bark of Abies sachalinensis, Fraxinus mandshurica var. japonica and Alnus japonica. Fukushima: KM 4086 and KM 4123. Hillside Abies sachalinensis: KM 4268. Hillside Alnus hirsuta: KM 4388.

2. Anzia colpota Vain.; locally common on bark of Abies sachalinensis and Alnus hirsuta and on decayed wood. Chiripu-mura to Akkeshi-cho 50: KM 4507. Chiripu-mura to Akkeshi-cho 70: KM 4461.
Fukushima: KM 4128, KM 4155 and KM 4162.
3. Anzia japonica (Tuck.) Müll. Arg.; rare, on decayed wood. Fukushima: KM 4089.
4. Anzia opuntiella Müll. Arg.; common on bark of Acer sp. and on decayed wood. Chiripu-mura to Akkeshi-cho 70: KM 4474. Fukushima: KM 4144.
5. Anzia ornata (Zahlbr.) Asahina; rare, on bark of Alnus japonica. Hillside Alnus hirsuta: KM 4385.
6. Brigantiaea ferruginea (Müll. Arg.) Kashiw. & Kurok.; rare, on bark of Fraxinus lanuginosa. Hillside Alnus hirsuta: KM 4392.
7. Bryoria trichodes (Michaux) Brodo & D. Hawksw. subsp. americana (Mot.) Brodo & D. Hawksw.; locally common on bark Abies sachalinensis. Chiripu-mura to Akkeshi-cho 50: KM 4508, KM 4512 and KM 4516.
8. Buellia disciformis (Fr.) Mudd; occasional on bark of Picea glehnii. Fukushima: KM 4150
9. Calicium abietinum Pers.; occasional on decayed wood of Abies sachalinensis. Hillside Alnus hirsuta: KM 4441. Riverside: KM 4530.
10. Cetrariastrum cirrhatum (Fr.) W. L. Culb. & C. F. Culb.; very rare, on bark of Abies sachalinensis. Chiripu-mura to Akkeshi-cho 70: KM 4483.
11. Cetrelia braunsiana (Müll. Arg.) W. L. Culb. & C. F. Culb.; very common on bark of Abies sachalinensis, Alnus japonica, Betula ermanii, Fraxinus lanuginosa and Sorbus commixta and on decayed wood. Chiripu-mura to Akkeshi-cho 50: KM 4513 and KM 4515. Chiripu-mura to Akkeshi-cho 70: KM 4453 and KM 4475. Fukushima: KM 4090, KM 4101, KM 4163 and KM 4183. Hillside Alnus hirsuta: KM 4395, KM 4413, KM 4414 and KM 4431. Riverside: KM 4531.
12. Cetrelia chicitae (W. L. Culb.) W. L. Culb. & C. F. Culb.; rather rare, on bark of Abies sachalinensis and Alnus hirsuta. Hillside Alnus hirsuta: KM 4433 and KM 4439.
13. Cetrelia olivetorum (Nyl.) W. L. Culb. & C. F. Culb.; rare, on bark of Alnus japonica. Hillside Alnus hirsuta: KM 4382.
14. Chrysothrix candelaris (L.) J. R. Laundon; rare, on bark of Prunus yedoensis. Riverside: KM 4517.
15. Cladonia furcata Hoffm.; common on decayed wood and on soil. Fukushima: KM 4126 and KM 4165. Kiritappu: KM 4200 and KM 4798.

