

居谷里湿原のチリモ相

落合照雄*

T. OCHIAI: Desmid Flora of Iyari Moor, Nagano Prefecture

1. はじめに

居谷里湿原は木崎湖の東方山中にあるシズゴケ湿原で、海拔 800 m に存在する。この湿原は北西から南東方向に長さ約 700 m、幅約 100 m の細長い形をなし、周囲は山にかこまれている深さ 1~2 m の比較的浅い湿原で、そこにはミズバショウ、ザゼンソウ、ヤマドリゼンマイなどの水生植物がはえている。この居谷里湿原のプランクトンのうち、動物プランクトン及び緑藻、不等毛、鞭毛藻、藍藻については前に発表したが、今回は特にチリモ類について述べたいと思う。

この地域の調査に参加をゆるされた大町山岳博物館、信州大学助教授羽田健三博士、本稿をご校閲下さった横浜市立大学教授福島博博士、この研究に有益な助言をたまわった京都大学教授平野実博士、以上の方々に厚くおん礼申し上げる。

2. 研究資料

今回の研究に用いた材料は 1956 年 6 月 3 日及び 8 月 5 日の 2 回、筆者がこの湿原で採集したものである。この時の環境条件は、6 月の時は pH 6.0、8 月の時は pH 5.8~6.0、水温 22.8~25.8°C であった。

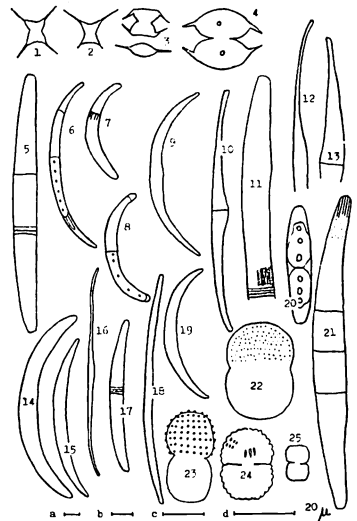


Fig. A. Desmids collected in Iyari Moor

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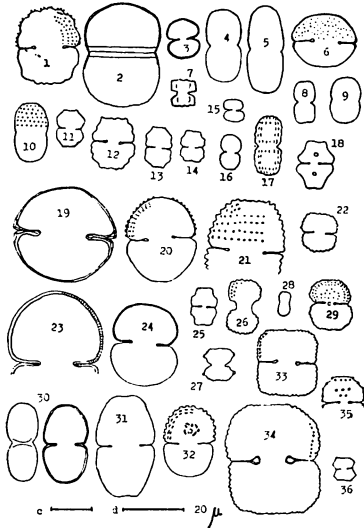


