Feral Hog Task Force Meeting

Minutes

April 16, 2024
10:00 a.m.

Co-Chair JP Fairhead, Feral Hog Program Coordinator, Arkansas Department of Agriculture, called the meeting to order and welcomed all members and guests.

Co-Chair Fairhead postponed approving minutes for the December 6, 2022 and June 27, 2023 meetings due to a lack of a quorum.

USDA/NRCS Feral Swine Control Project

Co-Chair Fairhead stated this project covers 12 counties in Arkansas in cooperation with NRCS and USDA-APHIS Wildlife Services, utilizing 10 Technicians across the counties. 20,138 feral swine have been removed within the project areas. 5,985 in the Southwest, 7,569 in the Southeast, 3,127 in West River Valley, 3,451 in the North Central, and 7,334 removals by the Conservation Districts. The Conservation District project, scheduled to conclude September 30, 2023, received an extension through September 2024. Approximately $1 million in funds has been received to extend that project through September 2025 to continue work in those project areas, to include Sevier, Howard, Hempstead, Arkansas, Ashley, Drew, Marion, Baxter and Izard, Logan, Sebastian, and Yell Counties.

Becky McPeake, University of Arkansas System – Division of Agriculture, gave a presentation on the Arkansas Feral Swine Control Pilot Project for 2020 – 2023. The pilot project objective is to create a collaborative effort in eradication and public education of feral swine, resulting in the reduction of feral swine, agronomical damage, and the environmental impact throughout the pilot areas. The presentation summed up measurements of success in the pilot project areas and landowners. In conclusion, the result is increased awareness and coordination of local trapping and removal efforts on private properties. The use of drones was discussed among the task force. **Attachment 1.**

Sub-committee Reports and Agency Updates

Legislative and Policy. Patrick Fisk, Director, Livestock and Poultry Division, stated there is no new update for this committee. Fisk said the 2025 Legislative session is approaching and asked Task Force members to submit any suggestions they may have as far as language changes to the current law. There was discussion on how to integrate wording concerning the enforcement of transporting feral hogs.

Management Control Committee. Co-Chair Ryan Farney, AGFC, spoke on the potential for a rule change by the Arkansas Game and Fish Commission (AGFC). Farney stated the proposed

change is to extend the amount of time that hunters can opportunistically take a feral hog on AGFC Wildlife Management Areas (WMAs). The current timeframe is from the end of November until the end of December. The proposed new timeframe would be throughout the complete hunting season, which would be the end of September through the end of February. Farney stated this would increase the amount of time people would be allowed on the WMAs pursuing feral hogs, therefore, interfering with the ongoing trapping activities. The proposed change will be presented to the AGFC for a vote next month. Farney stated he felt if passed, it would be counteractive to what is currently being done with trapping and feels that is the most effective way to remove hogs.

It was suggested that the Task Force should submit a statement on behalf of the Feral Hog Eradication Task Force, stating their position on the proposed rule change. Farney stated he felt the proposed rule is not a good decision for feral hog management in the state of Arkansas. Farney stated he will put a draft statement together and present it to the Task Force for review and final approval.

Farney discussed the Conservation Incentive Program (C.I.P.), operated through the Private Lands Program within the AGFC, which began in January and will run until the end of December. The concept is to give landowners the ability to purchase feral hog traps that are approved by the agency. The landowner would sign up through an application process, watch a training video and complete a quiz. Following that, the agency pays for 75% of their hog traps. They report their approval on an app and record where these trap events take place. To date, landowners have reported 1,616 feral hogs removed. Plans are to have about 200 people approved through this program.

Alice Weeks provided an update on feral swine exclusion fencing. Weeks stated they applied for funding through The National Association of Conservation Districts to target hog farms and specialty crops. $225,000 was received to build a fence that is fixed, not woven web, with a 12-inch electric wire offset.

Robert Byrd reported that helicopter work has wrapped up. There are currently 12 helicopters in the region covering the eastern U.S., with hopes to expand to 20 helicopters.

Byrd stated to date, they have worked with 641 separate landowners in the state to include a little over a million acres, with approximately 65% of that total being private lands for a total of 7,900 hogs removed.

On the Buffalo River Conservation Committee (BRCC), they worked with approximately 80 landowners on about 50,000 acres, removing 830 hogs within the Buffalo River Watershed.

Fairhead reported on the northeast project, initially beginning with $650,000 for a 5 year project. That project has been extended for 2 additional years. 4 Technicians have been hired to assist in Clay, Greene, Craighead, and Mississippi counties working with USDA on 12 watershed units. Approximately $200,000 remains in that project.

Education/Outreach/Communication Committee

Becky McPeake, U of A, Division of Agriculture, gave a report on outreach to include the AGFC sharing a link to keep track of their outputs, a Front Porch advertisement, and a feral hog tracking video. Also, information is now available for the Private Lands Conservation Tax Credit, a handbook has been distributed, and there was feral hog survey at the State Fair. McPeake also stated Amy Lyman, with the Department of Agriculture continued to update the removal maps on the website each month and a newsletter was shared on social media. University of Arkansas Extension faculty conducted over 80 on-farm demonstrations and applied research trails, and 78 landowners reported economic savings as a result of implementing feral hog damage control strategies. 162 landowners adopted or invested in strategies to reduce damages caused by feral hogs. There has also been workshops along with the Arkansas Forestry Association having their 2024 forest landowner forum on April 25 at DeGray lake which included feral hog topics. McPeake stated Dr. Nana Tian, University of Arkansas at Monticello, has a research project proposal in coordination with the University of Arkansas, Pine Bluff to look at assisting underserved landowners and small acreage landowners in feral hog control.

