Patterns of host-symbiont associations in native and non-native crayfish

Greg Rothman[1], Graham Wagner[1], Kristina M. Hill-Spanik[2], Isaure de Buron[2] & Michael Kendrick[1]

[1]South Carolina Department of Natural Resources, Marine Resources Research Institute

[2]College of Charleston, Department of Biology

crustacean research & monitoring section

- **Non-native species can alter ecosystems**

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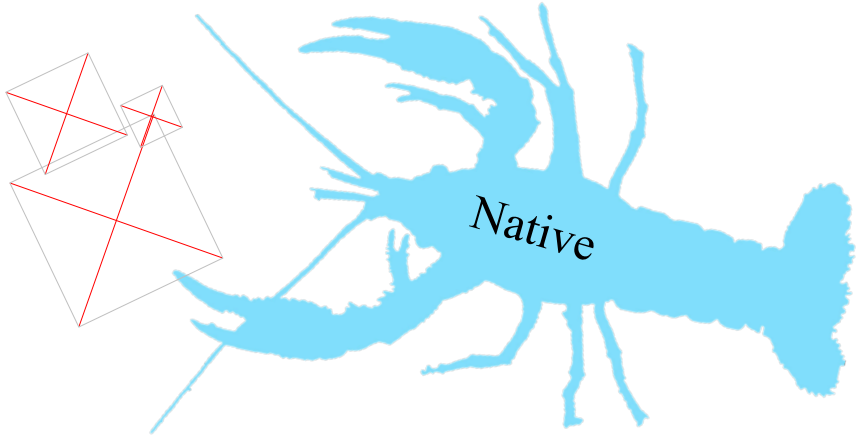
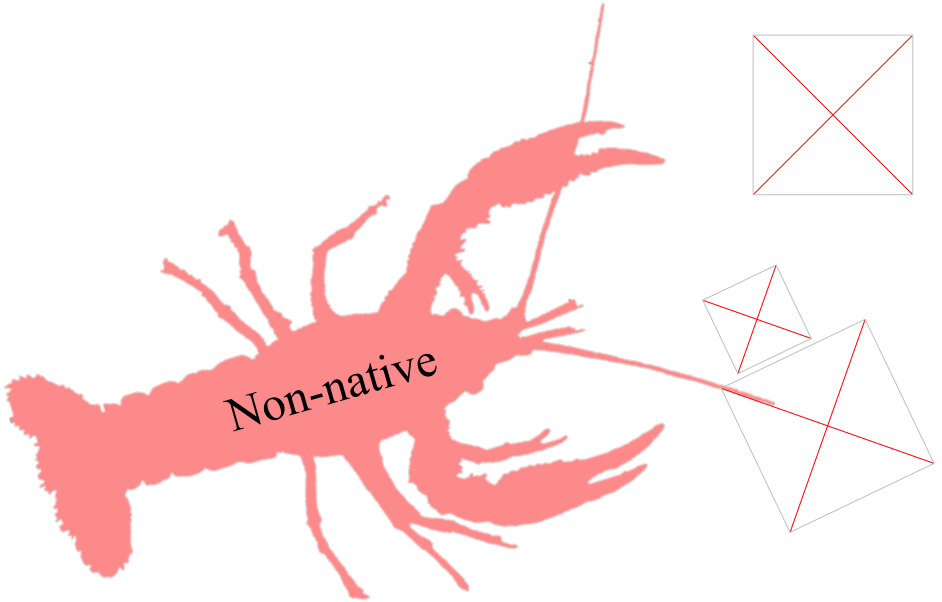


- **Introductions can alter symbiont communities**



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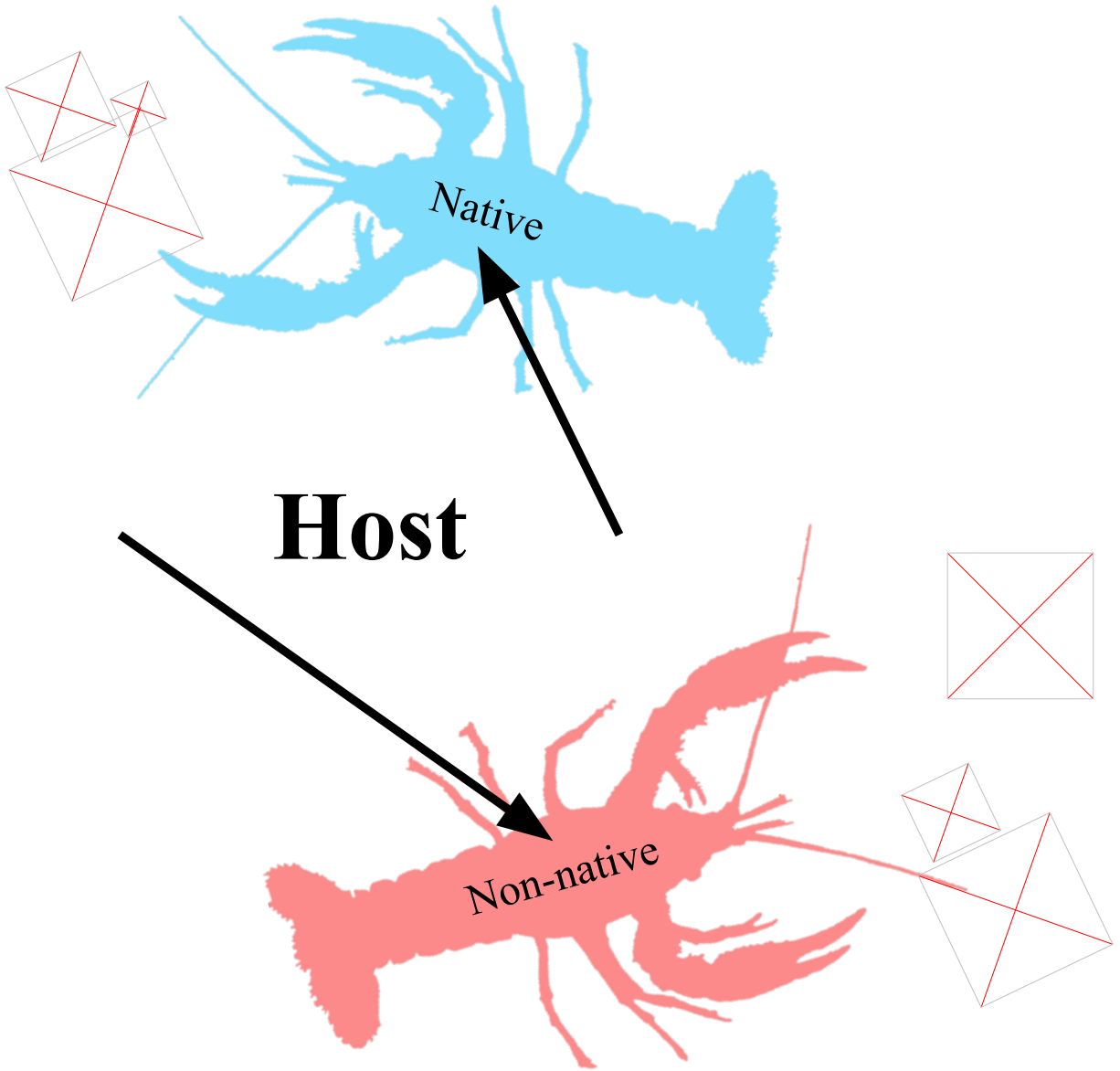

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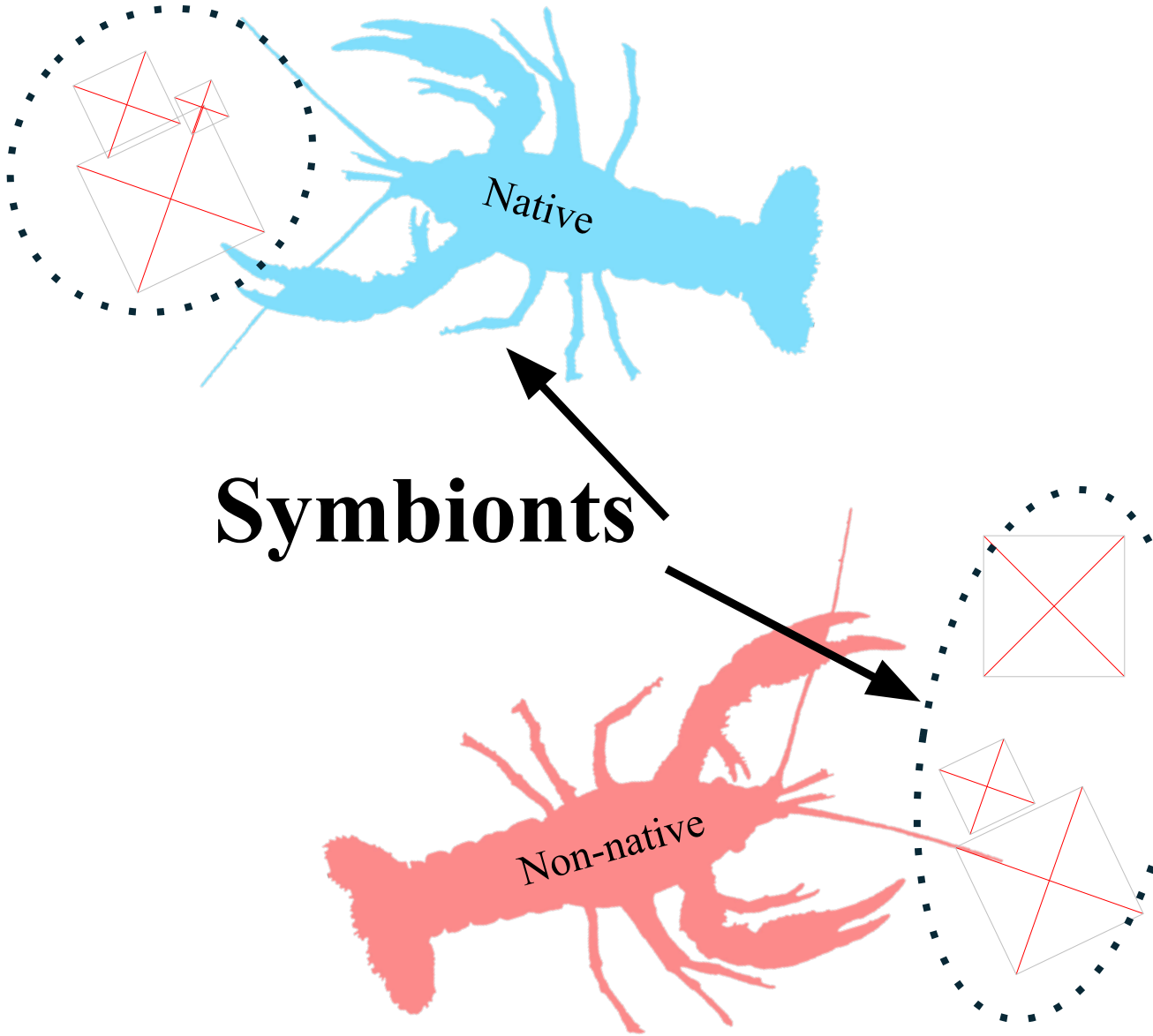

