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# Cyperus subgen. *Kyllinga* (Rottb.) J. V. Suringar (Cyperaceae) in Somalia

KÅRE ARNSTEIN LYE

## ABSTRACT

LYE, K. A. (1996). Cyperus subgen. *Kyllinga* (Rottb.) J. V. Suringar (Cyperaceae) in Somalia. *Candollea* 51: 421-432. In English, English and French abstracts.

In Somalia 10 taxa of *Cyperus* subgen. *Kyllinga* are recognized. One new species is described, illustrated and mapped, viz. *C. brunneofibrosus* Lye. One new combination is coined, viz. *Cyperus erectus* subsp. *jubensis* (Chiov.) Lye. Distribution maps are prepared for all species.

## RÉSUMÉ

LYE, K. A. (1996). Cyperus subgen. *Kyllinga* (Rottb.) J. V. Suringar (Cyperaceae) en Somalie. *Candollea* 51: 421-432. En anglais, résumés anglais et français.

En Somalie, l'auteur reconnaît 10 taxa du genre *Cyperus* subgen. *Kyllinga*. Une nouvelle espèce, *C. brunneofibrosus* Lye, est décrite et illustrée. Une nouvelle combinaison, *Cyperus erectus* subsp. *jubensis* (Chiov.) Lye est réalisée. Des cartes de distribution pour chaque espèce sont présentées.

**KEY-WORDS:** Taxonomy – CYPERACEAE – *Cyperus* – *Kyllinga*.

## Introduction

The genus *Cyperus* is one of the largest and most difficult genera in tropical Africa. In the arid or semi-arid Somalia it is represented by more than eighty species. Many species are, however, known from immature and poorly collected material only, and then their taxonomic status remains somewhat obscure.

There are still unsolved problems as to the circumscription of the genera and subgenera of the Cyperaceae. In the present work only the subgenus *Kyllinga* is dealt with. In many regional floras *Kyllinga* is treated as a separate genus, e.g. CLARKE (1901-1902), CHERMEZON (1937), HOOPER (1972) and KOYAMA (1985). However, when studied on a world-wide basis it is evident that this genus is heterogeneous and of polyphyletic origin – as was shown for *Mariscus* by LYE (1992). *Kyllinga* was treated as a subgenus of *Cyperus* by KÜKENTHAL (1935-1936), KERN (1974) and HAINES & LYE (1983). In “Flora Europaea” (DE FILIPPS, 1980) *Kyllinga* was regarded as merely a section of *Cyperus*. Agreement is not expected until more extensive molecular data becomes available.

The present work is based on studies of herbarium material from B, BM, BR, C, EA, FR, FT, G, HBG, K, L, LD, LISU, LYON, M, P, UPS, WAG and Z.

**Cyperus** subgen. **Kyllinga** (Rottb.) J. V. Suringar, Cyperus Mal. Archipel: 42. 1898.  
 ≡ *Kyllinga* Rottb., Descr. Icon. Nov. Pl.: 12. 1773.

A medium-sized subgenus of about 70 species widely distributed in the tropical and subtropical regions of both hemispheres, but with the majority of species found in Africa. In Somalia 10 species.

**1. Cyperus eximius** (C. B. Clarke) Mattf. & Kük. in Engl., Pflanzenr. 101: 567. 1936 (Figs. 1 K & 3).

≡ *Kyllinga eximia* C. B. Clarke in Dyer, Fl. Trop. Africa 8: 287. 1901.

**Type:** Ethiopia, Harerghe region, Harradigit in Ogaden, 1885, *F. L. and W. D. James & J. G. Thrupp s.n.* (K holotype).

*Distribution and habitat.* – On sandy soil in grassland or bushland or on rocks, from sea level to about 550 m. Scattered in south Somalia; Ethiopia, Kenya.

*Additional collections.* – **SOMALIA:** Somalia, 1912, *Scassellati s.n.* (FT); **NORTH SOMALIA:** **Togdheer province:** Hagarsarawein (= Sareweina or Sararweyne, ca. 9°55'N & 45°50'E?), 500 m, 26 Dec 1941, *E. F. Peck* 383 (K). **Nugal province:** Haud, 480 m, Apr 1932, *B. Godfrey-Fausset* 14 (K); **SOUTH SOMALIA:** **Gedo province:** Ganana, Lugh, 14 Apr 1893, *E. Ruspoli & D. Riva* 1154 bis (FT) & 1275 (FT); km 711 on El Uak-Garba Harre road, 8 km after Semarde, station 10, 4 Nov 1986, *M. Tardelli* 188 (FT) & 189 (FT); **Shabeellaha Dhexe province:** ca. 10-15 km SE of Balad on Uarsciek road, 30 Nov 1976, *G. Moggi, R. Bavazzano & M. Tardelli s.n.* (FT); **Banaadir province:** 23 km on Mogadishu-Balad road, 150 m, 11 May 1983, *M. Thulin & A. M. Warfa* 4545 (K, UPS); **Shabeellaha Hoose province:** ca. 46 km SW of Afgooye (Afgoi) along road to Shalaambood, ca. 1 km E of road towards the dunes, 44°44'E & 1°48'N, 40 m, 4 Jun 1987, *V. Alstrup & A. Michelsen* 105 (K); **Jubbada Hoose province:** Jubbada Hoose, *M. Tardelli & R. Bavazzano* 387 (FT); Cosciru 7 km from Chisimaio Airport, 19 Aug 1975, *R. Bavazzano* 856 (FT) & 857 (FT); Bulahaji district: Kismaayo towards Vamoni through Bulahaji, 22 Jun 1978, *S. M. Kasmi, A. A. Elmi & Rodol* 655 (K); 18 km NE of Kisimaio on road to Mogadishu, 42°35'E & 0°13'S, 50 m, 25-26 Jun 1983, *J. B. Gillett, C. F. Hemming & R. M. Watson* 24939 (K).

