

# EMBASSY ROOM

## TUESDAY

ROOM: Embassy

TIME: Tuesday 8:00 AM

TITLE: Stopover ecology of American golden-plovers

AUTHOR(S):

Benjamin O'Neal -- University of Illinois, 1816 South Oak Street, Champaign, IL 61820.

Phone: (217)766-3042 Email: [bjoneal@illinois.edu](mailto:bjoneal@illinois.edu)

ABSTRACT: American golden-plovers engage in one of the most amazing migrations of all animals. Although they breed in the Arctic tundra and winter in Argentina, thousands of plovers spend a portion of their spring migration in parts of Illinois and Indiana. Over the last three years, we have used volunteer-based surveys to identify major stopovers and estimate abundance of plovers using these areas. In April of 2009, we documented 14,488 plovers (10 percent of the hemispheric population) across ten discrete stopover sites in east-central Illinois and west-central Indiana. We have identified four areas that qualify as sites of regional significance (Western Hemisphere Shorebird Reserve Network) and Important Bird Areas (Illinois Audubon Society). In 2009, we also initiated a pilot project to radio-tag migrating plovers to determine how long they remain in the area, how widely they roam the region, and whether they have preferential habitat types (e.g., no-till corn). We captured three plovers at night and tracked them for 6 to 18 days. They ranged widely across the area, moving as far as 20-km per day between presumed foraging areas. Although we only tracked three individuals, we feel that plovers are staging in our study area, moving widely in search of preferred foraging areas. Given the current status of plovers, the corn and soybean fields of east-central Illinois and west-central Indiana may be critical stopover habitat on their northward migration. We will continue this work in 2010 to further examine habitat preferences and movement patterns during stopover.

KEYWORDS: plovers, migration, Illinois

ROOM: Embassy

TIME: Tuesday 8:20 AM

TITLE: Influence of habitat heterogeneity on habitat use of sympatric meadowlarks

AUTHOR(S):

Daniel Elbert -- Illinois Natural History Survey, 1816 South Oak Street, Champaign, IL 61820. Phone: (217)714-3053 Email: delbert2@illinois.edu

ABSTRACT: Local habitat characteristics may be particularly important in areas of sympatry where closely related species exploit similar resources but segregate across small habitat gradients. The aim of this study was to compare the relationships between structural habitat heterogeneity and heterogeneous species composition of plants, and their influence on meadowlark distribution patterns in an area of sympatry. During the breeding seasons from 2007 to 2009, we surveyed the meadowlark community and plant community three times within the prairie at the Lost Mound Unit of the Upper Mississippi River National Wildlife Refuge, Jo Davies Co, IL. Overall, meadowlark abundance remained constant among years, though the two species were segregated across the site. Vegetation composition and structure varied across the prairie, and Western meadowlarks tended to associate with study plots having shorter and sparser grass cover, with shallower litter layer and fewer shrubs and trees than study plots Eastern meadowlarks tended to associate with. These results correspond with previous work examining habitat factors important to meadowlarks, suggesting that management seeking to benefit both species at one site will need to consider a multiple-use approach.

KEYWORDS: meadowlark

ROOM: Embassy

TIME: Tuesday 8:40 AM

TITLE: The nocturnal life of a declining songbird

AUTHOR(S):

Mark Alessi -- Illinois Natural History Survey, 1816 S Oak Street, 1816 S Oak Street, Champaign, IL 61820. Phone: 815-370-4391 Email: mark.alessi@illinois.gov

ABSTRACT: The majority of diurnally active wildlife are not known to be active at night. However, the logistical difficulty of following wildlife at night hinders any conclusions about whether animals actually are inactive during this period. To overcome these difficulties, we used automated radio-tracking systems to continuously monitor activity of Yellow-breasted Chats (*Icteria virens*), a Neotropical migrant songbird, in east-central Illinois. Because male chats may both move and sing at night, we hypothesized that chats may move at night for three reasons: 1) Foraging, 2) Pre-migratory behavior, and 3) Mate assessment. If birds move at night for mate assessment, we subsequently predicted that birds could be attracted to irregular habitat using nocturnal acoustic cues. We captured and radio-tagged 12 chats during the 2008 breeding season and used nocturnal song playbacks prior to the 2009 breeding season. All radio-tagged chats engaged in nocturnal movements. However, birds were more likely to move when they were receptive. Additionally, we captured significantly more chats (both males and females) the mornings after we played nocturnal songs. These nocturnal behaviors have implications for both the ecology and conservation of not just chats, but other rare and/or declining species. By influencing where these species breed, nocturnal song may be an effective management tool for numerous declining species.