Co-Chair Fairhead stated there is a documented case of pseudorabies in Arkansas. Five dogs, used for hog hunting, have died from the disease.

Laura Rothfeldt, Arkansas Department of Health, discussed the details of these incidents.

Co-Chair Fairhead stated they are looking into a forward-facing dashboard to be more interactive and user friendly for the public to be able to search by county, year, month, etc. This will include all data reported by different entities.

Co-Chair Fairhead stated in February of this year, kaput was registered in Texas for experimental purposes to be available to the public through a restricted use pesticide license. Fairhead asked the Task Force to be considering a response just in case a request for registration of kaput is submitted for Arkansas.

Co-Chair Fairhead shared a draft of the 2017 Task Force report that was submitted to Legislature for development of a strategic plan for feral swine. The Task Force will review this document and update as needed. **Attachment 2**

Chris Colclasure stated the Task Force, when created, was given a specific task to create a report to the Legislature about how to deal with feral hog. Colclasure asks that the Task Force review this document and come up with a strategic plan of a path forward as to what the best approach would be for future plans of feral hog eradication in Arkansas.

Next Meeting. To be determined.

Meeting adjourned.

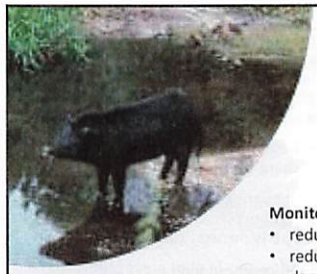
JP Fairhead, Co-Chair
Arkansas Feral Hog Task Force

Ryan Farney, Co-Chair
Arkansas Feral Hog Task Force

Arkansas Feral Swine Control Pilot Project Report 2020 - 2023

Rebecca McPeake, Ph.D.
University of Arkansas System - Division of Agriculture

1



Pilot project objective

- create a collaborative effort in the eradication and public education of feral swine, resulting the reductions in feral swine numbers, agronomical damage, and environmental impact throughout the pilot areas.

Monitoring component:

- reduction in the feral hog population
- reduction in agricultural and environmental damages

Measurement:

- Landowner perceptions
- Experimental use of drones for field measurements

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Arkansas Feral Swine Control Pilot Project Areas

Tier 1:
North Central Ozarks – Baxter, Marion, Izard Counties
Western River Valley – Logan, Sebastian, Yell Counties
Southeast – Arkansas, Ashley, Drew Counties
Southwest – Hempstead, Howard, Sevier Counties

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Arkansas Feral Swine Control Pilot Project Areas

Each pilot area:

- Conservation District feral hog trappers hired per pilot area
- Educational outreach
- Measures of success

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Arkansas Feral Swine Control Pilot Project Areas

Tier 1:
North Central Ozarks – Baxter, Marion, Izard Counties
Western River Valley – Logan, Sebastian, Yell Counties
Southwest – Hempstead, Howard, Sevier Counties
Southeast – Arkansas, Ashley, Drew Counties

Estimated lower wild pig population; 2 trappers

Estimated higher wild pig population; 3 trappers

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Arkansas Feral Swine Control Pilot Project Areas

Tier 1:
North Central Ozarks – Baxter, Marion, Izard Counties
Western River Valley – Logan, Sebastian, Yell Counties
Southwest – Hempstead, Howard, Sevier Counties
Southeast – Arkansas, Ashley, Drew Counties

Livestock pastures & timber

Agricultural crops

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Arkansas Feral Swine Control Pilot Project: Landowner Study

Survey three landowner types for "measures of success"

1. **Landowners receiving trapping assistance (trap assistance)** - telephone interview when sign up (pre-test) and in 2023 (post-test); not all receiving services were interviewed.
   - Respondents awarded $150 cost-share for participation.
2. **Neighboring adjacent landowners (neighbor)** - mail survey to adjoining property owners, 2022 & 2023.
3. **Landowners in pilot areas (pilot area)** – mail survey to private landowners owning > 20 acres classified as "agriculture," 2021 & 2023.

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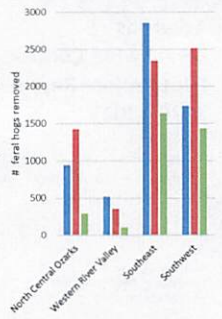
Number of feral hogs removed

- Conservation District trapper self reports: 6,052
- Landowner reports of Conservation District trapper removals:* 6,623
- Additional removals by landowners while Conservation District trapping underway: 3,458



*not all landowners receiving trapping services were interviewed

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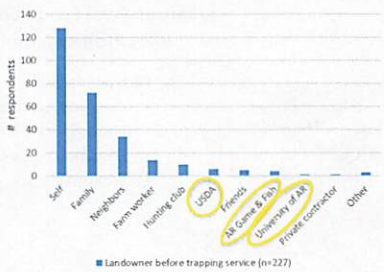
Landowner removal efforts before trapping services

- 33% (n=227) no attempt to remove feral hogs
- 84% who attempted control efforts (n=152) did so themselves



