Chemical communication in Burmese Pythons and Argentine Black and White Tegus

- Collaborative research between USDA/APHIS/WS National Wildlife Research Center (Gainesville, FL) and Rocky Parker - James Madison University (Harrisonburg, VA)
- Objectives include:

    1) characterization of chemical extractions from skin sheds of Burmese pythons and Argentine tegus

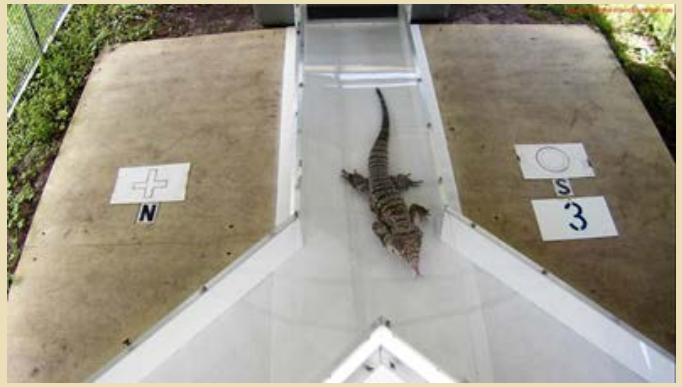
    2) identification of sex-specific chemical signals for tracking and locating conspecifics

    3) development of a reproductive attractant to trap males

Chemical communication in Argentine Black and White Tegus (FY 2018)

- Tegu skin sheds analyzed (lipid extraction) at JMU
  - No significant sex effect on percent skin lipid production per unit shed skin
  - Detected a significant effect of season – Spring skin sheds contained significantly more lipids than both Summer and Fall

- Trailing experiments in the Y-maze at NWRC
  - Fall 2017 (outside breeding season) – male tegus showed no preference for either female-scented or male-scented arms of the Y-maze; 8 different trailing behaviors were identified
  - Spring 2018 (breeding season) – 21 trials conducted (male track, female track, male/female tracks); results are currently being analyzed



Chemical communication in Burmese pythons (FY 2018)

- Python skin lipid extraction in progress
  - Fractionation of Burmese python skin sheds from male and female snakes continues
  - Two female pythons were euthanized at NWRC and their carcasses shipped to JMU for full body lipid extraction
  - Results are being analyzed

- Trailing experiments in the Y-maze at NWRC
  - Testing of two different lipid fractions was scheduled to take place Spring 2018; however, tests were suspended due to a nidovirus outbreak in our captive test animals
  - We anticipate testing in Spring 2019

Large Reptile Trap (LRT) Design Validation Study at Loxahatchee NWR (LOX)

- Trap designed to trap long heavy bodied animals such as non-native snakes
- Tested design feature that trap will NOT capture non-target animals
- Testing occurred July – Sept 2017 and January – March 2018
- 10 paired traps set on eastern boundary of LOX near HQ, half baited with pierced sardine can, fish based dry cat food, bird seed
- Game cameras recorded activity at trap, ~1800 trap nights, ~990 animal events, 3 captures of opossum in trap not properly maintained

<u>Species Seen at Trap</u>:
Raccoon, Opossum, Armadillo, Bobcat, Coyote, Deer, Alligator, Rabbit, Rat, Mouse, Squirrel, Bird, Snake, Lizard

Nidovirus in wild-caught, Burmese Pythons

- In the spring of 2018, an outbreak of python nidovirus occurred in both long term captive and recently acquired feral Burmese pythons (*Python bivittatus*) that originated from the Everglades/Dade County and were housed at the USDA NWRC FL Field Station (Gainesville)
  - Respiratory disease, labored breathing, abundant oral and nasal discharge associated with python nidovirus infections, an emerging viral disease of snakes
  - Out of total population of 16 animals, 1 snake died and 5 snakes euthanized (37.5%) due to disease issues during outbreak event* ***All snakes were euthanized due to 100% infection with nidovirus**
    - Necropsy on three snakes showed oral and pulmonary lesions consistent with nidovirus infection
  - Oral swabs from all snakes on premises positive for nidovirus, confirmed by PCR at UF Vet Medicine
    - Includes one snake that arrived just two days prior to swabbing and was not exposed to other snakes in colony
- Questions to address
  - What is the source of the virus? Is it present in feral populations or were snakes exposed to the virus after collection?
  - How should captured pythons be handled/housed prior to use in studies? What is the appropriate quarantine?
  - What is the environmental persistence of the virus? What treatment methods can be used for surface and environmental disinfection?
  - ***What risk does the virus pose to native squamates?***
    - This group of viruses have been found in boid snakes and colubrids in captivity, and related viruses have been associated with wild lizard populations (Australia)

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