Abating Wild Pig Damage Using Trapping Best Management Practices

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Abstract: The wild pig is an invasive exotic introduced into what is now Florida in 1539 by the explorer Hernanado de Soto. Texas has been home to wild pigs since 1565 with a current population estimate of 2.6 million animals. From 1980 to 1990, a perfect storm of clandestine releases, access to vast amounts of wildlife supplement, and the highest reproductive rate of any ungulate found worldwide led to a wild pig population explosion in Texas. As the range and population of this intelligent omnivore increased over the ensuing 25 years, agronomic damage alone increased to over $50 million annually. Inter-specific competition with and/or predation upon native wildlife species, damage to wetlands and sensitive plant communities, and water quality degradation have also been attributed to wild pigs in Texas. Damage to urban and suburban landscapes has also increased sharply over the past decade and negatively impacted humans via pig-vehicle collisions, greenscape damage to lawns, sports fields, golf courses, parks, and cemeteries. Legal control methods include shooting, snaring, dogging, and trapping. Among these methods, trapping is often cited as the first line of defense for private landowners. However, many landowners fail to employ "best management practices" when attempting to abate damage through population reduction. Trapping wild pigs is a process, not an event. The process includes the following steps: 1) pigs must be trained to bait, 2) sounder size must be estimated via the use of remote-sensing cameras to determine the size of trap needed, 3) pigs must accept the trap presence, and 4) pigs must be trained to routinely enter and feed inside the trap. Following this trapping protocol can save landowners tremendous amount of time and money in the war on wild pigs.

Key Words: control, damage abatement, *Sus scrofa*, trapping, wild pigs

Proc. 25th Vertebr. Pest Conf. (R. M. Timm, Ed.)
Published at Univ. of Calif., Davis. 2012. Pp. 13-16.

INTRODUCTION

The wild pig (*Sus scrofa*) found in what is now the continental United States has numerous sources of origin. In 1493, Christopher Columbus brought domesticated pigs to the West Indies. Hernando de Soto also used the descendants of these West Indies pigs as a food source when he explored Florida beginning in 1539 and also introduced them into what is now Texas in 1565 (Mayer and Brisbin 1991). As human colonization increased across the south, free-ranging of domesticated pigs was commonly practiced by settlers. Also, beginning in the 1890s , introductions of the Eurasian wild boar for hunting purposes were made in a number of states including New Hampshire, North Carolina, California, and Texas. Therefore, the wild pig found in the United States today can be directly related to feral domesticated pigs that have spent from just a few to many, many generations in the wild, Eurasian wild boar where those stocks have perhaps remained relatively "pure", and the crosses between the two.

Regardless of the source, wild pigs cause a tremendous amount of damage each year. Total losses in the United States attributable to wild pigs exceed $800 million annually (Pimentel et al. 2005). In Texas, a conservative estimate of agricultural damage alone exceeded 50 million dollars annually, with landowners spending an additional $7 million to correct the damage and attempt to control the pigs (Higginbotham et al. 2008).

However, the damage has extended well beyond the agricultural community in recent years as the pig population has continued to increase its range and number. Damage to urban and suburban areas has increased to include pig-vehicle collisions, damage to green spaces such as parks, riparian areas, athletic fields, home lawns, parks, and even cemeteries. This does not include ecological damage to sensitive wetland areas and their plant communities or inter-specific competition with or direct predation upon many native wildlife species.

The most recent wild pig population estimate for Texas is 2.6 million animals (TAMU 2010). Approximately 79% of the Texas landscape is deemed suitable habitat for wild pigs. This has given rise to the saying of "There are but two types of landowners in Texas: Those with wild pigs and those about to have wild pigs".

With the current population reduction tools available, eradication of wild pig populations in Texas is not a feasible option. Nevertheless, the economic impact caused by wild pigs to agriculture can be greatly reduced via control efforts (Higginbotham et al. 2008). In Texas, landowners and others interested in abating damage by reducing wild pig populations have four legal options: trapping, snaring, shooting (from ground and air), and dogging. Of these choices, trapping is often the first line of defense. However, few landowners are employing what are considered to be "best management practices" when trapping. As a result, they often become discouraged and give up while the damage the pigs inflict continues.

