

## **FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

### **REDUCING MAMMAL DAMAGE ON TVA LAND AND AT TVA FACILITIES IN TENNESSEE**

#### **Purpose and Need**

Tennessee Valley Authority (TVA) contracts with Wildlife Services (WS) to provide nuisance wildlife damage management on its land and at its facilities in Tennessee River drainage basin and elsewhere across its power service area. As some mammalian wildlife populations have increased, e.g., beaver, TVA has invested increasing amounts of money to address potential damage. In addition to contracting, TVA occasionally conducts mammal damage management (MDM) independently on its own lands, on properties where it has land rights (e.g., easements) and at its facilities and grounds using the same methods as WS.

TVA proposes to continue to contract with WS for MDM services on its own reservoir lands, property easements, and at its facilities and adjacent grounds in Tennessee. On occasions when it may benefit TVA to perform this work independently, contingent on site specific reviews, TVA staff will use the same method(s) as WS. These methods are described in Section 4.2 and Appendix B of the attached WS EA and are summarized below.

#### **Background**

TVA operates 21 hydroelectric dams, seven coal-fired power plants, two nuclear power plants, and four combustion turbine sites in Tennessee. TVA also owns or maintains 261 substations and switching stations and nearly 10,200 circuit miles of transmission line and rights-of-way easements in Tennessee. As a part of its renewable energy program, TVA operates 10 solar and 3 wind turbine facilities and generates methane gas from a Memphis wastewater treatment facility, which is then provided to Allen Fossil Plant. In addition, TVA manages 21 reservoirs in Tennessee with more than 7,500 miles of shoreline. Along and over most of these Tennessee River and tributary streams, TVA owns 175,000 acres of shoreland and manages various other land rights.

#### **Types of Problems Encountered by TVA**

There are over 22 million acres of rural land in Tennessee which included about 5 million acres of cropland. Because of changing land uses; forest and agricultural land management practices; federal and state protection; regulated game species harvests; and various other ecosystem changes that have increased suitable habitat, various native and non-native (e.g., European wild hog, some species of rats, etc.) mammals have increased their populations substantially in recent decades.

For example, even in urban environments, raccoons, skunks, rats, and some species of bats are abundant. They have been associated with the spread of rabies, an acute and potentially fatal viral disease of mammals, and other diseases which can pose a direct threat to humans (for effects on use of TVA land in support of this program see <http://www.tva.gov/environment/reports/orv/index.htm> in TVA Environmental Reports). Burrowing mammals such as groundhogs, muskrats, voles, moles, and field mice and rats may sometimes threaten earthen dike and earth-fill portions of larger dams, causing erosion and potential failure. Groundhog burrows can potentially cause serious damage and such incidences can threaten the safety and lives of humans living downstream from dams. In addition to burrowing, muskrats can cause damage to ditches, ponds, and reservoir shorelines. They dig burrows, often with underwater entrances, into banks and levees where higher ground is available for dens. Damage can be extensive and not evident until serious damage has already occurred. Similarly, beavers and their activities (e.g., burrowing, dam building, etc.) can damage earthen structures, raise water levels flooding roads, railroads, and other public and private infrastructure, as well as spread diseases and create other threats to public health and safety. Along streams and adjacent to TVA reservoirs (e.g., upper Guntersville Reservoir), beaver dams occasionally flood valuable timber resources, hydro and fossil plant grounds, and utility infrastructure, as well as nearby private land. These backwaters can also create extensive habitat for disease transmitting mosquitoes or flood septic and sewer treatment facilities leading to unsanitary conditions. For effects of contracting with WS and implementing remedies using the same methods on TVA lands and facilities in Alabama see <http://www.tva.gov/environment/reports/aquaticrodent/index.htm> in TVA Environmental Reports.