KEYWORDS: nocturnal, telemetry, attraction

ROOM: Embassy

TIME: Tuesday 9:00 AM

TITLE: Mute swan aggression towards native waterbirds in the Illinois River Valley

AUTHOR(S):

Adam Phillips -- SIUC Cooperative Wildlife Research Laboratory, Mailcode 6504, Carbondale, IL 62901. Phone: (217)320-1138 Email: ACPhillips21@Hotmail.com

**ABSTRACT:** Mute swans (*Cygnus olor*) are an exotic species of waterfowl whose populations have experienced rapid growth in many areas of North America, including west-central Illinois. Mute swans have been found to act aggressively towards other species of waterbirds. However, no study to date has investigated mid-continental mute swans, where food resources and aggression may differ from previous studies. We monitored mute swans in the Illinois River valley from March - June of 2008 and 2009 to quantify their aggression towards interspecific waterbirds. We also examined the distribution of waterbirds relative to swan distributions to investigate if waterbirds were avoiding swans. We found that aggression rates were greatest during territory establishment in early spring and lowest during nesting and brood rearing. Intraspecific aggression was most common (51%) but Canada geese were also frequent targets (42%). Male swans accounted for 70% of all interactions, and interactions resulting in evasion cost for the target were most frequent (73%). We found that mallards, blue-winged teal, Canada geese, American coots, and northern shovelers were located closer to mute swans than control points, whereas gadwall were the only species located farther. If swans used the highest quality habitats, this could suggest that the cost to waterbirds of swan aggression did not exceed the cost of moving to lower quality habitats. Gadwall may have preferred areas farther away from swans, possibly because gadwall diets most resemble that of swans (i.e., they both feed primarily on vegetation) resulting in a higher potential for interspecific aggression.

**KEYWORDS:** exotic, behavior, waterfowl

ROOM: Embassy

TIME: Tuesday 9:20 AM

TITLE: Investigating Interactions between northern dusky salamanders and red-backed salamanders in Michigan using fluorescent powder tracking

AUTHOR(S):

Kimberly Balash -- University of Michigan Flint, Biology Department, 303 East Kearsley Street, Flint, MI 48503. Phone: (810)762-3360 Email: kbalash@gmail.com

ABSTRACT: In 2007 and 2008, Artificial Cover Objects (ACOs) were used to examine potential interactions between *Plethodon cinereus* (Red-backed Salamanders) and *Desmognathus fuscus* (Northern Dusky Salamanders) at Murphy Lake State Game Area, Tuscola County, Michigan. We found that *P. cinereus* actively avoids streamside habitat in areas of sympatry with *D. fuscus*. However, streamside habitat is readily used in areas where *D. fuscus* is not present. To further investigate this avoidance behavior, in 2009 we used fluorescent powder tracking to compare the movement patterns of *P. cinereus* at four different sites: streamside with *D. fuscus* present, streamside without *D. fuscus* present, and forest adjacent to both streams as controls). Movements of *D. fuscus* were also observed when present. Fluorescent powder tracking will be performed three times during the fall peak activity season and results of this study (e.g., total length of each trail, maximum distance traveled from point of release, distance traveled beneath ACO, compass direction, and if applicable, direction traveled relative to the stream) will be presented.