METHODS

Identification of wild pig presence prior to the initiation of damage is critical. Common signs of pig presence include tracks (e.g., more "rounded" shape than deer tracks), hair and mud on the bottom strand of barbed wire fences, wallows, rubs on wooden telephone, highline and fence posts, and rooting in wetlands, fields, and pastures (Lewis et al. 2011a). Unfortunately, a considerable pig presence may exist on a property without any actual sightings by the landowner. Human pressure often causes wild pigs to become highly nocturnal. As a result, they may

move considerable distances between the safety of daytime bedding cover and their nightly feeding sites.

Trapping wild pigs is a process, not an event. The process includes the following steps: 1) pigs must be trained to bait, 2) sounder size must be estimated via the use of remote-sensing cameras to determine the size of trap needed, 3) pigs must accept the trap presence, and 4) pigs must be trained to routinely enter and feed inside the trap.

If open pastures or crop fields are the sites of initial damage, do not start baiting (chumming) at the site where that damage occurred. Rather, back track the pigs to their daytime cover (e.g., dense understory vegetation) and begin chumming at a potential trapping site. If multiple sites are to be chummed, vary the baits employed.

Potential trapping sites should be selected that are directly upwind of daytime cover allowing the bait's scent to carry toward the pigs (Lewis et al. 2011b). In addition, the site selection process should include access by a vehicle and trailer, if pigs are to be loaded from a trap and moved from the capture site. State and local regulations should be checked to determine legal options for pig disposal, which may range from euthanasia to selling live pigs to buying stations.

In some cases, the chum site is predetermined (e.g., deer feeder) but always check state game agency regulations to make sure baiting/chumming is legal. Many trappers start the chumming process with shelled corn — the gold standard of wild pig baits. However, if the bulk of the corn is being consumed by non-target species (e.g., deer, crows, raccoons), switch to another chum such as fermented corn, rice or milo — to discourage non-targets while appealing to the wild pig's acute sense of smell!

Additional baits used successfully include used fish fry grease mixed with corn, cheese-flavored catfish baits, spoiled produce, over-ripe fruit (e.g., peaches, bananas), dry dog food, and commercial pig baits. Campbell and Long (2008) found that strawberry-flavored baits were attractive to wild pigs. As a result, strawberry flavored gelatin or soda have often been incorporated into other baits to enhance their scent appeal.

Along with this initial chumming step, employing a remote-sensing camera eases the task at hand. Although you can make on-site observations of bait consumption and check for other signs of pig activity (e.g., tracks), a camera is instrumental to the trapping process, since it allows for continuous monitoring and records the dates and times of pig activity while minimizing disturbance (Hamrick et al. 2011).

A question that arises with remote-sensing cameras is whether models with infra-red features are necessary to avoid spooking the pigs with a flash when the camera is triggered at night. In my experience, the flash is not a deterrent. However, if preferred, infra-red models are available from a variety of manufacturers.

In addition to confirming response to chumming efforts, the camera will also reveal the approximate number of pigs in the sounder. These data determine the size of trap that will be needed. Once the pigs are responding to bait, a trap of appropriate size can be assembled.

Generally, wild pig traps can either be characterized as box traps or corral traps (Choquenot et al. 1993). The box traps are usually small, six-sided, and portable while corral traps are larger, open-topped, and more semi-permanent. In addition to size differences, trap materials, trigger mechanisms, and gate design used in these two trap designs often varies (West et al. 2009).

Another consideration in trap selection is the potential capture of non-targets. For example, deer often respond to corn-based baits and if accidentally captured can usually escape a corral trap, while injury in box traps is a common occurrence.

When it comes to trap size, bigger is usually better! A recent study conducted in Georgia found that the capture rate of wild pigs was 4 times greater in corral traps than box traps (Williams et al. 2011). I seldom construct a corral trap with less than five 16-foot-long livestock panels and often construct traps that may contain as many as 8 to 10 panels. If the sounder of pigs is large (e.g., 15 to 25 pigs), the distance from the gate to the trigger mechanism should be maximized to increase the number of pigs captured in a single event. This requires the use of a larger trap. If you catch two pigs and six are still standing around outside of the trap when you arrive to check it, your trap was too small!

The shape of the trap is also a critical consideration. Small corral traps are often round. The box traps require a top while corral traps with corners must also have them covered to prevent escape. However, we recommend using a "tear-drop" shaped corral trap, especially if the landowner plans to load the pigs into a trailer for transport away from the trap.

