

ミチノクホタルイ（カヤツリグサ科）の南限産地およびミヤマホタルイからの識別形質（早坂英介^a，細島尚子^b，黒沢高秀^c）

Eisuke HAYASAKA^a, Naoko HOSIJIMA^b and Takahide KUROSAWA^c: The Southernmost Locality of *Schoenoplectus orthorhizomatus* (Kats. Arai & Miyam.) Hayasaka & H. Ohashi (*Cyperaceae*) and Its Distinguishing Characters from *S. hondoensis* (Ohwi) Soják

Summary: *Schoenoplectus orthorhizomatus* (Kats. Arai & Miyam.) Hayasaka & H. Ohashi, a Japanese endemic, is recorded from Fukushima Prefecture its southernmost locality. Distinguishing characters between *S. orthorhizomatus* and closely related *S. hondoensis* (Ohwi) Soják are discussed, and a revised key is given.

ミチノクホタルイ *Schoenoplectus orthorhizomatus* (Kats. Arai & Miyam.) Hayasaka & H. Ohashi は北海道と本州北部（青森県，秋田県）に分布する日本固有種として1997年に記載された（Arai and Miyamoto 1997）. その後，本種は岩手県と山形県でも採集されている（Fig. 1, Specimens examined 参照）.

2007年に細島と黒沢は曾原湖（福島県耶麻郡北塩原村，磐梯朝日国立公園内）とその周辺の維管束植物相を調査した（細島ほか 未発表）. その過程で曾原湖にミチノクホタルイが自生することが分かった. 曾原湖からの本種の記録は福島県における初記録であるとともに，曾原湖は本種の南限産地となる（Fig. 1）. ミチノクホタルイは曾原湖の南東側に隣接する通称トンボ池の浮島状となった場所にヨシとともに数十株以上生えており，曾原湖東岸でもヨシの優占する湿地に数十株以上生えていた. なお，現在の曾原湖では，過去に養殖されて逃げ出したソウギョの影響で，常時冠水する場所には抽水植物を含めて水生植物がほとんど見られない.

ミチノクホタルイはミヤマホタルイ *Schoenoplectus hondoensis* (Ohwi) Soják に似るが，地下茎が直立すること，および総苞片が果実期に開出することで区別される別種として記載された（Arai and Miyamoto 1997）. Arai and Miyamoto (1997) にはミチノクホタルイの直立する地下茎とミヤマホタルイの

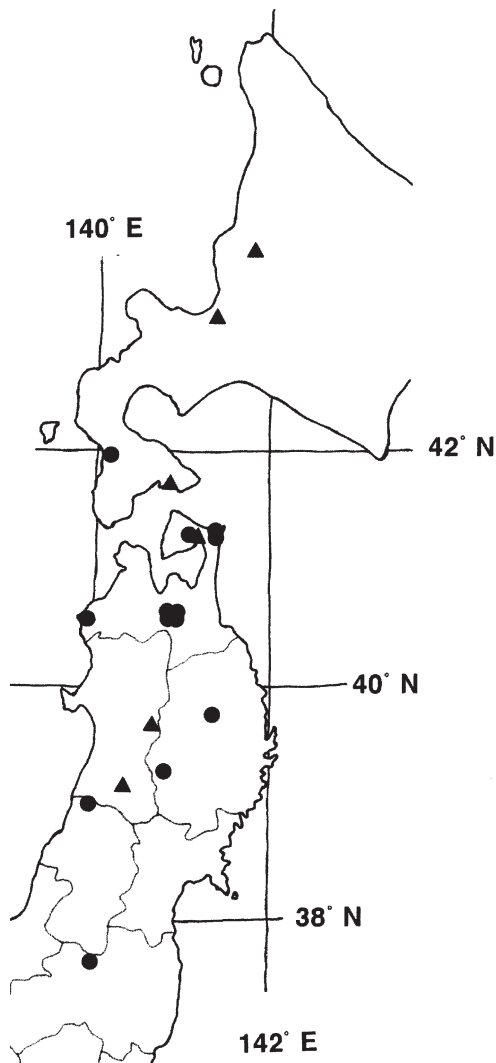


Fig. 1. Distribution of *Schoenoplectus orthorhizomatus*. Triangles are from Arai and Miyamoto (1997), circles from the specimens examined in the present paper.

