

Geese in cold winter weather

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Introduction

When studying geese, it has sometimes been possible to watch how these birds react to severe winter weather, with phenomena such as snow cover, low temperatures, sometimes combined with strong winds. Most of the observations were made in the Netherlands and some in Mecklenburg (German Democratic Republic). They conform closely with those of Markgren (1963) in the southern part of Sweden.

Haunts of geese

In the hard winter of 1962-3 only comparatively small numbers of geese remained in the Netherlands throughout the winter. Many of these geese (their total number perhaps amounting to between 4,000 and 5,000 birds, all species combined) did not occur in the well-known geese haunts. Some groups stayed in the neighbourhood of those places, but mostly in a somewhat different habitat. Scattered groups appeared in parts where geese are never seen in normal times. Some examples illustrate the use of abnormal winter habitats:

(a) In the western part of Noord-Brabant geese wintered near the villages Etten and Hoeven (51°34'N, 4°36'E). Close to the north of this region the open grasslands near the river Mark provide thousands of geese with very important feeding grounds in other winters. Probably no geese visited this region in 1962-3 during the long periods with frost and snow cover. Instead, the geese (600-1,100 White-fronted Geese *Anser albifrons*, some tens of Bean Geese *Anser fabalis*, ten Pink-footed Geese *Anser brachyrhynchus* and some Barnacle Geese *Branta leucopsis*) occurred in the surroundings of the villages mentioned, in a habitat that consisted of pastures, winter grain fields, small fields of Brussels sprouts, hedges, farm houses and narrow roads.

(b) A group of 16 Bean Geese stayed in the dunes near Zandvoort (52°22'N, 4°32'E) for some weeks in January. These birds were seen on the open water of some canals and feeding on the long grasses on the steep banks of the canals (photograph at p. 14 of Section II).

Some of the reasons causing geese to shun the large well-known geese haunts in the Netherlands were: (1) the snow cover made the short grasses of the grasslands difficult of access or not accessible at all; (2) in the landscape of the normal haunts which is mostly very open, the geese were

more exposed to the chilling effect of the frequent strong winds and to drifting snow; (3) instead, other regions provided foods like sprouts, which were much eaten, while the geese probably also profited by the cover which the landscape offered there.

Feeding

In the Netherlands grass forms the most important staple food for most species of geese. When the snow cover is rather thin, and as long as the snow is loose and soft, the geese can reach the grass by removing the snow by means of their bills. Markgren (1963) shows (Figure 8) that Bean Geese can reach the vegetation under a snow cover of 15 cm.

Some examples from field observations: 27th December, 1963: Near Oudega in Friesland (52°57'N, 5°32'E) some thousands of Pinkfeet and Barnacles feed on grassland which is covered with a layer of 5-8 cm. of loose snow. Some grass-blades appear above the snow. Obviously only few difficulties are met with in feeding.

23rd February, 1963: Near Someren (51°23'N, 5°45'E) a flock of 140 Bean Geese feeds on a pasture which is covered with 10 cm. of rather loose snow. When inspecting this feeding ground it appears that in many small cavities the underlying grass has become visible. The geese made these openings with their bills.

28th December, 1964: Between Wiebkenhagen and Löbnitz in Mecklenburg (54°57'N, 12°42'E) 350 Bean Geese stay in fields covered with a layer of 8-10 cm. of loose snow. As far as can be seen at a distance, feeding can take place fairly normally.

We may conclude that feeding in grounds covered with a layer of 10 cm. of loose snow can continue in most cases. It is probable, however, that in these circumstances time and energy are wasted by the grubbing movements of the bill. These losses could be compensated by restricting other activities like taking wing at alarm and making long flights between feeding grounds and roosts.

In the Netherlands the snow was covered with glazed frost in the first days of January, 1963. The geese soon reacted to this fact. Thousands of them abandoned their haunts in this country and soon reached more favourable regions in France (Den Daas, 1963).

Those geese that stayed profited from

the closed hunting season from the beginning of January. They showed greater tameness than normal and could be seen feeding and even roosting nearer to roads and houses than can be called normal for these birds. The geese were able to save energy in this manner.

In certain circumstances geese do not walk when they are feeding but lie down on the ground instead, only occasionally taking a few steps and then lying down again. The bird takes the food that is within reach of its bill. We can agree with Markgren (1963) that the birds protect their legs in this way from the cooling effect of the wind. Geese may behave like this whether or not the ground is covered with snow. Generally geese lie down when low temperatures (-3°C or lower) are combined with strong winds.

When the weather becomes very unfriendly (stormy wind, drifting snow, low temperature) geese show clear signs of inactivity, which again are described by Markgren (1963). The birds lie down on the ground with their fronts towards the wind and they often do not feed at all but sleep.