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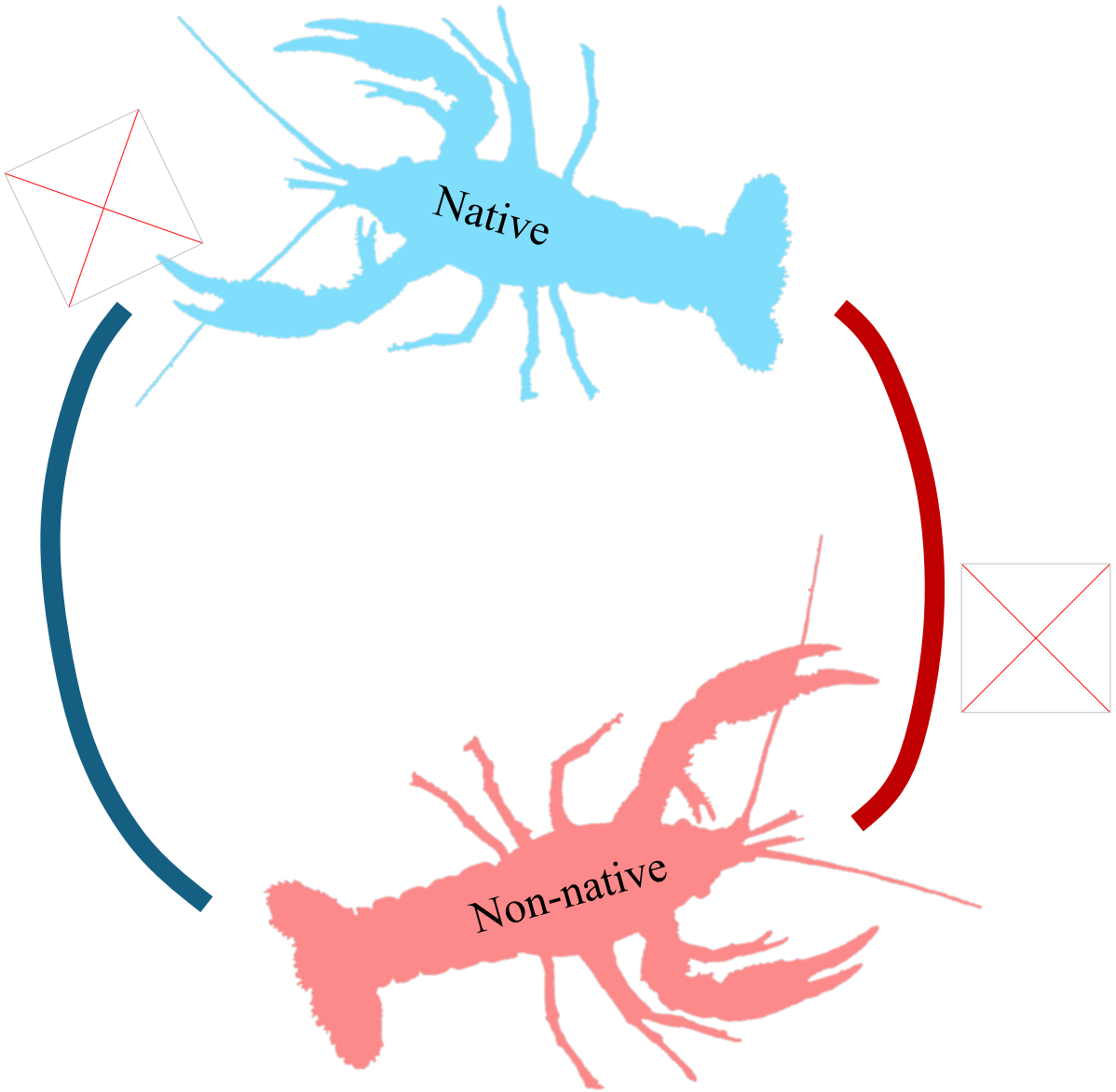

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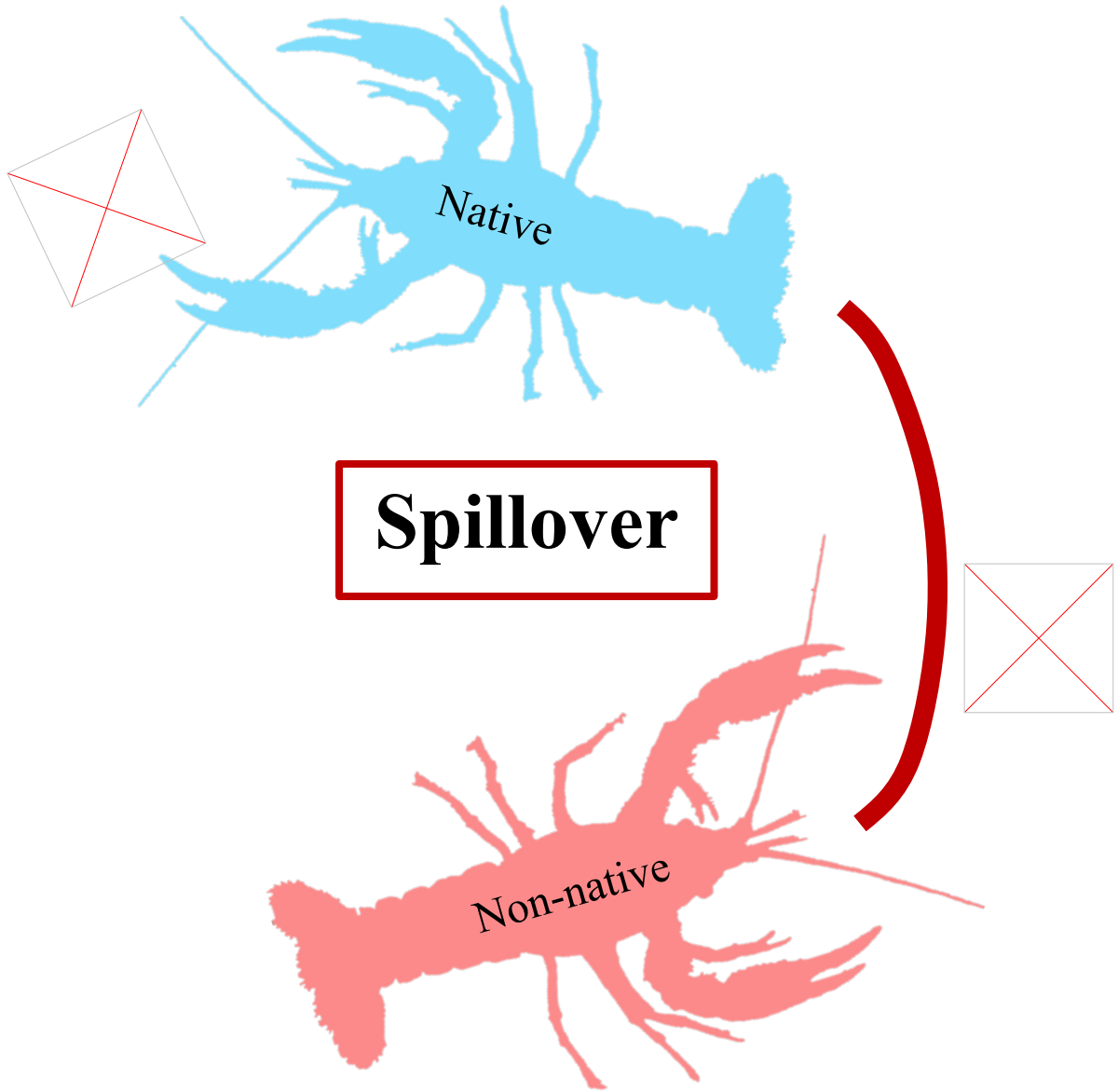

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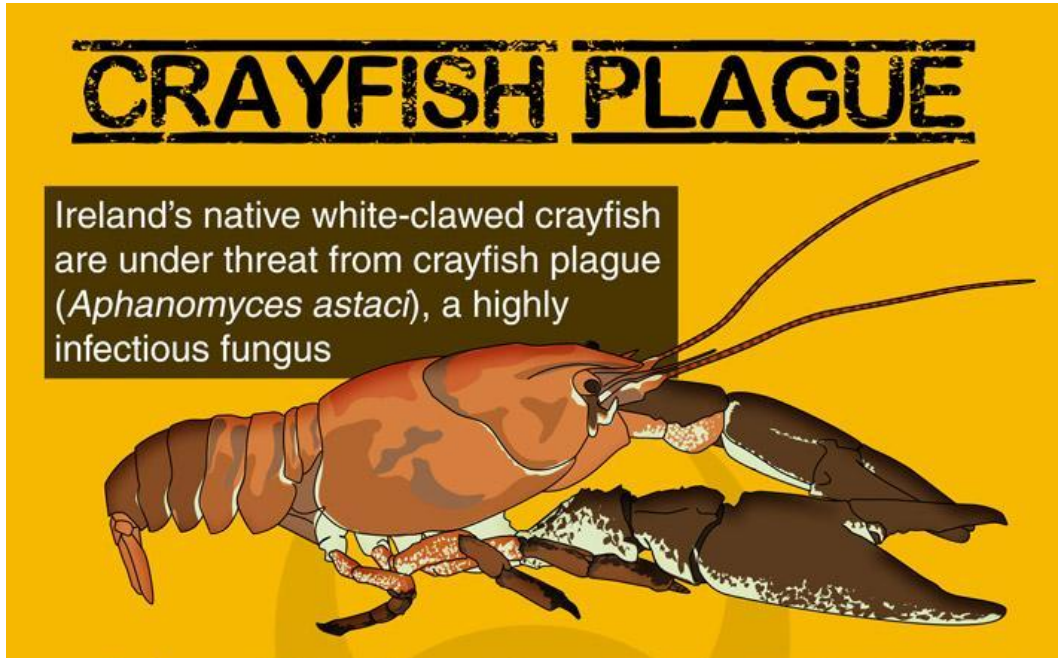

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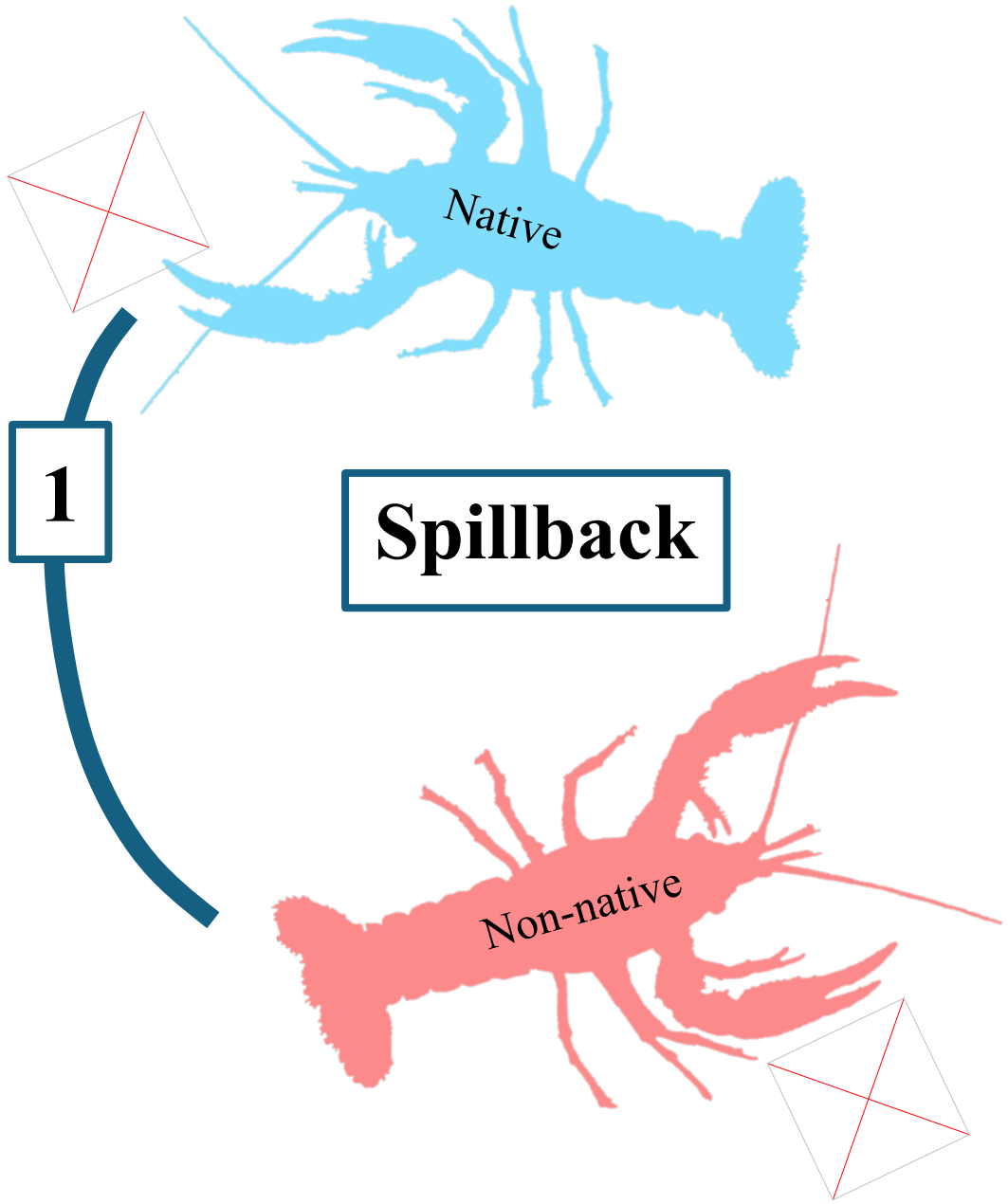

