

Examining Ant Diversity in Long Beach, NY

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Summary

- Ants were collected with the intention of learning more about ant diversity in our unique barrier island habitat.
- Ants were collected at Long Beach High School in Long Beach, NY.
- Barcoding these ants helped us examine the COI gene used as a reference for species ID in the genetic database.
- Ants are a critical component in their soil-based ecosystems: They are decomposers and play various other roles including turning and aerating soil so plants can obtain water and nutrients, and eating a wide variety of organic materials as well as providing food for many different organisms.

Methods

- Species were collected with pitfall traps placed in campus soil near leaf litter.
- Ants were also hand collected by scooping soil in and around leaf litter. This was then examined for insects by hand.
- DNA was extracted and specimens were DNA barcoded with the barcode LI protocol.

Results

- 24 individual ants barcoded. 20 obtained adequate DNA sequences
- 18 had visual differences but when they were DNA barcoded and examined, were the same species
- Three distinct species of ants were found:
 - *Camponotus pennsylvanicus* (Black carpenter ants are one of the most common ant species found throughout the world. They are a domestic pest that create their nests in human homes.)
 - *Lasius neoniger* (Turfgrass ants are a species that invade lawns, parks, golf courses, playgrounds, cemeteries and other turfgrass areas.)
 - *Lasius claviger* (Smaller yellow ants nest in soil under stones and in well-decayed tree stumps. Queens find new colonies by invading nests of other *Lasius* species, killing the queen and using her workers as her initial brood.)
- Discussion
 - Of the three species found, 2 are only found in northeastern US
 - Both *Lasius* species found are native to our area and have a relatively small range
 - Black carpenter ants have a wide geological range and are found in many different climates
 - Further reserch may be done on why these different niches exist and how black carpenter ants are well suited for many different ecosystems

TGGATTCTTTACTTTTTATTTGCTATTTGAGCTGGTATAATCGGTTTCATCTATAAGAATAATTATTCGTCTAGAATTAGGATCATCTAATTCATTGATTAACAATGATCAAA
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TGCAGGAGCTATTACTATACTTTTAACTGACCGTAATCTTAACACTTCATTTTTTGATCCATCAGGTGGCGGAGATCCTATTTTATATCAACATCTTTTTTGATTTTTTG
TCACCCTGAAGTTTAGTCATAGC

COI Sequence for Ant PPR-009 (*Lasius neoniger*)



Image 1
Where *Lasius claviger* are found.
(provided by antwiki.com)



Image 3
Lasius neoniger:
Taken by researchers

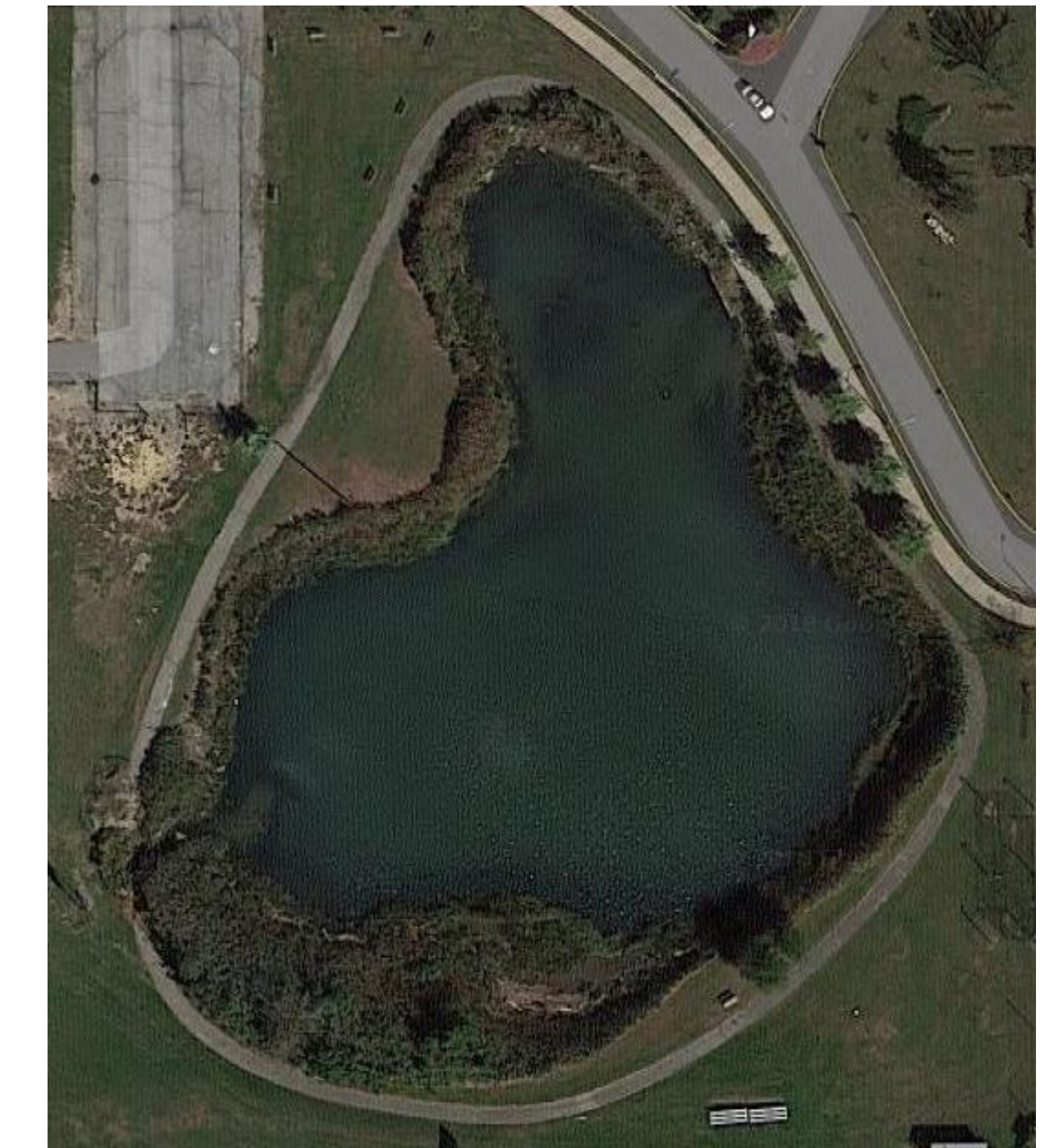


Image 2
Long Beach High School Campus,
where species were found.



Image 4
Lasius claviger:
Taken by researchers



Image 5
Camponotus pennsylvanicus:
Taken by researchers