

**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
WHITE-TAILED DEER DAMAGE MANAGEMENT IN PENNSYLVANIA**

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an environmental assessment (EA) was prepared. The EA documents the need for white-tailed deer (*Odocoileus virginianus*) damage management in Pennsylvania and assessed potential impacts of various alternatives for responding to damage problems. The EA analyzes the potential environmental and social effects for resolving deer damage related to the protection of resources, and health and safety on private and public lands in Pennsylvania. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on public and private lands in Pennsylvania. Comments from the public involvement process were reviewed for substantive issues and alternatives which were considered in developing this decision.

WS is the Federal program authorized by law to reduce damage caused by wildlife (Act of 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c), and the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act of 2001, Public Law 106-387, October 28, 2000. Stat. 1549 (Sec 767). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an IWDM approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Resource management agencies, organizations, associations, groups, and individuals have requested WS to conduct deer damage management to protect resources and human health and safety in Pennsylvania. All WS wildlife damage management activities are in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973.

Consistency

The analyses in the EA demonstrate that Alternative 5: 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.

Monitoring

The Pennsylvania WS program will annually provide to the Pennsylvania Game Commission the WS lethal take of target and non-target animals to help ensure the total statewide take (WS and other take) does not impact the viability of target and non target wildlife species. In addition, the EA will be reviewed each year to ensure that it and the analysis are sufficient.

Public Involvement

The pre-decisional EA was prepared and released to the public for a 30-day comment period by a legal notice in the *Pittsburgh Post-Gazette*, *The Scranton Times*, *The Patriot News*, and *The Philadelphia Daily News*. The Legal Notice was placed in each paper for three days (August 18-20, 2003). A letter of availability for the pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. One comment document was received from the public after review of the pre-decisional EA. All comments were analyzed to identify substantial new issues, alternatives, or to re-direct the program. Based upon these comments, several minor editorial changes have been incorporated into the EA. These minor changes enhanced the understanding of the proposed program, but did not change the analysis provided in the EA. All letters are maintained in the administrative file located at the Wildlife Services State Office, Summerdale, Pennsylvania.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on White-tailed Deer Populations
- Effects on Plants and Other Wildlife Species, including T&E Species
- Effects on Human Health and Safety
- Humaneness of Methods to be Used
- Effects on Aesthetic Values
- Effects on Regulated White-tailed Deer Hunting

Affected Environment

The areas of the proposed action include, but are not limited to, property on or adjacent to airports, recreational areas, parks, corporate complexes, subdivisions, businesses, industrial parks, schools, agricultural areas, and cemeteries. The proposed action may be conducted on properties held in private, local, state or federal ownership.

Alternatives That Were Fully Evaluated

The following five alternatives were developed to respond to the issues. Two additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on the issues is described in the EA; below is a summary of the Alternatives.

Alternative 1: No Deer Damage Management by WS

This alternative would eliminate WS involvement in all deer damage management activities. WS would not provide direct operational or technical assistance and requesters of WS services would have to conduct their own deer damage management without WS input.

Alternative 2: Technical Assistance Only

This alternative would only allow Pennsylvania WS to provide technical assistance to individuals or agencies requesting deer damage management. Individuals might choose to implement WS lethal and non-lethal recommendations, implement methods not recommended by WS, use contractual services of private businesses, or take no action. Appendix B of the EA describes methods available for recommendation by WS under this alternative.

Alternative 3: Lethal Deer Damage Management only by WS

Under this alternative, WS would provide only lethal direct control services and technical assistance. Requests for information regarding non-lethal management approaches would be referred to the Pennsylvania Game Commission, local animal control agencies, or private businesses or organizations. Individuals might choose to implement WS lethal recommendations, implement non-lethal methods or other methods not recommended by WS, contract for WS lethal direct control services, use contractual services of private businesses, or take no action. Appendix B of the EA describes lethal methods available for recommendation and use by WS under this alternative.

Alternative 4: Nonlethal Deer Damage Management only by WS

This alternative would require WS to use and recommend non-lethal methods only to resolve all deer damage problems. Requests for information regarding lethal management approaches would be referred to the Pennsylvania Game Commission, local animal control agencies, or private businesses or organizations. Persons incurring deer damage could still resort to lethal methods or other methods not recommended by WS, use contractual services of private businesses that were available to them, or take no action. Appendix B of the EA describes a number of non-lethal methods available for recommendation and use by WS under this alternative.

