Should Wildlife Biologists Be Involved in Wildlife Contraception Research and Management?
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Should wildlife biologists be involved in wildlife contraception research and management?

Robert J. Warren

The public in urban and suburban areas is increasingly interested in use of contraceptives for controlling wildlife. What is the wildlife biologist's role in contraceptive research and management?

Traditionally, active management of wildlife populations has used a variety of techniques (e.g., hunting, trapping, poisoning, relocation) to remove animals from a population to reduce density. Increasingly, these traditional management techniques are considered either impractical or publicly unacceptable (in urban and suburban areas or parks and nature reserves, for example). Therefore, at present, wildlife professionals have no new or specific capability to reduce overabundant populations in these situations. A common response from many wildlife agencies to requests for population control in such nontraditional situations has been to suggest traditional solutions or to offer technical assistance. If these responses are deemed unacceptable or inappropriate by the affected public, then the problem often is left unresolved. In situations where there are essentially no acceptable means of removing animals or decreasing survival rates to control populations, the only other demographic parameter to manipulate is reproduction.

However, many wildlife agencies and professionals are reluctant to acknowledge potential applicability of reproductive inhibition for wildlife population control. This reluctance probably results from a lack of proven effectiveness and delivery of contraceptives in wildlife populations. Contraception may seem to be a logical alternative for controlling these populations; however, the practical and logistical difficulties of capturing animals or administering contraceptives have prevented this method from being considered seriously by many wildlife managers. Because of these difficulties, I believe that many wildlife professionals have not adequately considered, and perhaps in some instances have even ridiculed, the potential of contraception in wildlife management. In my opinion, wildlife managers need to become more involved than they have been historically in this new and developing area of research, which may soon have practical applications in the management of specific wildlife populations in certain situations.

I do not wish to imply that The Wildlife Society (TWS) has failed to give attention to this area of research in its publications. Indeed, since the early 1960's (Balser 1964, Elder 1964, Linhart and Enders 1964), TWS publications have included articles on wildlife contraception research. Furthermore, recent TWS publications have featured articles on the latest developments in immunocontraception in wild species (Kirkpatrick et al. 1990, Turner and Kirkpatrick 1991, Turner et al. 1992). Perhaps the lack of serious consideration by wildlife managers in this area is because early research efforts with contraceptive techniques were shown to be either ineffective or infeasible for practical implementation. Two recent articles have reviewed much of this early research and evaluated the potential applicability and

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biopolitics of contraceptive techniques for wildlife management (Garrott et al. 1992, Warren et al. 1995).

In addition to concerns over the practicality of contraceptives for population control, many wildlife professionals have expressed concerns that contraceptive techniques are being publicized by animal rights groups to eventually replace public sport hunting. In fact, it is highly unlikely that contraceptive techniques will be cost effective for widespread application in free-ranging game populations. The actual contraceptives may be economical, but the personnel and operating expenses associated with delivering contraceptives to numerous individuals in a population undoubtedly will be time and cost prohibitive. However, some urban or suburban communities have been willing to pay these costs to enable contraceptives to be tested in or near residential areas as a non-lethal method of population control for white-tailed deer (*Odocoileus virginianus*) (J. F. Kirkpatrick, Eastern Montana College, Billings, pers. commun., 1993). In these instances, the question of cost becomes moot. If the local public is willing to pay the costs of applying contraceptives, then wildlife biologists have a professional obligation to attempt to control deer populations in these areas with non-lethal means. However, it is questionable whether state wildlife agencies should implement contraceptive management programs using funds derived largely from license sales and Pittman-Robertson revenues. Certainly, if specific additional appropriations from state legislatures are provided to fund contraceptive management programs in urban and suburban areas, then it may be appropriate to use state wildlife agency funds for contraceptive management programs.

Concerns relative to the cost effectiveness of contraceptives apply primarily to game species for which population control can be based on traditional, cost-effective public hunting programs. However, other overabundant wildlife species that are not classified as game (e.g., feral horses; *Equus caballus*) present a situation for which contraceptives may provide cost effective population control. Garrott et al. (1992) used 20-year simulations to evaluate the economic costs of numerous alternatives for feral horse management. They concluded that contraceptives could reduce substantially the number of horses requiring removal from federal lands each year and hence could reduce the annual costs associated with maintenance and placement of excess horses in Adopt-A-Horse programs.

Perhaps because of the limitations and anxieties described above, I believe that most wildlife managers have not yet seriously considered contraception for wildlife population management. Other scientists and professionals, however, have aggressively pursued a wide variety of experimental contraceptive technologies and agents (Bomford 1990, Kirkpatrick and Turner 1991). The lack of substantial involvement by most wildlife biologists in this area of research may push wildlife agencies and professionals into untenable situations where they are forced into reactive rather than proactive management situations.

I believe there has been a progression of events within the past 8 years that make it imperative for wildlife managers and biologists to become more involved in this area of research and management than they have been in the past. In November 1987, the First International Conference on Contraception in Wildlife was held in Philadelphia, Pennsylvania. This conference was co-sponsored by PNC (Preservation, Needs, Care), Inc., the Fund for Animals, the Humane Society of the U.S., the Massachusetts Society for the Prevention of Cruelty to Animals, the American Anti-Vivisection Society, and the Captive Breeding Specialist Group of the International Union for the Conservation of Nature (IUCN). Unfortunately, the first conference was not well attended by wildlife managers, probably because some of the preliminary announcements suggested a biased, anti-hunting perspective might prevail (e.g., news releases announced the conference as "The Revolution without Guns" and "We have a Better Solution"). In addition, the proceedings from the first conference have yet to be published. Until these proceedings are published, the information presented at the conference cannot be distributed to more wildlife professionals.

