DEPARTMENT OF BIOLOGICAL SCIENCES  
COLLEGE OF ARTS AND SCIENCES  
SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN  
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PROJECT TITLE: Microbiome Evolution in an Invasive Cincinnati Lizard

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Project Description

All around the greater Cincinnati region, Lazarus Lizards (Podarcis muralis) can be found basking on rock walls. Though well established in Cincinnati, our population came from lizards transported from Northern Italy which were introduced in the 1940s. When animals are introduced to new environments, many changes are often associated with the compounding forces of adapting to new environmental landscapes and building a new population from very few initial individuals (often leading to inbreeding). This project is aimed at looking at those effects.

The overall goals of this project are documenting genetic and phenotypic consequences of expanding their range to a new continent: genetic bottlenecks and inbreeding, change in body shape to adapt to new environments, and changes in diet and microbiome associated with adapting to new available foods. Students in the lab will work with wild caught lizards in the Cincinnati area and assay for microbiome, gut contents, and take morphological measurements and photographs for morphological and morphometric analyses. Students will learn field techniques (catching lizards, recording ecological and environmental conditions, taking GPS coordinates), collecting data on lizards (cloacal swabs for microbiome, measurements), and microbiome genomics (bioinformatics on collected 16S data). (IACUC protocol: Lawson 12-04-09-01).