

Seed Dispersal by Snow Buntings in 1968

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Migration of birds during the spring was again observed on Surtsey in 1968. In a previous report (Fridriksson and Sigurdsson, 1969) it was demonstrated that Surtsey offered a unique opportunity for studying the possible role played by birds in transporting seed. From the birds captured in 1967, however, only snow buntings seemed to be seed carriers, as ten of the 32 snow buntings caught had a total of 87 seeds of various species in their gizzard. Following a germination test two of these seeds were grown to maturity; these were *Polygonum persicaria* L. and *Carex nigra*. (*C. fusca* All.) See Fig 1.

In 1968 the capture of migrating birds was repeated. Three assistants stayed on the island during the period April 16 to May 10 and collected over 200 birds of various species.

The birds were dissected and their alimentary tracts cleaned of content. This content was then inspected for organisms; when seeds were present these were classified and tested for germination. The grit from the gizzard was inspected for minerals which might reveal its origin and thus the possible location of the last food intake.

Of the 200 birds caught, only five were snow buntings of the nominate race *Plectrophenax nivalis nivalis* which is not native to Iceland but migrates via Iceland to Greenland from the British Isles. Four of these birds were found to carry seed in their alimentary tract. As in previous years the seeds were found in the gizzard. No other birds carried seed. In table 1 the number of seeds obtained are listed.

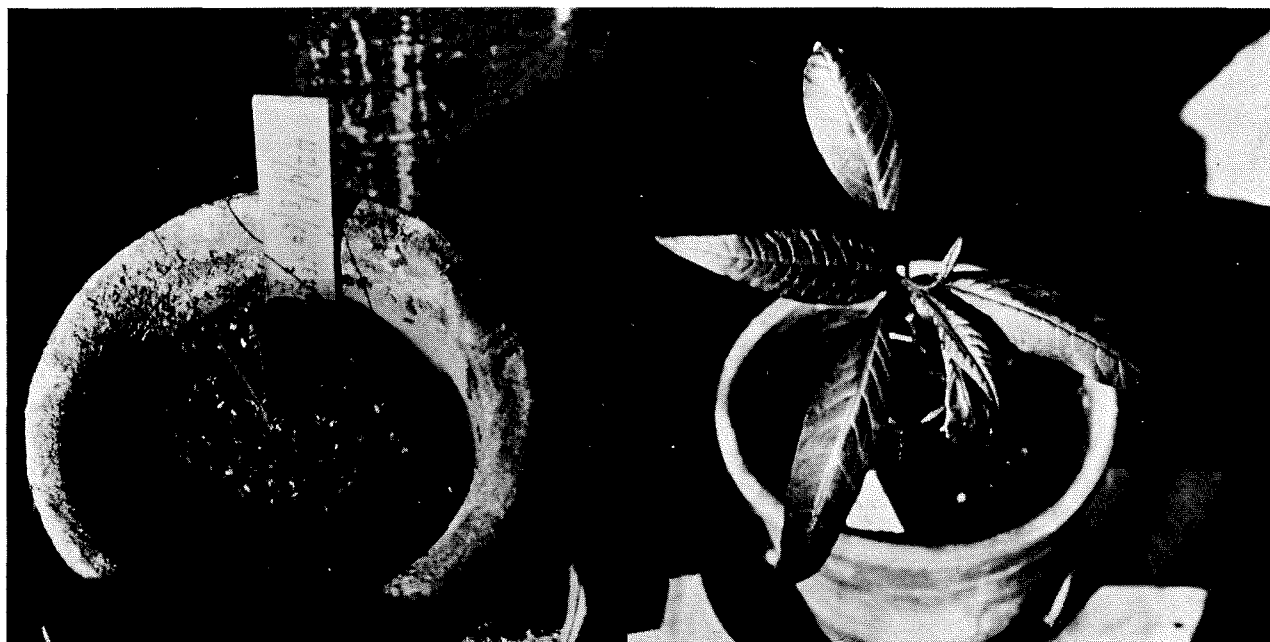


Fig. 1. *Carex fusca* (left) and *Polygonum persicaria* (right) from seed found in gizzards of snow buntings at Surtsey.

TABLE I

Number of seeds found in samples from snow buntings caught on Surtsey in 1968

Kind of Seed	Bird No.				Total per Kind
	12	13	68	110	
<i>Silene (vulgaris?)</i>	2	1	2	1	6
<i>Carex nigra</i>	1		3		4
Total seeds per bird	3	1	5	1	10

The ten seeds discovered were of two species: six were identified as seed of *Silene* species, possibly that of *S. vulgaris*, which is a recent introduction to Iceland found growing in cultivated areas; but the seeds might also possibly be of the species *S. maritima* which is common to Iceland. Four seeds were those of *Carex nigra* (*C. fusca* All., *C. Goodenowii* Gay.), which is a common sedge to Iceland. When tested for viability one of the *Carex* seed germinated and grew to the seedling stage. Seed of this same species was also found in the snow buntings caught on Surtsey in 1967.

The grit accompanying the seed in the gizzard was exclusively that of Surtsey ash. Contrary to the discovery of metamorphic rocktypes and younger sediments accompanying the seed in the snow buntings of 1967 only lightbrown glass from Surtsey was found in the snow buntings of 1968. However, there was neither any old Icelandic basalt among the grit, which indicates that the birds had not recently been on the mainland of Iceland.

From these results nothing definite can be stated about the origin of the seed found in the snow buntings. The two kinds of seeds discovered are of species which are found growing in Iceland as well as in the neighbouring countries. The observation, however, supports the previous discovery on Surtsey, that snow buntings are most likely to be carriers of seeds. And that the seeds discovered were either carried by the snow buntings from the European countries in the south over the ocean to Surtsey on their migration to Greenland via Iceland, or, which is also possible, that the seeds were picked up in Surtsey by the birds as well as the Surtsey ash. Should the seed have been picked up in Surtsey they would previously have had to drift to the island. Whichever was their way of dispersal, the discovery shows that the seed of these plants can reach the island by dispersal and that the *Carex* seed at least retains its germination ability following such a dispersal.

ACKNOWLEDGEMENTS

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References:

- Fridriksson, S. and Sigurdsson, H. (1969). The possible dispersal of seed by snow buntings to Surtsey in 1967. Náttúrufræðingurinn 39, 32-40.