

Discovery of a New DNA Sequence at Gardiner's Park

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Goals

The overall goal of this study is to reveal the biodiversity of invertebrates and plants in Gardiner's Park through the collection of various samples of ants, invertebrates and phragmites from the differing ecosystems of Gardiner's Park specifically the pond, forest and bay areas. In addition, there is the possibility of discovering new species of plants and invertebrates.

Introduction

A study of biodiversity in Gardiner's Park as it relates to invertebrates and *Phragmites australis* is significant in order to understand other Long Island ecosystems. Gardiner's Park is a Suffolk County park located in West Islip on the South Shore of Long Island. This park is diverse with marshes, deciduous forest, and beaches (Suffolk County Government, 2014). Biodiversity is the variety of different types of life found on earth. A habitat that is highly diverse, biologically, would have a better chance of making adjustments in order for it to survive a change or a threat (Maritime Aquarium, 2015). If this experiment is complete, valuable information will be obtained to serve as a baseline for comparison to other South Shore ecosystems.

Materials & Methods

The specimen caught will be documented using photos taken via smartphone. 1. GPS location will be documented using an enabled phone to find longitude latitude and altitude coordinates.

2. We will place the live specimen from the bait in a kill jar they will then be euthanized and preserved in 99.9% ethanol and stored in a freezer until time to process the DNA. The plants will also be stored in the freezer.

At a Stony Brook Lab workshop, we will extract the DNA of the preserved specimen using PCR and gel electrophoresis. After collecting the DNA, we will send the samples to GENWIZ. After receiving the sequences, we will then use DNA subway to help analyze the results with bioinformatics.

Results

Preliminary Results indicate that we probably have discovered a novel species of flying insect!

BLAST results

\$ #	Accession #	♦ Details	♦ Aln. Length	♦ Bit Score		Mis- matches
5(3).	gi 909738382 gb KM832699	Leiobunum sp 08SOAR-0043 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	512	888	0.0	8
6(3).	gi 909738382 gb KM832699	Leiobunum sp 08SOAR-0043 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	512	884	0.0	9
2(1).	☐ gi 909731890 gb KM829453	Sclerosomatidae sp BIOUG03441-B12 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	636	962	0.0	41
1(1).	gi 909731890 gb KM829453	Sclerosomatidae sp BIOUG03441-B12 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	655	984	0.0	44
4(2).	gi 602179434 gb KJ167362	Sclerosomatidae sp BIOUG03441-B07 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	618	890	0.0	51
3(2).	🗌 gi 602179434 gb KJ167362	Sclerosomatidae sp BIOUG03441-B07 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial	639	915	0.0	54
62(31).	gi 909752332 gb KM839672	Leiobunum sp BIOUG06354-H02 cytochrome oxidase subunit 1 (COI) gene, partial cds: mitochondrial	571	634	1e- 178	88

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