

BRIEF COMMUNICATIONS

RATE OF DEPENDENCE OF *PLANTAGO MEDIA* L. ON ENTOMOPHILOUS REPRODUCTION – PRELIMINARY REPORT

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STELLEMAN (*e.g.* 1984) has shown that *Plantago lanceolata* appears to be dependent on animal pollen vectors for a maximum seed set, the ratio anemophily/entomophily expressed as percentages of the total seed yield varying in relation to the kind of habitat. *P. media* probably attracts more insect pollinators (LEEREVELD *et al.* 1976), but conceivably depends to a certain extent on wind pollination. In order to assess the possible incidence of ambophily of the hoary plantain the method used by Stelleman was employed, but in addition to the fairly coarse-meshed screening devices used by him, very fine-meshed cages (as used by JENNISKENS *et al.* 1983) were employed.

A small population of *P. media* is growing in our experimental garden in Amsterdam since 1975 and is now well-established. The clones originate from live individuals collected in Giessen (Hessia, G.F.R.) in 1975 and transplanted in the same year.

In late July 1983, flowering spikes of *P. media* were caged in before female anthesis had set in and were collected 2–3 weeks later when the capsules were about full-grown but still immature (so as to avoid loss of seed when dehiscence would commence). A number of free-pollinated spikes were collected to serve as controls. Of each spike the seed set in 20 or sometimes 40 capsules was determined.

Table 1 shows the seed set in the controls. Apparently just about all florets produced capsules with viable seeds, so that it was not deemed necessary to count the percentage of fruit set (because it is approximately 100%). There is some variation in the number of seeds per capsule, but the mean is 3–4 (with a range from 2 to 5).

Table 2 shows the numbers of seeds formed on spikes enveloped in fine-meshed gauze cages and in coarsely meshed ones (capsule numbers 7–11 and 12–14, respectively). In all cases the seed set was markedly lower. The difference with the control spikes is manifestly attributable to the elimination of most if not all potential insect pollinators and is a measure for the rate of entomophily. Hardly any or no seed set was recorded in some spikes screened by very fine gauze, presumably because in the almost wind-still weather no pollen could penetrate. However, all other spikes showed but little difference in the rate of seed set and they are supposed here to be indicative of the degree of dependence

Table 1. Seed set in control spikes

Spike no. (20 capsules)	No. of seeds per capsule					Total no. of seeds formed in 20(40) capsules and mean	
	0	1	2	3	4		5
1	—	—	2	7	11	—	69 (mean 3.5)
2a	—	—	—	9	11	—	71 (mean 3.5)
2b	—	—	2	5	8	5	76 (mean 3.8)
3	—	—	1	4	11	4	78 (mean 3.9)
4	—	—	4	7	6	3	68 (mean 3.4)
5	—	—	7	7	5	1	60 (mean 3.0)
6	—	—	3	9	7	1	66 (mean 3.3)

Table 2. Seed set in caged- in spikes

Spike no.	No. of seeds per capsule				Total no. of seeds formed in 20 (40) capsules and mean
	0	1	2	3	
7a (20)	12	4	3	1	13 (mean 0.52)
7b (20)	13	5	2	—	9 (mean 0.45)
8 (20)	20	—	—	—	0 (mean 0.0)
9 (20)	9	8	3	—	14 (mean 0.7)
10 (20)	8	8	3	1	17 (mean 0.9)
11 (20)	17	3	—	—	3 (mean 0.15)
11 (40)	24	9	5	2	19 (mean 0.5)
12 (20)	2	17	1	—	19 (mean 1.0)
13 (20)	4	11	4	1	26 (mean 1.3)

on insect pollination (roughly 85% in the population studied). Owing to the irregular seed set, random sampling was difficult, but the differences with the control spikes are so convincing that one may conclude that almost certainly *P. media* depends for its sexual reproduction to a large extent on animal pollen vectors (which usually abound, also in our experimental garden), more so than the populations of *P. lanceolata* studied by Stellemen. Additional records, also including some from populations of *P. media* in its natural habitats, will be required to substantiate this conclusion, but since these preliminary results are so suggestive already it was deemed worthwhile to put them on record.

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