KEYWORDS: plethodontid, avoidance, behavior

ROOM: Embassy

TIME: Tuesday 9:40 AM

TITLE: Effects of upland habitats on desiccation risk and movement decisions in tiger salamanders

AUTHOR(S):

Bradley Cosentino -- University of Illinois , University of Illinois INHS, 1816 S Oak, Champaign, IL 61820. Phone: (217)722-6276 Email: bcosen1@illinois.edu

ABSTRACT: A major goal of landscape ecology is to examine the effects of habitat heterogeneity on dispersal. However, an understanding of proximate mechanisms controlling interactions between movement behavior and landscape structure is generally lacking. We hypothesized that a physiological constraint, desiccation risk, differentially influences movement behavior among upland habitats in tiger salamanders. To test whether desiccation risk varied among dominant upland habitats in our northern Illinois study area, we conducted an experiment in which individuals were subjected to water loss in four habitat treatments: corn, forest, prairie, and soybean. Juvenile salamanders were fully hydrated and added to enclosures in four replicate plots of each habitat, and water loss was measured every 12 hrs for 48 hrs. Changes in water loss were examined using repeated measures ANOVA. Water loss varied among treatments ( $P < 0.001$ ) and over time ( $P < 0.001$ ). Specifically, water loss was greater in prairie and corn habitats than in forest and soybean habitats. To assess whether salamanders choose to move through habitats that minimize desiccation risk, we tracked movements of individuals released on edges between habitats for two treatment combinations: soybean-corn, and soybean-prairie. As predicted, short-term movements were significantly oriented towards soybean in both cases (V-test,  $P < 0.05$ ). These results suggest that desiccation risk for tiger salamanders varies among upland habitats, and that this variation influences individual movement decisions. Our results also underscore the potential for a physiological constraint scaling up to influence landscape connectivity, metapopulation dynamics, and spatial genetic structure.

KEYWORDS: dispersal, landscape, amphibian

ROOM: Embassy

TIME: Tuesday 10:20 AM

TITLE: Effects of beaver removal events on within-den behavior patterns among remaining individuals

AUTHOR(S):

Cy Mott -- Cooperative Wildlife Research Lab, Life Science II Room 251, Southern Illinois University, Carbondale, IL 62901-6504. Phone: (570)417-4167 Email: cm8755@siu.edu

ABSTRACT: Wildlife translocation or culling is often required when the natural behaviors of selected species interfere with human activities, cause damage to man-made structures, or pose threats to human health or safety. While the initial outcome of removing nuisance individuals results in local reductions in population density, decreases in reproductive fitness beyond target values may occur if removal activities alter the behavior of remaining individuals. Furthermore, behavioral changes attributable to removal events are likely to be of critical importance for social animals, as their life history strategies are characterized by cooperative efforts in rearing offspring and behavioral mechanisms used to maintain harmony among colony members. Using more than 2,800 hours of within-den video data obtained through remote videography, we assessed the effects of removal events conducted in March 2006 on individual and social behavior among 11 beaver (*Castor canadensis*) colonies in southern Illinois. Among 10 focal behaviors quantified prior to and following removal of individuals, only 3 (ingestion, locomotion, and individual grooming) exhibited significant changes associated with either time (pre- or post- removal) or treatment (removal vs. non-removal colonies). However, many of these patterns could be attributed in part to typical seasonal shifts in within-den behavior. These findings, together with observations that behavioral changes occurred months after removal events, and that social behaviors of allogrooming, play, and aggression were unaffected, suggest that culling of nuisance beavers does not negatively impact survival or social structure among remaining individuals.

KEYWORDS: beaver, behavior, removal

ROOM: Embassy

TIME: Tuesday 10:40 AM

TITLE: Feeding preferences of peromyscus on acer seeds

AUTHOR(S):

Michael Cramer -- University of Notre Dame, Environmental Research Center, Department of Biological Sciences, Notre Dame, IN 46556. Phone: (574)631-0970 Email: mcramer@nd.edu

