

SPARGANIUM

1. Collection notes

Sparganium fruits usually fall as soon as they are ripe enough to show their proper characters and usually need packeting, and very careful timing in their collection.

For a recent monograph, see Cook & Nicolls (1986, 1987). *Sparganium* is very difficult to identify from vegetative material, and the following key should be treated with care. All juvenile material has flat, light green leaves and much the same is found in totally submerged leaves.

- | | | |
|---|--|---|
| 1 | Leaves flat | 2 |
| 1 | Leaves triangular in section | 3 |
| 2 | Leaf base inflated | <i>S. angustifolium</i> Michx. |
| 2 | Leaf base not inflated | <i>S. natans</i> L. (<i>S. minimum</i> Wallr.) |
| 3 | Leaves smaller, light green, with the tips green up to about the last 1 mm | <i>S. emersum</i> Rehmman |
| 3 | Leaves darker green with distinct brown tips | <i>S. erectum</i> L. |

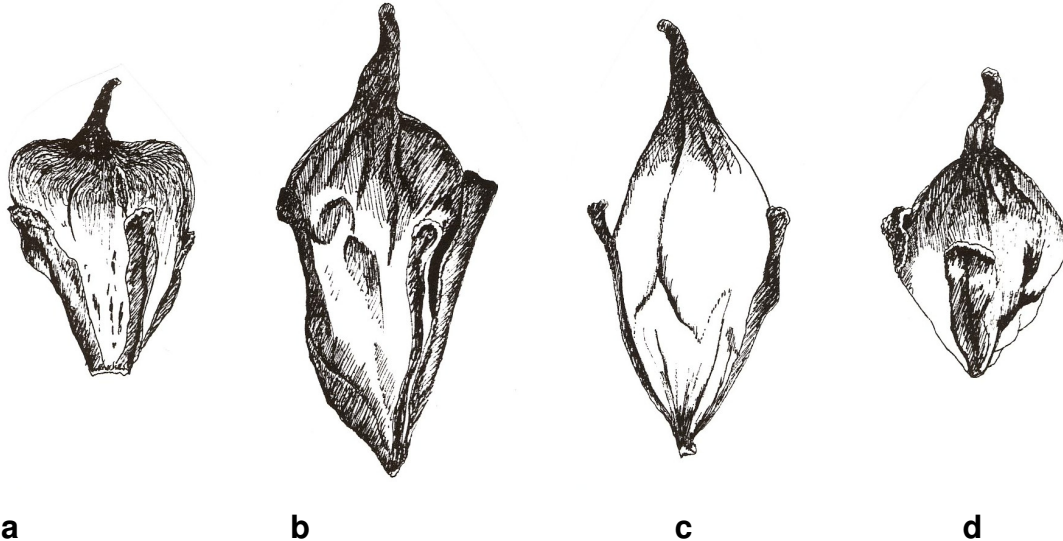
S. × diversifolium Graebn. (*S. angustifolium* × *S. emersum*) may be found with one or both parents. Hybrids are intermediate between the parents in vegetative and floral characters - the Fl has the inflated leaf-bases of *S. angustifolium* (even when growing terrestrially) and the remote male heads of *S. emersum*. Stigma length and anther size are intermediate (Cook & Nicolls 1986).

2. *Sparganium erectum*

Four subspecies of *S. erectum* L. have been recorded in the British Isles (Cook 1961). The taxa are consistent in mature fruit shape and size (intermediates are unknown) and differ in geographic range, but apparently not habitat. They are under-recorded because identification has to be made on ripe brown fruit, which does not mature until late in the season. They cannot be separated vegetatively. In the following key, length excludes the style and width is measured at the shoulder.

- | | | |
|---|--|---------------------------|
| 1 | Fruit with distinct shoulder, upper part dark brown to blackish | 2 |
| 1 | Fruit with indistinct shoulder, spherical to ellipsoid, upper and lower parts a uniform shiny, light brown | 3 |
| 2 | Fruits (5-)6-8(-10) mm long, (3-)4-6(-7) mm wide; upper part of fruit flattened | subsp. <i>erectum</i> |
| 2 | Fruits 6-7(-8) mm long, 2.5-4.5 mm wide; upper part of fruit domed, wrinkled below style | subsp. <i>microcarpum</i> |
| 3 | Fruit ellipsoid, 7-9 mm long, 2-3.5 mm wide | subsp. <i>neglectum</i> |
| 3 | Fruit ± spherical, 5-8 mm long, 4-7 mm wide | subsp. <i>oocarpum</i> |

Plant Crib



Fruits of *S. erectum* (a) subsp. *erectum*, (b) subsp. *microcarpum*, (c) subsp. *neglectum*, (d) subsp. *oocarpum*. (del. R. V. Lansdown).

S. erectum L. subsp. *erectum*: Fruit cuneate-obpyramidal (5-)6-8(-10) mm long, (3-)4-6(-7) mm wide, with a distinct shoulder between upper and lower part; lower part pyramidal, (4-)5-7(-8) mm long, light brown in colour; upper part flattened, dark brown to black in colour, in cross-section sharply 3-5 angled. Style less than 2 mm long, persistent. Ovary usually bi-locular, but occasionally uni- to tri-locular (Fig. a). England north to the Midlands, Isle of Man, Wales.

S. erectum L. subsp. *microcarpum* (Neuman) Domin: Fruit obpyramidal with a rounded apex, 6-7(-8) mm long, 2.5-4.5 mm wide, with a distinct shoulder between the upper and lower parts; lower part pyramidal, 4-6 mm long, light brown with a slight constriction below the shoulder. The upper part domed with a longitudinal ridges below the style, dark brown in colour. Below the shoulder, fruit 3-5 angled in cross-section. Style persistent, less than 2 mm long. Ovary usually uni- rarely bi-locular (Fig. b). Widespread in England, Ireland, Scotland and Wales.

S. erectum L. subsp. *neglectum* (Beeby) K. Richt.: Fruit ellipsoidal, 7-9 mm long, 2-3.5 mm wide, shoulder between upper and lower parts indistinct. Upper and lower parts conical, uniform light brown, shiny. Lower part 4-6 mm long. In cross-section fruit barely angled. Style persistent, usually more than 2 mm long. Ovary unilocular (Fig. c). Widespread in England, Ireland, Scotland and Wales.

S. erectum L. subsp. *oocarpum* (Celak.) Domin: Fruit ovoid to spherical, 5-8 mm long, 4-7 mm wide, uniform light brown in colour, shoulder between upper and lower parts indistinct, upper part hemispherical, lower part broadly pyramidal, 2.5-5 mm long, almost circular in cross-section. Style persistent; usually less than 2 mm long. Ovary uni-, rarely bi-locular (Fig. d). England north to the Midlands, Wales. This subspecies shows poor fertility which may be due to hybrid origin (possibly subsp. *erectum* × subsp. *neglectum*).

References Cook, C. D. K. (1961). *Watsonia* **5**: 1-10.
Cook, C. D. K. & Nicolls, M. S. (1986). *Bot. Helvetica* **96**: 213-267.
Cook, C. D. K. & Nicolls, M. S. (1987). *Bot. Helvetica* **97**: 1-44.

Author Based on pers. comm. with C. D. K. Cook, February 1988.