**2. Cyperus comosipes** Mattf. & Kük. in Engl., Pflanzenr. 101: 568. 1936 (Fig. 4).

≡ *Kyllinga leucocephala* Boeck. in Flora 58: 257. 1875 [non *Cyperus leucocephalus* Retz.].

**Type:** Tanzania, Uyanzi district, 1860-1862, *J. H. Speke & J. A. Grant s.n.* (K holotype).

= *Kyllinga eximia* var. *kelleri* C. B. Clarke in Dyer, Fl. Trop. Africa 8: 288. 1901.

**Type:** Ethiopia, Abdallah, *A. Keller* 80 (K lectotype designated here) and 87 (K syntype).

*Distribution and habitat.* – In seasonally damp places in bushland and grassland. Uncommon in south Somalia; East Africa.

*Additional collections.* – **NORTH SOMALIA:** **Bari province:** Qardho district: Kubo, 3 km from Qardho, 49°08'E & 9°30'N, 3 Nov 1983, *S. M. A. Kazmi & M. Hussein* 5695 (UPS). **SOUTH SOMALIA:** **Gedo province:** between Soban Alle (42°40'E & 3°50'N) and Usciacca Gurian (42°49'E & 3°53'N), 28 Oct 1913, *G. Paoli* 1028 (FT); 5 km from El Uak on road to El Bur Saar, station 5, 3 Nov 1986, *M. Tardelli* 110 (FT) & 111 (FT); 14 km from El Uak on road to Garba Harre, station 6, 3 Nov 1986, *M. Tardelli* 121 (FT) & 124 (FT); El Uak-Garba Harre road, 18 km El Uak, station 7, 3 Nov 1986, *M. Tardelli* 127 (FT), 128 (FT) & 130 (FT); El Uak-Garba Harre road (703 km), station 9, 4 Nov 1986, *M. Tardelli* 144 (FT) & 153 (FT); Gersale, El Uak-Garba Harre (km 711) 8 km after Semarole, station 10, 4 Nov 1986, *M. Tardelli* 169 (FT), 170 (FT), 176 (FT) & 177 (FT); near Uaf, km 745 on El uak-Garba Harre road, 55 km

from Cell Cad (El Ade), station 12, 4 Nov 1986, *M. Tardelli* 218 (FT) & 219 (FT); **Bay province:** 51 km on road between Qansaxdhere and Bardera, 360 m, 3 Jun 1989, *M. Thulin* & *B. A. Mohamed* 6860 (UPS); **Shabeellaha Dhexe province:** 71 km NE of Cadale along road to Ceeldheer, 46°35'E & 3°17'N, 75 m, 6 May 1990, *M. Thulin*, *M. Hedrén* & *A. M. Dahir* 7252 (K, UPS).

### 3. *Cyperus brunneofibrosus* Lye, spec. nova (Fig. 1 A-C, 2 & 5).

**Type:** Somalia, Bakool province: 17 km E of Wojid (Uegit) on road to Oddur, 3°51'N & 43°23'E, 22 May 1983, *J. B. Gillett* & *C. F. Hemming* 24356 (K holotype).

*Herbae perennes. Culmus 5-15 cm altus. Anthela simplex contracta. Spiculae 3-4 mm longae et 1-2 mm latae, 1-3 florae. Squamae 3-4 mm longae. Nux 1.0 mm longa.*

A densely tussocky perennial with a short woody rhizome with many culm bases densely covered by numerous old leaf-sheaths splitting up into dense “socks” of brownish fibres. Roots many, greyish, up to 0.5 mm in diam. Culms 5-15 cm long and 0.5-0.8 mm thick, angular to terete, glabrous. Leaves many (5-8) from within the fibrous “socks”, and usually one caudine from the lower part of the culm; caudine sheath light reddish brown, membranous; the blades to about 10 cm long and 1-2 mm wide, flat, densely short-hairy on margin and midrib; the lower surface with a slightly keeled midrib; the upper with a slightly sunken central part and several more or less distinct lateral nerves. Inflorescence a terminal hemispheric head 5-10 mm in diam. consisting of numerous crowded sessile spikes. Involucral bracts to 5 cm long and 2 mm wide, spreading or reflexed, leaf-like and densely short-hairy on margin and midrib. Spikelets 3-4 mm long and 1-2 mm wide, oval, brownish (at least as dry), 1-3 flowered. Glumes 3-4 mm long, oval, as dry cinnamon-tinged but perhaps white when fresh; the midrib distinct near the apex only, slightly excurrent into a very short (0.1-0.2 mm long) straight or recurved mucro of the same colour as the glume or slightly paler; lateral nerves very indistinct. Stamens usually 3, with 1.2-1.4 mm long linear anthers. Style with a 1.5 mm long unbranched part and divided into 2 stigmas at apex. Nutlet about 1.0 mm long and 0.5 mm wide, elliptic, lenticular, reddish-brown, minutely papillose.