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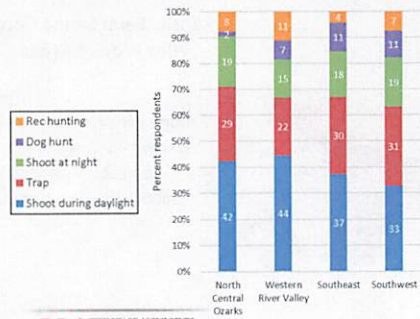
Types of landowner removal efforts before trapping services (n=157)

- 78% shot hogs during daylight hours (n=118)
- 61% "put out hog traps" prior to enrolling for trapping services (n=92)



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Money spent the year before on equipment and supplies plus unpaid time ($14.16/hr) for feral hog removal

Total	OZ	RV	SE	SW	Total	Average
Landowners before trapping services began (n=227)	$67,017	$22,818	$189,985	$107,466	$387,286	$1,706
Neighboring adjacent landowners (n=170)	$6,828	$19,624	$92,217	$46,043	$164,712	$969
Pilot area landowners (n=176)	$11,542	$15,406	$43,529	$41,983	$112,370	$638
Total					$664,368	

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Number of feral hogs seen by respondents receiving trapping service, on neighboring properties, and in pilot project areas before and after trapping services

Land-owner Type*	Survey	# property owners	% who saw hogs	Total # hogs
Trapping Service	Pre	227	97%	13,327
	Post	195	61%	4,614
Neighbors	Pre	170	62%	3313
	Post	252	73%	6562
Pilot Areas	Pre	176	50%	2543
	Post	234	80%	8974

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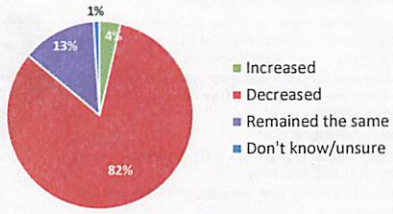
Perceived increase, decrease, or no change in feral hog damages by landowners receiving trapping services (n = 194)



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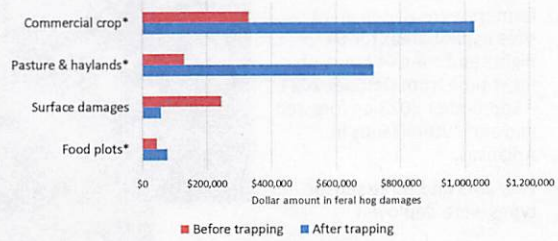
Dollar amount in feral hog damages reported by landowners receiving trapping services



*Paired results such that each respondent provided before and after data.

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Response-shift bias

- "Paradoxical and counter-intuitive findings" in survey research.
- Respondents become more aware of feral hogs and damages after receiving the initial survey and understand feral hogs differently as they go through new life experiences.
- They may not have experienced damage or recognized it as such at the first interview/survey.

Source: Vanier, Antoine et al. 2021. Response shift in patient-reported outcomes: definition, theory, and a revised model. Quality of Life Research, open access.

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Evaluation questions about feral swine pilot project by those receiving trapping services, scale of 1 (low) to 10 (high) (n=177)

Question	OZ	RV	SE	SW	Total average
How successful was the trapping service at removing feral hogs from your property?	8.9	8.5	9.0	8.7	8.8
How successful was the trapping service at reducing damages by feral hogs on your property?	8.8	8.9	8.7	8.7	8.8
How important was having this trapping service available to you for controlling feral hogs on your property?	9.8	9.8	9.5	9.4	9.6

*not all landowners receiving services were interviewed.

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Qualitative Comments

- Majority of those receiving trapping service wanted pilot project to continue.
- Even with fewer hogs, many landowners noted it was only a matter of time before feral hogs would repopulate and return to their property.
- To improve efficiency, Conservation District trappers educated current landowners to alert trapper when feral hog sign reappeared and were ready to expand into Tier 2 counties.

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Experimental Use of UASs (drones)

- Test proof-of-concept for:
  - measuring damages in row crops and pastures
  - improving removal efficiencies, and
  - estimating local feral hog populations before and after removal efforts
- Compare different types and applications of UASs and sensors for collecting and quantifying data about feral hogs and their associated damages.

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Methods

- More than 33 landowners/ farmers were visited at 49 sites in pilot areas for 64 flights and over 44 hours of flight time from October 2021 – September 2023 on forested and agricultural lands in Arkansas.
- Four UAS and three sensor types were deployed

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Crop damage measurements with UASs

- Evaluate RGB, multispectral, thermal, and optical sensor capabilities for assessing feral hog damages.
- Normalized difference vegetative index (NDVI) was effective at measuring damages in crop fields and pastures with highly contrasting plant versus soil features.
- Damages could also be calculated from optical cameras in fields with distinctive structures such as standing versus flattened corn stalks
- Detection was challenging when:
  - both soil and dried field grasses were visually similar on the ground as well as aerially
  - Comparing brown soil with upturned soil from rooting, even deep rooting

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Feral hog detections with UASs

- Observationally, thermal cameras were more effective in winter when the difference between air temperature and a hog's body temperature was maximized and no leaf canopy present to obscure emitted radiation from warm animals
- Detections were more challenging when ambient nighttime temperatures approached 80 degrees and full leaf canopy was present.

