

FEATURE ARTICLES

**THE INFLECTED ALARM CAW OF THE AMERICAN CROW: DIFFERENCES IN ACOUSTIC STRUCTURE AMONG INDIVIDUALS AND SEXES**

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*Abstract.* Previous research on individual differences in the acoustic structure of vocalizations and vocal recognition has largely focused on the contexts of parent-offspring interactions, territory defense, sexual interactions, and group cohesion. In contrast, few studies have examined individual differences in the acoustic structure of mobbing and alarm calls. The purpose of this study was to explore individual differences in the acoustic structure of the inflected alarm caw of the American Crow (*Corvus brachyrhynchos*). The alarm caws of 15 wild, marked individuals were recorded and 25 acoustic measurements were made automatically using customized software. A stepwise discriminant function analysis showed that 20 of the 25 variables were important in discriminating among individuals, with 65% classification success. We used factor analysis to reduce the large number of variables to a set of seven meaningful call features. All of these features differed among individuals, suggesting that American Crows have the potential to discriminate among individual birds on the basis of call structure alone. Five of the features differed between the sexes, with call frequency being the most significant. One clearly subordinate male clustered with the females, raising the possibility that social status partially determines the sex-based differences. Encoding of individual identity in alarm contexts may be adaptive if receiver vigilance and approach urgency depend on the status, reliability, or family membership of the alarm signaler.

*Key words:* acoustic feature analysis, alarm vocalization, call classification, individual signature call.