*Distribution and habitat.* – On shallow soil over limestone rocks and in sand or loam in bushland, 150-415 m. Rare in Central Somalia; also in Ethiopia.

*Additional collections.* – **SOMALIA:** **Galguduud province:** 12 km NW of Guri Ceel, 45°58'E & 5°35'N, 320 m, 5 Apr 1979, *J. J. Beckett* 136 (K); 2 km NW of Mareerguur, 46°25'E & 5°40'N, 19 May 1979, *A. A. Elmi* & *O. J. Hansen* 4087 (K); **Mudug province:** 36 km E of Baxdo, 47°33'E & 5°49'N, 160 m, 4 Jun 1979, *J. J. Beckett* 226 (K).

This species is most similar to *C. comosipes*, but differs in its smaller size, usually 1-2 flowered spikelets and glumes drying cinnamon and without distinct lateral nerves. The culm is also less triangular and glabrous in *C. brunneofibrosus*. Perhaps it is more closely related to *C. brunneocalba* Lye from northern Kenya. That plant has more spherical-oblong inflorescence (in *C. brunneofibrosus* hemispherical) with many more crowded and smaller spikelets and glumes. It is also lacking the prominently fibrous base of *C. brunneofibrosus*.

### 4. *Cyperus welwitschii* (Ridl.) Lye in R. W. Haines & Lye, Sedges Rushes East Africa, App. 3: B. 1983 (Fig. 3).

≡ *Kyllinga welwitschii* Ridl. in Trans. Linn. Soc. London, Bot. 2: 147. 1884.

**Type:** Angola, Pungo Andongo, near Calembo on River Cuanza, 1857, *F. M. J. Welwitsch* 6779 (LISU holotype, BM isotype).

*Distribution and habitat.* – On moist sandy soil near rivers or in shrubland, 190-300 m. Uncommon in south Somalia; tropical Africa.

*Additional collections.* – **SOUTH SOMALIA: Bay province:** Bur Heybo, 44°19'E & 3°00'N, 230-270 m, 27 Apr 1985, E. M. O'Brien 22 (K); about 20 km SE of Buur Heybo, 44°25'E & 2°54'N, 190 m, 1 Jun 1989, M. Thulin & B. A. Mohamed 6780 (K, UPS); ca. 3 km SW of Buur Diinsoor, 42°58'E & 2°24'N, ca. 300 m, 20 May 1990, M. Thulin, M. Hedrén & A. M. Dahir 7608 (UPS); Baidoa district: Mood Mooda, 43°53'E & 3°01'N, 24 Jul 1988, N. Kilian 1961 & W. Labin 6811 (FR).

**5. *Cyperus microstylus* (C. B. Clarke) Mattf. & Kük. in Engl., Pflanzenr. 101: 578. 1936 (Fig. 1 D-E and 4).**

≡ *Kyllinga microstyla* C. B. Clarke in Bull. Misc. Inform. 1895: 229. 1895.

**Type:** North Somaliland, E. Lort-Phillips s.n. (K holotype).

*Distribution and habitat.* – In silty or sandy soil, 200-400 m. Scattered in Somalia; Ethiopia and Kenya.

*Additional collections.* – **SOUTH SOMALIA: Bay province:** Bur Heybo, 44°19'E & 3°00'N, 230 m, Apr-May 1985, E. M. O'Brien 197 (K); 32 km NE of Dhiinsorr (Dinsor) along the old road to Baydhabo (Baidoa), 2°36'N & 43°15'E, 360 m, 30 May 1987, I. Friis, K. Vollesen & A. S. Hassan 4880 (K); Buur Heybo (Bur Eibi), 44°16'E & 2°59'N, 230 m, 1 Jun 1989, M. Thulin & B. A. Mohamed 6803 (K, UPS).

**6. *Cyperus oblongus* subsp. *jubensis* (Mtoto.) Lye in Lidia 3: 132. 1994 (Fig. 1 F-H & 5).**

≡ *Kyllinga flava* subsp. *jubensis* Mtoto. in Ethiop. J. Sci. 13: 39. 1990.

**Type:** South Somalia, Jubbadha Hoose province: Bula Haji district, between Bula Haji and Halinoadoi, 75-110 km from Kismaiyo towards Badhadhe, 24 June 1976, S. M. A. Kazmi, A. A. Elmi & Rodol 731 (K holotype).

*Distribution and habitat.* – On rocky outcrops and in degraded sandy bushland, ca. 50-250 m. Scattered in south Somalia; East Africa.

*Additional collections.* – **SOUTH SOMALIA: Jubbadha Hoose province:** Obe, 5 Jul 1929, L. Senni 419 (FT); **Shabeellaha Hoose province:** 5 km from Scialambot along road to Afgoye (63 km), 13 Aug 1979, G. Moggi & M. Tardelli 39 (FT) & 40B (FT); Brava district: ca. 12 km S of Quyno Barrow, Cara Cadde, 43°24'E & 0°40'N, 1 Aug 1988, N. Kilian 2117 & W. Labin 6969 (FR).

**7. *Cyperus erectus* subsp. *jubensis* (Chiov.) Lye, comb. nova (Fig. 1 I-J and 4).**

≡ *Kyllinga jubensis* Chiov., Fl. Somalia 2: 433. 1932.

**Type:** South Somalia, Jubbadha Hoose province: Uamo Ido between Chisimaio and Colbio, Jul 1931, R. Tozzi 250 (FT holotype).

