

Trapped between nest loss and habitat loss

Changing Aquatic Warbler habitats at the Western edge of the breeding range

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Introduction

The globally threatened Aquatic Warbler *Acrocephalus paludicola* (AW) was an abundant breeding bird of sedge fen mires and wet meadows or brackish reeds of similar structure throughout Central Europe. Since 1950 the species has lost most of its breeding range west of the Polish-German border¹.

Birds from a genetically distinct and rapidly declining population breed in Western Poland and Germany in secondary habitats. About 10 % of them are found in the Lower Oder Valley National Park, the last remaining breeding site in Germany².

The species is known to be sensitive for drainage, early mowing and intensive grazing as well as for Reed *Phragmites communis* or bush (mainly Willows *Salix* sp.) overgrowth¹. The ongoing decline in the Lower Oder Valley, however, cannot be explained with these factors. Here we present evidence for subtle habitat deterioration which calls for a more effective habitat and nest protection.

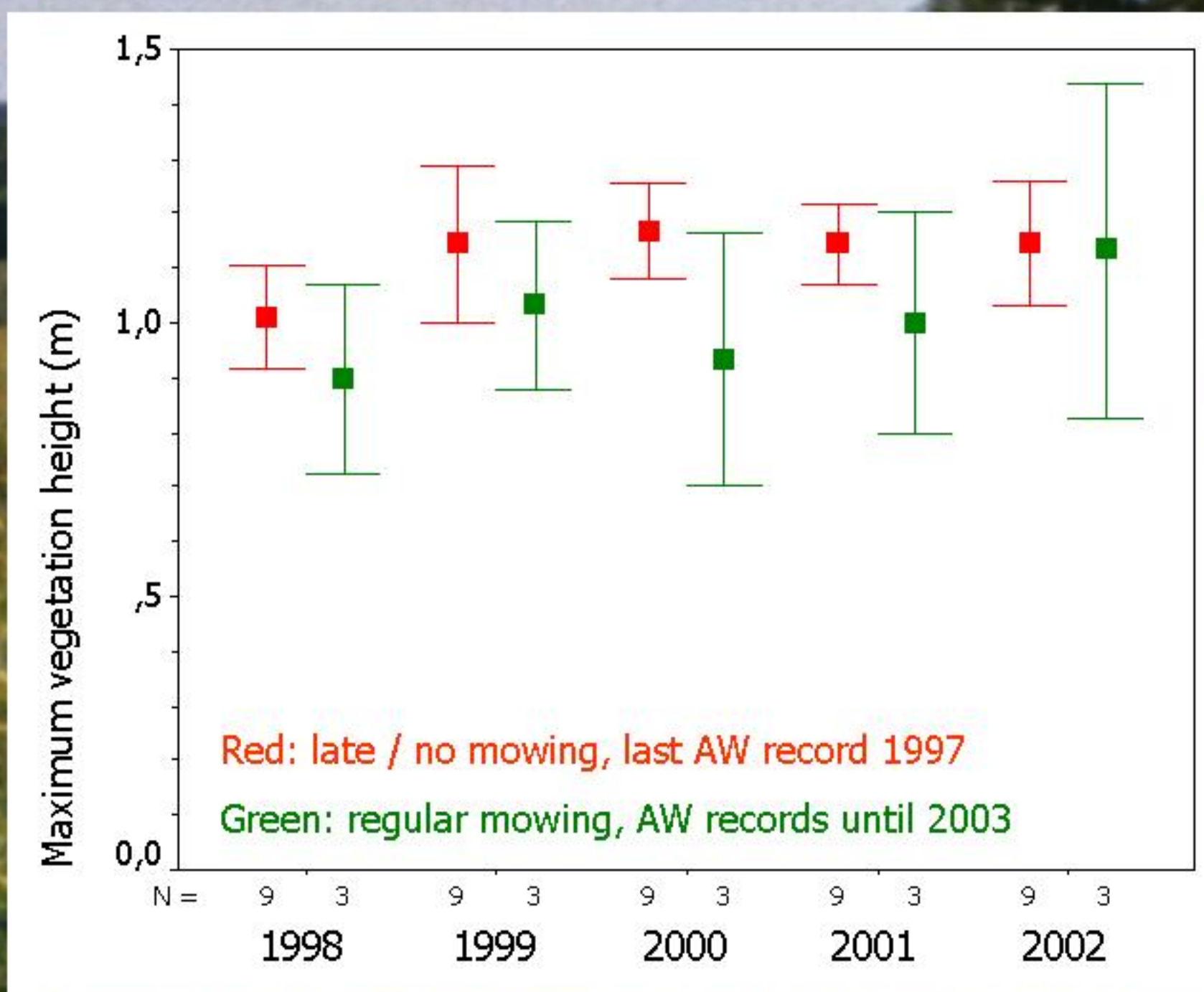
Area and Methods

In the Lower Oder Valley, Aquatic Warblers inhabit wet meadows and pastures with a certain amount of sedges. The area is subject to natural flooding until mid-April and heavily drained afterwards. In late May surface water is extremely rare.