The first conference was followed by the Second International Conference on Fertility Control in Wildlife, which was held in November 1990 in East Melbourne, Victoria, Australia. This conference was sponsored by the Victoria Department of Conservation and Environment and the World Society for the Protection of Animals. Wildlife researchers working for the Division of Wildlife and Ecology in Australia's Commonwealth Scientific and Industrial Research Organization have been actively involved in wildlife contraception research and management. Perhaps they have been more willing to apply contraceptives in wildlife population management than wildlife professionals in North America.

Two important recent developments in the wildlife profession indicate that apprehension in this area among North American wildlife professionals may be changing. First, in 1992 the International Association of Fish and Wildlife Agencies established a Wildlife Contraception Subcommittee under its

Animal Damage Policy Committee to specifically monitor recent developments in wildlife contraception research and management and to advise member agencies of any regulatory and policy concerns. Second, also in 1992, the Animal Damage Control (ADC) Program of the Animal and Plant Health Inspection Service (APHIS) within the U.S. Department of Agriculture (USDA) initiated a substantial wildlife contraceptive research and development program through its Denver Wildlife Research Center (DWRC). As part of this initiative, DWRC organized a Symposium on Contraception in Wildlife Management which was held in Denver, Colorado during October 1993. This symposium was sponsored by the DWRC, ADC, APHIS, USDA, the Humane Society of the U.S., the Wildlife Management Institute, and the Jack H. Berryman Institute of Wildlife Damage Management. I believe these recent developments are positive indications that the wildlife profession is changing its past views regarding the inappropriateness or infeasibility of contraceptives for the management of wildlife populations.

It is important that wildlife biologists participate in most research efforts dealing with wildlife contraception. I am concerned that some research teams working on wildlife contraception in the past were composed entirely of animal scientists, reproductive physiologists, and immunologists. I do not wish to imply that these research teams specifically excluded certain professions. Indeed, wildlife biologists recently have been included in on-going contraceptive field trials with feral horses and white-tailed deer (J. F. Kirkpatrick, Eastern Montana College, Billings, pers. commun., 1993). Practical wildlife management concerns that include feasibility of field delivery and applicability, potential population-level effectiveness, and considerations of the economic costs of application must be included as fundamental criteria in any research program seeking to evaluate wildlife contraceptive techniques.

Wildlife biologists are trained to consider managerial practicality and population-level concerns, which must be vital considerations in wildlife contraception research and management. Past research (Bomford 1990, Kirkpatrick and Turner 1991, Warren et al. 1995) has shown that available contraceptive techniques effectively inhibit reproduction in individually treated animals. Despite the success of contraceptives in individually treated animals or in captive situations, many of these contraceptives may be infeasible for free-ranging wildlife populations, or they may be unsuccessful in effectively reducing a population to acceptable densities. Changes in the number and composition of most wildlife populations are dynamic and occur as the result of a multitude of factors, only one of which is reproduction. What is lacking in the literature is documentation of the effectiveness and practical applicability of contraceptive management techniques at the population level. Recently, wildlife biologists have begun evaluating population-level effectiveness in the contraceptive field trials being conducted with feral horses on Assateague Island, Maryland (J. F. Kirkpatrick, Eastern Montana College, Billings, pers. commun., 1993).

Of paramount importance in evaluating population-level effectiveness of contraceptives is the inclusion of rigorous methodologies for enumerating the size and composition of the populations being treated. Inclusion of wildlife scientists trained in population assessment techniques as co-investigators or contributors to research teams would greatly strengthen the evaluation of population-level efficacy of wildlife contraception. In addition, wildlife population control with contraceptive technologies must be evaluated within its complete ecological context including effects on non-target species. Future contraceptive field trials should endeavor to evaluate the potential effects of contraceptives on non-target species, including humans.

Finally, it is important for wildlife managers and biologists to effectively communicate to the public, politicians, and media the facts, limitations, and applicability of current contraceptive techniques. Contraceptives provide a *potential* technique that wildlife managers may find useful in specific situations where traditional methods of population control may be inappropriate. However, contraceptives may have practical and economic limitations. Public sentiment and concern likely will be 1 of the principal factors that will mandate the use of contraceptives as a management tool in certain situations. Unfortunately, these situations are increasing in occurrence in North America as more urban and suburban development occurs. Wildlife professionals have an obligation to consider all possible tools and techniques for use in wildlife population management, including contraceptives.

We can best maintain our professional credibility by being directly involved in this area of research and management to help determine its real-world applicability and feasibility. Future wildlife resource management undoubtedly will benefit from the involvement of wildlife scientists in research on wildlife contraception. Without this involvement, wildlife agencies may be forced into untenable situations where management programs may be dictated by public referenda and wildlife management may be

based on public sentiment rather than managerial practicality and ecologically sound science.

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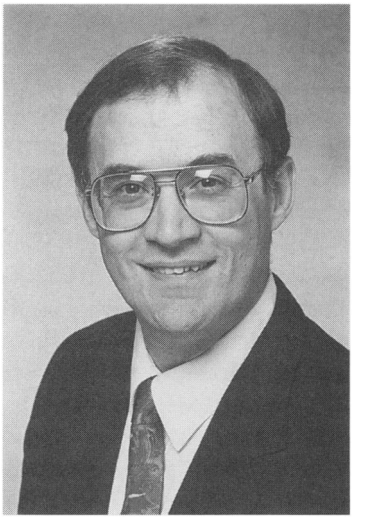

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