16. Cladonia hondoensis Asahina; rare, on soil. Kiritappu: KM 4204.
17. Cladonia macilenta Hoffm.; locally common on soil. Kiritappu: KM 4197 and KM 4207.
18. Cladonia ochrochlora Flörke; common on bark of Abies sachalinensis and Alnus japonica and on decayed wood and soil. Chiripu-mura to Akkeshi-cho 50: KM 4501. Hillside Alnus hirsuta: KM 4391, KM 4404, KM 4419, KM 4421 and KM 4543. Kiritappu: KM 4206.
19. Cladonia pleurota (Flörke) Schaer; locally common on soil. Kiritappu: KM 4196, KM 4199 and KM 4203.
20. Cladonia rei Schaerer; very rare, on soil. Kiritappu: KM 4205.
21. Coccocarpia palmicola (Sprengel) Arvis. et Gall.; rare. Prov. Kushiro: South edge of Kumaushi plain, Hamanaka-cho, Akkeshi-gun, elevation about 60 m, on bark of Quercus crispula, Arakawa 1595.
22. Collema complanatum Hue; very common on bark of Alnus hirsuta, A. japonica, Fraxinus mandshurica var. japonica and Juglans mandshurica var. sachalinensis and on decayed wood. Chiripu-mura to Akkeshi-cho 70: KM 4455. Fukushima: KM 4122. Hillside Abies sachalinensis: KM 4237, KM 4290, KM 4296 and KM 4341. Hillside Alnus hirsuta: KM 4415.
23. Collema leptaleum Tuck.; rare, on bark of Picea glehnii with mosses. Chiripu-mura to Akkeshi-cho 70: KM 4451.
24. Collema subflaccidum Degel.; common on bark of Alnus japonica and Fraxinus mandshurica var. japonica. Chiripu-mura to Akkeshi-cho 70: KM 4454. Hillside Abies sachalinensis: KM 4269 and KM 4344. Hillside Alnus hirsuta: KM 4410 and KM 4423.
25. Dimerella cf. pineti (Ach.) Vězda; very rare, on bark of Picea glehnii. Chiripu-mura to Akkeshi-cho 70: KM 4499.
26. Evernia prunastri (L.) Ach.; occasional, on bark of Abies sachalinensis and Picea glehnii. Hillside Abies sachalinensis: KM 4368. Riverside: KM 4519B and KM 4533.
27. Flavoparmelia caperata (L.) Hale; locally common on bark of Picea glehnii. Hillside Abies sachalinensis: KM 4372.
28. Graphina inabensis (Vain.) Zahlbr.; locally common on bark of Abies sachalinensis and Sorbus commixta and on decayed wood. Fukushima: KM 4102, KM 4108, KM 4157 and KM 4182.
29. Graphis rikuzensis (Vain.) M. Nakan.; abundant on bark of Abies sachalinensis and Phellodendron amurense and on decayed wood. Chiripu-mura to Akkeshi-cho 70:

KM 4464. Hillside *Abies sachalinensis*: KM 4211, KM 4233, KM 4256 and KM 4328.
Hillside *Alnus hirsuta*: KM 4403

30. *Graphis scripta* (L.) Ach.; abundant on bark of *Abies sachalinensis* and *Alnus japonica*. Chiripu-mura to Akkeshi-cho 70: KM 4487. Hillside *Abies sachalinensis*: KM 4215 and KM 4248. Hillside *Alnus hirsuta*: KM 4424. Riverside: KM 4532.

31. *Graphis tenella* Ach.; abundant on bark of *Abies sachalinensis*. Fukushima: KM 4116 and KM 4172. Hillside *Abies sachalinensis*: KM 4281 and KM 4357.

32. *Haematomma ochrophaeum* (Tuck.) Massal.; locally common on bark of *Alnus japonica* and *Fraxinus lanuginosa*. Hillside *Alnus hirsuta*: KM 4400 and KM 4426.

33. *Heterodermia diademata* (Taylor) D. D. Awasthi; rare, on decayed wood. Hillside *Abies sachalinensis*: KM 4340.

34. *Heterodermia hypoleuca* (Muhl.) Trevis; abundant on bark of *Abies sachalinensis*, *Alnus japonica*, *Fraxinus mandshurica* var. *japonica* and *Juglans mandshurica* var. *sachalinensis* and on decayed wood. Hillside *Abies sachalinensis*: KM 4220, KM 4242, KM 4243, KM 4263, KM 4264, KM 4308, KM 4346 and KM 4307.

35. *Heterodermia isidiophora* (Vain.) D. D. Awasthi; rare, on bark of *Fraxinus mandshurica* var. *japonica*. Hillside *Abies sachalinensis*: KM 4262.

