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## Research Summary from 2013 EBBA Memorial Grant Recipient- Boldness in Response to Predatory Threat and its Correlation with Reproductive Success in Carolina Chickadees

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color-banding project of American Goldfinches and House Finches; although to date most reports have been from nearby, we encourage all banders to keep an eye out for any birds with white alphanumeric codes on black bands, and to report these to us through our form at <http://www.migrationresearch.org/mbo/feederbirds.html>

**(The Coordinator apologizes for inadvertently omitting the narrative of this report from the AFR Spring 2012 Review.)**

**The Arboretum at Penn State** 404-0775  
State College, Centre County, PA.

**Bander(s)** Nick T. Kerlin, Emily Thomas  
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Chief Assistant(s) Margaret Brittingham, Andrew Weber (grad asst.), PSU WFS497A students

Windy! That was the one word to describe most days of operation. Constant and often gusty winds caused net movement visible to birds and required more frequent net checks to insure bird safety. Some nets were not opened as a result. Two scheduled days during the period were cancelled and operations closed early on one day due to inclement weather conditions (rain/snow, high winds).

Species	Number	%SY	%ASY	%AHY
GRCA	60	67%	17%	16%
WTSP	42	14	0	86
AMRO	23	43	14	43
AMGO	17	65	18	17
SOSP	16	13	12	75
NOCA	11	18	0	82
HETH	6	83	0	17
BLJA	4	50	25	25
WOTH	4	0	0	100
EATO	4	0	0	10

Two new mist nets were added for a total of ten and banding headquarters was moved from an open area to the pavilion at the Air Quality Learning and Demonstration Center. The pavilion provided a more favorable location for banding operations (table work space, protection from precipitation for equipment and

volunteers) as well as a more easily recognizable gathering point for visitors.

Twenty-eight volunteers (Penn State students and others) provided 292 hours of volunteer time.

A total of 76 visitors, including students from the State College Area School District Delta Program, Altoona High School and Penn State Wildlife & Fisheries Science 406 ornithology class visited the site.

There were no foreign recaptures; however, a Hermit Thrush originally banded at the site on 22 Apr 2011 was recaptured 4 Apr 2012. This raised speculation as to whether it was a wintering individual or caught during a migration stopover in both years. Additionally, where did it breed in the interim? Area habitat and elevation is not typical of this species for breeding.

The oldest bird recaptured was an American Goldfinch originally banded 27 Aug 2010 as a SY bird and recaptured 9 May 2012.

## A Research Summary from a 2013 EBBA Memorial Grant Recipient

### Boldness in Response to Predatory Threat and its Correlation with Reproductive Success in Carolina Chickadees (*Poecile carolinensis*)

Personalities in non-human animals, defined as individual consistencies in behaviors over time and context, represent an emerging topic in animal behavior and evolutionary ecology. Because of expected associations with survival and fitness, risk-taking behavior (boldness) is often studied from a personality perspective. My study addressed boldness in response to predatory threat in Carolina Chickadees (*Poecile carolinensis*), tested through field experiments. Chickadees are good model species because they react to threats with behavior that can be quantified easily: both alarm-call rate and the number of *dees* in the *chick-a-dee* call increases linearly with degree of threat. In spring 2012 and 2013, I presented breeding pairs with three stimulus models

(mammalian predator, avian predator, and control) during the two-week nestling stage. I used Autonomous Recording Units (ARUs) and direct observation to record the vocal and spatial responses (proximity) of the adult birds. Males responded vocally 15.7% more than females. There were consistent differences between an individual's responses for both males and females. Several vocal response variables were positively correlated between paired females and males. These results support the hypothesis that boldness may represent a component of chickadee personality, with influences on pairing. However, individuals that were tested in both years were not consistent in their response.

To consider associations with reproductive success, I examined the Carolina Chickadee mating system. Songbirds frequently engage in extra-pair copulations that result in extra-pair offspring (EPO), which need to be considered when estimating reproductive success. To assess parentage, I used 81 single nucleotide polymor-

phisms (SNPs). Analysis of SNP genotypes revealed that 14.2% of nestlings were EPO; 42% of broods included  $\geq 1$  EPO; and intraspecific brood parasitism (egg dumping) occurred in 10% of broods and accounted for 2% of offspring. Boldness was not associated with reproductive success or with paternity lost or gained via EPO.

This study is part of a broader investigation of behavioral syndromes in chickadees. The next steps will include testing for correlations between boldness and dominance, parental effort, and singing behavior in the same Carolina Chickadee. This work will set the stage for eventual research on the potential role of personality in hybridization between Carolina Chickadees and Black-capped Chickadees (*P. atricapillus*).

**Sarah Baillie**

**Villanova University  
Biology Graduate TA**

## EBBA Memorial Fund

Over 50 years ago EBBA established a Memorial Fund in memory of deceased members with income from the fund to be used to support student research in the field of ornithology using bird banding. The Fund consists of memorial contributions, dues from Life Memberships and other contributions members may make.

Many grants from this Fund have been made to worthwhile students through the years. Student interest in applying for an EBBA Memorial Grant has grown to record levels. The past three or four years there has been a record number of applications for which EBBA made three grants annually. We need more funding to support this worthwhile effort.

If you would like to support EBBA's quest for supporting more student research in ornithology, please consider a tax-deductible contribution or bequest to either the Memorial Fund or to next year's budget for 2014 awards by contacting EBBA's treasurer,

**Don & Elaine Mease [measede@enter.net](mailto:measede@enter.net)**