

**ABSTRACTS
FROM PAPERS/PRESENTATIONS
AT THE EASTERN BIRD BANDING
ASSOCIATION 80TH ANNUAL MEETING
EXPANDING THE WORLD OF
BANDING**

**POWDERMILL NATURE RESERVE
4-6 APR 2003**

KEYNOTE LECTURE (Saturday Evening)
Principles of moult and ageing in European passerines. – Dr. Lukas Jenni, Swiss Ornithological Institute, Sempach, Switzerland.

Molt, one of the major periods in the annual cycle of a bird, varies considerably in timing, duration and extent between species and individuals. The molt regime of a particular individual is the outcome of complex interactions between the needs to molt, the various costs of molt, and the requirements of other events in the annual cycle, such as reproduction and migration. In European passerines, four main patterns of molt are distinguished. They can be explained partly by the geographical location of the wintering grounds and their ecological conditions. Intraspecific variation in the extent of partial molts, particularly the postjuvenile molt, depends partly on the timing of molt, but also on other factors. Because the juvenile plumage is replaced only partly during the first year in many species, the recognition of remaining juvenile feathers is a useful tool for ageing birds. This method was used to produce a guide on ageing many species of European passerines. Quantitative data about the extent of partial molts and many photographs help to recognize the subtle differences between feather generations.

OTHER PRESENTATIONS/PAPERS (Saturday morning/afternoon)

Report from the Bird Banding Laboratory – Mary Gustafson, Bird Banding Laboratory, USGS Patuxent Wildlife Research Center.

[No abstract available for this talk].

NABC certification: What is it? – Robert Yunick, Schenectadv. NY.

[No abstract available for this talk].

Nationwide Mourning Dove banding project – Ian Gregg, Bureau of Wildlife Management, Pennsylvania Game Commission.

[No abstract available for this talk].

Annual survival/mortality analysis of Sand Martins (Bank Swallows *Riparia riparia*) breeding in Cheshire, U.K., 1981-2002, and the correlation with rainfall in their west African wintering areas – Dr. David Norman, Merseyside Ringing Group, Cheshire, U.K., and Will Peach, Royal Society for the Protection of Birds, Bedfordshire, U.K.

The Sand Martin (Bank Swallow *Riparia riparia*) has a high reproductive rate and a relatively low adult survival rate, the strategy known to ecologists as *r*-selected. It is, therefore, of interest to determine their survival/mortality on an annual basis, and of great conservation importance to assess the influencing factors. This analysis is based on the capture of 5,027 adults (after-hatching-year birds) mist-netted at up to 12 colonies in commercial sand quarries in Cheshire, U.K. from 1981-2001. Of these, 957 birds were recaptured in subsequent years. Using mark-recapture techniques, we have determined the annual survival for males and females separately. We discuss the assumptions underlying the mark-recapture analysis, including modifications to allow for the presence of transient birds visiting a colony but not resident in the area. Over these two decades the annual survival of adult birds has varied from 11% to over 50%. The apparent survival is always higher in males than females, possibly because of lower site fidelity of females. There is a strong correlation with the weather in their west African wintering quarters, just south of the Sahara desert. In winters following a poor (dry) rainy season, their mortality increases greatly because insects are scarcer; but in years with adequate rainfall, their survival reaches a plateau at around 50%. We suggest that, in dry years, the over-winter period is the most critical in their life cycle; but in wet years, other factors, such as conditions on migration and the stresses of the breeding season itself, limit their survival.

Body mass and wing length variation of 170 species of birds banded at Powdermill Nature Reserve: a descriptive and statistical analysis of 300,000 original banding records from 1974-2000 – Robert S. Mulvihill, Robert C. Leberman, and Adrienne J. Leppold, Powdermill Nature Reserve, Carnegie Museum of Natural History.

