

DO YELLOW-LEGGED GULLS (*LARUS CACHINNANS*) USE REFUSE TIPS WHENEVER THEY NEED TO?

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Sol, D., Arcos, J. M. & Senar, J. C., 1993-1994. Do Yellow-legged gulls (*Larus cachinnans*) use refuse tips whenever they need to? *Misc. Zool.*, 17: 199-203.

Do Yellow-legged gulls (Larus cachinnans) use refuse tips whenever they need to?.— The use of refuse tips by Yellow-legged gulls was investigated at two tips in NE Spain during three complete days. The pattern of work at refuse tips greatly influenced the time of arrival and departure of individuals, the hour and duration of the feeding activity, and the daily maximum schedule. Yellow-legged gulls seemed not to feed at refuse tips whenever they needed to but only when they were able to do so.

Key words: *Larus cachinnans*, Food, Refuse tip, Management.

(*Rebut: 12 V 94; Acceptació condicional: 13 X 94; Acc. definitiva: 21 X 94*)

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The Departament of Medi Ambient of the Generalitat de Catalunya provided financial support to the project.

INTRODUCTION

The increase in food availability by the proliferation of refuse tips seems to be one of the causes of the present superabundance of several species of gulls in Europe and North America (BURGER, 1981; SPAANS et al, 1991; VERMEER & IRONS, 1991; PONS, 1992). It is often assumed that refuse tips are places where gulls feed whenever they wish, and where food is almost unlimited (see Coulson et al., 1987). However very few studies have been specifically conducted to test this assumption, and available data are contradictory (see COULSON et al., 1987).

This paper examines the use of two refuse tip by the Yellow-legged gull (*Larus*

cachinnans) in NE Spain to test the validity of this assumption.

MATERIAL AND METHODS

The use by Yellow-legged gulls of the Lloret de mar (Girona) and Pineda de mar (Barcelona) refuse tips was investigated in March 1992 (when birds just start breeding) during three complete week days. Surveys of gulls present at the tips were conducted every half an hour, and activities performed by individuals were recorded.

In both refuse tips garbage was discharged during the night, although in Lloret a few lorries sometimes also arrived during the morning. However, whereas in

Lloret most fresh refuse was compacted during the early morning (8.00-9.00 h), in Pineda this activity was carried out at an unfixed time during the morning. The Lloret tip was controlled (i.e. access to people was not allowed), but in Pineda some people entered the area during the recording days. Both refuse tips were located near the sea, but only the Pineda tip was visible from there.

RESULTS AND DISCUSSION

During the days of monitoring, Yellow-legged gulls were not observed feeding until refuse was compacted by bulldozers. This was later confirmed through 16 days of monitoring at Lloret refuse tip (D. Sol, pers. obs.). Waiting until the garbage is broken up and spread out may be advantageous to the birds, since it allows more gulls to feed at the same time, individuals thus benefiting from the greater anti-predator protection and the reduction in competition. Foraging was restricted to the freshly compacted garbage, its location varying weakly within the same small dumping area from one day to another. Two types of feeding at the refuse tips were distinguished: disturbed feeding (highly competitive feeding disturbed by the work of bulldozers) and undisturbed feeding (highly competitive feeding after the bulldozers stopped to work). A similar pattern has been described in other studies (GREIG et al., 1986).

The daily schedule at Lloret appeared unimodal, and the maximum activity coincided with the hour when garbage was compacted (fig. 1). Most individuals left the tip after feeding. At Pineda, the mean daily activity schedule also appeared unimodal (fig. 1), although here individuals constantly arrived and left the tip (fig. 2). The first

