

Ketterson / Nolan Research Group Collection

This document is part of a collection that serves two purposes. First it is a public archive for data and documents resulting from evolutionary, ecological, and behavioral research conducted by the Ketterson-Nolan research group. The focus of the research is an abundant North American songbird, the dark-eyed junco, *Junco hyemalis*, and the primary sources of support have been the National Science Foundation and Indiana University. The research was conducted in collaboration with numerous colleagues and students, and the objective of this site is to preserve not only the published products of the research, but also to document the organization and people that led to the published findings. Second it is a repository for the works of Val Nolan Jr., who studied songbirds in addition to the junco: in particular the prairie warbler, *Dendroica discolor*. This site was originally compiled and organized by Eric Snajdr, Nicole Gerlach, and Ellen Ketterson.

Context Statement

This document was generated as part of a long-term biological research project on a songbird, the dark-eyed junco, conducted by the Ketterson/Nolan research group at Indiana University. For more information, please see IUScholarWorks (<https://scholarworks.iu.edu/dspace/handle/2022/7911>).

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MLBS Goals.2007, 3/18/07, under construction, brief description of ideas on the table

1. Impact of experimentally elevated T on female phenotype
 - Compare home range size of T- and C-females using radio transmitters (late arrival)
 - Compare females on more measures of immune function
 - Parental behavior complete? more data for Dawn and Dustin?
2. Impact of experimentally elevated T on female fitness
 - Survival, conduct census to compare relative rate of return of T- and C-females
 - EPFs, do T-females produce more young via EPFs than control females?
 - Fecundity, do T-females have higher or lower fecundity than control females?
3. Male response to GnRH and male phenotype
 - Continue exploration of whether T measured in response to GnRH co-varies with the phenotype in the same way that experimental elevation of T would predict. To date have focused primarily on the 'mating phenotype.' Focus here would be on the 'survival phenotype' (cort, immune function).
 - Cortosterone is higher in males treated with T
 - a. Does pre-challenge cort co-vary positively with pre-challenge-T?
 - b. Does post-challenge cort co-vary positively with post-challenge T?
 - c. Does rise in T co-vary with rise in cort?
 - d. Does a GnRH injection elevate cort? Compare saline vs. GnRH injections for rise in both cort and T.
 - Immune function: IgG co-varies with pre-challenge T and both vary seasonally. Do other measures of immune function co-vary with GnRH response?
 - Mating phenotype, co-variation of *same* individuals measured for aggression and courtship?
4. Female response to GnRH
 - Connect female GnRH response and T to aspects of the adult female phenotype, connect yolk T to some aspect of the offspring phenotype (see separate document).
5. Additional small summer project (quite tentative)
 - Measure wing and tarsus length in relation to response to GnRH? Tail white and wing length are under correlational selection, tail white co-varies with response to GnRH, does body size?
6. Additional summer objectives
 - return KFBO juncos to the field and capture new ones for colony, might we collect eggs from females brought from IN to VA before release?
7. Additional projects, longer term
 - When oh when will we address hormonal correlation between the sexes?
 - diet and tail white, conduct a protein analysis on Joel's re-grown feathers to see whether their quality was affected by the difference in growth rate.
 - Androgen receptors on WBC, does treatment with T alter density of androgen receptors? how to preserve cells for later analysis?
 - What differs about females that do and do not breed after treatment with T? Are some less sensitive to T? or is it simply a difference in dose? Need a measure of sensitivity to T in females, e.g. density of receptors? Phenotypic dose response?