

Abstract

Bird song is usually considered to have two primary functions; attract females and repels males. Hence, song features can be an indicator of male quality or aggressive motivation. It has been suggested that one of those features could be in the form of a trill - physically demanding structures. Two types of trill has been found in tree pipit, *Anthus trivialis*, „I“ and „M“ trills. Trill rates significantly differ among males in this species therefore we assume that repetitive syllable production may indicate male quality. Firstly, we tested if both types of trills are used in aggressive context using playback experiments. Only “I” trills were sung by males in response to playback, regardless of the type of trill involved in playback. Moreover, males increased the frequency of the singing of that trill as an immediate response to playback, and also increased the trill rate in comparison with spontaneous songs. In addition males who sung faster “I” trills were able to maintain the territory. We conclude “I” trills may carry information about the signaller’s aggressiveness. Surprisingly, production of “M” trills decreased after the simulated territorial intrusion.

Secondly, we tested hypotheses that males modify their response according to the intruders' quality therefore we used playbacks containing three types of “M” differed in trill rate. Our results did not support this hypothesis. Nevertheless we suppose “M” trills indicate a male’s quality but more directed towards females as further data suggested that these trills are more physically demanding. In contrast to our previous findings males sang less songs containing “I” trills after being stimulated.

Thirdly, we hypothesize that males modify their response according to the quality of the “I” trills. Thus, we performed experiments at two further localities, Krkonoše and Oblík. Males were tested by “I” trills differing in trill rates. On the contrary to our previous results males did not increase their trill rates. Nevertheless males tended to respond more quickly to high-quality playbacks. Furthermore, those males inclined to decrease trill rate and pay attention longer to playback recordings. I assume we underestimated variability among localities and trills we used were unknown to tested males.

Key words: male quality, song performance, playback experiments, territorial behaviour