Squirrels and raccoons occasionally den at substations causing power short-circuits and major forced outages affecting electric system reliability. Coyotes, raccoons, and skunks scavenge at recreation areas, raid trash receptacles, and potentially spreading disease. The potential for problems increases in the evening, at night, and during the early morning hours, as well as during the mating season when these animals range further and are generally more active and aggressive. Raccoons and skunks have also been a persistent problem around power plant sites and building grounds, campgrounds, recreation and day-use areas, and other facilities where food wastes, trash, and other debris are routinely (cyclically) stored in receptacles. White-tailed deer foraging can damage shrubs and other landscape vegetation on nuclear, hydro, and fossil plant grounds while their concentration in these protected areas also poses increasing risks to workers and the public from automobile collisions. WS personnel also assist in managing damages and health risks associated with various small rodents including rats and mice that often invade and occupy interior working environs of buildings and other structures.

For effects of contracting with WS and implementing remedies using the same methods to address damage from birds on TVA lands and at TVA facilities in Tennessee see <http://www.tva.gov/environment/reports/birddamage/index.htm> TVA Environmental Reports.

### Ways of Addressing the Problem

In the past, TVA has limited damage by certain mammalian species by altering or eliminating favored or preferred habitat, prohibiting or restricting access to denning and foraging sites, creating barriers (e.g., fencing, plugging holes) to exclude access, preventing construction or destroying dens and young (e.g., groundhogs), trapping and relocating; euthanasia; removing beaver dams and lodges; eliminating sources of food and other attractants, including animal-proofing trash receptacles; increase lighting certain areas to improve visibility and discourage night-time visitors such as raccoons; or using a variety of harassment tactics including pyrotechnics and other noise generators. In recent years, WS contractors have implemented more of this work using these and other techniques covered in the attached EA.

### **MDM Strategies and Methodologies Available to WS in Tennessee**

The WS EA emphasizes issues that are pertinent to the varied species of mammals and the damage they cause wherever it occurs in Tennessee. WS employs different strategies to resolve wildlife damage problems including technical recommendation, operational management assistance, education and outreach programs, and research and development. A standard WS decision model and WS Directive 2.105 dictate the routine procedure for determining the method and strategy to be used to address individual actions across the state. MDM methods available for use in WS IWDM strategy are described in Section 4.2 of the attached EA.

### WS Integrated Wildlife Damage Management (IWDM) Program

WS is a cooperatively funded, service-oriented program from which other governmental agencies and private entities may request assistance. In October 2005, WS completed an EA which analyzed the potential effects of continuing its damage management program in all 95 Tennessee counties to control a variety of species of mammals. WS objective is to achieve a balance between the biological carrying capacity and cultural carrying capacity (i.e., maximum number of a given species that can coexist compatibly with local human populations). The purpose of the EA was to evaluate the potential impacts of WS continuing its current IWDM program that responds to requests for MDM to protect agriculture, property, natural resources, and human health and safety in urban and rural environments in Tennessee. Primary species of concerns as it relates to damage in these environments are beavers, raccoons, groundhogs, coyotes, foxes, and skunks. IWDM is the implementation and application of safe and practical methods for the prevention and reduction of damage caused by wildlife based on local problem analyses and the informed judgment of trained WS personnel. For more detailed information on IWDM, WS decision making, and MDM methods available for use, see Section 4.2.1, 4.2.2, 4.2.3, and 4.2.4 in the attached EA.

Because of the potential for program activities to affect endangered species, substantial involvement from the U.S. Fish and Wildlife (USFWS) has been essential. Because some species are managed and their harvest regulated by the Tennessee Wildlife Resources Agency (TWRA), close and regular communication has been fostered. Via a memorandum of understanding (MOU), developed in 1988 to encourage collaboration and facilitate information exchange, WS consults with the

University of Tennessee Agricultural Extension Service, Tennessee Department of Agriculture (TDA), Tennessee Department of Health, TWRA, and Tennessee Department of Environment and Conservation from time to time in the process of assisting Tennessee residents in resolving wildlife damage conflicts. The MOU outlines protocol for wildlife damage management activities and partnering among supporting agencies in the state. Annual meetings are typically conducted to enhance communication and assess program accomplishments, priorities, and direction. These agencies also refer appropriate wildlife damage complaints to WS (see Appendix C in the attached EA).

