

# What's that tiny lobster doing in my backyard?

## Michigan's Responses to Invasive Red Swamp Crayfish



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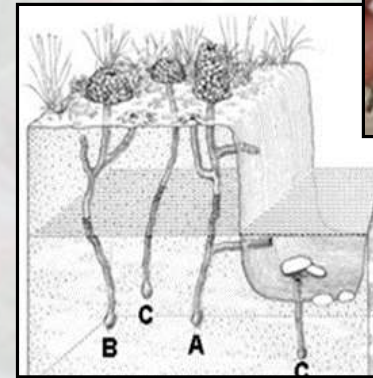
Spring Invasive Species Summit

March 23, 2019



# Red Swamp Crayfish Threat

- Native to Western Gulf coast of U.S.
- Most invasive crayfish worldwide
  - Distributed in live trades
  - Found in >100 countries
- Threats to native systems
  - Reproduce in large numbers
  - Outcompete native species
  - Feed on vegetation and negatively impact water clarity
  - Dig complex burrows causing erosion and infrastructure problems



# Red Swamp Crayfish Timeline in MI

- 2013
  - July: Reports of red swamp crayfish carcasses at several locations on w. side of state
    - Popular fishing locations (Lake Macatawa)
    - Anglers using live crayfish from food markets
- 2014-2016
  - No red swamp crayfish detected in STATEWIDE survey of Michigan streams
  - Risk assessment of potential RSC pathways
- Listed as a prohibited species in 2015 to reduce risk



MICHIGAN DEPARTMENT OF  
**NATURAL RESOURCES**

**Invasive crayfish found at Ottawa County Lake**  
*Michigan Department of Natural Resources sent this bulletin at 07/13/2015 10:39 AM EDT*

**Press Release**

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FOR IMMEDIATE RELEASE  
July 13, 2015

Contact: Nick Popoff, 517-284-6235 or Elyse Water, 517-284-5639

**Invasive crayfish found at Ottawa County lake;  
DNR, local partners evaluating next steps**

The Michigan Department of Natural Resources recently discovered that anglers are purchasing red swamp crayfish (a prohibited species) from food markets and using them as live bait. As part of a DNR crayfish monitoring study, a discovery of several dead red swamp crayfish recently was made in the vicinity of a popular fishing area at Lake Macatawa III, Ottawa County.



It is illegal to import any live species of crayfish into Michigan for commercial bait purposes. As of this year, red swamp crayfish (*Procambarus clarkii*)

# Red Swamp Crayfish Reports

- Initial report to Fisheries Division on July 14<sup>th</sup>, 2017 from Sunset Lake in Vicksburg (Kalamazoo County)
  - Confirmed by FD
- Second report from Novi Retention pond on July 16<sup>th</sup>
  - Confirmed by FD



# Responses to Red Swamp Crayfish Infestations

1. Conduct surveillance for infested waterbodies
  - Evaluate surveillance strategies
2. Prevent spread or additional introductions
3. Implement control actions and eradicate if possible



# Media Coverage

## 'Mini-lobsters' have Michigan on alert after invasive, Louisiana crawfish found in waters

Advocate staff report AUG 3, 2017 - 12:16 PM (10)



## Invasive crayfish reported in 2 bodies of water in Michigan

Hasan Dudar, Detroit Free Press Published 7:46 p.m. ET July 19, 2017 | Updated 8:05 p.m. ET July 19, 2017



## Tiny lobsters of doom: Why this invasive crayfish is bad news

By KATE WELLS · JUL 27, 2017

PROGRAM  
The Environment  
Report

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This is the photo sent to Seth Herbst. "And as soon as I saw that photo, it was a clear as day that that was a red swamp crayfish," he sighed.

COURTESY: SETH HERBST

ies, and they look like little lobsters. Wochit

Some unwanted aquatic visitors are bringing a little Cajun flavor to lakes and ponds around Michigan this summer.