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Feral hog detections with UASs

- By transitioning between thermal black-hot settings and thermal white-hot settings, feral hogs were more visible to quantify and locate.
- Flying even at max altitude (400 ft) startled feral hogs at some locations presumably from UAS noise. At other locations feral hogs were undisturbed by the UAS.

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Detections of "trap-shy" feral hogs

- Real-time video was useful for locating elusive feral hogs which had learned to avoid trapping and other removal methods.
- In a case study, 8 additional feral hogs were located where trail cameras suggested there was 1.

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Population estimates of feral hogs with UASs

- Thermal imagery used to train a "custom object detection algorithm" that successfully counted unique warm bodies in video footage and their location
- Improvements in machine learning and AI will likely benefit further developments
- Need additional flight recordings for comparing feral hogs versus other species.

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Project Outputs

- Monthly updates and interim project reports
- Data from landowner interviews entered into a national database for reporting to federal funders
- Facilitated initial meetings with partners in each pilot project in November 2020 and follow-up meeting with Conservation District trappers in December 2022.
- 9 project presentations and posters atstate and national professional meetings and conferences
- 10+ educational outreach meetings with youth and retirees



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Conclusion

- This "boots on the ground" project resulted in increased awareness and coordination of local trapping and removal efforts on multiple private properties.
- Landowners receiving trapping services perceived the pilot project was successful at reducing feral hog numbers and damages.
- Conservation District trappers were successful at identifying those landowners in the pilot areas who needed assistance with feral hog removals and reached new audiences that hadn't worked with public agencies previously.

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Conclusion

- UASs can provide practical and research applications for detecting animals and calculating damages, though not as simple as one might initially suspect.
- Different types of damages to crops and soils require different sensors and techniques for collecting damage data, some of which require further exploration.
- Machine learning and AI technologies will likely benefit further developments in using UASs for local population estimations of feral hogs.

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Questions?

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Attachment 2

Arkansas Feral Hog Eradication Task Force
Report to Arkansas Legislative Council
December 31, 2017

Legislative History:

The Arkansas Feral Hog Eradication Task Force (Task Force) was created by Act 1010 of the 91st Arkansas General Assembly to create a plan for the eradication of feral hogs. Per Act 1010, the Task Force was to be composed of the following:

- The Director of the Arkansas State Game and Fish Commission;
- The Secretary of the Arkansas Agriculture Department;
- The Deputy Director of the Arkansas Livestock and Poultry Commission;
- The Executive Director of the Arkansas Natural Resources Commission;
- The Director of the Department of Arkansas Heritage;
- The Director of the Rural Services Division of the Arkansas 31 Economic Development Commission;
- The Director of the Department of Parks and Tourism;
- The University of Arkansas System Division of Agriculture Vice-President for Agriculture or his or her designee;
- One (1) representative from each of the following groups:
    - Arkansas Association of Counties
    - Arkansas Association of Conservation Districts;
    - Arkansas Farm Bureau Federation;
    - Arkansas Forestry Association;
    - Arkansas Pork Producers Association;
    - Nature Conservancy;
    - Arkansas Dog Hunters Association.

Act 1010 also allowed for additional members to serve as advisory members. During initial meetings, the following individuals and organizations were approved by the task force to serve in an advisory capacity:

- Adam McClung, Executive Vice President, Arkansas Cattlemen's Association;
- Thurman Booth, Arkansas State Director for USDA APHIS Wildlife Services;
- Mike Hoy, USDA APHIS Wildlife Services;
- Mike Sullivan, Arkansas State Conservationist for USDA NRCS;
- James Baker, USDA NRCS;
- Bo Sloan, U.S. Fish and Wildlife Service (USFWS) White River Refuge;
- Norman Wagoner, U.S. Forest Service (USFS) Ouachita National Forest;
- Cherie Hamilton, U.S. Forest Service (USFS) Ozark National Forest; and
- Dr. Sue Weinstein, Arkansas Department of Health.

Summary of Task Force Meetings:
Wes Ward, Arkansas Secretary of Agriculture was elected as Chair, and Jeff Crow, Director of the Arkansas Game and Fish Commission, was elected Vice Chair. Chris Colclasure was elected to serve as the Vice-Chair and representative for the Arkansas Game and Fish Commission when Mr. Crow announced his resignation in October, 2017.

The Task Force developed and launched a webpage at http://www.aad.arkansas.gov/feral-hog-eradication-task-force in August in order to provide a repository of educational information about feral hogs and other available resources to the task force members. Additional information has been added throughout the year.

The Task Force met five times between July 11 and December 6, 2017.

- Tuesday, July 11, 2017
- Tuesday, August 1, 2017
- Wednesday, August 23, 2017
- Wednesday, October 25, 2017
- Wednesday, December 6, 2017

The Task Force actively solicited input and resources about feral hog control and eradication measures from a wide variety of sources. The Task Force members heard presentations from the following:

National Feral Swine Program Coordinator, USDA APHIS Wildlife Services
Dr. Dale Nolte, the National Feral Swine Program Coordinator for USDA APHIS Wildlife Services made a presentation to the task force on August 23, 2017. Dr. Nolte presented an overview of their program concerning damages due to feral swine and how to provide federal leadership in addressing problems encountered with wildlife, to include feral animals. The objective of the program is to minimize damage. They have few, if any, natural predators and have reached an estimated population of four to five million across approximately 39 states in the United States. **Based on outdated information,** their damage and control are conservatively estimated to result in agricultural and ecological costs of $1.5 billion annually. These include:

- Damage to and loss of crops of at least $800 million,
- Injury and transmission of disease to livestock,
- Ecological destruction,
- Property damage,
- Threats to native ground nesting birds and other small wildlife (including endangered species), and
- Contamination of human food and water supplies

Where feral swine exists in some of the southern states, the intent is to work at the state agency or local level to help determine what can be done to resolve the problems or stop the damages caused by feral swine. Nolte stated they would be working with Thurman Booth, Arkansas Wildlife Services State Director.

