

# Crayfishes of the New River watershed and Factors Affecting Their Distributions

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# Land and Labor Acknowledgments

## **Land Acknowledgement**

- Virginia Tech acknowledges that we live and work on the Tutelo / Monacan People's homeland, and we recognize their continued relationships with their lands and waterways. We further acknowledge that the Morrill Land-Grant College Act (1862) enabled the commonwealth of Virginia to finance and found Virginia Tech through the forced removal of Native Nations from their lands in California and other areas in the West.

## **Labor Recognition**

- Virginia Tech acknowledges that its Blacksburg campus sits partly on land that was previously the site of the Smithfield and Solitude Plantations, owned by members of the Preston family. Between the 1770s and the 1860s, the Prestons and other local White families that owned parcels of what became Virginia Tech also owned hundreds of enslaved people. Enslaved Black people generated resources that financed Virginia Tech's predecessor institution, the Preston and Olin Institute, and they also worked on the construction of its building.



# What is a crayfish?

Freckled Crayfish *Cambarus maculatus*

Photo Credit: Chris Lukhaup



Caney Mountain Cave Crayfish  
*Orconectes stygocaneyi*



Painted Devil Crayfish  
*Lacunicambarus ludovicianus*



Photo Credit: Chris Lukhaup

Tasmanian giant freshwater crayfish *Astacopsis gouldi*

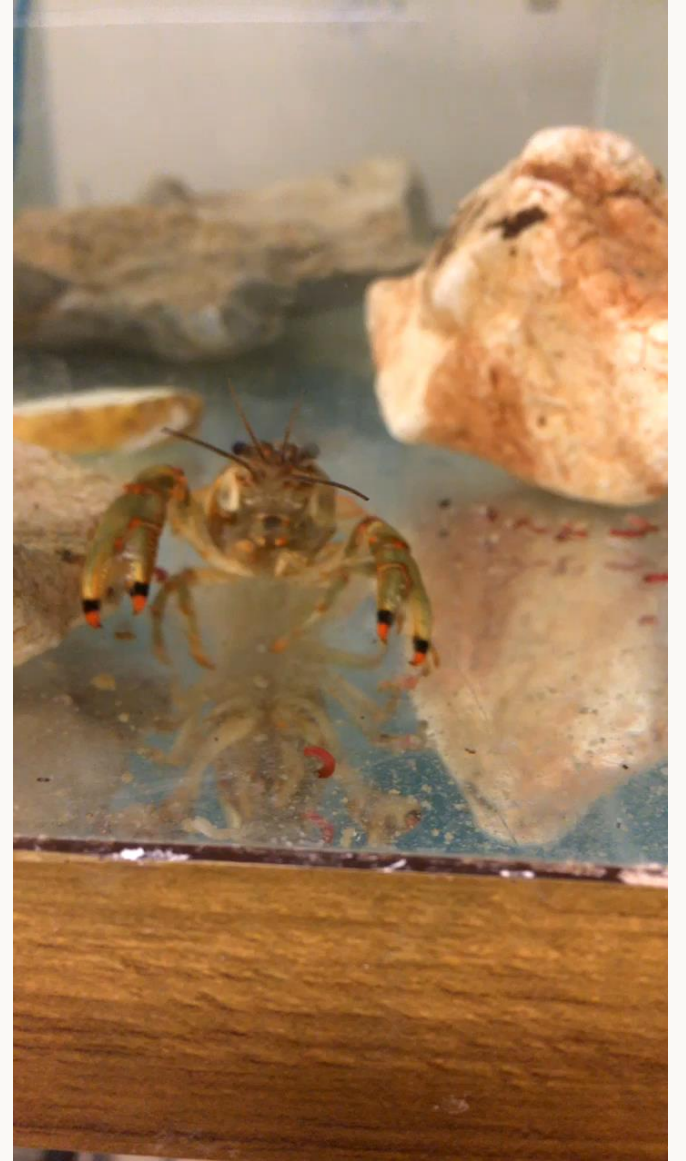


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# Why care about crayfishes?