Fig. B. Desmids collected in Iyari Moor

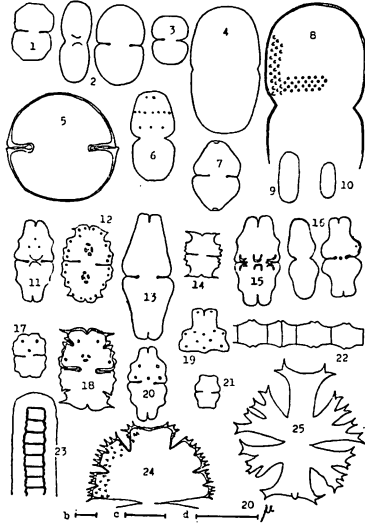


Fig. C. Desmids collected in Iyari Moor

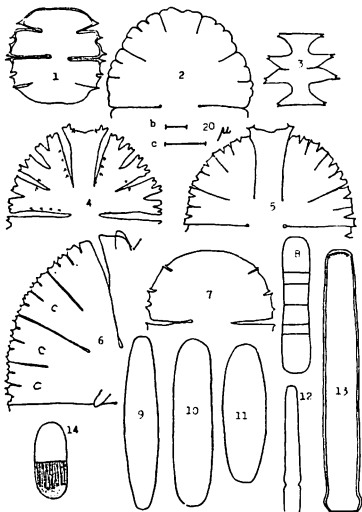


Fig. D. Desmids collected in Iyari Moor

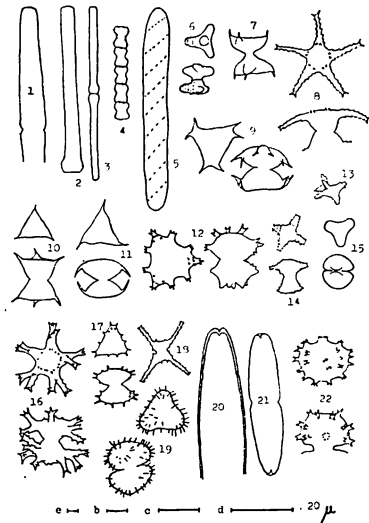


Fig. E. Desmids collected in Iyari Moor

3. チリモ相

List of species

1. *Arthrodesmus incus* (BRÉB.) HASS. (Fig. A, 1, 2)
Length without spines 16 μ ; breadth without spines 16 μ ;
isthmus 8 μ .
2. *A. incus* (BRÉB.) HASS. var. *Ralfsii* W. & G. S. WEST f. *latiuscula*
W. & G. S. WEST (Fig. A, 3)
Length without spines 17 μ ; breadth without spines 19 μ ;
isthmus 8 μ .
3. *A. convergens* EHRENB. (Fig. A, 4)
Length 45 μ ; breadth 50 μ ; isthmus 9 μ .
4. *Closterium* sp. (Fig. A, 5)
Length 202-207 μ ; breadth 18-19 μ .
5. *Cl. cynthia* DE NOTARIS (Fig. A, 7)
Length 79-92 μ ; breadth 10-13 μ .
6. *Cl. cynthia* DE NOT. var. *Jenneri* (RALFS) KRIEGER (Fig. A, 8)
Length 85 μ ; breadth 10 μ .
7. *Cl. diana*e EHRENB. (Fig. A, 6, 15)
Length 240-250 μ ; breadth 18-22 μ .
8. *Cl. diana*e EHRENB var. *pseudodiana*e (ROY) KRIEGER (Fig. A, 9)
Length 250-280 μ ; breadth 19-21 μ .
9. *Cl. idiosporum* W. & G. S. WEST (Fig. A, 10)
Length 240-244 μ ; breadth 13 μ .
10. *Cl. intermedium* RALFS (Fig. A, 11)
Length 294 μ ; breadth 21 μ .
11. *Cl. kützingii* BRÉB. (Fig. A, 12)
Length 395 μ ; breadth 19 μ .
12. *Cl. libellula* FOCKE var. *intermedium* (ROY & BISSET) G. S. WEST
(Fig. A, 20)
Length 80-94 μ ; breadth 18-19 μ .
13. *Cl. parvulum* NÄG. (Fig. A, 14)
Length 84-104 μ ; breadth 10 μ .
14. *Cl. parvulum* NÄG. var. *angustum* W. & G. S. WEST (Fig. A, 19)

- Length 98 μ ; breadth 9 μ .
15. *Cl. rostratum* EHRENB. (Fig. A, 13)
Length 390 μ ; breadth 35 μ .
 16. *Cl. setaceum* EHRENB. (Fig. A, 16)
Length 315 μ ; breadth 9 μ .
 17. *Cl. striolatum* EHRENB. (Fig. A, 17)
Length 250–260 μ ; breadth 29 μ .
 18. *Cl. striolatum* EHRENB. var. *subpunctatum* HIRANO (Fig. A, 21)
Length 340 μ ; breadth 30 μ .
 19. *Cl. toxon* W. WEST (Fig. A, 18)
Length 350 μ ; breadth 12 μ .
 20. *Cosmarium pseudoconnatum* NORDST var. *ellipsoideum* W, & G. S. WEST (Fig. A, 22)
Length 78 μ ; breadth 55 μ ; isthmus 50 μ .
 21. *C. amoenum* BRÉB. (Fig. A, 23)
Length 47 μ ; breadth 26 μ ; isthmus 14 μ .
 22. *C. angulosum* BRÉB. (Fig. A, 25)
Length 21 μ ; breadth 12 μ ; isthmus 3 μ .
 23. *C. binum* NORDST. (Fig. A, 24)
Length 55 μ ; breadth 42 μ ; isthmus 15 μ .
 24. *C. caelatum* RALFS var. *spectabile* (DE NOT.) NORDST. (Fig. B, 1)
Length 59 μ ; breadth 50 μ ; isthmus 16 μ .
 25. *C. connatum* BRÉB. (Fig. B, 2)
Length 81 μ ; breadth 62 μ ; isthmus 52 μ .
 26. *C. contractum* KIRCHN. var. *ellipsoideum* (ELFV.) W. & G. S. WEST (Fig. B, 3)
Length 32 μ ; breadth 26 μ ; isthmus 9 μ .
 27. *C. cucurbita* BRÉB. (Fig. B, 4)
Length 39–42 μ ; breadth 18–20 μ ; isthmus 14–18 μ .
 28. *C. cucurbitinum* (BISS.) LÜTKEM. (Fig. B, 5)
Length 64–74 μ ; breadth 28–31 μ ; isthmus 25–28 μ .
 29. *C. cymatonotophorum* WEST. (Fig. B, 7)
Length 14 μ ; breadth 13 μ ; isthmus 5 μ .
 30. *C. obsoletum* (HANTZSCH) REINSCH (Fig. B, 6)
Length 33–36 μ ; breadth 44–49 μ ; isthmus 13–16 μ .