36. *Heterodermia microphylla* (Kurok.) Skorepa; abundant on bark of *Abies sachalinensis*, *Acer* sp., *Alnus hirsuta* and *A. japonica* and on decayed wood and rocks. Chiripu-mura to Akkeshi-cho 70: KM 4473. Fukushima: KM 4085, KM 4129 and KM 4130. Hillside *Abies sachalinensis*: KM 4250, KM 4251, KM 4327, KM 4348, KM 4361 and KM 4364. Hillside *Alnus hirsuta*: KM 4417 and KM 4438. Riverside: KM 4523 and KM 4538.

37. *Heterodermia obscurata* (Nyl.) Trevisan; rare, on bark of *Salix* sp. Chiripu-mura to Akkeshi-cho 70: KM 4477.

38. *Heterodermia propagulifera* (Vain.) J. P. Dey; rare, on bark of *Abies sachalinensis*. Hillside *Abies sachalinensis*: KM 4227.

39. *Hypogymnia enteromorpha* (Ach.) Nyl. fo. *inactiva* (Asahina) Asahina; locally common on bark of *Abies sachalinensis* and decayed wood. Fukushima: KM 4091, KM 4124 and KM 4174.

40. *Hypogymnia fragillima* (Hillm.) Rass.; locally common, on bark of *Abies sachalinensis* and *Sorbus commixta*. Fukushima: KM 4103 and KM 4125.

41. *Hypogymnia hokkaidensis* Kurok.; rare, on bark of *Abies sachalinensis*. Fukushima: KM 4081.

42. *Hypogymnia mundata* (Nyl.) Rass. fo. *sorediosa* (Bitt.) Rass.; rare, on bark of *Picea glehnii*. Fukushima: KM 4148 and KM 4151.

43. Hypogymnia pseudophysodes (Asahina) Rass.; locally common on bark of Abies sachalinensis. Hillside Abies sachalinensis: KM 4216, KM 4229, KM 4325 and KM 4335.

44. Hypogymnia vittata (Ach.) Parrique; occasional, on bark of Abies sachalinensis. Chiripu-mura to Akkeshi-cho 50: KM 4509 and KM 4510. Fukushima: KM 4098 and KM 4167.

45. Japewia subaurifera Muhr & Tøesberg; rare. Prov. Kushiro: En route from Wakayama Pond to Ohnuma Pond, Hamanaka-cho, Akkeshi-gun, elevation 20 m, on bark of Alnus japonica, Arakawa 1637.

46. Lecanora chionocarpa Hue; rare, on bark of Fraxinus mandshurica var. japonica. Chiripu-mura to Akkeshi-cho 70: KM 4460.

47. Lecanora cinereofusca H. Magn.; abundant on bark of Abies sachalinensis, Alnus japonica and Picea glehnii and on decayed wood. Chiripu-mura to Akkeshi-cho 70: KM 4466 and KM 4489. Fukushima: KM 4112 and KM 4143. Hillside Abies sachalinensis: KM 4280, KM 4339, KM 4358 and KM 4374. Hillside Alnus hirsuta: KM 4386. Riverside: KM 4535.

48. Lecanora megalocheila (Hue) Miyawaki; abundant on bark of Abies sachalinensis, Alnus japonica, Juglans mandshurica var. sachalinensis and Larix kaempferi. Chiripu-mura to Akkeshi-cho 70: KM 4497. Hillside Abies sachalinensis: KM 4209, KM 4259, KM 4252, KM 4311, KM 4326 and KM 4359.

49. Lecanora yasudae Zahlbr.; common on bark of Abies sachalinensis. Hillside Abies sachalinensis: KM 4319.

50. Leptogium azureum (Sw.) Mont.; common on bark of Fraxinus mandshurica var. japonica and Juglans mandshurica var. sachalinensis and on decayed wood. Chiripu-mura to Akkeshi-cho 70: KM 4456. Hillside Abies sachalinensis: KM 4298, KM 4401 and KM 4409.

51. Leptogium burnetiae Dodge; common on bark of Alnus hirsuta, A. japonica, Fraxinus mandshurica var. japonica, Juglans mandshurica var. sachalinensis and Picea glehnii with mosses. Chiripu-mura to Akkeshi-cho 70: KM 4450 and KM 4457. Fukushima: KM 4121. Hillside Abies sachalinensis: KM 4291, KM 4297 and KM 4299. Hillside Alnus hirsuta: KM 4422.