- Omnivores that eat almost anything
- Shredders that break down leaf litter
- Food for more than 200 aquatic and terrestrial animals
- Affect the physical structure of streams
- Influence abundance and distribution of plants, algae, diatoms, macroinvertebrates, and fishes



# Crayfishes face many threats

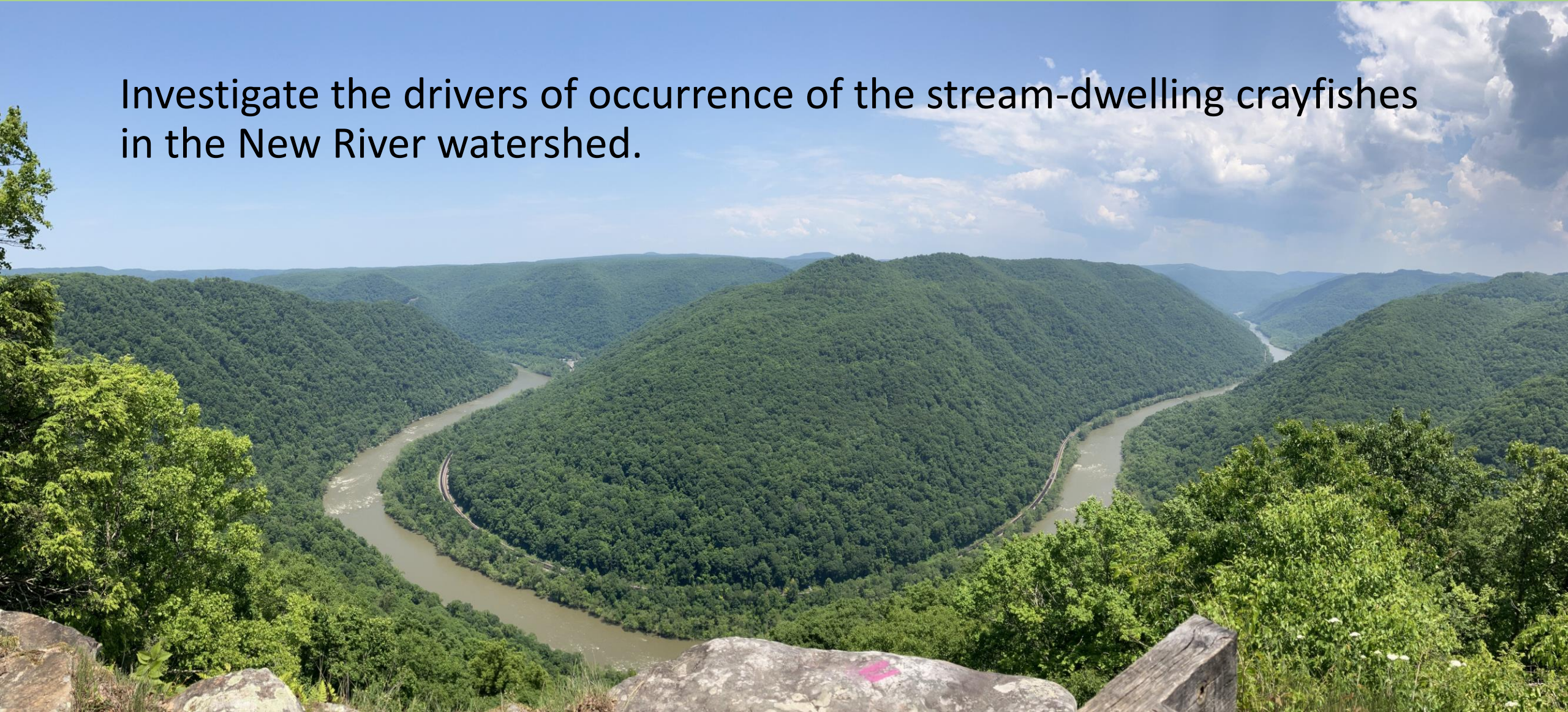
- ≈50% of crayfishes in the U.S. are imperiled
- Invasive species, habitat alterations, and limited natural range
- We lack necessary data to develop conservation actions for many species





# Objective

Investigate the drivers of occurrence of the stream-dwelling crayfishes in the New River watershed.





