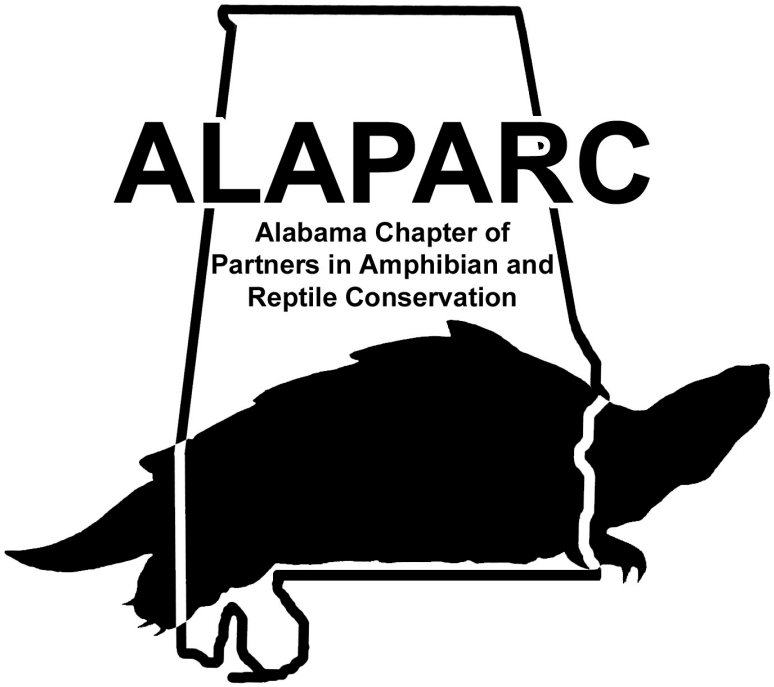

Alabama
Partners in Amphibian and Reptile Conservation
2010 Meeting Program

Solon Dixon Forestry Education Center, Andalusia

PARC
PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION

About Our Meeting

Welcome to the second annual meeting of the Alabama Chapter of Partners in Amphibian and Reptile Conservation (ALAPARC) at the Solon Dixon Forestry Education Center in Andalusia, Alabama. Maps of the Center are provided at the back of this program. All talks will occur in the Classroom/Auditorium and all meals will be served in the Dining Hall. The poster session and socials will occur in the Recreation Building. Coffee will be available in the Dining Hall during breaks in our agenda.

The Solon Dixon Forestry Education Center

Accommodations

Upon arrival, check in at the office. If you're arriving after 4:00 p.m. on Friday, there will be a sheet at the office with your assigned room and keys will be in the door to your room. Dorms A and B will not require keys. Room designations "F" pertain to Faculty quarters (no key necessary). Use the campus map (provided at the back of this program) to locate the different buildings. Parking is permitted in any available parking spot or alongside roads.

Bed sheets and pillow cases will be provided (beds will not be made when you arrive). We recommend bringing personal towels. Soap and shampoo is not provided by the Center.

Meals

All meals will be served in the Dining Hall. Vegetarian options will be available. Due the large number of attendees, some lines may be inevitable. Please feel free to leisurely make your way to the Dining Hall.

Internet Access

Free wireless internet connections are available throughout the Center. In addition, computers in the Classroom/Auditorium will be available for use by registrants. Login information will be provided alongside these computers.

Local Wildlife

Be aware that any of Alabama's six venomous snakes may be seen within the vicinity of Center buildings. Rattlesnakes are commonly encountered.

Hunting Season

Our meeting will occur during Alabama's deer hunting season and hunters may be using the forest surrounding the Center. Please use common sense.

Sustainability

Please consider bringing your own coffee mugs and beer steins to our meeting so that use of disposable cups will be minimized. Containers for recycling aluminum cans are located throughout the campus.

SCHEDULE

FRIDAY, NOVEMBER 5TH, 2010

Time	Event/Title
12:00	*Lunch*
1:30	Gopher Tortoise Listing Discussion
4:00	Red Hills Salamander Discussion
6:00	*Dinner*
7:30	Poster Session/Social