52. Leptogium cyanescens (Ach.) Korber; rare, on decayed wood. Hillside Alnus hirsuta: KM 4416.

53. Leptogium pedicellatum M.Jøerg.; locally common. Prov. Kushiro: En route from Wakayama Pond to Ohnuma Pond, Hamanaka-cho, Akkeshi-gun, elevation about 20 m, on tree bark, Arakawa 1630. Prov. Kushiro: Ca 1.5 Km east of Rokubansawa,

Hamanaka-cho, Akkeshi-gun, elevation about 40 m, on bark of Picea glehnii, Arakawa 1695. Prov. Kushiro: Around Kitanosawa, Hamanaka-cho, Akkeshi-gun, elevation about 20 m, on bark of Abies sachalinensis, Arakawa 1750.

54. Lobaria crassior Vain.; rare, on bark of Alnus japonica. Hillside Alnus hirsuta: KM 4381.

55. Lobaria japonica (Zahlbr.) Asahina; common on bark of Acer sp, Alnus hirsuta and Alnus japonica and Fraxinus mandshurica var. japonica and on decayed wood. Chiripu-mura to Akkeshi-cho 70: KM 4446, KM 4459 and KM 4478. Hillside Abies sachalinensis: KM 4241 and KM 4288. Hillside Alnus hirsuta: KM 4425

56. Lobaria orientalis (Asahina) Yoshim.; common on bark of Alnus hirsuta and Alnus japonica. Hillside Abies sachalinensis: KM 4287. Hillside Alnus hirsuta: KM 4428.

57. Lobaria quercizans Michaux; locally common on bark of Alnus hirsuta and Fraxinus lanuginosa. Hillside Alnus hirsuta: KM 4434 and KM 4394.

58. Lobaria spathulata (Inum.) Yoshim.; abundant on bark of Abies sachalinensis, Alnus hirsuta, A. japonica, Fraxinus lanuginosa, Quercus crispula and Sorbus commixta. Chanai: KM 4540 and KM 4541. Fukushima: KM 4104 and KM 4193. Hillside Alnus hirsuta: KM 4379, KM 4393 and KM 4420.

59. Lobaria tuberculata Yoshim.; abundant on bark of Abies sachalinensis, Alnus hirsuta, A. japonica and Sorbus commixta. Fukushima: KM 4099, KM 4104B and KM 4180. Hillside Alnus hirsuta: KM 4387, KM 4408 and KM 4435.

60. Melanelia huei (Asahina) Essl.; common on bark of Abies sachalinensis, Betula ermanii and Phellodendron amurense. Chiripu-mura to Akkeshi-cho 70: KM 4445. Hillside Abies sachalinensis: KM 4254 and KM 4338

61. Menegazzia terebrata (Hoffm.) Mass.; common on bark of Abies sachalinensis. Fukushima: KM 4110. Hillside Abies sachalinensis: KM 4351.

62. Myelochroa entotheiochroa (Hue) Elix & Hale; common on bark of Alnus japonica, Betula ermanii and Quercus crispula. Chanai: KM 4539. Hillside Alnus hirsuta: KM 4380. Riverside: KM 4525 and KM 4528

63. Myelochroa leucotyliza (Nyl.) Elix & Hale; occasional, on bark of Abies sachalinensis. Hillside Abies sachalinensis: KM 4334.

64. Nephroma resupinatum (L.) Ach.; rare, on bark of Fraxinus lanuginosa. Hillside Alnus hirsuta: KM 4396 and KM 4406.

65. Nephromopsis endocrocea Asahina; common on bark of Fraxinus sp., Betula ermanii and Abies sachalinensis. Chiripu-mura to Akkeshi-cho 50: KM 4511. Chiripu-mura to Akkeshi-cho 70: KM 4452 and KM 4491. Hillside Abies

sachalinensis: KM 4228.

66. Ochrolechia cf. akagiensis Yas. in Vain. Prov. Kushiro; rare. South edge of Kumaushi plain, Hamanaka-cho, Akkeshi-gun, elevation about 60 m, on bark of Quercus crispula, Arakawa 1585 and 1586.

67. Ochrolechia trochophora (Vain.) Oshio; abundant on bark of Abies sachalinensis, Alnus japonica and Fraxinus mandshurica var. japonica. Fukushima: KM 4170. Hillside Abies sachalinensis: KM 4265, KM 4279, KM 4323, KM 4345 and KM 4355.

