

June 15, 2006

Dr. Eileen A. Murphy  
New Jersey Department of Environmental Protection  
Division of Science, Research and Technology  
P. O. Box 409  
Trenton, NJ 08625

Dear Dr. Murphy:

I have completed my review of the draft final report entitled “An Analysis of the Feasibility of Using Fertility Control to Manage New Jersey Black Bear Populations.” This letter summarizes my review of this report. Enclosed are my curriculum vitae and the Background Information/Conflict of Interest form, as per your request.

In general, I think this draft report presents a very comprehensive review and summary of the best available science published to date in the area of wildlife fertility control, with an emphasis on the potential application to black bear populations in New Jersey. I am returning the draft manuscript, which includes a few minor editorial corrections (e.g., typographical errors). I also recommend that the authors carefully check their Literature Cited Section as I found a few published papers that were cited in the text, but which were not include in the Literature Cited Section.

Here are my specific comments for you and the authors to consider:

1. On Page 6 and Page 31 – The authors provide an excellent perspective on the regulatory framework for the potential application of fertility control to black bear populations in New Jersey. I suggest that they add a brief discussion to these sections of their report to include the recently enacted changes in federal regulatory oversight. I think that the U.S. Environmental Protection Agency (EPA) now has regulatory authority over contraceptives for wildlife and feral animals. Contraceptives that are used in livestock, companion animals, and zoos continue to be regulated by the U.S. Food and Drug Administration (FDA). Based on the latest information that I have received, there has been no decision yet on how the EPA will regulate injectable contraceptive vaccines.
2. On Page 6 and Page 35 – It is important to note that the authors have correctly placed the use of wildlife fertility control within the context of managing the growth of New Jersey’s black bear population. Too often, individuals or groups interested in using wildlife fertility control have the impression that this technology might actually decrease the overabundance of wildlife populations. To my knowledge, all field research conducted to date has demonstrated that the use of wildlife fertility control will not significantly decrease population numbers, but may have potential in slowing the growth of these populations. To quote the authors specifically, “Reducing populations by FC alone is, at best, slow and expensive.”
3. On Page 17 – I suggest the authors revise one sentence in the first paragraph under the section on FSH— “Sexual behavior is therefore not affected.” I think I know what their implied meaning was for this sentence,

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but strictly speaking FSH-based vaccines would actually alter sexual behavior in females. Namely, with a reduction of FSH caused by the FSH-based vaccine, there would be no follicle maturation and no estrus (i.e., sexual behavior).

4. On Page 22, Page 28, and pages 32-35 – The authors have provided an excellent discussion of the advantages and disadvantages of wildlife fertility control. I suggest the authors add more to their discussion to include some of the disadvantages of Freund's adjuvants. Certainly, many current researchers working in the area of wildlife fertility control are testing adjuvants other than Freund's adjuvants. However, the most successful results obtained to date in the area of wildlife fertility control have utilized Freund's adjuvants, and I think it is important to note that these adjuvants will likely never be approved by the state and federal regulatory agencies for use in free-ranging wild species.

5. On Page 29 – The authors have correctly noted that trap-shy individuals will increase the cost of capture programs. Perhaps they should also mention that trap efficiency decreases the longer that a capture program has been implemented in a particular area. Namely, with an increase in the proportion of captured and treated individuals in a population, there is a significant decrease in the probability of future capture efforts yielding a previously uncaptured individual.

6. Finally, unless your agency specifically does not wish the authors to consider this topic, I suggest they add a separate section to their report on funding for wildlife fertility control. An important question that is often overlooked is, "Who will pay the costs of programs designed to manage wildlife populations by fertility control"? Most state wildlife agencies derive a substantial amount of their funding from the sale of hunting and fishing licenses, as well as federal aid funds for fish and wildlife restoration. It is probably inappropriate to use these funds for wildlife fertility control programs. Therefore, I would assume that additional state appropriations would be required to institute these programs. It might be important to make this distinction in the authors' report, which I assume will be available to the public once it is finalized

In sum, I absolutely agree with the authors' overall conclusion—"Although fertility control has shown considerable promise for managing certain wildlife populations, such as urban deer, attempting to manage the growth of bear populations in this manner would be very difficult and expensive, and would almost certainly fail."

I appreciate the opportunity to be of service to the New Jersey Department of Environmental Protection. Please contact me via email at [warren@warnell.uga.edu](mailto:warren@warnell.uga.edu) or via telephone at 706-542-6474 if you have any questions.

Sincerely yours,

Robert J. Warren  
Meigs Professor  
Wildlife Ecology and Management