

## Barriers faced by landowners in implementing effective management of wild pigs on private property in Florida



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### Wild Pig (*Sus scrofa*)

**Synonyms:** wild hog, feral hog, wild boar, feral swine

Adults 75-250 lbs

Sexually dimorphic



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### Wild Pig (*Sus scrofa*)

**Invasive species**

- 1) Non-native
- 2) Introduced
- 3) Causes damage/harm



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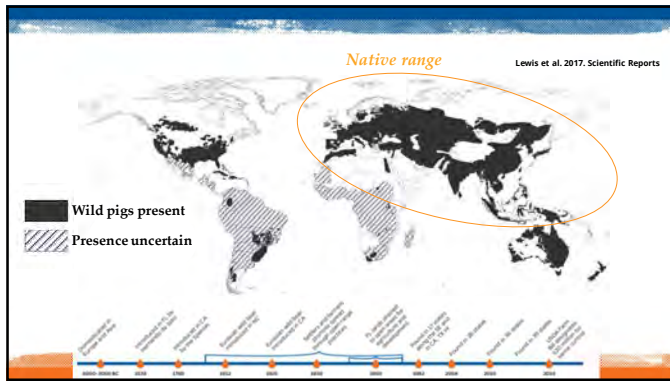
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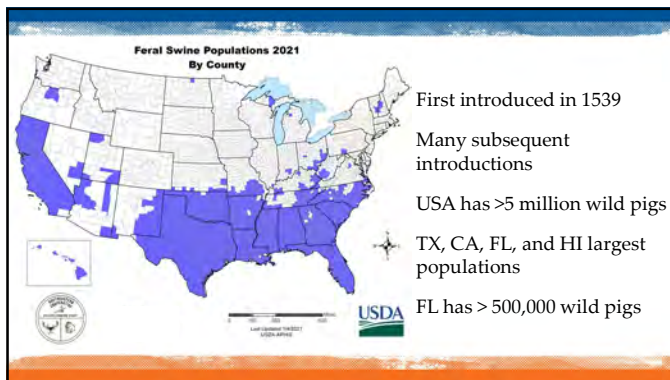
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**Why manage wild pigs?**



**Negative impacts**

- Agricultural damage
- Ecosystem damage
- Disease transmission

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## Agricultural damage

> \$1.5 billion a year in the US



Crop damage via consumption is a major issue

Rooting damage can impact pastures and subsequently livestock production

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## Rooting damage

Also impacts native ecosystems



Disturbing the soil modifies soil chemistry and nutrients

Destroys native vegetation

Alters species composition

Gateway for invasive plants

Boughton, E. H. & Boughton, R. K. (2014). Biological Invasions, 18: 2105-2114

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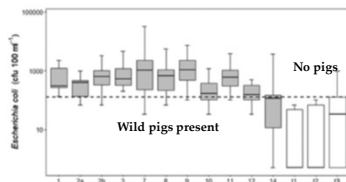
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## Wild pig presence impacts water quality

Organic N and C,  $\text{SO}_4$ , and  $\text{Ca}^{2+}$  were 2-11 times higher

*E. coli* concentrations were 40 times higher



Bolds, S. A., Lockaby, B. G., Ditchhoff, S. S., Smith, M. D., & McCauley, K. C. (2021). Journal of Environmental Quality, 50: 441-453

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## Competition with native wildlife



Competition for hard mast  
white-tailed deer, turkey,  
squirrels



Competition at game  
feeders

Destroy food plots



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## Opportunistic predation on native wildlife

Invertebrates more commonly consumed  
than vertebrates

Sensitive species and habitats

Predation on eggs and young  
of ground nesting vertebrates

Turkey, Quail

Sea turtle



Figure 1: Forest long consuming wild turkey eggs  
(Trail camera photo by Dr. Scott Collins)

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## Impacts: Disease Transmission



Wild pigs



Deer

Coyote



Raccoon

Bacterial diseases:

Brucellosis

Leptospirosis

Pseudorabies



Eckert et al. 2019. J Wildl Diseases

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## How do we manage wild pigs?