The Michigan Department of Natural Resources confirmed the presence of the invasive red swamp crayfish, also known as Louisiana crayfish, in Sunset Lake's west side and a retention pond off Haggerty Road in

orted the crayfish at Sunset Lake to the DNR on July 13,

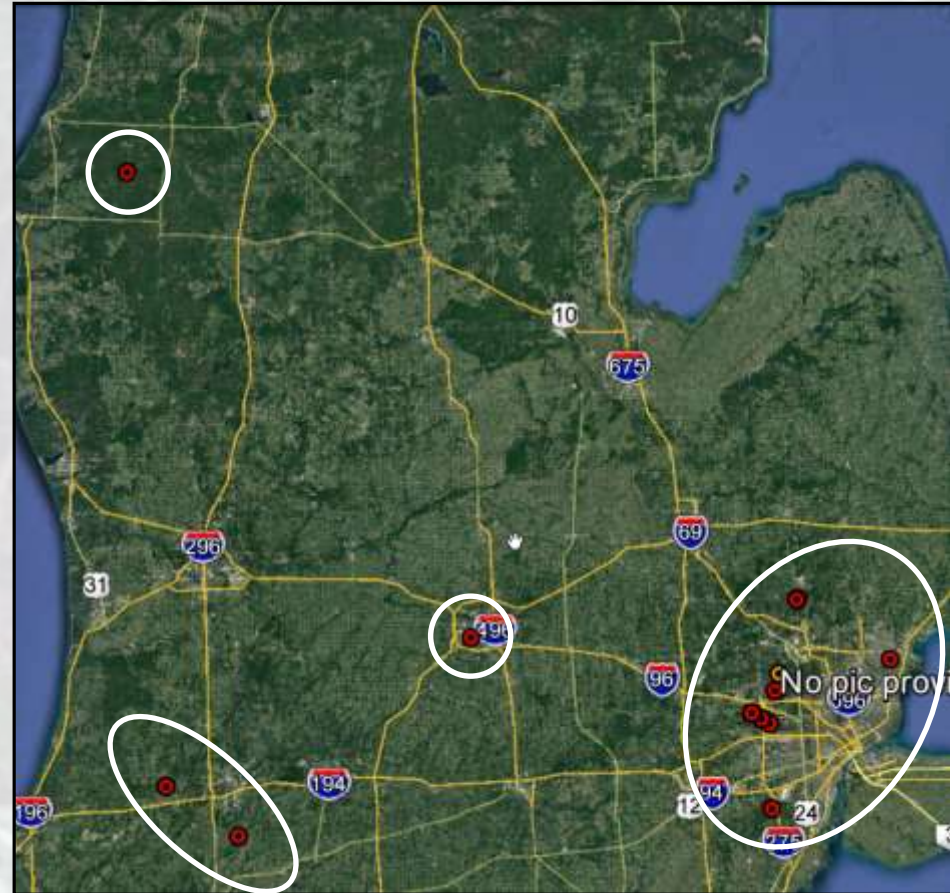
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# Red Swamp Crayfish Reports

