

**NOTE ON THE DISPERSAL OF SAGINA NODOSA  
VAR. MONILIFORMIS LANGE.**

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In most of the flat sandy slacks of Braunton Burrows where they are only sparsely clothed with any vegetation *Sagina nodosa* var. *moniliformis* grows commonly. These slacks, some of which may equal an acre or more in extent, are usually under water to a varying degree in winter. When the water finally disappears in the spring, high water marks are noticeable where drift material has been left by the receding water, producing zonal lines of vegetation, composed of seedlings of such plants as *Plantago Coronopus* L., *Agrostis stolonifera* L., etc. In the particular photograph here reproduced, the demarcated sinuous line is formed by an almost pure growth of minute plants of *Sagina nodosa*.

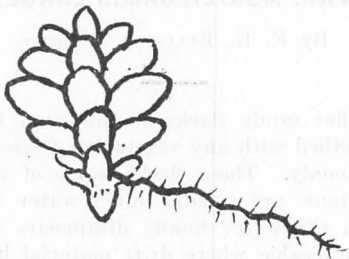
The ponds in these flat places have no undercurrents but their surfaces are exposed to strong winds, and not always from one direction. The influence of the wavelets caused by wind would only affect the submerged ground at the extreme edge of the pond, and nearly all material carried to 'shore' must be transported on the surface of the water by wind.

The var. *moniliformis* of *Sagina nodosa* does flower and produce good seed, but in a far more restricted way than plants of the ordinary form. The seeds placed in water sink (as do those of *S. procumbens*, *subulata*, *maritima*, *apetala* and *ciliata*) and they remain down underwater, even after germination for several weeks until they die. It may be mentioned that at ordinary room temperatures far fewer seeds of *Sagina nodosa* germinate under water in the late autumn than is the case with the other species of *Sagina*.

In var. *moniliformis* the little buds or shoots, which are produced in every leaf axil, consist of fascicles of small, fleshy, succulent, almost ovoid, modified leaves on a greatly abbreviated stem. These little buds in a less extreme form are found more scantily on all forms of *Sagina nodosa*, even in the paludal form growing on mossy ditch sides, which will attain one foot in height and give the plant its name—Knotted Pearlwort. The structure of the adaptive growth-formation found in the var. *moniliformis* would thus require no drastic evolutionary change.

In var. *moniliformis*, when the parent plant is past its prime, these small vegetative sprouts disarticulate and fall away, though when completely detached from the parent plant by means of their reserve storage material they are capable of living a long time.

These brood bodies, placed in water, all float, and will remain so floating for three months, having before then produced a good rootlet, not from the peg-like basal end but from the axil of one of the lowest modified leaves.



x7.

The seeds, which sink under water, have no chance of dispersal by wind or rain-wash in these flat places. They must remain in close proximity to the parent plant. The detached floating buds, however, are quickly carried by strong winds over the water-surface to its furthest limits and to any destination to which the wind happens to be directed at the particular time. They remain, finally, stranded on the shore to grow there; a very effective means of dispersal.

The metamorphosis of the vegetative shoots is not an adaptation to survive the unfavourable season, for the old plants survive any winter and prolonged submergence under water.

The objective of every living plant is to reproduce its species, and its success in this largely depends on the expediency of the dispersal of its offspring. The dispersal on the water surface by wind of the detached buds of *Sagina nodosa* to some distance is highly successful.

Excluding forms of vivipary affecting the fruiting parts of plants, more frequent in the wetter and colder parts of Britain, and the winter buds of true water-plants, this form of vegetation reproduction is very unusual.

The often quoted cases of *Ranunculus Ficaria*, *Dentaria bulbifera*, etc., are not truly analogous.

Photographic illustrations of *S. nodosa* var. *moniliformis* are well shown in *J. Bot.*, 73, Suppl. 2 (1935).

PLATE 7.



High water zone of *Sagina nodosa*. Other associated plants are *Ammophila arenaria* (depauperate), *Erodium neglectum*, *Leontodon Leysseri*, *Plantago Coronopus*.