Body mass data are integral to a wide variety of ornithological studies including avian energetics, sexual dimorphism, evolutionary morphology, systematics, ecological community analyses, and many others. Especially when considered in relation to visible fat deposits and/or wing length, body mass data increasingly are being used in behavioral ecology and conservation biology contexts; e.g., for assessing and comparing indices of body condition in relation to survivorship, productivity and habitat duality for breeding, wintering, and migrant birds, and for estimating energetic costs and flight ranges of migrants. Although measurements of body mass, fat level, and wing length are taken commonly by bird banders, such data generally are unpublished or widely dispersed throughout the professional literature such that they are not readily available to other researchers. The few previous compilations of large amounts of body mass data arguably suffer from reduced scientific utility due to extensive fracturing or, conversely, lumping of data across categories. Accordingly, we tried to summarize and statistically analyze our body mass and wing length data in practical and biologically meaningful ways. Our study was based on nearly 300,000 original banding records from birds caught at Powdermill Nature Reserve, Westmoreland County, Pennsylvania, between 1974 and 2000. Sample sizes ranged from one (13 species) to 24,575 (Dark-eyed Junco, *Junco hyemalis*). For our analyses, we subdivided body mass and wing length data analyses into a maximum of nine age/sex classes. Body mass data were further subdivided by four classes (0-3) that ranked visible deposits of subcutaneous furcular fat from none to little to moderate to large. We calculated descriptive statistics (mean, standard deviation, minimum, and maximum) for subsamples represented by three or more individuals (ten or more in the case of wing length). Individual variates were included for species with samples <10, because data for these species

might be scarce or lacking in the literature. For species having sample sizes >100, we tested for possible age and/or sex effects on wing length and body mass using one-way analysis of variance and covariance. We computed separate linear regressions of body mass on fat score, which can be used for deriving estimates of "payload" mass for migrants. We also used this predictive relationship to derive an estimate of lean body mass and then computed linear regressions between estimated lean mass and wing length the latter relationship often is used for deriving body condition indices. We hope the results and information provided by our study will serve the needs of many researchers and encourage others who have such data to undertake similar studies, in the process creating opportunities for valuable comparisons across additional species and regions.

Age determination improves banders' ability to determine sex of Ovenbirds based on wing and tail measurements – Bill Elrick, West Milford, NJ

[No abstract available for this talk].

Developing a photographic guide to identifying, ageing and sexing North American birds – Mike Lanzone, Penn State University; Robert S. Mulvihill, Carnegie Museum of Natural History, Powdermill Nature Reserve, and Jerry Ligouri, Salt Lake City, UT.

In 1987, Peter Pyle and others released the first *Identification Guide to North American Passerines*; modeled after Lars Svensson's frequently updated *Identification Guide to European Passerines*. In 1997, Pyle published a revised, corrected, and greatly expanded *Identification Guide to North American Birds* (Part 1). Each of these books was a major leap forward in the integration and development of knowledge of the molts, plumages, and other morphological traits useful for making accurate in-hand determinations of species, age and sex of North American birds. Pyle's guides, however, are somewhat difficult to interpret and apply, depending on the levels of beginning knowledge and experience of those using them. For the beginning banders who rely on Pyle's guides the most, the works are subject to wide interpretation, and are sometimes difficult to efficiently and effectively use and comprehend.

The nearly uniform presentation across species of text describing features possibly useful for determining age and/or sex often makes it difficult to identify and select the best criterion for accurately and efficiently arriving at a decision in a banding environment. For example, although it is the single most obvious and useful criterion, the brown (vs. red) eye color of immature (HY) Red-eyed Vireos (*Vireo olivaceus*) is mentioned only at the very end of the Pyle's (1997) paragraph describing various other criteria for distinguishing HY birds, such as the color, shape, and wear of various feather groups and mouth lining color. Recent efforts have been helpful in reorganizing and presenting the abundant data from Pyle (1997) in a more practical tabular format (Sakai and Ralph 2002). We propose to develop a guide (actually a set of guides) that photographically illustrate the principal criteria for quickly and accurately determining age and sex of birds, even when used by banders who have little or no previous experience with the species treated in the guides. Like the exemplary work on molt and ageing of European passerines by Drs. Lukas Jenni and Raffael Winkler, the high quality photographic bander guides that we propose to develop will emphasize (and illustrate) timing and extent of molt as the primary means for determining the ages of many birds in hand. Other criteria (e.g., feather shape, soft part colors) will, of course, be included where appropriate. In preparing these guides, we look forward to working collaboratively with many banders from throughout North America. Although current data and level of understanding of molt patterns and molt variation for North American birds certainly lags behind that of our European colleagues for their avifauna by a decade or more, we think that with the benefit of the excellent model provided by Jenni and Winkler (1994), we can quickly bridge this gap through focused and coordinated data collection by the North American banding community. Through these efforts we think that sufficient data (and photographs) can be obtained within several seasons for creating a guide that will set a new North American standard, integrating both existing and newly generated data in an easy to use photographic format.