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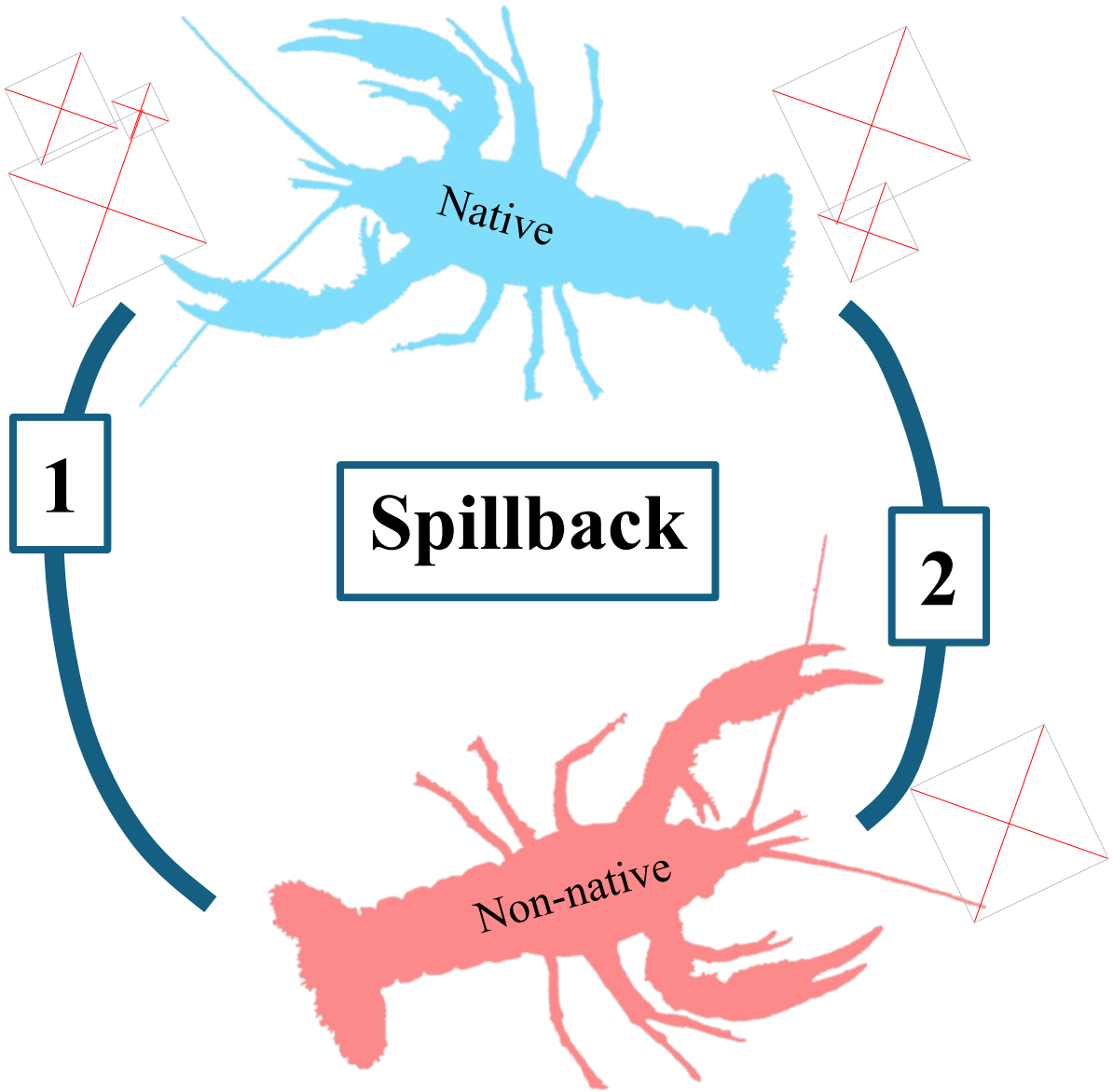
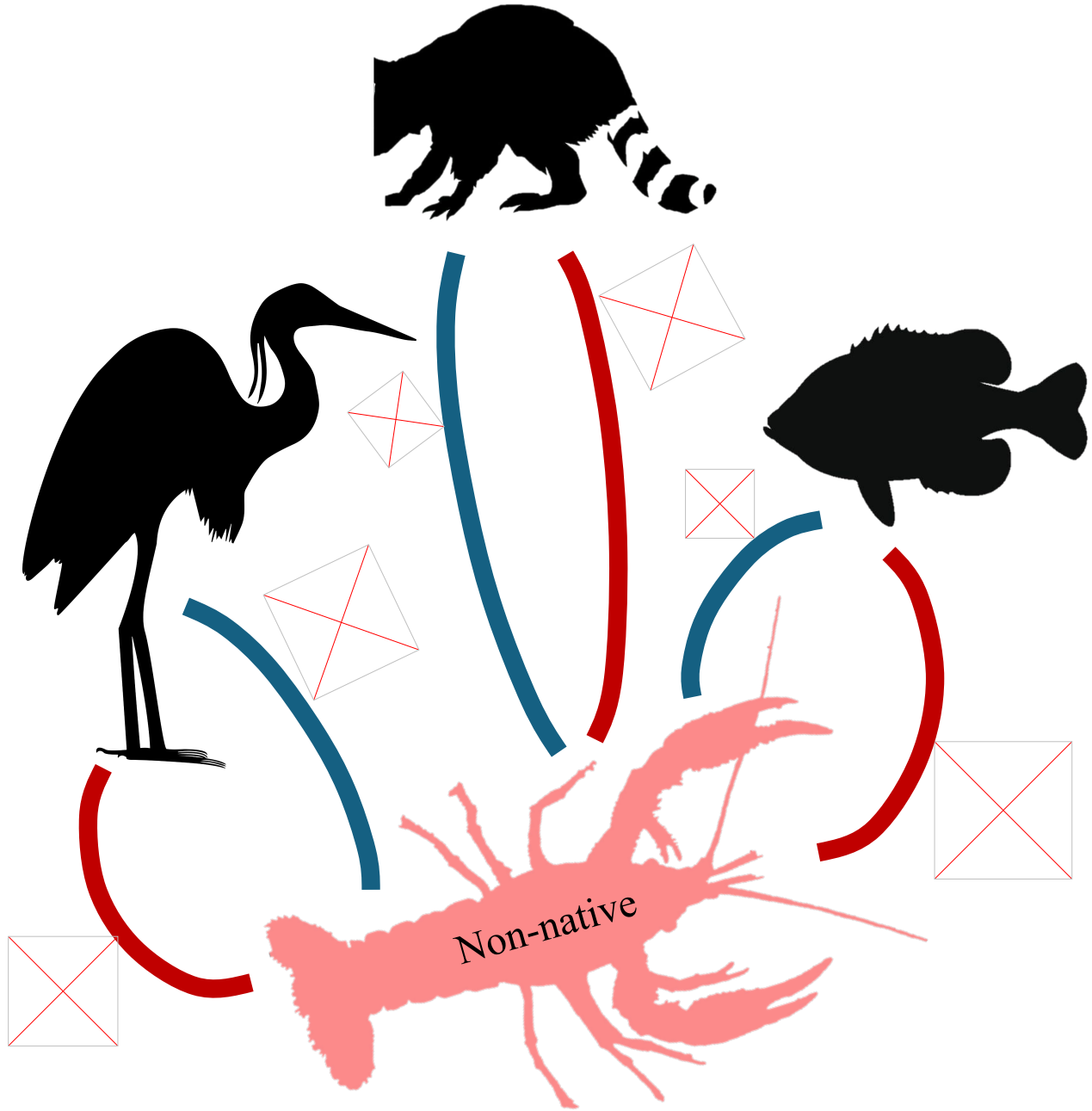
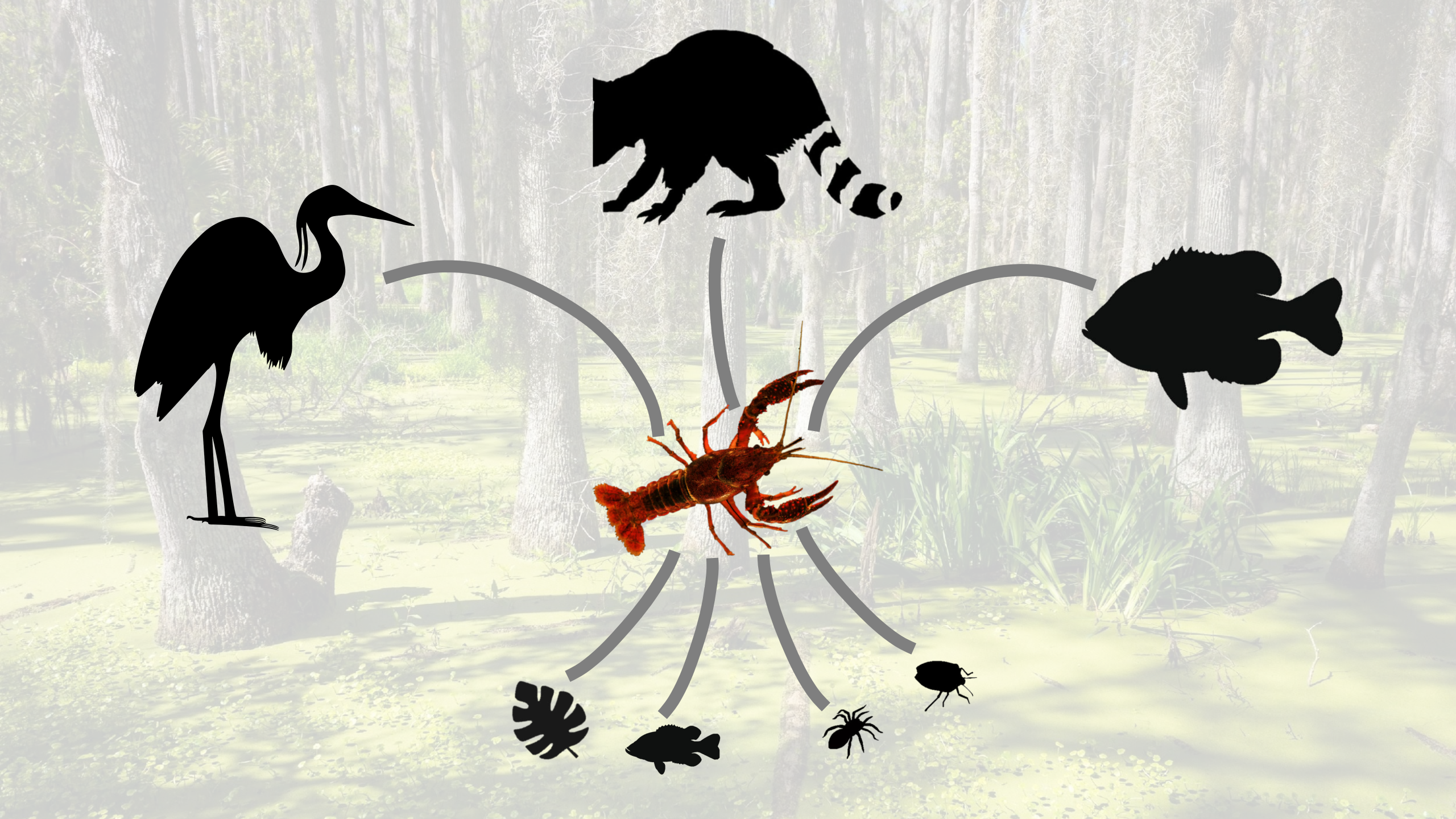
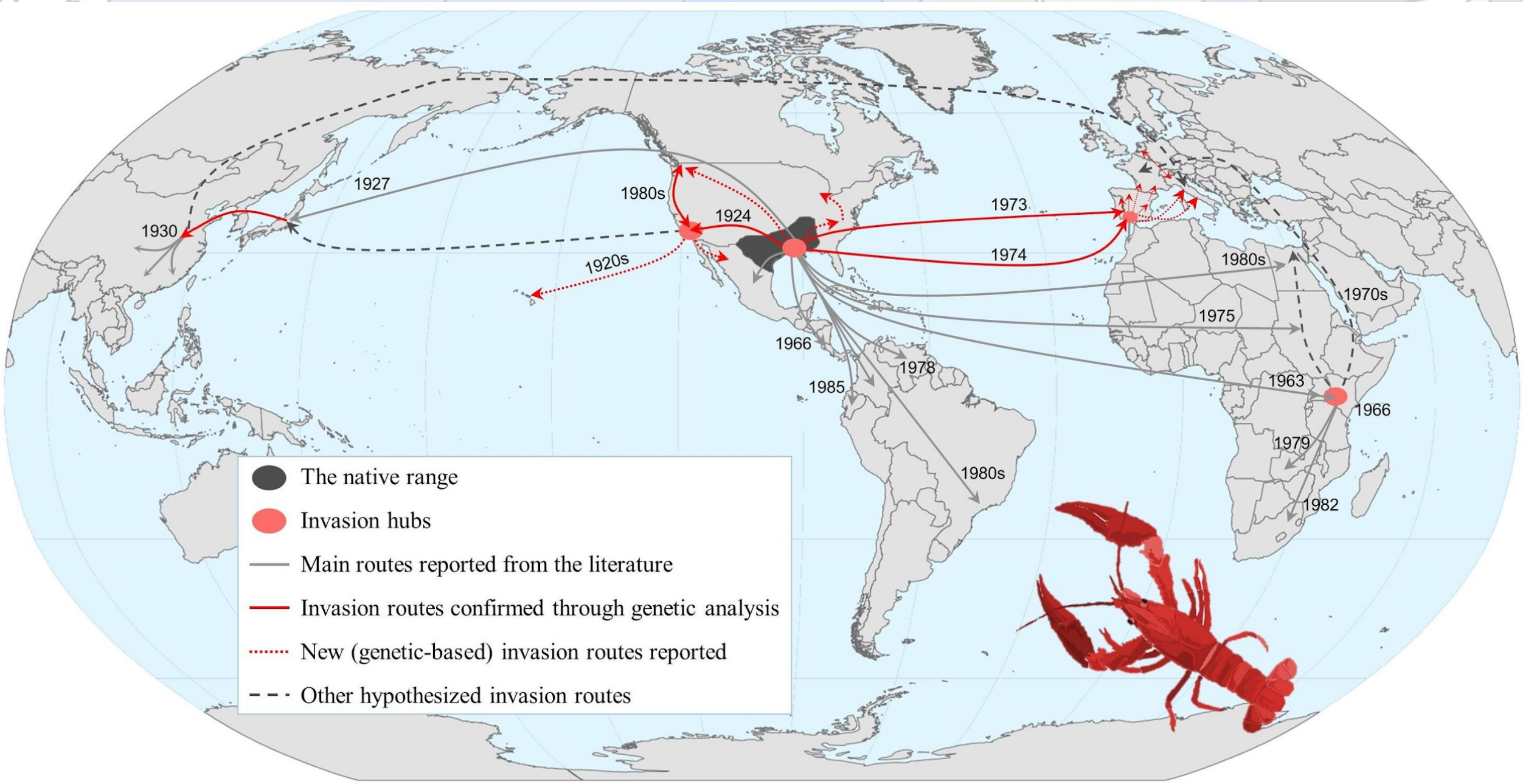


