

Lapwing and redshank nesting sites on coastal marshes: does sward structure matter?

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Introduction Grazing is central to the debate on wildlife conservation. Agricultural grasslands are the main breeding areas for many waders and grazing is very important in grassland use by these species. Waders, ground-nesting birds, are very sensitive to sward structure for nesting (Milsom *et al.*, 2000). As a marsh has different grazing regimes, all fields are not equally suitable for waders. This study evaluated the factors affecting lapwing and redshank selection of nesting sites. Also, the hypothesis was tested that sward structure (mean grass height, frequency of tussocks) is an important factor affecting this selection.

Material and methods Angles-Longeville marsh, 4700 ha of grassland in the Marais Poitevin (France), was studied in 2004. Most of the 250 fields chosen were grazed by cattle or mowed. Birds were counted every 7-10d (February-July) using the “field by field method” (Bibby *et al.*, 1992). Each field was visited during the hatching period of lapwings and redshanks (late March and early May, respectively). Habitat variables measured were: (1) Ground habitat: mean grass height (cm), measured with a “sward stick” at 4 m intervals along representative transects (30 measurements/ha); tussock frequency (%); rill density (m/ha); field wetness (%), (2) Landscape: field area (ha); boundary index (presence of trees and/or fence), (3) Disturbance: distance to nearest road (m).

Results Mean grass height and field wetness were the main significant variables from the original list of habitat variables (Table 1).

Table 1 Lapwing & redshank binary logistic regressions. *Log10 transformed

Probability for a field with at least one pair of lapwing or redshank at hatching decreased with grass height (Figure 1). In both species, the surface wetness also was a crucial factor, positively affecting field selection.

Species	Variables	df	Chi-	Estimate	SE	p-value
Lapwing	intercept	1	12.07	- 4.83	1.39	≤ 0.001
	grass height*	1	17.13	6.03	1.46	≤ 0.0001
	field wetness	4	25.52	- 0.94	0.38	≤ 0.0001
	likelihood ratio	223	233.11			0.31
Redshank	intercept	1	8.52	- 4.18	1.43	≤ 0.01
	grass height*	1	15.83	4.90	1.23	≤ 0.0001
	field wetness	4	25.26	- 2.63	0.72	≤ 0.0001
	grass height × field	1	4.63	- 1.93	0.90	≤ 0.05
	likelihood ratio	231	155.65			1.0

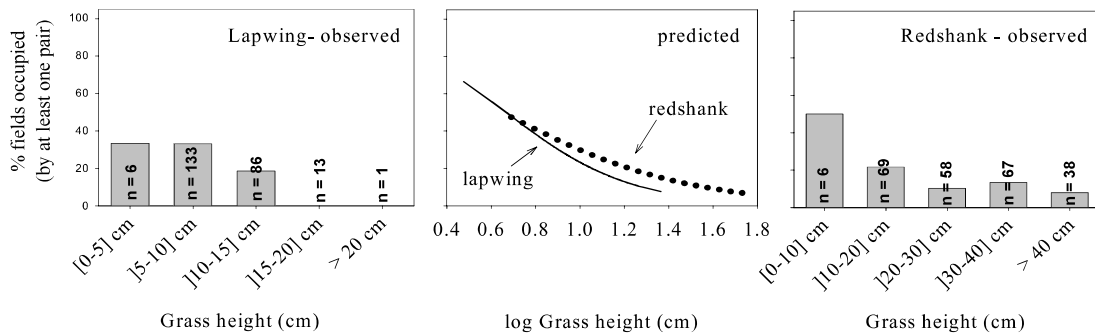


Figure 1 Responses of breeding lapwings and redshanks to grass height

Conclusions Lapwings preferred grass mainly ≤10 cm (Figure 1). Redshanks also used short swards but exploited a larger range of heights (up to > 40 cm). Grass height was an important factor affecting the selection of nesting sites in waders. The 2 species preferred different grass heights (short/longer swards). To maintain or enhance biodiversity of breeding waders in agricultural landscapes, one must maintain diversity of grazing regimes to produce various grass heights that favour various wader species.

References

Bibby C.J., N.D. Burgess & D.A. Hill (1992). *Bird Census Techniques*. Academic Press, London, UK
 Milsom T.P., S.D. Langton, W.K. Parkin, S. Peel, J.D. Bishop, J.D. Hart & N.P. Moore (2000). Habitat models of bird species' distribution: an aid to the management of coastal grazing marshes. *Journal of Applied Ecology*, 37, 706-727.