BLUMEA 24 (1978) 301—305

A NOTE ON BOSTRYCHIA SCORPIOIDES (HUDSON) MONTAGNE EX KÜTZING AND B. MONTAGNEI HARVEY (RHODOMELACEAE, RHODOPHYTA)

H. J. SLUIMAN

Rijksherbarium, Leiden, The Netherlands

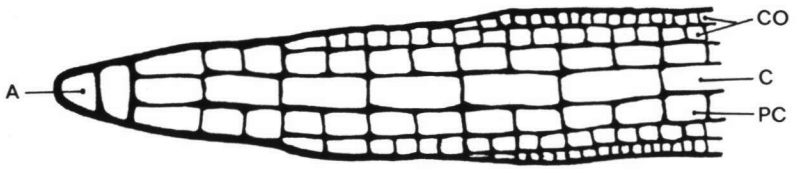
From 1936 on E. Post has published a series of studies concerning the taxonomy, the ecology, and the geographical distribution of the algae of the so-called *Bostrychia-Caloglossa* association or *Bostrychietum*. In this association species of *Bostrychia*, *Caloglossa*, *Catenella*, *Murrayella* (all *Rhodophyta*) and other algal genera are involved. Though the *Bostrychietum* is usually found on aerial roots of mangroves in the upper part of the littoral belt in the tropics, the association is represented also by reduced numbers of species in sheltered habitats in temperate regions.

In Post's monograph on the *Bostrychia-Caloglossa* association (1936) the number of known species of the genus *Bostrychia* Montagne in De la Sagra 1842 was reduced from about 50 to 13. In later publications she added two new species.

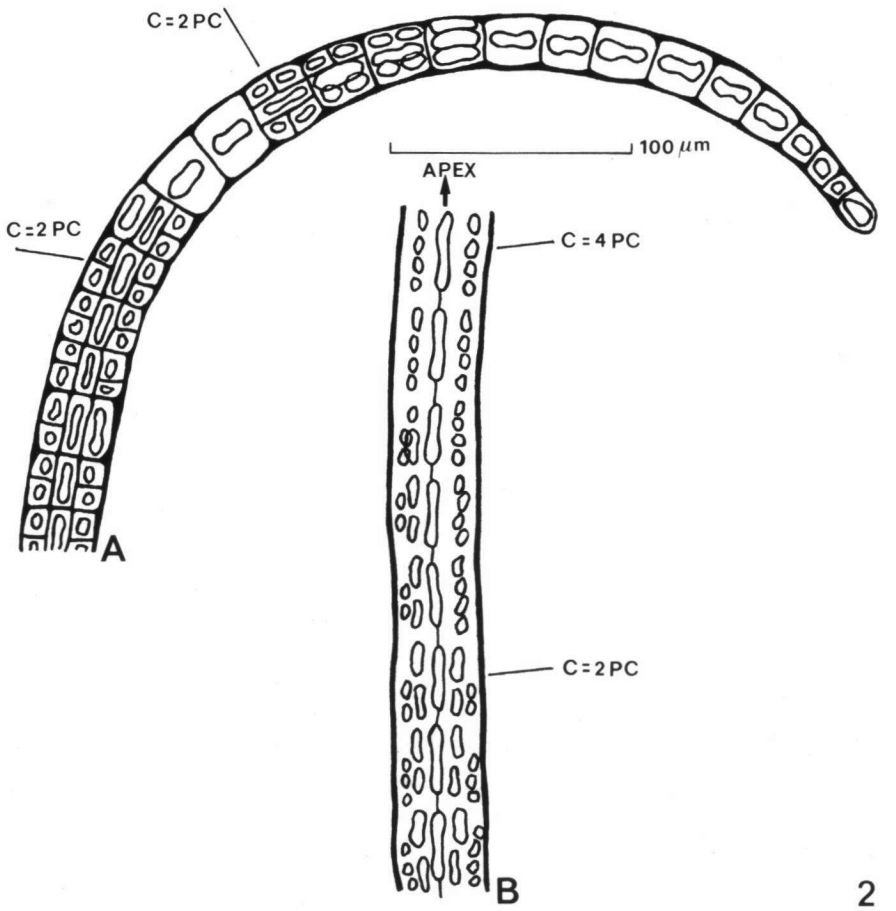
B. scorpioides (Hudson) Montagne *ex* Kützing in its traditional sense was known to occur mainly in western and southwestern Europe. Post (1936) united the following species under *B. scorpioides: B. harveyi* Montagne 1852 (Chili, Australia, Tasmania, New Zealand), *B. distans* Harvey in Hooker 1855 (New Zealand), and *B. montagnei* Harvey 1852 (tropical region of the western Atlantic; Bermuda). It was stated that *B. harveyi* and *B. scorpioides* are identical in all characters. *B. montagnei* was reduced to a variety of *B. scorpioides* being characterized by a multi-layered zone of pericentral cells and by dorsiventral (bilateral) stichidia. As a contrast, axes of *B. scorpioides* var. *scorpioides* were said to possess only a single row of pericentral cells and stichidia of radial structure. Finally, *B. distans* was regarded by Post as a forma in both *B. scorpioides* var. *scorpioides* and var. *montagnei*, which is in conflict with art. 64 of the International Code of Botanical Nomenclature (1972). These *distans* forms are characterized by their more slender habit and by their poorer ramification.

