

Introduction

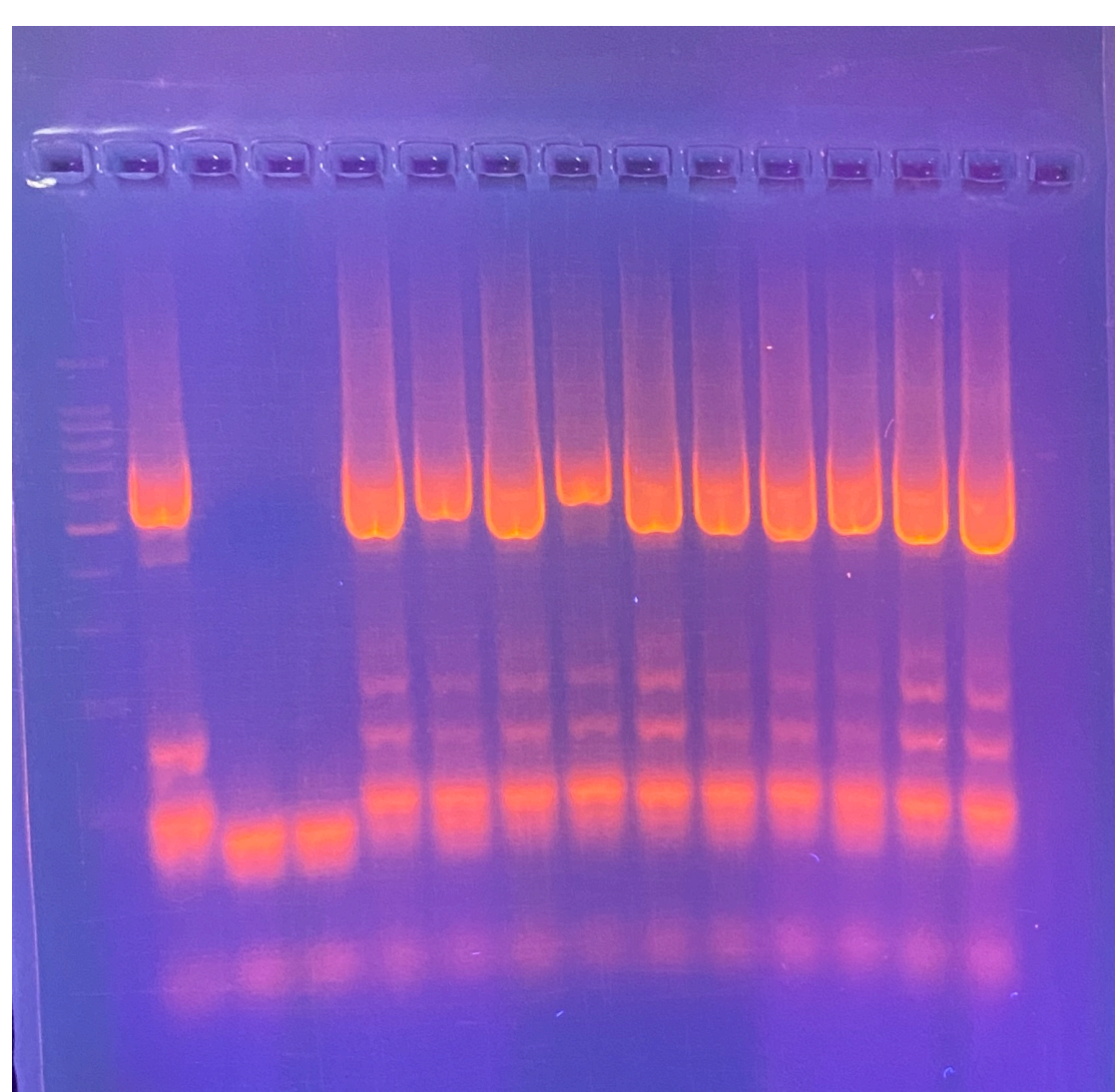
- *Dracunculus insignis* and *Dracunculus lutrae* are parasitic nematodes native to North America.
- The goal of this project was to investigate the genetic diversity of *Dracunculus* in wildlife species from the Eastern USA and investigate spatial and host patterns of infection.
- *D. lutrae* was expected from otters, and *D. insignis* was expected from remaining hosts.



Dracunculid specimens from an Arkansas otter.

Methods

- 89 *Dracunculus*-like specimens from North American river otters (*Lontra canadensis*), raccoons (*Procyon lotor*), and Virginia opossums (*Didelphis virginiana*) across the Eastern USA.
- Phylogenetic relationships were examined using the cytochrome c oxidase I (COI) gene target.
- Experimental methods included DNA extraction, gene-specific amplification (PCR), Sanger sequencing, and phylogenetic analysis using Geneious.

