



November 6th-8th

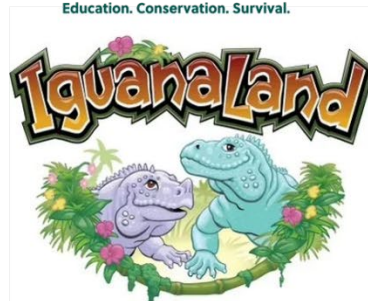
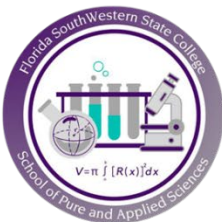
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Naples, Florida

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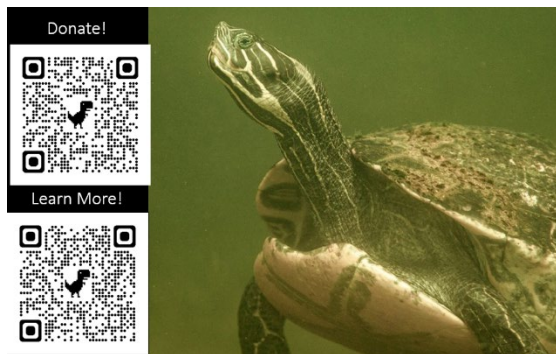
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Herpeton: The Florida Herpetology Conference - Rules & Code of Conduct

While Herpeton is a new burgeoning conference, we are committed to building a safe and welcoming environment for attendees. All speakers, vendors, sponsors, and other attendees are expected to adhere to the code of conduct below. This code of conduct is a slightly modified adaptation used by the meeting of the Southeast Partners in Amphibian and Reptile Conservation (SEPARC) in 2023 combined with the host's (Florida SouthWestern State College) own standards of conduct.

Expected Behaviors

- Treat all attendees and participants with respect and consideration, valuing a broad range of views and opinions
- Communicate openly with respect, critique ideas and not individuals
- Avoid personal attacks directed at others
- Be mindful and respectful of surroundings
- Respect the rules, policy, and property of the meeting venue
- Adhere to all State and Federal laws, including wildlife regulations

Unacceptable Behavior

- Harassment, intimidation, or discrimination of any form (verbal, physical, or visual whether it is sexual, racial, ethnic, or of some other type) will not be tolerated
- Disruption of talks and/or poster presentations

Consequences & Reporting

- Anyone requested to stop unacceptable behavior is expected to comply immediately
- Herpeton facilitators or security may take any action deemed necessary and appropriate, including immediate removal from the meeting without warning or refund
- If you are the subject of any inappropriate or unacceptable behavior, or have witnessed such behavior please notify conference chair Jordan Donini (Jtdonini@fsw.edu) as soon as possible

General Conference Rules

- Please collect your name badge from registration tables at the conference entrance
- Please keep name badges on at all times while on the conference campus, this will allow you access to all food events sponsored by the conference.
- **Please don't invite non-registered attendees to conference activities, as there are strict fire Marshall requirements that need to be followed in terms of room capacity.**
- Make connections and have fun! We look forward to this experience with you all! Thank you for attending!

Herpeton 2026 Location and Directions

[7505 Grand Lely Dr., Naples, Florida, 34113- Parking Lot 6](#)



Directions From US 41 South:

Turn Left onto Rattlesnake Hammock Rd. (Appropriate!) and follow until you reach Grand Lely Dr. Turn right at Grand Lely, then take your first left into the school entrance. You may park in any unlabeled spot, but following the curve around to parking lot 6 will put you closer to the venue buildings. See Figure 1. below. Table set ups will occur in the Courtyard starred on the map. Conference talks happen in the B building just to the right of that star.

From I-75

Get off at exit 101 (Collier Blvd) and turn onto Collier Blvd south. Follow and turn right onto Rattlesnake Hammock Dr. Follow Rattle Snake Hammock Rd and turn left onto Grand Lely Dr, then take your first left into the school entrance. You may park in any unlabeled spot, but following the curve around to parking lot 6 will put you closer to the venue buildings. See Figure 1. below. Conference talks happen in the B building just to the right of that star.

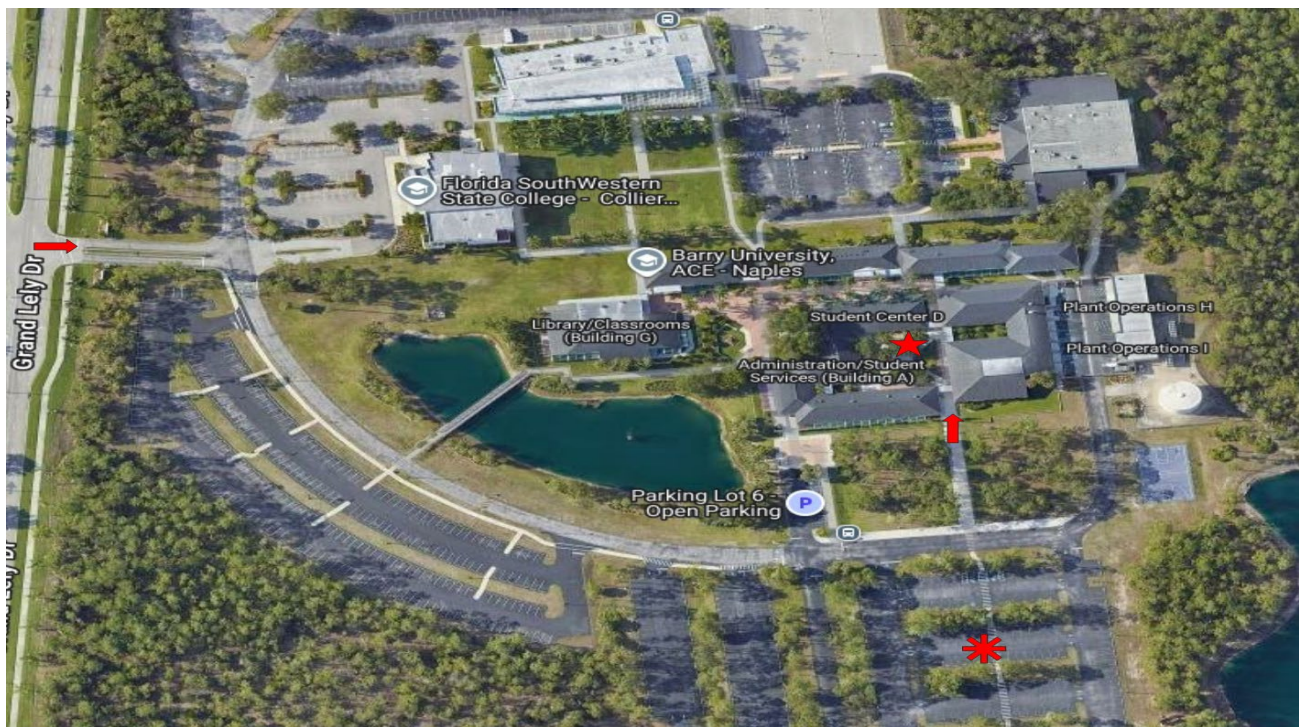


FIGURE 1. MAP OF FSW COLLIER CAMPUS ENTRANCE AND PARKING AREAS. RIGHT FACING ARROW INDICATES MAIN ENTRANCE FROM GRAND LELY DRIVE. ASTERISK REPRESENTS PREFERRED PARKING AREA, AND NORTH FACING ARROW INDICATES BEST ENTRY POINT. RED STAR INDICATES CENTRALIZED CONFERENCE AREA.

Pre-Conference: Friday 11/6

7:30-10:30am FIELD TRIP:

Description:

When: 7:30-10:30 AM Friday Nov 6th

Where: FSW Collier Urban Ponds and Flatwoods Survey

Bring: Footwear suitable for wading in knee-deep water, field clothes with long sleeves, hats, water, sunglasses, etc.

12:00pm Florida PARC Re-launch Lunch and Learn:

-Building Towards FLPARC's revival

-Discussion: Engaging with the Media

2:00pm Luncheon Concludes

5:00pm Opening Social and Registration

7:30pm Social Concludes

Conference Day 1: Saturday 11/7

*Indicates Student Presentation for Award Consideration, ** Indicates Graduate Student Presentation for Award Consideration.

7:30am Poster and Table Set Up. Registration/Silent Auction Begins

8:00am Breakfast (Provided)

9:05am WELCOME STATEMENT AND ANNOUNCEMENTS- CONFERENCE CHAIR: JORDAN DONINI

**9:15am KEYNOTE SPEAKER: THE DIVERSE AND UNIQUE AMPHIBIANS AND REPTILES OF NEW JERSEY
ROBERT ZAPPALORTI**

9:55AM KEYNOTE Q&A

SESSION 1: FRESHWATER AND CAPTIVE TURTLES- CHAIR: CODY D. GODWIN

**10:05am CUATRO AÑOS DE AGUA DULCE: INITIAL REPORTS AND FUTURE DIRECTIONS OF FRESHWATER TURTLE
WORK IN THE ATLANTIC SLOPES OF COSTA RICA (SPEED TALK) – JORDAN T. DONINI**

**10:10am ONTOGENY OF SEXUAL DIMORPHISM IN THE SUWANNEE COOTER (*PSEUDEMYX CONCINNA SUWANNIENSIS*)
– GERALD R. JOHNSTON**

**10:25am NATURAL HISTORY TRAITS AND ECOLOGY OF THE FLORIDA MUD TURTLE (*KINOSTERNON
STEINDACHNERI*) – MIKE MILLS**

10:40am KEEPING AND BREEDING *PANGSHURA* TURTLES – WAYNE HILL

11:00am ALBINO SNAPPING TURTLES: THE 12-YEAR MAKING OF A TURTLE MORPH – MARCUS CANTOS

11:20pm BREAK AND UPLOAD TALKS

SESSION 2: TURTLE ECOLOGY & CONSERVATION-CHAIR: J. SEAN DOODY

- 11:30AM FLORIDA TURTLE CONSERVATION TRUST: WORKING TO CONSERVE FLORIDA'S RICH TURTLE DIVERSITY – **GEORGE L. HEINRICH**
- 11:45AM ENERGY DENSITY AND MOISTURE OF FRUITS CONSUMED BY THE FLORIDA BOX TURTLE (*TERRAPENE CAROLINA BAURI*) – **MARY GRACE BOWLIN***
- 12:00PM THE INFLUENCE OF BEACH TOPOGRAPHY ON NESTING SEA TURTLES ON FLORIDA'S GULF COAST – **SALLY BORNHORST***
- 12:15PM DEMOGRAPHIC STRUCTURE OF A LEGALLY HARVESTED FORAGING AGGREGATION AND MALE REPRODUCTIVE DYNAMICS IN CARIBBEAN GREEN TURTLES (*CHELONIA MYDAS*) – **RENATO SARAGOÇA BRUNO**
- 12:30PM CANARY IN THE COAL MINE: YOLK SAC RETENTION IN DIAMONDBACK TERRAPIN HATCHLINGS AS A FIELD INDICATOR OF THERMAL DEVELOPMENTAL STRESS – **TABITHA HOOTMAN**
- 12:45PM EVALUATING SAND CHARACTERISTICS ON SEA TURTLE INCUBATION CONDITIONS ON FLORIDA'S GULF COAST – **THOMAS NAYLOR**
- 1:00pm LUNCH BREAK (PROVIDED) AND UPLOAD TALKS**

SESSION 3: APPLIED HERPETOLOGY AND RESEARCH METHODS-CHAIR: ERIN L. RICKMAN

- 2:30PM AESOLTUS: A TOOL FOR RECONSTRUCTING NATURAL SOLAR CONDITIONS FOR REPTILES – **ERIN L. RICKMAN**
- 2:45PM DEVELOPMENTAL CHANGES IN ENVIRONMENTAL AND OBJECT HABITUATION IN CAPTIVE CRESTED GECKOS (*CORRELOPHUS CILIATUS*): IMPLICATIONS FOR WELFARE-**GRACE BENTON**
- 2:50PM RESTORATION CONSIDERATIONS FOR A 9.5-ACRE URBAN PRESERVE (SPEED TALK) – **REBECCA J. SPEER**
- 2:55PM WHAT ARE THE GENETIC SIGNATURES UNDERLYING AMPHIBIAN TOLERANCE TO FUNGAL PATHOGENS? (SPEED TALK) – **ELYSE E. MARTIN***
- 3:00PM MOTION-TRIGGERED OR TIME-LAPSE? A CASE STUDY FOR CAMERA TRAP MONITORING OF VERTEBRATES ON EVERGLADES TREE ISLANDS – **ANDRÉS L. RODRIGUEZ-CORDERO**

SESSION 4: INVASIVE SPECIES- CHAIR: ERIC SUAREZ

- 3:15PM EVALUATING INVASIVE REPTILE CONTROL EFFORTS: NOCTURNAL BULK REMOVAL OF GREEN IGUANAS (*IGUANA IGUANA* LINNAEUS, 1758) IN FLORIDA, USA – **SERGIO A. BALAGUERA-REINA**
- 3:30PM AN ANCIENT ART IN MODERN CONSERVATION: EXPLORING FALCONRY AS A NICHE TOOL FOR THE MANAGEMENT OF INVASIVE REPTILES IN SOUTH FLORIDA – **TAYLOR FRANCIS BROTONS**

3:45PM	WHITE-TAILED DEER (<i>ODOCOILEUS VIRGINIANUS</i>) IN THE DIET OF INVASIVE BURMESE PYTHONS (<i>PYTHON BIVITTATUS</i>) IN SOUTHWEST FLORIDA – JASON EDELKIND
4:00PM	CONTROLLING FLORIDA’S INVASIVE REPTILES: ARE WE PRACTICING CONSERVATION? – J. SEAN DOODY
4:20PM	PLENARY SPEAKER: INTEGRATING INVASIVE REPTILES INTO THE COMPREHENSIVE EVERGLADES RESTORATION PLAN – FRANK J. MAZZOTTI
5:00PM	PLENARY Q&A
5:10PM	POSTER AND VENDOR SESSION WITH HORS D’OEUVRES (CATERED BY LULU’S KITCHEN) AND DRINKS COURTESY OF GAIL AND GRAHAM COPPARD
8:00pm	DAY 1 OF CONFERENCE CONCLUDES. POST CONFERENCE SOCIAL AT ANKROLAB BREWERY

Conference Day 2: Sunday 11/8

*Indicates Student Presentation for Award Consideration, ** Indicates Graduate Student Presentation for Award Consideration.