### Whole Sounder Removal

To slow population growth, you need to remove most of the population annually

You should aim to remove an entire sounder

Techniques that focus on single individuals are ineffective and potentially counterproductive

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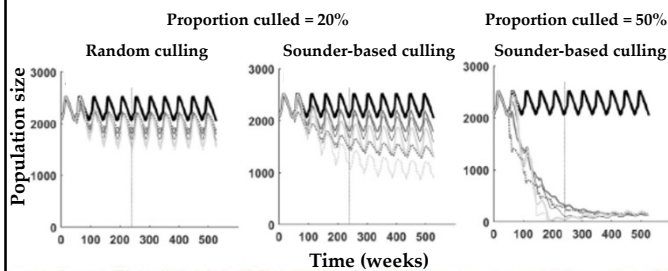
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## Why whole sounder removal is needed



Peggin, K. M., Davis, A. J., & VerCauteren, K. C. (2017). *Ecological Modelling*, 365, 106-118.

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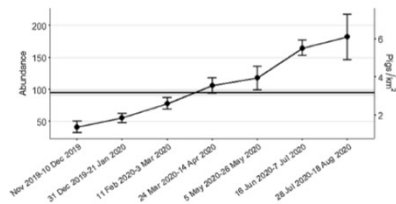
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## Whole sounder removal is not a one and done operation

After a 50-60% population reduction

Rebounded to previous abundance in less than 6 months



Carabedian, J. & Kilgo, J. 2024. Rapid recovery of invasive wild pig populations following density reduction. *Biological Invasions* in press

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## Whole Sounder Removal



Tailored to social behavior of wild pigs

Reduced chance of 'educating' wild pigs

More effective than traditional hunting and single-animal traps

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## What are Floridians doing about wild pigs? Are they using whole sounder removal? If not, why not?

Two groups of people that typically deal with wild pig damage:

Rural residents  
Livestock producers

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## HIERARCHY OF BARRIERS

Knowledge of the problem	Motivation	Knowledge of management	Knowledge of resources	Collaboration
<p>Landowners are unaware of the negative impacts of wild pigs.</p> <p>Ex: think wild pigs are native</p>	<p>Landowners know about wild pigs but are not motivated to implement management.</p> <p>Ex: damage (or perception thereof) is limited</p>	<p>Landowners conduct active management of wild pigs but are unaware of best management practices.</p> <p>Ex: not using WSR</p>	<p>Landowners are unaware of the financial and technical resources available to them</p> <p>Ex: unaware of UF/IFAS, state, or federal assistance and programs</p>	<p>Some but not all landowners are using the best management practices</p> <p>Ex: using WSR, but neighbor actively releases wild pigs for hunting</p>

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### Methods – Online Survey

Questions focused on different aspects of wild pig management

- Knowledge
- Attitudes
- Motivations
- Management Actions



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### Methods – Online Survey

- Distributed Survey via mailed postcards
  - random subset of rural residents or livestock producers in Florida
- Emails from UF/IFAS listservs and extension county and state faculty
- Emails from Florida Cattlemen's Association
- Press Releases
- Social Media



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### General results

- Distributed Survey via mailed postcards
  - random subset of rural residents or livestock producers in Florida
  - nearly 4,000 postcards sent out
- 131 responses from rural residents
  - 20% were hunters
- 103 responses from livestock producers
  - 57% were hunters



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## RURAL RESIDENTS



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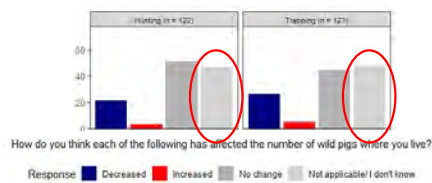
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## Survey Results: Rural Residents

### Knowledge

60% knew wild pigs are non-native to Florida.