- Non-native species can alter ecosystems
- Introductions can alter symbiont communities
- **Trophic transmission adds complexity**







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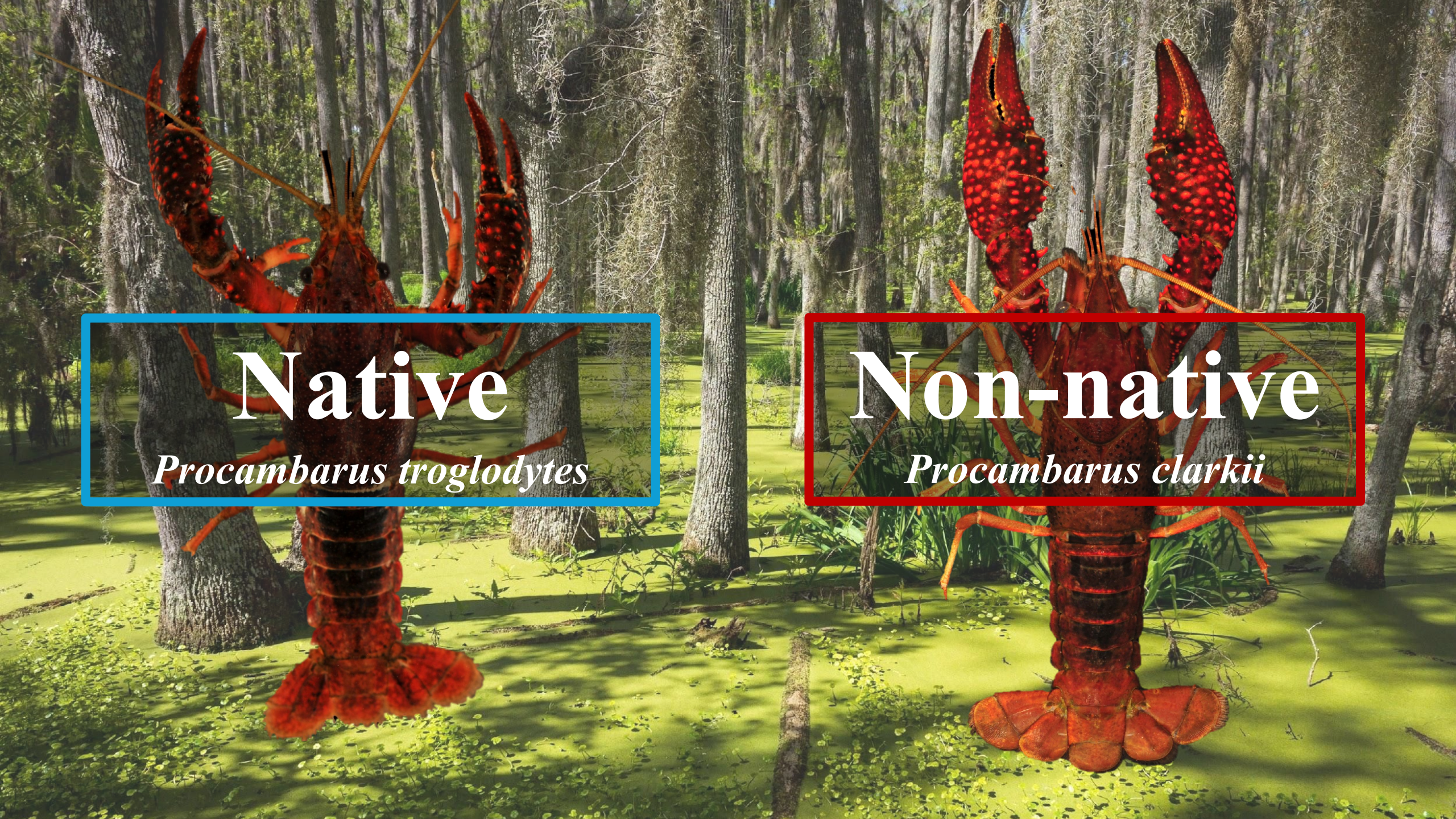
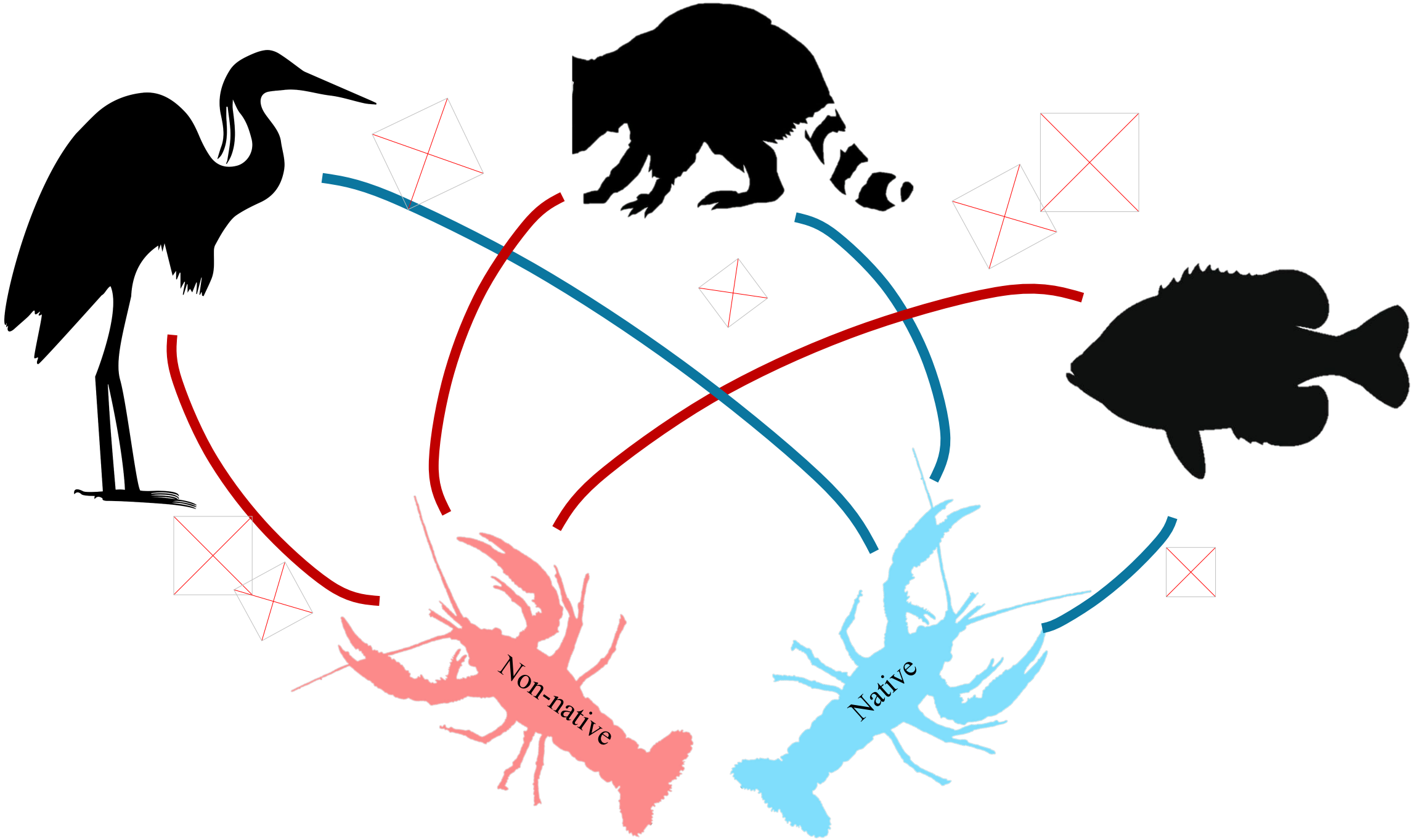
Non-native
Procambarus clarkii


Native
Procambarus troglodytes
Non-native
Procambarus clarkii


Non-native
Native

Objectives

1. Identify symbionts of congeneric crayfish in native and non-native ranges

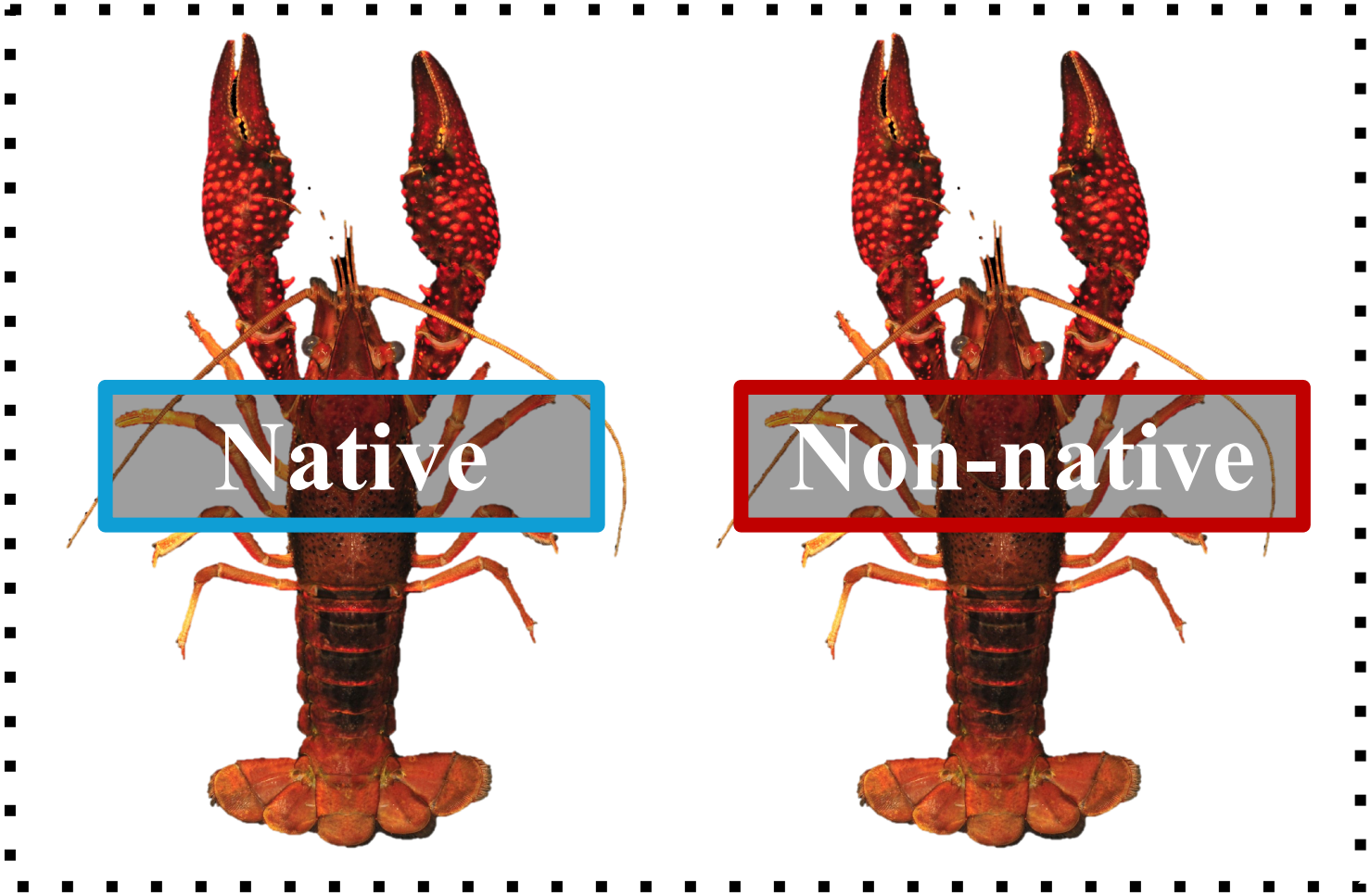
2. Compare infection by trophically-transmitted symbionts in syntopic crayfish populations