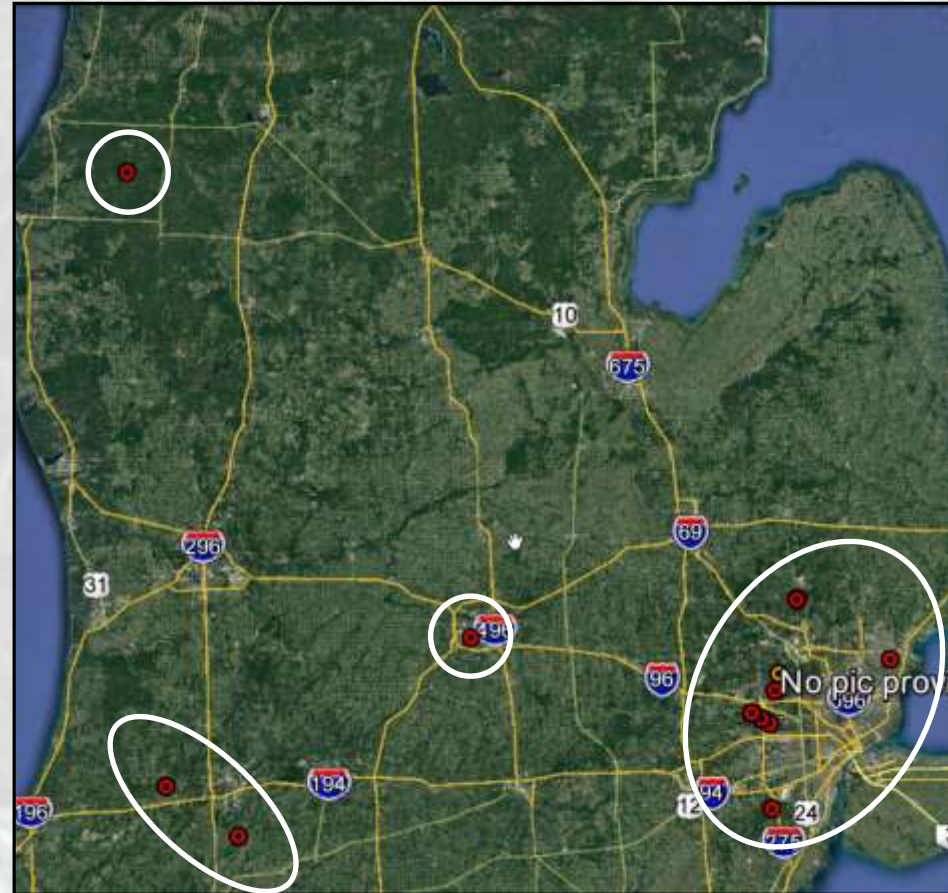
- >100 initial public reports
- Multiple credible reports of the red swamp crayfish
  - Primarily in Southeast Michigan
- Most reports were native crayfish
  - Helps better understand distribution of native species



# Red Swamp Crayfish Reports

## Detection Efforts:

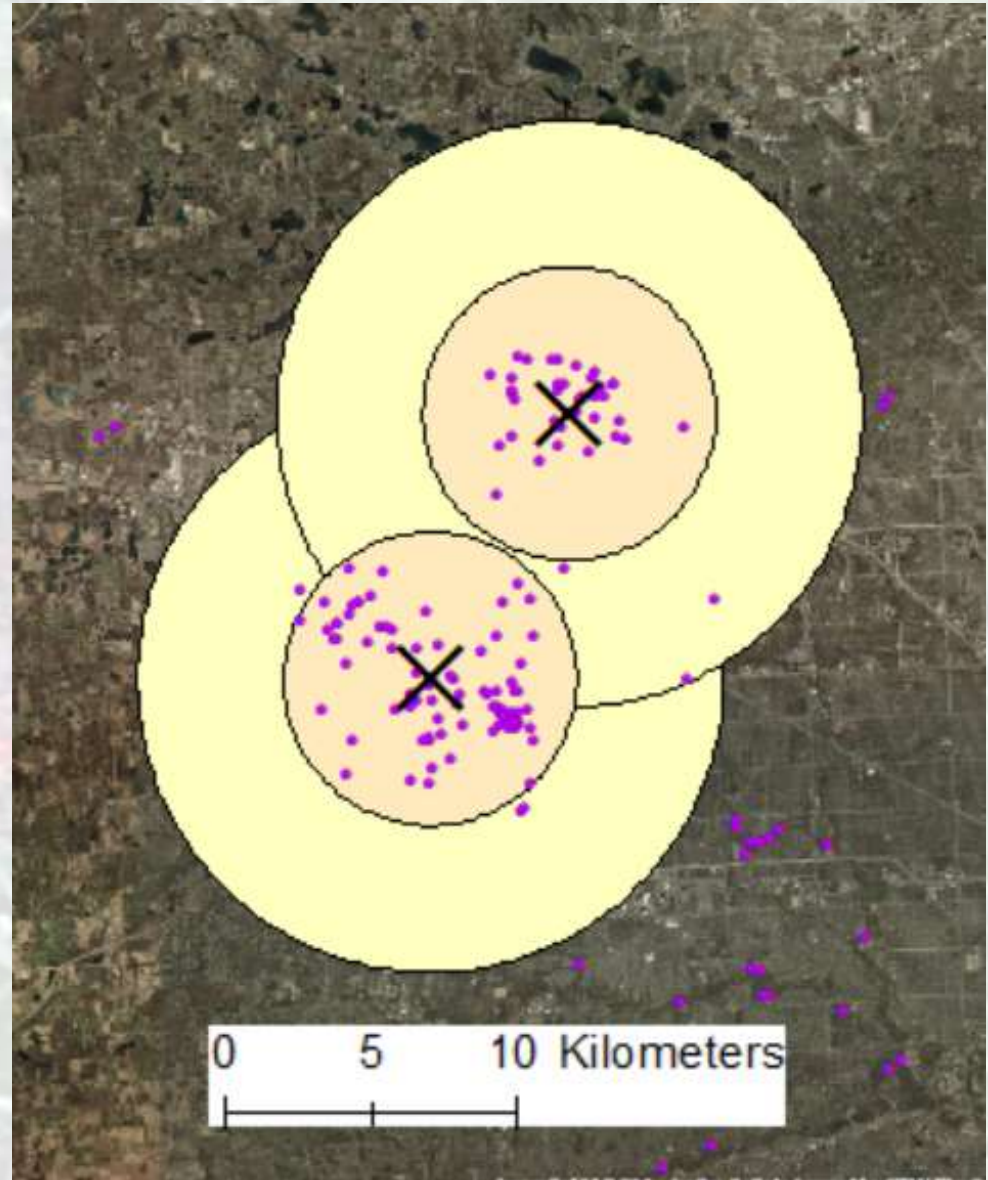
- Michigan DNR – Fisheries
- Michigan State University
- Michigan DEQ – Water Resources
- CISMAs
- Friends of the Rouge
- Private landowners
- ***You can help!!***