# Crayfish Confusion



# Conhaway Crayfish *Cambarus appalachiensis*



Loughman et al. 2017



# New River Crayfish *Cambarus chasmodactylus*



Photo Credit: Loughman Lab



# Greenbrier Crayfish *Cambarus smilax*





# *Cambarus* aff. *robustus*



Photo Credit: Logan Anderson



# *Cambarus cf. bartonii*



Photo Credit: Ellie Buehrer



# Spiny Stream Crayfish *Faxonius cristavarius*





# *Faxonius obscurus* and *F. sanbornii*

Allegheny Crayfish *Faxonius obscurus*



Sanborn Crayfish *Faxonius sanbornii*  
Photo Credit: Joshua Eastlake





# Virile Crayfish *Faxonius virilis*



Photo Credit: Llyn Sharp



# *Procambarus* Species

Red Swamp Crayfish  
*Procambarus clarkii*



Photo Credit: Mike Murphy

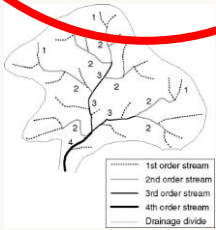
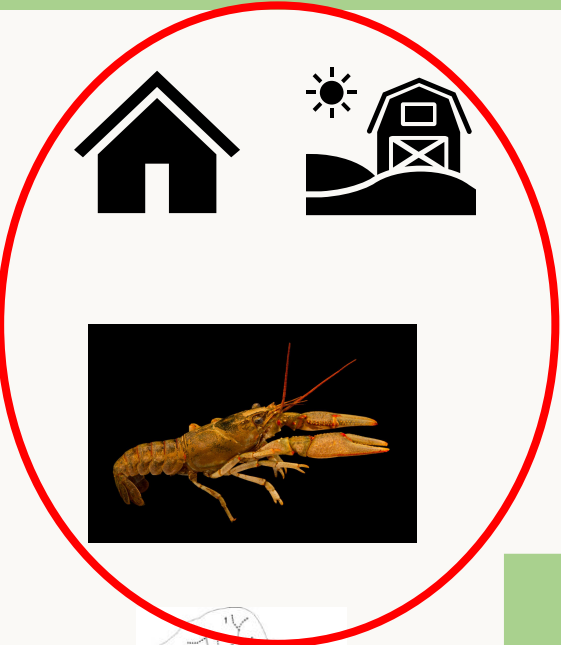
Southern White River Crayfish  
*Procambarus zonangulus*