68. Ochrolechia yasudae Vain.; common on bark of Abies sachalinensis and Fraxinus mandshurica var. japonica. Fukushima: KM 4138. Hillside Abies sachalinensis: KM 4270. Riverside: KM 4536.

69. Parmelia fertilis Müll. Arg.; common on bark of Betula platyphylla var. japonica and Quercus crispula. Fukushima: KM 4192. Sakaki: KM 4191.

70. Parmelia laevior Nyl.; common on bark of Abies sachalinensis and Sorbus commixta. Chiripu-mura to Akkeshi-cho 70: KM 4470. Fukushima: KM 4109. Hillside Abies sachalinensis: KM 4329.

71. Parmelia praesquarrosa Kurok.; abundant on bark of Abies sachalinensis, Alnus japonica and Fraxinus mandshurica var. japonica. Chiripu-mura to Akkeshi-cho 70: KM 4469. Fukushima: KM 4127 and KM 4161. Hillside Abies sachalinensis: KM 4249, KM 4267, KM 4292, KM 4330, KM 4336, KM 4337 and KM 4208.

72. Parmelia saxatilis (L.) Ach.; rare, on bark of Abies sachalinensis. Chiripu-mura to Akkeshi-cho 70: KM 4488.

73. Parmelia squarrosa Hale; common on bark of Abies sachalinensis, Betula ermanii and Juglans mandshurica var. sachalinensis. Chiripu-mura to Akkeshi-cho 70: KM 4492. Fukushima: KM 4097, KM 4135, KM 4164 and KM 4166. Hillside Abies sachalinensis: KM 4218, KM 4225, KM 4306 and KM 4331.

74. Parmotrema chinense (Osbeck) Hale et Ahti; locally common. Prov. Kushiro: Ca 1 Km east of Sanbansawa, Kiritappu Marsh, Hamanaka-cho, Akkeshi-gun, elevation about 10 m, on bark of Alnus japonica, Arakawa 1472. Prov. Kushiro: Around Sanbansawa, Hamanaka-cho, Akkeshi-gun, elevation 20 m, on bark of fallen tree, Arakawa 1525. Prov. Kushiro: South edge of Kumaushi plain, Hamanaka-cho, Akkeshi-gun, elevation about 60 m, on bark of Quercus crispula, Arakawa 1573.

75. Parmotrema tinctorum (Nyl.) Hale; very rare. This species is widely distributed in tropical and subtropical areas in the world. In Japan, it has been collected from south of Aomori Prefecture and has not been recorded from Hokkaido. In the present survey, however, the author found this species at hill side of Kiritappu Marsh. Hillside Abies sachalinensis: KM 4234.

