

Food Robbing of Bar-tailed Godwits by Silver Gulls in Westernport Bay, Victoria

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Food robbing by Silver Gulls on feeding Bar-tailed Godwits was studied in Westernport Bay, Victoria. The foraging success of the godwits was reduced by 36% when gulls were attempting to steal their prey. This reduction in foraging efficiency of the godwits appears to affect their feeding dispersion.

Food robbing by gulls is widely known (Payne and Howe, 1976; Hatch, 1970). Silver Gulls *Larus novaehollandiae* have been recorded stealing fish from terns and pelicans (Serventy *et al.*, 1971; Hulsman, 1976). In Westernport Bay, Victoria, Silver Gulls have been seen taking food from Eastern Curlews *Numenius madagascariensis*, Curlew Sandpipers *Calidris ferruginea*, Pied Oystercatchers *Haematopus longirostris* and Bar-tailed Godwits *Limosa lapponica*. In addition, Pacific Gulls *L. pacificus* have been observed stealing food from Eastern Curlews and Sacred Ibis *Threskiornis aethiopica* (Dann, unpublished observations). During April 1977 the foraging success of Bar-tailed Godwits feeding in the presence and absence of Silver Gulls was investigated.

Method

The study was made at Rhyll Inlet (38°28' S., 145°19' E.), on the north-eastern corner of Phillip Island, on a mudflat with a 10-15% cover of eelgrass *Zostera muelleri*. Observations on the mudflat were made at the same point in the tidal cycle each day to eliminate variation in feeding success due to varying prey availability. Small flocks of godwits (20-30 individuals) were observed for six periods ranging from half an hour to an hour in duration. The numbers of probes and prey captures made by godwits in periods of 100 seconds were measured using a telescope (x40) and a stop-watch. Observations of godwits which changed feeding behaviour or ceased feeding were discontinued.

Results

Food robbing of Bar-tailed Godwits by Silver Gulls occurred most frequently when godwits

were feeding close to roosting gulls. The gulls dispersed among the feeding godwits, usually one to a godwit, and attempted to seize food items as they were withdrawn from the substrate. The gull walked or ran at the feeding godwit, sometimes causing the godwit to drop the food. This behaviour has been described as walk-across-grab (Hulsman, 1976). Godwits responded by turning or moving away simultaneously swallowing the food. The gulls were successful in 15 of the 201 robbing attempts (7%).

Godwits fed in the study area at the edge of the falling tide, predominantly on polychaetes and less frequently on Sentinel Crabs *Macrophthalmus laterfrons*. They appeared to find food by touch and obtained most of their prey from a depth of 4-8 cm by repeated probes of the mud.

The foraging success (number of food items ingested/100 sec) of the godwits was reduced by 36% when gulls were attempting to steal their prey. This was due to a reduction in the probing rate (Table 1) and a consequent reduction in the number of prey detected. The loss of food to gulls did not alter the foraging success of the godwits significantly, since the robbing success of the gulls was low.

Discussion

Robbing godwits gives gulls a food resource which would otherwise be unavailable. The reduction in the foraging efficiency of the godwits resulting from the robbing appears to affect their feeding dispersion. In the absence of gulls, the godwits often fed in the study area for periods of up to an hour. However, in the presence of

TABLE 1

Foraging efficiencies of Bar-tailed Godwits with and without food robbing by Silver Gulls

	Without food robbing	With food robbing
Number of probes/100 sec. (mean \pm S.D.)	71.8 \pm 11.1	37.0 \pm 6.0
Number of food items ingested/100 sec.	8.0	5.1
% Probes obtaining food items	11.1	13.8
Duration of feeding observations	720 sec.	2 280 sec.

gulls, the godwits usually stayed for less than 30 minutes and fed with less success. The study area was the first feeding area to be uncovered by the falling tide and it was therefore important in extending the feeding period of the godwits. In April the godwits fed for 5½ hours of each tidal cycle, i.e. almost the entire period that feeding areas were available. Therefore, any factors which decreased the foraging success of godwits during this period might cause them to move to new feeding areas. Thus increases in the numbers of gulls in Westernport Bay as a result of human activity (e.g. the creation of additional feeding grounds such as refuse tips) may eventually limit the distribution of godwits in the Bay by reducing their effective feeding periods.

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