### **Alternatives Considered and Analyzed in Detail**

WS completed an EA in October 2005, (and signed a FONSI on November 1, 2005) on its program to continue its MDM program in Tennessee. The WS EA evaluates in detail the environmental consequences of four alternatives. These include Alternative 1, Continue the Current Federal MDM Program (No Action/Proposed Action); Alternative 2, Non-lethal Required Before Lethal Control; Alternative 3, Technical Assistance Only; and Alternative 4, No Federal WS MDM.

Under Alternative 1, the Proposed Action, WS would administer and continue its current MDM program in Tennessee. An integrated approach, it includes technical assistance and operational damage management services, and would be implemented to reduce or eliminate damage from various species of mammals while taking into account human health and safety, agricultural crops, turf, feed, livestock, livestock health, property, structures, utilities, threatened and endangered species, other wildlife and natural resources; and aquaculture in Tennessee when requested. To meet WS damage management goals, WS would respond to all requests for assistance in some manner (technical assistance to direct services). All IWDM work would be conducted in accordance with applicable federal, state, and local laws. Under Alternative 2, non-lethal required before lethal control, lethal means of control would be used only after all available non-lethal methods had been attempted to achieve the MDM relief objectives. WS personnel generally know when non-lethal methods are likely to work so this alternative could result in inefficiencies and increased costs. Under Alternative 3, only technical assistance would be provided and mammals would not be removed by means or measures recommended by WS. Property owners or land managers would otherwise be left to their own devices to implement their own MDM programs using legal and appropriate means or employ or request other federal, state, county, or private entities to do so. Under Alternative 4, no assistance from WS would be provided. Technical assistance and operational damage management services would cease. Information on MDM methods would still be available through a variety of public and private sources. All requests for assistance would be referred to the TWRA, local animal control agencies, or private businesses.

### **Impact Assessment**

Because of their ability to thrive in rural and urban areas, and near or in man-altered habitats, species most often killed during WS MDM include beaver, Norway rat,

striped skunk, coyote, opossum, cottontail rabbit, groundhog, and raccoon. By far, WS has been called upon to reduce damage in Tennessee caused by beavers, compared to all other species. Generally, WS only conducts MDM on species whose population densities are high and usually only after they have caused damage. Relative to their abundance, WS reductions in overall populations of these species is very low (see Tables 5-1 and 5-4 in the attached EA), and the use of chemical control methods is infrequent.

Under Alternative 1, the Proposed Action, WS would administer and continue its current MDM program in Tennessee. From fiscal years 1998 to 2002, only about 2,350 mammals were killed by WS in the state of Tennessee. Its work was focused on controlling damage primarily caused by beavers and rats, which accounted for more than 71 percent of the total taken during its time period. WS take of non-target species during MDM work in Tennessee has been and is expected to continue to be extremely low and has no effect on their populations in the state. WS does not expect the level of take of non-target wildlife to increase, including the incidental take of listed endangered or threatened species (see Sections 5.1.1.2.2 and 5.1.1.2.2.2 in the attached EA). Consistent with direction provided in USFWS July 28, 1992, biological opinion on the WS national animal damage control program, as applicable, reasonable and prudent measures would be implemented, regular reporting and annual coordination meetings with WS would continue to assure that any incidental take of federally listed species is reported and steps are taken to correct the circumstances that caused it to occur. Furthermore, by letter dated September 2, 2005, and following review of an earlier draft EA, USFWS determined that revisions to the EA are adequate and it supports WS's conclusion of "not likely to adversely affect" and obligations under Section 7 of the Endangered Species Act have been fulfilled (see Appendix G in the attached EA).

Under Alternative 2, non-lethal required before lethal control, WS would resort to lethal control methods only after non-lethal control methods tried by the landowner or WS had proven unsuccessful. From a practical perspective, because many landowners or experienced WS personnel would have already tried some non-lethal control technique or consider them impractical, the impact of this alternative on target and non-target (including endangered species) mammalian species populations, wetlands, aesthetics, and perceived humaneness is expected to be similar to those anticipated under Alternative 1. Damage may not be reduced in a comparably timely and effective manner. This inefficiency could result in landowners rejecting WS use of non-lethal methods and implementing their own. These effects would be similar to but probably less than those expected under Alternative 4 (no federal WS MDM). Delays in implementing more effective methods could cause impacts on human health and safety to be greater than those under Alternative 1, the proposed action. Generally, the use of any chemical methods by trained and experienced WS personnel reduces the potential for human health and safety and other environmental related impacts. The amount and value of associated property damage could also be expected to increase so the impacts of Alternative 2 on those persons experiencing damage would be greater than the impacts under Alternative 1.