USDA Natural Resources Conservation Service (NRCS)
USDA NRCS reported that their pilot program in the state had been available in eight counties in Arkansas for approximately four years. The program offers financial assistance for traps with camera surveillance. Time limitations and a lack of technical expertise have limited the success of the program.

Tennessee Wild Hog Eradication Action Team (W.H.E.A.T.)

Mr. Chuck Yoest, Assistant Chief of Wildlife and Forestry, Tennessee Wildlife Resources Agency made a presentation to the task force on the Tennessee Wild Hog Eradication Action Team (W.H.E.A.T.) on August 23, 2017. Mr. Yoest stated he has been involved as the past wild hog program leader in Tennessee and as a result has been very involved in their partnership. He shared Tennessee's experience with wild hogs and the history, along with recommendations for Arkansas' partnership.

Buying Stations

On December 6, 2017 the task force received two presentations regarding buying stations. The first was from Mr. Will Herring and Mr. Bryan Martin of the Wild Boar Meat Company. Mr. Herring and Mr. Martin presented an overview of their company and how they operate. Wild Boar Meat Company, located in Hubbard, TX is a processing plant for feral hogs, purchasing dead and live hogs. The second presentation was from Mr. Phillip Swallows who operates Hogs Gone Wild. Mr. Swallows presented an overview of his company and how they operate. Hogs Gone Wild is a live hog buying facility located in Texas.

Animal and Human Health Concerns:

Dr. Sue Weinstein, the Arkansas Department of Health Public Health Veterinarian and task force advisory member provided the task force with consistent feedback regarding animal and human health concerns. Dr. Weinstein deals with major diseases that can be transmitted from animals to humans and is working with Dr. Doss, the Arkansas Agriculture Department's Livestock and Poultry Commission's State Veterinarian on a One Health Plan. The One Health initiative strives to bring together scientists, physicians, and veterinarians to work inclusively on animal, environment, and human health issues. Dr. Weinstein stated that feral hogs can carry major bacteria, parasites and diseases such as Brucellosis, E.coli, Leptospirosis, Trichinellosis, and Pseudorabies. Due to the importance of this topic, Dr. Brandon Doss prepared a report entitled "Animal Health Risks Associated with Feral Swine" which is included as attachment _____.

TOXICANTS

A considerable amount of time was devoted to the discussion of two feral hog toxicants and their potential use in Arkansas to help with eradication efforts. One is a warfarin-based toxicant, and the other is a sodium nitrate based toxicant.

1. Kaput Feral Hog Bait (Warfarin):

The EPA registered Scimetrics' Kaput Feral Hog Bait on January 3, 2017 (EPA Registration Number 72500-26). The federal product label from the EPA is included as attachment _____. The bait formulation is warfarin-based and has demonstrated efficacy against feral hogs at a formulation strength one-fifth the concentration of warfarin that has been registered for controlling rodents in the United States for more than 60 years. Kaput Feral Hog Bait is the only EPA approved pesticide for feral hogs. Currently, this product has not received registration and use approval in any other state in the country.

Despite being a federally approved product through the EPA the product must still be registered and approved for use in the state in accordance with A.C.A. 2-16-407(a) which states that, "each pesticide must have been accepted for registration by the State Plant Board, and the registration must be in force at the time it is sold, offered for sale, or distributed in this state." A.C.A. 2-16-407(f) further provides that product manufacturers must pay an annual registration fee and that "all registrations shall expire December 31 each year."

In accordance with A.C.A. 2-16-408(b), the Arkansas Agriculture Department's Plant Board is not required to approve every product and may refuse to register or cancel or suspend the current registration "if the board determines that any federally registered pesticide, with respect to its use in this state, requires further restrictions pursuant to A.C.A. 2-16-406(d)(1)."

A.C.A. 2-16-406(d)(1) states that the board may "adopt restricted-use pesticides classifications as determined by the United States Environmental Protection Agency. In addition, the board may declare certain pesticides or pesticide uses as state-restricted pesticides when, after investigation and public hearing, it finds and determines the pesticide to be injurious to persons, animals, or vegetation other than the pest or vegetation which it is intended to destroy, or otherwise requires additional restrictions under the conditions set forth in A.C.A. 2-16-403(28). The sale or distribution of such pesticides in Arkansas or their use in pest control or other operation is prohibited, except in accordance with such rules and regulations as may be made by the board after a public hearing."

Further, in accordance with A.C.A. 2-16-406(d)(1), the Arkansas Agriculture Department's Plant Board "may include rules and regulations prescribing the time when and the conditions under which the materials may be used in different areas in the state."

