Riv. ital. Orn., Milano, 57 (3-4): 187-192, 15-XII-1987

VASSILIS GOUTNER & CHRISTOS GOUTNER

NEST SITE SELECTION OF OYSTERCATCHERS, *HAEMATOPUS OSTRALEGUS*, IN THE EVROS DELTA (GREECE)

TIPOGRAFIA FUSI - PAVIA
1987

Riv. ital. Orn., Milano, 57 (3-4): 187-192, 15-XII-1987

VASSILIS GOUTNER (*) & CHRISTOS GOUTNER

NEST SITE SELECTION OF OYSTERCATCHERS, *HAEMATOPUS OSTRALEGUS*, IN THE EVROS DELTA (GREECE)

Abstract. — Nest site selection of Oystercatchers was studied in the Evros Delta (1980-1981). The following features were reported: avoidance of disturbance; use of four substrate types; nests made among vegetation or in the open; lining dependent on substrate type; proximity to water; preference of flat and (secondarily) elevated sites; close to other nesting Charadriiformes; an unusual nest site.

Riassunto. — *Scelta del sito di nidificazione da parte della Beccaccia di mare,* Haematopus ostralegus, *nel delta dell'Evros (Grecia).*

Gli aa. hanno studiato la scelta del sito di nidificazione della Beccaccia di mare nel delta dell'Evros (fiume Marizza, in Grecia) durante le stagioni riproduttive del 1980 e 1981. La specie ha nidificato su quattro tipi di substrato: sabbia (substrato relativamente meno disponibile, ma preferito nel 61% dei casi in entrambi gli anni); sabbia-fango (substrato assai più disponibile, ma meno preferito: 32% dei nidi); gusci di bivalvi ed erba, usati per il nido solo occasionalmente. I nidi erano disposti tra la vegetazione sparsa e in siti aperti. La maggior parte dei nidi su sabbia non era tappezzata di materiale (56% di tutti i nidi), mentre lo era la maggior parte di quelli su sabbia-fango. L'82% dei nidi trovati era situato entro 20 metri dall'acqua bassa. Il 93% era posto in situazione poco o per nulla disturbata. Il maggior uso di siti pianeggianti per nidificare (61% di tutti i nidi), rispetto a quelli in posizione più elevata (33%), è attribuito alla notevole disponibilità di tali tipi di terreno nel delta. L'81% delle coppie di Beccacce di mare aveva come vicini altre specie di caradriformi nidificanti; oltre a mostrare una comune preferenza per l'habitat, questi uccelli emettevano grida d'allarme per allontanare gli intrusi.

Oystercatchers, *Haematopus ostralegus*, have been studied in detail in Western Europe, but very few data are available on the ecology of breeding populations in the Mediterranean region. Published infomation is provided from Spain and Greece (MARTINEZ et al. 1983; GOUTNER

(*) Department of Zoology, University of Thessaloniki, 54006 Thessaloniki, Greece.

1983, 1986). The present paper contributes to the knowledge of the breeding ecology of these birds, from a study in the Evros delta, Greece, where Oystercatchers have bred for many years (BAUER & MÜLLER 1969).

Study area and methods.

The breeding habitat was confined to the seaward part of the delta, termed the lower delta. This included open seashore, sandbars and sandy islets, with low sand dunes covered with ammophilous vegetation and sparse halophytic vegetation at more muddy sites. Many large dry tree trunks were found, especially along the seaward shore of the islets, brought by the river to the estuary in winter. The study area also included saltmarsh habitats, especially in the region of the delta lagoons (maps and additional description in GOUTNER 1983, 1985; GOUTNER & KATTOULAS 1984).

This field work was carried out during the breeding seasons of 1980 and 1981. Nests were found after regular observations of their owners. The following data were collected for each nest: Type of substrate, position in relation to the surroundings, distance from water, diameter and depth, presence of nest lining, plant species around the nest, heterospecifics breeding close by.

Results and discussion.