76. Peltigera degenii Gyeln.; common on decayed wood. Hillside Alnus hirsuta: KM 4418.
77. Pertusaria carneopallida (Nyl.) Anzi ex Nyl.; rare, on bark of Sorbus commixta. Fukushima: KM 4189.
78. Pertusaria commutata Müll. Arg.; abundant on bark of Abies sachalinensis, Alnus japonica, Sorbus commixta and Phellodendron amurense. Hillside Abies sachalinensis: KM 4247, KM 4258, KM 4273, KM 4317 and KM 4343. Hillside Alnus hirsuta: KM 4412.
79. Pertusaria composita Zahlbr.; abundant on bark of Abies sachalinensis, Fraxinus mandshurica var. japonica and Sorbus commixta. Hillside Abies sachalinensis: KM 4266, KM 4266, KM 4272, KM 4275, KM 4272 and KM 4275. Hillside Alnus hirsuta: KM 4411.
80. Pertusaria ferruginea (Müll. Arg.) Oshio; rare, on bark of Abies sahalinensis. Fukushima: KM 4176.
81. Pertusaria cf. macrospora Oshio; locally common on bark of Abies sachalinensis and Alnus japonica. Hillside Abies sachalinensis: KM 4316, KM 4318, KM 4320 and KM 4362.
82. Pertusaria mendax Müll. Arg.; locally common on bark of Abies sachalinensis and Juglans mandshurica var. sachalinensis. Hillside Abies sachalinensis: KM 4222, KM 4276, KM 4277, KM 4310, KM 4315 and KM 4321.
83. Pertusaria multipunctata (Turner) Nyl.; rare, on decayed wood of Abies sachalinensis. Fukushima: KM 4133.
84. Pertusaria pertusa (Weigel.) Tuck.; rare, on bark of Juglans mandshurica var. sachalinensis. Hillside Abies sachalinensis: KM 4314.
85. Pertusaria pustulata (Ach.) Duby; rare, on bark of Abies sahalinensis. Fukushima: KM 4176B.
86. Pertusaria quertans Nyl.; rare. Prov. Kushiro: Kiritappu, Hamanaka-cho, Akkeshi-gun, elevation about 50 m, on bark of Fraxinus lanuginosa, Arakawa 1779.
87. Pertusaria cf. subfallens Vain.; rather common on bark of Abies sachalinensis and Alnus japonica. Fukushima: KM 4096, KM 4113 and KM 4168. Hillside Abies sachalinensis: KM 4274. Hillside Alnus hirsuta: KM 4429.
88. Pertusaria violacea Oshio; common on bark of Abies sachalinensis, Alnus hirsuta, Picea glehnii and Quercus crispula. Chiripu-mura to Akkeshi-cho 70: KM 4448. Hillside Abies sachalinensis: KM 4232. Hillside Alnus hirsuta: KM 4437. Sakaki: KM 4194.
89. Phaeophyscia hirtuosa (Krempelh.) Essl.; locally common on bark of Alnus

hirsuta, A. japonica and Juglans mandshurica var. sachalinensis. Hillside Abies sachalinensis: KM 4244, KM 4289, KM 4301 and KM 4342.

90. Phaeophyscia hispidula (Ach.) Moberg; rare, on decayed wood. Hillside Alnus hirsuta: KM 4402.

91. Phaeophyscia primaria (Poelt) Trass; rare, on bark of Fraxinus mandshurica var. japonica. Chiripu-mura to Akkeshi-cho 70: KM 4458.

92. Phaeophyscia rubropulchra (Degel.) Moberg; rare, on bark of Alnus japonica. Hillside Abies sachalinensis: KM 4363 and KM 4365.

93. Physcia aipolia (Ehrh. ex Humb.) Furnr.; rare, on bark of Alnus japonica. Hillside Abies sachalinensis: KM 4347.

94. Physciella melanchra (Hue) Essl.; rare, on rocks. Riverside: KM 4522.

95. Physconia grumosa Kashiw. et Poelt; rare, on bark of Quercus crispula. Chanai: KM 4542.

96. Platismatia interrupta W. L. Culb. & C. F. Culb.; abundant on bark of Abies sachalinensis. Chiripu-mura to Akkeshi-cho 70: KM 4462 and KM. Fukushima: KM 4111, KM 4137, KM 4169 and KM 4171. Hillside Abies sachalinensis: KM 4224 and KM 4226. Riverside: KM 4534.

97. Pseudocyphellaria crocata (L.) Vain.; common on bark of Betula ermanii. Riverside: KM 4526.

98. Punctelia borreri (Sm.) Krog; rare, on rocks. Riverside: KM 4524.

99. Pyrenula japonica Kurok.; common on bark of Abies sachalinensis. Hillside Abies sachalinensis: KM 4219 and KM 4246.

100. Ramalina commixta Asahina; locally common on bark of Abies sachalinensis. Chiripu-mura to Akkeshi-cho 70: KM 4471 and KM 4472.

101. Ramalina conduplicans Vain.; abundant on bark of Abies sachalinensis, Alnus hirsuta, A. japonica, Betula ermanii, Juglans mandshurica var. sachalinensis and Picea glehnii. Chiripu-mura to Akkeshi-cho 50: KM 4502. Chiripu-mura to Akkeshi-cho 70: KM 4443. Fukushima: KM 4118 and KM 4134. Hillside Abies sachalinensis: KM 4212, KM 4294, KM 4245, KM 4352 and KM 4369. Hillside Alnus hirsuta: KM 4390 and KM 4440. Riverside: KM 4518.