Photo Credit: Dan Johnson

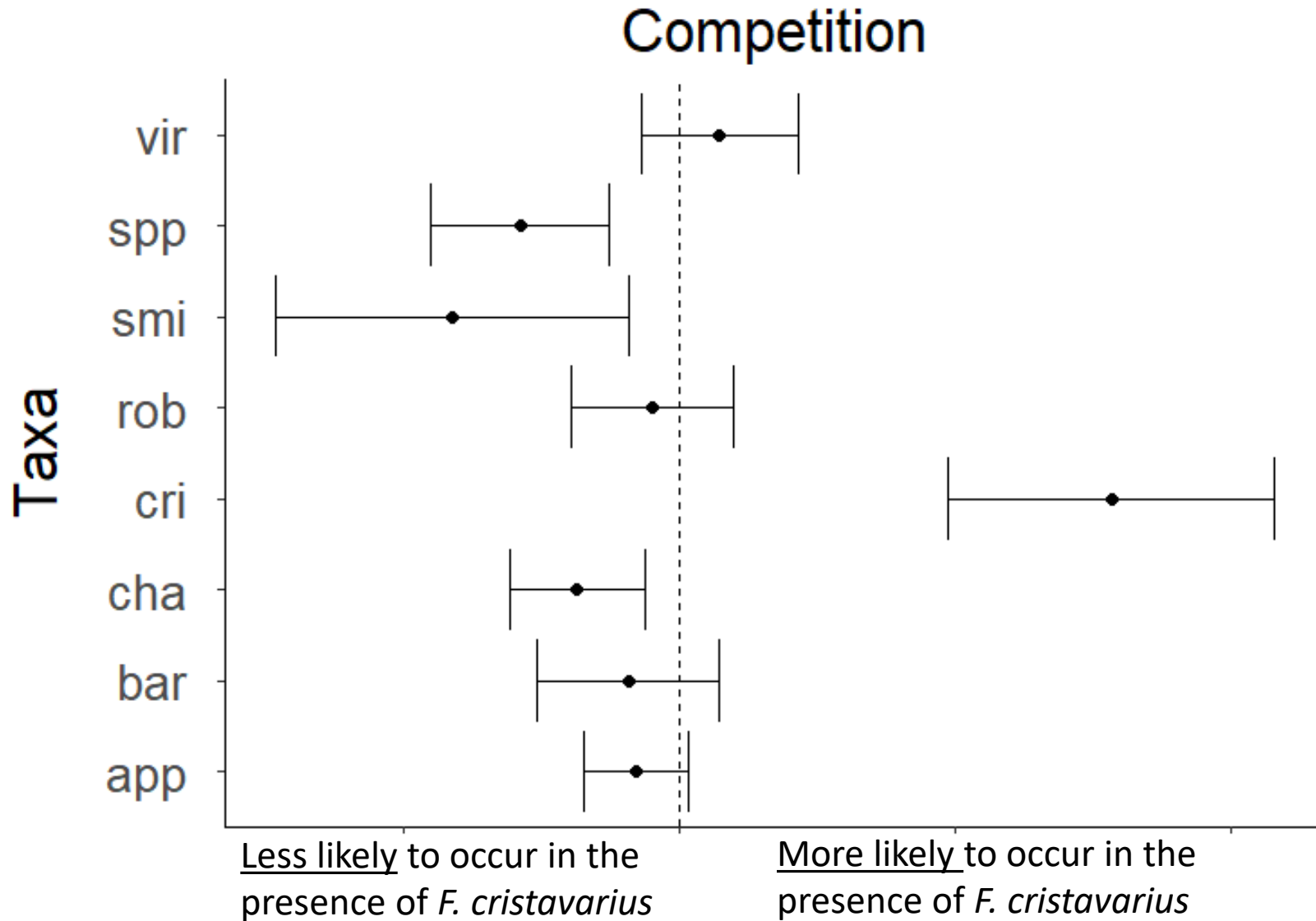


# Methods



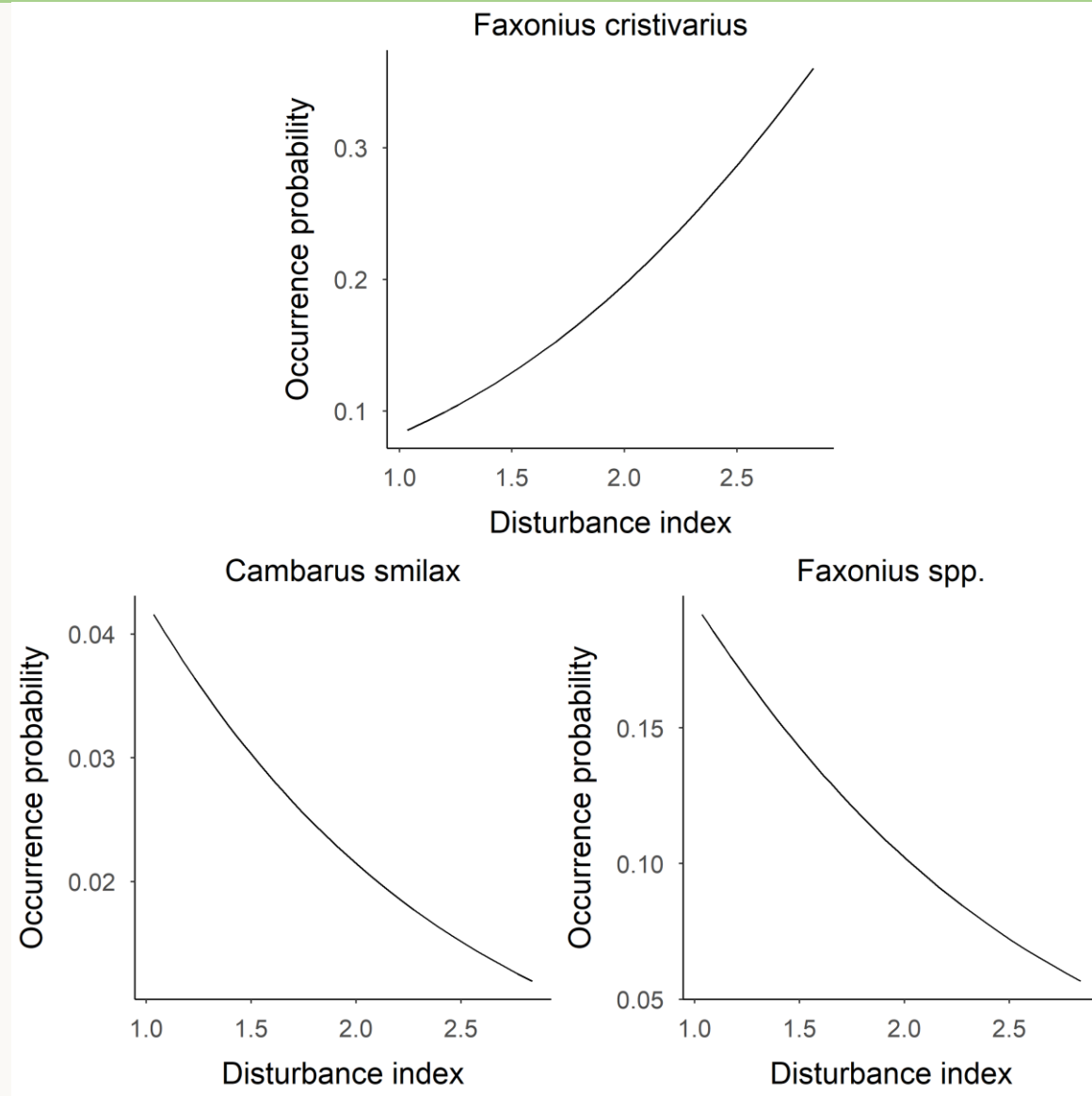


# Competition





# Disturbance





# Conclusions

- Limit human development and/or install best management practices.
- Limit the spread of already established invasive species and prevent the introduction of new invasive species.
- Corroborate results with controlled laboratory or field studies to understand the casual mechanisms of the modeled relationships.



Questions?