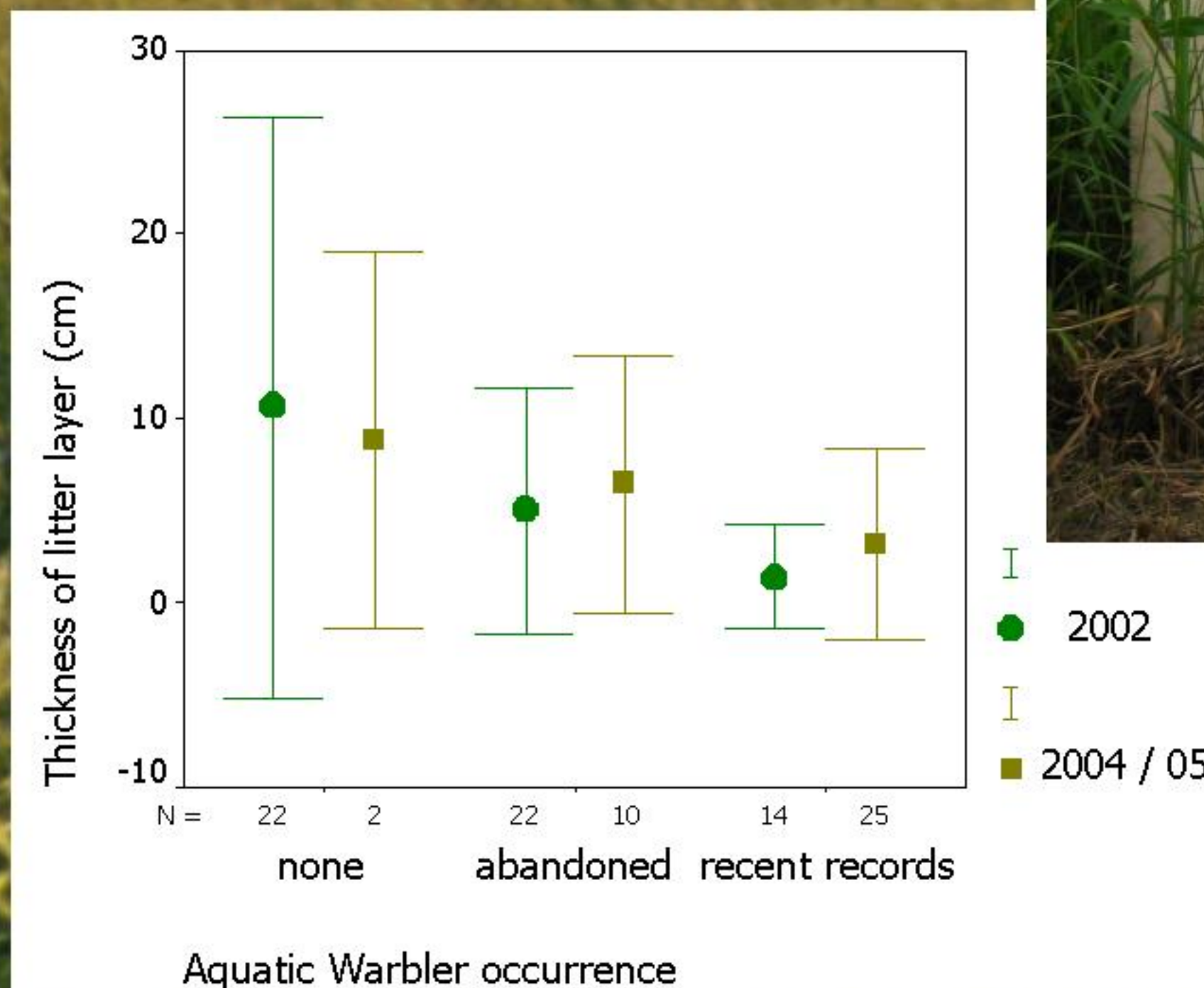
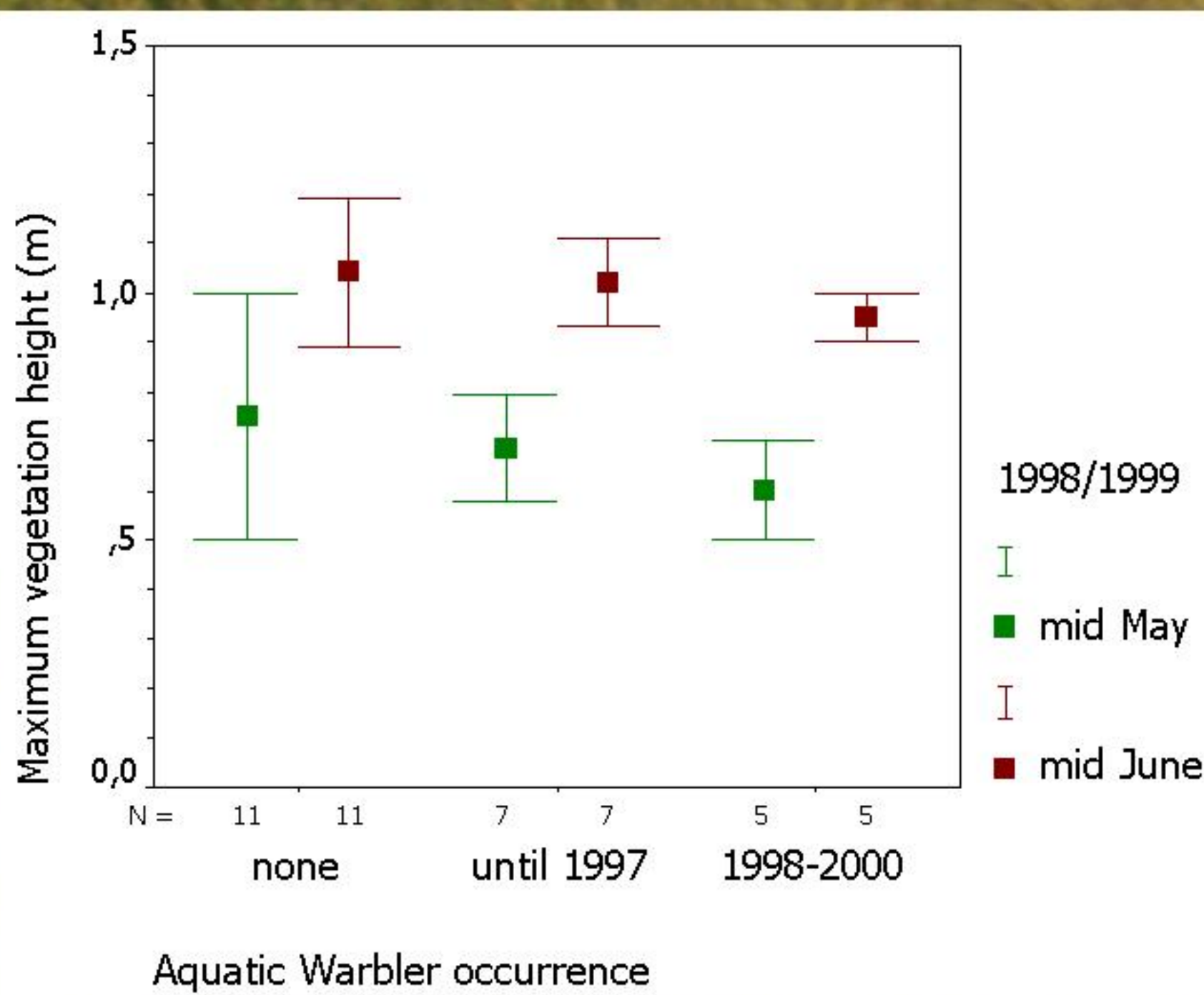
Here we present the combined results from different sources:

Annual counts of singing Aquatic Warbler males
Vegetation structure measured (1) on monitoring plots in *Cnidion* meadows partly inhabited by AW, (2) in Corncrake *Crex crex* habitats (both 1998 to 2002), and (3) during investigations into the restoration potential of AW habitats (since 2004).
Fieldwork followed standardized protocols. Plots were classified according to former or current AW occurrence, and graphs show means \pm 1 sd for the respective classes.

Changing habitat structure



Aquatic Warblers select for medium vegetation height (< 1 m) and avoid ground covered with dead plant material. During increases in vegetation height and accumulation of litter in the Lower Oder Valley, they have abandoned meadows with taller vegetation (below left; Kruskal-Wallis H-Test: $\chi^2 = 9.7$, $p = 0.008$ for mid June) and thick litter layers (below right; Kruskal-Wallis H-Test: $\chi^2 = 11.6$, $p = 0.009$ for 2002). While litter is a preferred nesting substrate on flooded meadows^{3,4}, on intensively drained meadows it might prevent the birds from foraging.

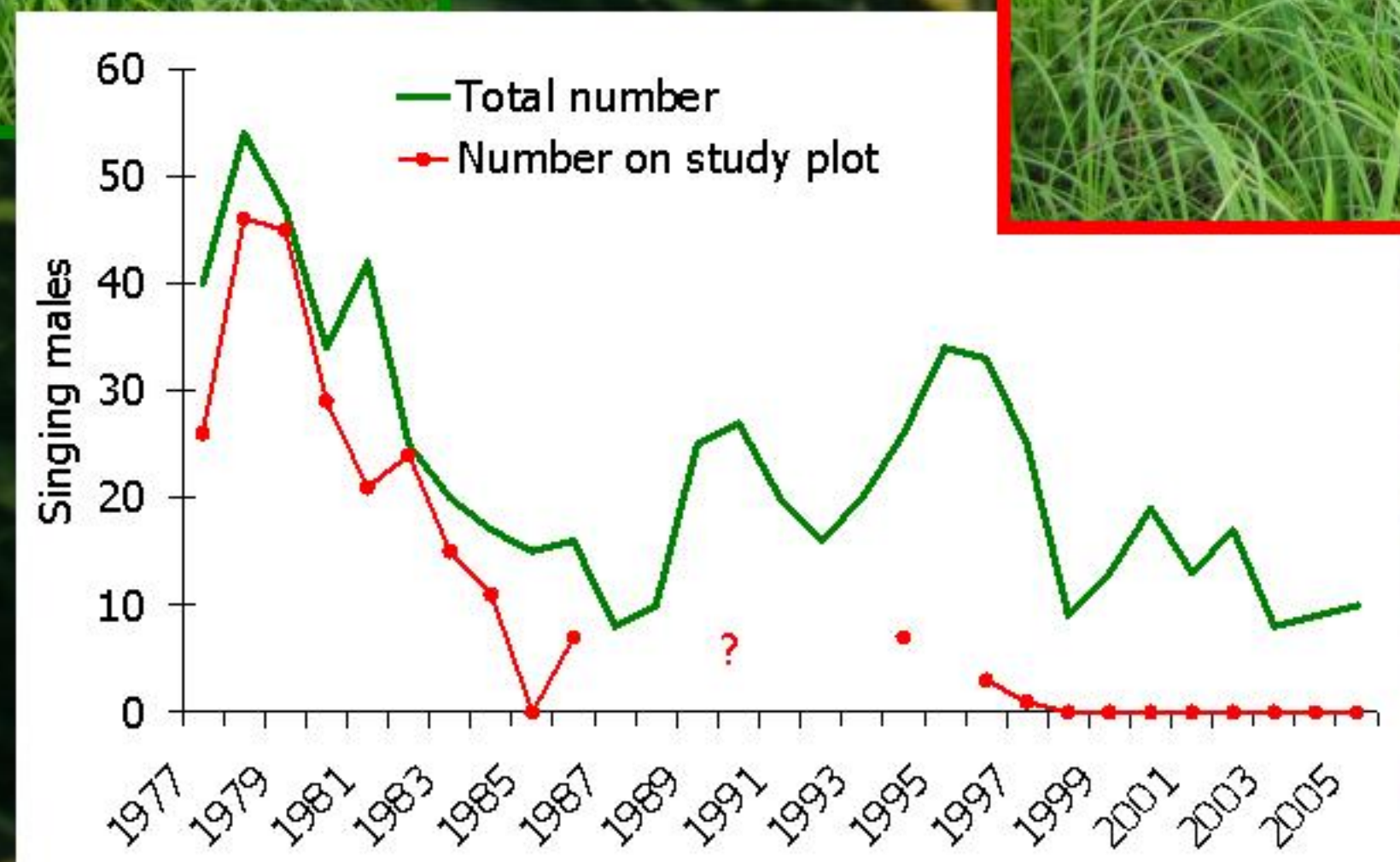


In the absence of mowing or grazing, dead plant matter covers most of the ground with a layer of increasing thickness.

Vegetation height increases in the Lower Oder Valley, a process accelerated by late mowing or cessation of land use. In the absence of mowing a homogenous and dense layer of tall sedges *Carex gracilis* or Reed Canary-Grass *Phalaris arundinacea* develops within a few years, long before bushes or reeds start to grow.



