

Development and Evaluation of Methods for Regional Monitoring of Mourning Dove Recruitment

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Goals and Objectives:

- Calibrate juvenile to adult ratios of harvested doves in order to produce an unbiased estimate of annual recruitment of juveniles into the fall population based on wing collection surveys.
 - Evaluate potential sampling designs and logistical constraints for a national harvest wing survey for monitoring recruitment.
 - Determine the potential for employing recaptures from an intensive banding program to generate independent estimates of age ratios that can be used to validate wing survey estimates.
 - Improve understanding of intra-annual variation in reproductive output of breeding doves.
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Progress:

A national mourning dove national strategic harvest management plan was adopted in 2003 by state and federal migratory game bird managers. The plan identifies a need for monitoring of annual recruitment of juveniles into the fall population as part of the strategy for developing informed and more rigorous harvest management of doves. Parts collections are a traditional method for estimating fall age-ratios for game bird species. However, before a reliable operational wing survey can be implemented, a number of issues must be addressed. These include the need to calibrate harvest wing age ratios to produce an estimate of true age ratios, to evaluate the efficiency of different sampling protocols to meet the information needs for doves, and to validate the accuracy of age ratio estimates using independent data. There is also a continuing need to increase our understanding of the basic breeding biology of the species, which will in turn assist with interpretation of recruitment estimates.

More than 30,000 wings were collected in 2005 from hunters by cooperating state wildlife agencies in 17 states. Age and molt score data were collected from these wings in a first-ever national dove wing bee held in Kansas City in November 2005. A matched sample of age and molt scores was collected from birds captured and released during summer banding operations in the same study sites. These 2 datasets have been used to develop and evaluate statistical models for calibration of harvest age ratios into estimates of fall recruitment. In 2006, the same field protocol was followed by 20 cooperating states.

A pilot study of the nesting biology of doves was conducted near Ames, Iowa between April and August 2005. A primary objective of the study was to develop and evaluate the cost and feasibility of field and laboratory techniques that elucidate the behavioral ecology of doves during the breeding cycle. In subsequent years of the study, these techniques could be used to address a refined set of hypotheses about dove breeding behavior. More than 200 nests were monitored for fate, and morphometric measurements were taken from nestlings. Blood samples were collected from nesting adults and nestlings and used to develop expertise in use of PCR analysis to determine sex of nestlings and radio immunoassay analysis to measure stress hormones such as corticosterone, testosterone, and prolactin in nesting birds. The study was expanded in 2006 to include additional study sites in central Iowa, and nearly 200 nests were monitored. In addition, 21 nestlings were transported and maintained in an aviary to conduct pilot experiments and refine animal care protocols.

Future Plans:

A third wing collection effort will occur in 2007, and development of statistical estimation models will continue. Nest monitoring and captive bird experiments will continue in 2007. The objectives are to examine how parental and environmental effects relate to early growth and development in mourning doves, and to determine whether juvenile mourning doves exhibit plasticity in growth and development that may help mediate early developmental stress due to reduced caloric intake.