Objectives

1. **Identify symbionts of congeneric crayfish in native and non-native ranges**

2. Compare infection by trophically-transmitted symbionts in syntopic crayfish populations

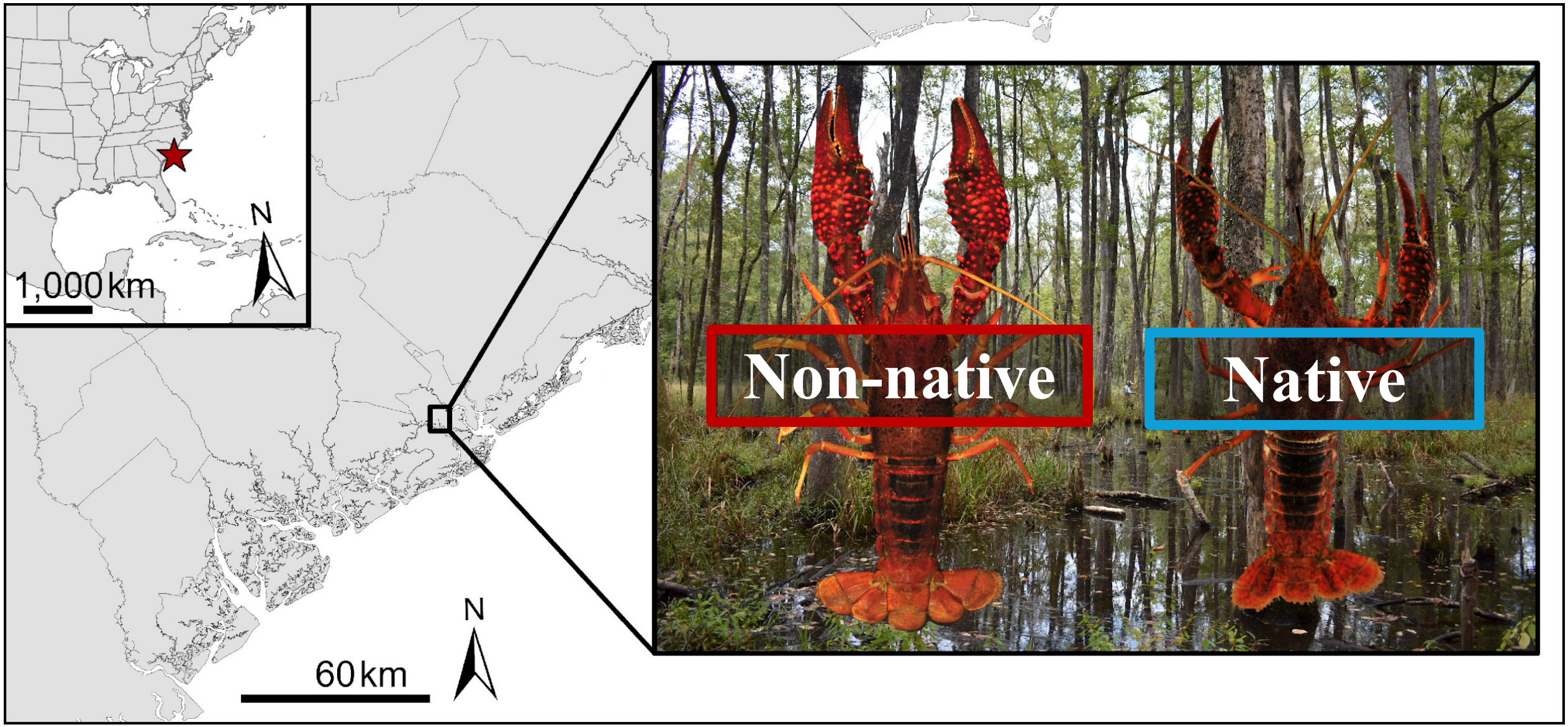
Review known symbionts of both crayfish species



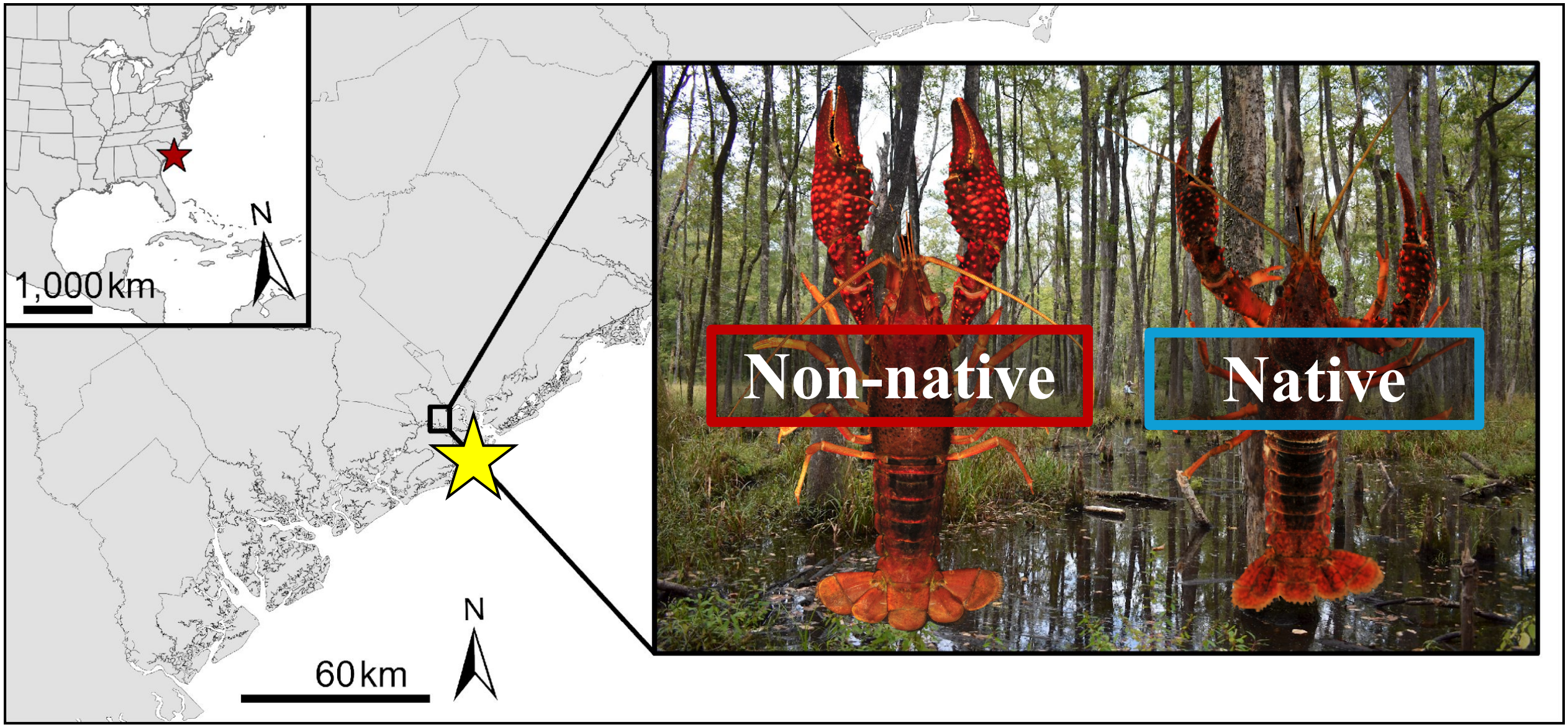
P. clarkii

P. troglodytes

Screen for symbionts in syntopic crayfish system



Screen for symbionts in syntopic crayfish system



Native

36

Non-native

85

P. clarkii

P. troglodytes

Native

18

Native

36

Shared

14

85

Non-native

P. clarkii

Native

36

P. clarkii

Shared

8

Native

18

P. troglodytes

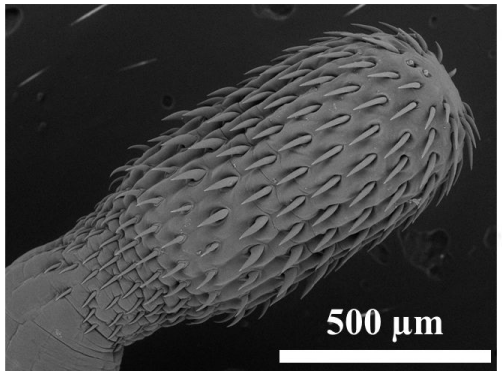
85

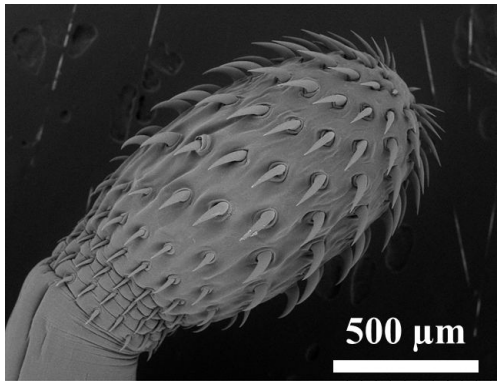
Non-native

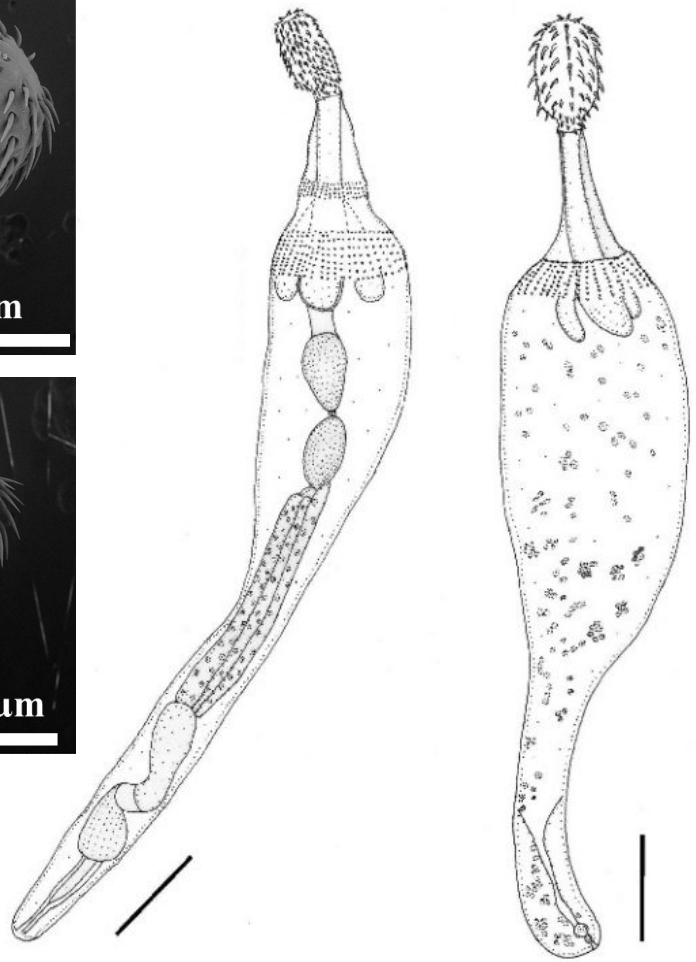
Objectives

- Identify symbionts of congeneric crayfish in native and non-native ranges

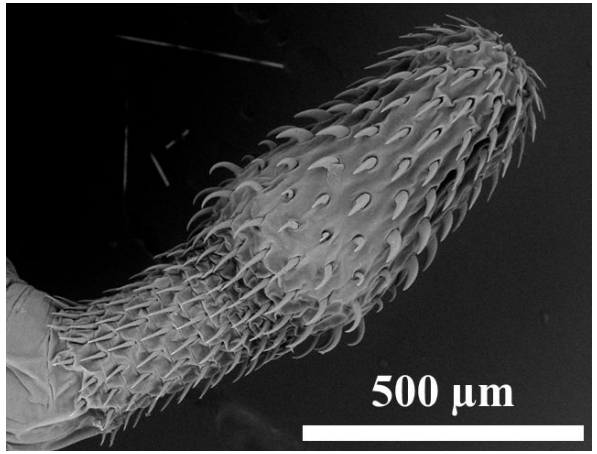
- **Compare infection by trophically-transmitted symbionts in syntopic crayfish populations**