8:00am Breakfast (Provided)

8:50am Announcements/Upload Talks

SESSION 5: CURRENT RESEARCH IN SQUAMATES-CHAIR: SERGIO A. BALAGUERA-REINA

9:00AM	OCCUPANCY AND DETECTION OF CRYPTIC SEMI-AQUATIC SNAKES WITHIN IMPERILED URBAN HABITAT OF CENTRAL FLORIDA (SPEED TALK) – GIANNA L. FLORENTINO*
9:05AM	WHAT GOES UP, MUST COME DOWN: CLIMBING PERFORMANCE IN URBAN AND NATURAL POPULATIONS OF ANOLIS LIZARDS – AUSTIN M. GARNER
9:20AM	ECOLOGY OF TIMBER RATTLESNAKES (<i>CROTALUS HORRIDUS</i>) WITHIN URBANIZED LANDSCAPES OF SOUTHEASTERN LOUISIANA – ZACHARY W. GRAY**
9:35AM	LOOKING BEYOND THE SCALES: UNDERSTANDING THE INTERPLAY OF BACKGROUND AND VISUAL MORPHOLOGICAL CUES IN PERCEPTIONS OF SOUTHEASTERN SNAKES – LAMEACE HUSSAIN
9:50AM	DO CONSTRUCTED WETLANDS SUPPORT <i>NERODIA SIPEDON</i> POPULATIONS? – ETHAN ISAAC**
10:05AM	PUTTING THE PIECES TOGETHER: USING OBSERVATION DATA AND GIS METHODS TO INVESTIGATE FIRE-RELATED MORTALITY OF GLASS LIZARDS (<i>OPHISAURUS</i>) IN FLORIDA – ALI MULLA

10:20AM ANTHROPOGENIC INFLUENCE ON RAILLIETIELLA ORIENTALIS INFECTION PREVALENCE WITHIN AN ABUNDANT INTERMEDIATE LIZARD HOST (*ANOLIS SAGREI*) – **JASMINE H. KESSELRING****

10:35pm **BREAK AND UPLOAD TALKS**

SESSION 6: ENVIRONMENTAL STRESSORS AND ECOLOGICAL CHANGE-CHAIR: CODY WEBER

10:45AM USING LONG-TERM FROGWATCH DATA AND LAND-USE CHANGE ANALYSIS TO ASSESS AMPHIBIAN RESPONSES TO HABITAT TRANSFORMATION IN SOUTHWEST FLORIDA – **WHITNEY JO HUMMEL****

11:00AM THE IMPACTS OF URBANIZATION, INVASION, AND PATHOGEN PRESENCE ON IMMUNOMODULATION AND BODY CONDITION IN CANE TOADS (*RHINELLA HORRIBILIS*) – **EMMA ULSETH***

11:15AM HEAVY METAL LEVELS IN NESTING LOGGERHEAD SEA TURTLES ON FLORIDA'S GULF COAST (SPEED TALK) – **EMY TRAN****

11:20AM SHARING SPACE, SHARING RESOURCES? STABLE ISOTOPE INSIGHTS INTO FORAGING HABITS OF A UNIQUE CROCODYLIAN COMMUNITY – **JESSICA R. YATES****

11:35AM COLLAPSE OF THE SEMI-AQUATIC HERPETOFAUNA IN SOUTH FLORIDA: A 50-YEAR STUDY – **J. STEVE GODLEY**

11:50AM NONNATIVE FISHES DRIVE FIFTY YEARS OF ISOTOPIC CHANGE IN AN AQUATIC ECTOTHERM COMMUNITY – **BRYCE M. SWEELY****

12:05PM LUNCH BREAK (PROVIDED) AND UPLOAD TALKS

1:35PM GROUP PHOTO

SESSION 7: GENERAL HERPETOLOGY-CHAIR: VENITIA BRIGGS-GONZALES

1:45PM PLASTICITY IN THE DIET OF KEMP'S RIDLEY TURTLES (*LEPIDOCHELYS KEMPII*) IN THE TEN THOUSAND ISLANDS, FLORIDA – **JEFFREY R. SCHMID**

2:00PM MANGROVE SALTMARSH SNAKES (*NERODIA CLARKII COMPRESSICAUDA*) ARE INDICATORS OF SUCCESSFUL HYDROLOGIC RESTORATION IN MANGROVE SYSTEMS – **JOSHUA D. HOLBROOK**

2:15PM EXPLORING PARASITE DIVERSITY IN FLORIDA REPTILES AND AMPHIBIANS – **CHRISTINA ANAYA**

2:30PM PRELIMINARY INSIGHTS INTO CONTEMPORARY POPULATION GENETIC STRUCTURE OF THE AMERICAN CROCODILE (*CROCODYLUS ACUTUS*) IN FLORIDA – **FELIPE HERNANDEZ-GONZALEZ**

2:45PM MICROCLIMATIC INFLUENCE ON LOGGERHEAD AND GREEN SEA TURTLE NESTS IN SARASOTA COUNTY – **JAKE LASALA**

SESSION 8: MOLECULES TO ECOSYSTEMS -CHAIR: JESSICA R. YATES

- 3:00PM DISCOVERY OF AN *OPHIDIOMYCES OPHIDIICOLA*-DERIVED PEPTIDE CANDIDATE TARGETING GPCR–GITRL SIGNALING IN RHEUMATOID ARTHRITIS (SPEED TALK) – **SHIVAM SHUKLA**
- 3:05PM WHO’S ON THE MENU AND WHY IT MATTERS: REPTILE AND AMPHIBIAN BLOOD MEALS IN COLLIER COUNTY MOSQUITOES – **GABRIELLA C. STEELE**
- 3:20PM VERTICAL LEAD TRANSMISSION IN GOPHER TORTOISES – **KIM TITTERINGTON**
- 3:35PM DIET OF THE AMERICAN CROCODILE (*CROCODYLUS ACUTUS*) IN THE HYPERSALINE CONDITIONS OF LAGO ENRIQUILLO, DOMINICAN REPUBLIC – **ROBERT GRECO**
- 3:50PM WILDLIFE CSI: METHODS AND TECHNIQUES FOR DIFFERENTIATING RODENTS AND MESO-MAMMALS IN LARGE SNAKE DIETS IN SOUTHWEST FLORIDA – **SLADE DOLLAR**
- 4:05PM AWARD CEREMONY
- 4:30PM 2026 CONFERENCE CONCLUDES

Poster Presentations:

PREVALENCE AND INTENSITY OF THE INVASIVE PENTASTOME *RAILLIETIELLA ORIENTALIS* IN ASSOCIATION WITH MORPHOMETRICS OF BANDED WATER SNAKES (*NERODIA FASCIATA*) FROM THE NORTHERN EVERGLADES - **ABIGAIL ARNASHUS****

DEVELOPMENT OF A COST EFFECTIVE AND VERSATILE BITE FORCE METER FOR USE IN FRESHWATER TURTLES-**DEZIRAE BELMONTE***

PRESERVING THE PAST TO PROTECT THE FUTURE: ONGOING MODERNIZATION AND CURATION EFFORTS OF THE UNIVERSITY OF CENTRAL FLORIDA’S HERPETOLOGY TEACHING COLLECTION - **BAILEY CLUCK***

ISOTOPIC SHIFTS IN PRESERVED REPTILE AND AMPHIBIAN MUSEUM SPECIMENS – **ANDREW DURSO**

GAZE-FOLLOWING OF DOMESTIC CRESTED GECKOS (*CORRELOPHUS CILIATUS*) ACROSS LIFE STAGES - **KATELYN FOOSE***

FROG MOVEMENT & THE IMPLICATIONS FOR CONSERVATION & MANAGEMENT IN NORTH AMERICA: THE WESTERN TOAD (*ANAXYRUS BOREAS*) - **MAKENNA MORRISON GARY***

THE THERMAL IMPACT OF MICROPLASTICS IN SEA TURTLE NESTING SAND IN SOUTHWEST FLORIDA-**LILLY HARE***

PASSIVE ACOUSTIC MONITORING OF LOGGERHEAD (*CARETTA CARETTA*) NESTS: CHARACTERIZING SOUNDSCAPES PRIOR TO EMERGENCE - **GARRETT HICKMAN***

POND-ER THIS: DETERMINING THE PREVALENCE OF PATHOGENIC INFECTION IN STORMWATER RETENTION WATER IN WATERSNAKES (*NERODIA* spp.) WITHIN CENTRAL FLORIDA - **GRETCHEN HOWE***

DETERMINING THE RELATIONSHIP BETWEEN TEMPERATURE AND BODY CONDITION INDEX OF *CARETTA CARETTA* HATCHLINGS - **KASEY INGRAM***

IMPACTS OF CONSTRUCTED WETLANDS ON AMPHIBIAN PERKINSEA INFECTION DYNAMICS IN CENTRAL FLORIDA - **CAMILA N. JIMENEZ***

UNDER THE SCALES: A PARASITE SURVEY OF THE TROPICAL HOUSE GECKO IN SOUTHWEST FLORIDA - **NOAH LEWIS***

NEW SAND IN SOUTHWEST FLORIDA: CHARACTERIZATION AND IMPACTS ON *CARETTA CARETTA* NESTING - **ALESE LISSOW***

PONDEMIC MAPPER: DETERMINING THE LANDSCAPE LEVEL INFLUENCES ON AMPHIBIAN PERKINSEA INFECTION DYNAMICS - **BRYAN LOPEZ***

PATTERNS OF ROAD-ASSOCIATED SNAKE OBSERVATIONS IN FLORIDA REVEALED THROUGH CITIZEN SCIENCE - **GIANNA MAIDA****

DOES INVASIVE PREY IMPACT *NERODIA SIPEDON* PRESENCE IN WETLAND ECOSYSTEMS? - **MADISON POWELL***

DETERMINING THE HEALTH STATUS OF THE INVASIVE ARGENTINE BLACK AND WHITE TEGUS (*SALVATOR MERIANAE*) IN CENTRAL FLORIDA, USA - **MARIANA VICENTIN REMEDIO***

PREVALENCE COMPARISON OF THE INVASIVE PARASITE, *RAILLIETIELLA ORIENTALIS*, IN SNAKE POPULATIONS OF FGCU & OKALOACOOCHEE SLOUGH - **OZZY ROBERTS***

GASTROINTESTINAL PARASITE COMMUNITY OF THE INVASIVE BROWN ANOLE (*ANOLIS SAGREI*) IN SOUTHWEST FLORIDA - **ELENI RYCZEK***

DEVELOPMENTAL CHANGES IN FOOD PREFERENCE IN CAPTIVE CRESTED GECKOS (*CORRELOPHUS CILIATUS*): IMPLICATIONS FOR WELFARE - **TERESA R. SACCHETTI***

EFFECTS OF INCUBATION TEMPERATURE ON LOGGERHEAD AND GREEN SEA TURTLE NEST SUCCESS -**HOLLY SCHMIDT**

EVALUATING CAPTIVE REPTILE LIGHTING GUIDELINES USING WILD OBSERVATIONAL DATA - **COLE STARRETT***

DEMOGRAPHIC PATTERNS AND POPULATION ESTIMATE OF AN ISLAND POPULATION OF STRIPED MUD TURTLES (*KINOSTERNON BAURII*) IN SOUTHWESTERN FLORIDA - **TARA VANDERGRIFT***

A COMPARISON OF HOME-RANGE ESTIMATION METHODS FOR *CHAMAELEO CALYPTRATUS* IN SOUTHWEST FLORIDA - **ANNA R. VELTEN**

RUNNING ON ROUGH TERRAIN: SURFACE ROUGHNESS ALTERS CLINGING ABILITY AND EXERTION CAPACITY OF *ANOLIS CAROLINENSIS* (SQUAMATA: ANOLIDAE) - **BENJAMIN D. WASILJEV**

DOES HEAD WIDTH IMPROVE PREDICTION OF CLUTCH SIZE IN NESTING LOGGERHEAD AND GREEN SEA TURTLES FROM THE CENTRAL FLORIDA GULF COAST? - **DELSIN WRIGHT***

CO-OCCURRENCE AND HABITAT USE OF BURROWING OWLS AND GOPHER TORTOISES ACROSS URBAN LOTS IN CAPE CORAL, FLORIDA - **HABANA ZARRANZ***

ORAL PRESENTATION ABSTRACTS

KEYNOTE:

THE DIVERSE AND UNIQUE AMPHIBIANS AND REPTILES OF NEW JERSEY

ROBERT ZAPPALORTI (1)

(1) Herpetological Associates

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Although New Jersey is a relatively small landmass compared to its neighboring states to the north and east (New York), and to its west and south (Pennsylvania), we have a diverse landscape with an array of geological features. If New Jersey is compared to the landmass of Florida, the size difference is even more astounding. For instance, Florida has 67 Counties whereas New Jersey only has 21 Counties. Nevertheless, New Jersey's diverse landscapes include the Kittatinny Mountains in the north, the rolling Ridge and Valley Province of the Highlands, the Central Piedmont Province, the Atlantic Jersey Shore Beaches and Barrier Islands, the magnificent Pine Barrens in the Coastal Plain Province, and the Southern Delaware Bay and Estuary. New Jersey's highly diverse landscapes provides an array of habitat types which supports 35 species of amphibians and 46 species of reptiles for a total of 80 species. The breakdown of the species and sub-species are: Salamanders = 16 species, Toads and Frogs = 19 species, Turtles = 19 species (of which 2 are introduced), Lizards = 5 species (of which 2 are introduced), and the Snakes = 22 species and subspecies. The distribution of these various interesting species will be discussed, newly discovered species are reported, and the life history of the rare and unusual species will be highlighted. Some species of amphibians and reptiles that are native to Florida reach the northern limit of their natural range in the Pine Barrens of southern New Jersey. For such a small state, New Jersey has a unique and vast array of interesting amphibians and reptiles.

PLENARY TALK:

INTEGRATING INVASIVE REPTILES INTO THE COMPREHENSIVE EVERGLADES RESTORATION PLAN

DUWA ALEMAN (1), **FRANK J. MAZZOTTI (1)**, MELISSA A. MILLER (1), SERGIO A. BALAGUERA-REINA (1),
VENETIA BRIGGS-GONZALES (1), AND BRADLEY STRICKLAND (2)

(1) University of Florida

(2) National Park Service

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The restoration of Everglades ecosystems is under increasing threat from invasive reptiles. The purpose of this paper is to 1) organize and present information in the form of a hypothesis cluster (HC) of invasive reptiles with a high management priority in the Southern Coastal Systems (SCS) Mangrove Ecotone Conceptual Ecological Model (CEM), and 2) to develop a scoring system to support contributions to the Restoration, Coordination, and Verification (RECOVER) Systems Status Report and spotlight reporting efforts. CEMs have become the basis for the Monitoring and Assessment Plan (MAP) for the Comprehensive Everglades Restoration Plan (CERP). Hypothesis clusters are a subset of CEMs that provide more detail on the linkages among drivers, stressors, and attributes. Hypotheses are created for the linkages, which contribute to the development of monitoring programs. We selected the following invasive reptile species: Burmese pythons (*Python bivittatus*), green iguanas (*Iguana iguana*), Argentine black and white tegus (*Salvator merianae*), Nile monitors (*Varanus niloticus*), and spectacled caimans (*Caiman crocodilus*) and the American crocodile (*Crocodylus acutus*) as the attribute hypothesized to be affected by invasive reptiles. We used three invasive species concerns for managers as a basis for developing performance measures for invasive reptiles. The three metrics were abundance, spread, and impacts. Based on an elicitation of expert judgement, we hypothesized that there is potential for invasive reptiles to negatively impact the federally threatened American crocodile in the SCS and that the realization of this threat will depend upon the ultimate distribution and abundance of the invasive reptile species.

EXPLORING PARASITE DIVERSITY IN FLORIDA REPTILES AND AMPHIBIANS

CHRISTINA ANAYA (1), AND CONNOR MCCOWAN (1)

(1) Florida Gulf Coast University

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Florida is home to several nonnative reptiles and amphibians, some of which have become invasive and negatively affect native species and ecosystems. Nonnative species may also introduce parasites from their native ranges that establish local transmission cycles and potentially spill over into native species. Despite the diversity and abundance of nonnative herpetofauna in Florida, their parasites remain poorly documented, limiting our ability to identify novel host associations and evaluate parasite transmission. Here, we summarize ongoing work at Florida Gulf Coast University examining parasites of native and nonnative Florida herpetofauna. To date, we have necropsied 1,412 individuals representing 24 host species and identified 44 parasite species from the respiratory and gastrointestinal systems. As a case study, we compare parasite communities of invasive cane toads, *Rhinella horribilis*, and native southern toads, *Anaxyrus terrestris*, from three regions in Florida. Both hosts were infected with 11 parasite species, including five shared taxa. Infection patterns suggest that some parasites may have originated in native anurans and subsequently infected cane toads, whereas others may have been introduced by cane toads and subsequently infected native hosts. These studies demonstrate the importance of parasite surveys for establishing baseline data needed to evaluate parasite transmission during biological invasions. Continued sampling, particularly through partnerships with invasive-species removal and management programs, will expand our understanding of parasite diversity and exchange among Florida herpetofauna.

