STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT
LANSING

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MEMORANDUM TO THE DIRECTOR

Information: Natural Resources Commission

Subject: Prohibited and Restricted Invasive Species List - Feral Swine
Invasive Species Order Amendment No. 1 of 2010
FOR INFORMATION ONLY

Authority:

The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, authorizes the Director and the Commission to issue orders to manage wild animals in this state.

Discussion and Background:

Part 413 (Transgenic and Nonnative Organisms) of the Natural Resources Environmental Protection Act, 1994 PA 451, regulates (1) the possession of live specimens of prohibited or restricted species, and (2) the introduction of organisms that are prohibited, restricted, genetically-engineered, or non-native. Public Act 52 of 2009 authorizes the Natural Resources Commission (NRC) to amend the list for all organisms other than plants and insects as needed. The Michigan Department of Agriculture has similar authority for plants and insects. This Act directs the NRC to consult with the Department of Agriculture before adding or deleting to the lists of prohibited or restricted species. This process has been initiated with the Department of Agriculture.

Pursuant to Executive Orders 45 and 54 of 2009, the authority for administering this section of law has been transferred from the NRC to the Department.

Section 41302, subsection 3 requires that the NRC (now Department) shall list a species as prohibited if all of the following conditions are met; the organism is not native to the state, the organism is not naturalized, or if naturalized, not widely distributed. Additionally, one of the following must apply; the organism has the potential to harm human health or to severely harm agricultural, natural, or silvicultural resources. Effective management controls for the organism are not available.

Feral and wild swine meet the criteria set forth for prohibited species under the following:

Invasive Species
The United States Department of Agriculture, National Invasive Species Center lists *sus scrofa* known by the following common names: wild boar/swine/hog, feral hog/swine/boar, Old World swine, razorback, Eurasian wild boar, and Russian wild boar, as invasive species. This species includes not only the species that commonly run at large, but also represent the preferred stock for swine-shooting facilities.

Ecological Damage
Invasive swine damage to important species and ecosystems has been documented in virtually every segment of their range in the United States. In the state of Florida, the USDA-Wildlife Services has documented that invasive swine contributed to the decline of 22 plant species and 4 amphibian species listed as rare, threatened, endangered, or of special concern (West et al 2009). Other states have noted similar impacts to threatened and endangered species.

Feral swine are particularly disruptive of native wildlife including many desirable game species. Through direct predation, feral swine may impact deer and ground nesting game birds such as pheasant, wild turkey, and the ruffed grouse along with many other species. Feral swine compete with native wildlife for important food stocks including hard and soft mast (e.g., acorns, berries) which are often vital for enabling some species to over-winter.

Rooting behavior by invasive swine degrades water quality by contributing to significant soil erosion and through the introduction of bacteria, including coliform bacteria, into rivers and streams. This same behavior has destroyed native plant communities which aids in the introduction and establishment of invasive plant species.

Agricultural Damage
Some estimates suggest that invasive swine damage to agricultural crops and the environment conservatively total $1.5 billion annually in the United States (West et al., 2009). Feral swine cause damage to agricultural crops through direct consumption and through rooting and trampling. Opportunistic feeders, invasive swine consume a wide variety of important crops including corn, hay, small grains, vegetables, soybeans, and tree fruits and berries. Other studies have even noted that feral swine rooting and wallowing in agricultural fields can create holes that can damage farming equipment and endanger operators. Invasive swine will also sometimes prey upon livestock including goats, lambs, newborn cattle, and exotic game.
West et al., 2009, note that invasive swine predation on livestock can be difficult to verify because the entire carcass is usually consumed.

Forest Damage
Invasive swine have also been found to stunt forest regeneration. Seedlings of both hardwoods and pines are particularly susceptible to invasive swine damage through direct consumption. Rooting and trampling behaviors which present complications in other ecosystems and in agricultural settings also retard forest regeneration by accelerating the decomposition of leaf litter which denudes important nutrients from the forest floor.