*Distribution and habitat.* – On margin of pool, ca. 20-100 m. Rare in south Somalia; East Africa.

*Additional collection.* – **SOUTH SOMALIA: Jubbadha Hoose province:** Baddada district: 35 km from Badade on Badade-Kolbyo road, 1 Jul 1982, S. M. Kazmi 5248 (UPS).

**8. *Cyperus aromaticus*** (Ridl.) Mattf. & Kük. in Engl., Pflanzenr. 101: 581. 1936 (Fig. 3).  
 ≡ *Kyllinga aromatica* Ridl. in Trans. Linn. Soc. London, Bot. 2: 146. 1884.

**Types:** Angola: Pungo Andongo, near Candumba on River Malemba, 1857, *F. M. J. Welwitsch* 6801 (LISU holotype, BM isotype).

= *Kyllinga polyphylla* Kunth, Enum. Pl. 2: 134. 1837 [non *Cyperus polyphyllus* Vahl].

*Distribution and habitat.* – In somewhat shady habitats in upland areas, probably 1000–1500 m. Rare in northeast tropical Africa, more widespread in the wetter parts of tropical Africa.

*Additional collection.* – **NORTH SOMALIA: Waqooyi Galbeed province:** Ber es Sogair in Berbera region, Jul-Aug 1891, *L. Robecchi-Bricchetti* 114 (FT).

**9. *Cyperus alatus* subsp. *albus*** (Nees) Lye in Lidia 3: 172. 1995 (Fig. 4).  
 ≡ *Kyllinga alba* Nees in Linnaea 10: 140. 1835.

**Type:** South Africa, Tambukiland, Zwarte Keyrivier, *C. F. Ecklon* s.n. (B holotype, K isotype).

= *Cyperus cristatus* (Kunth) Mattf. & Kük. in Engl., Pflanzenr. 101: 609. 1936.

≡ *Kyllinga cristata* Kunth, Enum. Pl. 2: 136. 1837.

**Type:** South Africa, *Drege* s.n. (B holotype, K isotype).

*Distribution and habitat.* – In grassland or bushland, often in seasonally wet sand, from near sea level to about 200 m. Scattered in south Somalia; south and tropical Africa.

*Additional collections.* – **SOUTH SOMALIA: Jubbada Hoose province:** Bender Suguma, 18 Jun 1913, *G. Paoli* 257 (FT); Chisimaio, dune near Gobuin, 1926, *P. Gorini* 436 (FT); Ola Uager, 27 km from Badadda, 41°32'E & 1°14'S, 28 Aug 1959, *G. Moggi* & *R. Bavazzano* 1708 (FT); ca. 3-4 km NO of Sar Uanle, 42°27'E & 0°37'S, 9-18 Jun 1973, *R. Bavazzano* s.n. (FT); **Shabeellaha Hoose province:** Afgoi, 6 Aug 1929, *L. Senni* 557 (FT); near Afgoi, 11 May 1975, *M. Rafaelli* 549 (FT).

**10. *Cyperus aureoalatus*** Lye in Lidia 3: 171. 1995 (Fig. 5).

**Type:** Uganda, Karamoja, Moroto town, 2 Jun 1967, *R. W. Haines* 4215 (NLH holotype, K & MHU isotypes).

*Distribution and habitat.* – In stony ground or sandy soil. Very rare in south Somalia; East Africa.

*Additional collection.* – **SOUTH SOMALIA: Jubbada Hoose province:** Ghersei, 41°05'E & 0°30'S, 4 Jul 1929, *L. Senni* s.n. (FT).

#### *Species incertae*

***Cyperus purpureoglandulosus*** Mattf. & Kük. in Engl., Pflanzenr. 101: 570. 1936.

≡ *Kyllinga sphaerocephala* Boeck. in Flora 58: 258. 1875 [non *Cyperus sphaerocephalus* Vahl].

**Type:** Tanzania, Zanzibar, 1860, *J. H. Speke* & *J. A. Grant* s.n. (K holotype).

*Distribution.* – Recorded from Ali Javio in south Somalia, on maritime sand by Senni (no. 103) according to CHIOVENDA (1932) and CUFODONTIS (1970), but most probably an error, since this is a species from high rainfall areas.

**Cyperus sesquiflorus** subsp. **appendiculatus** (K. Schum.) Lye in R. W. Haines & Lye, Sedges Rushes East Africa, App. 3: B. 1983.

≡ *Kyllinga appendiculata* K. Schum. in Bot. Jahrb. Syst. 24: 338. 1897.

**Type:** Cameroon, Mt. Cameroon, W of Buea, 2500 m, 1889-1892, *P. R. Preuss* 923 (B holotype).

= *Kyllinga odorata* var. *major* Chiov., Fl. Somalia 2: 432. 1932.

≡ *Kyllinga cylindrica* var. *major* C. B. Clarke in Dyer, Fl. Trop. Africa 8: 283. 1901 [non Nees in Linnaea 35: 415. 1868].

**Type:** Tanzania, Mt. Kilimanjaro, 1884-1885, *H. H. Johnston* 75 (K holotype).

*Distribution.* – Recorded from Ghersei in south Somalia by Senni (nº 422) according to CHIOVENDA (1932) and CUFODONTIS (1970), but most probably an error since this is an upland species from high rainfall areas.