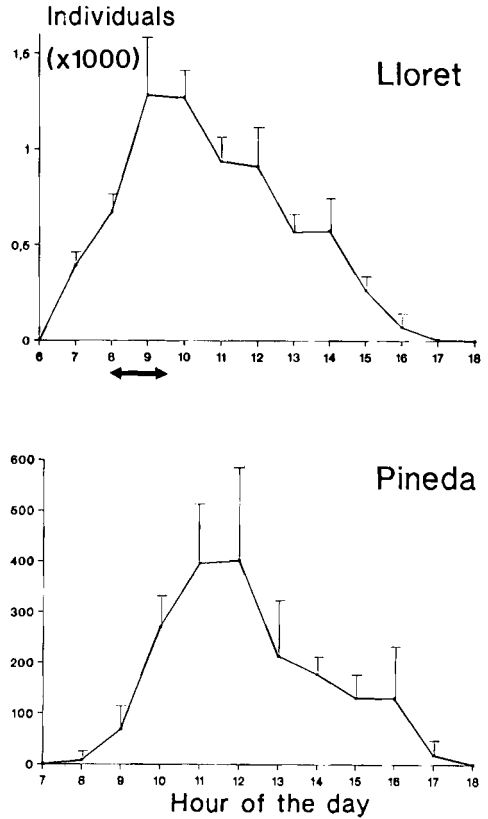


Fig. 1. Yellow-legged gull daily schedule at Pineda and Lloret refuse tips (means and standard errors). Arrow indicates timing of garbage compaction at Lloret.

individuals arrived earlier at Lloret than at Pineda ($t = 21.62$; $d.f. = 4$; $p < 0.001$), probably because in the former garbage was also compacted earlier. The time of departure of the last gulls each day did not show significant differences between tips ($t = -1.91$; $d.f. = 4$; $p = 0.13$). As a consequence, gulls were present at Lloret for longer than at Pineda tip (average of 614 min vs 514 min; $t = -5.36$, $d.f. = 4$, $p = 0.006$).

Human disturbance greatly influenced the amount of time of that gulls spent

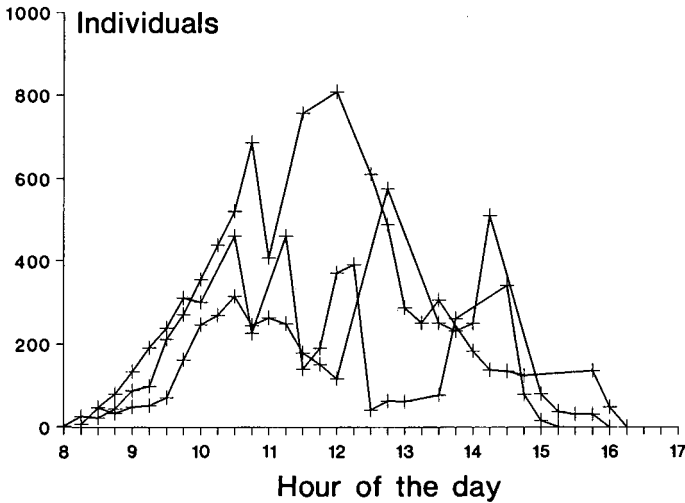


Fig. 2. Variation in the number of Yellow-legged gulls at Pineda tip during the three monitoring days, showing that groups of birds constantly arrived and left the tip.

foraging, which was low in both areas (Lloret: mean = 90 min, range = 38 - 144 min; Pineda: mean = 27 min, range = 8 - 37min). Although feeding Yellow-legged gulls tolerated bulldozers compacting the garbage, individuals quickly left the foraging area as soon as other people or vehicles arrived. This was especially true in the Pineda tip, where people access was not restricted. As a result, the foraging time at Pineda was shorter than at Lloret ($t = 3.70$; $d.f. = 4$; $p = 0.034$) (fig. 3), individuals spending a greater proportion of the day flying around the tip (fig. 4).

The high mobility of individuals at Pineda suggests that the refuse tip was used in an opportunistic manner. This is probably a consequence of the unfixed hour of refuse compaction, and the high level of human disturbance. The foraging strategy of the birds seems to be based on local enhancement (ANDERSSON, et al., 1981; EVANS, 1982): the activity and noise of gulls commencing feeding seems to attract other individuals. This was probably facilitated by the good visibility of the tip from the sea.