102. Ramalina roesleri (Hochst.) Nyl.; abundant on bark of Abies sachalinensis, Alnus hirsuta, A. japonica, Betula ermanii, Juglans mandshurica var. sachalinensis, Picea glehnii and Salix sp. and on decayed wood. Chiripu-mura to Akkeshi-cho 50: KM 4503 and KM 4504. Chiripu-mura to Akkeshi-cho 70: KM 4442, KM 4476 and KM 4486. Fukushima: KM 4088, KM 4131, KM 4156, KM 4158, KM 4160 and KM 4185. Hillside Abies sachalinensis: KM 4221, KM 4230, KM 4238, KM 4239, KM

4293, KM 4300, KM 4333, KM 4370 and KM 4371. Hillside *Alnus hirsuta*: KM 4436. Riverside: KM 4519 and KM.

103. *Rimelia clavulifera* (Räsänen) Kurok.; rare, on rocks. Riverside: KM 4520.

104. *Rimelia reticulata* (Taylor) Hale & Fletcher; common on bark of *Picea glehnii* and on rocks. Riverside: KM 4521. Hillside *Abies sachalinensis*: KM 4373.

105. *Sticta fuliginosa* (Dickson) Ach.; rare, on bark of *Abies sachalinensis*. Chiripumura to Akkeshi-cho 50: KM 4514.

106. *Sticta nylanderiana* Zahlbr.; common on bark of *Abies sachalinensis*, *Alnus hirsuta*, *A. japonica* and *Sorbus commixta*. Chiripumura to Akkeshi-cho 50: KM 4506. Fukushima: KM 4105 and KM 4179. Hillside *Alnus hirsuta*: KM 4378, KM 4384 and KM 4405.

107. *Usnea confusa* Asahina; rare, on bark of *Abies sachalinensis*. Fukushima: KM 4120.

108. *Usnea diffracta* Vain.; common on bark of *Abies sachalinensis*, *Betula ermanii* and *Picea glehnii*. Chiripumura to Akkeshi-cho 70: KM 4479. Hillside *Abies sachalinensis*: KM 4366. Riverside: KM 4527.

109. *Usnea longissima* Ach.; locally common on bark of *Abies sachalinensis*. Chiripumura to Akkeshi-cho 70: KM 4480.

110. *Usnea montis-fuji* Mot.; locally common on bark of *Betula ermanii*. Chiripumura to Akkeshi-cho 70: KM 4444. Riverside: KM 4529.

111. *Usnea pangiana* Strit.; locally abundant on bark of *Abies sachalinensis*, *Betula ermanii* and *Larix kaempferi*. Chiripumura to Akkeshi-cho 50: KM 4505. Chiripumura to Akkeshi-cho 70: KM 4481 and KM 4482. Hillside *Abies sachalinensis*: KM 4240 and KM 4261.

112. *Usnea rubescens* Strit.; locally abundant on bark of *Abies sachalinensis* and *Sorbus commixta*. Fukushima: KM 4094, KM 4106, KM 4159 and KM 4184. Hillside *Abies sachalinensis*: KM 4213 and KM 4332.

113. *Usnea rubrotincta* Stirt.; locally abundant. Prov. Kushiro: Ca 2 Km north of Yoro-chirippu, Hamanaka-cho, Akkeshi-gun, elevation 20-30 m, on tree bark, Arakawa 1371, 1373 and 1512. Prov. Kushiro: Ca 2 Km north of Yoro-chirippu, Hamanaka-cho, Akkeshi-gun, elevation 20-30 m, on bark of *Picea glehnii*, Arakawa 1372. Prov. Kushiro: Ca 1 Km east of Sanbansawa, Kiritappu Marsh, Hamanaka-cho, Akkeshi-gun, elevation about 10 m, on tree bark, Arakawa 1475. Prov. Kushiro: Ca 1.5 Km east of Rokubansawa, Hamanaka-cho, Akkeshi-gun, elevation about 40 m, on bark of *Picea glehnii*, Arakawa 1692.

114. *Usnea* sp.; locally common on bark of *Abies sachalinensis* and on decayed wood.

This species resembles Usnea fragile Lyngé, but differs in having salazinic acid. Chiripu-mura to Akkeshi-cho 70: KM 4484. Fukushima: KM 4136. Hillside Abies sachalinensis: KM 4217. Hillside Alnus hirsuta: KM 4389.