Studying the nesting ecology of Acadian Flycatchers, *Empidonax virescens*, in eastern hemlock: the importance of a banding

Oct - Dec 2003

approach – Jim Sheehan and Terry L. Master, Department of Biological Sciences, East Stroudsburg University, PA; Robert S. Mulvihill, Carnegie Museum of Natural History, Powdermill Nature Reserve, Rector, PA.

In our study areas in eastern Pennsylvania and northern New Jersey, the major factors causing a significant decline in eastern hemlock (*Tsuga canadensis*) extent and health are home development and the hemlock wooly adelgid (*Adelges tsugae*). This decline has prompted much concern due to potential effects ranging from negative impacts on water quality to reductions in populations of hemlock-dependent forest songbirds, such as the Acadian Flycatcher. After two years of investigation and 100 flycatcher nests monitored and measured, our results indicate that this species strongly prefers to nest in hemlock trees in this region, even though in much of its range it nests primarily in hardwoods and has abandoned areas heavily affected by the adelgid. An increase in nest predation in fragmented hemlock habitat is also suggested. However, key questions remain about the mechanisms involved in a potential decline in Acadian Flycatcher populations due to hemlock habitat decline. To answer these questions will require that individual birds be marked and measured to address such issues as site fidelity and the contribution of factors such as age and condition to habitat selection and settlement patterns. Here we review potential methods to add a banding component to a nest monitoring effort performed on Acadian Flycatchers and discuss comparable research with color-marked Louisiana Waterthrush (*Seiurus motacilla*) to evaluate the usefulness of this approach.

The effects of forest fragmentation on post-fledging survival and dispersal of a forest songbird – Scott A. Rush and Bridget J. M. Stutchbury, Department of Biology, York University, North York, Ontario, Canada.

Many studies have addressed the effects of forest fragmentation on the breeding behavior and fecundity of forest songbirds but have left the critical dynamics of the post-fledging period largely understudied. Using radio-telemetry, I tracked adult Hooded Warblers (*Wilsonia citrina*) attending fledglings from nests within large (>100ha) and

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small (<5 ha) forest fragments. I used Cormack-Jolly-Seber models in Program MARK to test for the effects of forest fragment size, sex and age of the attending adult, fledge date and brood size on the survival of the young during the ~4 weeks post-fledging, and prior to cessation of parental care. Habitat use was examined in relation to the sex of the attending adult and forest fragment size. I found fledgling survival did not differ between large and small forest fragments, but was influenced by the sex and age of the attending adult. Nesting habitat was structurally similar to that used during the post-fledging period while neither forest fragment size nor sex of the attending adult were influential on postfledgling habitat use. While results of this study suggest that forest fragmentation does not overtly affect the post-fledging survival and habitat use of Hooded Warblers, many songbird species do not use similar habitat throughout the nesting and post-fledging period and as a result of the physiognomic effects associated with forest fragmentation these species may face limitations in the availability of critical resources during the post-fledging period. As such, the effects of forest fragmentation on fledgling survival, as influenced by the availability of habitat and the demography of the adults must be considered during the development of conservation plans for Neotropical migrant songbirds.

Land use and territory of wintering Black-capped Chickadees. – Steven Babaris and Bridget J. M. Stutchbury, Department of Biology, York University, North York, Ontario, Canada.

A number of aspects concerning the behavior of Black-capped Chickadees (*Poecile atricapillus*) were studied in both food supplemented and non-supplemented areas in southern Ontario. While many studies have been conducted using traditional banding and resighting techniques, this study used radio telemetry to determine the accuracy of these previous findings. We are looking specifically at territory size, movement, land use and, to some degree, flock interactions. Areas of interest include the differences in territory size and movement between supplemented and non-supplemented areas as well as the relative willingness of chickadees to utilize edges and disturbed habitats. We expect that birds with added food resources will have smaller territories and will

not move as much as those in control areas. We also predict that birds in supplemented areas will be more willing to use edges and disturbed habitat to obtain food than those in control areas. Since Black-capped Chickadees have been particularly well studied, these results could potentially have implications on the accuracy of techniques used in past studies, the value of radio telemetry and the winter ecology of chickadees.

Relations of habitat to Wood Thrush nest predators, nest attendance, food delivery rates, and fledging success in the Monongahela National Forest, West Virginia – Gary Williams and Petra Bohall Wood, Department of Biology, West Virginia University.