Corral traps should be made of 16- or 20-foot-long livestock panels that are 60 inches tall and contain mesh of 4" by 4" square (Lewis et al. 2011c). The panels should be overlapped one mesh width and secured to sunken t-posts erected every 4 to 5 feet around the outside perimeter of the trap. Panels should be wired to the posts at the top, middle, and bottom. The bottom of the panels must sit flush on the ground without gaps present.

The trigger mechanism used is largely a matter of personal preference. I prefer a simple tripwire. A tripwire can be fashioned from either high test braided (non-monofilament) fishing line, a plastic-coated steel clothesline, or a combination of the two. Since the tripwire may be up to 50 feet long in the largest traps, it should be run above "pig height" from the gate to the trigger through pulleys mounted on a series of t-posts. The t-posts supporting the tripwire should be erected 10 to 15 feet apart in a line from 10 feet inside the gate to 10 feet from the back of the trap. The tripwire is angled downward from the next to the last t-post and run from the last t-post and secured to the back of the trap at a height of 15 inches. This allows it to be easily tripped by wild pigs while avoiding false triggering by non-target species (e.g., raccoons).

Once the trap is erected, continue chumming, as it may take a week or more for the pigs to become accustomed to its presence. At this stage, the opening where the gate will eventually be placed should be 10 to 15 feet wide to encourage wild pigs to enter the front of the trap. In addition to the week often needed for the pigs to simply become accustomed to the trap's presence, another week may elapse before the pigs actually enter it. Bait should always be poured from outside with a trail leading to the

inside and on towards the back of the trap where the gate trigger will be positioned.

Eventually, the majority of the sounder should regularly venture inside the trap opening to feed. After the pigs routinely enter the trap opening, set the gate in place, close the panels down, and attach them to the gate. The gate should remain wired open so the pigs can be trained to enter the trap through it.

Since the gate end of a tear-drop shaped trap represents a bottleneck, a panel should be cut to fit and secured over the top of the trap neck adjacent to the gate. Wild pigs use corners and tight spots like you and I use a step ladder, therefore covering corners and areas where they could "pile up" is recommended to prevent escape over the top.

A brief discussion of gates is warranted. If multiple trap sites have been established, one gate can be shared among several traps to reduce costs. I also encourage landowners to use whatever gate (e.g., rooter, saloon door, swinging door) gives them the most confidence.

However, I am convinced based on substantial video footage that once a gate is tripped, few if any additional pigs "push through" it, although each of these aforementioned gate styles would accommodate that behavior. For this reason, I also recommend that the "guillotine" style gate (e.g., cannot be pushed opened from the outside once tripped) be added to the list of gates that landowners should consider.

While I do not favor any particular gate style, an increasing amount of video evidence provided by remote-sensing cameras does suggest that gate size (particularly width) may be a critical factor in trapping success. Numerous pigs have displayed an aversion to narrower gate openings. This aversion is most common among adults, especially boars. Indeed, some of our "gateless" trap designs where wild pigs must push through a narrow opening formed by panels (after a conditioning period) often catch juveniles while adults refuse to enter.

We are currently evaluating the effect of gate width on capture rates. Preliminary data suggests that gates 6 feet in width are accepted more readily than those gates that are 3 feet (or narrower) in width. When in doubt, use the widest gate feasible for your trap design. Nevertheless, pre-baiting is always necessary regardless of the gate style or width utilized.

Over time, bait should be placed further and further inside the trap. Since the trigger is placed at the opposite end of the trap from the gate, the pigs should be gradually trained to accept bait at that location.

Once pre-baiting is successful and the pigs are routinely entering the trap as evidenced by camera data, capture becomes a relatively simple matter. If you have prepared everything correctly up to this point, the actual trapping phase itself becomes a slam dunk.

On the afternoon before the capture date, set the gate to trip and offer the bait sporadically in small piles from just in front of the gate leading all the way back to the trigger. A copious amount of bait should be placed at the trigger mechanism itself to ensure that it will be tripped. The idea is for the wild pigs to slowly "feed their way back" to the trigger mechanism so the last pig in the sounder will be inside the trap before the first pig trips the trigger.

Once the gate is set for capture, it is imperative to check the trap shortly after daylight the following day. The longer wild pigs are left in a trap, the more likely they are to escape.

The camera should continue to record during the actual trapping phase. One picture is worth a thousand words when it comes to determining how many members of the sounder were actually inside the trap when it tripped. Were some pigs still outside when the gate tripped, or were they simply AWOL that particular night? For example, pregnant sows are notorious for disappearing from a bait site at farrowing time and remain segregated from other pigs for 3 to 4 weeks before returning to feed with their litter.