31. *C. exiguum* ARCH. (Fig. B, 8)
Length 23 μ ; breadth 11 μ ; isthmus 6 μ .
32. *C. globosum* BULNH. (Fig. B, 9)
Length 36 μ ; breadth 26 μ ; isthmus 24–25 μ .
33. *C. globosum* BULNH. var. *subaltum* MESSIK. (Fig. B, 10)
Length 31 μ ; breadth 18 μ ; isthmus 16 μ .
34. *C. granatum* BRÉB. (Fig. B, 7)
Length 35 μ ; breadth 23 μ ; isthmus 8 μ .
35. *C. hammeri* REINSCH var. *protuberans* W. & G. S. WEST (Fig. B, 11)
Length 29 μ ; breadth 23 μ ; isthmus 6 μ .
36. *C. humile* (GAY) NORDST. var. *striatum* (BOLDT) SCHMIDLE (Fig. B, 12)
Length 29 μ ; breadth 23 μ ; isthmus 6 μ .
37. *C. meneghinii* BRÉB. (Fig. B, 13)
Length 32–34 μ ; breadth 21–22 μ ; isthmus 5–6 μ .
38. *C. margaritifera* MENEGH.
Length 78 μ ; breadth 56 μ ; isthmus 26 μ .
39. *C. tetraophthalmum* BRÉB.
Length 114 μ ; breadth 68 μ ; isthmus 27 μ .
40. *C. meneghinii* BRÉB. var. *reinschii* ISTZ. (Fig. B, 14)
Length 19–26 μ ; breadth 13–20 μ ; isthmus 3–6 μ .
41. *C. minimum* W. & G. S. WEST var. *rotundatum* MESSIK. (Fig. B, 15)
Length 13 μ ; breadth 10 μ ; isthmus 3 μ .
42. *C. moniliforme* (TURP.) RALFS f. *punctata* LAGERN. (Fig. B, 16)
Length 21–27 μ ; breadth 16–18 μ ; isthmus 6–8 μ .
43. *C. nipponicum* HIRANO (Fig. B, 17)
Length 39–47 μ ; breadth 18–23 μ ; isthmus 10–16 μ ;
44. *C. nymannianum* GRUN. (Fig. B, 18)
Length 36–41 μ ; breadth 28–29 μ ; isthmus 6 μ .
45. *C. obsoletum* (HANTZSCH) REINSCH var. *sitvense* GUTW. (Fig. B, 19)
Length 75 μ ; breadth 81–82 μ ; isthmus 44–46 μ .
46. *C. obtusatum* SCHMIDLE (Fig. B, 20)
Length 68 μ ; breadth 50–54 μ ; isthmus 18–20 μ .