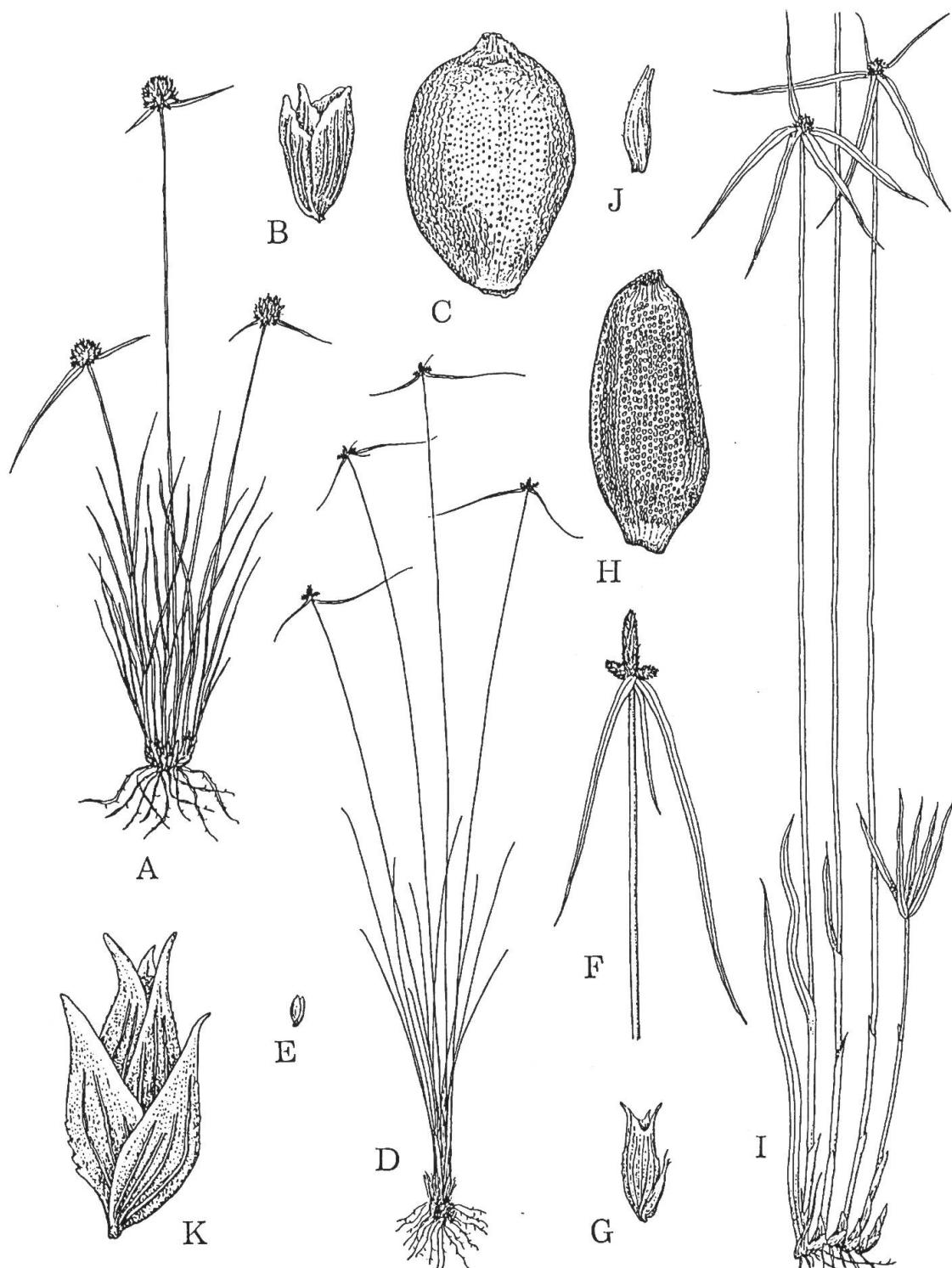


Fig. 1. – Genus *Cyperus* subgen. *Kyllinga* (Rottb.) J. V. Suringar. A-C: *Cyperus brunneofibrosus* Lye, from Gillett & Hemming 24356. A: habit 0.5×; B: spikelet 5×; C: nutlet 30×. D-E: *C. microstylus* (C. B. Clarke) Mattf. & Kük. from Thulin & Mohamed 6803. D: habit ×0.5; E: spikelet 5×. F-H: *C. oblongus* subsp. *jubensis* (Mtoto.) Lye, from Thulin & Mohamed 6793. F: habit 0.5×; G: spikelet 5×; H: nutlet 30×. I-J: *Cyperus erectus* subsp. *jubensis* (Chiov.) Lye, from Kazmi 5248. I: habit 0.5×; J: spikelet 5×. K: *Cyperus eximius* (C. B. Clarke) Mattf. & Kük., spikelet 5×, from Glover & Gilliland 462. Drawn by Gerd Mari Lye.