Alternative 5: Integrated Deer Damage Management Program: No Action (Preferred Alternative/No Action)

Under this alternative, Wildlife Services would continue the current damage management program that responds to requests for white-tailed deer damage assistance in the Commonwealth of Pennsylvania. An IWDM approach would be implemented in consultation and coordination with the Pennsylvania Game Commission to alleviate white-tailed deer damage to agriculture, property, natural resources, and human health and safety on all private and public lands of Pennsylvania where a need exists, a request is received, and funding is available. An IWDM strategy would be recommended and used, encompassing the use of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, white-tailed deer, other species, and the environment. Under this action, WS would provide technical assistance and operational damage management, including non-lethal and lethal management methods (see Appendix B of the EA) by applying the WS Decision Model (Slate et al. 1992). When appropriate, habitat modifications, harassment, repellants, and physical exclusion could be recommended and utilized to reduce deer damage. In other situations, deer would be removed as humanely as possible by sharp shooting and live capture followed by euthanasia under

permits issued by the Pennsylvania Game Commission. In determining the damage management strategy, preference would be given to practical and effective non-lethal methods. However, non-lethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and lethal methods, or there could be instances where application of lethal methods alone would be the most appropriate strategy. Deer damage management would be conducted in the state, when requested, on private or public property after an *Agreement for Control* or other comparable document has been completed. All deer damage management would be consistent with other uses of the area and would comply with appropriate federal, state and local laws.

Alternative Considered but not Analyzed in Detail:

Live Trapping and Relocation

Under this alternative WS would capture deer alive using cage-type live traps or capture drugs administered by dart gun and then relocate the captured deer to another area. Numerous studies have shown that live-capture and relocation of deer is relatively expensive, time-consuming and inefficient (Ishmael and Rongstad 1984, O'Bryan and McCullough 1985, Diehl 1988, Jones and Witham 1990, Ishmael et al. 1995). Population reduction achieved through capture and relocation is labor intensive and would be costly (\$273-\$2,876/deer) (O'Bryan and McCullough 1985, Bryant and Ishmael 1991). Additionally, relocation frequently results in high mortality rates for deer (Cromwell et. al. 1999, O'Bryan and McCullough 1985, Jones and Witham 1990, Ishmael et. al. 1995). Deer frequently experience physiological trauma during capture and transportation, (capture myopathy) and deer mortality after relocation, from a wide range of causes within the first year, has ranged from 25-89% (Jones and Witham 1990, Mayer et al. 1993). O'Bryan and McCullough (1985) found that only 15% of radio-collared black-tailed deer that were live-captured and relocated from Angel Island, California, survived for one year after relocation. Although relocated deer usually do not return to their location of capture, some do settle in familiar suburban habitats and create nuisance problems for those communities (Bryant and Ishmael 1991). High mortality rates of relocated deer, combined with the manner in which many of these animals die, make it difficult to justify relocation as a humane alternative to lethal removal methods (Bryant and Ishmael 1991). Chemical Capture methods require specialized training and skill. A primary limitation of darting, the limited range at which deer can be effectively hit, is generally less than 40 yards. With modern scoped rifles, however, a skilled sharpshooter can hit the head or neck of a deer for a quick kill out to 200 yards and beyond (although a shot over 200 yards is not very likely). Thus, chemical capture is far less efficient, more labor intensive, and much more costly than lethal removal with rifles.

Translocation of wildlife is discouraged by WS policy (WS Directive 2.501) because of stress to the relocated animal, poor survival rates, potential for disease transfer and difficulties in adapting to new locations or habitats. Also many states no longer permit the interstate transfer of deer due to recent concerns of chronic wasting disease outbreaks. If CWD is already present in Pennsylvania, relocating deer within the state could serve to vector the disease.

Population stabilization through birth control

Reproductive control is often considered for use where wildlife populations are overabundant and where traditional hunting or lethal control programs are not publicly acceptable (Muller et. al.

1997). Use and effectiveness of reproductive control as a wildlife population management tool is limited by population dynamic characteristics (longevity, age at onset of reproduction, population size and biological/cultural carrying capacity, etc.), habitat and environmental factors (isolation of target population, cover types, and access to target individuals, etc.), socioeconomic and other factors. Population modeling indicates that reproductive control is more efficient than lethal control only for some rodent and small bird species with high reproductive rates and low survival rates (Dolbeer 1998). Additionally, the need to treat a sufficiently large number of target animals, multiple treatments, and population dynamics of free-ranging populations place considerable logistic and economic constraints on the adoption of reproduction control technologies as a wildlife management tool for some species.