# Early Detection Strategies

- Focused efforts within 5-10 km of “epicenters”
- Responding to public reports



# Early Detection Strategies

- Multi gear approach:  
eDNA and trapping

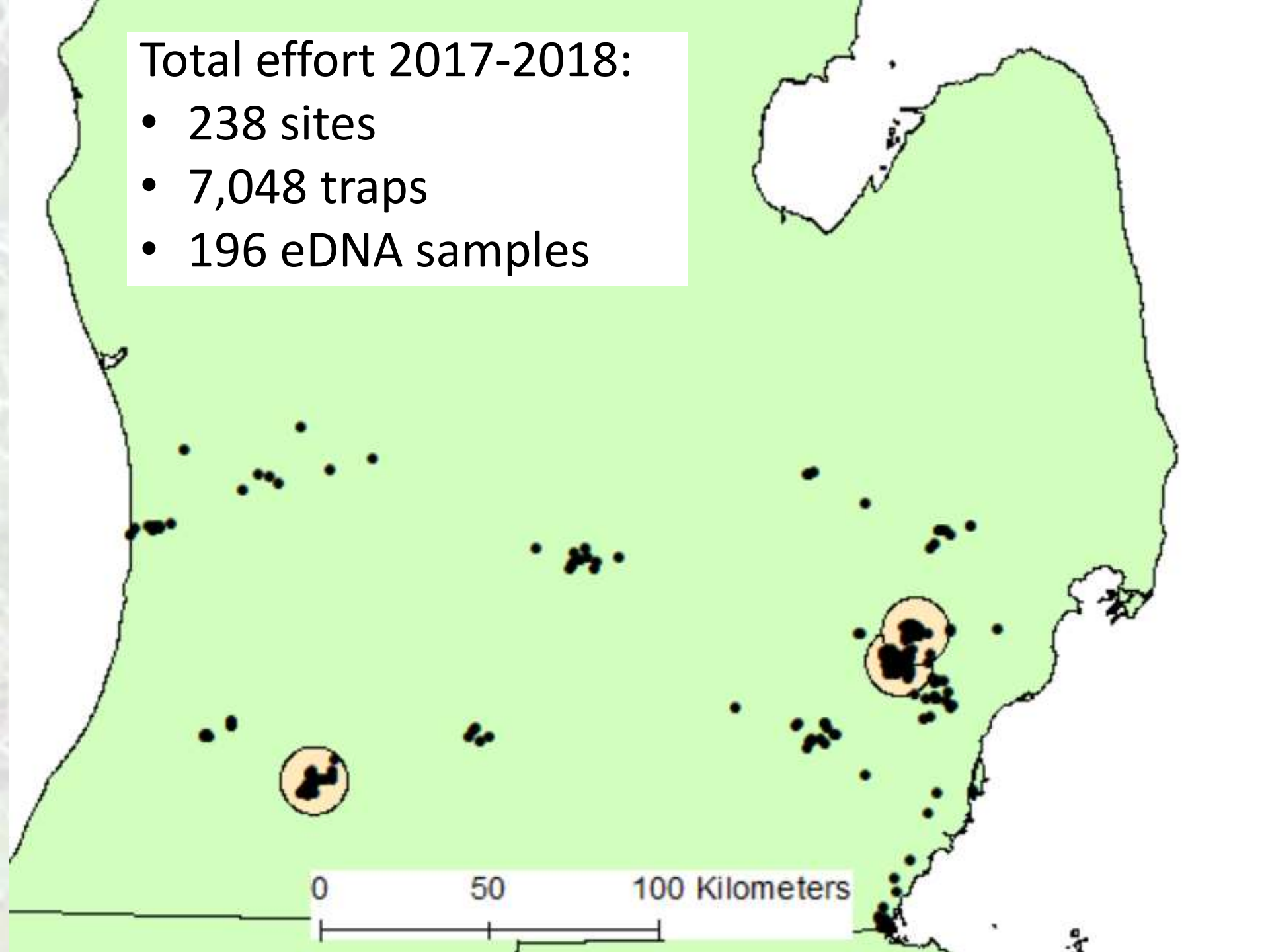


[www.fishbio.com](http://www.fishbio.com)



## Total effort 2017-2018:

- 238 sites
- 7,048 traps
- 196 eDNA samples



## Documented infestations:

- 21 confirmed
- 4 eDNA detections without captures
- Golf courses, retention ponds, private ponds
  - \*all but one on private land\*



0 50 100 Kilometers

# Evaluating Potential Sources



- Surveyed 157 science teachers
- Inspected 125 bait shops, pet stores, and live food markets



