Peyton R. Jackson, Dept of Dept of Organismal Biology, Ecology & Zoo Science, West Liberty University, West Liberty, WV, 26074; James E. Bogan, Orianne Center for Indigo Conservation, Eustis, FL, 32736; Ellen S. Dierenfeld, St. Louis, MO, and Zachary J. Loughman, Dept of Organismal Biology, Ecology & Zoo Science, West Liberty University, West Liberty, WV, 26074. Assessing the Effect of Diet on Reproductive Output, Nutritional and Health Status in Eastern Indigo Snakes (*Drymarchon couperi).*

The federally threatened eastern indigo snake (EIS*; Drymarchon couperi*) is an active ophiophagus snake native to the southeastern United States. The Orianne Society built the Orianne Center for Indigo Conservation (OCIC) to establish a captive breeding and head-start program in collaboration with other conservation-focused organizations. EIS are housed in indoor or outdoor enclosures and given whole prey diets rotating between domestic rodents, chicks, and freshwater fish. While outdoor enclosures alleviated a drop in female fecundity associated with indoor enclosures, there are still concerns regarding the occurrence of dystocia in the OCIC's colony, where females are unable to finish laying a clutch of eggs. A retrospective study by Bogan et al. (2021) identified virgin breeding as one contributing factor, but recent studies on elephants and swine indicate that the nutritional status of an animal could correlate with reproductive health and output. We aim to assess baseline levels of fatty acids, fat-soluble vitamins (A,D,E) and minerals of EIS consuming mixed whole prey diets and develop a diet that replicates the nutritional profile of free-range EIS diets. We hypothesize that consumption of lower fat, higher vitamin A and E diets will improve reproductive output and health status compared with snakes fed high-fat, commercially bred rodents.