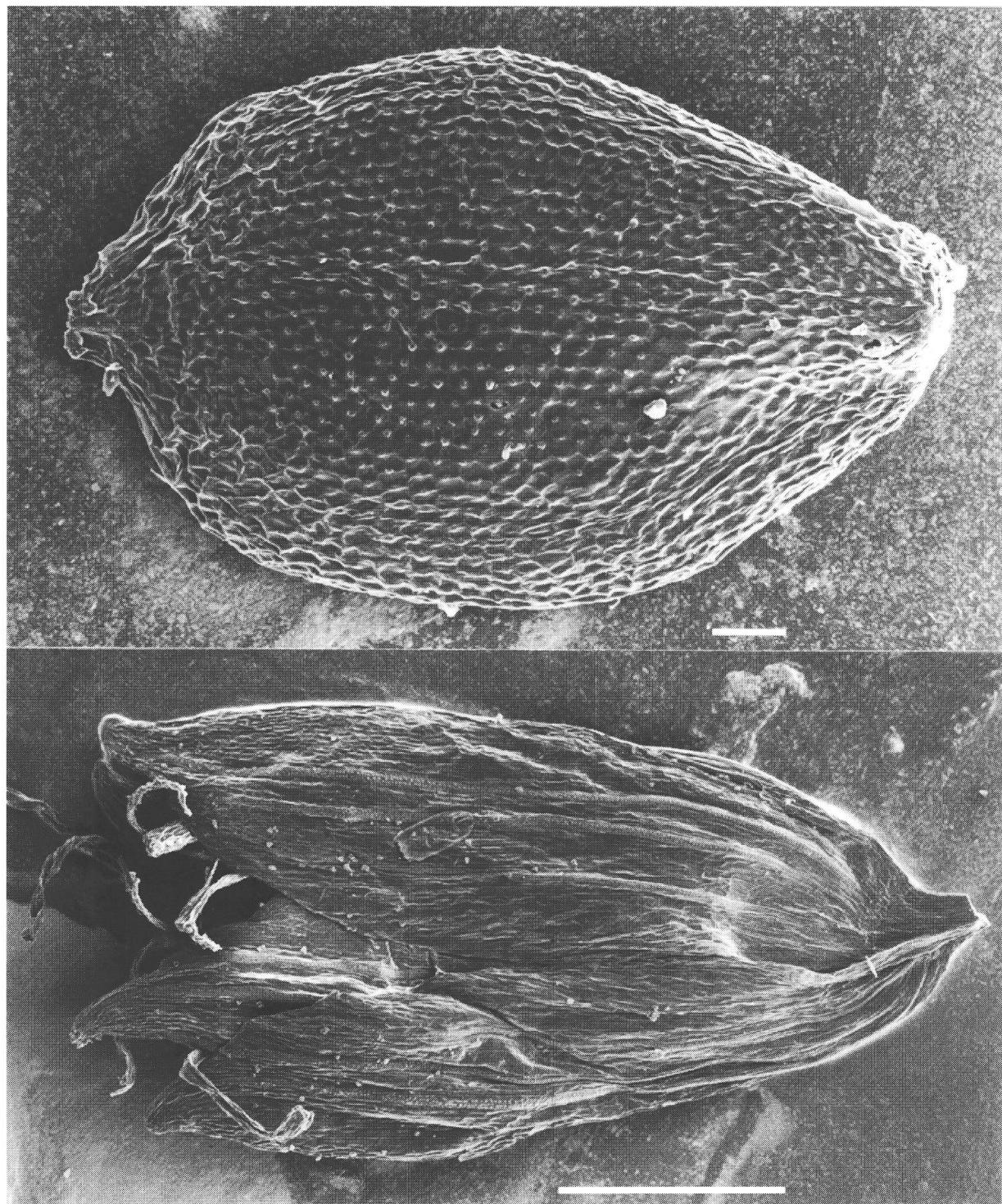


Fig. 2. – *Cyperus brunneofibrosus* Lye. – Below: Spikelet, scale 1 mm. – Above: Achene, scale 0.1 mm. – Both SEM photographs from the type.

