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Social Interactions of Invertebrates Acting as Primary Decomposers of Terrestrial Remains

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The two locations where this research was conducted were Curaçao and Richard's Marsh (owned by Yale Peabody Museum) in Branford, Connecticut. The objectives of this research were to observe and begin understanding the basic social interactions that invertebrates have with one another when acting as primary decomposers of terrestrial remains in two different environments. This was achieved by deploying *Sus scrofa* (domestic pig) as terrestrial carrion at both locations. To gather climatic information, various types of data loggers were deployed at both experimental sites as well as trail cameras to record scavenging activity.

The part of this research conducted in Curaçao revealed that invertebrates were not the primary scavengers in the area. The main question then transitioned to, what are the primary decomposers? There was a minimal presence of invertebrates of the genera *Coenobita* and *Gecarcinidae* which were seen primarily scavenging at night. Unfortunately, their true scavenging frequencies may not be what was recorded due to trail camera malfunction. Similar unanticipated events occurred at Richard's Marsh. Regrettably, there were problems with the trail cameras at this location as well, which may have resulted in an inaccurate representation of scavenging activity.

The climates of Curaçao and Richards Marsh differ in various aspects and were determined to be climatically different via the information recorded with the deployed data loggers (Figure 1).

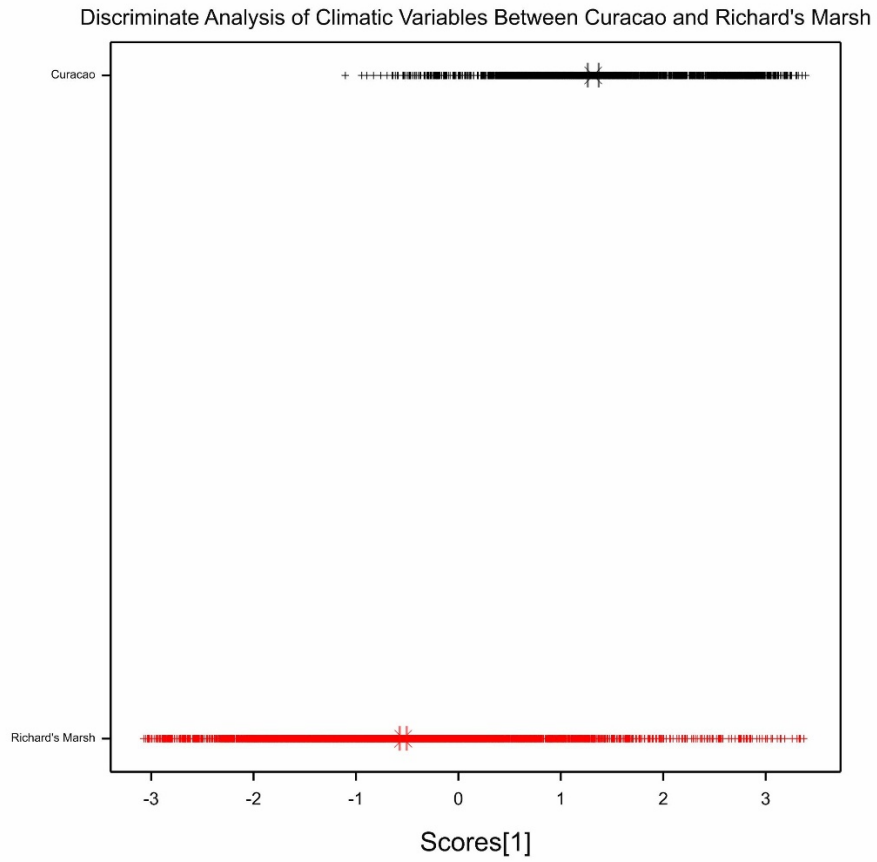


Figure 1: Discriminate Analysis of Climatic Variables (Solar Intensity, Temperature, Humidity) Between Curaçao and Richard's Marsh.

There were two species of invertebrates that were recorded to be seen scavenging on the remains in Curaçao but at that, their presence was minimal in comparison to other scavengers. The primary scavenger was observed to be *Cnemidophorus murinus*, (Figure 2).