47. *C. ochthodes* NORDST. (Fig. B, 21)
Length 78 μ ; breadth 58 μ ; isthmus 23 μ .
48. *C. ozense* HIRANO (Fig. B, 22)
Length 16 μ ; breadth 16 μ ; isthmus 8 μ .
49. *C. pachydermum* LUND. (Fig. B, 23)
Length 111 μ ; breadth 76 μ ; isthmus 27 μ .
50. *C. pachydermum* LUND. var. *aethiopicum* W. & G. S. WEST (Fig. B, 24)
Length 82 μ ; breadth 67 μ ; isthmus 23 μ .
51. *C. pokornyianum* (GRUN.) W. & G. S. WEST (Fig. B, 25)
Length 19–22 μ ; breadth 13–16; isthmus 4–6 μ .
52. *C. portianum* ARCH. (Fig. B, 26)
Length 42 μ ; breadth 26 μ ; isthmus 11 μ .
53. *C. prominulum* RACIB. var. *subundulatum* W. & G. S. WEST (Fig. B, 27)
Length 16 μ ; breadth 17 μ ; isthmus 8 μ .
54. *C. punctulatum* BRÉB. (Fig. B, 29)
Length 39 μ ; breadth 32 μ ; isthmus 10 μ .
55. *C. pseudarctoum* NORDST. var. *perminutum* (G. S. WEST) STRÖM (Fig. B, 28)
Length 13 μ ; breadth 8 μ ; isthmus 6 μ .
56. *C. pseudopyramidatum* LUND. (Fig. B, 30)
Length 57–65 μ ; breadth 32–35 μ ; isthmus 12–16 μ .
57. *C. pyramidatum* BRÉB. (Fig. B, 31)
Length 83 μ ; breadth 49 μ ; isthmus 19 μ .
58. *C. quadrifarium* LUND. f. *hexasticha* (LUND.) NORDST. (Fig. B, 32)
Length 52 μ ; breadth 39 μ ; isthmus 16 μ .
59. *C. quadrum* LUND. (Fig. B, 33)
Length 52 μ ; breadth 49 μ ; isthmus 19 μ .
60. *C. quadrum* LUND. var. *sublatum* (NORDST.) W. & G. S. WEST (Fig. B, 34)
Length 88 μ ; breadth 72 μ ; isthmus 23 μ .
61. *C. quinarium* LUND. (Fig. B, 36)
Length 41 μ ; breadth 35 μ ; isthmus 11 μ .

62. *C. rectangulare* GRUN. (Fig. B, 1)
Length 32 μ ; breadth 23 μ ; isthmus 7 μ .
63. *C. sexangulare* LUND. f. *minima* NORDST. (Fig. B, 36)
Length 13 μ ; breadth 11 μ ; isthmus 3 μ .
64. *C. striolatum* NÄG. (Fig. C, 8)
Length 163 μ ; breadth 80 μ ; isthmus 64 μ .
65. *C. subcucumis* SCHMIDLE (Fig. C, 2)
Length 62–64 μ ; breadth 36–43 μ ; isthmus 15–16 μ .
66. *C. subtumidum* NORDST. var. *Klebsii* (GUTW.) W. & G. S. WEST
(Fig. C, 3)
Length 32–39 μ ; breadth 26–33 μ ; isthmus 6–13 μ .
67. *C. subturgidum* (TURNER) SCHMIDLE f. *minor* STRÖM? (Fig. C, 4)
Length 103 μ ; breadth 55 μ ; isthmus 53 μ .
68. *C. taxichondrum* LUND. var. *magnum* HIRANO (Fig. C, 5)
Length 85 μ ; breadth 88 μ ; isthmus 46 μ .
69. *C. zonatum* LUND. (Fig. C, 6)
Length 47 μ ; breadth 24 μ ; isthmus 10 μ .
70. *Cylindrocystis brébissonii* MENEGH. (Fig. C, 9)
Length 35–72 μ ; breadth 16–26 μ .
71. *Cy. brébissonii* MENEGH. var. *minor* W. & G. S. WEST (Fig. C, 10)
Length 29 μ ; breadth, 13 μ .
72. *Euastrum ansatum* EHRENB. var. *triporum* KRIEGER? (Fig. C, 11)
Length 64 μ ; breadth 31 μ ; isthmus 11 μ .
73. *E. bidentatum* NÄG. var. *speciosum* (BOLDLT) SCHMIDLE (Fig. C, 12)
Length 60 μ ; breadth 39 μ ; isthmus 10 μ .
74. *E. cuneatum* JENNER (Fig. C, 13)
Length 96–123 μ ; breadth 39–55 μ ; isthmus 11–19 μ .
75. *E. denticulatum* (KIRCHN.) GAY (Fig. C, 14)
Length 25 μ ; breadth 19 μ ; isthmus 4–5 μ .
76. *E. gnathophorum* W. G. S. WEST. (Fig. C, 15)
Length 72–73 μ ; breadth 36 μ ; isthmus 10–15 μ .
77. *E. insulare* (WITTR.) ROY var. *silesiacum* GRÖNBL. (Fig. C, 17)
Length 23 μ ; breadth 19 μ ; isthmus 5 μ .
78. *E. indicum* KRIEGER? (Fig. C, 16)
Length 65–75 μ ; breadth 26–32 μ ; isthmus 6–10 μ .

