

## **Trade-off between mate guarding and mate attraction in the polygynous Great Reed Warbler.**

D. Hasselquist

Dep. of Ecology, Animal Ecology, Uni. of Lund, Ecology Building, S-223 62 Lund, Sweden

In a Swedish population of the polygynous Great Reed Warbler, about 40% of the males formed pairs with more than one female. Males sang two completely separated types of song: (1) long song when they tried to attract mates and (2) short song when they guarded a fertile female. As soon as a male had attracted a female he immediately switched from long to short song and apparently guarded her for at least 3 days. Most males left their female and started singing long song several days before her fertilization period ended. This behaviour probably increased the risk of cuckoldry.

From a marginal value theorem model we predicted that males should leave their female and resume long song earlier when the chances of attracting a second mate were high than when the chances were low. This prediction was supported by observations. The chances of attracting a second female decreased during the breeding season and in accordance, the number of days that males sang short song during the primary female's fertilization period was negatively correlated with the time of the season. When comparing the length of the mate guarding periods for males' primary and secondary females the trend was also consistent for individual males. A recorded increase in the rate of male intrusions were not believed to have any important influence on the prolonged mate guarding observed. Instead, we believe that the declining prospects to attract new females explain the increased length of mate guarding late in the breeding season.

## **Soundpressure level and frequency spectrum of the songs of six reed warbler species in relation to habitat acoustics.**

H. Heuwinkel

Naturkundliches Heimatmuseum Benrath, Schloß Benrath, Benrather Schloßallee 102, D-4000 Düsseldorf 13

The sound pressure level of the songs of six reed warbler species was measured in the natural surroundings. As to their respective sound pressure level, the songs of five reed warbler species (Great Reed Warbler, Reed Warbler, Marsh Warbler, Sedge Warbler, Moustached Warbler) investigated reach far enough or even farther, so that the birds are able to mark their claimed territories acoustically from one song post.

The effective distance the Aquatic Warbler can cover with his song is too short, however, to serve this purpose. Outdoor experiments on sound propagation show differently structured habitats to be characterized by habitat acoustics of special quality. In particular vegetation does influence sound transmission. The investigations suggested that the songs of those birds, which are typically living in a habitat, are much less attenuated by the specific vegetation of this habitat than the songs of the birds non typical for the region. As frequency spectrum and structure of the song elements are concerned, the reed warbler species are very well adapted to the acoustic properties of their habitats.

Further a noteworthy resonance phenomenon was found regarding sound propagation through vegetation: reed stalks, for example, can be set vibrating by certain frequency ranges; the frequency ranges in question and the main frequency spectrum of warbler song clearly correspond.

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Autor(en)/Author(s): Hasselquist Dennis

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