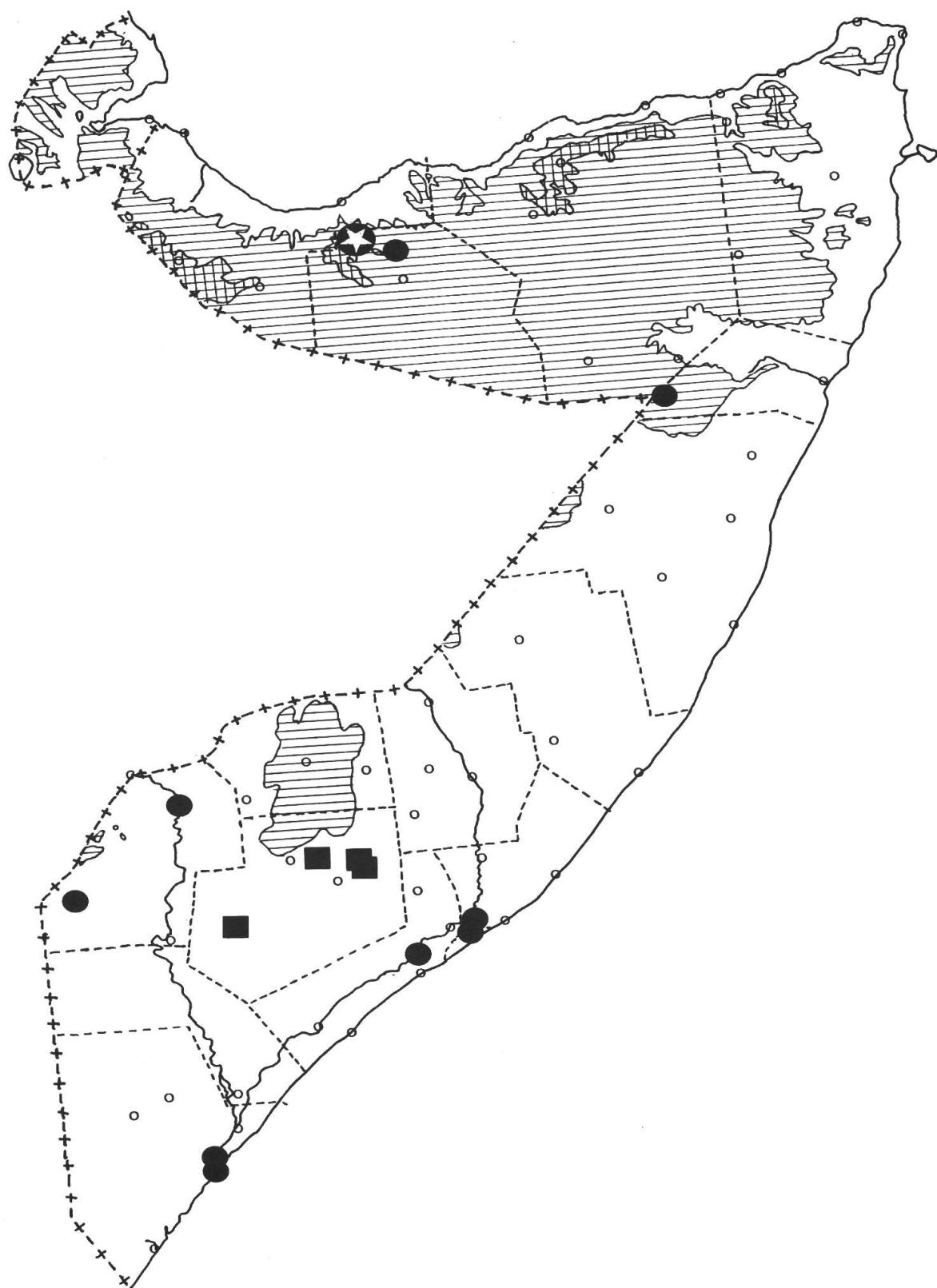


Fig. 3. – Distribution of *Cyperus eximius* (C. B. Clarke) Mattf. & Kük. (dots), *Cyperus welwitschii* (Ridl.) Lye (squares) and *Cyperus aromaticus* (Ridl.) Mattf. & Kük. (white asterisc) in Somalia.