Examples of *P. clarkii* color morphs found in pet shops

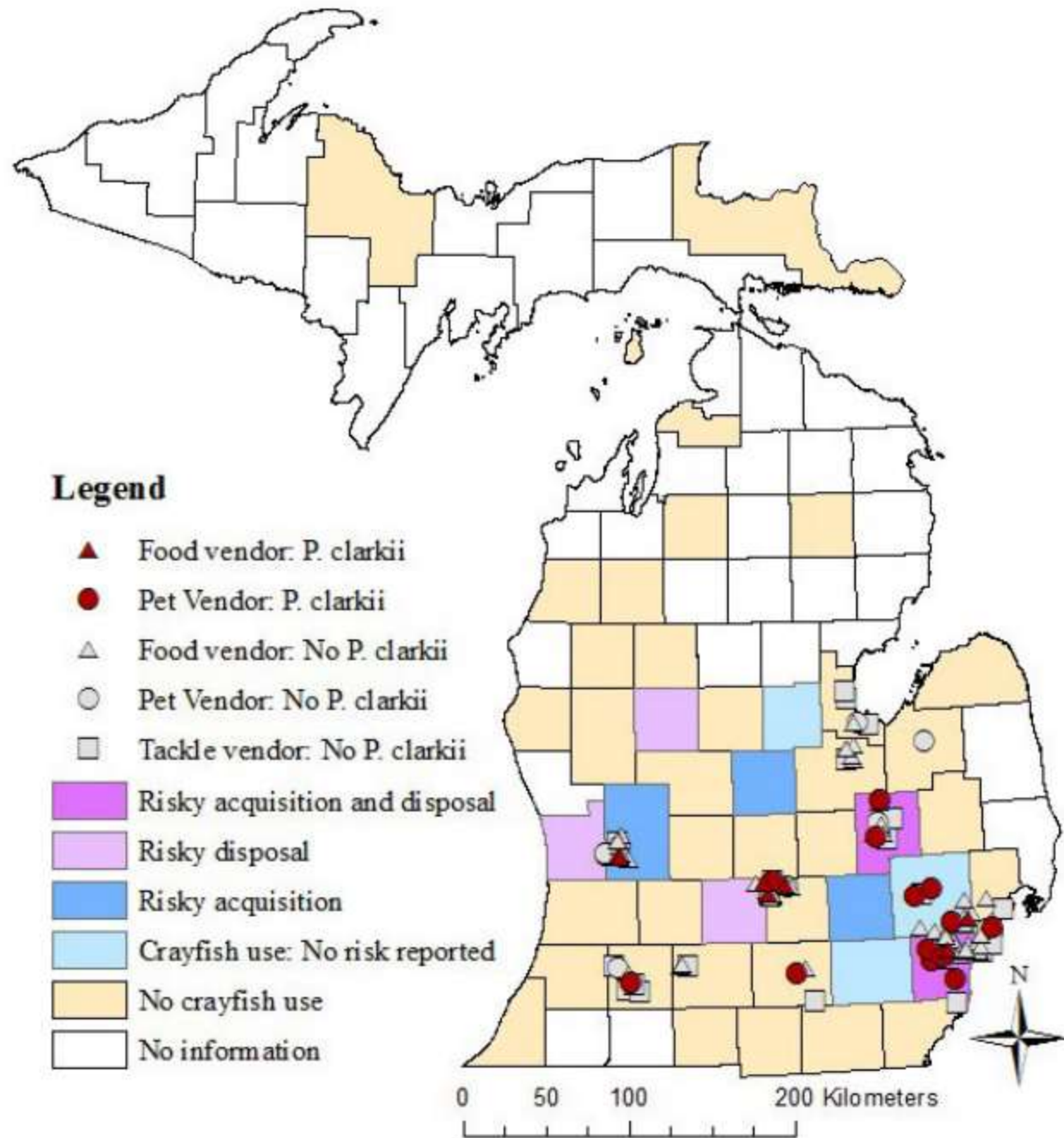