The following is a summary of how others have responded to Warfarin based toxicants:

Texas

Texas pushed to use warfarin to kill feral hogs earlier in 2017. Within a week of the product being registered, the Wild Boar Meat Company, the Texas Hog Hunters Association and the Environmental Defense Fund successfully sued to block the rule change. In addition to the law suit, the Texas legislature considered a bill (House Bill 3451) requiring that before approving a feral hog poison for use the state would have to conduct a study on its potential negative impact on other wildlife. A coalition of hunters, animal rights advocates, conservationists and meat processors mobilized against the use of the poison. The Texas State Rifle Association, Wildlife Rescue and Rehabilitation, the Texas Hog Hunters Association and the Texas Veterinary Medical Association are all among the groups that support the bill. The bill was passed on April 18, 2017 by a vote of 127-12. Citing the threat of lawsuits, on April 25, 2017, Scimetrics announced that it had withdrawn its request for registration in Texas.

Louisiana

The Louisiana Department of Agriculture and Forestry (LDAF) registered Kaput Feral Hog Bait in February 2017 with the following restrictions: the classification of the product as a state restricted use pesticide (RUP) and the requirements for a pesticide stewardship training for the person(s) selling, purchasing and applying the product. The state RUP classification and the pesticide stewardship training requirements were implemented through a Section 24(c) registration. On April 18, 2017 the Louisiana Agriculture Commissioner cancelled the state registration of Kaput due to a major concern regarding the registration of the Kaput Feral Hog Bait pertaining to the recommended "feeders" for use which may pose potential threats with the Louisiana black bear. Recently, the Louisiana black bear was delisted from the Federal List of Endangered and Threatened Wildlife.

Georgia

On April 21, 2017, the Georgia Department of Agriculture denied the registration of Kaput Feral Hog Bait with the conclusion that, even when the applicator follows all label directions, secondary exposure to non-target species is likely to occur. Additionally, the safeguards to protect contaminated meat from entering the human food chain are not sufficient. The Georgia Department of Agriculture stated that it would re-consider the decision for the 2018 registration period under the condition that Scimetrics is able to provide sufficient use data showing the product can be used safely and effectively with little or no harm to non-target species.

Australia

Australia's experience with warfarin as a feral hog toxicant ended with them concluding that this wasn't a satisfactory method of control. Ultimately, Australia concluded that the method of death was so cruel that use of warfarin should be outlawed. Warfarin is an anti-coagulant, so hogs die by bleeding to death – including bleeding out of the eyes, nose, mouth, and other body orifices. The death is painful and gruesome. And they found that the timeline for feral hog death was 4-17 days while the product label says 4-7 days.

Organizations and Associations

The following organizations and associations asked the EPA to suspend or cancel the federal registration of Kaput Feral Hog Bait until such time that formal consultation can be completed with the United States Fish and Wildlife Service (USFWS), the United States Department of Agriculture (USDA), and the Food and Drug Administration (FDA):

- National Environmental Coalition on Invasive Species
- Center for Invasive Species Prevention
- National Wildlife Federation

- The Wildlife Society
- American Bird Conservancy
- Association of Fish and Wildlife Agencies
- Southeastern Association of Fish and Wildlife Agencies

* The EPA denied this request on August 17, 2017.

Kaput Feral Hog Bait in Arkansas:

At the time of the initial meetings of the task force the product manufacturer, Scimetrics, had not applied to register their product for use in Arkansas but there was speculation that the manufacturer would submit their application by the end of the year. Mr. Richard Poche', President of Scimetrics, was present at the August 23, 2017 task force meeting to discuss the product as well as feeder development and further research and testing for using Warfarin. Mr. Poche' stated they were currently working toward meeting the criteria for approval of the product in Arkansas but would conduct additional testing prior to applying to register their product in the state. However, Scimetrics did apply to the Arkansas Agriculture Department's Plant for registration of their product on September 15, 2017.

The Task Force sought input from Arkansans, through the use of an online survey, regarding the registration and potential restrictions on authorized uses of Kaput Feral Hog Bait as a viable method of control in eradication efforts. A press release announcing the survey was issued on October 3, 2017 with the survey closing on October 22, 2017. The survey yielded more than 5,000 responses with 95 percent being from Arkansas residents and 85 percent being from Arkansas landowners. 71 percent of the respondents did not believe that toxicants should be an option for feral hog control in Arkansas. The full results of the survey are included as attachment _____.

The results of the survey were presented to the task force at the October 25, 2017 meeting. Ms. Sue Valentine, the regulatory manager for Scimetrics, attended the meeting to answer questions about the product as well as provide a presentation to the task force on current and ongoing research and common misconceptions. Dr. Jen Ballard, Wildlife Veterinarian, Arkansas Game and Fish Commission shared information on some of her research and some of the research questions that have been identified as being useful before moving forward including; the overall effect of the bait on non-target wildlife; confirming a timeline that it takes for the methylene blue dye to appear; determining or confirming the post exposure duration of that dye; and whether the methylene blue dye is also transferred if there is a secondary exposure, etc.

Additional questions raised by task force members regarding the product and the need for additional research included:

- The potential for direct exposure of wildlife species to the product resulting in mortality.
- The complicated nature of the label instructions which could make the inappropriate use of the product by some individuals inevitable and thereby increasing the potential for wildlife exposure.
- A lack of research regarding sub-lethal dosage effects including the possibility of reproductive failure or embryo deformity to non-target species including humans.
- The potential for indirect exposure of wildlife and domestic animals to warfarin through the scavenging of carcasses containing the toxin.