Under Alternative 3, WS would have no direct impact on target or non-target mammal populations in Tennessee because the program would then be limited to providing, upon request, only technical assistance and advice. Property owners or land managers would be left to their own devices to implement their own MDM programs. Their efforts would probably increase over time which would likely lead to similar or greater impacts on mammalian species compared to the current program. Overall impacts on target species would probably be the same or similar to those expected under Alternative 4. MDM implemented by less trained and inexperienced people, potentially without WS technical assistance, would probably result in a larger take of non-target mammals than under Alternative 1. However, impacts to plants and other non-target wildlife species would likely be less compared to Alternative 4 when technical assistance is followed.

Under Alternative 3, if people implement certain chemical and non-chemical MDM control methods incorrectly, impacts on health and safety would probably be less than those expected under Alternative 4 when WS technical advice is followed. However, similar to Alternative 1, it is unlikely that the resulting increase human health and safety risks would be significant. Impacts of this alternative on wetlands, aesthetics, and perceived humaneness are expected to be similar to those anticipated under Alternative 1 and less than those anticipated under Alternative 4. Because WS would only provide technical assistance, there would be no direct program effects on wetlands and overall impacts would likely be less than those expected under Alternative 4. Individual landowners would be responsible for compliance with laws and regulations established to protect wetlands.

Under Alternative 4, no federal program, no assistance from WS would be provided in Tennessee and no impacts on target species would be expected as a result of a WS implemented program. All requests for assistance would be referred to the TWRA, TDA, local animal control agencies, or private businesses. As under Alternative 3, property owners or land managers would be left to their own devices to implement their own MDM programs. Under this alternative, target species population would likely increase along with related damage. Controls implemented by private individuals could result in effects on target species which are unknown (e.g., possibly, the same, greater, or less) compared to the current program. Overall impacts on the statewide mammal populations under Alternative 4 impacts would likely be similar to or greater than those under Alternative 1 since affected landowners would likely lethally remove animals causing damage that would no longer be removed by WS. Under Alternative 4, there would be no impact from WS activities on non-target species; however, concerns about inexperienced people implementing needed control methods would be the same under this alternative as under Alternatives 2 and 3. Under this alternative there would be no impact on health and safety from WS implemented program in Tennessee, however, hazards to people and pets could be greater under this alternative if chemical controls are implemented by others. Hazards to human health and safety could be greater under this alternative if personnel conducting MDM activities using both chemical and non-chemical methods are poorly or improperly trained.

If no WS MDM program were available, human health problems could increase if private individuals are unable to achieve effective MDM to control raccoons, beaver,

coyotes, foxes, groundhogs, skunks, rats and other mammals that transmit disease, cause damage, and other problems or unwilling to hire others to do so. Impacts would likely be the same as or greater than those expected under Alternatives 2 or 3. Under this alternative, other entities would likely conduct MDM activities similar to those that would no longer be conducted by WS. WS would not affect wetlands; however, efforts to achieved MDM by others could cause impacts greater than those anticipated under Alternatives 1, 2, or 3. Effects on aesthetic values of wild animals are expected to be insignificant and about the same as those expected under Alternatives 1, 2 and 3. Mammalian species numbers would likely continue to increase and aesthetic values of some properties would likely eventually be adversely affected if owners can not achieve MDM some other way. Because landowners would likely take responsibility for implementing their own controls, MDM would likely be perceived as somewhat less humane under this alternative compared to Alternatives 1, 2 or 3.