SATURDAY, NOVEMBER 6TH, 2010

Time	Event/Title	Presenter
7:30	*Breakfast*	
8:20	Introduction	
8:30	The Oil Mess: Effects on Marine/Coastal Reptiles	Ken Marion
8:45	Survival and Recovery for the Diamondback Terrapin	Thane Wibbels
9:00	Eastern Indigo Snakes in Alabama	Jim Godwin
9:15	Eastern Indigo Snakes in Alabama: Update from the Field	Jimmy Stiles
9:30	Indigo Snakes at Zoo Atlanta, Our Part in the Bigger Picture	David Brothers
9:45	Color Variation Between Clutches and Sexes in *Drymarchon*	Jennifer Deitloff
10:00	*Break*	
10:30	Lizard/Habitat Relationships in Southeastern Managed Forests	Bill Sutton
10:45	Upland Longleaf Pine Herpetofaunal Communities in Alabama	Wally Smith
11:00	Escape Behavior of Fence Lizards in Response to Fire Ants	Tracy Langkilde
11:15	So You Want To Be a Wildlife Biologist?	Rick O'Connor
11:30	Winner and Loser Effects in the Green Anole Lizard	Mark Garcia
11:45	Critical Terrestrial Habitat for Nesting Freshwater Turtles	David Steen
12:00	*Lunch*	
1:30	ALAPARC Hellbender Initiative Year One Update	Sean Graham
1:45	ALAPARC Ed/Outreach Update and 2011 Outline.	Wally Smith
2:00	*Break*	

2:15	Workshop-Collecting Natural History Information	
3:45	Alabama's Herpetological Legacy	Chris Thawley
4:00	Dr. Robert Mount Appreciation Session	
6:00	*Dinner*	
7:30	Social	

SUNDAY, NOVEMBER 7TH, 2010

Time	**Event/Title**
7:30	*Breakfast*
9:00	Field Trip-Indigo Snake Radio-tracking

SCHEDULE DETAIL

FRIDAY

12:00 Lunch

1:30 Panel Discussion: Potential Ramifications of a Federal Listing for Alabama Populations of the Gopher Tortoise

Moderator
Sharon Hermann, Auburn University

Panel Participants
Jessica Homyack, Weyerhaeuser NR Company
Craig Guyer, Auburn University
Ben Prater, WildSouth
Joe McGlincy, Southern Forestry Consultants, Inc.
Roger Clay, Alabama Department of Conservation and Natural Resources

4:00 Red Hills Salamander Informal Discussion

6:00 Dinner

7:30 Poster Session and Social

Poster Abstracts

Jim Godwin (jcg0001@auburn.edu), Alabama Natural Heritage Program, Auburn University. *Status of Gulf Drainage* Graptemys *of Alabama*.

Alabama has a quite diverse freshwater turtle fauna with 22 species that may be regarded as falling into this category and of this total six are map turtles. Four of the map turtle species inhabit river systems with a direct connection to the Gulf of Mexico, these being Barbour's map turtle (*Graptemys barbouri*), Escambia map turtle (*Graptemys ernsti*), black-knobbed sawback (*Graptemys nigrinoda*), and Alabama map turtle (*Graptemys pulchra*). Status surveys, based counts of basking turtles, were conducted over much of the range of each of the four species. The majority of survey sites were within the Mobile Basin and below the Fall Line while remaining sites were in the Conecuh/Escambia River and Choctawhatchee/Pea River systems.

Taylor Roberge, Andrew Coleman, Thane Wibbels (twibbels@uab.edu**),** and **Ken Marion,** University of Alabama at Birmingham. *Radio tracking of adult female terrapin in Cedar Point Marsh, Alabama: Implications for ecology and conservation.*

The diamondback terrapin, *Malaclemys terrapin*, was once an abundant species in the salt marshes of Alabama. Further it was an important economic resource, and Alabama was home to one of the largest terrapin farms in the United States. A variety of threats have impacted this species and resulted in drastic declines over the past century. The diamondback terrapin is currently considered a species of highest conservation concern in Alabama. Surveys over the past five years indicate that the diamondback terrapin is currently represented by small nesting aggregations in specific salt marshes on the Alabama coast. The current study evaluated the movements of adult female terrapins from the largest known nesting aggregation in Alabama. Eight adult females were fitted with radio transmitters during the 2010 nesting season. The transmitters had a range of approximately 1.0 km and a battery life of approximately 1 year. The results indicate that some the females have relatively small home ranges (e.g. a km or less), and remain resident in the salt marsh directly adjacent to the nesting beach. The results have implications for both the ecology and conservation of diamondback terrapin in Alabama.

George R. Cline (gcline@jsu.edu), Jacksonville State University. *How much is a herp worth?*

There has been considerable discussion about the economic value of amphibians and reptiles. A considerable number of reports have documented the direct value of herps such as there use as food (frogs, turtles, snakes, alligators), material products (leather products, handbags, boots, belts, etc.), science (dissection specimens, skeletons, venomns, lab tests, etc.), and amusement (pet trade, carnival acts, etc.). While difficult to document, there is considerable economic value provided by amphibians and reptiles indirectly, through pest management. In this poster I will present a preliminary review of the direct values of herps, and I will attempt to estimate the indirect economic value of two species: the Corn Snake (*Elaphe guttata*) and the American Toad (*Anaxyrus americanus*).