ABSTRACT: Peromyscus are essential components of forest ecosystems not only because they serve as prey for other species, but also due to their role as seed predators. In the Northwoods of Wisconsin and the Upper Peninsula of Michigan, two species of Peromyscus (*P. maniculatis gracilis* and *P. leucopus*) coexist. As seed predators, the foraging preferences of these species may have important ramifications for seedling regeneration. The objective of this study was to determine feeding preferences of both Peromyscus species when given a choice between the seeds of two tree species, red maple (*Acer rubrum*) and sugar maple (*Acer saccharum*). I expected red maple to be the preferred food, due to the thin seed coat compared to sugar maple. Moreover, I expected there to be no difference in amount of seeds consumed or in seed preferences between mouse species, as they are ecologically and physiologically similar. There was no statistical difference in the amount of seeds eaten between species, but there was a distinct preference for red maple seeds which was species-specific. *P. maniculatus* ate significantly more red maple than sugar maple seeds, whereas *P. leucopus* showed no preference for either type of seed. This has important ramifications for forest regeneration in this system, as *P. maniculatus* was more common on the study sites. Their preference for red maple seeds may make it difficult for red maples to become established in the understory. In addition, the difference in preference between *Peromyscus* species is interesting, as many earlier studies have assumed these species have similar effects, due to their ecological similarity. The results of this study indicate that the species are distinct, and should not be grouped together.

KEYWORDS: Peromyscus, Acer, foraging

ROOM: Embassy

TIME: Tuesday 11:00 AM

TITLE: Quantifying and manipulating spatial variation in risk to prey of small mammals

AUTHOR(S):

Tyler Schartel -- Cooperative Wildlife Research Laboratory, SIU, Mailcode 6504, Carbondale, IL 62901. Phone: (618)536-7766 Email: schartel@siu.edu

ABSTRACT: Spatial heterogeneity in predator activity can generate refugia for their prey and the ability of prey ability to exploit these safe havens through passive and active mechanisms is dependent on the temporal persistence of refugia. Exploitation of refugia can allow rare species to persist but may also promote population outbreaks of pest species. Our objective was to quantify spatiotemporal trends in the activity and space use of white-footed mice an abundant generalist noted for predation on gypsy moth pupae and songbird nests. We also evaluated the effectiveness of small-scale (30 x 30 m "spots") mouse removal in generating refugia for their prey. Track plates were used to measure white-footed mouse activity on three pairs of plots located in oak-dominated forest in upstate New York during the summers of 2008 and 2009. We quantified the magnitude of spatial heterogeneity in mouse activity among spots, the persistence of "hot spots" and "cold spots" (areas of especially high and low mouse activity respectively) between years, and the effect of removal trapping on mouse activity. A moderate level of persistence between years was noted but the effect of mouse removal on mouse activity was highly variable. Interobserver variation in reported mouse track activity proved to be an important issue on these analyses. Results from this investigation can inform efforts to conserve rare species threatened by generalist predators as well as efforts to suppress outbreaks of forest pests.

KEYWORDS: predator, activity, track

ROOM: Embassy

TIME: Tuesday 11:20 AM

TITLE: Response of *Erethizon dorsatum* and *Lepus americanus* to specialized predators

AUTHOR(S):

Daniel Osburn -- University of Notre Dame, 347 Oneill Hall, Notre Dame, IN 46556.

Phone: Email: dosburn1@nd.edu

ABSTRACT: The way that animals balance foraging needs with predation is a very interesting and widely studied subject in ecology. The purpose of this study is to determine whether the porcupine (*Erethizon dorsatum*) and snowshoe hare (*Lepus americanus*) demonstrate a response to the increased danger posed by two potential predators, the fisher (*Martes pennanti*) and the coyote (*Canis latrans*). Pairs of sticks soaked in brine were put out in different environments at the University of Notre Dame Environmental Research Center (UNDERC). Each pair consisted of a stick treated with scent (fisher or coyote) and a control which was untreated. The volume of each stick eaten was measured and analyzed using a repeated measures analysis of variance (ANOVA). Overall, both prey species showed a preference for sticks with no scent, and porcupines consumed more than hares. In addition, more was eaten from sticks treated with coyote urine, but there was a significant interaction between scent and prey species. Porcupines showed a stronger response to fishers than coyotes, and hares demonstrated the opposite. This is consistent with the fishers efficient method of killing and consuming porcupines, and coyotes ability to capture hares.