EVALUATING INVASIVE REPTILE CONTROL EFFORTS: NOCTURNAL BULK REMOVAL OF GREEN IGUANAS (*IGUANA IGUANA* LINNAEUS, 1758) IN FLORIDA, USA

FRANK J. MAZZOTTI (1), SERGIO A. BALAGUERA-REINA (1), SIDNEY T. GODFREY (1), AND NATHAN P. SCHWARTZ (1)

(1) Department of Wildlife Ecology and Conservation, University of Florida, Fort Lauderdale Research and Education Center, Davie, FL, United States

[sergio.balaguera@ufl.edu]

The green iguana (*Iguana iguana* Linnaeus, 1758) ranges from Mexico to Brazil and portions of the Lesser Antilles. In Florida, iguanas are an invasive species responsible for numerous adverse impacts, prompting a demand for removal. Removal efforts have been inconsistent throughout Florida and the effects of removal on population size have not been evaluated. We conducted diurnal count surveys between 2018 and 2019 to estimate iguana abundance across two populations, treatment and control, along the C-11 Canal in Broward County, FL. We applied a nocturnal removal method for iguanas in the treatment population between the first and second period to assess its effect on the overall population. We removed 808 iguanas from the treatment population. We observed decreasing iguana captures with continued removal efforts, which was corroborated with an impact on daytime abundance estimates from count surveys. However, a seasonal reduction of iguana abundance was observed in the control population, with the number of iguanas observed in the control population not significantly different than the treatment population by the last period. While reductions of iguanas in the control population were not as extreme as those observed for the treatment population, this indicates that the biology of invasive iguanas likely plays a role in seasonal variation in abundance and stresses the need to fill knowledge gaps concerning the ecology of iguanas in Florida. Our results demonstrate why one-time removal efforts, or repeated efforts conducted over a short duration, are insufficient to control population growth, highlighting the need for continuous and persistent efforts.

DEVELOPMENTAL CHANGES IN ENVIRONMENTAL AND OBJECT HABITUATION IN CAPTIVE CRESTED GECKOS (*CORRELOPHUS CILIATUS*): IMPLICATIONS FOR WELFARE

SPEED TALK

GRACE BENTON (1)*, ZEKIEL THUMA (1), JENNA ORRELL (1), KATELYN FOOSE (1), TALYN BLUNT (1), JUSTICE BOOKER (1), RYLEIGH VAN VEGHEL (1), ALI ST JOHN (1), MADISON YEHLING (1), MYA STANBERRY (1), ZOE COLLINS (1), BEN BLOOMBURG (1), MYLEE WHITUS (1), ERIN L. RICKMAN (1)

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It's commonly accepted that animals have changing requirements at different life stages. The needs of captive reptiles are relatively under-researched compared to other taxa, and while recent studies target managed care requirements, they often capture only a snapshot of later developmental stages. Specifically, Crested Geckos (*Correlophus ciliatus*) are among the top 10 most-searched reptile pets, but less is known about their husbandry compared to other popular species. Taken together, this inspired us to question, 'How do the cognitive abilities of *C. ciliatus* change across developmental stages?'. We explored this concept by assessing responses over developmental stages with environmental and object novelty before expanding this to the learning paradigms of habituation and discrimination. Nine crested geckos housed at Eckerd College's Herpetological Environments and Research in Practice (HERP) Laboratory participated in monthly habituation tests beginning in October 2025 as early juveniles and continuing through August 2026 as subadults. Each month, the geckos underwent six environmental trials, followed by six object trials, with the first trial of each type serving as a novelty test. After environmental and object habituation procedures, the geckos received an object discrimination test to distinguish familiar from unfamiliar objects. This study is currently a work in progress and will use generalized linear models to explore behavioral indicators within these tests to determine whether *C. ciliatus* react differently to unfamiliar environments and objects based on their age. We hope these results will provide insight into cognitive development in *C. ciliatus* and support management processes, including housing and enrichment standards.

THE INFLUENCE OF BEACH TOPOGRAPHY ON NESTING SEA TURTLES ON FLORIDA'S GULF COAST

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Sea turtle nest site selection can be influenced by a variety of environmental factors, including vegetation coverage, ambient lighting, and beach topography. Following hurricanes in 2024, Florida's Gulf Coast experienced substantial topographic changes, including sand redistribution and the creation of artificial berms across the region. Sarasota County, Florida hosts the largest aggregation of loggerheads (*Caretta caretta*) in the Gulf and a rapidly growing green sea turtle (*Chelonia mydas*) population. In the following two seasons, slope measurements were taken directly adjacent to turtle crawls using a clinometer, and the average angle of the slope was recorded. Measurements were recorded from the waterline to the nest location or the apex of the false crawl and total length was recorded. Loggerheads (n=365) showed stronger sensitivity to extreme slopes and longer crawl distances, which were strongly associated with false crawls. In contrast, green turtles (n=47) had no significant relationship between nesting behavior and slope or crawl distance, despite encountering steeper slopes and traveling farther than loggerheads on average. These results indicate that large-scale beach topography does not uniformly impact nesting behavior across species, but fine scale features and species-specific behavioral strategies were more influential in nesting outcomes. As severe storms and human behavior continue to reshape coastal habitats, understanding how different species respond during a vital part of their reproductive process is critical for conservation of these species.

ENERGY DENSITY AND MOISTURE OF FRUITS CONSUMED BY THE FLORIDA BOX TURTLE (*TERRAPENE CAROLINA BAURI*)

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The Florida Box Turtle, *Terrapene carolina bauri*, is an opportunistic omnivore. A population in coastal Southwest Florida is known to consume four species of fruit: Cocoplum (*Chrysobalanus icaco*), Sea Grape (*Coccoloba uvifera*), Inkberry (*Scaevola plumieri*), and Beach Naupaka (*Scaevola taccada*). Cocoplum has two ecotypes: inland and coastal. Beach Naupaka is considered a Category I invasive species and vastly outnumbers the closely related Inkberry, which is threatened. Previously, no studies had explored the caloric values of these fruit species or how their differences might impact the Florida Box Turtle, leaving gaps in scientific understanding of energy flow through Southwest Florida ecosystems. The site for this study was an undisclosed 50-60 ha location in coastal Southwest Florida. Ripe fruits were collected via random sampling, then frozen and transported to the lab at the University of Florida. They were processed with an adiabatic calorimeter in triplicate. Data was analyzed using R Studio and Microsoft Excel by Kruskal-Wallis and Post Hoc Dunn Tests. Energy content ranged from 0.375-0.967kcal/g. Percent moisture ranged from 74.1-90.2. Percent moisture and energy content were inversely related, however significant differences for both only existed between Sea Grape and Beach Naupaka ($p<0.05$). Energy content in fruits is overall low compared to other potential diet items, suggesting that moisture may be a driving factor over energy for Florida Box Turtle consumption.

AN ANCIENT ART IN MODERN CONSERVATION: EXPLORING FALCONRY AS A NICHE TOOL FOR THE MANAGEMENT OF INVASIVE REPTILES IN SOUTH FLORIDA

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Invasive species in South Florida are diversifying and expanding. There is a need for methods that can be applied to multiple species, differing ecosystems, and adapt to changing timelines. Falconry based bird abatement is an already established biocontrol method that meets such criteria, this study would explore its applications to managing South Florida's invasive species. Using trained Harris Hawks (*Parabuteo unicinctus*) under my Federal Falconry permit to measure the following: 1. Efficacy and accuracy of target species detection using imprinted behavioral indicators; either capturing, circling, or perching above target. 2. Duration of a successful visual aerial search between Harris Hawks and Human-operated drones. 3. Efficacy of retrieving reptiles while they are sleeping up in trees or tall buildings at night using target training with laser pointers and flashlights. 4. Ability to rotate specialization in particular species for varying durations. Results from the pilot study would show that trained raptors can both definitively detect and target invasive reptile species and detect and/or capture those targets consistently enough to compete with the time, labor, and financial expenses of traditional methods.

DEMOGRAPHIC STRUCTURE OF A LEGALLY HARVESTED FORAGING AGGREGATION AND MALE REPRODUCTIVE DYNAMICS IN CARIBBEAN GREEN TURTLES (*CHELONIA MYDAS*)

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Green turtles (*Chelonia mydas*) were historically exploited for human consumption. At foraging grounds off Nicaragua's North (RACCN) and South Caribbean Coast Autonomous Regions (RACCS), they continue to face legal and illegal harvest despite written, though poorly enforced, fishery regulations. In addition to fishing quotas and closed seasons in both regions, RACCS regulations also restrict take to turtles measuring 65–72 cm plastron length (CPL). We studied RACCN green turtles (1993–1995 and 2020) to characterize demographic structure of the foraging aggregation by sex, maturity, and reproductive status and to describe variation in body size and reproductive organ morphology. Additionally, we evaluated how RACCS' size-based fishery regulations would influence the take if it were implemented in the RACCN. In 2020, sex ratio approached parity (1.2:1 ♀: ♂), and the take was dominated by adults, particularly males (adult:immature ♂ = 4.3:1; ♀ = 1.3:1). The proportion of reproductively active males exceeded that of females and increased from 27% in 1994 to 54% in 2020, coinciding with increased female reproductive activity and a doubling of nesting at a major rookery. Moreover, fewer than a third of turtles we studied fell within RACCS' harvest size range, where the probability of a turtle being male ranged from 50–63% and the probability of a male being adult ranged from 20–80%. Consequently, implementing size limits could reduce overall harvest but disproportionately target males across maturity classes. Our study provides sex- and maturity-specific data from a harvested green turtle foraging aggregation, highlighting how reproductive biology can inform management.

ALBINO SNAPPING TURTLES: THE 12-YEAR MAKING OF A TURTLE MORPH

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The development of a new captive-bred turtle morph can require years of careful husbandry, selective breeding, persistence, and patience. This presentation recounts the more than 12-year process that ultimately resulted in the successful production of albino Common Snapping Turtles. The history of this project will be traced from its founding animals through the development of breeding groups and successful genetic pairings, with discussion of the husbandry and breeding practices that contributed to its eventual success. The presentation will also explore practical aspects of developing a new captive-bred morph, including the economics of a long-term breeding project and considerations involved in establishing and structuring the value of newly produced animals.

WILDLIFE CSI: METHODS AND TECHNIQUES FOR DIFFERENTIATING RODENTS AND MESO-MAMMALS IN LARGE SNAKE DIETS IN SOUTHWEST FLORIDA

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The breakdown of tissue, bone, and ligament in the digestive tracts of large snakes renders most basic prey identification techniques ineffective, often leaving only teeth, hair, feathers, and other small remains in the stomach and intestines. We identify and differentiate rodent and meso-mammal prey using necropsied Burmese pythons (*Python bivittatus*) captured in southwest Florida. From 2023 to 2026, we examined diet samples from more than 300 pythons and identified 11 rodent and 12 meso-mammal species, a diversity that makes species-level identification difficult without standardized techniques. Our protocol covers removal of gut contents during necropsy, cleaning of fecal remains, and application of identification keys based on claw morphology, hair histology, and heterodont dentition. Additional techniques used the whisker/prey size relationship to identify species. Notable findings include individual snakes containing up to three prey items spanning multiple rodent species, as well as documented predation on round-tailed muskrats (*Neofiber alleni*) in southwest Florida. This study provides a practical, reproducible protocol for snake diet monitoring programs and informs ongoing questions about prey size selection, prey frequency and parasite ecology.

CUATRO AÑOS DE AGUA DULCE: INITIAL REPORTS AND FUTURE DIRECTIONS OF FRESHWATER TURTLE WORK IN THE ATLANTIC SLOPES OF COSTA RICA

SPEED TALK

ANDRIWS EMANUELLE-BELLO SUAZO (1,2), L. ERNESTO OROZCO-RODRÍGUEZ (3,4), NICOL AZCONA-ORELLANA (1), JAMES A. ZUINGA (1), GUSTAVO ORTIZ LÓPEZ (1), ERICK ARIAS (4,5), RENATO SARAGOÇA BRUNO (1,6), AND JORDAN DONINI (1,7)

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In May 2023, a long-term monitoring project focused on freshwater turtles of the Atlantic slope of Costa Rica was initiated as a collaboration between Florida SouthWestern State College (FSW) and Turtle Love Costa Rica. Since its inception, more than 700 unique turtles representing six of the seven known freshwater turtle species occurring on the Atlantic slope (*Kinosternon angustipons*, *Kinosternon leucostomum*, *Rhinoclemmys annulata*, *Rhinoclemmys funerea*, *Trachemys grayii*, and *Chelydra acutirostris*) have been individually marked and associated demographic data collected. Radio telemetry efforts began in 2024, with particular emphasis on the cryptic *R. annulata* and Costa Rica's "Ghost Turtle," *K. angustipons*. These efforts have begun to provide new insights into the ecology, distribution, and natural history of freshwater turtle assemblages that remain comparatively understudied in the region. As this partnership enters its fifth year, we aim to expand the scope of the project through satellite telemetry, continued multi-year radio tracking, expanded demographic monitoring,

and reproductive assessments. Together, these efforts will build upon four years of collaborative field research while further elucidating the biology of what Don Moll aptly referred to as the “Backdoor Turtles” of Costa Rica.

CONTROLLING FLORIDA’S INVASIVE REPTILES: ARE WE PRACTICING CONSERVATION?

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Invasive species inflict major damage and costs to species, communities, ecosystems, humans and human enterprises worldwide, costing trillions of dollars. As such, invasive species are often automatically considered to be harmful or ‘bad’. This pigeonholing often causes natural resource managers, NGO’s, scientists, politicians, the public and other stakeholders to support or engage in control, regardless of demonstrated impacts. However, most invasive species cause negligible or no impacts, leading to wasted resources and the meaningless killing of countless individuals. Moreover, even when there are demonstrated impacts, control measures are often ineffective, unsustainable or not evaluated. Here I review the prevalence of Florida’s invasive reptiles and their costs to native species, communities and humans with the goal of answering: Should we be engaging in the control of invasive reptiles in one of the world’s invasive species hotspots? Collectively, the evidence suggests that invasive reptiles in Florida are having little or no major (population-level) impacts on native species or on humans. Moreover, I argue that the burden of proof is on those who claim there are impacts (Russell’s teapot). Regardless of impacts, evidence, logic and reason indicate that there are no effective means of controlling Florida’s invasive reptiles. Any touted successes have failed to provide evidence that control is reversing or reducing the damage caused by the invasives. Thus, we should desist from current and future control efforts unless (1) impact studies reveal major population-level effects on native species; and (2) there are data to demonstrate that control is effective at reducing the damage caused. Exceptions are discussed.

WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*) IN THE DIET OF INVASIVE BURMESE PYTHONS (*PYTHON BIVITTATUS*) IN SOUTHWEST FLORIDA

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The establishment and spread of the Burmese python (*Python bivittatus*) represents one of the most infamous cases of an invasive species restructuring native food webs and ecosystem processes across the Greater Everglades. Pythons consume large prey whole, and larger prey provide more energy to invest in growth and reproduction. Pythons have previously been documented consuming white-tailed deer (*Odocoileus virginianus*), a keystone species that shapes its environment through grazing pressure, but the extent of deer predation by pythons in Florida has remained uncertain. We report findings from the Conservancy of Southwest Florida’s Burmese python research and removal efforts, which have led to the identification of 97 (93F, 4M) instances of pythons consuming white-tailed deer in southwestern Florida. This represents 10% of all adult pythons and 35% of all large adult pythons (≥ 335 cm SVL, 75% percentile) dissected by Conservancy personnel, and suggests that white-tailed deer, when available, are a regular component of the adult Burmese python’s diet in Florida. These findings likely represent a minimum record of deer predation and hint at the larger impact Burmese pythons are having on white-tailed deer in southwest Florida. The prevalence of deer predation by Burmese pythons within the primary habitat of the Florida panther raises further concerns that python predation pressure may reduce the abundance of a primary food source for the endangered panther population.