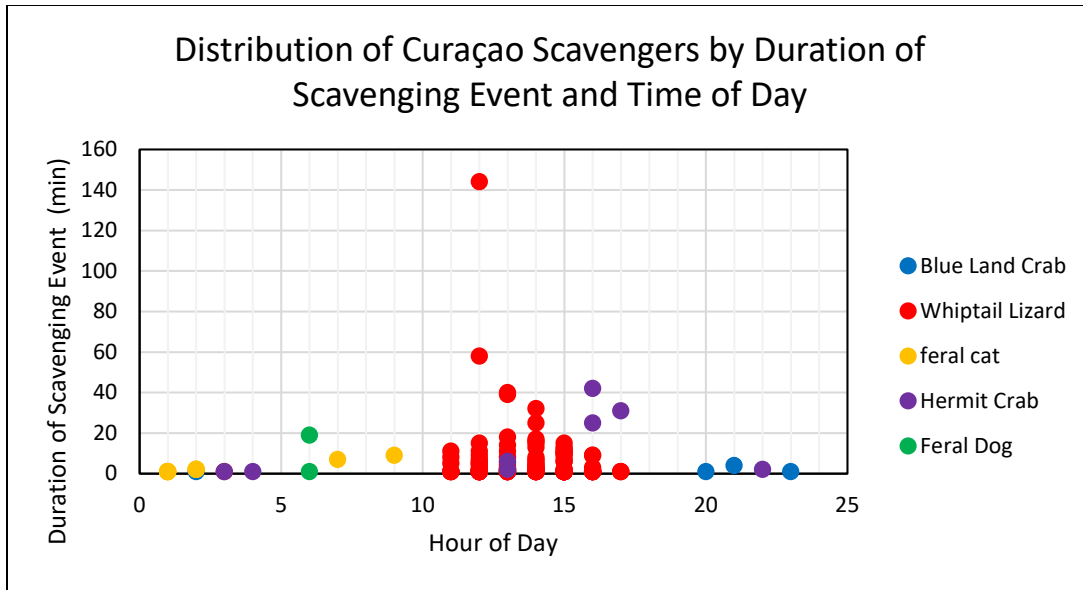


Figure 2: Distribution of Curaçao Scavengers by Duration of Scavenging Event and Time of Day

The Branford, Connecticut location had two primary scavengers, an unidentified species of fish and *Ocypodidae uca* (Figure 3).

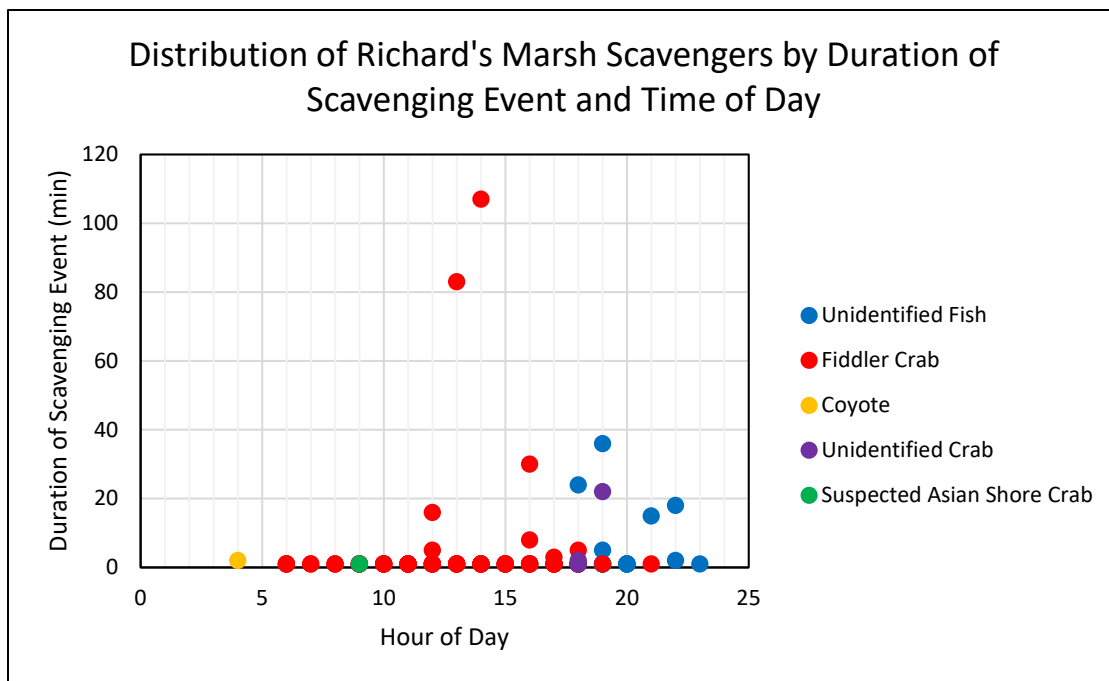


Figure 3: Distribution of Richard's Marsh Scavengers by Duration of Scavenging Event and Time of Day

Overall, this research was not able to begin unveiling the answer to how invertebrates interact with one another while acting as primary decomposers— let alone while scavenging in general. But, the results of this experiment open the doors for future research. The knowledge gap in relation to invertebrates and their scavenging behaviors is still quite large, warranting further investigation. I hope to continue making progress with this research by first identifying the types of scavengers within coastal regions of different geographic locations. That way, in the future researchers can choose the correct location with the right scavengers for their research.

This research project will be continued in Connecticut over the next seven months and on San Salvador Island, The Bahamas in March of 2020.