83% of hunters knew wild pigs are non-native to Florida



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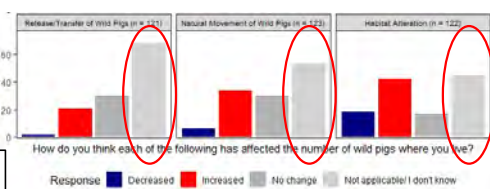
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## Survey Results: Rural Residents

### Knowledge

60% knew wild pigs are non-native to Florida.

83% of hunters knew wild pigs are non-native to Florida



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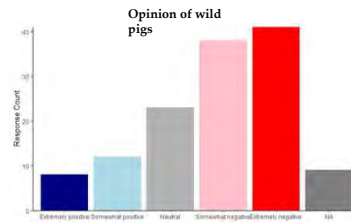


## Survey Results: Rural Residents

### Attitudes

64% held negative attitudes towards wild pigs

Would like to see wild pig populations:  
reduced (41%)  
completely removed (20%)



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## Survey Results: Rural Residents

### Motivations

Only 37% reported wild pigs on their property (49/131)

Of those 73% reported wild pig damage (36/49)

Lawn/landscaping damage was most common

Negative opinions towards wild pigs was more common for those who had experienced damage

More likely to want wild pigs removed or reduced ( $p < 0.01$ )

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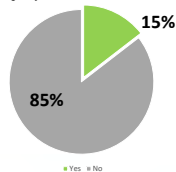
## Survey Results: Rural Residents

### Management Actions

#### Why didn't rural residents manage?

Large portion of rural residents may not manage because they do not perceive a reason to do so  
not present  
no damage

Have you controlled wild pigs on your property in the last 12 months?



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## Survey Results: Rural Residents

### Management Actions

#### With wild pig damage

61% of those with wild pig damage do not implement management

31% cited not having enough time



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## Survey Results: Rural Residents

### Management Actions

#### Most common forms of management:

Fencing (10/19)

Shooting with firearm or archery (5/19)

Hunters primarily hunted to control or reduce the wild pig population

But after that the most common reason for hunting wild pigs was for subsistence and recreational.

These motivations might be a perverse incentives to maintain wild pig populations

### Room to grow our reach

Only 32% of rural residents accessed UF/IFAS resources

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## Survey Results: Rural Residents

### Management Actions

#### Collaborative action

63% are willing to engage in cooperative management

But very few are willing to pay for a professional to remove the wild pigs



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## Rural Residents Recap

- Most knew wild pigs are non-native but knowledge of mgmt actions was limited
- Most don't like wild pigs (more so if they had wild pig damage)
- Most don't manage wild pigs

Few	Most	Few	Few	Few
<b>Knowledge of the problem</b> Landowners are unaware of the negative impacts of wild pigs. Ex: think wild pigs are tame	<b>Motivation</b> Landowners know about wild pigs but are not motivated to implement management. Ex: damage (or perception thereof) is limited	<b>Knowledge of management</b> Landowners conduct active management of wild pigs but are unaware of best management practices. Ex: not using WSR	<b>Knowledge of resources</b> Landowners are unaware of the financial and technical resources available to them. Ex: unaware of UF/IFAS, state, or federal assistance and programs	<b>Collaboration</b> Some but not all landowners are using the best management practices. Ex: using WSR, but neighbor actively releases wild pigs for hunting

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## LIVESTOCK PRODUCERS



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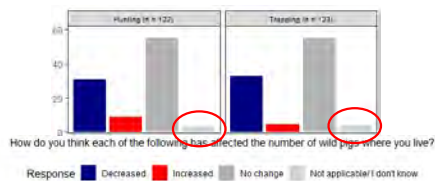
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## Survey Results: Livestock Producers

### Knowledge

70% knew wild pigs are non-native to Florida.



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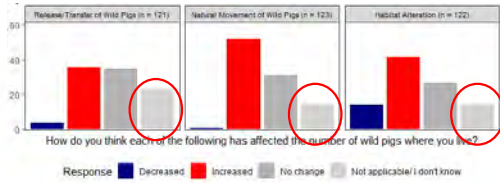
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## Survey Results: Livestock Producers

### Knowledge

70% knew wild pigs are non-native to Florida.



