

Examining the Risk and Rewards for the Anthropogenic Spread of Wild Hogs

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ABSTRACT: Wild hogs (*Sus scrofa*) are an invasive, exotic species that has spread through much of the US through anthropogenic means. Many states have laws and regulations with the intent of reducing the illegal importation, introduction, and establishment of wild hog populations. However, in many cases, these laws have been ineffectual for stopping the anthropogenic spread of wild hogs. To assess the risk for moving wild hogs, we examined various wild hog-related laws throughout the US and assessed the potential reward for their illegal movement of releasing wild hogs for hunting purposes. Initially, we attempted to use the internet to locate various information regarding laws and penalties regarding illegal activity related to wild hogs; however, we found that laws and penalties were difficult to locate on-line ($n=5$ states where the necessary information could be located on-line), which may ultimately detract from their ability to serve as a deterrent. Most states ($n=21$) had to be contacted by phone to collect the appropriate data. We found that among states the definition and names of a feral or wild hog varied, making it difficult for prosecutors unfamiliar with wild hogs to easily locate information. We found that 48% of states base their definition of a feral or wild hog on the amount of time that the animal has spent outside of captivity while 30% of states have no specific definition. We could find no information regarding a definition of wild hogs from 22% of states. We found that minimum fines per hog ranged from \$0 to \$10,000 with a median fine of \$500 ($\bar{x} = \$1,085$, $SE = \$571$, $n=17$) and a mode of \$1000. Maximum fines per hog ranged from \$50 to \$10,000 with a median fine of \$1500 ($\bar{x} = \2708, $SE = \$576$, $n=20$) and a mode of \$5000. Years in jail per hog ranged from 0 years to 2 years with a median of 1 year ($\bar{x} = .7$ years, $SE = 0.2$ years, $n=11$). We found that the cost of a single-day wild hog hunting trip prices ranged from \$150 to \$1500 ($\bar{x} = \$448.9$, $SE = 263.6$, $n=146$) with a mode of \$500. By applying an Expected Utility Model $E(U) = (1-p) U(y) + p U(y - F)$ where:

$E(U)$ = the actor's expected utility from a contemplated activity

p = likelihood of being punished in the activity

y = the anticipated returns (material or psychological) from the activity

F = the anticipated penalty resulting if the actor is punished for the activity

We found that it was unlikely that most of the current fine and penalty structures would serve as an effective deterrent for illegally reintroducing wild hogs. In many cases the potential rewards, as demonstrated by the economic utility, for releasing wild hogs far outweighed the monetary risk from getting caught. States with few or no wild hogs and weak laws and/or fines are at a substantial risk for the illegal importation of wild hogs. States, such as Tennessee, which incorporate creative fine structures, such as the loss of hunting privileges, are likely to have a more successful deterrent. To reduce the potential for the spread of wild hogs, agencies should concentrate on increasing monetary fines, increasing the perceptions that this illegal activity will be successfully detected and prosecuted, creative fines and penalties, and actively advertising successful prosecution and application of fines.

Standardizing the name of wild hogs throughout North America in the scientific literature and in legislation would also assist prosecutors for building cases based on scientific evidence and for locating supportive information.

Key Words: fines, illegal movement, reward, risk, wild hogs

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