Rebecca A. Donaldson and **Kristin A. Bakkegard** (kbakkega@samford.edu), Samford University. *Tail length and sexual size dimorphism (SSD) in Desmognathine Salamanders.*

The contribution of tail length to sexual size dimorphism (SSD) in salamanders is relatively unstudied. Salamander tails are used for energy storage, courtship, antipredator defense and respiration but differences in life-history strategies between males and females may generate SSD in this trait. Because the basal member of the Desmognathine salamanders, *Phaeognathus hubrichti*, shows SSD in tail dimensions (females have long thin tails compared to males shorter, thicker tail), we hypothesized that other desmognathines may follow the same pattern. We took standard morphological measurements, aged and sexed 342 *Desmognathus quadramaculatus* (the largest species of Desmognathus) and 244 Desmognathus aeneus (one of the smallest species) to determine whether SSD in tail length followed the same pattern as *P. hubrichti*. Neither Desmognathus showed SSD in tail length. Males of both species had significantly wider tail diameters than females.

Females had a significantly longer distance between limbs than males. We also found that all three species differ in resource allocation to different body parts as they mature. This suggests that life-history traits and ecological requirements have a stronger influence on body size than phylogeny in this group of salamanders.

Geoffrey G. Sorrell and **Robert N. Addington**, The Nature Conservancy, Ft. Benning Field Office, Ft. Benning, Ga. *Gopher Frog Population Monitoring and Habitat Restoration on Ft. Benning, Georgia.*

The gopher frog (*Rana capito*) is a species that relies on fire-maintained uplands as well ephemeral wetlands found within the longleaf pine ecosystem. The gopher frog utilizes subterranean refugia during the summer and migrates to nearby wetlands during the fall and winter breeding season. Our work is being conducted in sand hills habitat on Ft. Benning in Chattahoochee County, Georgia. The project has two priorities. The first focus is to monitor gopher frog populations. Egg mass surveys are the primary sampling technique that we will use. Our second goal is to restore and maintain gopher frog habitat. This will involve the use of fire, mechanical removal of woody vegetation, and control of feral hogs. During the spring of 2010 initial surveys were conducted. Of nine ponds surveyed, there were six used by gopher frogs. Of the nine wetlands with potential as breeding sites, only one is a natural wetland. The remaining eight were created to serve as water sources for wildlife. Gopher frogs have dispersed from the natural wetland to many of the others. This case gives credence to concept of repatriation for the gopher frog on sites where wetlands can be created or restored within a matrix of ecologically intact uplands.

Kelly C. Jones (kcjones@vt.edu)**, Thomas A. Gorman,** and **Carola A. Haas,** Virginia Tech. *Observations of Reticulated Flatwoods Salamanders climbing in wiregrass and other substrates*

The Reticulated Flatwoods Salamander, *Ambystoma bishopi*, was recently uplisted to federally endangered as a result of its declining populations and reduced availability of suitable habitat. The fossorial life history of ambystomatid salamanders often precludes the direct observation of adults and metamorphs. After an incidental encounter, on 4 nights from 29 April to 22 May 2010 we searched for Reticulated Flatwoods Salamanders at night by visually examining herbaceous ground cover in and around four known breeding wetlands on Eglin Air Force Base, Florida. We documented 25 observations of salamanders above ground near breeding sites, including one observation of an adult and 24 observations of juveniles. On 23 of these occasions, including the single adult observation, salamanders were found climbing up to 0.5 m above the ground in wiregrass, *Aristida stricta*, a fire-dependent grass species associated with flatwoods salamander habitat. Individual salamanders were observed perched and climbing, both vertically and horizontally, among the blades of wiregrass. Wiregrass (when inundated) has been described as an important component of larval habitat. These observations lead us to hypothesize that it may also be used by adults and metamorph flatwoods

salamanders possibly as a foraging substrate (foliage) and as refugia (foliage and root base). Although these observations are interesting, further research is needed to determine if the salamanders are selectively using wiregrass and if a foraging advantage is gained by climbing.

Nicole A. Freidenfelds (freidenfelds@psu.edu) and **Tracy Langkilde** (tll30@psu.edu), Pennsylvania State University. *Consequences of envenomation: red imported fire ants have delayed effects on survival but not growth of native fence lizards*.