KEYWORDS: porcupine, fisher, hare

ROOM: Embassy

TIME: Tuesday 1:00 PM

TITLE: Impact of roads on an urban coyote population

AUTHOR(S):

Justin Brown -- Max McGraw Wildlife Foundation, PO Box 9, Dundee, IL 60118. Phone: (847)428-6331 Email: [jbrown@mcgrawwildlife.org](mailto:jbrown@mcgrawwildlife.org)

ABSTRACT: For many species roads serve as barriers to movement, but within urbanized landscapes wildlife must cross roads to utilize fragmented habitat patches. As a result, roads are often a major mortality source for wildlife. To examine how roads influence urban wildlife I used coyote data from a study conducted in the Chicago region. In this study, vehicle collisions account for approximately 50-70 percent of annual mortalities however, little is known about the impact of roads on urban landscape use by coyotes. In order to assess the extent to which roads affect home range establishment I calculated 179 annual 95% MCP home ranges using locations gathered from 156 coyotes and created a buffered area surrounding each home range. I compared the densities of 5 road classifications including freeways, highways, major-roads, minor-roads, and residential roads within home ranges and buffers. Buffered areas had significantly higher densities of all road types compared to road densities within home ranges except for minor-roads, which had a significantly higher density within the home ranges than in the buffered areas. These findings suggest that although urban coyotes exist in an urbanized and fragmented landscape, they establish and maintain home ranges that reduce their exposure to roads.

KEYWORDS: urban, coyote, roads

ROOM: Embassy

TIME: Tuesday 1:20 PM

TITLE: Traffic-induced vertebrate mortality is significantly elevated near wetlands: observed patterns and predictive models

AUTHOR(S):

Jamie Nogle -- Purdue University, Department of Forestry and Natural Resources, 715 West State St, West Lafayette, IN 47907. Phone: (317)417-5899 Email: griggsj@purdue.edu

ABSTRACT: Animals move for many reasons that include juvenile dispersal, foraging, predator avoidance, and mating forays. Many studies have shown that roads can disrupt animal movement patterns and that traffic causes direct as well as indirect mortality. Although roads account for only 1% of the total area of the United States, the ecological impacts from these roads are estimated to affect 20% of the landscape. Of course, these impacts are not randomly distributed in space or in time. We monitored vertebrate roadkill at 6 wetland and 6 upland sites in Indiana twice a week for a period of 20 months. We documented over 13,000 vertebrate carcasses that were mostly distributed near wetlands. A significant fraction of the roadkill was not identifiable based on morphology alone, so we used DNA barcoding as a key element of species assignment. A large proportion of the carcasses (89%) were amphibians, a taxonomic group that has declined precipitously in recent years. Overall, these roadkill data were used along with road and habitat characteristics to develop analytical models that should be useful in predicting (in the absence of monitoring) sites where roadkill is expected to be substantial. In the case of future highway construction, our models have the potential to help reduce the overall levels of roadkill, and that has the added benefit of translating into fewer human injuries and monetary losses caused by human-wildlife collisions.

KEYWORDS: roadkill, wetland, barcoding

ROOM: Embassy

TIME: Tuesday 1:40 PM

TITLE: Wildlife management at OHare International Airport Chicago IL

AUTHOR(S):

Craig Pullins -- USDA Wildlife Services, 916 W Waveland Ave, Unit 1, Chicago, IL 60613.

Phone: (773)686-6742 Email: craig.k.pullins@aphis.usda.gov

ABSTRACT: Nationally, wildlife-aircraft collision incidents (strike) have been increasing over the past 19 years and are denoted in the wildlife strike database maintained by the Federal Aviation Administration (FAA) since 1990. Increasing wildlife populations and air traffic coupled with quieter, faster aircraft create a significant risk to aviation safety, and cost an estimated 628 million dollars to the aviation industry annually. USDA-APHIS-Wildlife Services (WS) provides technical and direct assistance to over 750 airports and airbases around the US, including OHare International Airport (ORD). WS adheres to an Integrated Wildlife Damage Management strategy at ORD to reduce the number of wildlife on the airfield, hence lowering the wildlife strike risk. Management strategies include habitat management and manipulation on the airfield, wildlife hazing and harassment, raptor trapping and relocation, as well as lethal reinforcement of harassment efforts in certain situations. Research is also conducted on new technologies to investigate their effectiveness and feasibility for future implementation into the management plan. Biologists and managers can evaluate the effectiveness of their wildlife management programs by comparing the strike occurrence per 100,000 aircraft movements at similar sized airports regionally and nationally, and by looking at trends in overall strike numbers specific to the airport. When comparing these data from 2004 to 2008, ORD averaged fewer strikes than other similar sized airports in the region and across the United States and has shown a decreasing trend in total strikes per year since 2000.