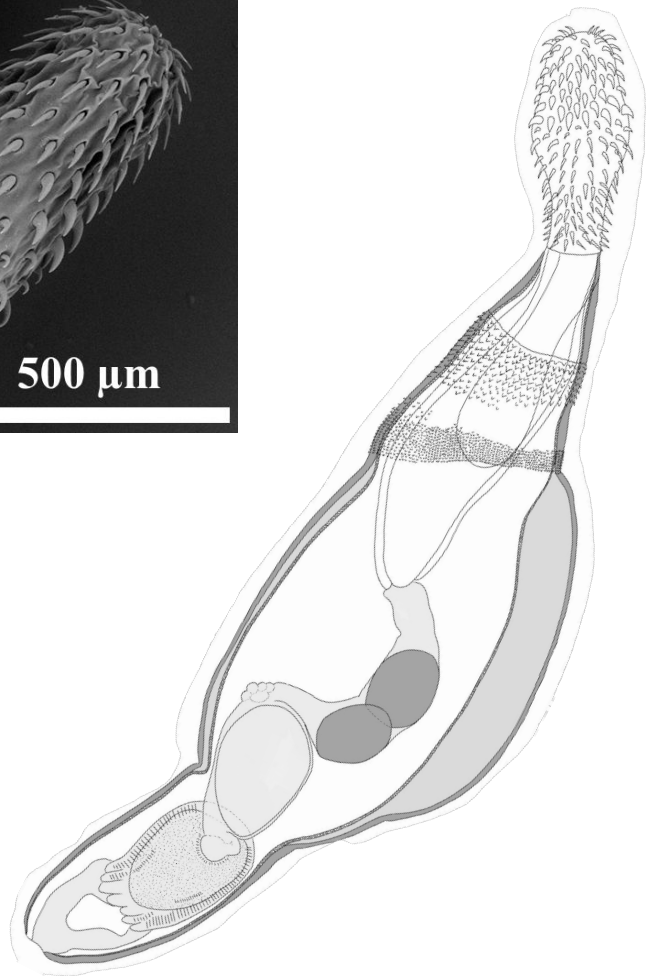




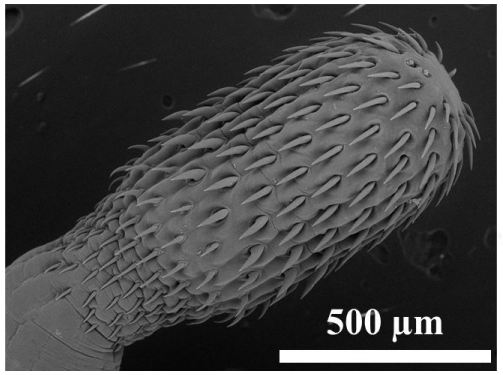


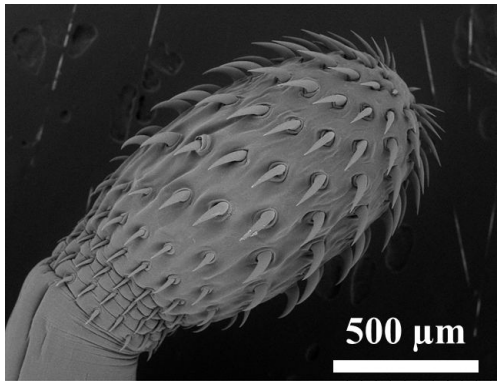
Ibirhynchus dimorpha

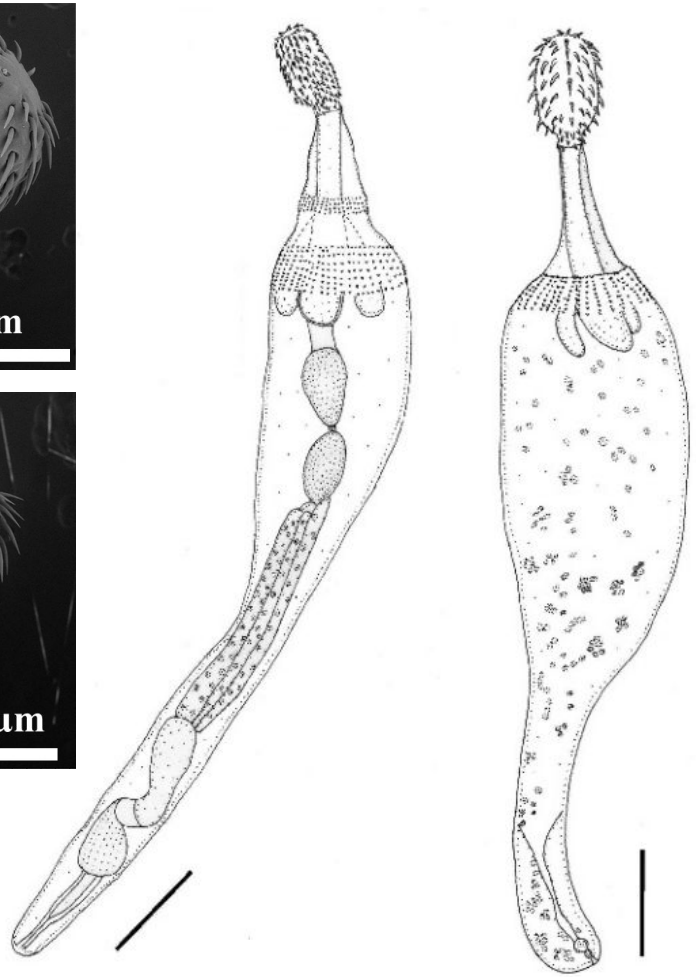




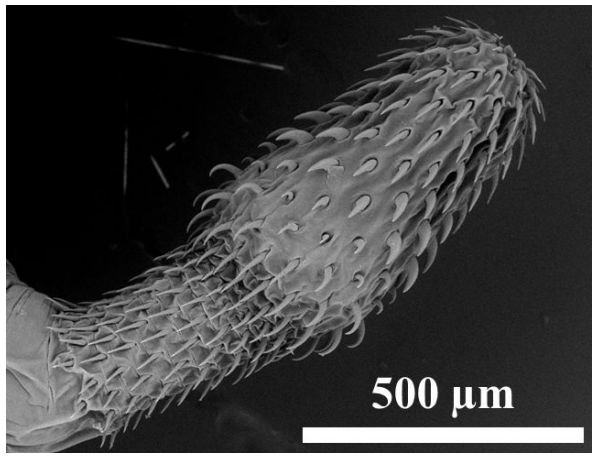
Heterospinus mccordi

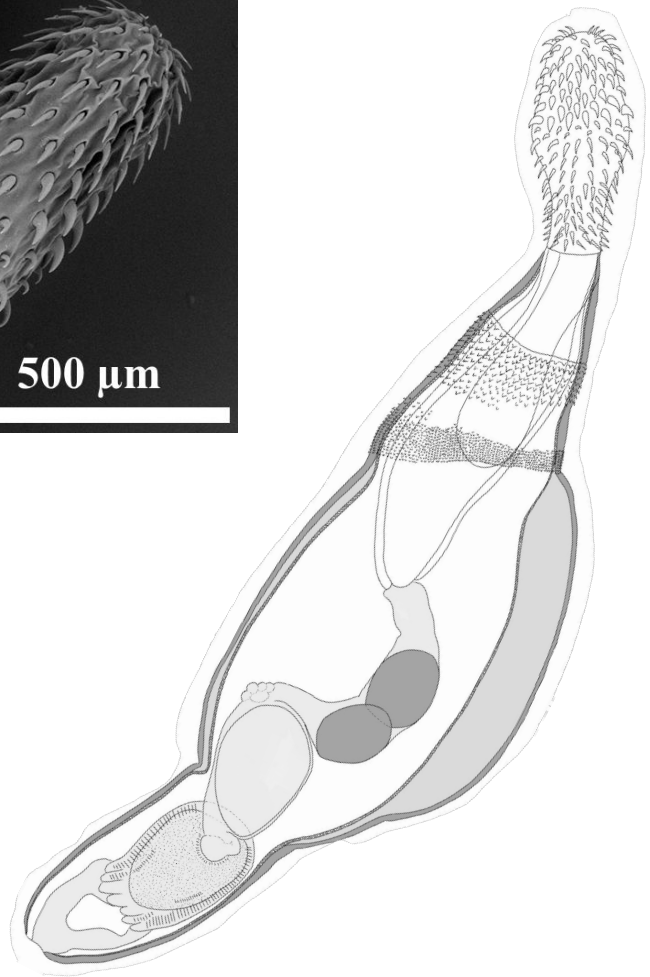






Ibirhynchus dimorpha

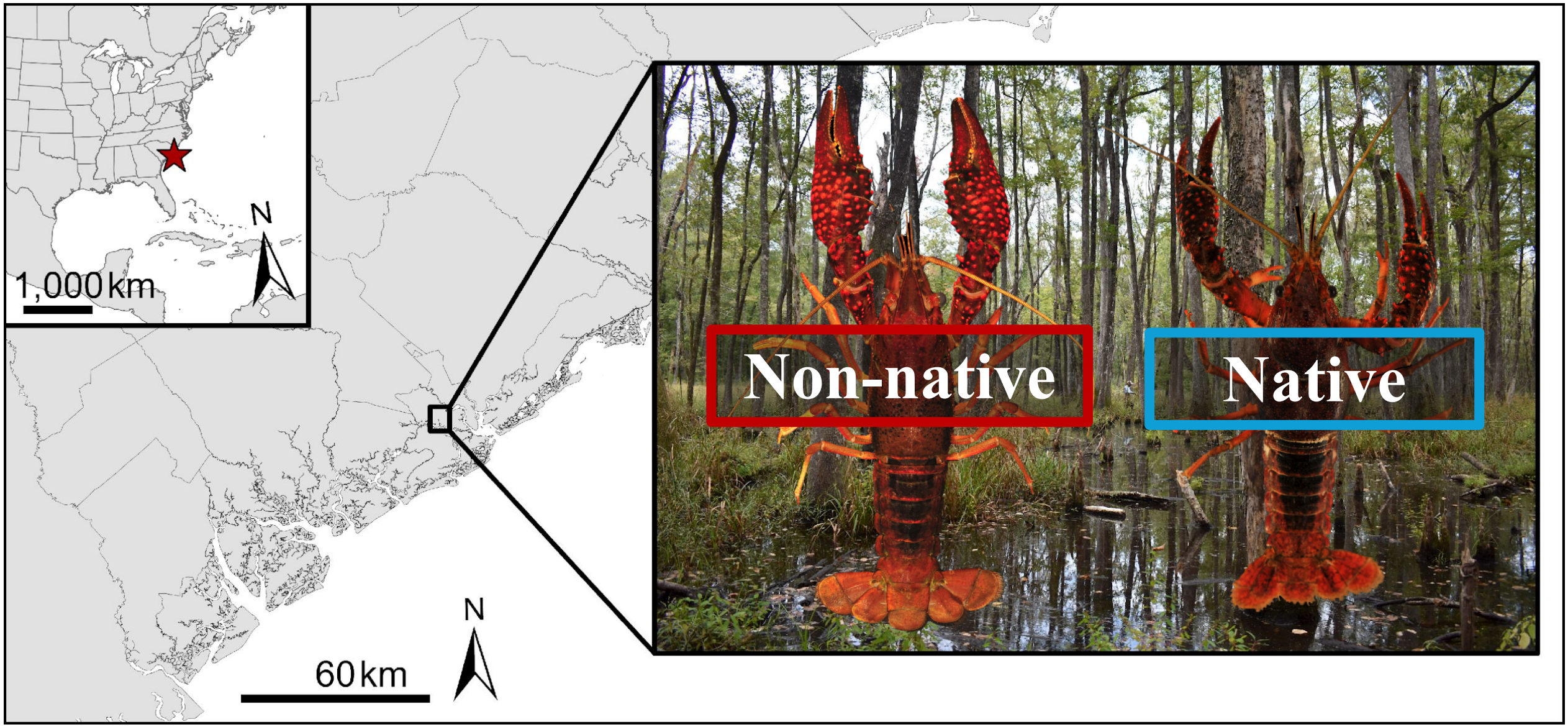




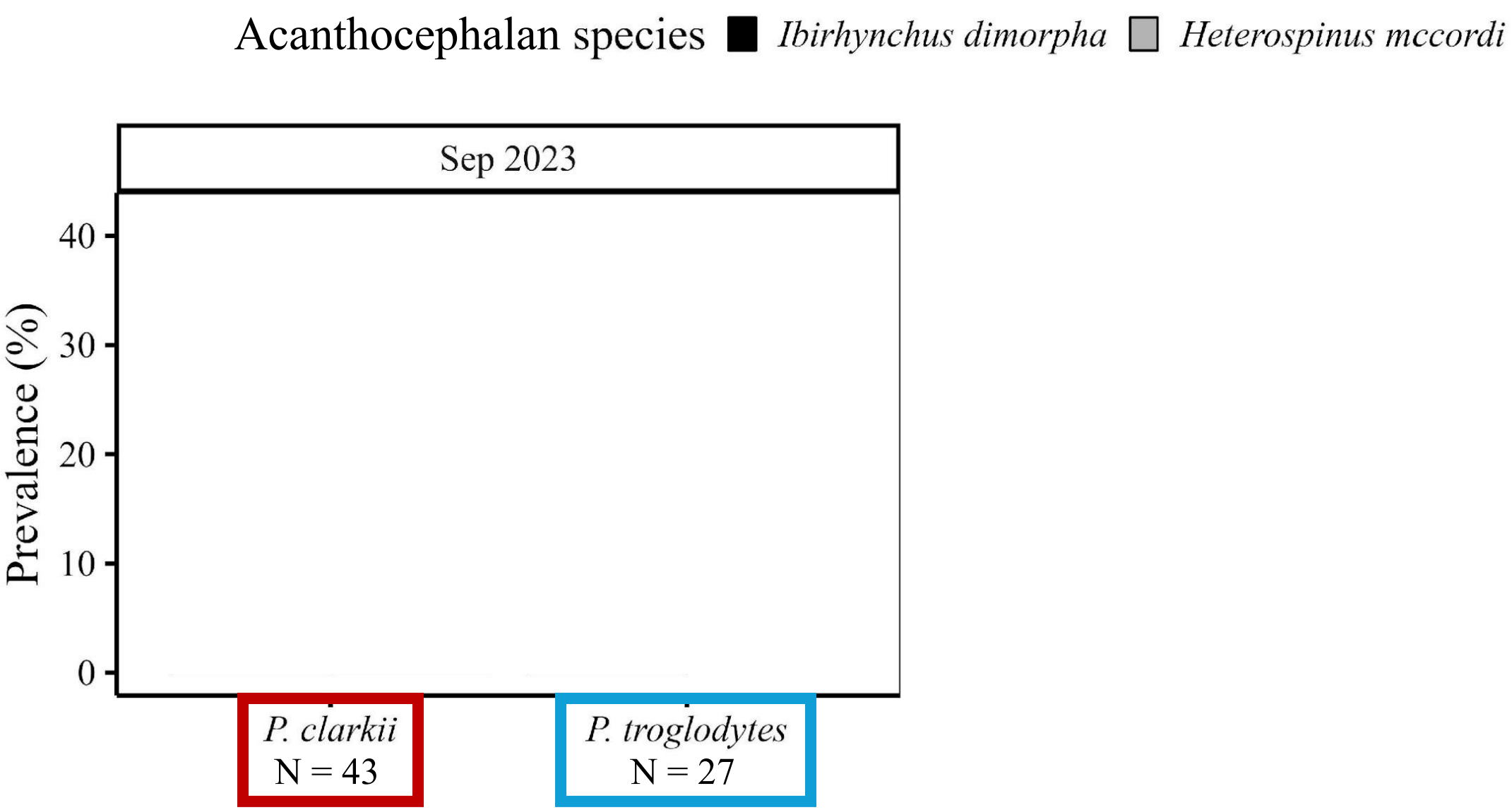
Heterospinus mccordi

Ibirhynchus dimorpha life cycle

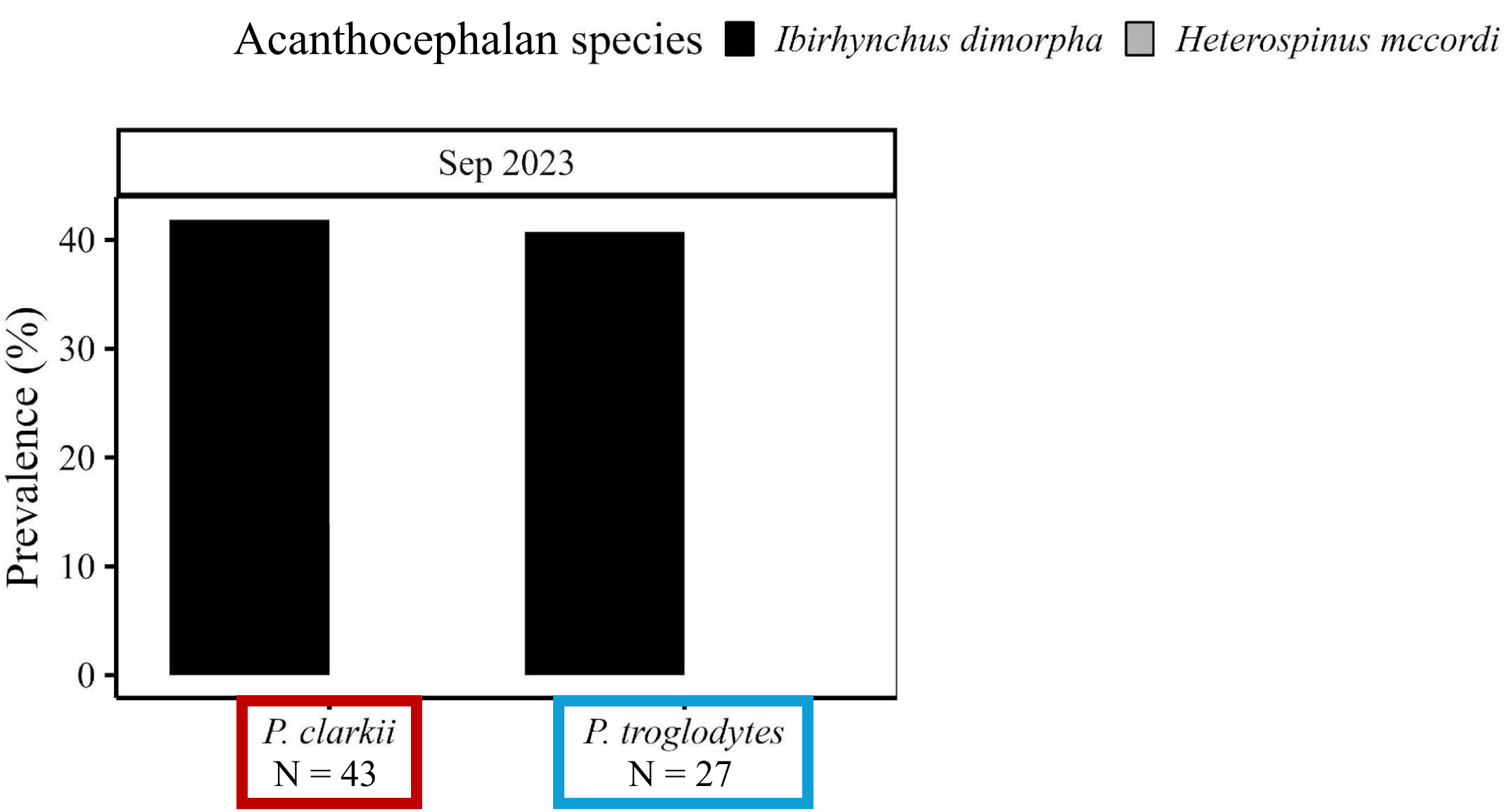
Compare acanthocephalan infection in syntopic crayfish