Aggressive encounters, including those with venomous species, impose selective pressure on native species. Immediate lethal outcomes of these encounters have been the primary focus of research in this field. However, not all aggressive interactions result in immediate mortality, and indirect consequences of aggressive interactions may be an equally important but under-considered selective force. The red imported fire ant is a globally important venomous invader that imposes novel selective pressure on native communities. We examined indirect effects of fire ant envenomation on native fence lizard growth rates and subsequent survival. Fence lizards are subject to fire ant envenomation in the field when they eat fire ants (they are stung inside the mouth) and through fire ant attack (they are stung on the body). We quantified body sizes of adult lizards from fire ant invaded and uninvaded sites. We then experimentally exposed hatchling fence lizards to the two modes of fire ant envenomation, and quantified their growth and survival over one year. Lizards from fire ant-invaded sites were smaller than those from an uninvaded site, even at similar latitudes. However, in contrast to studies on other native taxa, we found no effect of fire ant venom on growth rates of lizards from naïve or fire ant-invaded populations. Lizards exposed to fire ant venom, through both eating and attack, experienced higher rates of delayed mortality, with 44% of lizards dying 1 – 11 weeks post-envenomation compared to 12% of lizards in the control treatment. These patterns were true for fire ant naïve populations as well as those exposed to fire ants for ~35 generations. These results suggest that the smaller body sizes observed in fence lizards from fire ant invaded sites are not a consequence of exposure to fire ant venom. However, fence lizards from both sites suffer delayed survival costs of fire ant envenomation. This study highlights the importance of considering indirect fitness consequences of aggressive encounters if we are to fully understand the ecological and evolutionary consequences of these interactions, and adequately manage and predict the impacts of invasive species.

David Steen (davidasteen@gmail.com), **Lora Smith**, **Mike Conner**, **Kevin Hiers**, and **Louis Provencher**, Joseph W. Jones Ecological Research Center, Auburn University, Jackson Guard-Eglin Natural Resources, and The Nature Conservancy. *Influence of Longleaf Pine Restoration on Avian Assemblages and Occupancy of Species Associated with the Native Ecosystem*

Varied strategies have been attempted to restore longleaf forests by reducing hardwood tree densities. However, forest management may have unintended or

unknown effects on local wildlife. To determine the effects of varied hardwood removal strategies on breeding birds, we sampled for these animals in a Longleaf Pine forest subjected to prescribed burning, application of herbicides, or mechanical removal of hardwood trees. General trends indicated Longleaf Pine restoration that removes hardwood trees increased species richness of the entire avian assemblage. The probability of occupancy of species highly associated with the native ecosystem was influenced by several factors but generally included method of restoration. Our results indicate hardwood removal is likely to have beneficial effects on avian assemblages that may not be observed when prescribed fire is used alone, although these management strategies may not replicate reference conditions in the short-term. Different methods of reducing hardwood density may have disparate effects on probability of occupancy by species highly associated with Longleaf Pine forests, but the mechanisms behind these differences remain unidentified.

SATURDAY

7:30 Breakfast

8:20 Introduction

8:30
Ken Marion (kmarion@uab.edu**), Andrew Coleman** and **Thane Wibbels,**
University of Alabama at Birmingham. *The Oil Mess: Effects on Marine/Coastal Reptiles.*

The April 20, 2010 explosion of the Deepwater Horizon well released 185 million gallons of crude oil into the northern Gulf of Mexico over more than a three-month period. Since the blowout of the well, as of early October approximately 600 sea turtle deaths have been documented and an additional 530 live strandings have been reported. The majority of the dead turtles were juvenile Kemp's ridleys. These numbers represent at least 2-3 times the normal average for turtle deaths in the region over the same reporting period. A significant number of dead strandings have not been directly linked to oil-related mortality effects. At least some deaths resulted from relaxation of shrimp fishery regulations along the northern Gulf Coast. Two hundred thirty of the dead sea turtles washed ashore in Alabama or were collected in near off-shore waters.

In a response to the blowout, NOAA and the USFWS excavated 275 sea turtle nests in Alabama and the panhandle of Florida and translocated the eggs/young to the east coast of Florida. Nearly 15,000 hatchlings were released into Atlantic waters.

The impact on diamondback terrapins across the northern Gulf Coast is virtually unknown; however, Louisiana populations undoubtedly were significantly impacted. The localized populations of terrapins in Alabama apparently suffered no significant direct impacts.

8:45
Andy Coleman, **Thane Wibbels** (twibbels@uab.edu), **Ken Marion**, **Taylor Roberge**, **John Dindo**, and **David Nelson**, University of Alabama at Birmingham, Dauphin Island Sea Lab, University of South Alabama. *Survival Status and Recovery Strategy for the Diamondback Terrapin in Alabama*