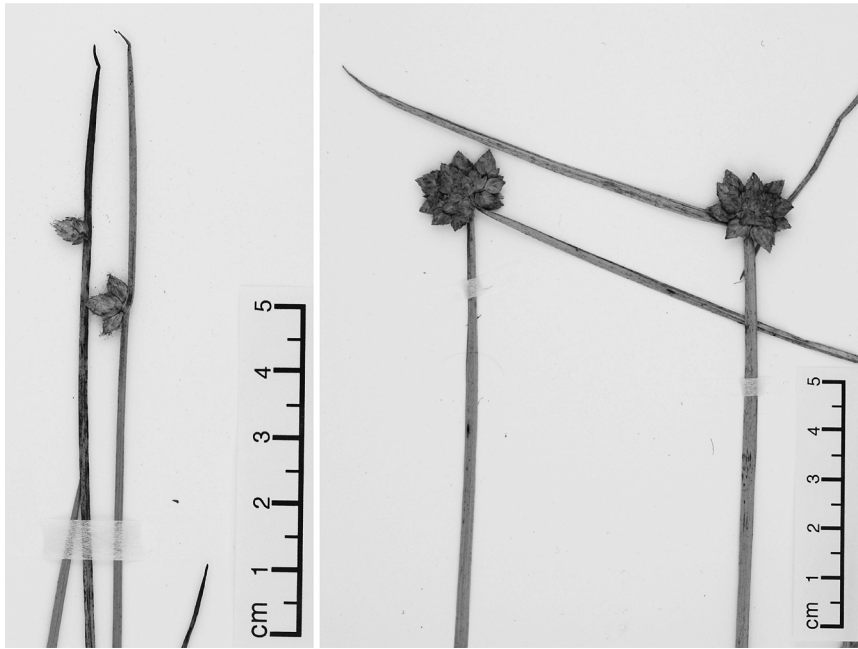


Fig. 2. Inflorescences of *Schoenoplectus hondoensis* (left) and *S. orthorhizomatus* (right).
Voucher specimens: left. K. Yonekura 6140 (TUS); right. K. Yonekura 4777 (TUS).

水平の地下茎が図示されているが、標本を観察すると地下茎は両種とも斜上することが多く、この形質で両種を区別するのは難しい。一方、果実期の総苞片は、ミチノクホタルイでは開出し、ミヤマホタルイでは直立しており、これは安定した識別形質であることが確認できた (Fig. 2)。さらに、ミチノクホタルイはミヤマホタルイよりも花序あたりの小穂が多く、総苞片が長い傾向があることが分かった (Figs. 2, 3)。以下に引用した標本に基づき、2種の区別点を検索表に示す。

- 1. Inflorescences with 1–5 spikelets; involucre bract erect when fruiting, 2.5–9 cm long *S. hondoensis*
- 1. Inflorescences with 6–13 spikelets; involucre bract patent when fruiting, 5–13 cm long *S. orthorhizomatus*

Specimens examined:

S. hondoensis: JAPAN. Honshu. Akita Pref.: Ogachi-gun, Higashiminase-mura, Syunuma, ca. 1000

m, 2 Sep. 1972, Staff of the Botanical Gardens of Tohoku University s.n. (TUSG). Aomori Pref.: Mt. Hakkoda, 40°39'N, 140°52'E, 900–1584 m, Aug. 1922, S. Hibino s.n. (TUS 32252), *ibid.*, 6 Aug. 1953, S. Iwano 9276 (TUS), *ibid.*, 1 Oct. 1953, K. Okamoto s.n. (TUS 32236); Mt. Hakkoda, Kenashitai, 27 Jul. 1932, A. Kimura s.n. (TUS 32255), *ibid.*, 24 Jul. 1978, Y. Mochida s.n. (TUS 70988); Mt. Hakkoda, Oodake, 12 Jul. 1977, C. Kimura s.n. (TUS 71168); Mt. Hakkoda, Senninda, 27 Jul. 1932, A. Kimura s.n. (TUS 32256); Mt. Ootake, Kamikenashi, 9 Aug. 1980, H. Ohashi s.n. (TUS 50859); Sarugamori, 30 Aug. 1964, K. Yoshioka s.n. (TUS 32245); Shiriyazaki, 30 Jul. 1964, H. Ohashi 4228 (TUS); Aomori-shi, Komagome, Tashirotai, Tashiro Stock Farm, 40°41'10"–20"N, 140°56'20"E, ca. 570 m, 9 Sep. 1999, K. Yonekura 4745 (TUS); Aomori-shi, Mt. Hakkoda, Shimokenashitai Moor, 40°39'40"–50"N, 140°51'10"–20"E, ca. 1030 m, 5 Aug. 1998, K. Yonekura 4261 (TUS); Aomori-shi, Mts. Hakkoda, Tashirotai Moor, 40°41'N, 140°54'E, ca. 560 m, 22 Jul. 1997, T. Kurosawa & al. 10253 (TUS); Kamikita-gun, Towadako-machi, Pond Sui-ren-uma, 40°37'N, 140°53'E, 1000 m, 17 Aug. 1999, E. Hayasaka 2983 (TUS); Kamikita-gun, Towadako-machi, Yachi-shitsugen (Yachi-Onsen Spa), 40°37'N, 140°55'E, 760 m, 17 Aug. 1999, E. Haya-