Prevalence


Acanthocephalan species
Ibirhynchus dimorpha
Heterospinus mccordi
Sep 2023
Prevalence (%)
40
30
20
10
0
P. clarkii
N = 43
P. troglodytes
N = 27

Prevalence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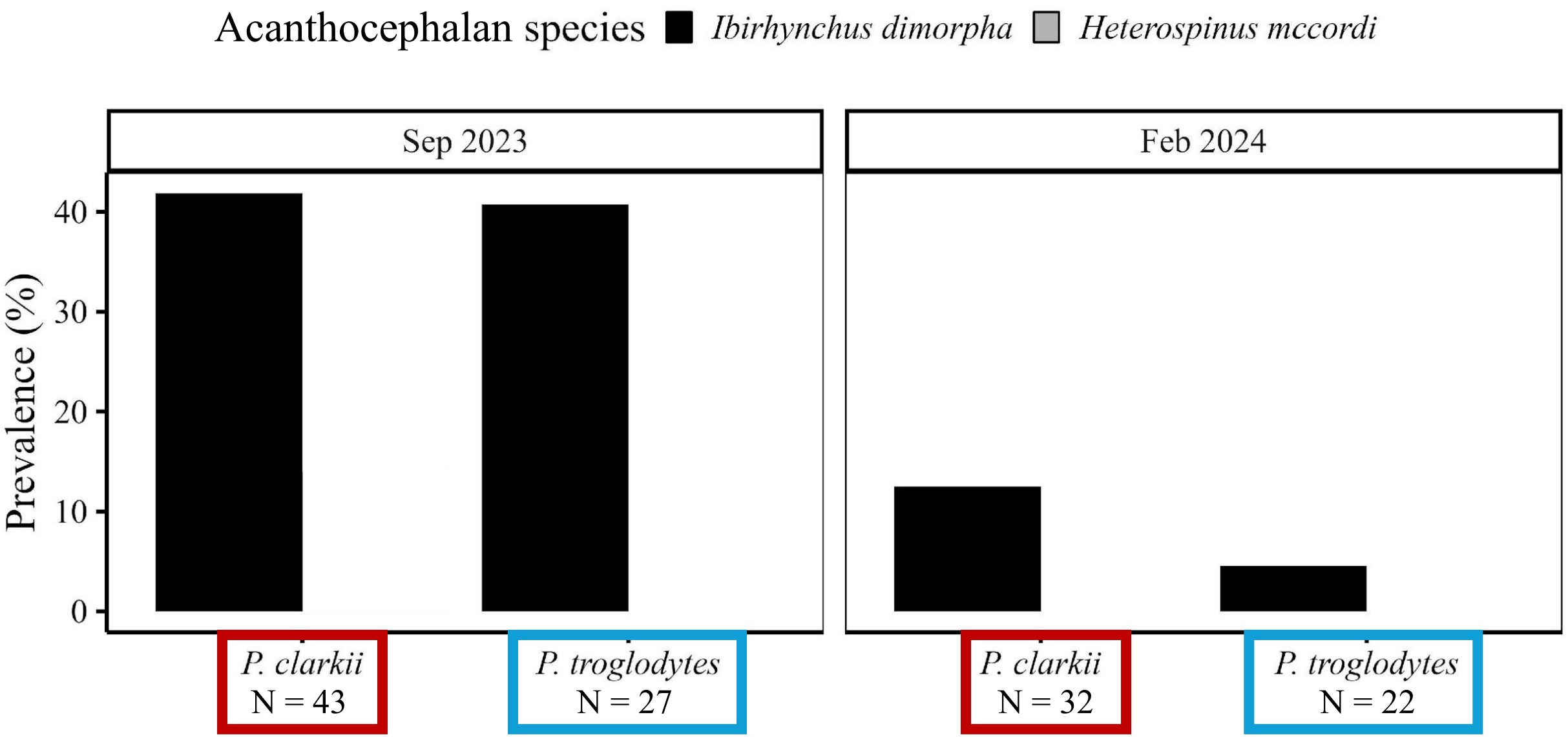
Acanthocephalan species
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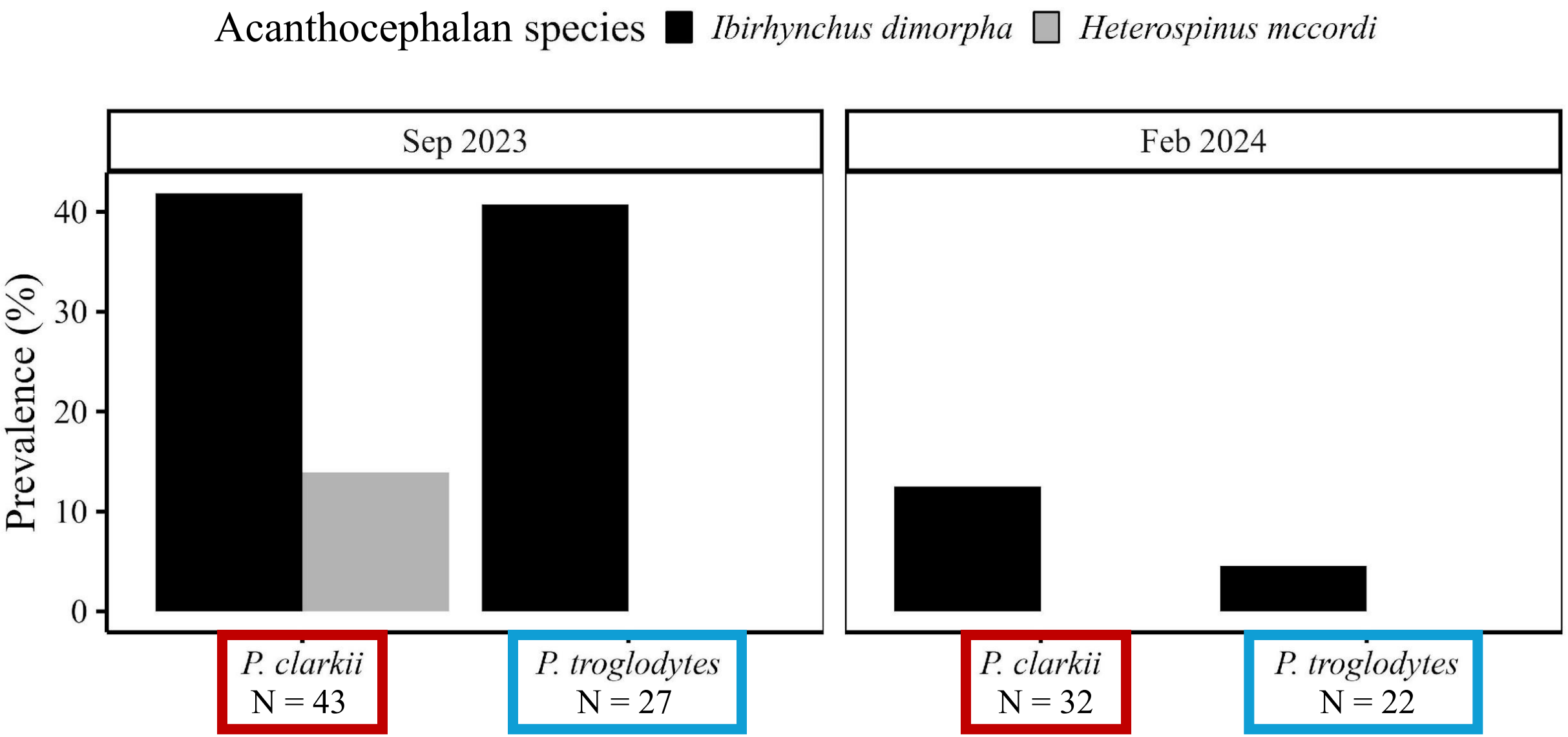
Heterospinus mccordi
Sep 2023
Feb 2024
Prevalence (%)
0
10
20
30
40
P. clarkii
N = 43
P. troglodytes
N = 27
P. clarkii
N = 32
P. troglodytes
N = 22

