SUMMARY

In the tradition of previous studies of threatened species, this thesis was undertaken with the aim of improving our understanding of the ecology of the White-winged Nightjar *Caprimulgus candicans*, and providing the information necessary to facilitate conservation efforts on its behalf. In 1998-2001, I studied a population of White-winged Nightjars at Aguará Ñu, an area of cerrado habitats within the Reserva Natural del Bosque Mbaracayú, eastern Paraguay. Over the course of three fieldwork seasons, I captured and ringed a total of 49 nightjars (34 adults and 15 young birds). Young females first bred at approximately one year old, while still in pre-definitive plumage. Young males exhibited a form of delayed plumage maturation, whereby they only attained definitive plumage following a prolonged moult spanning much of their first potential breeding season. No evidence was obtained to suggest that they succeeded in breeding while in this conspicuously intermediate state of moult. Considerable variation was noted in the plumage whiteness of definitive males, but no clear evidence was found for consistent age-related increases in white. During the breeding season, males defended small aggregated display territories, at which they conducted nuptial display flights between late August and early January. Female nightjars were responsible for all the parental care, and apparently visited male display arenas solely to obtain copulations. Chick paternity data confirmed that the study population was polygynous, with patterns of male aggregation suggestive of an exploded lek or 'landmark' mating system. Radio-telemetry studies showed that nightjars utilised home ranges of at least 20 to 40 hectares during the eight to ten months for which they were monitored. Home ranges contained a disproportionately large amount of young campo cerrado vegetation, but no forest or old campo cerrado habitats. When selecting foraging sites within their ranges, nightjars preferred younger and avoided older campo cerrado vegetation; wet grassland was utilised roughly in proportion to its availability. Observed patterns of habitat selection were potentially explained by the greater abundance of insect prey in younger habitats. When selecting daytime roost sites, nightjars preferred vegetation of intermediate age, reflecting their need for a balance between cover and ease of access. A more general analysis of patterns of sexual dimorphism within the Caprimulgidae showed that, although almost 80% of nightjar species exhibit some dimorphism of plumage whiteness, the study species was by far the most extreme case. The striking plumage of the male was partly explained by a strong positive relationship between wing white and openness of breeding habitats within the family. However, this failed to explain the complete absence of white in the female plumage, or the extent of white dimorphism shown by the species. The most likely explanation would appear to be that extreme plumage dimorphism occurred in conjunction with the evolution of polygyny and female-only care in this open-country species. The implications of these findings for the conservation of the White-winged Nightjar are highlighted, and recommendations are proposed for future work and conservation action.

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