OCCUPANCY AND DETECTION OF CRYPTIC SEMI-AQUATIC SNAKES WITHIN IMPERILED URBAN HABITAT OF CENTRAL FLORIDA

SPEED TALK

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Urbanization across Florida disproportionately affects semi-aquatic snakes by significantly decreasing or altering available terrestrial and aquatic habitats. However, the extent of potential population and community-level effects are not well understood. Snakes are typically considered poor target species for studying population dynamics because of their cryptic behavior. However, natricine snakes can be sampled more effectively using aquatic minnow traps within a variety of wetlands frequently occupied by semi-aquatic snakes. The University of Central Florida's (UCF) main campus in Orlando, Florida, is an ideal model system for studying the effects of urbanization on semi-aquatic snakes because it offers a range of ephemeral and permanent wetlands with varying amounts of anthropogenic disturbance. As such, we are examining the community ecology of watersnakes (*Nerodia spp.*) and swampsnakes (*Liodytes* and *Seminatrix spp.*) within a mosaic of aquatic habitats. We are using multi-species occupancy modelling to estimate probabilities of detection and site-level occupancy for each semi-aquatic species, identifying environmental features important for habitat use and observability of snakes. Since August 2024, we have repeatedly sampled six sites across UCF and have observed more than 100 snakes from five species over more than 5400 trap-nights. Habitat and hydrological features influencing site occupancy and detection varied by species, which could reflect observed differences in habitat structure and prey community. Continued monitoring is necessary to better understand the ecology of these vulnerable species within critical urban refugia, and we believe our research will benefit land managers at UCF and throughout the collective ranges of *Liodytes*, *Nerodia*, and *Seminatrix*.

WHAT GOES UP, MUST COME DOWN: CLIMBING PERFORMANCE IN URBAN AND NATURAL POPULATIONS OF *ANOLIS* LIZARDS

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Scansorial animals require firm contact with the substrate to induce sufficient forces during climbing to resist gravity. *Anolis* lizards accomplish this through their subdigital adhesive pads and claws which enhance interactions with the substrate through intermolecular adhesion, friction, and mechanical interlocking. Human-made structures and surfaces substantially alter the locomotor environment of *Anolis* lizards exploiting urban habitats, resulting in significant changes to morphology, performance, and behavior. Although several studies have discovered that urbanization significantly impacts climbing performance in *Anolis*, these studies have focused on ascending locomotion (i.e., anoles moving uphill). Descending locomotion (i.e., moving downhill) is an often-overlooked aspect of animal locomotion, imposing different physical demands and constraints on the organism. As such, urban and natural populations of *Anolis* may perform differently and/or use different strategies while descending from arboreal habitats. Here we studied the individual and interactive effects of substrate incline and running orientation on climbing performance in urban and natural populations of the green anole (*Anolis carolinensis*), as well as an urban population of an introduced competitor, the brown anole (*Anolis sagrei*). Our findings directly add to our understanding of how scansorial animals effectively move in ecologically relevant conditions and how human habitation and species introductions affect biological populations and communities.

COLLAPSE OF THE SEMI-AQUATIC HERPETOFAUNA IN SOUTH FLORIDA: A 50-YEAR STUDY.

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Quantitative sampling of the exotic water hyacinth (*Eichhornia crassipes*) community at Rainey Slough in Glades County, Florida from 1974–1977 revealed that it once supported among the highest mean densities and biomass of semi-aquatic salamanders (N = 6 species totaling 412.7 kg [16,761 individuals]/ha) and snakes (N = 6 totaling 135.8 kg [3,461 individuals]/ha) known on Earth. The high primary productivity of water hyacinths, whose root ecosystem historically supported dense populations of native macroinvertebrate and fish prey, fueled this extraordinary abundance of poikilothermic tetrapod predators. When resurveyed in 2006, 2008, 2019 and 2024-2025, five species of salamanders and four snake species were rare or undetected; historically, these species were 92% and 81% of their respective taxonomic groups. Statewide sampling of hyacinth communities in 2019 confirmed the disappearance of most salamanders, snakes, and key invertebrate prey at five sites throughout south Florida; densities of these same taxa in four north-central Florida sites were similar to historic south Florida values. Concurrent sampling of fishes over this 50-yr period indicated that temporal increases in the diversity (from 1 up to 10 species/site) and biomass dominance (from $\approx 5\%$ in 1970s to 63.1% - 95.0% by 2019) of large predatory and competitive non-native fishes closely matched the pattern of herpetofaunal losses in south Florida. We detected none of these exotic fishes at our 2019 north-central Florida sampling sites, although some of these species invaded this region only recently. No other known drivers of global herpetofaunal collapse seemingly can explain these losses.

ECOLOGY OF TIMBER RATTLESNAKES (*CROTALUS HORRIDUS*) WITHIN URBANIZED LANDSCAPES OF SOUTHEASTERN LOUISIANA

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Timber rattlesnake (*Crotalus horridus*) populations within the southeastern U.S. primarily occur in intact hardwood forests, grasslands, and occasionally longleaf pine savannas. While populations are relatively stable throughout the southeast, threats such as habitat fragmentation, road mortality, and disturbances to overwintering structures are apparently causing local population declines and extirpations. Despite extensive study of *C. horridus* throughout much of its range, comparatively little is known about factors supporting populations persisting within highly urbanized landscapes near the species' southern range extent. We analyzed factors leading to the success of urbanized rattlesnake populations using visual encounters, transect surveys, and artificial overwintering structures. Additional morphological data, including sex, size class, and basking temperatures, were collected during surveys, as well as habitat structure and prey densities. We observed active foraging and basking behaviors at ambient temperatures ranging from 5.6–33.3 °C (42–92 °F). Our preliminary findings indicate that climate factors and artificially raised habitat carrying capacities due to urban areas have led to populations displaying behaviors better adapted for smaller home ranges within urbanized environments. Earlier juvenile feeding success within the winter months, and statistical relevance of acreage, basal area, wetland access, and structure availability for *C. horridus* between urban vs natural sites are still being analyzed, but these preliminary data and observations appear to indicate a meaningful pattern of *Crotalus* behavior in relation to home range purpose, and are comparable to carrying capacity dynamics within natural climax communities within the southeastern US.

DIET OF THE AMERICAN CROCODILE (*CROCODYLUS ACUTUS*) IN THE HYPERSALINE CONDITIONS OF LAGO ENRIQUILLO, DOMINICAN REPUBLIC

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Diet studies are essential for understanding species ecology, community interactions, and conservation needs. This is particularly true for crocodilians, which are considered generalist top predators capable of influencing diverse prey groups. Despite its broad distribution throughout the Americas, the natural history of the American crocodile (*Crocodylus acutus*) remains poorly documented across much of its range. We examined diet composition, size- and sex-related dietary patterns, and prey preferences in *C. acutus* from Lago Enriquillo, a landlocked hypersaline lake in southwestern Dominican Republic (DR). Lago Enriquillo is the species' last stronghold in DR, where *C. acutus* is likely extirpated elsewhere. Stomach contents contained insects and arachnids; crustaceans from Grapsidae and Ocypodidae; fishes from *Limia*, *Gambusia*, *Cyprinodon*, and *Oreochromis*; reptiles and amphibians; birds; mammals; and seeds. Based on the percent Index of Relative Importance, poeciliid fishes, particularly *Limia*, and insects/arachnids dominated juvenile and subadult diets, whereas adults consumed a greater proportion of *Limia*. Subadults and adults also expanded their diets to include larger terrestrial prey, including birds and mammals. Females consumed primarily *Limia*, followed by insects/arachnids, whereas these categories were approximately equal in importance for males. Compositional analyses incorporating biodiversity surveys identified *Limia* and crustaceans in the families Grapsidae and Ocypodidae as preferred prey across subsets. Hatchling cannibalism occurred among juveniles and subadults in nursery habitat, potentially contributing to low recruitment. These findings provide foundational information for effective long-term conservation strategies for *C. acutus* in DR.

FLORIDA TURTLE CONSERVATION TRUST: WORKING TO CONSERVE FLORIDA'S RICH TURTLE DIVERSITY

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Turtles play important ecological roles and are visible elements in many ecosystems. Further, several serve as keystone, umbrella, and flagship species. Florida's wide variety of habitats support 28 of the 62 species known to occur in the United States, the most turtle-rich country. Twenty species (71.4%) of those which occur in Florida require conservation attention. The state's significant habitat diversity and species richness make it a chelonian

hotspot and critical to the conservation of many species. The Florida Turtle Conservation Trust (FTCT) was incorporated in 1999 by a group of biologists and conservationists concerned with the outlook for Florida turtles. This conservation NGO focuses on research, education, and advocacy by engaging in diverse partnerships. This presentation will review numerous projects completed over the past 27 years. Despite the broad threats facing turtles, opportunities for their conservation are abundant. The FTCT welcomes partners interested in working to conserve Florida's rich turtle diversity.

PRELIMINARY INSIGHTS INTO CONTEMPORARY POPULATION GENETIC STRUCTURE OF THE AMERICAN CROCODILE (*CROCODYLUS ACUTUS*) IN FLORIDA

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The American crocodile (*Crocodylus acutus*) has undergone substantial demographic recovery in Florida, but whether contemporary genetic diversity and population structure resemble historical patterns remains poorly understood. We conducted a preliminary assessment of 46 crocodiles sampled across seven areas using, and to our knowledge is the largest microsatellite panel (21 loci) applied to population-genetic analyses of *C. acutus*. Bayesian clustering supported three genetic clusters ($n = 9, 14,$ and 23) broadly corresponding to the major Florida populations at Turkey Point Nuclear Plant, Cape Sable, and northeast Florida Bay. Mixed cluster membership occurred across most sampling areas, whereas Cape Sable showed the most homogeneous assignment, indicating regional structure with incomplete genetic separation. Observed and expected heterozygosity ranged from 0.48 – 0.64 and 0.41 – 0.62 , respectively, rarefied allelic richness from 2.76 – 4.12 , and FIS from -0.09 – 0.02 , indicating moderate-to-high genetic diversity and minimal inbreeding. Overall differentiation was moderate ($F_{ST} = 0.102$). Notably, a 2011 Florida assessment also recovered $K = 3$ and a similar $F_{ST} = 0.122$, suggesting persistence of broad-scale genetic structure despite demographic recovery. Contemporary diversity encompassed previous Florida estimates and approached the upper range reported elsewhere for *C. acutus*. Historical releases of *C. acutus* from other parts of its range provide additional context for Florida's diversity. Together with documented long-distance movements, these results suggest that Florida's major populations remain genetically distinguishable yet partially connected, with dispersal maintaining connectivity without fully homogenizing regional structure. Ongoing sampling will enable additional estimates, including effective population size and recent gene flow.

KEEPING AND BREEDING *PANGSHURA* TURTLES

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Pangshura turtles are a distinctive group of Asian freshwater turtles with specialized captive husbandry and reproductive requirements. This presentation will discuss practical approaches to maintaining and breeding *Pangshura* species in captivity, with emphasis on husbandry techniques and observations developed through long-term experience.

**MANGROVE SALTMARSH SNAKES (*NERODIA CLARKII COMPRESSICAUDA*) ARE INDICATORS OF SUCCESSFUL
HYDROLOGIC RESTORATION IN MANGROVE SYSTEMS**

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The mangrove saltmarsh snake (*Nerodia clarkii compressicauda*, MSS) is a semi-aquatic snake restricted to habitats dominated by red mangrove (*Rhizophora mangle*) and other subtropical halophytes on the Atlantic and Gulf coasts of southern Florida, the Florida Keys, and coastal Cuba. In Florida, MSS are impacted by coastal development, habitat loss/fragmentation, and hydrologic modification. We examined MSS as an indicator of the success of hydrologic restoration at Oleta River State Park (ORSP) in North Miami, Florida; which experienced a restoration of tidal flow through a culvert installation in 2023. We surveyed for MSS at ORSP between 2020 and 2026, both before and after flow restoration and used a time-for-space N-mixture model framework to estimate the population size of MSS. Estimated population size of MSS increased following restoration, and habitat quality metrics improved. We selected a set of candidate models hypothesized to affect population estimates and examined them using Akaike's Information Criterion. Among our hypothesized models, restoration status (pre/post) was the best predictor of MSS population size; indicating MSS surveys may provide an inexpensive proxy for restoration success in mangrove habitat in Florida.

**CANARY IN THE COAL MINE: YOLK SAC RETENTION IN DIAMONDBACK TERRAPIN HATCHLINGS AS A FIELD
INDICATOR OF THERMAL DEVELOPMENTAL STRESS**

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Diamondback terrapins (*Malaclemys terrapin*) are an ecologically vital species in estuarine ecosystems, yet face growing threats from habitat loss, nest predation, and rising temperatures within nesting environments. During long-term nest monitoring at multiple sites in northern Florida, we documented a consistent pattern of hatchlings emerging with unabsorbed yolk sacs, a condition that leaves them more vulnerable to predation, infection, and dehydration, and reduces their chances of survival in the critical days after hatching. Yolk sac retention was observed across all monitored sites and appears linked to elevated nest temperatures during incubation. Terrapin embryos are highly sensitive to heat, and incomplete yolk absorption is one of several developmental problems that increase when nests run too warm. We suggest that tracking yolk retention rates in newly hatched terrapins offers a practical, field-accessible way to detect when nest conditions are becoming harmful, potentially flagging problems before widespread embryo mortality makes the damage impossible to miss. Hatchlings with unabsorbed yolk sacs were brought into controlled care for veterinary evaluation and held

until absorption was complete, meaningfully improving their survival before release. Monitoring yolk retention across seasons and nesting areas could complement existing temperature data, helping managers pinpoint high-risk sites and act early. As climate change continues to push nest temperatures higher, the condition of hatchlings at emergence may be one of the clearest and most practical signals researchers have that something is going wrong underground.

USING LONG-TERM FROGWATCH DATA AND LAND-USE CHANGE ANALYSIS TO ASSESS AMPHIBIAN RESPONSES TO HABITAT TRANSFORMATION IN SOUTHWEST FLORIDA

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Anuran populations are recognized as sensitive bioindicators of environmental change, especially in rapidly developing landscapes. We studied twenty-six years of FrogWatch survey data collected across nine routes (94 stops) in three counties in Southwest Florida to evaluate long-term shifts in anuran community dynamics over time in the face of urban development. Using multiple variables within the FrogWatch dataset, including call-intensity data, and pairing these with GIS-based land-use classifications such as vegetation, impervious surface, and open water, we examined changes over time in native and non-native species occurrence between 2000 and 2025. Results show that native anuran diversity and occurrence declined continuously over time as urban development increased. In contrast, non-native anurans showed significant increases in the number of sites where they were recorded, with call intensity indicating greater activity and presence across disturbed habitats. These changes point to a community-level response to habitat alteration, fragmentation, and hydrological changes associated with urban development. Our results suggest that long-term development in South Florida is promoting the spread of non-native species while limiting habitat suitable for native anurans. Long-term monitoring data are important for detecting environmental change over time, particularly for conservation planning in rapidly urbanizing landscapes.

LOOKING BEYOND THE SCALES: UNDERSTANDING THE INTERPLAY OF BACKGROUND AND VISUAL MORPHOLOGICAL CUES IN PERCEPTIONS OF SOUTHEASTERN SNAKES

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Snakes represent one of the most contentious taxa in conservation, where evolutionary biases and learned fears often drive negative anthropomorphic perceptions. This study evaluated how background experiences, including age of first exposure, valence of initial encounter, religious background, media exposure, and conceptual themes influence general perceptions of snakes. Furthermore, we examined how these baseline perceptions dictate anthropomorphic values assigned to seven Southeastern U.S. snake species and individuals' willingness to interact with them. Results indicate that early, positive exposure to snakes significantly predicts positive general perceptions. Conversely, never having encountered a snake in person correlated with negative baseline perceptions and negative anthropomorphic attributions across species. While general media exposure showed no significant effect, negative conceptual themes strongly predicted negative perceptions. Notably, participants with positive general perceptions assigned high anthropomorphic values to most species, regardless of whether the species was venomous. Crucially, respondents overwhelmingly identified social media, specifically online influencers, as their primary source of snake information. These findings emphasize the pivotal role of early hands-on exposure and highlight digital media platforms as essential avenues for targeted conservation messaging and public outreach.

DO CONSTRUCTED WETLANDS SUPPORT *NERODIA SIPEDON* POPULATIONS?