### **Cumulative Impacts**

No significant cumulative environmental impacts are expected from implementation of any of the alternatives including Alternative 1, continuation of the current program (the Proposed Action). Based on use patterns, characteristics of chemicals infrequently used, and factors related to the environmental fate of those chemicals, no cumulative impacts are expected from the lethal chemical components use in the WS MDM programs in Tennessee. Similarly, no cumulative impact is expected from use of non-lethal chemical. Some minor local population reductions would occur. Because WS actions, including those conducted for TVA, would take only a small percentage of the annual resident mammalian species population growth, under the proposed action, MDM would not have a significant impact on nuisance mammal populations in Tennessee. Trends indicate that animal populations of potentially affected species have increased, remained stable, or decreased only slightly for Tennessee.

Many of the species subject to management through WS MDM program are hunted for sport and recreation with designated seasons, regulated harvests, and research and management conducted by TWRA. Because of USFWS and TWRA continual involvement in the process, actions implemented by WS under Alternative 1 would not likely adversely affect any federally-listed or state-recognized threatened or endanger species or critically designated habitats in Tennessee. Actions taken independently by TVA or under contract by WS involving mammalian species addressed in the attached EA would only be taken consistent with methods and conditions included in this EA and FONSI. Any state or federal permit (e.g., depredation, incidental take, etc.) needed by WS or TVA would be obtained. No cumulative impacts to any other sensitive resources such as wetlands are expected. No historic properties or adverse risks to human or pet health and safety are expected from MDM activities conducted by TVA or by WS for TVA. No adverse aesthetic impacts are anticipated. Because of perceptions about humaneness, some minor amount opposition to the program is expected to continue. Under Alternative 1, the proposed action alternative, damage to property is expected to be reduced.

In its October 2005 final EA, WS concludes that although some persons would likely oppose WS participation in MDM, analysis in the attached EA indicates that the WS IWDM program would not result in significant cumulative adverse impacts on the quality of the human environment.

### **Public Involvement**

The pre-decisional (draft) EA was initially released by WS in February 2005 documented the need for MDM in Tennessee and assessed potential impacts of various alternatives for responding to mammal damage problems. This draft EA was released to the public on February 1 and 2, 2005, by legal notice in the Tennessean (Nashville), Knoxville New-Sentinel, Times Free Press (Chattanooga), and Commercial Appeal (Memphis) for two days. WS provided a 32-day comment period. This draft EA was also made available for review at the Tennessee WS State Office, Madison, Tennessee and copies were made available upon request through commercial mail. A letter indicating the availability of the draft EA was also mailed directly to agencies, organizations, and individuals with probable interests in the proposed program. In response to this notice, 3 comments were received including USFWS concerns about potential impacts on listed species. All comments were analyzed to identify substantial new issues, alternatives, or to re-direct the program. Because of USFWS concerns, during the summer of 2005, additional consultation occurred and modifications to the draft EA were made (see letter in Appendix G in the attached EA). Based upon all comments received, minor changes enhanced the understanding of the proposed program, but did not change the analysis provided in the EA. Responses to specific comments are included in Appendix A of the attached WS FONSI. TVA was a cooperating agency in the EA.

Upon finalizing the EA, WS announced its issuance of a Decision and FONSI to the public via legal notice in the same newspapers dated November 11 and 12, 2005, (see attached notice that appeared in the Knoxville News-Sentinel on November 12, 2005).

### **Mitigation and Standard Operating Procedures**

Mitigation measures and standard operating procedures will be implemented by WS under Alternative 1, continuation of the current program (the Proposed Action). They generally include use of a decision model to identify appropriate damage management strategies; EPA registered chemical(s) by trained registered WS personnel, conduct research to improve MDM methods and strategies, direct treatments toward a localized population or group of target or individual offending animals rather than attempt any generalized population suppression; WS employees are trained (or supervised) and follow approved procedures outlined in various field manuals; and WS employees use devices and conducts activities for which the risks to human health and safety has been determined to be low. WS personnel using binary explosives in MDM are certified to use them in accordance with WS policy and directives; and, those that use them, routinely receive firearm safety training. WS activities are directed at resolving mammal damage problems. Results are monitored to compare the number of mammals killed by species or groups of species with populations or trends to assure the magnitude of the take is maintained below levels that would significantly adversely impact the viability of native species populations.