KEYWORDS: wildlife, Management, Airports

ROOM: Embassy

TIME: Tuesday 2:00 PM

TITLE: Taking out the trash: do trash-transfer facilities affect aviation safety?

AUTHOR(S):

Brian Washburn -- USDA APHIS WS National Wildlife Research Center, 6100 Columbus Avenue, Sandusky, OH 44870. Phone: 419-625-0242 Email: brian.e.washburn@aphis.usda.gov

ABSTRACT: Traditional putrescible-waste landfills are very attractive to and utilized by many birds, especially gulls, and thus create a hazard to aircraft if located near airports. The Federal Aviation Administration currently recommends municipal solid waste landfills not be sited within five statute miles of an airport. Recently, solid waste management systems are changing and the number of operating trash-transfer facilities in the U.S. has increased, particularly in large urban areas. Little information is available regarding this new feature of the urban landscape. The objectives of this study were: (1) to document wildlife use of trash-transfer facilities and (2) to determine if building design or on-site management characteristics of trash-transfer facilities influence their attractiveness to wildlife species. Twenty-nine trash-transfer facilities and 4 control sites, located in 7 states (representative of various U.S. geographical regions) were studied. Wildlife abundance and activity were quantified at each facility and control site for one year. Wildlife use varied by building design, geographic location, and on-site management characteristics. Birds hazardous to aviation were commonly observed using trash-transfer facilities (e.g., feeding on refuse) included European starlings, gulls, rock pigeons, and crows. Findings from this study suggest trash-transfer facilities many factors might influence whether or not trash-transfer facilities are compatible with safe aircraft operations.

KEYWORDS: waste, wildlife, aviation

ROOM: Embassy

TIME: Tuesday 2:20 PM

TITLE: Green roofs: a new habitat in the urban jungle

AUTHOR(S):

Brian Washburn -- USDA APHIS WS National Wildlife Research Center, 6100 Columbus Avenue, Sandusky, OH 44870. Phone: 419-625-0242 Email: brian.e.washburn@aphis.usda.gov

ABSTRACT: Green roofs on buildings are becoming very popular and represent a new component of the urban landscape. Public benefits of green roof projects include reduction of stormwater runoff, improved air quality, reduced urban heat island effects, and aesthetic values. Several green roofs have been constructed in downtown Chicago and large-scale green roofs are currently being planned and implemented at O'Hare International Airport (ORD). Similar to other landscaping features, green roofs on or near an airport might attract wildlife and thus increase the risk of bird-aircraft collisions. During 2007-2008, we conducted a study to evaluate the wildlife use of a newly constructed green roof at ORD. This green roof was 320 m<sup>2</sup> in area and consisted of *Sedum spp.* for vegetation. A total of 157 birds were observed during the study: 34% were using the green roof itself, whereas 66% were flying by and did not exhibit any perceived interest. Of the birds actually using the green roof, 72%, 13%, and 9% were killdeer, European starlings, and mourning doves, respectively. Killdeer nested on the green roof, whereas the other species perched or loafed. Birds used the green roof only between May and October. Overall, wildlife use of the green roof was minimal and similar to use of adjacent buildings with traditional roofs. Although green roofs with vegetation types that offer forage and cover to birds might be attractive to wildlife hazardous to aviation, the *Sedum spp.*-vegetated green roof in this study did not increase the risk of bird-aircraft collisions.