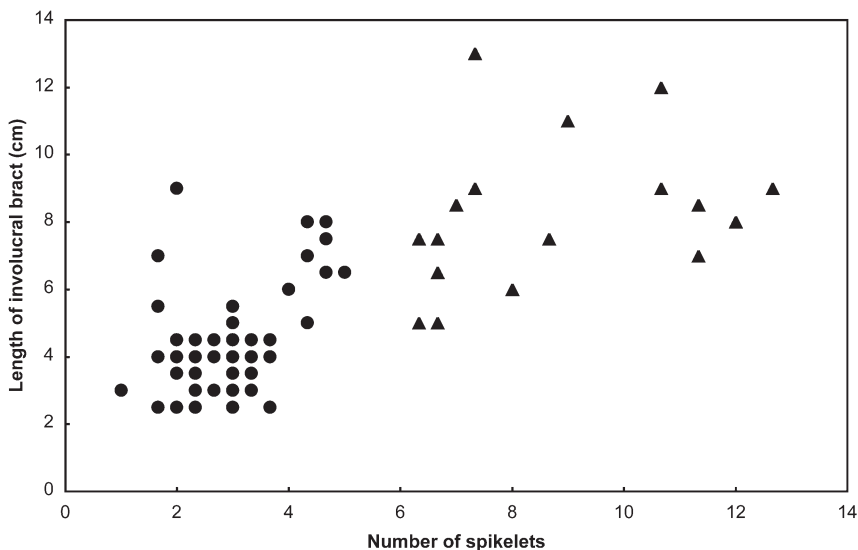


Fig. 3. Relationship between the number of spikelets per inflorescence and the length of involucre bract in *Schoenoplectus hondoensis* (circles) and *S. orthorhizomatus* (triangles). Each value is the average of three counts or measurements on a specimen. Voucher specimens are cited in the text.

saka 3272 (TUS); Kamikita-gun, Towadako-machi, Takadayachi Moor, around Iizumi-numa Pond, 40°37'40"–50"N, 140°53'10"E, 1030–1040 m, 3 Aug. 1999, K. Yonekura & al. 99900 (TUS); Kamikita-gun, Towadako-machi, a col E. of Komagamine Peak, 40°36'30"N, 140°52'20"–30"E, 1340–1350 m, 24 Aug. 2000, K. Yonekura 6140 (TUS), *ibid.*, 24 Aug. 2000, K. Yonekura 6141 (TUS); Kamikita-gun, Towadako-machi, Minami-Hakkoda Mts., Yabitsuyachi Moor, 40°36'N, 140°53'E, ca. 1060 m, 8 Sep. 1999, K. Saito 375 (TUS); Kamikita-gun, Towadako-machi, Mts. Hakkoda, Sennintai, 40°39'N, 140°52'E, ca. 1300 m, 19 Aug. 1958, H. Tohda s.n. (TUS 346442); Kamikita-gun, Towadako-machi, S. Hakkoda Mountains, Jigoku Pass, 40°36'10"–20"N, 140°52'50"–53'00"E, 1260–1270 m, 27 Jul. 1999, K. Saito 277 (TUS), *ibid.*, 24 Aug. 2000, K. Yonekura 6151 (TUS); Kamikita-gun, Towadako-machi, South Hakkoda Mts., N. side of Ose-numa Pond, 40°35'20"–30"N, 140°52'40"–50"E, ca. 1100 m, 26 Aug. 2002, K. Yonekura 9324 (TUS). **Fukushima Pref.**: Azuma Mts., Sugadaira–Mt. Iegata–Mt. Higashidaiten–Lake Myojo–Namekaw a Spa, 11–13 Aug. 1976, S. Saito 44579 (TUS); Minamiaizu-gun, Hinoemata-mura, Ozegahara Moor, 24 Jul. 1963, S. Suzuki s.n. (TUS 184564); Yama-gun, Yamato-machi, Mts. Iide, Mt. Jizo-yama, Chinoike, 17 Aug. 1965, T. Kuramata 503 (TUS). **Gunma Pref.**:

Oze, 27 Jul. 1969, H. Tachibana s.n. (TUS 63632). **Iwate Pref.**: Ichinoseki-shi, Sukawa Spa, Nanokorigahara, 1100–1200 m, 16 Aug. 1965, K. Yoshioka & K. Saito s.n. (TUS 119518); Mt. Hachimantai, 39°57'N, 140°52'E, 4 Aug. 1953, S. Iwano 9081 (TUS); Nishiiwai-gun, Iwami-mura, Mt. Sukawa, 6 Aug. 1930, H. Iwabuchi 1838 (TUS), *ibid.*, 7 Aug. 1936, H. Iwabuchi s.n. (TUS 53144), *ibid.*, 7 Aug. 1936, H. Iwabuchi 4824 (TUS); border between Iwate Pref. and Miyagi Pref., Mt. Kurikoma, 800–1600 m, 5 Aug. 1981, C. Kimura & al. s.n. (TUS 331857). **Miyagi Pref.**: Mt. Zao, Shibakusa-daira, 15 Aug. 1973, C. Kimura s.n. (TUS 40765); Tamatsukuri-gun, Narukochi, Onikobe, Sukawa-dake, 38°52'N, 140°38'E, ca. 1200 m, 10 Aug. 1987, T. Kajita & al. 601 (TUS), *ibid.*, 29 Sep. 1987, T. Kajita & al. 602 (TUS). **Niigata Pref.**: Higashikanbara-gun, Mts. Iide-san, 37°50'N, 139°49'E, 1500–2100 m, 8 Aug. 1948, S. Iwano 4792 (TUS); Itoigawa-shi, Renge-onsen–Heima-no-taira Moor, ca. 1500 m, 4 Aug. 1980, T. T. Chen & K. Inoue s.n. (TUS 61802); Kitauonuma-gun, Yunotani-mura, Mt. Echigo-Komagatake, 37°07'N, 139°04'E, 500–2003 m, 3 Aug. 1956, S. Iwano 10642 (TUS); Minamiuonuma-gun, Naeba-san, 17 Aug. 1947, S. Iwano 805 (TUS); Mt. Naebasan, 20 Jul. 1936, S. Sugaya s.n. (TUS 32233); Nakakubiki-gun, Myokogen-machi, Mt. Myoko, Kurosawa-ike, 36°54'N,

138°06'E, 14 Aug. 1950, J. Yoshikawa s.n. (TUS 188063); borders of Niigata Pref., Yamagata Pref. and Fukushima Pref., Mt. Onishi-dake–Mt. Iide-san–Mt. Tanemaki-yama–Mt. Jizou-yama–Osawa, 570–2100 m, 13 Aug. 1982, Y. Tateishi & al. 8973 (TUS); border between Niigata Pref. and Yamagata Pref., Mts. Iide, Mt. Ohishi-yama–Mt. Jigami-yama–Mt. Monnai-dake–Mt. Kitamata-dake–Kairagi-goya, 1550–2020 m, 11 Aug. 1982, Y. Tateishi & al. 8794 (TUS). **Toyama Pref.:** Nakaniikawa-gun, Tateyama-machi, Midagahara, W. side of Mt. Tateyama, 3 Aug. 1947, J. Yoshikawa s.n. (TUS 190536); Nakaniikawa-gun, Tateyama-machi, Mt. Tateyama, 1935, T. Makino 229845 (TUS); Nakaniikawa-gun, Tateyama-machi, Mt. Tateyama, Midagahara–Murodo, 36°34'N, 137°34'E, 2000–2400 m, 2 Aug. 1948, S. Iwano 5027 (TUS). **Yamagata Pref.:** Mt. Gassan, 1 Aug. 1956, K. Sohma 4025 (TUSG), *ibid.*, 31 Jul. 1971, S. Iwano 14899 (TUS); Higashitagawa-gun, Tachikawa-machi, 3.6 km NNW of the peak of Mt. Gassan, Midagahara, ca. 1480 m, 2 Sep. 2002, K. Kobayashi s.n. (TUS 280743); border between Yonezawa-shi, Yamagata Pref. and Kitashiobara-mura, Fukushima Pref., Mts. Azuma, Mt. Nishidaiten, 37°43'N, 140°07'E, 19 Aug. 1952, S. Okabe & al. s.n. (TUS 271029).