Over the past six years we have evaluated the distribution and abundance of diamondback terrapin (*Malaclemys terrapin pileata*) in the coastal regions of Alabama. Historical anecdotes indicate that terrapin were once abundant in Alabama, including one of the largest terrapin "farms" in the U.S., which was located in a salt marsh just north of Dauphin Island. This farm was reported to export 12,000 terrapin per year to the northeastern U.S. in the late 1800's to accommodate the demand for terrapin stew. Our recent surveys indicate that the terrapin population in Alabama is severely depleted and is represented by small remnant groups in specific locations. We have identified several nesting sites for terrapins with the most productive being on a shell hash beach in Cedar Point Marsh, adjacent to the Dauphin Island causeway. Of all the locations we have surveyed in Alabama, Cedar Point Marsh is also where we have captured and/or visually surveyed the largest number of terrapins. Although Cedar Point Marsh is the largest nesting site we have identified, it is limited to approximately 120 to 150 nests each season (which suggests a nesting population of approximately 50 to 75 adult females), and the majority of those nests are depredated by raccoons. Our data indicate that the two primary threats to the recovery of terrapin in Alabama are incidental capture in crab traps and nest depredation by raccoons. We have evaluated the use of bycatch reduction devices (BRDs) as an effective method of reducing the mortality of terrapins in crab traps without any significant decrease in the capture of blue crabs. Additionally, we are evaluating a captive incubation and headstart program for terrapins in an effort to circumvent the high nest depredation rate. This includes the release of up to 200 juvenile terrapins into Cedar Point Marsh over a three year period. This work is supported by the Alabama Department of Conservation and Natural Resources through the State Wildlife Grants Program, and through a Costal Research Grant from the Alabama Coastal Area Management Program.

9:00
Jim Godwin (jcg0001@auburn.edu), Alabama Natural Heritage Program. *Eastern Indigo Snakes in Alabama*

The eastern indigo snake has been absent from southern Alabama for approximately 55 years. Attempts to reintroduce the species during the mid-1970s to mid-1980s were unsuccessful. In 2007 the idea of a reintroduction program was revived. In 2008, 2009, and 2010 gravid female eastern indigo snakes were brought into the lab at Auburn University and held until eggs were laid. Young from these snakes are being reared in captivity as stock for a release and reintroduction project in Conecuh National Forest. In June 2010 the first release of 17 snakes, nearly 2 years

of age, was done. All snakes were surgically implanted with a radio transmitter and PIT tag.

Currently, research is being conducted using data gathered from radio telemetry on the snakes released in 2010. We will discuss the first four months of tracking data including movements and observations made while following the snakes. Ultimately information gathered through radio tracking should help guide the reintroduction efforts to a successful goal of establishing a viable population of eastern indigo snakes in Alabama.

9:15
Jimmy Stiles, Auburn University. *Eastern Indigo Snakes in Alabama: Update From the Field*

See abstract above.

9:30
David Brothers (dbrothers@zooatlanta.org), Zoo Atlanta. *Indigo Snakes at Zoo Atlanta, Our Part in the Bigger Picture.*

Zoo Atlanta has partnered with Auburn University, The Orianne Society**,** and various other organizations in an effort to reintroduce the Eastern Indigo Snake, *Drymarchon couperi*, in southern Alabama. Our involvement with the project consists of the rearing of young snakes that were produced by wild-caught adult snakes. The eggs were collected and hatched at Auburn, and then the juveniles were transported to Zoo Atlanta. Upon arrival they were placed in rack enclosures (Vision® brand)**.** Each enclosure is lined with newspaper to facilitate cleaning, and supplied with a water dish and a plastic hide box containing damp aspen bedding as a high humidity retreat. The animals have been sustained on a variety of food items, which includes mice, quail, fish, frogs, and hatchling turtles. These items were initially offered every three to five days, and now are being offered every five to seven days. All animals have shown a steady increase in size and weight, with a few being quite substantial. They are currently slated to be fitted with radio transmitters and released into the Conecuh National Forest in the spring of 2011.

9:45
Jennifer Deitloff (jmd0017@auburn.edu) and **Valerie Johnson**, Auburn University. *Color variation between clutches and sexes in Drymarchon couperi.*

Many species exhibit variation in the color of their scales, feathers, or fur. Various forms of natural selection, such as mimicry, crypsis, and species recognition, can influence the evolution of color. In addition, sexual selection can drive patterns of color variation. In *Drymarchon couperi*, a federally threatened species, the sides of the head and the chin can vary in color from black to reddish-orange to pale yellow or white. Despite captive breeding and release programs for *Drymarchon couperi*, not much is known about its biology in the field. Past researchers have proposed

that the color variation on the head and chin is associated with the sex of an individual, with males showing more red color. In addition, clutches of snakes seem to be more similarly colored to one another. Therefore, we tested the hypothesis that color of the sublabial, chin, and neck scales of individuals of *Drymarchon couperi* is associated with sex and clutch. We used color spectrometry to determine the reflectance values of sublabial, chin, and neck scales within ultra-violet, yellow, orange and red wavelengths. To test our hypothesis we compared color between clutches and sexes, including an interaction term to determine if these characteristics influence color of individuals. We found that both sex and clutch are associated with color. Further studies will address whether eyes of this species of snakes can discriminate between color variants and if color is used for species recognition or mate choice.