Reproductive control for wildlife could be accomplished either through sterilization (permanent) or contraception (reversible, initial treatment usually followed by a booster and annual follow-up treatments). Sterilization could be accomplished through: 1. Surgical sterilization (vasectomy, castration, and tubal ligation), 2. Chemosterilization, and 3. Gene therapy. Contraception could be accomplished through: 1. Hormone implantation (synthetic steroids such as progestins), 2. Immunocontraception (contraceptive vaccines), and 3. Oral contraception (progestin administered daily). Research into the use of these techniques would consist of laboratory/pen experimentation to determine and develop the sterilization or contraceptive material or procedure, field trials to develop the delivery system, and field experimentation to determine the effectiveness of the technique in achieving population reduction.

The use of hormones was investigated (Matschke 1976, 1977 a, b, c, 1980, and Roughton 1979), and eventually rejected as an effective and efficient reproductive control technique for deer. Additionally, concerns related to costs and logistics of widespread distribution of drugged baits, dosage control and ingestion of baits by children and nontarget animals make oral contraception (by steroids) largely impractical (Lowery et al. 1993). More recently, Immunocontraception has been studied in various situations and locations, but its potential use appears limited due to considerable constraints regarding treatment and follow-up treatment of a sufficiently large number of target animals, varying immunogenicity of vaccines, genetic backgrounds of individual animals, age, nutritional status, stress and other factors (Becker et al. 1997, Becker et al. 1999). The use of porcine zona pellucida (PZP) as a contraceptive agent in wildlife management has been investigated recently (Kirkpatrick et al. 1990, Turner and Kirpatrick 1991, Turner et al. 1992, and Turner et al. 1996), but to date, there is no published documentation that immunocontraceptive vaccines have successfully reduced any free-ranging white-tailed deer herd or population.

Turner et al. (1993) noted that although contraception in white-tailed deer may be used to limit population growth, it will not reduce the number of deer in excess of the desired level in many circumstances. They further contend that initial population reductions by various other means may be necessary to achieve management goals, and that reproduction control would be one facet of an integrated program. In sum, although immunocontraceptive technology has been variously effective in laboratories, pens, and in island field applications, it has not been effective in reducing populations of free-ranging white-tailed deer.

The use of this method would be subject to approval by Federal and State Agencies. This alternative was not considered in detail because:

- it would take a number of years of implementation before the deer population would decline and therefore, damage would continue at the present unacceptable levels for a number of years;
- surgical sterilization would have to be conducted by licensed veterinarians, and would therefore be extremely expensive;
- it is difficult, time-consuming, and expensive to effectively live trap, chemically capture, or remotely treat the number of deer necessary to effect an eventual decline in the population; and

State and Federal regulatory authorities have approved no chemical or biological agent for use as a deer contraceptive.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. White-tailed deer damage management as conducted by WS in Pennsylvania is not regional or national in scope.
2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).
3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of WS's standard operating procedures and adherence to laws and regulations will further ensure that WS activities do not harm the environment.
4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.
5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.
6. The proposed action would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The number of deer killed by WS, when added to the total known other take, would fall within population management objectives established by the Pennsylvania Game Commission. The EA discussed cumulative effects of WS on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State.
8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.
9. WS has determined that the proposed project would not adversely affect any Federal or Pennsylvania State listed threatened or endangered species.
10. The proposed action would be in compliance with all federal, state, and local laws.

Decision and Rationale

I have carefully reviewed the Environmental Assessment (EA) prepared for this proposal and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 5 (Integrated Deer Damage Management Program (Preferred Alternative/No Action) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 5 is selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and, (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. The comments identified from public involvement were minor and did not change the analysis. Therefore, it is my decision to implement the preferred alternative as described in the EA.

Copies of the EA are available upon request from the Pennsylvania Wildlife Services Office, P.O. Box 459, Summerdale, PA 17093.

Charles S. Brown, Regional Director
APHIS-WS Eastern Region

Date

Literature Cited:

- Becker, S.E. and L.S. Katz. 1997. Gonadotropin-releasing hormone (GnRH) analogs or active immunization against GnRH to control fertility in wildlife. Pp. 11-19 *in* Contraception in Wildlife Management. Tech. Bull. 1853. USDA APHIS Washington, DC.
- Becker, S.E., W.J. Enright, and L.S. Katz. 1999. Active immunization against gonadotropin-releasing hormone in female white-tailed deer. *Zoo Biology* 16:385-396.
- Bryant, B. K., and W. Ishmael. 1991. Movement and mortality patterns of resident and translocated suburban white-tailed deer. Pages 53-58 *in* L. W. Adams and D. L. Leedy, editors. Wildlife conservation in metropolitan environments. National Institute of Urban Wildlife Symposium Series 2, Columbia, Maryland.
- Cromwell, J. A., R.J. Warren, and D.W. Henderson. 1999. Live-capture and small-scale relocation of urban deer on Hilton Head Island, South Carolina. *Wildlife Society Bulletin* 23:1025-1031.
- Diehl, S.R. 1988. The translocation of urban white-tailed deer. Pages 238-249 *in* L. Nielsen and R. D. Brown, editors. Translocation of wild animals. Wisconsin Humane Society, Inc., Milwaukee, Wisconsin and Caesar Kleberg Wildlife Research Institute, Kingsville, Texas.
- Dolbeer, R. A. 1988. Population dynamics: the foundation of wildlife damage management for the 21st century. Proceedings of the 18th Vertebrate Pest Conference. Davis, California.
- Ishmael, W. E., D. E. Katsma, T. A. Isaac, and B. K. Bryant. 1995. Live-capture and translocation of suburban white-tailed deer in River Hills, Wisconsin. Pages 87-96 *in* J.B. McAninch, editor. Urban deer—a manageable resource? Proceedings of the 1993 Symposium of the North Central Section of The Wildlife Society.
- Ishmael, W.E., and O. J. Rongstad. 1984. Economics of an urban deer-removal program. *Wildlife Society Bulletin* 12:394-398.
- Jones, J. M. and J. H. Witham. 1990. Post-translocation survival and movements of metropolitan white-tailed deer. *Wildlife Society Bulletin* 18:434-441.
- Kirkpatrick, J.F., I.K.M. Liu, and J.W. Turner. 1990. Remotely-delivered Immunocontraception in feral horses. *Wildl. Soc. Bull.* 18:326-330.
- Lowery, M.D., J.W. Glidden, and D.E. Riehlman. 1993. Options for the management of locally overabundant and nuisance deer populations: a technical review. New York State Department of Environmental Conservation, Division of Fish and Wildlife. 26 pp.

- Matschke, G.H. 1976. Oral acceptance and antifertility effects of microencapsulated diethylstilbestrol on white-tailed does. *Proceedings of the Southeast Assoc. Of Game and Fish Comm.* 29:646-651.
- _____. 1977a. Antifertility action of two synthetic progestins in female white-tailed deer. *J. Wildl. Manage.* 41:194-196.
- _____. 1977b. Fertility control in white-tailed deer by steroid implants. *J. Wildl. Manage.* 41:731-735.
- _____. 1977c. Microencapsulated diethylstilbestrol as an oral contraceptive in white-tailed deer. *J. Wildl. Manage.* 41:87-91.
- Mayer, K. E., J. E. DiDonato, and D. R. McCullough. 1993. California urban deer management: two case studies. *Urban Deer Symposium*. St. Louis, Missouri.
- Muller, L.I., R.J. Warren, and D.L. Evans. 1997. Theory and Practice of Immunocontraception in wild animals. *Wildl. Soc. Bull.* 25(2): 504-514.
- O'Bryan, M. K. and D. R. McCullough. 1985. Survival of black-tailed deer following relocation in California. *Journal of Wildlife Management* 49:115-119.
- Roughton, R.D. 1979. Effects of oral melengestrol acetate on reproduction in captive white-tailed deer. *J. Wildl. Manage.* 43:428-436.
- Slate, D. A., R. Owens, G. Connolly, and G. Simmons. 1992. Decision making for wildlife damage management. *Transactions of the North American Wildlife and Natural Resources Conference* 57:51-62.
- The Wildlife Society. 1992. Conservation policies of The Wildlife Society: A stand on issues important to wildlife conservation. The Wildlife Society, Bethesda, Md. 24pp.
- Turner, J.W. and J.F. Kirkpatrick. 1991. New developments in feral horse contraception and their potential application to wildlife. *Wildl. Soc. Bull.* 19:350-359.
- _____, I.K.M. Liu, and J.F. Kirkpatrick. 1992. Remotely-delivered Immunocontraception in captive white-tailed deer. *J. Wildl. Manage.* 56:154-157.
- _____, J.F. Kirkpatrick, and I.K.M. Liu. 1993. Immunocontraception in white-tailed deer. Pages 147-159 *in* T.J. Kreeger, Technical Coordinator. *Contraception in Wildlife Management*. USDA APHIS Technical Bulletin No. 1853
- _____, J.F. Kirkpatrick, and I.K.M. Liu. 1996. Effectiveness, reversibility, and serum antibody titers associated with Immunocontraception in captive white-tailed deer. *J. Wildl. Manage.* 60:873-880.

USDA (U. S. Department of Agriculture). 1997 (revised). Animal Damage Control Program Final Environmental Impact Statement. Vol. 1-3. Animal and Plant Health Inspection Service, Hyattsville, MD.