COMPARISON OF HOUSE SPARROW (*PASSER DOMESTICUS*)
INVESTMENT IN EGG CONTENTS DUE TO DIFFERENCES WITHIN
CLUTCHES AND BREEDING SEASON

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A female bird’s physical state during egg production has a direct effect on egg contents and viability. Since physiological state may vary depending on the time during the breeding season the egg is laid or the order the egg is laid within a clutch, these factors may affect how a female directs resources into egg formation. The goal of this project is to evaluate the effect of these two factors on maternal investment.

House Sparrow (*Passer domesticus*) eggs were collected within 24 hours of laying and physical measurements taken at the time of collection. The eggs were frozen until time of analysis. For analysis, the eggs were thawed and the yolk separated from the albumen. We evaluated the relative investment in yolk, albumen, and shell by massing the separated components. The yolk is the primary energy and nutrient source for the embryo. The albumen is the major source of water and mineral ions for the developing embryo. It also contains proteins that are important in defending the yolk against microorganisms. Calcium content of the egg shells was also analyzed as it is thought to be the major limiting nutrient in egg formation. Shell structure and thickness are important for gas exchange and water retention. The shell is also the first line of defense in protecting the egg from bacterial and fungal invasions.

These measures will be used to examine differences between eggs laid early in the breeding season and eggs laid late in the breeding season. For instances where multiple clutches were obtained from the same breeding pair, we will also look at the differences in clutches laid by the same female. Differences in eggs within the same clutch will be examined for lay-order effects. This study will provide instrumental data in establishing baseline effects on egg contents for future studies of avian reproductive immunology.