Humane management practices such as release of non-target animals and approved euthanasia methods are practiced to minimize animal pain and suffering. WS uses chemical methods in its MDM program that have undergone rigorous safety and effectiveness research. See Section 4.4 in the attached WS EA.

Observations are conducted to see if target species are associated with non-target or endangered species to determine if they would be at risk from MDM activities. WS has consulted with the USFWS regarding potential impacts of control methods on endangered species and abides by reasonable and prudent measures or alternatives established as a result of that consultation. See discussion under Alternative 1 in the Impacts Assessment Section of this FONSI.

When contracted to perform MDM work for TVA, WS obtains appropriate federal or state fish and wildlife permits from USFWS or the state of Tennessee, as needed, and WS complies with all permit requirements and conditions. When TVA conducts work independently, TVA will obtain appropriate federal or state permits and similarly comply with permit conditions. Where site specific reviews determine that projects TVA plans to implement could affect endangered species, wetlands, cultural, or other environmental resources, USFWS, USACE or other appropriate agencies would be consulted as needed.

### **TVA Review**

Because few animals (mammals), relative to their abundance in Tennessee, would be killed, populations are expected to continue to increase, remain stable or decrease only slightly. Some local animal populations would be suppressed to tolerable levels (i.e., cultural carrying capacity) as long as damage or health and safety risks remain high. Current levels of take of non-target species are not adversely impacting native wildlife populations in the state, including any known endangered or threatened species. Some slight benefits to non-target mammals could arise from local reductions in some animal populations and slightly reduce interspecific competition. This work would not adversely wetlands or terrestrial biodiversity at the species, landscape or ecosystem level. The USFWS has concurred with WS conclusion in its FONSI of November 1, 2005, that MDM methods assessed in the EA would not adversely affect any federally or state-recognized threatened or endanger species or critically designated habitats in Tennessee. TVA agrees with this conclusion.

Generally, MDM methods used under the proposed action are not the types of activities that have the potential to affect historic properties. If such an activity is planned, then site specific consultation as required by Section 106 of the National Historic Preservation Act would be conducted.

Because TVA prepares several categorical exclusion checklists (CEC) annually for MDM work and these typically do not involve site specific issues, TVA is adopting the WS EA as an efficiency measure. TVA concurs that contracting with WS in Tennessee meets its needs and use of WS staff would be encouraged. The removal of target and non-target species from TVA lands and facilities in Tennessee would represent a very small fraction of the anticipated annual state-wide take.

Alternative 1, the Proposed Action, would have the greatest probability of success in alleviating mammal damage on TVA land and at its facilities and grounds in Tennessee. Unless project methods or operating procedures change substantially from those described in this review or unless unique site specific resource issues are identified, no TVA CECs or higher-level National Environmental Policy Act reviews would need to be prepared by TVA in the future for this type of contracted MDM work in Tennessee. Accordingly, TVA concurs with impacts of Alternative 1, the Proposed Action as described in the attached WS EA and FONSI of November 1, 2005. TVA also believes that the EA adequately addresses all impacts of conducting its own or contracting with WS for MDM services.

### **Conclusion and Findings**

TVA has critically and independently reviewed the impacts assessed in the WS EA and confirmed its findings. The scope, alternatives considered, and contents of the EA are adequate and the impacts on the environment, including conducting its own or contracting with WS for MDM services in the Tennessee River basin and service area in Tennessee, have been adequately addressed. TVA, therefore, supports methods and means associated with the adoption of Alternative 1, the Proposed Action, as described in the attached EA. The analyses in the EA demonstrate that Alternative 1: 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on non-target species, 4) balances the economic effects to agricultural and natural resources and property, and 5) allows WS to meet its obligations to government agencies or other entities. Furthermore, TVA has decided to adopt the WS EA and the associated FONSI of November 1, 2005. These documents are attached and incorporated by reference.

Based on the WS EA, we conclude that conducting its own or contracting with WS for MDM services on TVA lands, easements, or at its facilities and grounds in Tennessee would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



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Date Signed