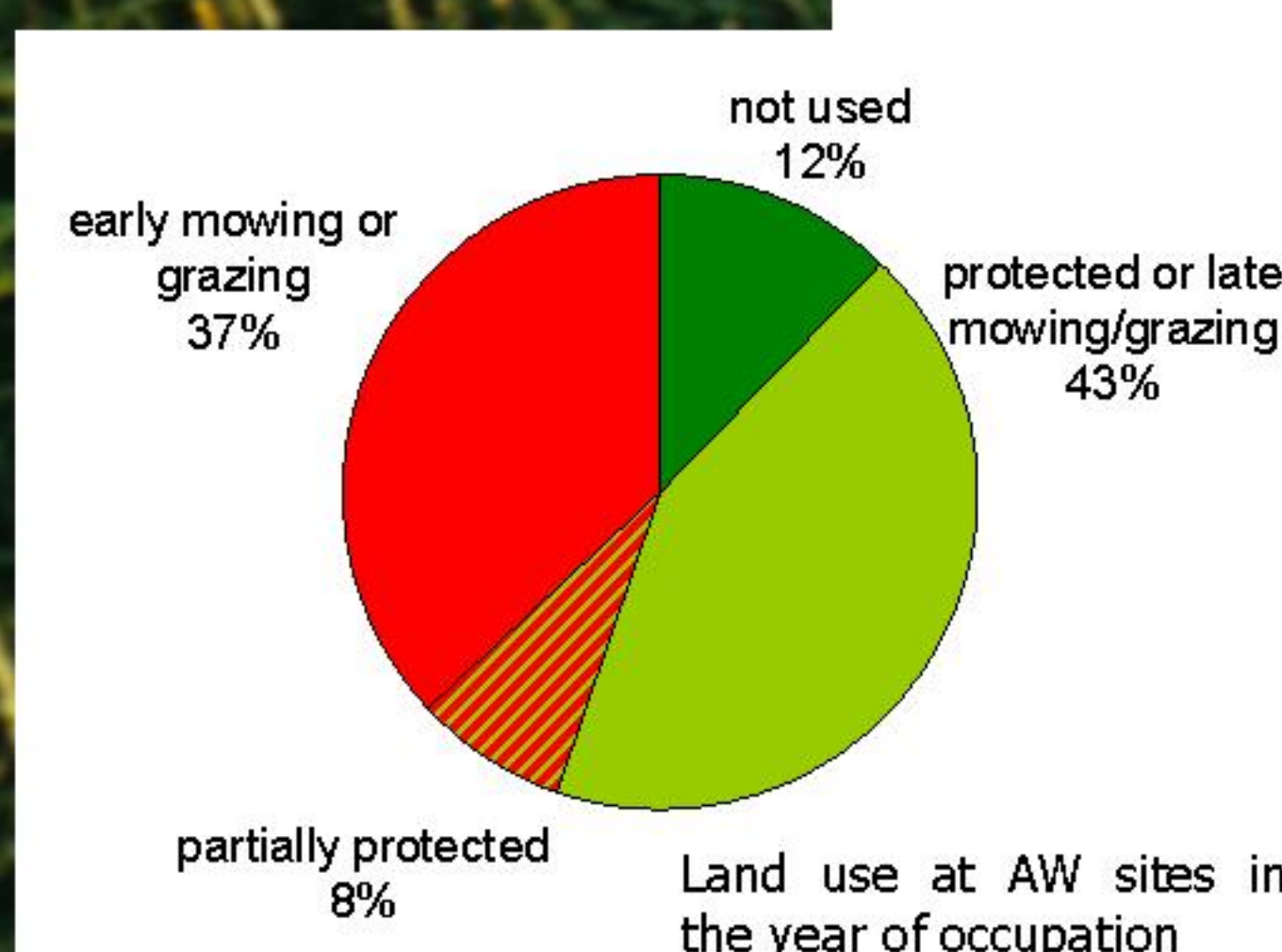
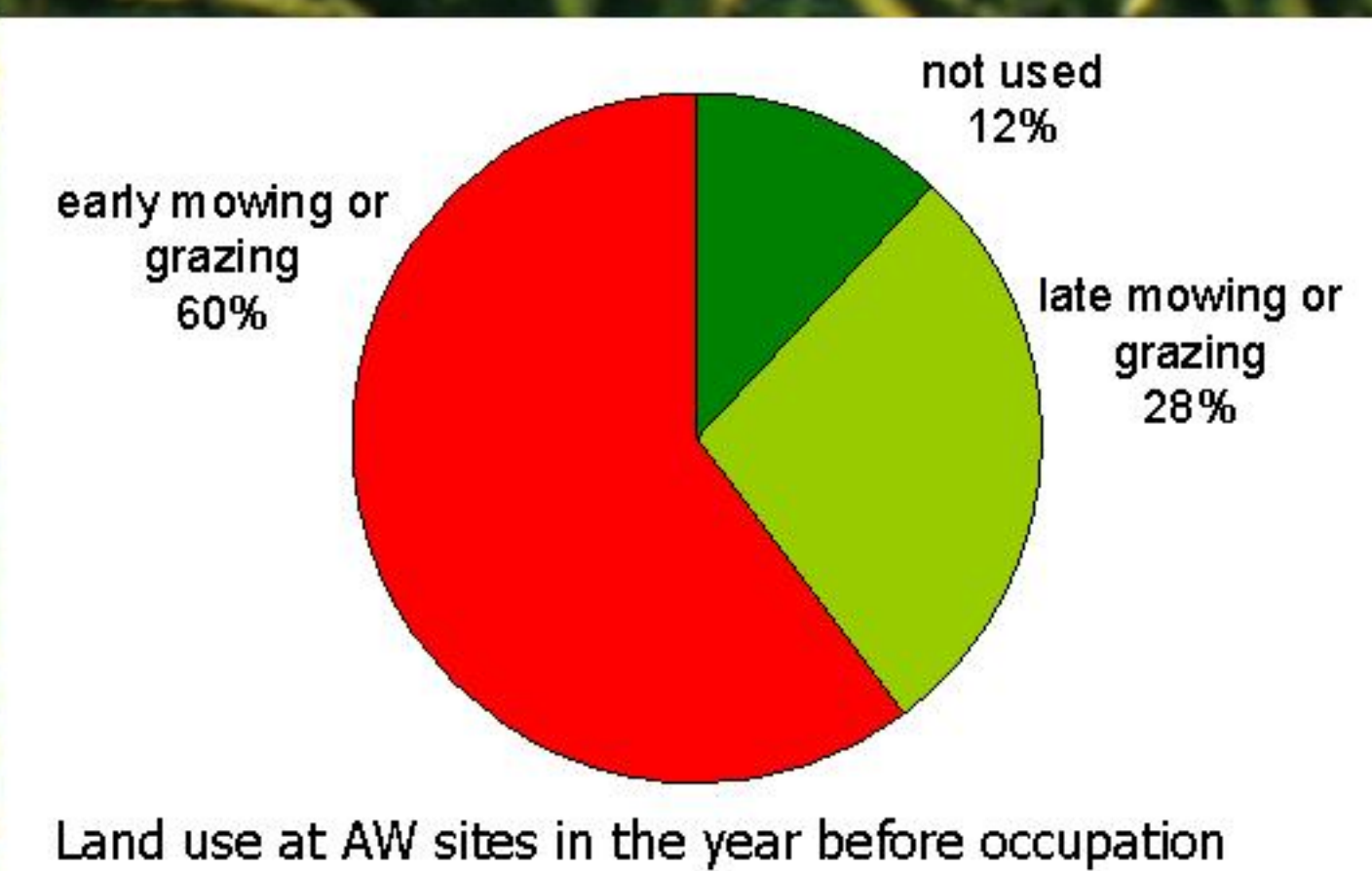
At this current breeding site, vegetation is composed of sedge, grasses and herbs, showing a high structural diversity – characteristic for AW habitats on the Lower Oder since the 1980s.



Part of a formerly important breeding site now covered homogeneously by tall sedges. Last AW record in 1997 (see graph, red line), late mowing ceased in 2001.

Nest loss due to land use

During 1998 - 2004 Aquatic Warblers mainly occupied sites mown or grazed during the preceding year. Land use is a necessary tool to stop the process of habitat deterioration ...



... but also a serious threat to broods. Although protection has recently improved and successful broods are recorded every year, potential breeding sites are still destroyed by mowing or grazing in June or July.

Conclusions

Under the current conditions in the Lower Oder floodplains with drainage in May and a high nutrient supply,

- late mowing or cessation of land use immediately causes subtle changes in vegetation structure, which are likely make meadows unsuitable as Aquatic Warblers breeding sites long before reed or bush succession starts.
- in the near future Aquatic Warbler conservation demands an increased effort for habitat management and brood protection at the current breeding sites.
- breeding sites should only be turned into strict reserves after alternative breeding sites are actually occupied.

References

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Fotos: F. Tanneberger, J. Bellebaum (Background)



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