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Over the past decades, significant efforts have been invested in wetland restoration. Many of these projects assume rebuilding physical habitat is sufficient to sustain communities, including predators. However, evidence remains limited on whether constructed wetlands foster top predator populations. This study aims to evaluate whether constructed wetlands can support populations of *Nerodia sipedon*, northern water snake, the most common top predator found in Piedmont NC aquatic ecosystems. I hypothesized that constructed wetlands are less likely to be occupied by *N. sipedon* because they provide limited supplies of prey resources, such as fish and amphibians. To test this hypothesis, we collected data on *N. sipedon* distribution and abundance, prey abundance, plant structural complexity within 1 meter landward and waterward of the shoreline and physical attributes of the wetlands. We compared natural wetlands with two types of artificial wetlands, those hydrologically connected and isolated, and we collected data from streams for another natural aquatic system to compare. Predator and prey densities were significantly lower in hydrologically isolated constructed wetlands. In addition, plant structural complexity in constructed wetlands was significantly higher relative to natural wetlands. Snake distribution appeared to follow these differences in prey densities and habitat structure. We have in total 80 snake occurrences and only 3 of which were found in hydrologically isolated wetlands. Like natural wetlands, this data suggests that aquatic snake distribution in constructed wetlands is highly dependent on if the artificial wetland is hydrologically connected.

ONTOGENY OF SEXUAL DIMORPHISM IN THE SUWANNEE COOTER (*PSEUDEMYD CONCINNA SUWANNIENSIS*)

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Sexual dimorphism is a well-known feature of turtles, but most of the published literature describes sexual size dimorphism. Sexual shape dimorphism is less frequently reported, and growth dynamics causing sexual shape dimorphism are rarely analyzed. During a 23-year capture-mark-recapture study of the Suwannee Cooter (*Pseudemys concinna suwanniensis*) in the Santa Fe River, my team accumulated a data set that allowed me to analyze sexual shape dimorphism using standard measurements of 845 males and 876 females. My goals were to 1) evaluate whether shape dimorphism and other secondary sexual characteristics develop synchronously, 2) examine the relationship between secondary sexual characteristics (including shape dimorphism) and the onset of maturity in males, and 3) assess how variation in growth of each shell dimension causes sexual shape dimorphism. I compared each shell dimension relative to straight-midline carapace length (CL) between males and females and found that dimorphism in plastron length and shell height first appeared at ca. 180 mm CL, the minimum size at which males mature. But the onset of dimorphism in carapace width occurred at ca. 220 mm CL. I also conducted similar analyses of plastron-to-vent length (PVL) and maximum foreclaw length relative to CL; differences between the sexes occurred at ca. 180 mm CL for foreclaw length but ca. 110 mm CL for PVL. Relative to CL, plastron length increased hypoallometrically in males but isometrically in females. Shell height and carapace width increased hypoallometrically in both sexes, but growth of both dimensions was more hypoallometric in males.

ANTHROPOGENIC INFLUENCE ON *RAILLIETIELLA ORIENTALIS* INFECTION PREVALENCE WITHIN AN ABUNDANT INTERMEDIATE LIZARD HOST (*ANOLIS SAGREI*).

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In recent years, several instances of biodiversity loss have been attributed to emerging infectious diseases in herpetofauna. Notably, *Raillietiella orientalis* (Ro) is an invasive pentastome, apparently introduced to south Florida by Burmese pythons (*Python bivittatus*). Concerningly, Ro is currently detected in over half of Florida's counties. Ro infects the respiratory tracts of snake and lizard definitive hosts and is associated with population-level declines in some native snake species. While there has been increased research on Ro's geographic spread and host expansion in recent years, focus on Ro infections among the parasite's intermediate hosts is limited, consisting of one experimental infection study and one field study containing a single pair of urban and nonurban sites. The objective of the present study is to assess the effects of anthropogenic influence on Ro infection prevalence within an abundant invasive lizard, the brown anole (*Anolis sagrei*), that is already identified as a host for Ro. Here we define anthropogenic influence as increased human development consisting of houses, commercial buildings, parking lots, and roads. Developed sites consist of neighborhoods and large universities. Natural sites consist of county parks and conservation/wildlife management areas. Preliminary data (n=370) from five pairs of urban and natural sites show that developed sites have Ro infection prevalence ranging up to 1%, whereas natural sites range up to 16%. Exploring the impacts of rapid anthropogenic development on Ro infections is crucial for understanding the risks posed to urban snake hosts, particularly those that rely upon abundant prey items such as *A. sagrei*.

MICROCLIMATIC INFLUENCE ON LOGGERHEAD AND GREEN SEA TURTLE NESTS IN SARASOTA COUNTY

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Warmer incubation temperatures coupled with drier conditions produce a higher proportion of female sea turtle hatchlings within a nest; cooler temperatures with more moisture produce a higher proportion of males. As temperatures rise, global population sex ratios are skewing in hatchlings, juveniles, and adults. If these patterns persist, populations will become female biased, increasing the likelihood of decreased hatchling production and possible extinction. Nesting populations on Florida's Gulf are growing, but largely understudied. This project modeled local microclimatic data and remote sensing data coupled with nest and external sand temperatures of loggerhead (*Caretta caretta*) and green sea turtle (*Chelonia mydas*) nests on three beaches in Sarasota County, Florida. Air and sand temperatures were significantly impacted by Julian date, beach, and the year of sampling. Sand temperature was consistently 3.5 degrees higher than the air temperature (with some regional differences). Temperature data loggers were placed in 65 loggerhead nests and 62 green nests across three nesting seasons 2024-2026. The average middle third temperature for the loggerhead nests were 31.1C and for green sea turtles: 30.9C. Early loggerhead and late season green sea turtle nests could have male promoting temperatures but the overall trend is female biased. Sea turtles are a keystone species affected by anthropogenic climate change. Their survival is critical for ecosystem functionality and as this population grows, temperature needs to be monitored.

WHAT ARE THE GENETIC SIGNATURES UNDERLYING AMPHIBIAN TOLERANCE TO FUNGAL PATHOGENS?

SPEED TALK

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Amphibian species vary widely in their susceptibility to chytridiomycosis, a disease caused primarily by the fungus *Batrachochytrium dendrobatidis* (Bd). Bd feeds on epidermal keratin, disrupting essential physiology and causing mortality; some amphibians are tolerant enough to act as carriers. We propose a comparative genomics approach to identify genetic features that could underlie tolerance. This can be accomplished by analyzing available genomes from tolerant and susceptible anurans, with *Xenopus laevis* (tolerant) and *X. tropicalis* (susceptible) as focal taxa. The common newt, *Lissotriton vulgaris*, can serve as an outgroup. To improve ortholog assessments and distinguish relevant divergence from ploidy-related variation, genomes must be phased. Targets should include the keratin, chitinase, and immune gene families, which are associated with putative tolerance mechanisms. Evolutionary and sequence differences in these genes will be quantified across tolerant and susceptible species using phylogenetic trees, distance matrixes, and tiered pairwise percent identities conducted on intraspecies and intragroup consensus strands. We expect high intragroup variation in phenotypes associated with increased tolerance or susceptibility, and low intragroup variation in genes with little effect on disease progression. This framework will highlight candidate genes for targeted SNP assays.

NATURAL HISTORY TRAITS AND ECOLOGY OF THE FLORIDA MUD TURTLE (*KINOSTERNON STEINDACHNERI*)

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The Florida mud turtle (*Kinosternon steindachneri*) is endemic to peninsular Florida south of the Suwannee River and Jacksonville, excluding the Florida Keys. It occupies both permanent and temporary wetlands, including ponds, marshes, and ditches. Despite occupying most of Florida, little is known about its natural history and ecology; published work is largely limited to two studies conducted in Orange and Putnam counties in the 1980s. Here we present results from an ongoing study on a southwest Florida barrier island. In 2020, one individual was captured by chance and fitted with a radio transmitter. Tracking it revealed several new areas that *K. steindachneri* occupied on the island and we began seasonal trapping at the start of each wet season. To date, 134 individuals have been captured (54 males, 64 females, 10 juveniles and 6 hatchlings), and morphometric data were recorded for each. 20 individuals were fitted with radio transmitters to measure movement patterns and habitat use. Clutch size was determined by radiographing gravid females, and three nests laid by a single female were located and are being monitored. These data provide the first comprehensive baseline on the population demographics, spatial ecology, and reproductive ecology of a Florida endemic turtle with potential conservation concern. They lay the groundwork for future research and for managing this understudied species and the seasonal wetlands it depends on.

PUTTING THE PIECES TOGETHER: USING OBSERVATION DATA AND GIS METHODS TO INVESTIGATE FIRE-RELATED MORTALITY OF GLASS LIZARDS (*OPHISAURUS*) IN FLORIDA

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The general ecology of glass lizards (*Ophisaurus*) is poorly understood, often owing to their secretive nature. However, previous literature, natural history records, and observation data has revealed that fire-related mortality may be a common and widespread occurrence for multiple members of this genus. Since fire is a naturally occurring ecological process and is often utilized to manage wildlife habitat (prescribed fire), such observations raise a series of questions. For example, what are the mechanisms for fire-related mortality? When does it occur? Does it impact populations? I compiled observations from multiple sources and applied rigorous GIS methods to attempt to address some of these questions. In this presentation, I will discuss preliminary findings of this in-progress research, and provide a framework for further investigation.

EVALUATING SAND CHARACTERISTICS ON SEA TURTLE INCUBATION CONDITIONS ON FLORIDA'S GULF COAST

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The embryonic development of sea turtles is strongly influenced by the environmental factors experienced within the nest during incubation. These environmental factors can influence sex ratios, hatchling body condition, and the emergence success of nests. Adult female sea turtles lay nests across a range of sites throughout the nesting season, resulting in each nest encountering unique abiotic conditions. This study aims to identify how variation in sand characteristics, such as grain size proportions, permeability, and color, influences nest temperature and subsequent hatchling outcomes of Loggerhead Sea Turtles (*Caretta caretta*) and Green Sea Turtles (*Chelonia mydas*) from nests across multiple beaches in west-central Florida over two nesting seasons. Grain size proportions were significantly different between nesting beaches and species and were a strong predictor of average nest temperature. In contrast, surface temperature changes, sand color, and permeability were not significant in influencing nest temperature. Collectively, these findings suggest that differences in substrate grain size proportions contribute significantly to variation in nest temperatures and the resulting turtle sex ratios, while other abiotic factors have a smaller influence. Understanding which abiotic factors and their effect on nest temperatures is critical for predicting nest outcomes and improving management strategies for these threatened marine turtle species.

AESOLTUS: A TOOL FOR RECONSTRUCTING NATURAL SOLAR CONDITIONS FOR REPTILES

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Ultraviolet (UV) light is widely accepted as essential to the health and wellbeing of reptiles in managed care, with recent emphasis on supporting choice and self-regulation for nocturnal species and species from UV-attenuated habitats. However, the idea that providing temperature and UV alone is sufficient should be challenged, as only about 6.8% of solar irradiance reaches Earth's surface as UV, while 38.9% is visible and 54.3% is infrared (IR). Understanding species' natural exposure to solar irradiance is complex, as irradiance varies substantially across location, season, time of day, and atmospheric conditions, altering both the magnitude and distribution of solar radiation reaching an animal. Rather than relying on a single generalised

solar profile, Aesoltus estimates the likely natural solar conditions for a specific date, time, and location. It uses geographic, temporal, atmospheric, and irradiance data to adjust baseline spectral measurements collected across Europe, Australia, and the Americas at different times of year. Inputs include elevation, solar zenith angle, ozone (DU), aerosol optical depth, total precipitable water, direct normal irradiance (DNI), diffuse horizontal irradiance (DHI), clear-sky DNI, and clear-sky DHI. These inputs feed into literature-derived wavelength-specific calculations that adjust the UV, IR, and LUX output for atmospheric effects and cloud attenuation. It does not recreate an exact spectrum, as the solar environment is complex and inherently variable. Instead, it provides a best estimate of wild-spectrum conditions when direct measurements are not recorded. The readings are then adjusted to inform biologically relevant lighting and heating recommendations based on established guidelines for managed-care reptiles.

MOTION-TRIGGERED OR TIME-LAPSE? A CASE STUDY FOR CAMERA TRAP MONITORING OF VERTEBRATES ON EVERGLADES TREE ISLANDS

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Estimating species richness is a fundamental objective of ecology and management. Camera trapping has become a widely used tool for wildlife inventorying and monitoring. Understanding how trigger settings influence data collection is essential for optimizing sampling efficiency and addressing research objectives. Despite widespread use, long-term comparisons of motion-temperature-triggered (MT) and time-lapse-triggered (TL) configurations remain limited, particularly in environmentally heterogeneous ecosystems such as Everglades tree islands. We assessed MT and TL methods for inventorying vertebrate species within the Arthur R. Marshall Loxahatchee National Wildlife Refuge, Florida, USA. Over two years (2023-2024), 10 stations with two cameras each (one MT and one 5-minute TL) were deployed across tree islands to evaluate vertebrate species richness (S) and cumulative species richness (CS). We recorded 65 species (39 birds, 15 reptiles, 7 mammals, and 4 amphibians) using both trigger methods. However, TL detected ~23% more species (61) than MT (47), with more species detected exclusively by TL (18 vs 4 species). Our analysis showed that, on average, TL detected two-fold more species (6.4 vs 3.1 species; $\beta=0.697$, $P<0.001$) and accumulated more than twice as many species (2.3, $\beta=0.825$, $P<0.001$) compared to MT. Our results demonstrate that the use of either MT or TL significantly influences S and CS estimates, with TL providing a more comprehensive assessment of vertebrate richness, and MT serving as a complementary method for documenting elusive species. We recommend deploying cameras using a hybrid method (MT+TL) to better account for vertebrate richness and aid inference from wildlife surveillance.

PLASTICITY IN THE DIET OF KEMP'S RIDLEY TURTLES (*LEPIDOCHELYS KEMPII*) IN THE TEN THOUSAND ISLANDS, FLORIDA

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Kemp's Ridley Turtles (*Lepidochelys kempii*) are considered cancrivorous, with some suggesting Blue Crabs (*Callinectes sapidus*) as their primary prey, although food items other than crabs have been reported in the literature. Diet analyses in 1999-2000 found that turtles inhabiting the Ten Thousand Islands primarily consumed Sandy-Skin Tunicates (*Molgula occidentalis*) and this prey had not been documented in any previous

studies. We resumed seasonal collection of Kemp's Ridley fecal samples in this region in 2014 and continued into 2019, offering one of the longest dietary investigations for free-ranging turtles. Kemp's Ridelies exhibited novel feeding habits the first year by consuming sponges (*Halichondria* and *Geodia*) and White Crust Tunicates (*Didemnum*). Massive strandings of Sandy-Skin Tunicates were reported along southwest Florida beaches during the onset of sample collecting, which likely impacted the availability of this prey item. Turtles then switched to more crab prey with Spider Crab (*Libinia*) typifying the diet during the following 2-year period. In 2017, Hurricane Irma impacted our study area and severely altered the benthic habitats in which turtle forage. There was a subsequent shift to Blue Crab as the primary prey. By the end of the sampling period, the prey composition switched again to include Sandy-Skin Tunicates as reported in the original diet study. This dietary plasticity suggests Kemp's Ridelies are able to adapt to changes in the estuarine environment by modifying their food habits, presumably in response to prey availability, which has important implications for potential alterations to foraging habitat and the resiliency of the species.