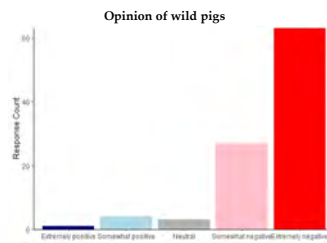
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## Survey Results: Livestock Producers

### Attitudes

86% held negative attitudes towards wild pigs

Would like to see wild pig populations:  
reduced (61%)  
completely removed (26%)



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## Survey Results: Livestock Producers

### Motivations

83% reported wild pigs on their property (81/97)

Of those 90% reported wild pig damage (72/80)

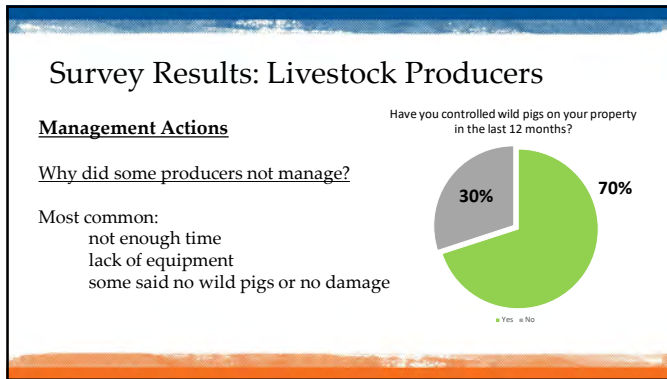
Damage to pastures, roads, wildlife habitat, sod, and feed/grain/hay were all common

Damage to pastures was commonly rated as severe (60%) or moderate (26%)

Negative opinions towards wild pigs was more common for those who had experienced damage

More likely to want wild pigs removed or reduced ( $p < 0.01$ )

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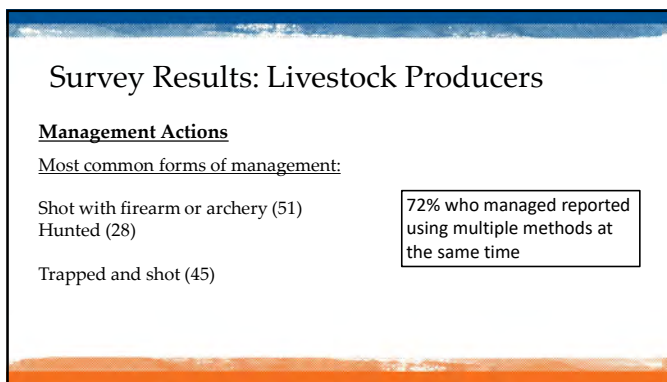
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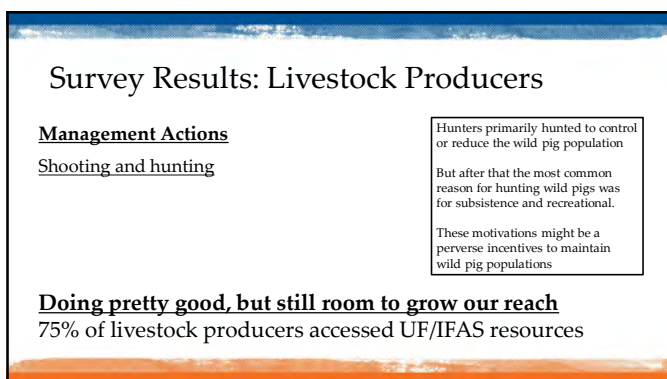
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### Survey Results: Livestock Producers

**Management Actions**

Trapping Methods

Most respondents were doing things to enhance trap success:

- Scouting for trap location
- Setting traps along travel routes near shade/water
- Pre-baiting

**Only 8 respondents used Whole Sounder Removal**

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### Survey Results: Livestock Producers

**Management Actions**

Trapping

vs

Shooting and hunting



**Similar short-term success**

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### Survey Results: Livestock Producers