10:00 Break

10:30

William B. Sutton (billsutton.wv@gmail.com), **Yong Wang**, Alabama A&M University, and **Callie J. Schweitzer**, USDA Forest Service. *Lizard Habitat Relationships in Managed Forests of the Southeast.*

The documentation of worldwide biodiversity declines has made it important to understand organismal response to anthropogenic disturbances. We examined lizard community response to prescribed burning and thinning in 18 forest stands of the Bankhead National Forest, Alabama, U.S.A. Our experiment consisted of a before-after, control-impact 2 x 3 factorial complete block design. Forest treatments consisted of three thinning levels (no thin, 11 m^2/ha residual basal area [BA], and 17 m^2/ha residual BA) and two burning levels (burn and no burn). Forest treatments were replicated three times across the landscape and were generally 9 ha in size. We collected one year of pre-treatment data and two years of post-treatment data from 2005-2008. We captured 718 individual lizards representing six species in 2,862 trap nights. Lizards exhibited species-specific responses, where Eastern Fence Lizards, *Sceloporus undulats,* increased in thin with burn plots and Green Anoles, *Anolis carolinensis*, increased in thin-only plots. Large skinks, *Plestiodon* sp., were generally unaffected by forest management treatments and were associated with percent coarse woody debris. Little Brown Skinks, *Scincella lateralis*, were negatively impacted by all treatments during the first post-treatment year, but appeared to recover during the second post-treatment year. Total heliothermic lizards increased in all thinned plots and were highly correlated with higher air temperatures. Our study illustrates that multiple management strategies are necessary to benefit southeastern lizard communities.

10:45
Walter H. Smith (whsmith1@crimson.ua.edu), University of Alabama. *Upland longleaf pine herpetofaunal communities in Alabama: new directions and unexpected discoveries.*

Longleaf pine ecosystems and their associated herpetofauna are an enduring symbol of biodiversity and natural heritage in the Southeastern United States. Unfortunately, these ecosystems and many of their associated species have been in decline for over a century due to the combined effects of timber harvesting and fire suppression, and only in recent years have managers and biologists embarked on comprehensive, rangewide restoration efforts for the longleaf pine ecosystem. A key component of these restoration efforts is the initial delineation of biodiversity from unique communities and habitats embedded with the general matrix of the larger longleaf ecosystem – a component that nonetheless remains unachieved for many portions of this ecosystem. I outline a series of completed and ongoing projects from the Talladega National Forest (Oakmulgee District) of central Alabama aimed at classifying herpetofaunal biodiversity from habitats within an unstudied, "transitional" longleaf ecosystem. These projects have produced predictable species inventories and responses of herpetofauna to fire management, as well as several unexpected discoveries that expand species ranges and provide the first recorded occurrences of herpetofaunal species within longleaf ecosystems. These findings differ significantly from those typical of more "traditional" longleaf forests of the lower Coastal Plain and emphasize the spatial and temporal variability inherent in the overall longleaf ecosystem that complicates restoration programs. I further highlight future directions for these projects and the development of new tools from our findings that may aid in the restoration of longleaf-associated herpetofauna.

11:00
Tracy Langkilde (tll30@psu.edu), **Nicole Freidenfelds**, and **Travis Robbins**, Penn State University. *Stress and Invasion: Factors influencing the escape behavior of native fence lizards in response to introduced fire ants.*

Understanding the factors that influence escape responses can provide valuable insight into the processes that structure communities and permit species coexistence. Non-native species introductions are becoming increasingly common, and can impose novel threats to the native communities they invade. Populations exposed to such environmental perturbations often exhibit elevated physiological stress levels (measured as levels of circulating glucocorticoids). Native fence lizards, *Sceloporus undulatus*, co-occur with fire ants, *Solenopsis invicta* across much of their invasive range. Attacks by fire ants on fence lizards are common and can be lethal. We conducted staged encounters between fence lizards and fire ants in the field to assess the role that physiological stress levels and prior exposure of native lizards to this invasive fire ants plays in driving lizard escape behavior. This study suggests that population-level exposure to fire ants and the physiological stress response to ant attack drive the behavioral response of lizards to fire ant attack. Lizards from fire ant invaded areas are more likely to respond to fire ant attack than lizards from

uninvaded sites. Lizards from both sites exhibit elevated levels of the stress hormone, corticosterone (CORT) following attack by fire ants. CORT appears to be driving the behavioral response of fence lizards to fire ants; lizards that have their circulating CORT levels artificially elevated are more likely to respond to fire ant attack. This suggests that, rather than being a cause for concern, elevated levels of physiological stress within invaded populations may be playing an important role in driving the adaptive response of natives to novel threats.