KEYWORDS: greenroof, wildlife, airport

ROOM: Embassy

TIME: Tuesday 2:40 PM

TITLE: Behavioral ecology of bird-window collisions

AUTHOR(S):

Stephen Hager -- Augustana College, Department of Biology, 639 38th Street, Rock Island, IL 61201. Phone: (309)794-3439 Email: [stephager@augustana.edu](mailto:stephager@augustana.edu)

ABSTRACT: The underlying processes that affect avian community structure in urban landscapes include vegetation, season, and biotic and structural threats to survival. One threat, bird mortality from window strikes, is reported to impact most birds during fall migration and least in winter, and may be influenced by the presence of suitable food, shelter, and water. However, little is known about how window mortality varies with bird community structure and behavior. We recently examined these relationships at a suburban office park for winter, spring, and summer. Estimates of species richness and abundance were calculated from point count surveys and window mortality was monitored at several buildings. Functional categories of behavior (migration class, territoriality and habitat preferences) were borrowed from the literature for all species observed. We found that window mortality was highest in the spring despite similar abundance estimates for living birds in all seasons. Species that suffered high rates of window mortality were long distance migrants (Rose-breasted Grosbeak), non-urban breeders (Ovenbird), immatures (American Robin), are reported to be intensely territorial (Ruby-throated hummingbird), and prefer woodlands with a dense understory of shrubs (Swainsons Thrush). Species with no or low rates of window mortality were permanent residents (House Sparrow), urban breeders (Chimney Swift), non-territorial (Blue Jay), and prefer open areas (American Goldfinch). This work demonstrates that the factors influencing window mortality are complex and varied. Indeed, window mortality may pose more of a threat to species that pass through urban areas for only a brief time during migration compared to "urban-adapted" birds.

KEYWORDS: bird, collisions, urban

ROOM: Embassy

TIME: Tuesday 3:40 PM

TITLE: Bird density and mortality at windows

AUTHOR(S):

Kelly McKay -- BioEco Research and Monitoring Center, 420 First Avenue, PO Box 452, Hampton, IL 61256. Phone: (309)235-4661 Email: KellyJMcKay@aol.com

**ABSTRACT:** Little information exists regarding the impacts to birds from window collisions at commercial buildings. We monitored bird mortality from window collisions at five commercial buildings on two college campuses in northwestern and southwestern Illinois. Avian mortality was assessed by standardized searches around the building perimeters, collecting and identifying the birds killed by striking windows. Bird mortality at Augustana College (northwestern Illinois) was evaluated from 2002-2006. A total of 215 individual birds, representing 48 species, were recorded. This produced a rate of 55 killed birds per building per year. This project was conducted at Principia College (southwestern Illinois) from 2004-2005. A total of 142 individual birds, from 37 species, were collected at this campus. Therefore, this site yielded a mortality rate of 24 killed birds per building per year. Overall, mortality by window collisions was greater among North American Migrant (NAM) and Neotropical Migrant (NTM) species. Furthermore, mortality rates at both study sites were substantially higher during migration periods as compared to summer or winter seasons. We tested the bird density hypothesis at Augustana College. According to this hypothesis, the density of birds occurring at a given location will be positively correlated with the number of birds that die as the result of window collisions. We conducted weekly point count surveys during the winter and spring migration seasons, in order to assess the density of avian species occurring near the buildings. Based on this research, annual bird mortality at commercial buildings may be five times higher than previous estimates.

**KEYWORDS:** avian, window, collisions

ROOM: Embassy

TIME: Tuesday 4:00 PM

TITLE: American golden plover response to wind turbines in benton county indiana

AUTHOR(S):

Rhett Good -- WEST Inc, 804 North College Suite 103, Bloomington, IN 47403. Phone: 812-339-1756 Email: rgood@west-inc.com

ABSTRACT: BP Wind Energy North America Inc., Dominion Resources, and Sempra Generation are developing, constructing and operating the Fowler Ridge Wind Farm in Benton County, Indiana. The project is being constructed in phases with a planned total installed capacity of 750 megawatts. The project is located near an Audubon designated Important Bird Area, known to be utilized by American golden plover for a few weeks during the spring migration.