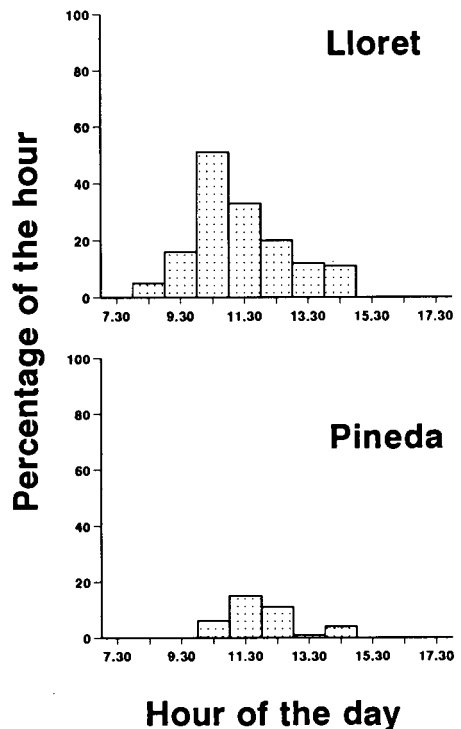


Fig. 3. Percentage of each hour that Yellow-legged gulls spent foraging at Lloret and Pineda tips (mean of three days).

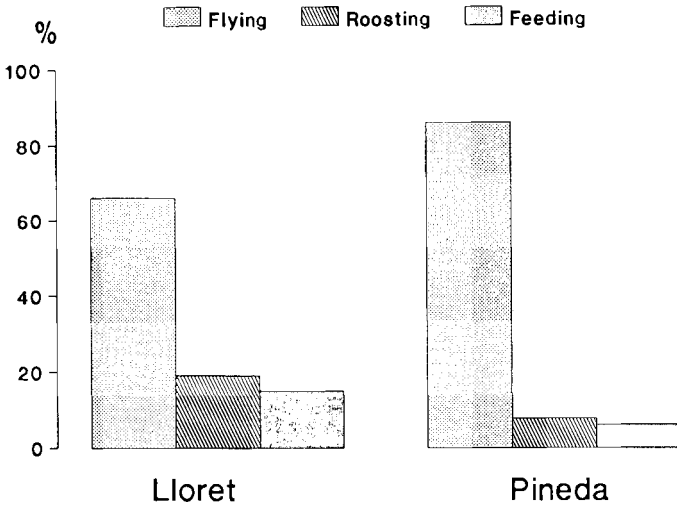


Fig. 4. Percentage of day dedicated to different activities by Yellow-gulls at Lloret and Pineda tips (mean of the three days).

The results suggest that the pattern of work at the refuse tip greatly influenced the use of the tip by Yellow-legged gulls, determining the time of arrival and departure of individuals, the time and duration of feeding activity, and the daily maximum schedule. Yellow-legged gulls seem not to feed in the refuse tip whenever they wish but only when they are able to do so. Similar results have been obtained by COULSON et al. (1987) in the related Herring gull (*Larus argentatus*). However, it is probable that some refuse tips offer more feeding opportunities than that we found at Lloret and Pineda tips (SIBLY & McCLEERY, 1983).

Availability of garbage seems one of the causes of the superabundance of several gull species (BURGER, 1981; SPAANS et al., 1991; VERMEER & IRONS, 1991; PONS, 1992), including the Yellow-legged gull (SOL et al., in press). As a consequence, preventing individuals from using this resource could be a good method to reduce their population size (PONS, 1992). Time

and space limitations that the human pattern of work at tips impose on the foraging activities of gulls can give us indications of how we can manage the refuse tips to achieve this control.

ACKNOWLEDGMENTS

We thank E. Feria and D. M. Santos for their field assistance, Mr. Bueso and Mr. Bacardit to permit us to work at the tips, and M. Kilpi and N. B. Metcalfe for their useful comments on the manuscript.

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