Specimens of all taxa involved and originating from 31 herbaria have been examined by the present author. Additional geographical data were obtained from reports in literature.

Post's unification of *B. scorpioides*, *B. harveyi*, and *B. distans* into one species has appeared to be correct but *B. montagnei* has to be regarded as a separate species. Only one of the two characteristic differences between Post's *B. scorpioides* var. *scorpioides* and var *montagnei* has been found to show general constancy. Axes of the former variety never possess more than one layer of pericentrals whereas in specimens of the var. *montagnei* always several (up to 7) rows are present except in the youngest parts of the ultimate ramuli. The second distinctive character as introduced by Post has no taxonomic value since in *B. montagnei* both radial and



1



2

Fig. 1. A longitudinal medial section (diagrammatic) of the apical region of an axis of *Bostrychia scorpioides*. a: apical cell; c: central cell; pc: pericentral cell; co: cortex cells. — Fig. 2. A longitudinal medial section (diagrammatic) of the apical region of an axis of *B. montagnei*. A: apical region; B: adjacent subapical region.

dorsiventral stichidia have been observed. In my opinion, however, a considerable importance should be attributed to the number of rows of pericentral cells, and an independent status of *B. montagnei* is justified. Additional characters of *B. montagnei* are the often relatively thick axes and the pattern of transverse bands visible in the axes and in the main laterals. Both phenomenons are caused by the multilayered zone of pericentrals in storey-like arrangement visible through the cortex. Furthermore, frequently a regular, alternating, pinnate ramification system is developed. This is never observed in specimens of *B. scorpioides*.

Another essential difference between *B. scorpioides* and *B. montagnei* concerns the formation of cortex cells. In the subapical region of the former species each of the two pericentrals per segment as seen in a longitudinal section will form in radial direction two cortex cells of about equal length, i.e. half the length of the corresponding pericentral cell (figure 1; see for details Ambronn, 1880). In some specimens of *B. montagnei*, however, it was seen that in the apical region a central cell had formed a series of four pericentral cells (figure 2). In subsequent segments of the same axis two of the four pericentrals had shifted gradually into radial direction and thus had become cortex cells. In the next segments the number of cortex cells increased, so ultimately a comparable situation had established as in branches of *B. scorpioides*, i.e. two storeyed pericentrals to each central cell and two cortex cells to each pericentral cell. This different mechanism of cortex formation has been observed in only a few specimens of *B. montagnei*, so it is uncertain whether it can be used as an additional distinctive character.