BP Wind Energy North America commissioned WEST, Inc. to conduct studies in the spring of 2007, 2008 and 2009 to examine potential impacts to the American golden plover. The primary objectives of the study were to determine if plovers avoided areas near wind turbines, and to determine if plovers were at risk of colliding with turbines. A total of 58,943 American golden-plovers were observed prior to construction during the 2007 surveys. 8,919 AMGP were observed in the spring of 2008 during construction, likely due to an extremely cold and wet spring. The numbers of plovers observed after construction in 2009 were also lower than observed in 2007. No plovers were found as fatalities during a concurrent fatality study in the spring of 2009, indicating that the species may not be at risk of turbine collisions. However, the distribution of plovers within the project area changed between years, and no plovers were observed within 400 m of turbine locations during 2009. Plovers could have shown an especially pronounced avoidance of wind turbines in 2009, as this was the first year that turbines were encountered. Differences in Plovers use between 2007 and 2008 also show that weather can greatly influence use of the area between years, regardless of the presence of turbines.

KEYWORDS: wind, turbine, plover

ROOM: Embassy

TIME: Tuesday 4:20 PM

TITLE: Results of bird monitoring at the Grand Ridge wind-energy facility in LaSalle County

AUTHOR(S):

Rhett Good -- WEST Inc, 2003 Central Avenue, , Cheyenne, WY 82001. Phone: 812-339-1756 Email: rgood@west-inc.com

ABSTRACT: Grand Ridge Energy LLC, an affiliate of Invenergy Wind LLC, constructed and began operating Phase I of the Grand Ridge wind energy facility (Phase I) in the Grand Ridge Wind Resource Area (GRWRA) in 2008. Phase II of the facility will be constructed and begin operating in 2009. The GRWRA is located in La Salle County, Illinois, near the town of Grand Ridge. Some turbines are located within one mile of Lake LaSalle, an important wintering area for waterfowl. Western Ecosystems Technology, Inc. (WEST) conducted surveys and monitored bird use in the GRWRA to estimate the impacts of project operations on bird use, with an emphasis on waterfowl. WEST is also currently conducting studies to estimate fatality rates of birds and bats at GRWRA.

Wintering waterfowl use surveys for birds, with a focus on waterfowl, occurred from November 16, 2008 to February 24, 2009. A total of 2,728 waterfowl were recorded during the winter season, with Canada geese being the most commonly recorded species (81.4% of observations). T-tests were completed to evaluate if any significant differences exist between bird use at the Phase I area and a reference area, which is not currently planned to be developed. Wintering waterfowl use in the Phase I area was not significantly different from wintering waterfowl use in the reference area. Further t-tests were also completed for mallard, Canada goose, and common goldeneye, and the t-tests determined that there was no significant differences in bird use by these specific species between the Phase I area and the reference area.

The fatality monitoring study is currently ongoing. Interim results of the fatality monitoring will be presented during the presentation.

KEYWORDS: wind, birds, waterfowl

ROOM: Embassy

TIME: Tuesday 4:40 PM

TITLE: Bat mortality at a wind farm in southeastern Wisconsin

AUTHOR(S):

Steve Grodsky -- University of Wisconsin Madison, 226 Russell Labs, 1630 Linden Drive, Madison, WI 53706. Phone: 973-222-7380 Email: [sgrodsky@wisc.edu](mailto:sgrodsky@wisc.edu)

ABSTRACT: The project objectives centered around furthering the understanding of bat mortality at wind farms by estimating mortality at a wind farm in southeastern Wisconsin and determining cause of death in bats killed by wind turbines. Twenty-nine randomly selected turbines (34% of all turbines) were searched for bat mortality during fall and spring, 2008-2009. Bat carcasses found during the fall 2009 field season were radiographed, tissue-sampled, and necropsied at the Wisconsin Veterinary Diagnostic Lab to provide empirical data pertaining to cause of death. Bat species found during mortality searches included little brown bat (*Myotis lucifugus*), big brown bat (*Eptesius fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), and hoary bat (*Lasiurus cinereus*). Of these species, the "tree bats" (genera *Lasiurus* and *Lasionycteris*) comprised over half of the mortality for the fall of 2008 and all of the mortality during the spring of 2009. Many of the bats showed signs of death by direct collision with turbines based on the extent of skeletal damage shown on radiographs and the necropsy results. Future research directions and management implications will be discussed.

KEYWORDS: chiroptera, mortality, wind