A small population of Oystercatchers bred in the delta, with a total of 27 and 30 pairs in 1980 and 1981, respectively. The nests were found at approximately the same sites each year. Of these 57 nests, 30 (53%) were made at absolutely isolated sites, 23 (40%) at sites where disturbance was unimportant at least during egg laying and only 4 (7%) were made at obviously disturbed sites. In the lower delta the available undisturbed area (estimated by map) consisted only about 6% of the total area. This suggests a tendency for the birds to prefer undisturbed sites for nesting.

Oystercatchers nested on four types of substrate (Table I):

Sand; this was available only in the coastal habitat and was utilized similarly in both years (Table I, $P > 0.1$).

Sand-mud; this substrate was generally dominant in the lower delta. It is firmer than sand and was mainly covered with *Halocnemum strobilaceum* vegetation around the lagoons (saltmarsh habitat). It was utilized similarly each year ($P > 0.3$). Although sand-mud was at least five times more abundant than sand, most nests were found on sand (Table I).

TABLE I. — Substrate use and nest lining in the Oystercatcher. Figures are percentages.

	Sand			Sand-mud			Bivalve shells			Grass		
	1980*	1981**	1980/81	1980	1981	1980/81	1980	1981	1980/81	1980	1981	1980/81
Substrate use	59.1	70.0	61.4	37.0	26.7	31.6	7.4	—	3.5	3.7	3.3	3.5
Lined	7.4	10.0	8.8	29.6	16.2	22.8	3.7	—	1.7	—	3.3	1.7
Unlined	44.4	66.7	56.2	7.4	3.3	5.4	3.7	—	1.7	3.7	—	1.7

* 27 nests ** 30 nests.

Grass (*Poaceae*) and piles of bivalve shells (*Cerastoderma glaucum*) were used rather occasionally for nesting.

An unusual nest was found in 1980, situated in an abandoned car tyre filled with sand (Fig. 1).

Thus, most Oystercatcher nests were made on sand, an easily manouverable substrate which was only available in the restricted coastal zone of the Evros delta, which is also an area of low disturbance.

Fig. 1. — Unusual nest site of Oystercatchers in an abandoned car tyre.

The lack of disturbance seems to be a more important factor in nest site selection of Oystercatchers than the presence of an easily manouvered substrate (HEPPLESTON 1971, 1972). It is possible that those pairs which nested at very disturbed sites were habituated to human activity (BUBNOV 1959). It is difficult to explain the use of the car wheel as a nesting site, at this was very conspicous in our eyes. Unusual nest sites of Oystercatchers have also been reported by PATTON & WILLIS (1973).

Nests were made both in absolutely open areas and among vegetation giving very low cover. Plant species recorded within 1m radius around nests were *Halocnemum strobilaceum*, *Suaeda* spp., *Salicornia* spp., *Chenopodium album*, *Elymus giganteus* and *Phragmites communis*. Nests were lined with dry parts of these plants and bivalve shells. Most nests made on sand were not covered with lining material, in contrast with those made on other types of substrate ($\chi^2 = 24.33$ $P < 0.001$, Table I). The mean nest diameter was 19 ± 2 (S.D) cm, and the mean depth 4 ± 1 cm ($n = 16$).

Most nests were made within 20 m of shallow water (Table IIA), which was frequently used as a feeding area. 17% of the 57 nests were made very close to the water; these have been included in the arbitrary category of < 5 m, as this was the observed distance where nests were in danger of flooding by exceptionally high tides.

TABLE II. — Nest site selection of Oystercatchers in relation to the nest distance from waterside (A), nature of the terrain (B) and presence or absence of other bird nesters (C). Figures are percentages.