EFFECTS OF INCUBATION TEMPERATURE ON LOGGERHEAD AND GREEN SEA TURTLE NEST SUCCESS

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Increasing temperatures pose a challenge to sea turtle reproductive success, as incubation temperature regulates embryonic development rate, survival, and sex determination. We examined incubation temperature and hatching success of Loggerhead (*Caretta caretta*) and Green (*Chelonia mydas*) sea turtle nests monitored by Mote Marine Lab in Sarasota County, Florida during the 2025 and 2026 nesting seasons. Mean temperatures across the entire incubation period ranged from 28.7–33.4°C among monitored nests, with similar temperatures between species, averaging 31.1°C in loggerhead and 31.1°C in green sea turtle nests. However, the middle third of incubation represents a critical period in sea turtle development, during which small differences in temperature can influence developmental outcomes. Although loggerhead and green nests differed by only 0.21°C during this period, this difference can contribute to variation in developmental success and highlight the importance of stage-specific temperatures. As the different species may exhibit slightly different nesting behaviors, differences in nest depth and nest location were examined as potential drivers of species-specific differences in temperature. We also examined sustained exposure to elevated temperatures throughout development to determine whether prolonged periods of high exposure related to hatching success. As temperatures continue to increase, this study will strengthen our understanding of how species-specific nesting ecology and thermal conditions may shape reproductive success in future nesting seasons

DISCOVERY OF AN OPHIDIOMYCES OPHIDIICOLA-DERIVED PEPTIDE CANDIDATE TARGETING GITR–GITRL SIGNALING IN RHEUMATOID ARTHRITIS

SPEED TALK

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Autoimmune Disease, Molecular Docking, Rheumatoid Arthritis *Ophidiomyces ophidiicola*, the causative agent of snake fungal disease, is an emerging fungal pathogen of wild snakes. During infection, fungal pathogens can secrete effector proteins that manipulate host defenses. While screening the *O. ophidiicola* proteome, we identified an 11-residue peptide sequence, GSIGKFKFNYG, within a protein (RefSeq: XP_049110062.1). This protein was predicted to be secreted and effector-like, suggesting that it may contribute

to immune evasion during snake infection. This peptide resembles the ligand-binding loop of the human immune receptor GITR, including its central GKF motif. Signaling between GITR and its ligand, GITRL, promotes T-cell activation and has been linked to autoimmune diseases such as rheumatoid arthritis. This resemblance raises the possibility that a peptide involved in immune manipulation by a snake pathogen could be repurposed to block this human signaling pathway and potentially reduce excessive T-cell activation. This peptide will be modeled, docked to human GITRL, and compared with the native GITR peptide, scrambled controls, and hotspot-mutant controls. Molecular-dynamics simulations will then evaluate complex stability and identify persistent intermolecular contacts, which will then be used to optimize the peptide. The optimized candidate will then be experimentally tested using a GITR–GITRL binding-inhibition assay to assess its potential as an early therapeutic lead for rheumatoid arthritis.

RESTORATION CONSIDERATIONS FOR A 9.5-ACRE URBAN PRESERVE

SPEED TALK

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Scrub and scrubby flatwoods habitats are dependent on fire for their sustainability. When these habitats are surrounded by urban development, fire is normally suppressed and other means are used for restoration. Just as each prescribed burn is different, so it is with each restoration. This presentation discusses the restoration problems presented by a 9.5-acre scrub and scrubby flatwoods preserve located in an urban area.

WHO'S ON THE MENU AND WHY IT MATTERS: REPTILE AND AMPHIBIAN BLOOD MEALS IN COLLIER COUNTY MOSQUITOES

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Collier County, Florida, is characterized by a unique combination of protected wetlands, woodland habitats, and densely developed residential areas, enabling high diversity and abundance of mosquitoes. This interface between natural and developed environments increases opportunities for mosquito-host interactions and may influence arbovirus transmission dynamics. *Culex* mosquitoes are traditionally associated with avian and mammalian blood-feeding. Avian feeding is particularly important for the maintenance and amplification of bird-associated arboviruses, while shifts in host use can alter transmission cycles. Recent evidence suggests that reptiles may represent an underrecognized component of these feeding patterns, with one study reporting that 11.8% of *Culex* blood meals originated from reptiles and nearly 25% of *Culex nigripalpus* blood meals originated from lizards alone. This study aims to analyze mosquito blood meals in Collier County to determine host preference, with a special interest in reptile and amphibian host species. To date, 74 reptile and amphibian blood meals have been positively identified from 14 species of mosquitoes across 24 trap sites, comprising approximately 13% of total Collier County samples. A total of 17 reptile and amphibian species (9 native, 8 non-native) have been identified, with non-native species accounting for 79.7% of extracted blood meals. These findings demonstrate that reptiles and amphibians represent a meaningful component of mosquito host use in Collier County and highlight the contribution of non-native species to mosquito blood-feeding patterns. Continued characterization of these mosquito-host associations will contribute to a better understanding of vector host-choice dynamics and the potential roles of reptiles and amphibians in arbovirus ecology.

NONNATIVE FISHES DRIVE FIFTY YEARS OF ISOTOPIC CHANGE IN AN AQUATIC ECTOTHERM COMMUNITY

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As invasive species continue to spread throughout Florida, it has become increasingly important to determine how community structure and diversity affect invasibility (susceptibility to invasion) in relatively undisturbed habitats. The Asian Swamp Eel (*Monopterus albus/javanensis*) is a relatively new invader in Florida, estimated to have been introduced in 1997 in the central-west and southeast. By early 2024, this invasive fish, alongside others, has become well-established at Rainey Slough, an aquatic community in Glades County, Florida. In the 1970s, Rainey Slough hosted high amphibian and reptile biodiversity and biomass, but drastic declines have occurred over the past 50 years, likely driven by competition and predation from nonnative fishes. We used $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ stable isotope analysis (SIA) to construct Bayesian ellipses as a measure of the relative trophic niche space of native and nonnative species. Using preserved specimens and fresh tissue collected from 1967 to 2025, we tested three niche hypotheses which may have contributed to the success of aquatic invaders: the Vacant Niche Hypothesis, Niche Competition Hypothesis, and Trophic Disruption Hypothesis. Through assessing proportional ellipse overlaps, we found evidence of isotopic niche similarity among historical sirenids, including Greater Sirens (*Siren lacertina*), Lesser Sirens (*Siren intermedia*), and Southern Dwarf Sirens (*Pseudobranchius axanthus*), with nonnative fishes. The use of museum specimens for SIA is valuable to make comparisons in community structure over time, particularly following the influx of nonnative species into a novel community, and can additionally aid in the identification of native species which may be vulnerable to these introductions.

VERTICAL LEAD TRANSMISSION IN GOPHER TORTOISES

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Hatchling gopher tortoises tested in my previous study, Prevalence of Lead in Chelonians, showed that gopher tortoises were the most likely to have elevated lead (pb) levels through bioaccumulation and raised some questions about hatchling gopher tortoises with positive lead levels within just a few weeks to months of age. Many of the individuals had signs of metabolic bone disease and failure to thrive but how does a hatchling get lead so quickly? Could they hatch out lead positive? This study tested lead positive females and their hatchlings to see if vertical transmission was possible and could be the cause and if so, what part of the egg production and development cycle could lead be introduced? Not only the hatchlings were tested but also parts of the eggs to track lead contaminates and answer these very questions.

HEAVY METAL LEVELS IN NESTING LOGGERHEAD SEA TURTLES ON FLORIDA'S GULF COAST

SPEED TALK

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Heavy metal pollution poses an increasingly severe threat to marine wildlife due to its influence on both the structure and function of the marine environment. Species of higher trophic levels (e.g., sea turtles) are at particular risk due to the bioaccumulation of many of these metals. While naturally occurring in marine environments, heavy metal concentrations tend to be elevated in these spaces due to anthropogenic influences (National Oceanography Centre, 2026). Prolonged or excessive exposure to these metals can have detrimental impacts on the health and fitness of marine wildlife (Britta, et. al, 2010; Santhosh, et al. 2024). The goal of this research was to explore which heavy metals impact a growing sea turtle population on Florida's Gulf Coast and how. In particular, this project determined if heavy metal levels within the blood were impacted by, or impacted body size or reproductive fitness. Blood samples were collected from nesting loggerhead sea turtles (*Caretta caretta*) across the 2025 nesting season. These samples were then analyzed on an Agilent 7900 ICP-MS in the Integrative Molecular Analysis Core (IMAC) for a suite of 25 essential and non-essential heavy metals. Findings indicate significant negative relationships between selenium, nickel, and barium and curved carapace length individually, as well as a negative relationship between lead concentration and percent hatch success. These results suggest the heavy metal concentrations within loggerhead nesters are substantial enough to impact individuals and may have significant implications for conservation and management efforts.

THE IMPACTS OF URBANIZATION, INVASION, AND PATHOGEN PRESENCE ON IMMUNOMODULATION AND BODY CONDITION IN CANE TOADS (*RHINELLA HORRIBILIS*)

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Urbanization and biological invasions transform herpetofaunal assemblages globally and may interact with infectious diseases to influence host physiology and pathogen dynamics in susceptible animals. The Cane Toad, *Rhinella horribilis*, resides natively in Central and South America and has been introduced to much of peninsular Florida, providing an opportunity to investigate these interactions across native and introduced ranges. Here, we aim to examine the combined effects of urbanization, invasion, and pathogen exposure on neutrophil-to-lymphocyte ratio (NLR) and Fulton's body condition factor (K) as proxies for stress in *R. horribilis*. We will sample individuals from four sites representing lower- and higher-traffic environments along the invasion front in Southwest Florida (SWFL) and within the native range in Limón Province, Costa Rica. We will collect blood, morphological measurements, and tissue samples from adult *R. horribilis* to assess physiological condition and the presence and infection intensity of *Batrachochytrium dendrobatidis* (Bd), *Ranavirus* spp. (Rv), and amphibian *Perkinsea* (Pr) using hematological analyses and quantitative PCR.

Preliminary data from 87 individuals sampled across three sites between 2024 and 2026 indicate elevated NLR ($p < 0.001$) and reduced body condition ($p = 0.049$) in the invasive population from a higher-traffic site. Additionally, we detected hemoparasites from two phyla in native *R. horribilis* but not in invasive individuals, suggesting a potential enemy-release pattern. By integrating physiological, ecological, and pathogen data across native and invasive populations of *R. horribilis* as a model species, this study will improve understanding of the interactions between these variables in amphibians, with implications for host health, pathogen transmission dynamics, and conservation.

SHARING SPACE, SHARING RESOURCES? STABLE ISOTOPE INSIGHTS INTO FORAGING HABITS OF A UNIQUE CROCODYLIAN COMMUNITY

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Crocodylians are a conservation priority worldwide because they influence community structure and connect aquatic and terrestrial systems. South Florida (SFL) is of particular importance because it is the only location where alligators and crocodiles coexist. American alligators (*Alligator mississippiensis*) and American crocodiles (*Crocodylus acutus*) are endangered species success stories, having recovered from low population levels, but non-native crocodylians could threaten their coexistence and recovery status in SFL. Ecologically plastic spectacled caimans (*Caiman crocodilus*) have been established in SFL since the 1970s, but many aspects of niche overlap with native crocodylians have yet to be investigated. We used stable isotope analysis of crocodylian claw samples to determine overlap in the dietary niches of American crocodiles, spectacled caimans, and American alligators in SFL. We used a multi-isotope approach and a novel claw sampling technique to determine if isotopic signatures varied over time and across individuals. To date, we have collected nearly 150 claw samples from American alligators ($n=85$) and spectacled caimans ($n=63$) across natural and artificial aquatic habitats in SFL. Preliminary results indicate differences in foraging habits, which could reduce competitive pressures between alligators and caimans within shared freshwater habitats. We also found that inclusion of sulfur is critical to determine dietary niche overlap between large predators that can move between habitats in response to changing habitat conditions and resource availability. Future inclusion of American crocodiles will reveal more information about community dynamics across the freshwater to seawater continuum and will be the first dietary niche analysis of the species in Florida.

POSTER PRESENTATION ABSTRACTS

PREVALENCE AND INTENSITY OF THE INVASIVE PENTASTOME *RAILLIETIELLA ORIENTALIS* IN ASSOCIATION WITH MORPHOMETRICS OF BANDED WATER SNAKES (*NERODIA FASCIATA*) FROM THE NORTHERN EVERGLADES

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Raillietiella orientalis is an invasive lung parasite that infects native snake communities in Florida. The banded watersnake, *Nerodia fasciata*, is frequently infected. This research aims to characterize *R. orientalis* infections in *N. fasciata* in the Northern Everglades and assess their association with morphometrics and body condition. Carcasses of road-killed *N. fasciata* were collected from the Northern Everglades. The carcasses were dissected, and detailed morphometrics were obtained. The infection status and intensity of *R. orientalis* were recorded. Among 36 *N. fasciata*, the prevalence was 66.7% and the mean parasite intensity was 8.67 parasites per infected snake. Larger snakes were more likely to be infected ($p = 0.004$), had higher *R. orientalis* intensity ($p = 0.006$), and had greater maximum parasite length ($p = 0.035$). Body condition was not significantly associated with infection status or parasite intensity. The greater likelihood of infection and higher parasite intensity observed in larger snakes highlight the need to further investigate the potential consequences of *R. orientalis* infection for adult *N. fasciata* and population health.

PRESERVING THE PAST TO PROTECT THE FUTURE: ONGOING MODERNIZATION AND CURATION EFFORTS OF THE UNIVERSITY OF CENTRAL FLORIDA'S HERPETOLOGY TEACHING COLLECTION

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Natural history collections serve as a vital link to connect specimens collected in the past to contemporary populations, which is invaluable for research and conservation of wildlife. Many of these collections also serve in a teaching capacity, facilitating countless students' hands-on opportunities to physically engage with specimens of rare species, and potentially allowing them to participate in the scientific process. However, these specimen collections often require extensive care to ensure that both of these functions remain. Here, we document our recent efforts to curate and modernize the University of Central Florida's (UCF) Herpetological Teaching Collection, utilizing students participating in the Federal Work Studies program. Over the past three years, our team has organized and re-accessioned roughly 10,500 specimens, with crocodilians and testudines completed and three other groups now in process. Specifically, we organized all specimens by taxonomy identity with a color-coded labeling system, and implemented a modernized online database. We have also begun adding new specimens to the collection and created a genetic tissue sample collection for these new individuals. These ongoing efforts of modernization the herpetological collection are extremely time intensive, requiring over 900 hours thus far, and even after completing the reorganization, the collection will require continuous maintenance. Ultimately, preserving history through our specimen collection provides researchers with a tool for studying amphibians and reptiles in a non-field setting, and gives students a paid opportunity to work with these often-rare organisms.

DEVELOPMENT OF A COST EFFECTIVE AND VERSATILE BITE FORCE METER FOR USE IN FRESHWATER TURTLES

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Bite force provides insight into the ecology, functional morphology, and evolutionary history of vertebrates; however, commercially available bite force meters can be expensive, difficult to calibrate, and poorly suited for animals with small gapes. This study describes the development of a cost-effective, lightweight, and portable bite force meter designed for freshwater turtles. The device utilizes a Tekscan A301 piezoresistive sensor connected to a custom circuit incorporating rail-to-rail operational amplifiers, adjustable gain, and an analog-to-digital converter, with metal plates serving as bite surfaces. A Raspberry Pi enables digital operation of the sensor. Calibration was conducted using hydraulic pistons equipped with precision pressure gauges, with applied force calculated from hydraulic pressure and piston area. Preliminary testing demonstrated linear sensor responses at lower forces. Plastic bite plates deformed under higher loads and were subsequently replaced with metal plates; however, the calibration apparatus introduced shear forces that displaced the load concentrator. Future development will refine the calibration system and incorporate a higher-accuracy analog-to-digital converter and software for sensor operation. The resulting device is intended to provide an affordable and versatile system for collecting bite-force data from freshwater turtles in field settings.

ISOTOPIC SHIFTS IN PRESERVED REPTILE AND AMPHIBIAN MUSEUM SPECIMENS

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Stable isotope analysis of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ is a powerful tool that can be used to investigate the dietary niches of reptiles and amphibians. Fluid-preserved museum specimens are vital resources that can provide insight into historic dietary niche space, but it can be challenging to recover unaltered isotopic data, as preservation methods have been well-documented to deplete or enrich $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in tissues. To extract accurate isotopic data, it is imperative to determine how wet-preservation methods alter the isotopic signature of tissues over time. Shifts in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ measurements due to preservation methods have been previously investigated in fishes, mammals, birds, and invertebrates, but there are few publications for herpetofauna. Here, we examined $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ signatures in the tissues of six species of reptiles and five species of amphibians preserved in ethanol over a period of nine months. We used segmented regression to estimate the extent and timing of isotopic shifts. Data revealed that the shifts in isotopic signatures of herpetofauna tissues are non-linear and rapid, where the steepest shift, if present, occurred immediately after preservation. Additionally, shifts after this point remained minimal through time which is consistent with previous studies of other taxonomic groups. Magnitude of isotopic shifts varied considerably among species, and so we recommend validating preservation effects of study organisms if possible; however, tissue-specific correction factors may adjust signatures much closer to original values. These results increase the utility of herpetofauna museum specimens and provide more accurate reflections of historical dietary and ecological dynamics.