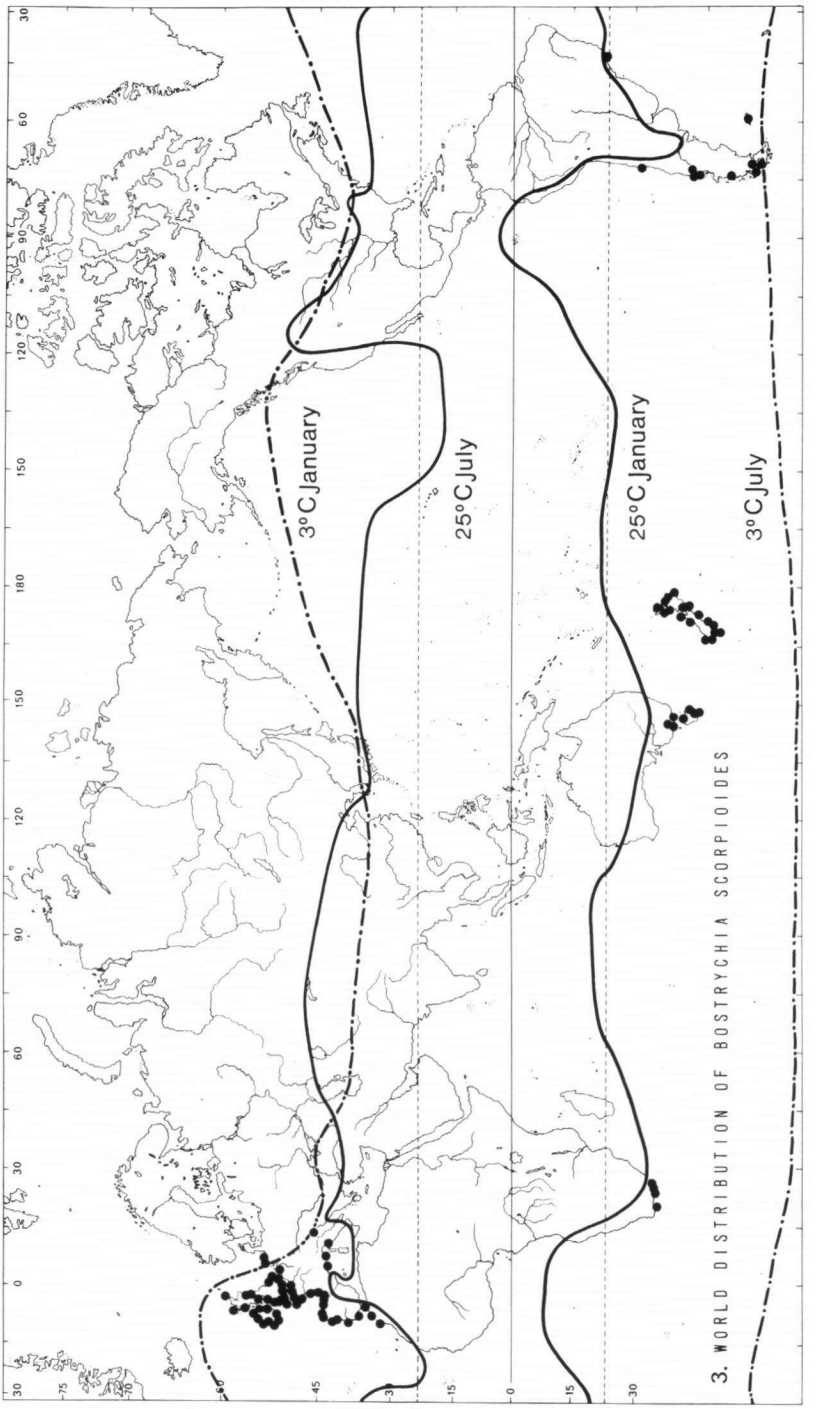
B. scorpioides and *B. montagnei* can also be characterized by their different climatic preferences. This finding can be regarded as a support for the separation of both species. *B. scorpioides* is exclusively found in temperate regions, namely on the northern hemisphere in a zone determined by the 3 °C isotherm of January and by the 25 °C isotherm of July (air temperatures); on the southern hemisphere in a corresponding zone between the 25 °C isotherm of January and the 3 °C isotherm of July (figure 3). As a contrast, *B. montagnei* is restricted roughly to the tropical regions of the Atlantic Ocean determined by the 18 °C isotherms of the coldest months on both hemispheres (figure 4).

Some specimens of *B. montagnei* show an aberrant habit without distinct pinnate branching. These belong to the 'forma *distans*' (Post, 1936). Extreme *distans*-forms are readily distinguishable, but many intermediates between pinnate and non-pinnate specimens have been found. So in my opinion there is no reason to consider the non-pinnate forms as a separate taxon.