11:15
Rick O'Connor, Marine Science Academy and Washington High School. *So You Want To Be A Wildlife Biologist? Working With High School Students In The Field.*

Many students who take advanced courses in biology become very interested in the subject and begin considering it for a career; however most have a "Discovery Channel" view of what the subject and the job are really about. Using experiences from my training as a marine biologist at Dauphin Island Sea Lab we developed a four year institute program that gives high school students interested in the subject a chance to develop, conduct, and present field research projects while still in high school. To date about 170 students have gone through the program and about 45 projects have been completed. We have work with Gulf Islands National Seashore, the Florida Department of Environmental Protection, and others on a variety of marine related topics but recently have expanded to coastal and upland reptiles. This presentation will explain the program and highlight a couple of reptilian projects we have worked on recently; *Assessing the Status of the Diamondback Terrapin (Malaclemys terrapin pileata) in Northwest Florida*, and *Does the Eastern Kingsnake (Lampropeltis getulus getulus) Still Exist in Northwest Florida?*

11:30
Mark J. Garcia (mjgarcia@crimson.ua.edu) and **Ryan L. Earley,** University of Alabama. *Mechanisms driving winner and loser effects in the green anole lizard (Anolis carolinensis)*

Fighting experience can alter an individual's probability of winning future contests; victory begets victory (winner effect) while defeat begets defeat (loser effect). The presence, magnitude, and persistence of winner/loser effects have been studied in many taxa but the mechanism(s) through which fighting experience alters future winning probabilities is still unclear. Two predominant hypotheses posit that fighting experience either alters an individual's actual fighting ability or its perception of its fighting ability. We addressed these hypotheses and potential physiological mechanisms driving experience effects in green anole lizards (*Anolis carolinensis*). Focal individuals were given a pre-determined loss/win in a primary contest against significantly larger/smaller animals, respectively. Following the primary contest focal individuals were 1) processed immediately to examine changes in tissue metabolism, 2) processed 2d later, or 3) given a secondary contest prior to processing. To determine whether perceived and/or actual fighting ability is altered by social experience, we examined changes in motivational state (i.e.

willingness to initiate/escalate) and the probability of victory in non-escalated and/or escalated secondary contests. Assays of metabolic physiology (e.g. lactate, glycogen, glucose) were conducted on muscle, liver, and plasma to determine whether energetic state could drive changes in motivational state and/or the probability of victory in secondary contests. Results reveal a significant loser effect but no significant winner effect in the green anole. Behavioral analysis and metabolic assays are underway with the goal of exploring whether social experience alters perceived or actual fighting ability, and the behavioral and physiological mechanisms underlying these changes.

11:45
David Steen (davidasteen@gmail.com) **et al.** Auburn University. *Nesting Migrations of Nesting Freshwater Turtles: Designating Core Terrestrial Habitat*

Aquatic turtles require upland, terrestrial habitats to fulfill nesting requirements. Identifying the extent of upland habitat surrounding wetlands needed by aquatic turtles to complete their life cycles is imperative for the conservation of this imperiled group. To this end, we surveyed the literature and contacted turtle researchers to compile estimates of the distance females travel from wetlands to uplands to nest. Based on records of 8,013 nests and females of 31 species we determined buffers of 576 m are required to encompass 95% of nesting turtles. Buffer zone widths varied dramatically among genera, from 8 m for *Malaclemmys* to 1396 m for *Trachemys*, and for turtles associated with palustrine (718 m) versus riverine (140 m) wetlands. Our results indicate previously published estimates of the extent of land required by aquatic turtles are conservative. Land managers are challenged to preserve considerable upland areas sufficient to protect areas required by nesting turtles.

12:00 LUNCH

1:30
Sean Graham, Department of Biological Sciences, Auburn University. *The Status of Alabama Hellbenders; ALAPARC Hellbender Initiative Year One Update*

The hellbender has declined precipitously in many parts of its former range in the eastern U.S., although in some regions populations still appear stable. The hellbender's current status in Alabama is unknown. To date, only one survey has been conducted to determine the status of Alabama hellbender populations, but this study remains an unpublished report to state agencies. We set forth to conduct an additional systematic inventory of historical collection localities of hellbenders in Alabama. Modeled after an adopt-a-stream program, the Alabama Hellbender Initiative attempted to mobilize volunteer groups of interested biologists to re-survey historical localities for hellbenders, such that each group surveyed one or more sites three times during spring-fall to simultaneously divide labor and pool effort. We conducted several dozen surveys at more than 20 sites for over 100 total

person hours and were unable to document the presence of a living hellbender in Alabama.