Here we describe the results of a study of constraints upon Wood Thrush (*Hylocichla mustelina*) fledging success within a primarily forested region. We used infrared miniature video cameras to document attendance, food delivery rates, and causes of nest failure. We measured habitat at three scales: nest site, territory, and landscape. We examined relationships among nesting behaviors, outcomes, and habitat. Fifty-six nests were monitored during 1998 - 2000. Attendance and food delivery rates were measured for 8,241 15-min intervals. Predation was the most common source of failure (23 of 26 failures) and southern flying squirrels (*Glaucomys volans*) were the most common predator (n = 8). Only one nest was parasitized; both the host and cowbird nestlings fledged. Probability of fledging was related positively to the territory level amount of mature forest, and at the landscape level, related negatively to amount of open, non-forested area and related positively to mean patch fractal dimension (a measure of shape complexity) of mature forest patches in the landscape. Models of attendance and food deliveries were also related positively to landscape level shape complexity of mature forest patches, but there was inconsistency among important nest site and territory level habitat variables in the models. Food delivery rates increased with brood size and nestling age, suggesting food may not limit fledging success. Changes that simplify shapes of mature forest patches in the landscape may reduce the ability of Wood Thrushes to fledge young via higher predation rates and tower food availability.

British birds in Senegal – Dr. David Norman, Merseyside Ringing Group, Cheshire, U.K.

Awareness of the crucial importance of conditions in the wintering quarters has risen in the last 30 years as factors including drought and deforestation have been implicated in the population decline of many species breeding in the Palearctic and the Nearctic regions. Many British birds migrate to, winter in, or pass through Senegal, the western-most country in Africa lying just south of the major ecological obstacle of the Sahara desert. During the three winters 1990-1993, over 500 amateur ringers (banders) visited the National Park at Djoudj in northern Senegal as part of a privately financed operation. Later, a European Science Foundation Network coordinated morphometric studies across Europe and several African sites, including visits to Djoudj. As part of these projects, the author spent almost four months ringing birds in Senegal, in four visits. This talk presents some

personal views of this work and provides illustrative examples of the knowledge gained on: habitat use and partitioning between species; the location of wintering areas, some previously unknown; the timing of wintering/passage of many species; the numbers present (with some species showing large annual variations); the races of some of the species; molt pattern and duration; winter weights and pre-migratory fat accumulation; recurrence of individuals in winter quarters; the breeding of some of the Afrotropical species; and some of the hazards facing the birds.

Fishing for the feathered trout: a long-term banding study of the Louisiana Waterthrush – Robert Mulvihill, Powdermill Nature Reserve, Carnegie Museum of Natural History; Terry Master, Department of Biology, East Stroudsburg University; and Tim O'Connell, Cooperative Wetlands Center, Pennsylvania State University.

[This presentation was cancelled.]

ATLANTIC FLYWAY REVIEW: SPRING 2003

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We welcome a new station, OCCO Potomac River NWR Complex, Occoquan Bay, operated by Suzanne Miller, to this, the sixth AFR Spring Report.

Totals were down at ten of the 16 reporting stations but, more importantly, b/100nh were down at all but two. Cold, wet weather, especially during the early part of the spring, had a negative impact on captures and may have resulted in significant mortality of early migrants. There were many high points, including a 9-year-11-month-old Eastern Kingbird recaptured at Crown Point and New York state's second-ever MacGillivray's Warbler banded at Braddock Bay.

Read the narratives for details of many interesting re-encounters including a Blue-winged Warbler banded at Ruthven recaptured 90 miles NNE at Braddock Bay the next morning, and a Chipping

Sparrow banded on 26 May at Prince Edward Point near Kingston, ON, that flew back over Lake Ontario and was recaptured at Braddock Bay on 2 Jun. Also read about the long distance travels of an American Goldfinch from Rock Point to Lexington, TX, and a robin from Kestrel Haven to western Louisiana.

Crown Point State Historic Site **440-0732**
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John M.C. Peterson, Bander
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Gordon E. Howard, Chief Assistant

This marked the 28th consecutive year of operation of the spring banding station on the grounds of the Crown Point State Historic Site. Located in hawthorn thickets near the tip of Crown Point peninsula, a natural migrant trap that juts northward into Lake Champlain, the station was open from 9-26 May. Operated by High Peaks Audubon Society, Inc., the station is situated west of the ruins of French and British forts on the 360-ac grounds of the historic site.