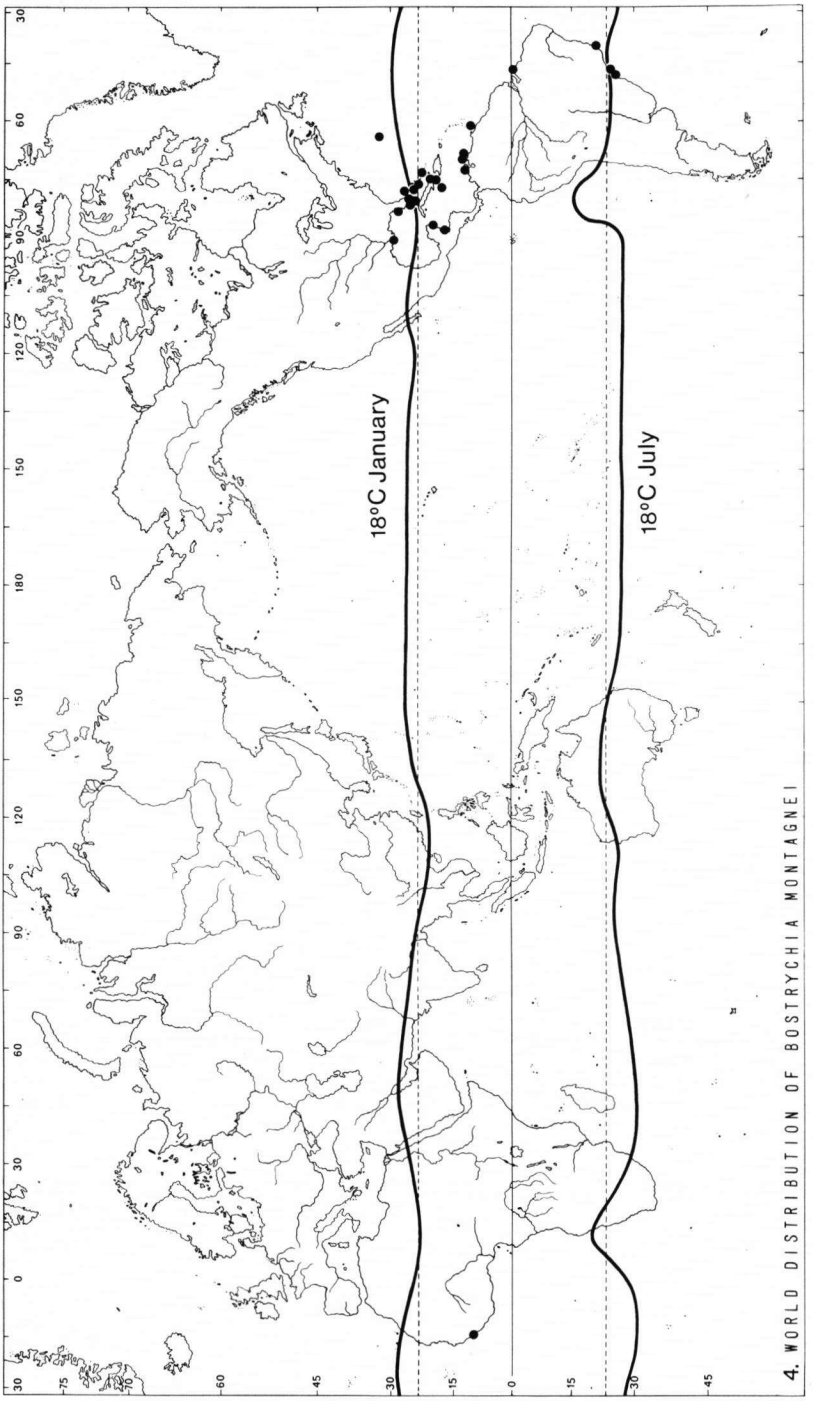
REFERENCES

AMBRONN, H. 1880. Ueber einige Fälle von Bilateralität bei den Florideen. Bot. Zeit. 38 (12): 193—197, taf. IV, f. 1—7.

POST, E. 1936. Systematische und pflanzengeographische Notizen zur Bostrychia-Caloglossa Association. Rev. Alg. 9: 1—85.



3. WORLD DISTRIBUTION OF BOSTRYCHIA SCORPIOIDES



4. WORLD DISTRIBUTION OF BOSTRYCHIA MONTAGNEI