1:45
Walter H. Smith (whsmith1@crimson.ua.edu), University of Alabama. *ALAPARC Ed/Outreach Update and 2011 Outline.*

ALAPARC's inaugural year has seen a number of foundational education and outreach partnerships formed with state agencies, regional media, and educational institutions. This talk will outline the progress of these initiatives, discuss highlights and successes of each, and outline proposed initiatives for 2011 that build off of these successes and further pursue improving herp-related outreach in the state. Feel free to come prepared with your own ideas for new initiatives.

2:00 Break

2:15 Workshop: Collecting Natural History and Genetic Information

3:45
Christopher J. Thawley and **Craig Guyer**. *A Hundred Years of Rippin' Stumps: Alabama's Herpetological Legacy*.
Just as Alabama has a rich diversity of reptiles and amphibians, the state has also been home to many outstanding herpetologists and much excellent herpetological research over the past century. Beginning with dedicated collectors such as H. P. Loding, many individuals have contributed to our knowledge of the distributions of herpetofauna and expanded our understanding of the natural history, ecology, and evolution of these animals here in Alabama and across the southeastern United States. In the context of this year's celebration of Robert Mount, whose *Reptiles and Amphibians of Alabama* serves as a seminal consolidation of this knowledge, we present a review of the key figures and discoveries in Alabama's herpetological history and how they continue to influence and inspire contemporary research throughout the state.

4:00 Dr. Robert Mount Appreciation Session

6:00 Dinner

7:30 Social

SUNDAY

7:30 Breakfast

9:00 Field Trip-Indigo Snake Radio-tracking
Join Jimmy and Sierra Stiles to accompany them as they radio-track the reintroduced indigo snakes you heard about at our conference. The sites are only a short drive from the Solon Dixon Forestry Education Center. Hopefully the snakes will be out basking or hunting; don't forget your camera! Also make sure to wear field appropriate clothes and footwear. Remember, venomous snakes are sometimes encountered while tracking. If you have a GPS bring it and anyone with radio telemetry equipment that picks up a 151 band please bring that as well. Interested? See Jimmy and Sierra.

ALAPARC would like to thank the following organizations for supporting our meeting:

Beer for our socials is being provided by the Good People Brewing Company (http://www.goodpeoplebrewing.com). In honor of our organization, they are providing Snake Handler (a double IPA).

Coffee for our meeting is being provided by Higher Ground Roasters, an Alabama-based company (http://www.highergroundroasters.com/). From their website: Higher Ground was born through the combination of a desire to produce the highest quality coffee and the hope of improving the act of doing business in today's world. We at Higher Ground began with a few goals: To purchase the best coffee available anywhere, to roast it to perfection, and to make it available - fresh - to anyone. With this in mind, the people at Higher Ground made the decision to roast exclusively Fair Trade, shade grown, organic coffees of specialty grade. That means that all Higher Ground coffees are grown naturally without the use of harsh chemicals and fertilizers, and they represent the very best of the world's harvest. In addition, all our beans are grown under the forest canopy, allowing farmers to preserve ancient forests and natural habitat.

Other Accommodations

We hope you will be able to join us at the Solon Dixon Forestry Education Center but if other accommodations are needed there are a few affordable options in nearby Andalusia, including Days Inn (334-427-0050), Econo Lodge (334-222-9705), and Best Western (334-222-9999). Camping is available at Open Pond Campground within Conecuh National Forest.

About Our Chapter

Alabama PARC is chaired by David Steen and Sean Graham and is a chapter within Southeast PARC (SEPARC) co-chaired by Chris Jenkins and Gabrielle Graeter. For more information about SEPARC visit www.separc.org. ALAPARC's website is www.alaparc.org. National PARC's website is www.parcplace.org.

Directions to the Solon Dixon Forestry Education Center

Do not obtain directions from Google, MapQuest or any similar program. **They will not provide accurate directions to the Center.**

From the west or south
Go to Brewton, Alabama--US 29 from south or southwest; AL 41 from northwest. Take US 29 E toward Andalusia. Go about 20 miles. Look for Dixon Center sign on left of road just past the Escambia/Covington County line. The Center is about 2 miles north of US 29 on the paved road.
From the North
From Montgomery take I-65 S to the Georgiana exit (south of Greenville). Take AL 106 east towards Georgiana (3-4 miles). Turn right (south) on US 31. this road will become four-lane--US 31 will turn right, but stay on the four-lane on AL 55, this will take you to Andalusia. Turn right on US 29, go about 18 miles. Look for the Dixon Center sign on the right. The center is about 2 miles north of US 29 on the paved road.
From the East
Go to Andalusia, AL--via US 84 from Dothan or vicinity. Take US 29 S. Go about 18 miles. Look for the Dixon Center sign on the right. The Center is about 2 miles north of US 29 on the paved road.

Map of the Solon Dixon Forestry Education Center