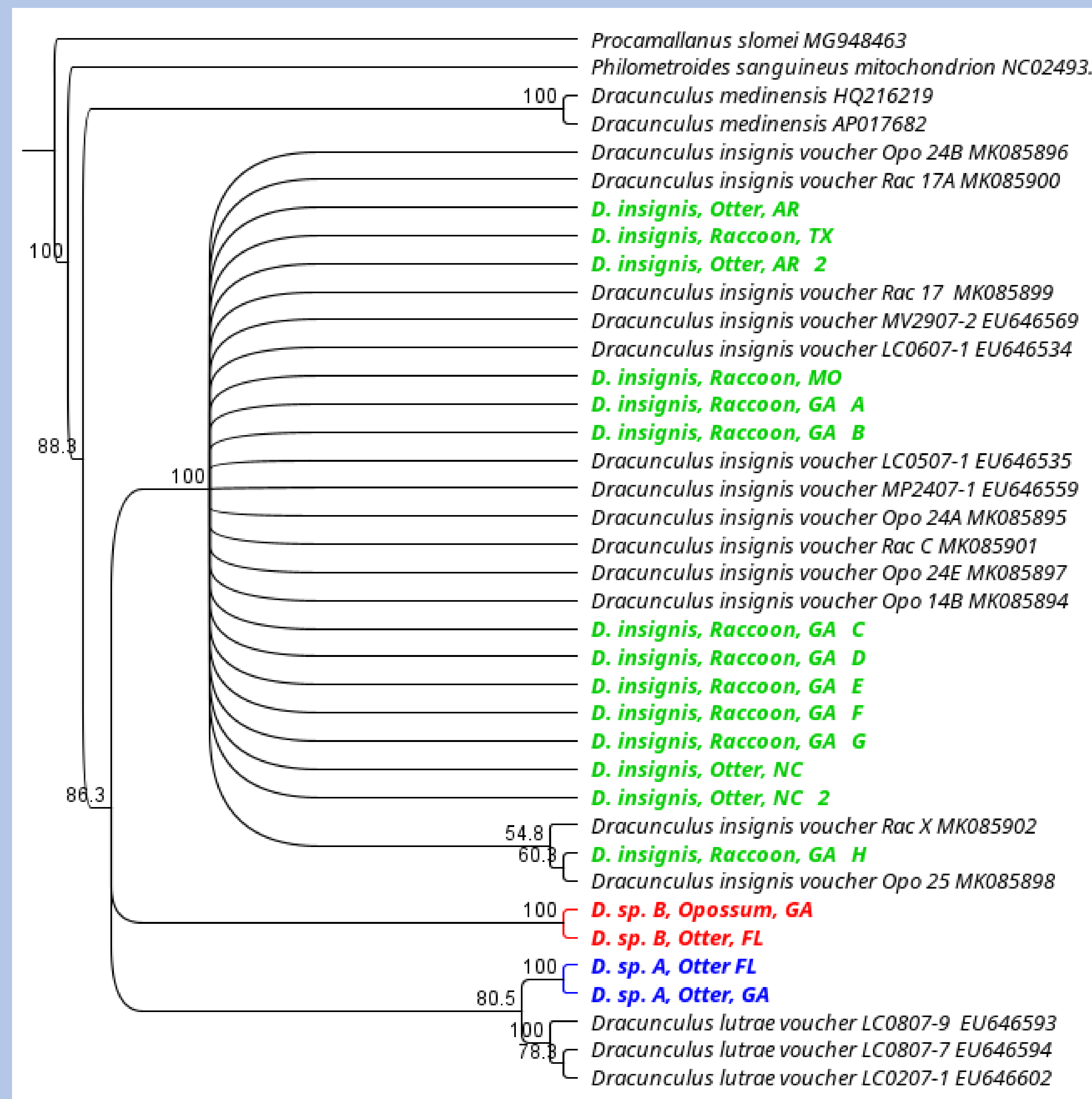


Electrophoresis gel with UV light to show PCR amplification.