GAZE-FOLLOWING OF DOMESTIC CRESTED GECKOS (*CORRELOPHUS CILIATUS*) ACROSS LIFE STAGES

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Gaze-following is the ability to shift attention in response to another individual's gaze. It is a key component of animal cognition and could improve an animal's ability to locate resources, detect threats, and coordinate interactions. Although often associated with social species, its presence in asocial animals may reflect evolutionary factors rather than social pressures alone. In captive species, enrichment, stress, and overall welfare may influence cognitive performance. This study investigates whether a primarily asocial species, the domestic Crested Gecko (*Correlophus ciliatus*), exhibits: (1) gaze-following that varies by directional cues to assess baseline cognitive ability; (2) lateralized eye use to assess affective interpretation of the cue; and (3) behavioral markers that change across developmental stages to assess gaze-following emergence and development. Nine geckos were tested monthly over a ten-month period in a habituated arena. Demonstrator geckos were recorded exhibiting control (forward) and directed gazes (left, right, or up). Test individuals were presented with this video stimulus twice per trial on an iPad when oriented toward the screen. Behavioral responses observed included directional head movement, response latency, and eye lateralization. While data are in the preliminary analysis stage, we expect geckos to demonstrate directional gaze-following behaviors as seen in other reptile species, with potential variations across developmental stages. This study's findings could contribute to the growing body of research on reptile cognition while providing insight into the evolutionary origins of gaze-following and its relationship to social and environmental adaptation.

FROG MOVEMENT & THE IMPLICATIONS FOR CONSERVATION & MANAGEMENT IN NORTH AMERICA: THE WESTERN TOAD (*ANAXYRUS BOREAS*)

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Amphibians are among the most threatened vertebrates globally, facing rapid declines due to habitat loss, pollution, disease, invasive species, and climate change. The order Anura (frogs and toads), despite being the largest group of amphibians with over 7,000 species worldwide, has a significant knowledge gap in movement patterns compared to other vertebrate groups. Understanding how these species move within and across ecosystems is critical for conservation. We systematically analyzed 291 peer-reviewed articles published over the last 100 years on the movement ecology of North American anurans. We examined dispersal, migration, home range, and site fidelity, focusing on observed movement rather than gene flow or simulation studies. Frogs and toads frequently showed strong site fidelity, while also displaying variation in dispersal capacity and seasonal migrations. Anthropogenic disturbances such as habitat fragmentation, urbanization, roads, and climate fluctuations consistently emerged as barriers to movement and population connectivity. To evaluate potential movement distances across studies, we then conducted a meta-analysis focused on observed movements of the western toad (*Anaxyrus boreas*), the third-most-published species in our dataset.

THE THERMAL IMPACT OF MICROPLASTICS IN SEA TURTLE NESTING SAND IN SOUTHWEST FLORIDA

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Microplastics are defined as plastic particles smaller than 5 mm (Fuentes et al., 2023). Due to the thermal properties of plastic, microplastic contamination of sea turtle nesting beaches may alter incubation temperatures and potentially influence temperature-dependent sex determination or nest success rates. Cooler incubation temperatures ($< 29^{\circ}\text{C}$) produce more male hatchlings, while warmer temperatures ($>29^{\circ}\text{C}$) produce more female hatchlings (Mrosovsky 1988), sustained high temperatures can arrest development. This benchtop study investigated the effect of microplastic concentration on the heating and cooling behavior of sand. Filtered sand was mixed with two polyethylene terephthalate (PETE) microplastic concentrations potentially found on beaches and a higher concentration (0.01% and 0.1% by dry weight) and heated to 40°C while continuously monitoring temperature changes. Results showed that clean sand heated and cooled about 30% faster than the 0.1% microplastic concentration. Additionally, clean sand heated about 18% faster and cooled 8% faster than 0.01%. These findings suggest that microplastic contamination may influence thermal dynamics in nesting sand by increasing heat retention and altering natural heating and cooling rates. This study strives to understand the thermal dynamics of microplastics in nesting sand due to the potential impact on sex determination in hatchlings and overall hatchling success. If microplastic concentrations continue to increase in nature, it could be detrimental to nest success rates.

PASSIVE ACOUSTIC MONITORING OF LOGGERHEAD (*CARETTA CARETTA*) NESTS: CHARACTERIZING SOUNDSCAPES PRIOR TO EMERGENCE

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Loggerhead sea turtles (*Caretta caretta*) nest in dynamic coastal environments that are subjected to both natural environmental cues and anthropogenic noise. Emerging research indicates that late-stage embryos and pre-emergent hatchlings produce low-frequency vocalizations and mechanical noises within the egg chamber. This feasibility study investigates the use of in situ passive acoustic monitoring (PAM) to non-invasively characterize the complete soundscapes of loggerhead nests and explore its viability for hatch-date prediction. Acoustic sensor arrays, combining low-frequency geophones and broadband condenser microphones, were deployed near nests on Casey Key, Florida, approximately 20 days before estimated hatch dates. Audio data was captured continuously and manually analyzed via spectrograms using Raven Pro software. Researchers isolated distinct acoustic signatures amidst ambient noise, focusing on pre-emergent vocalizations, scratching sounds indicative of movement, and “waterfall” noises caused by sand collapsing during upward movement. The resulting acoustic timeline revealed that initial pipping occurred approximately 7-10 days prior to hatching, gradually increasing before sharply declining four days before emergence. As pipping ceased, scratching and waterfall events significantly increased as hatchlings climbed upward. Despite successfully tracking in ovo development, the study identified environmental and technological limitations, including signal masking from heavy rainstorms and road noise, hardware vulnerability in harsh beach conditions, and proximity restrictions due to permitting. Because manually analyzing roughly 400 hours of audio per nest is unsustainable, future research

must prioritize developing machine learning algorithms for automated signal detection to make PAM a scalable conservation tool.

POND-ER THIS: DETERMINING THE PREVALENCE OF PATHOGENIC INFECTION IN STORMWATER RETENTION WATER IN WATERSNAKES (*NERODIA SPP.*) WITHIN CENTRAL FLORIDA

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Humans fundamentally reshape wildlife communities through the modification of habitat with impacts highly context dependent following along a gradient between beneficial and harmful. This particularly occurs within stormwater wetlands which can beneficially provide additional habitat for some species but may also simultaneously serve as an ecological trap and potentially increase negative interactions with pathogens. Specifically, the increased exposure to pollutants within these highly impacted wetlands often results in increased stress within the host, depressing the immune response, and resulting in increased likelihood of infections. Watersnakes (*Nerodia spp.*) serve as an ideal model to explore these interactions as they utilize both modified and un-modified habitats and frequently exhibit lesions caused by *Ophidiomyces ophidiicola* (Oo). Here we sought to determine if residing within stormwater wetlands increases the infection likelihood of Oo for *Nerodia spp.* We conducted minnow trapping surveys across six wetlands present on the university of Central Florida's main campus, surveying three natural and three constructed stormwater wetlands from August – November of 2026. For each snake captured, we recorded the presence of and scored any lesions we documented and collected three body swabs for subsequent qPCR-based analysis. We expect those residing within stormwater retention wetlands would exhibit higher prevalence of Oo compared to those within non-constructed wetlands. This study builds our understanding of how pathogenic infection is influenced by habitat selection for *Nerodia spp* and how this may influence the structure of other disease dynamic.

DETERMINING THE RELATIONSHIP BETWEEN TEMPERATURE AND BODY CONDITION INDEX OF *CARETTA CARETTA* HATCHLINGS

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The development of sea turtle hatchlings can be impacted by temperature changes throughout the nesting season (April-October in Florida) and warmer sustained temperatures can arrest development and decrease success. Understanding the impact of temperature on hatchling development is critical to their conservation. The goal of this study was to determine how the body condition index of sea turtle hatchlings nesting on Florida's Gulf coast has changed over multiple years and within individual seasons in relation to nest temperature. Temperature data loggers were added to the clutch during oviposition and upon emergence, 20 randomly selected hatchlings were collected from 2020-2026. Hatchlings were assessed for abnormal scute counts and measured before being released. Morphometric measurements were straight carapace length, straight carapace width, and body depth. Mass was also assessed. This project uses these measurements to assess traditional body condition index (BCI) and a more modern BCI assessment. BCI is a unitless proxy for hatchling health. Generalized additive models showed that BCI was significantly impacted by the date the nest was laid ($p=0.016$), the year the nest was laid ($p<0.001$) and incubation temperature ($p<0.001$). Both time and temperature impact the body condition of loggerhead hatchlings emerging from Florida's Gulf coast; as temperatures increase into the future, mitigation strategies will need to be explored.

IMPACTS OF CONSTRUCTED WETLANDS ON AMPHIBIAN PERKINSEA INFECTION DYNAMICS IN CENTRAL FLORIDA

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Anthropogenic land-use change can strongly influence infection dynamics in wildlife populations. Specifically, the presence of hosts within human-influenced environments often results in increased stress for specific hosts, greater exposure to pollution, and ultimately altered host community dynamics. Amphibian *Perkinsea* infections (hereafter Pr) occur throughout the southeastern United States and can result in mass mortality events in Anurans. While we know that the abiotic and biotic components of a wetland can influence Pr infection dynamics, the specific impacts of hosts residing in anthropogenically altered wetlands remain poorly understood. Here, we sought to determine the influence of anthropogenic habitat alteration on amphibian *Perkinsea* infection dynamics. Specifically, we aimed to determine if host occupancy within constructed wetlands increases the likelihood of Pr infection as observed in other amphibian pathogens. To date, we have conducted dipnetting surveys at six wetlands (three constructed, three with natural basins) on UCF's campus. For each wetland, we collected eDNA and sampled any tadpoles that we detected while surveying to quantify Pr dynamics via qPCR. This work is the first to explore Pr infection dynamics in anthropogenically-altered landscapes and will help us to better predict how these pathogen dynamics will change as these habitat types become increasingly more common.

UNDER THE SCALES: A PARASITE SURVEY OF THE TROPICAL HOUSE GECKO IN SOUTHWEST FLORIDA

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Tropical house geckos, (*Hemidactylus mabouia*) were introduced to Florida in the early twentieth century from Sub-Saharan Africa via the pet trade. Since then, geckos have expanded their range in Florida and compete with native gecko species. In other regions, *H. mabouia* are known to transfer parasites to native species. However, few studies have examined the parasites of geckos in Florida. The objective of this study was to create a checklist of parasites in *H. mabouia* from Southwest Florida so that we may begin to understand the potential for transfer into native species. Fifty-one geckos were collected opportunistically from the FGCU campus by anonymous donors and stored at -20 °C. The geckos were weighed and measured. Their skin was examined for ectoparasites followed by extraction of organs along the respiratory and digestive tracts. Organs were separated into 100 mm petri dishes and viewed under a stereo microscope. Parasites were extracted from the tissue, identified to genus and stored in 80% ethanol. The parasites were then measured and some samples DNA barcoded, photographed using light microscopy and SEM. The cestode *Oochoristica sp.* was found in 27.5% (95% BCI: 15.89–41.74) while *Parapharyngodon sp.* was found in 70% (95% BCI: 0.56-0.83) of geckos. The pentastome *Raillietiella sp.* was found in the lungs of 7.8% (95% BCI: 2.18–18.88) of geckos. Molecular identification of remaining taxa is ongoing and will be discussed. This survey is one of the first attempts to catalog the parasite profile of the tropical house gecko within Southwest Florida.

NEW SAND IN SOUTHWEST FLORIDA: CHARACTERIZATION AND IMPACTS ON *CARETTA CARETTA* NESTING

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Recent hurricanes and beach renourishment projects have changed the nesting habitat available to nesting sea turtles in southwest Florida. Replacement sand from offshore and inland sources can differ in grain size, organic content, and shape. These characteristics may affect nest conditions in which eggs develop. This study examines how sediment characteristics relate to loggerhead sea turtle (*Caretta caretta*) hatching success on Bonita Beach and Estero Island. Morning surveys identified nests for sampling. At each selected nest, two 1 L sediment samples were collected adjacent to each nest. One sample was taken at the surface and the other at an approximate nest chamber depth of 40 cm. Samples were analyzed at Florida Gulf Coast University for moisture content, grain size distribution, organic matter content, and grain shape. Nests were monitored through incubation and inventoried after hatching to determine clutch size and hatching success. Sediment measurements and nest outcomes are being compared using generalized linear models. Preliminary results from 15 nests show higher mean hatching success on Bonita Beach (78.3%) than on Estero Island (59.7%). Bonita Beach samples also had a lower median grain size (234.4 μm versus 260.4 μm) and lower average organic content (0.7% versus 4.1%). Analyses of additional sediment characteristics are ongoing, along with temperature monitoring and sampling beyond nest sites. Together, these findings may help guide sea turtle conservation and coastal management practices in southwest Florida. Acknowledgments: We thank Turtle Time, Inc. volunteers and all student volunteers for identifying, protecting, monitoring, and inventorying nests, and Florida Gulf Coast University for funding this project.

PONDEMIC MAPPER: DETERMINING THE LANDSCAPE LEVEL INFLUENCES ON AMPHIBIAN PERKINSEA INFECTION DYNAMICS

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Wildlife diseases contribute to biodiversity losses globally, with pathogens specifically considered a driving force in severe amphibian declines. While Chytrid fungi and ranaviruses received substantial attention during the past decade, other disease systems remain poorly understudied despite frequent documented mortality. Amphibian *Perkinsea* (Pr) is an emerging protist pathogen associated with systemic infection, tissue damage, and mortality, with infections documented across a range of hosts and regions. In Florida, Pr prevalence appears to vary among host species, life stages, and seasons, yet the environmental drivers of Pr infection remain poorly understood, leaving a major gap in amphibian disease ecology. Here we propose to evaluate the impact of broader wetland and landscape characteristics on Pr infection dynamics across Florida. From January through March 2027, we will survey at least 20 wetlands across four Central Florida counties utilizing standardized dip-net surveys. We will then obtain nonlethal tissue samples from at least 10 individuals per wetland, and screen for infections via a Pr-specific qPCR assay. We will then integrate these infection results with landscape data in ArcGIS Pro and the accompanying environmental conditions measured during sampling to determine environmental associations and geographic clustering with Pr infection dynamics. This proposed research will move beyond simply documenting Pr occurrence in specific wetlands and help to identify conditions that may influence infection patterns broadly on the landscape. By combining these field ecology, molecular diagnostics, and spatial analysis-based approaches, this work can strengthen surveillance, prioritize wetlands for monitoring, and improve understanding of landscape influences on amphibian disease.

PATTERNS OF ROAD-ASSOCIATED SNAKE OBSERVATIONS IN FLORIDA REVEALED THROUGH CITIZEN SCIENCE

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Roads can have significant effects on snake populations by causing mortality and potentially limiting movement between suitable habitats. However, documenting road mortality can be difficult because snake carcasses are often removed or become undetectable shortly after death. Previous research in Florida found that most snake carcasses were no longer detectable one day after being observed, highlighting the potential value of citizen science observations for identifying broader patterns of snake activity around roads. This study will use observations from iNaturalist to assess the spatial and temporal patterns of road-associated snake observations throughout Florida. Patterns in observations will be examined between Florida's wet and dry seasons and across years. Seasonal differences may be particularly important in Florida, where changes in water availability could influence snake movement and road encounters. Associations between observations, landscape characteristics, and road types will also be evaluated. Identifying consistent patterns in road-associated observations across Florida may help distinguish areas where snakes frequently encounter roads and determine whether these patterns vary seasonally or among years. Results from this study will be used to inform selection of field sites for my master's thesis examining the relationship between roads, landscape structure, and genetic connectivity in Banded Water Snakes, *Nerodia fasciata*. This study will demonstrate how citizen science data can be used to identify statewide patterns and guide targeted field-based research.

DOES INVASIVE PREY IMPACT *NERODIA SIPEDON* PRESENCE IN WETLAND ECOSYSTEMS?