115. Xanthoria fallax (Hepp) Arnold; rare. Prov. Kushiro: Ca 2 Km north of Yorochirippu, Hamanaka-cho, Akkeshi-gun, elevation 20-30 m, on rock, Arakawa 1360.

116. Xanthoria mandschurica (Zahlbr.) Asahina; rare. Prov. Kushiro: Ca 2 Km north of Yorochirippu, Hamanaka-cho, Akkeshi-gun, elevation 20-30 m, on rock, Arakawa 1359.

3. 新たに見つかった種は以下の通りである。

Anzia colpota, A. ornata, Brigantiae ferrugiana, Bryoria trichodes ssp. americana, Cetrariastrum cirrhatum, Cetrelia olivetorum, Chrysothrix candelaris, Cladonia hondoensis, C. pleurota, C. rei, Coccocarpica palmicola, Collema leptaleum, Evernia prunastri, Graphis tenella, Haematomma ochrophaeum, Heterodermia diademata, H. obscurata, H. propagulifera, Hypogymnia enteromorpha, H. fragillima, H. mundata, Japewia subaurifera, Leptogium azureum, L. burnetiae, L. cyanescens, L. pedicellatum, Lobaria crassior, L. japonica, Nephroma resupinatum, Ochrolechia akagiensis, Parmotrema chinense, P. tinctorum, Pertusaria carneopallida, P. ferruginea, P. macrospora, P. pertusa, P. quertans, Phaeophyscia primaria, Platismatia interrupta, Punctelia borrieri, Ramalina commixta, Rimelia clavulifera, Sticta fuliginosa, Usnea confusa, U. montis-fiji, U. rubrotincta, Xanthoria fallax, X. mandschurica.

4. 荒川(1997)の報告から除外される種は以下の通りである。矢印で示した種は近年の研究により別属として扱われるようになった taxa です。

Anaptychia fragilissima

Anaptychia hypoleuca → Heterodermia hypoleuca

Anaptychia japonica → Heterodermia japonica

Anaptychia japonica var. reagans → Heterodermia propagulifera

Anaptychia microphylla → Heterodermia microphylla

Anaptychia pandurata → Heterodermia pandurata

Cladonia cornuta; Arakawa 1349 の標本が見つからないので再検討ができない。文の野外調査では発見できなかった。

Cladonia nemoxyma

Cladonia rangiferina → Cladina rangiferina

Lecanora symmicta

Leptogium hildenbrandii

Micarea prasina

Nephroma bellum; Arakawa 1774 は所在不明。

Peligeria elizabethae

Peltigera spuria

Physcia stellaris → Physciella stellaris

Ramalina almquistii

Ramalina perviana; Arakawa 1364 は所在不明。

Usnea capilliformis; Arakawa 1694 は所在不明。

Usnea pangiana spp. hondoensis → Usnea pangiana

Usnea rubescens by Arakawa → Usnea rubrotincta

Xanthoparmelia subpolyphylloides

Xanthoria candelaria

Xanthoria parietina

5. 植物地理学上興味ある種

Parmotrema tinctorum : 本種は熱帯—温帯域に広く分布し、日本では青森県以南に生育することが知られているが、今回の調査でも Abies sachalinensis の樹皮に生育するのが見つかった。生育料は少ないが南方系の種が本地域で生育する珍しい例と言える。

Usnea sp. は Usnea fragilesceus Lyngby に近いが成分などが異なり、目下検討中である。

参考文献

Kashiwadani, H., 1975. The genera Physcia, Physconia and Dirinaria (Lichen) of Japan. Ginkoana, 3: 1-77. pl. 1-5.

Kashiwadani, H. and M. Inoue, 1993. The lichens of Kushiro Marsh, Hokkaido, Japan. Mem. Natn. Sci. Mus., Tokyo, (26): 53-66.

Ohmura, Y. and H. kashiwadani, 1997. Lichens of Mt. O-akan and its adjacent areas, Hokkaido, Japan. Bull. Natn. Sci. Mus. Ser. B, (23): 1-24.

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図1. 霧多布湿原と付近の採集地点