79. *E. octogibbosum* KRIEG. forma (Fig. C, 18)
Length 39 μ ; breadth 28 μ ; isthmus 8 μ .
80. *E. sinuosum* LENORM. var. *subjeneri* W. & G. S. WEST (Fig. C, 19)
Length 72 μ ; breadth 39 μ .
81. *E. sinuosum* LENORM. var. *reductum* W. & G. S. WEST. (Fig. C, 20)
Length 58 μ ; breadth 32 μ ; isthmus 8 μ .
82. *E. sublobatum* BRÉB. (Fig. C, 21)
Length 28 μ ; breadth 19 μ ; isthmus 7 μ .
83. *Gymnozyga moniliformis* EHRENB. (Fig. C, 22)
Length 26 μ ; breadth 21 μ .
84. *Hyalotheca dissiliens* (SMITH) BRÉB. (Fig. C, 23)
Length 13–16 μ ; breadth 30–32 μ .
85. *Micrasterias apiculata* (EHRENB.) MENEGH. (Fig. C, 24)
Length 240–250 μ ; breadth 190–200 μ ; isthmus 30–32 μ .
86. *M. radians* TURNER (Fig. C, 25)
Length 114 μ ; breadth 100 μ ; isthmus 20 μ .
87. *M. decedentata* NÄG. (Fig. D, 1)
Length 81 μ ; breadth 84 μ ; isthmus 14 μ .
88. *M. denticulata* BRÉB. var. *angustosinuata* GAY. (Fig. D, 2)
Length 285 μ ; breadth 222 μ ; isthmus 35 μ .
89. *M. papillifera* BRÉB. (Fig. D, 4)
Length 140 μ ; breadth 117 μ ; isthmus 16 μ .
90. *M. pinnatifida* (KÜTZ.) RALFS (Fig. D, 3)
Length 59–60 μ ; breadth 59–62 μ ; isthmus 11 μ .
91. *M. rotata* (GREV.) RALFS. (Fig. D, 5)
Length 280–300 μ ; breadth 240–250 μ ; isthmus 40–44 μ .
92. *M. thomasiana* ARCHER (Fig. D, 6)
Length 250 μ ; breadth 210 μ ; isthmus 29 μ .
93. *M. truncata* (CORDA) BRÉB. (Fig. D, 7)
Length 100–126 μ ; breadth 113–120 μ ; isthmus 17–26 μ .
94. *Netrium digitus* (EHRENB.) ITZIG & ROTHE (Fig. D, 11)
Length 220 μ , breadth 55–57 μ .
95. *N. digitus* (EHRENB.) ITZIG & ROTHE var. *Nägeli* (BRÉB.) KRIEGER
(Fig. D, 9)
Length 92–140 μ ; breadth 19–42 μ .

96. *N. oblongum* (DE BARY) LÜTKEM. (Fig. D, 10)
Length 91–133 μ ; breadth 31–32 μ .
97. *Penium polymorphum* PERTY (Fig. D, 14)
Length 65 μ ; breadth 26 μ .
98. *P. spirostriolatum* BARKER. (Fig. D, 8)
Length 78 μ ; breadth 26 μ .
99. *Pleurotaenium eugeneum* (TURNER) W. & G. S. WEST? (Fig. D, 13)
Length 410 μ ; breadth 29 μ .
100. *Pl. minutum* (RALFS) DELP. var. *gracile* (WILLE) KRIEGER (Fig. D, 12)
Length 160–174 μ ; breadth 13 μ .
101. *Pl. minutum* (RALFS) DELP. var. *latum* KAISER (Fig. E, 1)
Length 173–202 μ ; breadth 16–19 μ .
102. *Pl. trabecula* (EHRENB.) NÄGELI (Fig. E, 2, 3)
Length 370–690 μ ; breadth 26–42 μ .
103. *Sphaerosoma excavata* RALFS (Fig. E, 4)
Length 10 μ ; breadth 6 μ ; isthmus 3 μ .
104. *Spirotaenia condensata* BRÉB. (Fig. E, 5)
Length 105–160 μ ; breadth 19–20 μ .
105. *Staurastrum alternans* BRÉB. (Fig. E, 6)
Length 24 μ ; breadth 26 μ ; isthmus 8 μ .
106. *St. apiculatum* BRÉB. (Fig. E, 7)
Length with spine 29 μ ; breadth with spines 24 μ ; isthmus 5 μ .
107. *St. arachne* RALFS var. *arachnoides* WEST. (Fig. E, 8)
Length 26 μ ; breadth without processes 16 μ ; isthmus 10 μ .
108. *St. bifidum* (EHRENB.) BRÉB. var. *tortum* TURN. (Fig. E, 9)
Length 39 μ ; breadth with spines 50 μ ; isthmus 12 μ .
109. *St. dejectum* BRÉB. (Fig. E, 10)
Length 26 μ ; breadth with spines 26 μ ; isthmus 11 μ .
110. *St. dickiei* RALFS (Fig. E, 11)
Length 32 μ ; breadth without spines 32 μ ; isthmus 10 μ .
111. *St. furcatum* (EHRENB.) BRÉB. var. *candianum* (DELP.) COOKE (Fig. E, 12)
Length with processes 46 μ ; breadth with processes 40 μ ; isthmus 14 μ .