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Within recent decades, Piedmont North Carolina has increased efforts in constructing wetlands to provide a multitude of ecosystem services. However, invasive species are known to take advantage of artificial habitats, often outcompeting native species for limited resources which cause devastating effects within ecosystems. The disruption of established food webs can cause an upward cascade of effects, which can eventually reach top predators. Invasive fish and amphibians have the largest impact on our most common and prevalent aquatic top predator *Nerodia sipedon*, Northern water snake. Initially, the increase in prey availability may benefit *N. sipedon* population but could result in permanent and unstable changes causing a decrease in prey availability, abundance and natural diversity. This could result in a crash within *N. sipedon* populations. We hypothesized that aquatic snake presence will be lower in wetlands that house a higher invasive fish population. To test this hypothesis, we collected data on *N. sipedon* distribution and abundance, prey diversity and abundance (fish and amphibians), plant structural complexity within 1 meter landward and waterward (plant cover and height) of the shoreline and physical attributes of the wetlands (water quality and size.). Our preliminary findings have shown no significant relationship between invasive prey species and *Nerodia sipedon* presence or abundance.

DETERMINING THE HEALTH STATUS OF THE INVASIVE ARGENTINE BLACK AND WHITE TEGUS (*SALVATOR MERIANAE*) IN CENTRAL FLORIDA, USA

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Invasive species are a leading cause of biodiversity loss worldwide, severely affecting ecosystems through predation, competition, and pathogen transmission. One such species, Argentine Black and White Tegus (*Salvator merianae*), continues to expand northward through Florida, preying upon many native and non-native flora and fauna species. However, little is known about (a) the physiological condition and parasite load in tegus within their invasive range or (b) how these factors might potentially facilitate or hinder the expansion of this species. Herein, we characterized the health status of a potentially emerging *S. merianae* population in Central Florida by examining the body condition, white blood cell (WBC) composition, and parasite load. We received blood and whole specimens collected by the Florida Fish and Wildlife Conservation Commission (FWC) in 2026. We then stained blood slides to perform white blood cell differentials, calculate heterophil-to-lymphocyte (H:L) ratios as an index of physiological stress, and screen for blood parasites. We then conducted necropsies to examine individuals for visible abnormalities and parasites and calculated body condition, using Fulton's K. To date, we have sampled seven individuals (two juveniles, four subadults, one adult). Preliminary identification of leucocytes appears consistent with previously published tegu leucocyte morphology from their native range. Additionally, we detected an intraerythrocytic parasite morphologically consistent with *Hepatozoon sp.* in one of five individuals. Continued sampling will help to establish the first Florida-specific hematological reference values for *S. merianae*, providing a baseline for monitoring tegu health, clarifying whether invasive tegus serve as parasite reservoirs for native reptiles, and informing FWC management of this expanding invader.

PREVALENCE COMPARISON OF THE INVASIVE PARASITE, *RAILLIETIELLA ORIENTALIS*, IN SNAKE POPULATIONS OF FGCU & OKALOACOOCHEE SLOUGH

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The invasive pentastome parasite, *Raillietiella orientalis*, is a hematophagous lung parasite utilizing lizards and snakes as its definitive hosts. Thought to have become established following the introduction of Burmese pythons (*Python bivittatus*) in South Florida, this parasite has spread throughout the state of Florida infecting and negatively impacting wild, native squamates. The Snake Lungworm Alliance and Monitoring (SLAM) network was founded in 2022 with the goal of tracking the geographic expansion of *R. orientalis* via opportunistic sampling of road-killed snakes. These deceased snakes were then dissected and checked for adult pentastomes; which, upon finding, were collected to verify the species. As part of this work, we analyzed differences in pentastome infection dynamics between Florida Gulf Coast University (FGCU) and Okaloacoochee Slough State Forest (OK Slough). From these two sites, we dissected 222 snakes across 16 species, 103 from FGCU, 119 from OK Slough. Of these, 138 (62%) were in sufficiently good condition that we could determine infection status: 52 from FGCU and 86 from OK Slough. We found that infection prevalence is higher at FGCU (62%) than at OK Slough (37%) ($\chi^2 = 7.713$, $df = 1$, $p\text{-value} = 0.005482$). We also found that prevalence varies across species, affecting predominantly lizard and frog-eating snakes, with banded watersnakes (*Nerodia fasciata*) and black racers (*Coluber constrictor*) having the highest number of infections between the two locations; and those with a diet consisting primarily of invertebrates and fish having minimal to no infections documented at either location.

GASTROINTESTINAL PARASITE COMMUNITY OF THE INVASIVE BROWN ANOLE (*ANOLIS SAGREI*) IN SOUTHWEST FLORIDA.

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Invasive species have become increasingly prevalent in Florida. Beyond displacing native species from their niches, invasive hosts may introduce novel parasites, disrupting host-parasite dynamics. The brown anole (*Anolis sagrei*), first introduced to Key West in the late 1800s has been widely spread throughout Florida. Despite their widespread presence in Southwest Florida, little research has been done on the parasite fauna of this species. The objective of this study was to document the helminth parasites of *A. sagrei*. During May – July 2026, 9 anoles were collected from Florida Gulf Coast University and stored at -20°C until necropsy. At necropsy, the hosts would be thawed, and organs were isolated into individual petri dishes and examined for parasites. Parasites found were sorted by taxonomic group and preserved in 70% ethanol at -20°C. Parasites preserved were DNA sequenced, imaged by SEM, stained and mounted for light microscopy. Four nematode species and one trematode species were recovered. *Cosmocerca sp.* was the most common parasite, occurring in all hosts (100%). *Cosmocerca* exhibited the highest mean intensity (107 ± 72.2 ; range 1–200). The trematode was *Urotrema sp.*, identified through sequencing of the 28S rRNA gene, which matched *Urotrema minuta* with 98.90% similarity (PX232568). Ongoing analyses will further resolve parasite identifications. This survey is one of the first to document the parasites found in *A. sagrei* from Southwest Florida. Establishing baseline data is essential for interpreting host-parasite dynamics of invasive species and their ecological impacts, including the potential for parasite introduction, spillover, or spillback to native species.

DEVELOPMENTAL CHANGES IN FOOD PREFERENCE IN CAPTIVE CRESTED GECKOS (*CORRELOPHUS CILIATUS*): IMPLICATIONS FOR WELFARE

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Reptiles remain underrepresented in animal welfare research despite their increasing prevalence under human care. Understanding individual preferences may provide insight into how animals respond to choice to help inform husbandry practices. Crested geckos (*Correlophus ciliatus*) are commonly maintained in human care, yet their food preferences have not been investigated across developmental stages. This study examined whether food preferences changed as crested geckos matured. Nine crested geckos housed at Eckerd College's Herpetological Environments and Research in Practice (HERP) Laboratory participated in monthly preference testing from October 2025 to September 2026. Each monthly session consisted of three consecutive pairwise choice tests followed by a three-choice test using standardized mango, guava, and banana purees. Food presentation was counterbalanced across platform positions to minimize spatial and lateralization biases, and trials were recorded overnight using infrared cameras. Behavioral measures included latency to touch a food bowl, latency to begin feeding from a bowl, feeding duration, and change in bowl weight following each trial. Preference patterns will be compared across developmental stages and between pairwise and three-choice conditions to evaluate both consistency and relative preference. While this is still in the preliminary analysis stage, we hope this longitudinal study provides data on food choice in *C. ciliatus* and may contribute to evidence-based approaches to nutritional management and welfare in reptiles under human care.

EVALUATING CAPTIVE REPTILE LIGHTING GUIDELINES USING WILD OBSERVATIONAL DATA

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A fundamental challenge in reptile husbandry is meeting lighting and temperature requirements. Relying on generalized husbandry guidelines can lead to a blanket approach that risks depriving or overwhelming reptiles with solar radiation. Assumptions often rely on wild environmental conditions, but supporting data remain scarce because tracking the actual wild exposure of even the most common captive species is logistically difficult. As such, establishing a data-driven baseline backed by real-world exposure is critical. While ultraviolet (UV) parameters have established guides such as Ferguson zones, guidance for visible light and infrared (IR) has often relied on generalized assumptions rather than species-specific data. Recently, a literature-based visible light (lux) and IR guideline was proposed but has not yet been formally validated. Therefore, this research evaluates lighting guides currently used in managed care by establishing a data-driven baseline of wild conditions and assessing their application to captive care. Research-grade observational data from iNaturalist for 12 popular pet species, with up to 200 observations each, alongside atmospheric and solar data from relevant databases, were used to calculate estimated exposure conditions using the Aesoltus calculator. The calculator also translated these environmental variables into metrics that map to captive lighting zones for UV, lux, and IR. By converting these complex observational data into lighting-zone outputs, the research can evaluate whether current guidelines accurately represent the range of solar conditions associated with wild observations of each species. This can lay the groundwork for developing novel, species-specific lighting and heating zones to drive evidence-based improvements in global reptile care.

DEMOGRAPHIC PATTERNS AND POPULATION ESTIMATE OF AN ISLAND POPULATION OF STRIPED MUD TURTLES (*KINOSTERNON BAURII*) IN SOUTHWESTERN FLORIDA

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The Striped Mud Turtle (*Kinosternon baurii*) is a small aquatic turtle distributed throughout the southeastern United States. Identified by the three stripes on its shell, they play an important role in aquatic food webs; eating insects, worms, snails, algae, and seeds. *K. baurii* are known to be versatile inhabitants and can be found in freshwater ponds, swamps, wetlands, marshes, ditches, and creeks ranging from Florida to Virginia. Despite its broad distribution, demographic data for *K. baurii* remain limited. Here we assess the demographic status and estimate the population size of an isolated island population of *K. baurii* in a developed region southwestern Florida. *Kinosternon baurii* were sampled six times between spring of 2023 and fall 2026 using Promar style aquatic traps that were deployed for 24-hour periods. Once captured, each turtle was measured, weighed, and marked using the Cagle method. A total of 272 unique *K. baurii* were captured during all periods. The average male CLmax was 74.2 7.0 mm, and the average female CLmax was 78.7 6.9 mm, with females showing statistically significant size differences ($p=0.011$). The observed sex ratio (F:M) of this isolated island was female biased at 2.26:1. Closed population models indicated a range of 318-451 individuals, while open population models indicated a range of 280-701. This dense island population sparks questions about potential influence of urbanization, climate and habitat isolation on sex ratios and density in this species.

A COMPARISON OF HOME-RANGE ESTIMATION METHODS FOR *CHAMAELEO CALYPTRATUS* IN SOUTHWEST FLORIDA

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Home range size has long been the standard for explaining the spatial ecology of many organisms. Common choices for estimating home range size include Minimum Convex Polygons (MCPs), which have limitations that have been recognized by many. It has been only recently that alternative estimation methods have been proposed, and even more recently that these methods have been compared for animals that are more sedentary, like some herpetofauna species. Ten veiled chameleons (*Chamaeleo calyptratus*) were tracked over 100 days in southwest Florida. We compared two methods of home range estimation for these lizards: MCPs and Autocorrelated Kernel Density Estimates (AKDEs). We found that home range size is highly individualized among lizards, but both MCP and AKDE appear to overestimate space use for certain individuals to some extent, depending on the specific model used. More home-range estimation method comparisons should be done on herpetofauna species, and the information presented in this study may prove useful to those who are planning to do so.

RUNNING ON ROUGH TERRAIN: SURFACE ROUGHNESS ALTERS CLINGING ABILITY AND EXERTION CAPACITY OF *ANOLIS CAROLINENSIS* (SQUAMATA: ANOLIDAE)

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Arboreal habitats pose unique locomotor challenges to their inhabitants because of their complex three-dimensional terrain, driving evolution of morphological features to overcome these challenges. Anolis lizards possess subdigital adhesive pads and claws that are differentially effective on smooth and rough surfaces. Sufficient substrate friction is essential to drive locomotion and thus surface roughness should have substantive effects on climbing performance of arboreal lizards. Surprisingly, few studies have explored these connections, largely focusing on how surface structure impacts clinging ability, locomotor speed, and/or acceleration. However, lizards may also need to sustain maximal locomotor performance over prolonged periods, potentially until exhaustion (i.e., exertion capacity). Despite this, few studies document exertion capacity of arboreal locomotion and its potential dependence on substrate properties. Here, we examined how surface roughness affects clinging ability, sprint speed, and exertion capacity of the green anole (*Anolis carolinensis*). We measured clinging ability of anoles on three sandpapers and ran them on sandpaper-wrapped dowels at three different inclines until exhaustion. Although clinging ability differed significantly between all three sandpapers, substrate and incline only affected exertion capacity independently, not interactively. Incline had a negative effect, and surface roughness had a positive effect on exertion capacity, likely the result of higher energetic cost of inclined locomotion and enhanced momentum transfer on rough substrates. Our results suggest that *A. carolinensis* may struggle to sustain prolonged escape from predators or competitors at steep inclines and on low friction substrates, highlighting the potential ecological and evolutionary consequences of this understudied axis of locomotor performance.

DOES HEAD WIDTH IMPROVE PREDICTION OF CLUTCH SIZE IN NESTING LOGGERHEAD AND GREEN SEA TURTLES FROM THE CENTRAL FLORIDA GULF COAST?

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Body size is often positively associated with total clutch size in female sea turtles, with larger turtles generally producing a greater number of eggs within a clutch. However, traditional measurements only explore carapace size and may not capture all variation in reproductive output. The contribution of head width to the prediction of total clutch size is not well understood but may provide useful information beyond commonly used carapace measurements. Head width was evaluated as a potential predictor of total clutch size in nesting loggerhead (*Caretta caretta*) and green turtles (*Chelonia mydas*) from Florida's central Gulf Coast and whether there were differences in the relationships between head width and carapace measurements in the two species. Head measurements and nest success data were collected across two nesting seasons (2025 & 2026). Linear models were used to evaluate relationships between total clutch size, curved carapace length notch-notch (CCLNN), curved carapace length notch-tip (CCLNT), curved carapace width (CCW), and head width (H). With both species combined, the top ranked model (AIC=891.799, Adjusted R²= 0.36), showed that H was the only significant predictor of total clutch size ($p<0.001$). In both species, H scales with CCLNN, and the interaction between CCLNN and CCW indicates that H relates to body size differently for loggerheads and green turtles. These results suggest that head width may be useful for estimating total clutch size beyond the more commonly used carapace measurements, and that the relationship between head width and body size appears stronger in loggerheads.

CO-OCCURRENCE AND HABITAT USE OF BURROWING OWLS AND GOPHER TORTOISES ACROSS URBAN LOTS IN CAPE CORAL, FLORIDA

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The development of urban areas in Cape Coral, Florida, continues to fragment habitats for the threatened gopher tortoise, (*Gopherus polyphemus*), while burrowing owls, (*Athene cunicularia*), are common residents of residential areas. As the habitats of the gopher tortoise continue to be fragmented, it is increasingly necessary for tortoise relocations and conservation planning to identify areas within urban environments where tortoises may be able to persist. Because both species are found in the same urban landscape and both use burrows, it is necessary for future management to determine whether they can occupy the same lot. In order to examine the effect that the presence of burrowing owls has on the location of the gopher tortoise burrows and the possibility that the owl habitat can be used as an alternative for the tortoises' habitation, sixty lots were chosen in Cape Coral, Florida based on data collected in City of Cape Coral and CCFW databases showing locations of one, both species, or neither species. In addition, these locations were identified in the field, where the presence of burrows and habitat features (soil type, vegetation, lot condition, maintenance, and proximity to the road) were recorded. The survey showed significant differences in habitat use among lots examined. The burrows of the gopher tortoises were mostly found in the vacant and unmaintained lots, which had moderate to high vegetation coverage, and at a considerable distance from the roads (>30 m and even >100 m). Burrowing owl burrows were typically found on the maintained residential lots with low vegetation, and not far away from the roads ($<5 - 15$ m). These findings imply that variations in vegetation, resistance to disturbances, and distance from roads play significant roles in determining the locations of these species in Cape Coral. The lots occupied by both tortoises were scarce and lacked consistent environmental features, suggesting minimal similarities in habitat requirements within the urban matrix. In summary, these observations underscore the significance of conducting detailed surveys on habitat suitability at a fine spatial scale during any tortoise relocation in urban areas.