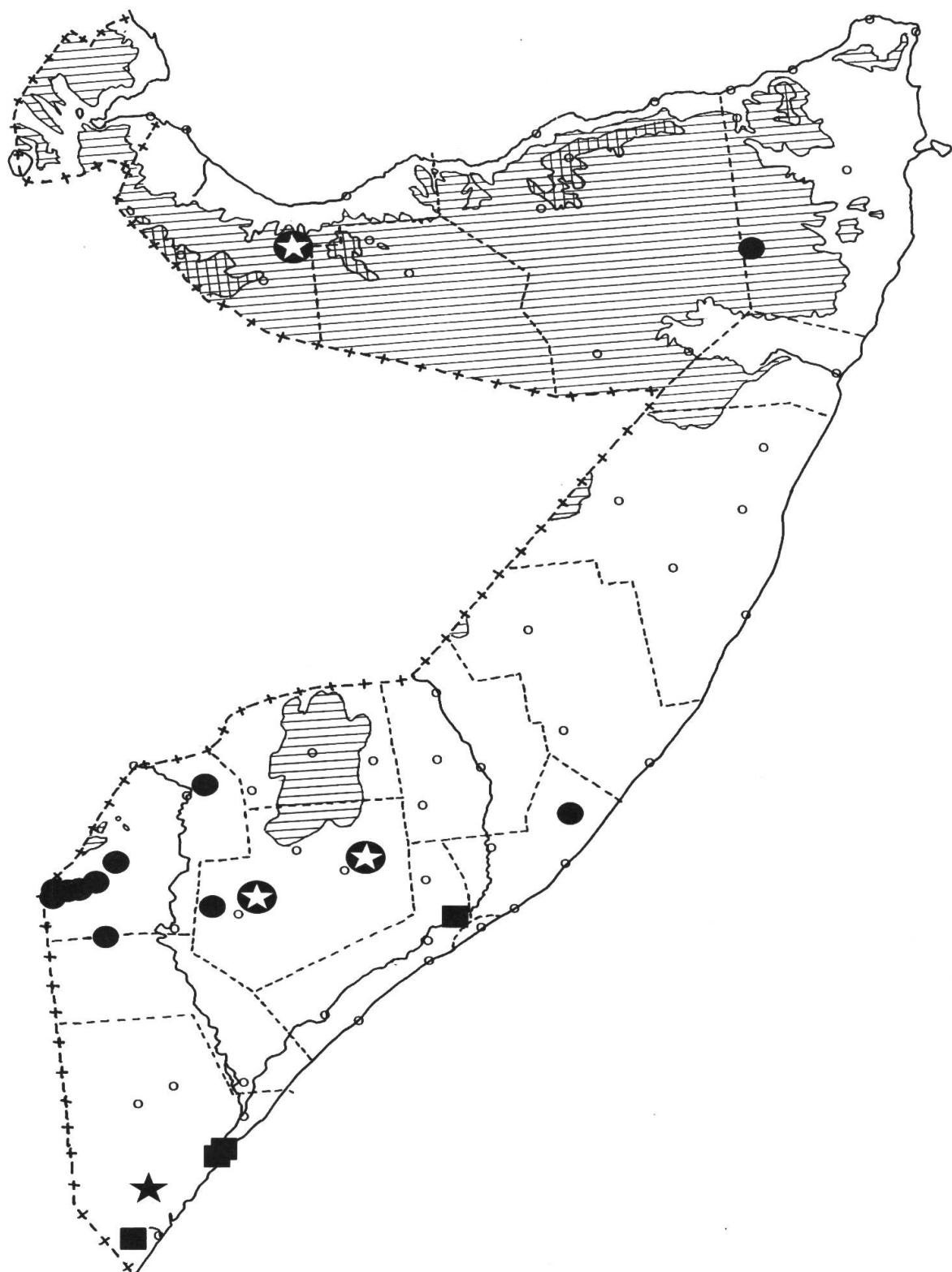


Fig. 4. – Distribution of *Cyperus comosipes* Mattf. & Kük. (dots), *Cyperus alatus* subsp. *albus* (Nees) Lye (squares), *Cyperus microstylus* (C. B. Clarke) Mattf. & Kük. (white asterisks) and *Cyperus erectus* subsp. *jubensis* (Chiov.) Lye (black star) in Somalia.

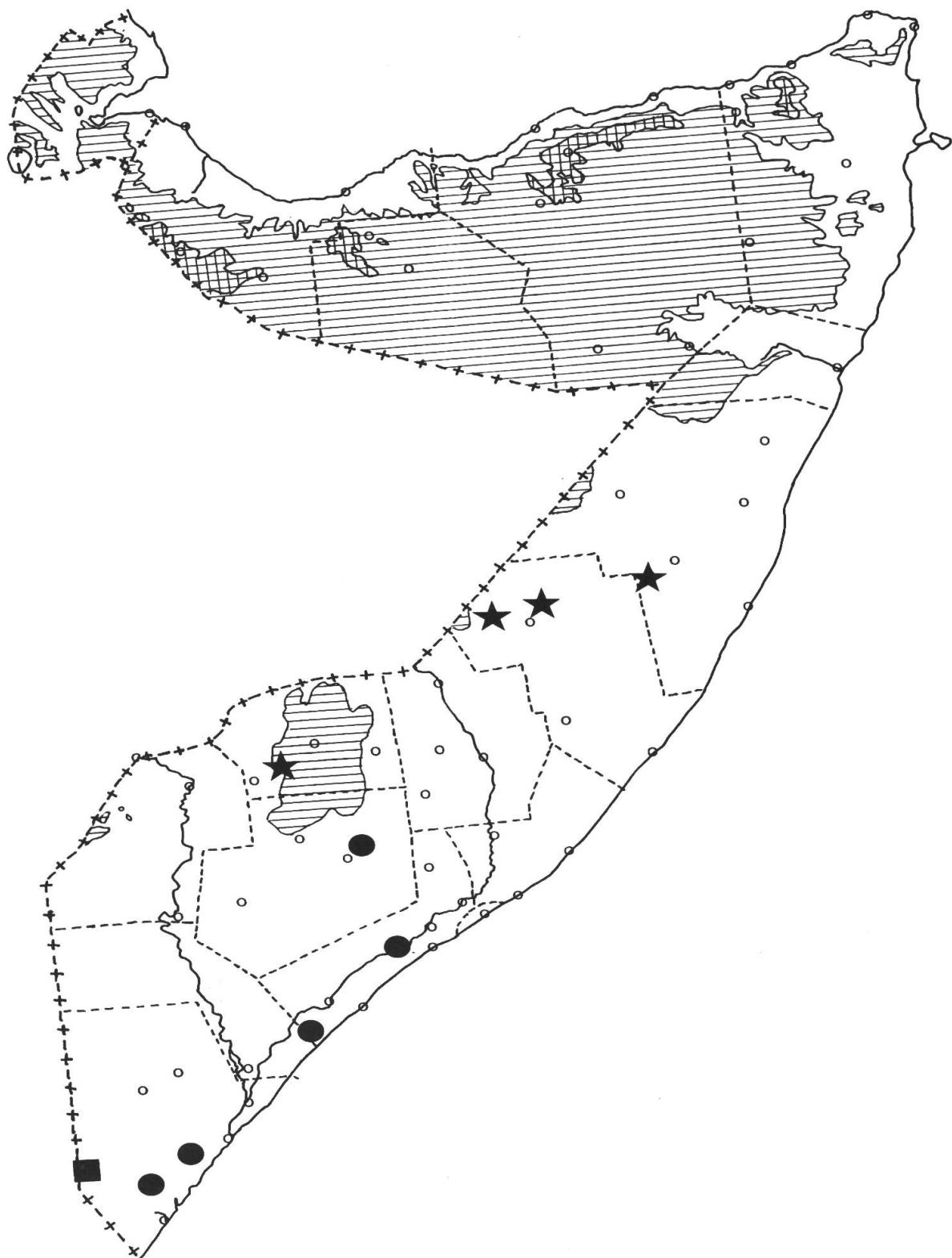


Fig. 5. – Distribution of *C. brunneofibrosus* Lye (black stars), *C. oblongus* subsp. *jubensis* (Mtoto.) Lye (dots) and *C. aureoalatus* Lye (square) in Somalia.

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