Prevalence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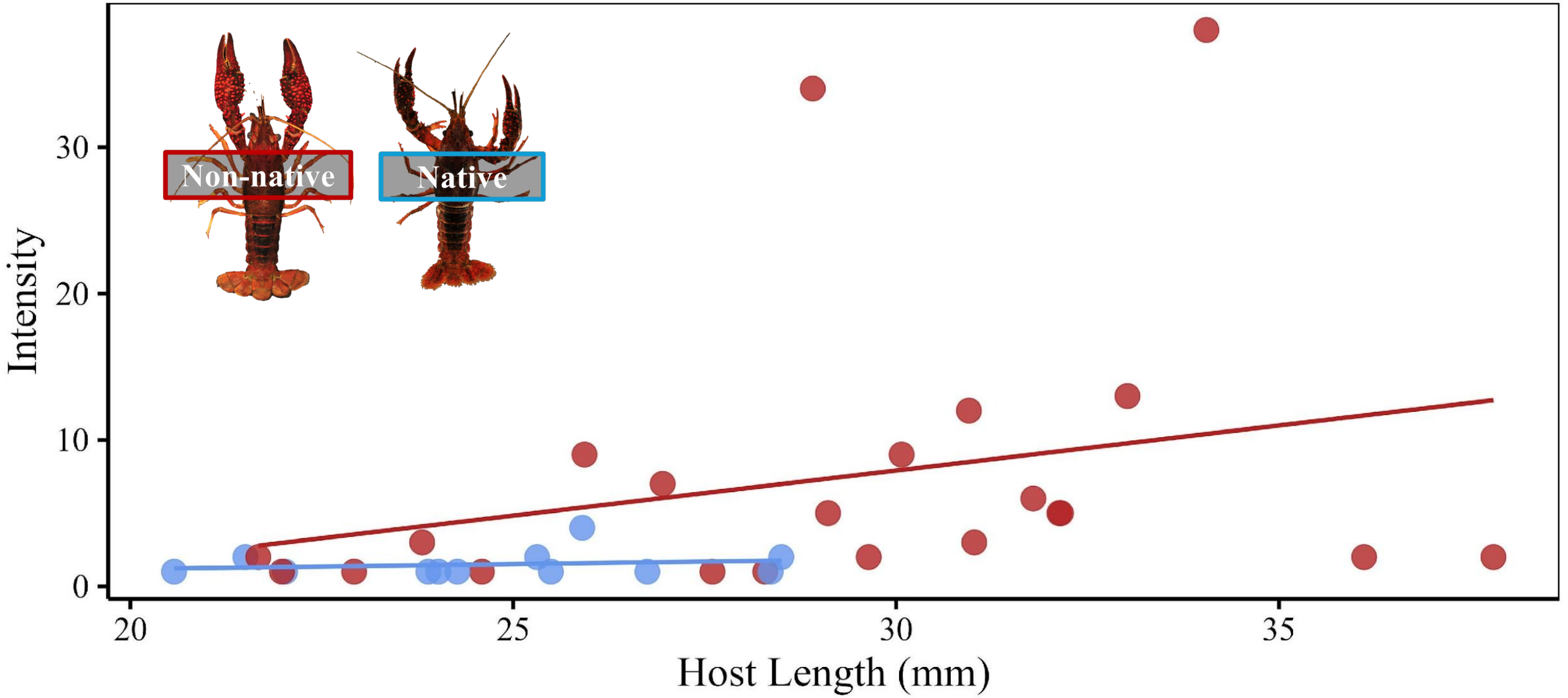
Intensity of infection (*I. dimorpha*)



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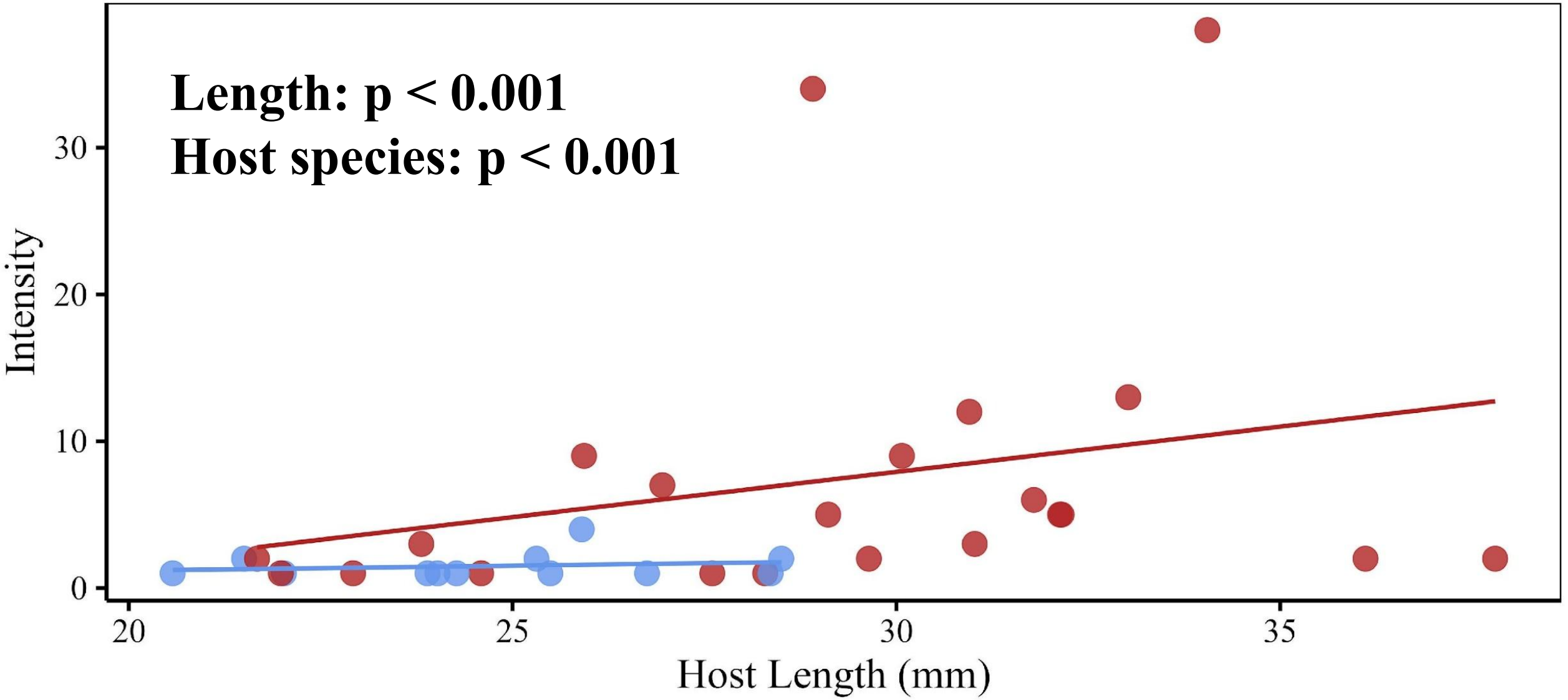



Native


Native
Non-native

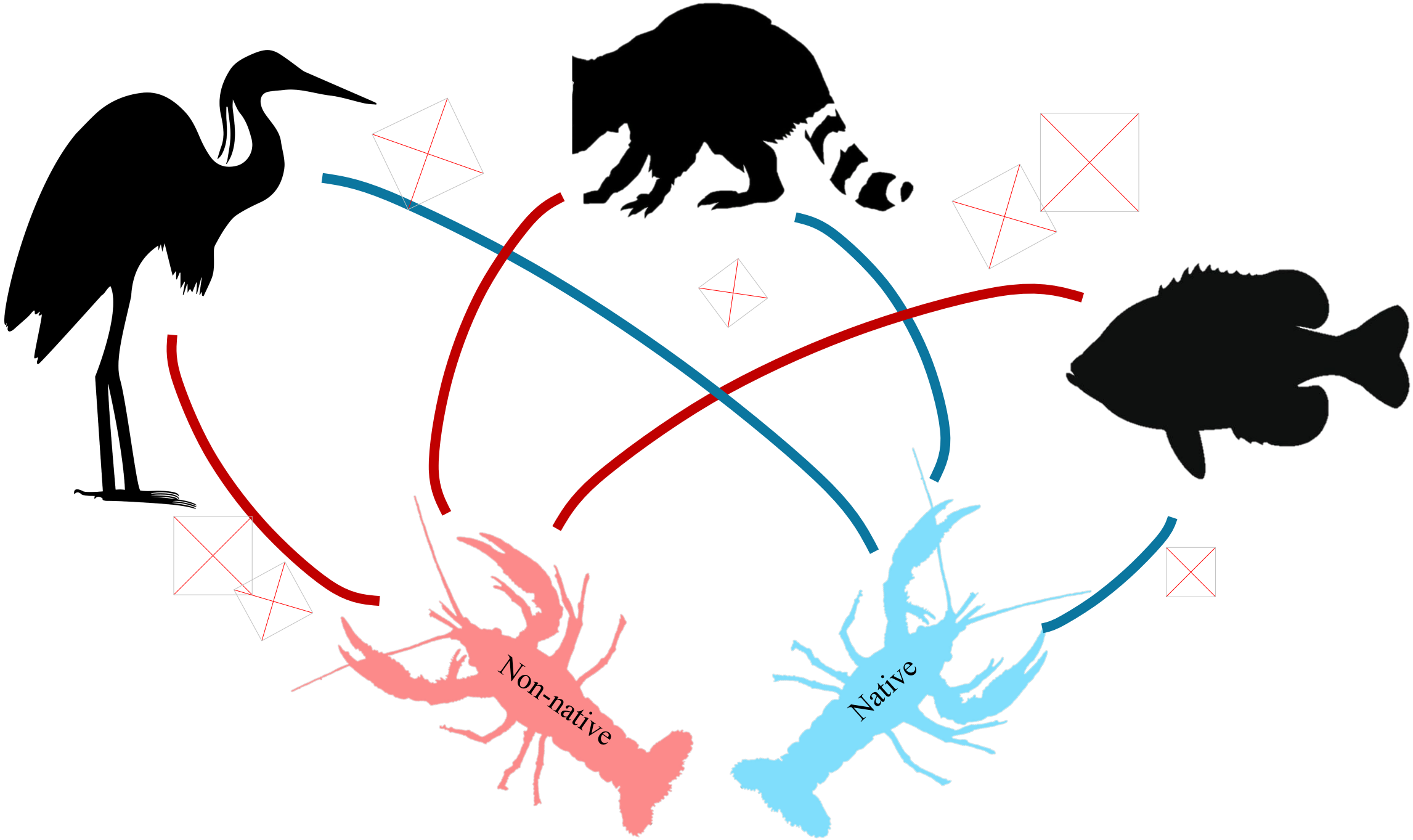

Spillover
Native
Non-native


Native


Native
Non-native


Native
Non-native


Spillback
Native
Non-native


Non-native
Native

Thank you!
Questions?

Acknowledgements

-Shellfish Research Section

-CofC Grice Marine Lab

Molecular Core facility

-Bronwyn Williams

(NCMNS)

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