

Symposium 16 Chemical ecology and the study of bird reproduction

Introduction

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Chemical ecology investigates the chemical interactions between organisms and their environment. Chemicals play a key role in the functioning of organisms, either as resource such as vitamins which influence phenotype development, or as stimulus such as odor which regulates interactions between partners (attraction), enemies or competitors (defence). It is therefore surprising that chemical approaches are rarely applied to problems related to avian biology. This is illustrated by the dearth of reports of avian chemical defences, by the near-absence of controversy surrounding olfaction in ornithology, and by the of research on avian chemical ecology at international meetings.

This symposium aimed to redress these circumstances by promoting a chemical approach to the study of avian

reproductive biology. Invited participants presented studies that show how chemicals can contribute to the better understanding of proximate and ultimate aspects in avian reproduction. Key questions addressed were the chemicals involved, how they are perceived and exploited proximately, and how they influence fitness. Chemical components discussed for different avian model systems (e.g., birds of prey, shorebirds, and passerines) include preen wax chemicals, vitamins, plant volatile compounds, and carotenoids. These were investigated in the proximate contexts of egg formation, chick development, immune function development, and in the functional contexts of pair formation, parental care, resource exploitation, predator-prey interactions, and bird-parasite interactions.