	1980	1981	1980/81
A.			
< 5 m	11.1	23.3	17.5
5-20 m	74.1	56.7	64.9
≫20 m	14.8	20.0	17.6
B.			
Rise	25.9	40.0	33.3
Flat	63.0	60.0	61.4
Hollow	11.1	—	5.3
C.			
Presence	77.8	83.3	80.7
Absence	22.2	16.7	19.3
No of nests	27	30	57

Oystercatchers usually nested either at elevated or level sites and depressions were only used occasionally (Table IIB). There was usually a look-out position (dry tree trunk, dyke, ground projection) close to nests made in the flat areas. There was similar utilization of both elevated ($\chi^2 = 1.27$ $P > 0.2$) and level ($\chi^2 = 0.05$ $P > 0.8$) sites in both years. Level areas dominate in the delta and the only elevated sites are sand dunes and man made dykes. Thus, the relative preference of Oystercatchers for level sites (Table IIB) really reflects the availability of each type of terrain.

Most Oystercatcher nests were found close to those of other Charadriiformes (Table IIC); Spur-winged Plovers (*Vanellus spinosus*), Kentish Plovers (*Charadrius alexandrinus*), Lapwings (*Vanellus vanellus*), Redshanks (*Tringa totanus*), Red-winged Pratincoles (*Glareola pratincola*), Avocets (*Recurvirostra avosetta*), Stone Curlews (*Burhinus oedicnemus*) and Terns (*Sterna* spp.). A similar tendency was observed each year ($P > 0.5$). The breeding distribution of these species in the delta (GOUTNER 1983, GOUTNER & KATTOULAS 1984) suggests that nesting together may reflect common habitat preferences in some cases. There was also possibly some interspecific behavioural interaction, as these species usually played the role of alarmer to intruders and Oystercatchers performed the same role in other cases.

Ackowledgements. - We are grateful to Prof. M. E. Kattoulas, Prof. P. S. Economidis and Prof. D. Babalonas for various advice during the study. Special thanks to Sotiris Goutner and Dimitris Goutsouras for aid in the field, the Hellenic Society for the Protection of Nature and especially Mr B. Antipas for kindly permitting us staying at the Biological Station during part of the study. Dr Adrian Hailey (London University) corrected the English language and made useful remarks on the manuscript.

REFERENCES

BAUER W. & MÜLLER G., 1969 - Zur Avifauna des Ewros delta - *Beitr. naturk. Forsch. Südw.*, 28: 33-51.

BUBNOV M. A., 1959 - On the ecology of *Haematopus ostralegus ostralegus* L. (in Russian) - *Zool. Zh.*, 38: 1270-1271.

GOUTNER V., 1983 - The distribution of the waders (Charadrii) in the Evros delta (Greece) during the breeding season - *Sci. Annals, Fac. Sciences Univ. Thessaloniki*, 23: 37-78.

GOUTNER V., 1985 - Breeding ecology of the Avocet (*Recurvirostra avosetta* L.) in the Evros delta (Greece) - *Bonn. zool. Beitr.*, 36: 37-50.

GOUTNER V., 1986 - Timing of laying of Oystercatchers (*Haematopus ostralegus*) in the Evros delta - *Vögewelt*, 107: 187-188.

GOUTNER V. & KATTOULAS M., 1984 - Breeding distribution of Gulls and Terns (Laridae, Sternidae) in the Evros delta (Greece) - *Seevögel*, 5 (3): 40-41.

HEPPLESTON P. B., 1971 - Nest site selection by oystercatchers (*Haematopus ostralegus*) in Netherlands and Scotland - *Neth. J. Zool.*, 21: 208-211.

HEPPLESTON P. B., 1972 - The comparative breeding ecology of oystercatchers (*Haematopus ostralegus* L.) in inland and coastal habitats - *J. Anim. Ecol.*, 41: 23-51.

MARTINEZ A., MOTIS A., MATHEW E. & LLIMONA F., 1983 - Data on the breeding biology of the oystercatcher *Haematopus ostralegus* L. in the Ebro delta - *Ardea*, 71: 229-234.

PATTON W. S. & WILLIS D. P., 1973 - Unusual nest sites of oystercatchers - *Scot. Birds*, 7: 405-406.