**Management Actions**

Trapping

vs

Shooting and hunting



**Less long-term success**

**Similar long-term success**

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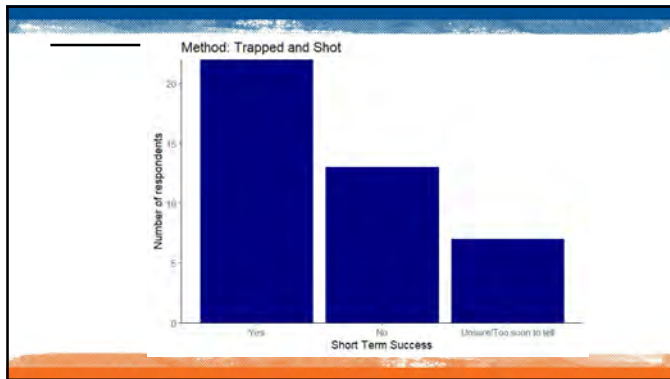
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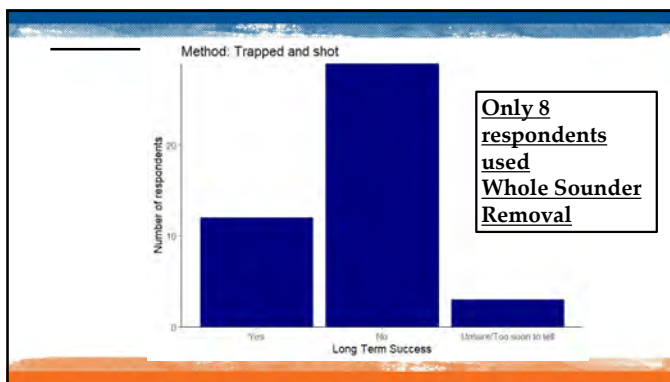
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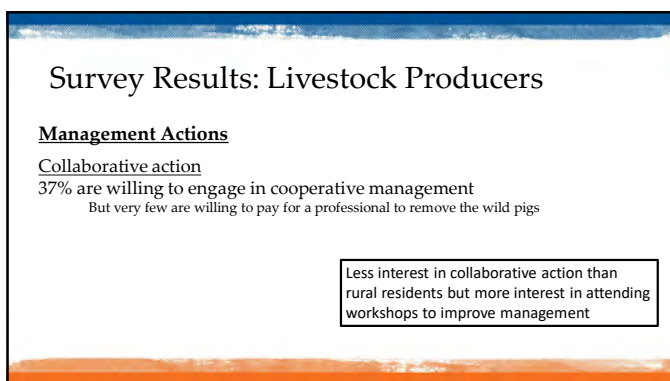
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## Livestock Producers Recap

- Most knew wild pigs are non-native and had more knowledge of mgmt actions than rural residents
- Most don't like wild pigs (more so if they had wild pig damage)
- Most manage wild pigs
  - But few experienced long-term success

Few		Most		Few
Knowledge of the problem	Motivation	Knowledge of management	Knowledge of resources	Collaboration
Landowners are unaware of the negative impacts of wild pigs. Ex: think wild pigs are native	Landowners know about wild pigs but are not motivated to implement management. Ex: damage (or perception thereof) is limited	Landowners conduct active management of wild pigs but are unaware of best management practices. Ex: not using WSR	Landowners are unaware of the financial and technical resources available to them. Ex: unaware of UF/IFAS state or federal assistance and programs	Some but not all landowners are using the best management practices. Ex: using WSR, but neighbors actively release wild pigs for hunting

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## Limitations and Recommendations

Small sample size may impact the ability to generalize results

Reasons behind low adoption rates of whole sounder removal among livestock producers deserves more attention

How can UF/IFAS and government agencies help?

Continued efforts to provide basic education around invasive wild pigs, their problems, and the best management solutions to rural and suburban residents

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## Thank you!

**Hannah Fox**  
Dr. Nia Morales  
Dr. Sam Wisely  
Dr. Marty Main

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