Phylogenetics of *Dracunculus* Nematodes in North America

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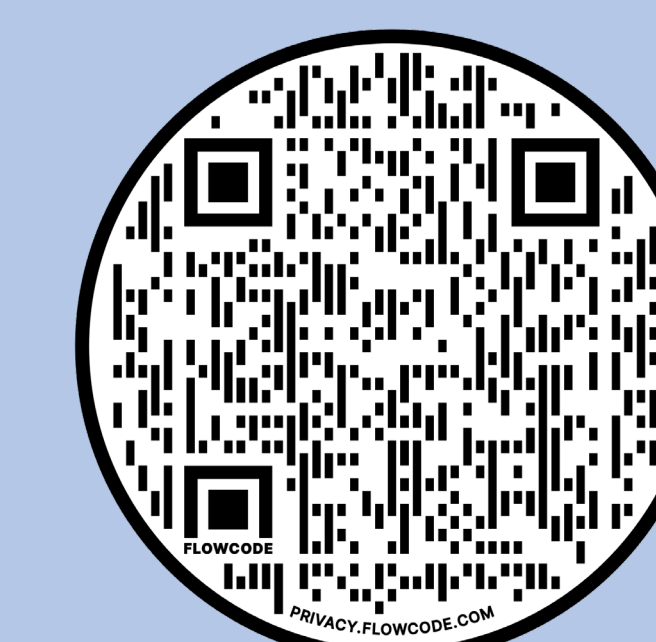
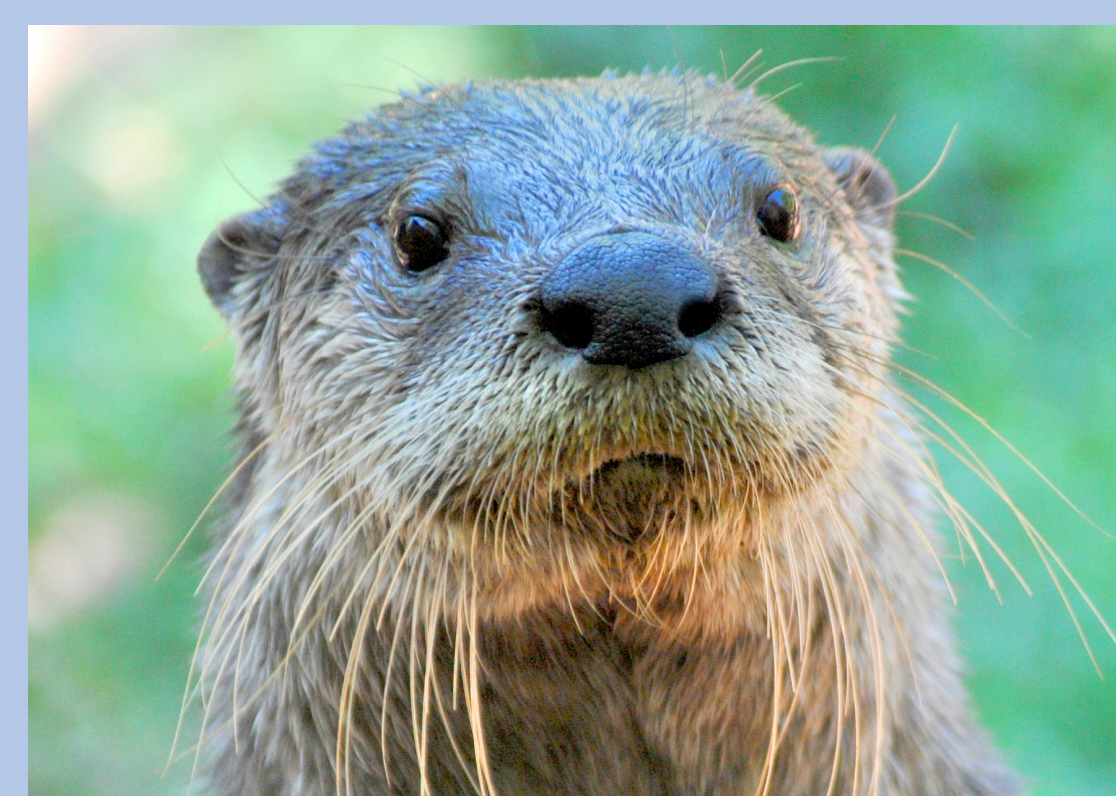
Wildlife in North America are infected with a wide, previously undetected, diversity of *Dracunculus* species.



Key

- *D. insignis*
- *D. sp. B*
- *D. sp. A*

Neighbor-joining phylogenetic tree showing the relationships of selected *Dracunculus* spp. Bi-directionally sequenced specimens resulting from this project are shown in color.



Scan for the abstract!

Results

- 48 of the 89 specimens were successfully sequenced and identified.

	<i>D. insignis</i>	<i>D. sp. A</i>	<i>D. sp. B</i>
Raccoon	20 GA, 1 TX, 1 MO		
Otter	13 AR, 6 NC	1 GA, 1 FL, 1 SC	1 FL
Opossum	2 GA		1 GA

Conclusions

- *D. insignis* was present in most locations and hosts, *D. lutrae* was absent in tested otters.
- Two novel species were identified:
 - *D. sp. A* was closely related to *D. lutrae* (92.8% shared genetic identity)
 - *D. sp. B* had its own unique clade and was present in the Southeastern U.S.
- More research is needed to examine the prevalence of the two novel species.

Acknowledgements

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