*P. clarkii* for sale at a live food market in Grand Rapids



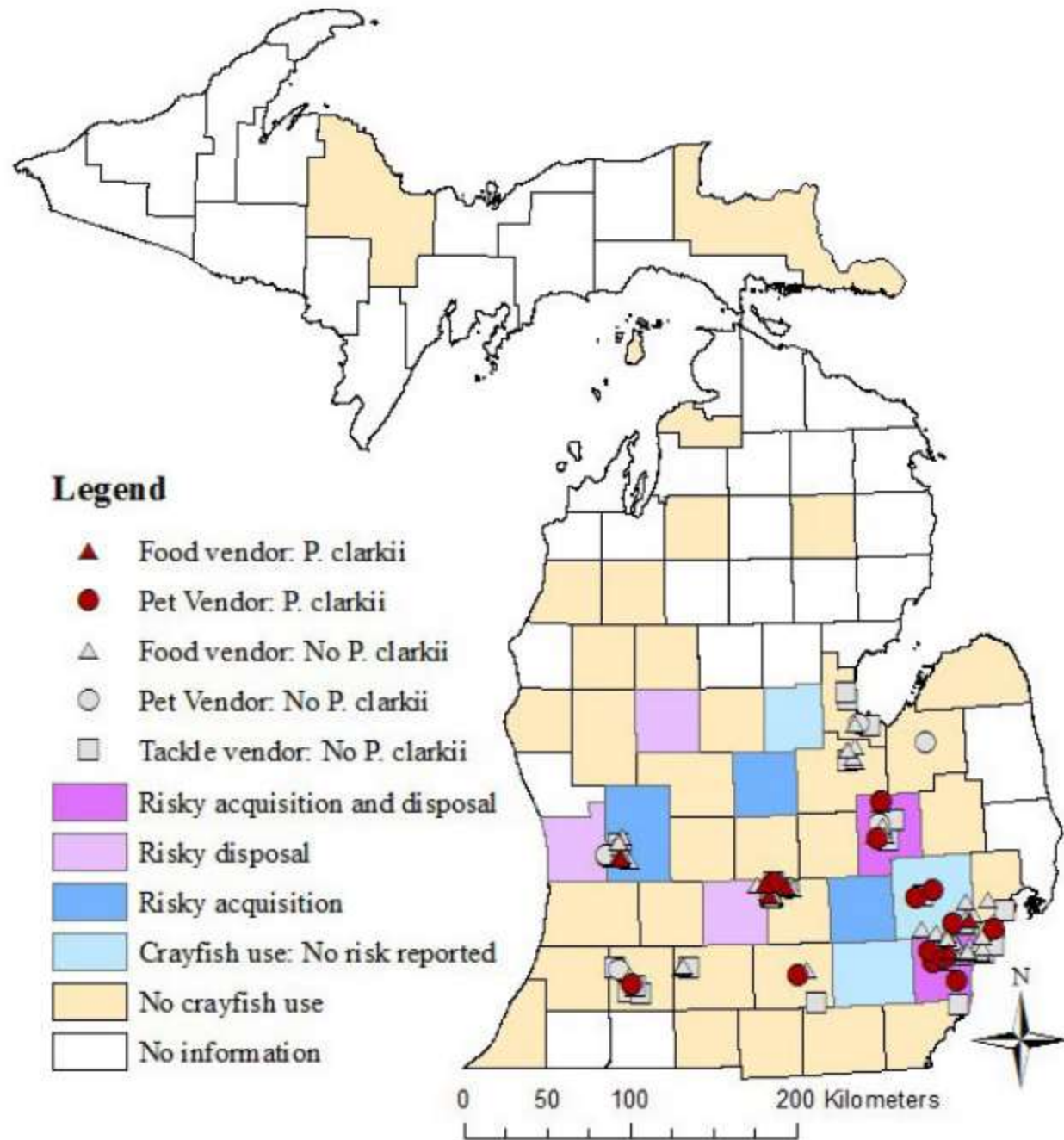
RSC found in:

- 10% of live food markets
- About 50% of pet stores
- No bait shops





- 11% of classrooms use crayfish
- Almost all were classified as “risky” use



# Potential Sources?

- Red swamp crayfish were widely available prior to 2015
- Multiple potential pathways
  - Biological supply for schools
  - Live food markets (as bait)
  - Pet stores
- Law Enforcement Division has been active with enforcing regulations to prevent future introductions

Live Crawfish Value Pack 100 lb FedEx/UPS	Live Crawfish Value Pack 120 lb FedEx/UPS	Live Crawfish Value Pack 150 lb FedEx/UPS
<ul style="list-style-type: none"><li>• Field Run \$474.99</li><li>• Select \$499.99</li></ul>	<ul style="list-style-type: none"><li>• Field Run \$564.99</li><li>• Select \$599.99</li></ul>	<ul style="list-style-type: none"><li>• Field Run \$709.99</li><li>• Select \$749.99</li></ul>





# Implement and Evaluate Control Measures

- Developing site-specific control measures
- Require coordination of multiple institutions
  - MDNR, USGS, MSU, DEQ, Auburn, CISMAs
- Combination of:
  - Trapping
    - Sound
    - CO<sub>2</sub>
  - Chemical control
  - Biological control



# Next Steps

- Continue implementation of Michigan's response plan
- Collaborate with crayfish and AIS control experts to evaluate and implement effective controls
- Continue evaluation of potential introduction sources and effectiveness of regulations



# Acknowledgments

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- Funding: Great Lakes Restoration Initiative
- MDNR: Dr. Seth Herbst, Waterford Field Office, and Plainwell office
- MSU: Dr. Brian Roth, Kelley Smith, Dr. Kim Scribner, Samantha Strandmark
- Michigan DEQ, USGS, Auburn
- Michigan CISMAs



# Help with Detection and Reporting

- Burrows (fresh mud/chimney)
- “Tiny red lobsters” in pet trade or live markets
- Learn how to ID
  - [www.mi.gov/invasives](http://www.mi.gov/invasives)
- Report (with photo, if possible) to:
  - Lucas Nathan
  - [nathanl@michigan.gov](mailto:nathanl@michigan.gov)



Chris Taylor  
Illinois History Survey  
Bugwood.org