- The toxin's persistence in water given feral hog's proclivity to water and that unclaimed poisoned carcasses will likely enter watershed systems.
- Potential human exposure due to feral swine being used as a food source for many residents of the state.

Due to the work and reservations of the task force the Arkansas Agriculture Department's Plant Board submitted a written response to Scimetrics on October 25, 2017 stating that "due to the potential for adverse effects involved with the use of this product the Board has instructed staff to delay registration until further information is obtained."

2. Sodium nitrate product status:

Despite the concerns raised in regards to the warfarin based toxicant, a different product is currently being developed to assist with feral hog control and eradication. The following Press Release was submitted by USDA APHIS Wildlife Services on December 8, 2017 regarding a sodium nitrite based feral hog toxicant:

In November, USDA's Animal and Plant Health Inspection Service (APHIS) accomplished two key tasks as part of its efforts to evaluate an oral toxic bait for use with invasive feral swine. First, on November 6, 2017, APHIS Wildlife Services (WS) received an Experimental Use Permit (EUP) from the U.S. Environmental Protection Agency to conduct sodium nitrite toxic bait field trials on free-roaming feral swine in Texas and Alabama. Second, on November 20, APHIS signed a final environmental assessment and issued a Decision and Finding of No Significant Impact (FONSI) associated with conducting such field trials. Copies of the final environmental assessment and FONSI can be accessed at https://www.regulations.gov/docket?D=APHIS-2017-0067.

"Wildlife Services takes the selection and use of toxic baits for use in wildlife damage management very seriously. The final environmental assessment, FONSI and EUP are the result of years of collaborative research by WS and multiple private, state, federal and international partners," states WS Deputy Administrator Bill Clay. "With these in place, we can now begin field trials to help determine the effectiveness of the sodium nitrite toxic bait for removing feral swine sounders in natural settings, as well as any potential impacts to non-target wildlife."

The EUP allows WS researchers to partner with landowners to identify and target 3 to 9 feral swine sounders (i.e., social groups containing adults and juveniles) each in Texas and Alabama. Bait delivery systems designed to prevent access by non-target wildlife will be filled with placebo bait, placed in the sounders' territories and monitored with motion-activated cameras. Following a period of acclimation to confirm feral swine use of the baiting areas, the placebo bait will be replaced with sodium nitrite toxic bait for two nights. Furthermore, at least 30 feral swine and no more than 30 raccoons in each state's study area will be live captured and radio-collared prior to baiting in order to monitor their movements and exposure to the bait. Landowners within 300 meters/328 yards of bait stations will be notified and signs will be placed on bait stations and along roads leading into the study areas.

Sodium nitrite ($NaNO_2$) is a meat preservative commonly used to cure meats such as sausage and bacon. When eaten in high doses over a short period of time, it is toxic to feral swine. The mode of death is similar to carbon monoxide poisoning. Once enough sodium nitrite bait is eaten, the feral swine gets faint, is rendered unconscious, and quickly dies. In most cases, feral swine die within 2.5 to 3 hours after eating a lethal dose.

Many factors are considered when developing a toxic bait for feral swine. Not only must it be effective and humane in eliminating feral swine, but also low risk for those handling it, the environment, and wildlife. Other wildlife, such as raccoons, bears and deer, may be attracted to the sodium nitrite toxic bait. To

prevent non-target species from accessing the bait, WS researchers will use delivery systems and baiting strategies designed for feral swine. Trials will not be conducted in areas with known black bear populations.

Feral swine (also called wild pigs, Eurasian boar, or feral hogs) are a harmful and destructive invasive species causing damage and disease threats to crops, public property, native ecosystems, livestock health, and human health. More than 6 million feral swine are located in at least 35 states across the United States. Their damages to agricultural crops alone are estimated at $190 million each year. "Although trapping, aerial operations, and recreational hunting of feral swine have effectively reduced damage in some areas, studies show that at least 70 percent of feral swine must be removed each year in order to prevent population growth," states Clay. "Should the U.S. Environmental Protection Agency approve the toxic bait for use with feral swine, it could become another tool in the toolbox for integrated feral swine damage management."

The development of tools and techniques for use in feral swine damage management supports the National Feral Swine Damage Management Program— a nationally-coordinated effort among Federal, State, Tribal and local entities to manage feral swine damage and stop their spread.

More information about the sodium nitrite toxic bait for feral swine, please see our factsheet.

COMMITTEE ACTION

The Task Force formed the following three committees at their August 23, 2017 meeting in order to address specific topics and provide recommendations to the full task force:

- Management/Control Committee
- Policy and Legislation Committee
- Education Committee

Each committee set its own schedule of meetings and provided a report or recommendation to the full Task Force. Each Task Force member chose which committee to work with based on interest, experience, or area of expertise.