Some relevant field observations:

12th January, 1963: Near Lage Zwaluwe ($51^{\circ}42'\text{N}$, $4^{\circ}45'\text{E}$) 500 White-fronted Geese feed on grassland which is covered with rime in the early morning. Many geese are grazing in a lying position (photo Section II p.14). Weather: moderate wind, temperature -8°C .

8th March, 1964: Big numbers of Whitefronts and Barnacles have alighted on pastures near Tjerkgaast ($52^{\circ}54'\text{N}$, $5^{\circ}41'\text{E}$) after their morning flight from the roost. The ground is covered with some rime. Most of the geese start feeding in a lying position (photo Section II p.15). Later when the rime has disappeared and the temperature has risen, the geese start walking. Weather: fairly strong wind, temperature -5°C .

30th December, 1964: A flock of 100 Bean Geese lies in drifting snow near Trent on Rügen, Mecklenburg ($54^{\circ}30'\text{N}$, $13^{\circ}15'\text{E}$). Some birds are feeding, most of them however are sleeping with their heads under their wings. Weather: strong wind, temperature -2°C .

As was stated before most of the flocks which were observed during the severe winter showed considerably less shyness than at other times.

17th February, 1963: Hoeven ($51^{\circ}34'\text{N}$, $4^{\circ}38'\text{E}$). A group of 20 Whitefronts, 7 Beans and 10 Pinkfeet stay on a small pasture at a distance of 75 m. from a house. The landscape is snow-covered. Some children are throwing snowballs at each other, 60 m. from the geese. These

are not disturbed. Only when we come nearer, do they take wing, at a distance of 40 m.

The food of the geese in the cold winter of 1962-3 still consisted partly of grass, but many geese turned to another staple diet. One of the most important foods was formed by Brussels sprouts. Especially in the province of Noord-Brabant there occur many small fields of sprouts, mostly in the surroundings of villages and farm-houses. Of the plants, the geese ate the sprouts, the leaves and even the stalks.

23rd February, 1963: Etten ($51^{\circ}33'\text{N}$, $4^{\circ}40'\text{E}$). A flock of 600 Whitefronts, 30 Beans and 5 Barnacles stays near a field of sprouts. Regularly small groups fly to the sprouts and begin to eat (photograph, Section II p. 15).

Abnormal feeding habits were also recorded by Harrison and Hudson (1964). In England White-fronted Geese were seen feeding on kale, sprouts and maize in 1962-3. In the Netherlands geese were also coming to some places where food had been provided by man. There they ate maize, wheat and other cereals.

Roosts

Geese mostly have their roosts on shallow waters. They also often sleep on ice (Brotherston, 1964, Markgren, 1963, Mathiasson, 1963, Rutschke, 1962).

In 1962-3, as well as in other years, geese often used their roosts when these were frozen over. Sometimes even new roosts were formed when the water is ice-covered, as occurred on the IJsselmeer near the new Noordoostpolder. The IJsselmeer near this polder is not suited for roosts, for the water is deep and ships often pass. When the water is ice-covered, however, thousands of geese sometimes sleep there. Then they feed in the pastures and fields of the neighbouring Noordoostpolder.

In the severe winter of 1962-3 geese were seen to roost in their feeding grounds:

22nd February, 1963: Etten. A flock of 480 Whitefronts and 20 Beans feed on sprouts. Afterwards when the evening twilight has come, they fly 50 m. away and settle on the snow. An hour later they are still there. It is quite certain that they will pass the night here, although some farm-houses are within 150 m.

Conclusions

In those regions where many geese winter, the weather is rather mild most of the time. Sometimes the series of mild winters is interrupted by a severe one. Moreover cold spells of short duration occur in many mild

winters. The geese can react to the cold weather in two different ways:

1. They can emigrate to regions with more favourable conditions. Tens of thousands of geese left (or passed) the Netherlands in the cold winter of 1962-3 and arrived in France.

2. The geese can try to adapt themselves to the changed conditions. Some thousands of geese stayed in the Netherlands in 1962-3. Most of them succeeded in surviving. The adaptations took the following forms: the geese stayed mostly outside their normal wintering places, often showed

other feeding habits, often changed their roosting behaviour and showed less shyness.

During the shorter cold spells of mild winters only few wintering geese leave the Netherlands. They prove to be hardened, even when temperatures fall very low (less than 10°C). Only when some weather factors give an unfavourable combination (thick snow, stormy wind, very low temperatures or glazed frost on a snow cover) will many geese disappear soon, as was the case in 1962-3. But this happens only when no or little food remains accessible.

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