Disease Threats
Perhaps most significant are the threats posed by invasive swine to human and animal health through the transmission of disease. Invasive swine are noted carriers of a host of diseases with known risks to humans, livestock, and wildlife. A few invasive swine borne diseases to which humans are susceptible include; brucellosis, leptospirosis, salmonellosis, toxoplasmosis,

sarcoptic mange, E. coli, and trichinosis. Several diseases of particular significance to livestock include pseudorabies, swine brucellosis, tuberculosis, vesicular stomatis, and classic swine fever.
Management Considerations

Last year, the Natural Resources Commission heard a presentation from Mr. Mike Bodenchuck, State Director, of USDA-Wildlife Services, Texas. Texas is widely regarded as having the largest feral swine population in the United States. Mr. Bodenchuck indicated at that time, that there is no practical or economical management technique or regime that can adequately control the spread and deleterious impacts of feral swine. Through aggressive breeding and high adaptability, feral swine are able to quickly establish populations in a variety of climates and in a variety of ecosystems.

Wildlife Division staff are unaware of any practical or ecologically safe control technique or method to successfully control and manage a population of feral swine. The absence of those techniques implies that we have no effective ways of controlling population, preventing ecological damage, or managing diseases transmitted through the population to humans and other animals are controlled.

It has been stated that invasive swine are the result of escaped animals from domestic livestock facilities raising *sus domestica* the species that are raised in conjunction with the domestic hog and pig industry. However, the Department has evaluated the sightings or killing of invasive swine at large on the landscape. A statistical analysis of those events shows that feral swine on the landscape were significantly correlated to known swine shooting operations, indicating that shooting facilities are the source of free-ranging wild swine.

The State lacks the financial and human resources needed to control this landscape altering species. Other states with significant invasive swine populations annually spend millions of dollars on trapping, shooting, and other measures in an admittedly lost battle to control invasive swine.

Conclusion
In few instances are we presented with the opportunity to recognize a threat to our natural resources and have the legal mechanisms aligned in such a way so as to provide true opportunities to prevent a crisis. With respect to invasive swine, the scientific community, and all available evidence is unequivocal. Michigan law requires that to be included on the list of prohibited or restricted species, a species must pose a threat to human health, or natural, agricultural, or silvicultural resources, and that an effective management technique does not exist. In the case of feral swine, the species meets each of these criteria, when meeting only one would be necessary for listing.

Department staff will consult with appropriate staff from the Michigan Department of Agriculture and stakeholders on developing a phased compliance protocol that meets the requirements of Part 413.

Recommendation:

This order is being re-submitted for information and consideration. This item appeared on the Department's August, September, and October 2010 calendars and may be eligible for approval on December 2, 2010.

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I have analyzed and discussed these recommendations with staff and concur as to matters over which the Natural Resources Commission has authority.

Rebecca A. Humphries
Director

Invasive Species Order

Amendment No. 1 of 2010

By authority conferred on the Department of Natural Resources and Environment by section 41302 of 1994 PA 451, as amended, MCL 324.41302, and Executive Order 45 of 2009, it is ordered that the Invasive Species Order shall be amended as follows:

40.4 Additional prohibited species.

(1) Possession of the following live ~~mollusk~~ species, including a hybrid or ~~**genetically**~~ **GENETIC** variant of the species, an egg **OR OFFSPRING** of the species or of a hybrid or genetically engineered variant, is prohibited:

(a) New Zealand mud snail (potamopyrgus antipodarum).

(B) WILD BOAR, WILD HOG, WILD SWINE, FERAL PIG, FERAL HOG, FERAL SWINE, OLD WORLD SWINE, RAZORBACK, EURASIAN WILD BOAR, RUSSIAN WILD BOAR (SUS SCROFA LINNAEUS)

(I) THE DEPARTMENT SHALL CONSULT WITH STAFF FROM THE MICHIGAN DEPARTMENT OF AGRICULTURE ON THE DEVELOPMENT OF A PHASED COMPLIANCE PROTOCOL FOR THE IMPLEMENTATION OF THIS SECTION

Issued on this 2nd day of December, 2010.

Rebecca A. Humphries
Director