Determining the Presence of Wolbachia in the Speyeria Genus: A Model for Examining Endangered Populations through a Related Species at Fort Indiantown Gap Military Reservation

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The experiment explored whether Wolbachia bacteria are present in populations of Speyeria cybele at the Fort Indiantown Gap Military Reservation. This species is closely related to the near-endangered Speyeria idalia, and the organisms share a habitat and food sources. Therefore, it is plausible to infer that this population of S. idalia would be infected if S. cybele are, due to the nature of pathogen transmission. This process of testing a related species to avoid sacrificing rare populations creates a model for studying endangered species around the world. To carry out experimentation, one collects S. cybele specimens. Samples are used for PCR with S. cybele and Wolbachia primers. The PCR product is applied to a gel for electrophoresis. Bands that appear are analyzed against the DNA ladder and a control trial on the gel that contains no specimen DNA. Any markings at 430 base pairs signify Wolbachia, while bands at 800 base pairs represent S. cybele DNA and further serve as a control. It was hypothesized that bands would appear at both 430 and 800 base pairs to represent the presence of both organisms' DNA, as Wolbachia are found in many arthropods and S. cybele was directly sampled.

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