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Author(s)	Sato, Hiroyuki
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Colonization of Sandy Environment by *Calamagrostis neglecta* (Poaceae) in Serebryanoye Mire, Kunashir Island

Hiroyuki Sato

Graduate School of Agriculture, Hokkaido University, N9 W9, Kita-ku, Sapporo, 060-8589 JAPAN.

E-mail: hiro@museum.hokudai.ac.jp

Abstract *Calamagrostis neglecta* (Ehrh.) P. Gaertn., B. Mey. & Schreb. was observed growing on exposed sandy ground in Serebryanoye Mire on Kunashir Island in the southern Kuril Islands in 2012. The observation is noteworthy because *C. neglecta* typically grows in bogs and not in sandy environments. However, the high frequency of fog in the Yuzhno-Kuril'sk area is considered to supply the plant with sufficient water to support growth in sandy environments.

Key words: bog, *Calamagrostis*, Island, Kunashir, mire, Poaceae

Introduction

Calamagrostis neglecta (Ehrh.) P. Gaertn., B. Mey. & Scherb., a member of the family Poaceae, is distributed mainly in the bogs of the tundra regions in the northern hemisphere (Probatova 2003). In Japan, it is distributed mainly in eastern Hokkaido (e.g. Kushiro Mire and Bekanbeushi Mire), in bogs around lakes near Shiretoko, in northern Hokkaido (e.g. Sarobetsu Mire and Uryunuma Mire), and in Ozegahara in Honshu. Many of the bogs in which *C. neglecta* typically grows have a high conservation status in Japan due to their unique biological diversity. *Calamagrostis neglecta* is also distributed on Kunashir Island in the Kuril Islands, and one of the regions where it occurs is Lake Serebryanoye near Yuzhno-Kuril'sk City. Mires extend in the vicinity of Lake Serebryanoye and we have named the mire near the lake, Serebryanoye Mire (Furukamappu-Mire). Although *C. neglecta* is usually associated with bog environments (Osada 1989), the author has confirmed *C. neglecta* growing on sandy ground adjacent to Serebryanoye Mire. This report describes *C. neglecta* in this sandy environment.

Calamagrostis neglecta in Serebryanoye Mire

The author conducted a botanical survey of Serebryanoye Mire on 23 in August 2012. In this study, the name *C. neglecta* was used as *C. inexpansa* is the synonym of *C. neglecta*.

The author found *C. neglecta* growing on sandy ground beneath a power-transmission line in Serebryanoye Mire (Figs. 1, 2). The bog below the line was drained and denuded of vegetation due to construction of the line (Fig. 3). *Rubus phoenicolasius* Maxim., *Artemisia montana* (Nakai) Pamp., and *Maianthemum dilatatum* (A.W. Wood) A. Nelson et J.F. Macbr. were observed growing on the bare ground, but not in the bog (Fig. 4). *Calamagrostis neglecta* typically grows in bogs and it was unusual to find *C. neglecta* growing in sandy ground.

Specific growth environment

Calamagrostis neglecta does not typically grow on dry sandy ground. The surface of the ground was dry and growth conditions appeared unsuitable for this species. A burrow of what appeared to be a small mammal was situated near the observed *C. neglecta* plants (Fig. 5) and inside of the burrow was moist, not so dried. The author wondered where *C. neglecta* obtained sufficient water to survive in such an environment.

Mist occurs frequently near Yuzhno-Kuril'sk, and it is possible that this mist provided enough moisture for *C. neglecta* to grow on sandy soil (Fig. 6). According to Russians who accompanied us, fog occurs frequently on the Pacific Ocean-side of Kunashir, but it is usually fine on the Sea of Okhotsk-side. When we observed the island from a ship, we observed sea fog approaching the island from the Pacific Ocean-side of Kunashir (Fig. 7).

Bogs are oligotrophic wetlands that are not supplied with groundwater, and which remain moist due to water inputs from fog and rain. In this study, the bare sandy ground near the transmission lines was oligotrophic, which is similar to a bog. Sufficient moisture is supplied from the fog which likely infiltrates the bare ground at the site and supports the growth of *C. neglecta* on bare sandy ground.

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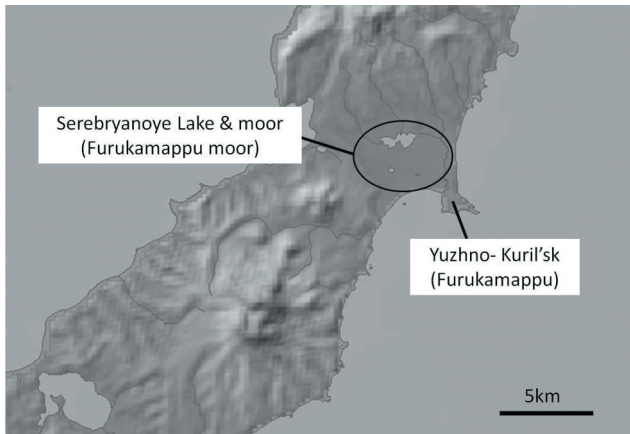


Figure 1. Location of the study site in Serebryanoye Mire (Furukamappu Mire) near Serebryanoye Lake supporting stands of *Calamagrostis neglecta*. Bar = 5 km.



Figure 2. *Calamagrostis neglecta* growing on sandy ground.



Figure 3. Power-transmission line in Serebryanoye Mire (Furukamappu Mire).



Figure 4. *Rubus phoenicolasius*, *Artemisia montana*, and *Maianthemum dilatatum* growing together with *C. neglecta* on sandy ground.



Figure 5. Den of a small mammal on bare sandy ground.



Figure 6. Serebryanoye Mire (Furukamappu Mire) covered by fog.



Figure 7. Kunashir Island covered by sea fog.

PROBATOVA, N. S. 2003. Family Poaceae, In: N. N. Tzvelev (ed.), *Vascular Plants of the Russian Far East*, 1: pp 207 — 241. Science Pub., New Hampshire.

佐藤広行：国後島古釜布湿原における砂地に生育するイネ科チシマガリヤスについて

国後島の古釜布湿原において、チシマガリヤスが砂地に生育しているのを確認した。チシマガリヤスは本来高層湿原に生育する植物であり、砂地には生育しない。チシマガリヤスを確認した場所は、本来は高層湿原であったが、送電線の建設のため植生が破壊され裸地になった場所である。砂地表面は乾燥していると思われたが、古釜布地域は霧が多く、チシマガリヤスが生育するのに十分な水分が霧から供給されていることが推察された。

(北海道大学大学院農学院)