112. *St. inconspicuum* NORD. (Fig. E, 13)
Length 16 μ ; breadth 13 μ ; isthmus 6 μ .
113. *St. sp.* (Fig. E, 14)
Length 28 μ ; breadth 28 μ ; isthmus 8 μ .
114. *St. orbiculare* RALFS var. *depressum* ROY & BISS. (Fig. E, 15)
Length 27–28 μ ; breadth 25–26 μ ; isthmus 6 μ .
115. *St. sexangulare* (BULNH.) LUND. var. *subglabrum* W. & G. S. WEST.
(Fig. E, 16)
Length without processes 39 μ ; breadth without processes 30 μ ;
isthmus 11 μ .
116. *St. simonyi* HEIMERL (Fig. E, 17)
Length 22 μ ; breadth 22 μ ; isthmus 8 μ .
117. *St. teliferum* RALFS (Fig. E, 19)
Length 39–41 μ ; breadth 36 μ ; isthmus 9–10 μ .
118. *St. tetracerum* RALFS? (Fig. E, 18)
Length with processes 27–32 μ ; breadth with processes 26–27 μ ;
isthmus 3–5 μ .
119. *Tetmemorus granulatus* (BRÉB.) RALFS (Fig. E, 20)
Length 170 μ ; breadth 31 μ ; isthmus 28 μ .
120. *T. laevis* (KÜTZ.) RALFS (Fig. E, 21)
Length 65–114 μ ; breadth 19–26 μ .
121. *Xanthidium armatum* (BRÉB.) RABENH. (Fig. E, 22)
Length with processes 127 μ ; breadth with processes 88 μ ;
isthmus 35 μ .

4. ま と め

この居谷里湿原でえられたチリモは、上記の如く 121 種 (変種も含む) であって、種類数にとむ湿原であるといいうると思う。

このうちの優占種としては *Netrium digitus* var. *nägelii*, *N. oblongum*, が特に多く、*Closterium striolatum*, *Cl. striolatum* var. *subpunctatum*, *Cosmarium cucurbita*, *Cos. pachydermum*, *Cos. pseudopyramidatum*, *Cos. quadrifarum* f. *hexasticha*, *Cylindrocystis brébissonii*, *Euastrum cuneatum*, *E. denticulatum*, *Micrasterias apiculata*, *M. truncata*, *Penium polymorphum*, *Pleurotaenium trabecula*, *Staurastrum alternans*, *St.*

orbiculare, *St. tetracerum*, *Tetmemorus laevis* などが比較的多かった。

Summary

IYARI Moor is a high moor 800 meters above sea level, situated along the eastern side of Lake KIZAKI in northern NAGANO Prefecture.

This moor is slender in form, about 700 m long from northwest to southeast and 100 m broad.

This moor is covered with Sphagnum, the depth of which is about 1-2 m, and has many bog plants, such as *Lysichiton camtschatense* var. *japonicum*, *Spathyema foetid* f. *latissima* and *Osmunda cinnamomea*.

The writer visited the moor two times in the autumn of 1956, and collected some materials of fresh water algae which contained many desmids.

The pH value of surface water showed 6.0 on June 3, 1956 and 5.9 on August 5, 1956.

The desmids consisted of 121 species and varieties in this district.

Of the desmid-flora, *Netrium digitus* var. *nägelii* and *N. oblongum* were particularly dominant. *Closterium striolatum*, *Cl. striolatum* var. *subpunctatum*, *Cosmarium cucurbita*, *Cos. pachydermum*, *Cos. pseudopyramidatum* *Cos. quadrifarium* f. *hexasticha*, *Cylindrocystis brebissonii*, *Euastrum cuneatum*, *E. denticulatum*, *Micrasterias apiculata*, *M. truncata*, *Penium polymorphum*, *Pleurotaenium trabecula*, *Staurastrum alternans*, *St. orbiculare*, *St. tetracerum* and *Tetmemorus laevis* were considerably abundant.

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