1. Management and Control Committee:

The goal of this committee was to research, investigate and recommend methods for reducing feral hog numbers across the state. The full Management and Control Committee report and recommendations are included in attachment ___ but include the following topics:

1. Increase the availability of traps and trained trappers to assist willing landowners and land managers statewide.
    a. Identify the most appropriate means of providing state and federal resources at a county level to acquire traps and provide training opportunities.
        i. Request that the Legislature consider appropriating funding to the Arkansas Natural Resources Commission for increasing staff capacity at select conservation districts.
        ii. Request that AGFC, USDA APHIS assess their budgets and manpower and increase capacity for feral hog control where appropriate.
        iii. Encourage collaboration between the USDA Natural Resources Conservation Service, the USFWS, US Forest Service, USDA APHIS and the State of Arkansas in sharing resources to better address the feral hog issues in the state.
    b. Request AGFC, UADARE, and USDA APHIS assist in developing training opportunities for trappers.
    c. Develop a strategy for resource allocation based on feral hog distribution and current resources.
        i. AGFC and USDA APHIS will provide an updated distribution map.

2. Develop a web-based feral hog reporting tool to capture control efforts across the state. This would also be helpful in determining/developing methods for estimating the feral hog population.

3. Encourage increased collaboration between state, federal and other partners to engage in organized gunning projects such as during high water and via helicopter.

4. The majority of committee members oppose the use of live buying stations at this time due to a lack of data from other states indicating such facilities decrease feral hog populations, and concern that

buying stations would create a new industry conducive to the continuance of feral hog populations for the purpose of generating income rather than their eradication.

5. Allow the restricted use permitting of Kaput under the research and demonstration classification, or other designation which limits use to the following users; state and federal agencies, colleges and universities in accordance with state and federal property use agreements/clearances in conjunction with task force approved Kaput related research projects conducted by colleges and universities. Proposed research related to Kaput, and all feral hog toxicants, should be considered by the full task force and related committees.

6. Encourage stakeholders and state institutions to pursue and engage in research related to one, or more of the prioritized research items listed below:

a. What is the species-specific sensitivity (LD50) of native wildlife to warfarin (ex. black bears, raccoon, bobcat, fox, representative song bird species, representative bird of prey species, white-tailed deer, Virginia opossum, etc.)?
b. What is the concentration of warfarin in the tissues of animals with primary exposure to the toxin? What is the likelihood of secondary toxicosis based on the answers to questions 1 and 2?
c. What are the sub-lethal effects of warfarin exposure in non-target species, such as alterations to immunity, reproductive function, etc.?
d. What is the effectiveness of the product for population-level control in an open system?
e. What proportions of carcasses are expected to be recovered with reasonable effort?
f. Is the methylene blue dye transferred to non-target species with secondary exposure to the toxin?

7. Support aerial gunning operations as a supplemental control method under permits issued by the Arkansas Agriculture Department for private landowners. Aerial removal services provided to landowners through contractors/vendors should be strictly regulated to avoid future commercialization and limited to properties delineated within the above referenced permit.

2. Policy and Legislation Committee

The goal of this committee was to identify and recommend changes to policy or legislation that will enhance the ability of state agencies and the general public to eradicate feral hogs. The full Policy and Legislation Committee report and recommendations are included as attachment ___ which includes the following topics:

1. Amending current laws to strengthening and support the purpose of the task force which is to eradicate feral hogs:

a) To amend Act 1104 Arkansas Code § 2-38-502 (Capturing and Killing Feral Hogs).

- Adding language that would allow an individual to obtain a permit that would allow them to hunt feral hogs from an airborne craft.
- Remove language that refers to any terminal facility that allows hunting of feral hogs in confinement.

- Add an exemption to Authorized or qualified personnel to catch and release feral hogs for research purposes.

b) To amend Act 1104 Arkansas Code § 2-38-504 (Releasing Hogs into the Wild).

- Increase penalties for the illegal transpiration of feral hogs.
- Increase penalties for the illegal release of feral hogs onto private or public land.
- Remove language that refers to any terminal or hunting facilities.
- Remove language that restricts a landowner from possessing a feral hog.

c) To amend Act 1104 Arkansas Code § 2-38-501.

- Amending the definition of a feral hog; adding language that would make identifying a feral hog easier for law enforcement.

2. Development of an MOU or MOA between current Arkansas Feral Hog Taskforce members to ensure that the purpose of the Taskforce will persist as long as needed. e.

3. Education Committee

The full Education Committee Report and recommendations are included as attachment ___ which includes the following topics:

1. Task Force's feral hog education website
2. Targeted media kit and outreach campaign
3. Endangered species and habitats effected by feral hogs (Arkansas Heritage Commission)
4. Stakeholder survey
5. Youth education
6. Landowner education
7. Finances

It should be noted that Act 1010, which created the Feral Hog Eradication Task Force, includes an expiration date of June 30, 2018. While the task force has been very active in attempting to accomplish the tasks set forth by the legislature there is still a lot of work left to be done. The task force members are committed to helping eradicate feral hogs in Arkansas and plan to continue to operate through a Memorandum of Understanding (MOU) even after the legislatively created task force dissolves.

Attachments:

(1) Animal Health Risks Associated with Feral Swine
(2) Kaput Feral Hog Bait EPA Registration (72500-26)
(3) Kaput Feral Hog Bait Registration for Use Survey Results
(4) Management and Control Committee Report

(5) Policy and Legislation Committee Report
(6) Education Committee Report

On page 46 of the PDF reference to the resource: A Landowner's Guide to Wild Pig Management, Practical Methods for Wild Pig Control; should be cited as: Bill Hamrick, Mark Smith, Chris Jaworowski & Bronson Strickland; Mississippi State University Extension Service & Alabama Cooperative Extension System