After capture, loading the pigs into a trailer becomes a simple matter if the trap was designed in the aforementioned tear-drop shape. A livestock trailer is backed into position against the gate and a board of appropriate height is wedged between the trailer and gate to prevent escape underneath the trailer. One person operates the gate while others present walk wide around the trap and then move toward it from the wide (opposite) end. The pigs will funnel away from the human presence and load into the trailer. They can then be trailered away from the immediate area of the trap location for disposal by legal means.

If camera data indicates that not all of the pigs in a targeted sounder were captured or multiple sounders were responding to the bait on different schedules, the gate can be wired back open and the process repeated. If the remaining pigs respond to baiting outside but refuse to enter the trap, remove the gate and prop the panels open to provide a point of entry back into the trap that is 10 to 15 feet wide. Once camera data indicates the pigs again enter the trap, the capture process can be repeated.

RESULTS AND DISCUSSION

Trapping wild pigs is a process, not an event. The process begins with baiting or "chumming". If you have ever been disappointed when you simply setup a trap one day and didn't catch pigs the next, now you know why.

Select an appropriate location upwind of and in close proximity to the wild pigs' daytime cover which is usually comprised of heavy understory vegetation near water. Scouting the sign present will enhance your chances of success by going to the pigs rather than having them come to you. Train the pigs to respond to bait or "chum". If necessary, bait several locations with different baits until the pigs respond.

Once the pigs are on bait, a remote-sensing camera is a vital tool to determine trap size needed based on the number of pigs present. Given the reasonable cost and reliability of today's remote-sensing cameras and the value of landowner's time and increasing fuel prices, I would not recommend attempting to trap wild pigs without one.

Only when the pigs are patterned on the bait source should a trap of the appropriate size and materials be erected. You simply cannot trap what you cannot bait!

The landowner should also consider how the captured wild pigs will be handled before determining the shape of the trap. "Tear-drop"-shaped traps facilitate easy loading of pigs to move away from the immediate trapping site. In Texas, it is legal for landowners to sell wild pigs to a buying station that in turn transports them to a proces-

sor where they are destined for human consumption in the United States, Europe, and Asia. In fact, from 2004-2009, approximately 460,000 wild pigs underwent pre-mortem inspection and commercial slaughter in Texas (USDA 2009).

Once the trap panels are arranged in the appropriate shape and attached to t-posts, the pigs must be trained to accept the trap's presence. Next, the pigs must be trained to begin routinely entering the opening where the gate will eventually be located. The remote-sensing camera will verify trap acceptance and entry. Once acceptance and entry are verified, the side panels can be attached to the wired-open gate facilitating the pigs to become trained to enter and exit through the narrower opening. Only then should the trap be set to capture pigs. The good news is that if this protocol is followed and the camera data is reviewed along each phase of the process, the landowner should be able to choose the exact date of capture. The use of an automatic feeder (e.g., deer feeder) where legal, in conjunction with a remote-sensing camera, will ease this task for absentee landowners who visit their properties on an infrequent basis.

A common occurrence is for multiple sounders to use the same trap bait site, albeit on different time schedules. In addition, boars often travel alone or in small groups and also visit bait sites on different schedules than sounders. The continued use of cameras post-capture will verify these events.

In the case of solitary boars or small groups of pigs remaining after the majority of the sounder has been captured, the landowner may want to employ a "short trigger". The trip mechanism is simply moved forward to within 10-15 feet of the gate, since there is no need to entice the remaining pig(s) all the way to the back of the trap to facilitate capture. This technique is especially effective on mature boars that are often reluctant to venture very far into a trap. Although there may be some learned trap avoidance behavior, we have trapped and released marked sows on multiple occasions only to re-capture them four days later in the same trap!

How long does the trapping process take from start to finish? I have seen it take as little as one week to as long as two months in areas where the pigs have been heavily harassed by human activity, inefficient trapping methods, and shooting/hunting. The key for a landowner is to be patient, rely on their camera data, and never give up. Only then can one hope to effectively abate damage and work towards winning the war against wild pigs!

ACKNOWLEDGEMENTS

Special thanks to Don Neuendorff, Texas AgriLife Research at the Texas AgriLife Research and Extension Center-Overton, for his assistance in developing this wild pig trapping protocol.

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