S. orthorhizomatus: JAPAN. **Hokkaido.** Nishigun, Otobe-cho, Himekawa, 41°59'N, 140°10'E, 11 Oct. 2000, K. Oita & al. 00-5736 (SAPT, TUS). **Honshu. Aomori Pref.:** Aomori-shi, Arakawa, Sukayu, Mt. Hakkoda Botanical Garden, Tohoku University, 40°38'56"N, 140°51'08"E, 900–905 m, 27 Aug. 2004, K. Yonekura 11770 (TUS); Aomori-shi, Komagome, Tashirotai, Chokichitai, near 'Gas hole' (pits filled with CO₂ gas), 40°40'50"N, 140°55'40"E, ca. 610 m, 5 Sep. 2000, K. Yonekura 6399 (TUS); Aomori-shi, Komagome, Tashirotai, Chokichitai, W of Kofuji-bashi Bridge, 40°40'55"N, 140°55'55"E, 600–610 m, 29 Aug. 2004, K. Yonekura 11777 (TUS); Aomori-shi, Komagome, Tashirotai, Tashiro Stock Farm, 40°41'20"N, 140°56'00"E, 570–580 m, 9 Sep. 1999, K. Yonekura 4777, 4778 (TUS); Aomori-shi, Komagome, Tashirotai, W of Tashiro stock-farm, NW of Gudari-numa Spring, 40°40'10"N, 140°57'20"E, 590–600 m, 9 Oct. 1999, K. Yonekura 5056 (TUS); Nishitsugaru-gun, Iwasaki-mura, Nakayama Pass, 40°36'N, 139°55'E, ca. 150 m, 14 Sep. 1992, K. Hosoi s.n. (TUS 265668); Kamikita-gun, Towadako-machi, near Sarukura Spa, 40°37'N, 140°54'E, 850–870 m, 16 Sep. 1999, K. Saito 542 (TUS); Kamikita-gun, Towadako-machi, Sarukura Spa, 40°37'20"N, 140°54'40"E, 840–850 m, 30 Sep. 2000, K. Yonekura 6511 (TUS); Shimokita-gun, Higashidori-mura, Horobe, 41°

23'N, 141°25'E, 8 Sep. 1975, M. Furuse 9649 (TUS); Shimokita-gun, Higashidori-mura, Sarugamori, 41°17'N, 141°24'E, 29 Aug. 1964, T. Kashimura s.n. (TUS 32242); Mutsu-shi, Lake Usoriyamako, 41°19'N, 141°06'E, 1 Sep. 1964, K. Yoshioka & K. Sugawara s.n. (TUS 32243), *ibid.*, 2 Sep. 1964, K. Yoshioka & K. Sugawara s.n. (TUS 32240, 32244). **Fukushima Pref.:** Yama-gun, Kitashiobara-mura, Hibara, Soharayama, around Lake Sohara-ko, 37°40'59"N, 140°04'27"E, 820m, 18 Aug. 2007, N. Hosojima & al. 307 (FKSE, unicate); Yama-gun, Kitashiobara-mura, Lake Soharako, 37°40'57"–41'14"N, 140°04'23"–25"E, 820 m, 18 Aug. 2007, N. Hosojima & al. 308 (FKSE, unicate). **Iwate Pref.:** Kitakami-shi, Waga-cho, Habara-yachi, 8 Sep. 2006, Y. Takano s.n. (TUS 354003); Morioka-shi, Tamayama-ku-yabukawa, Lake Gandoko (S end of the lake, along Route 455, ca. 300 m NE of Koishikawafuku-sekitei Embankment), 39°47'27.5"N, 141°20'25.4"E, 690 m, 14 Oct. 2007, E. Hayasaka & N. Abe 4534 (TUS, unicate). **Yamagata Pref.:** Akumi-gun, Yawata-machi, Kusatsu, Yunodai, around Shinji-ike Pond (S foot of Mt. Horai-san), 39°02'N, 140°02'E, 570 m, 3 Sep. 2004, E. Hayasaka & al. 3576 (A, HAST, KYO, MHA, SAPT, SHO, TUS).

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