



## Review of Proposals to the Bureau of Land Management on Wild Horse and Burro Sterilization or Contraception: A Letter Report

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# Review of Proposals to the Bureau of Land Management on Wild Horse and Burro Sterilization or Contraception

## A Letter Report

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Committee for the Review of Proposals to the Bureau of Land Management on  
Wild Horse or Burro Sterilization or Contraception

Board on Agriculture and Natural Resources

Division on Earth and Life Studies

NATIONAL RESEARCH COUNCIL  
*OF THE NATIONAL ACADEMIES*

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This report has been reviewed in draft form by a reviewer chosen for his technical expertise in accordance with procedures approved by the National Research Council Report Review Committee. The purpose of the independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards of objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. The review of the report was conducted by Dr. George Seidel, Colorado State University. Appointed by the National Academy of Sciences, he was responsible for making certain that an independent examination of the report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of the report rests entirely with the authoring committee and the institution.





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January 21, 2015

Ms. Joan Guilfoyle  
Chief  
Division of Wild Horses and Burros  
Bureau of Land Management  
20 M Street SE  
Washington, DC 20003

Dear Ms. Guilfoyle:

This letter and its appendixes constitute the report of the Committee on the Review of Proposals to the Bureau of Land Management on Wild Horse or Burro Sterilization or Contraception. The committee's activity was supported by Contract L14PX008007 between the Bureau of Land Management (BLM) and the National Academy of Sciences. The review process was performed under the auspices of the National Research Council's Board on Agriculture and Natural Resources.

## **BACKGROUND**

In the Wild Free-Roaming Horses and Burros Act of 1971 (P.L. 92-195), Congress charged BLM, in the Department of the Interior (DOI), with the "protection, management, and control of wild free-roaming horses and burros on public lands." Since then, BLM's Wild Horse and Burro Program has been responsible for managing the majority of free-ranging horses and burros on federal public lands in 10 western states. As part of its management plan, BLM sets an Appropriate Management Level (AML) for each Herd Management Area (HMA)<sup>1</sup> and reports an estimate of the free-ranging equid population in each HMA each year. In 2014, the upper bounds of AMLs for all HMAs totaled 23,764 free-ranging horses and 2,920 free-ranging burros. The estimated populations reported by BLM in that year were 40,815 free-ranging horses and 8,394 free-ranging burros.<sup>2</sup>

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<sup>1</sup>A Herd Management Area is an area designated for use by free-ranging horses and/or burros by BLM. In 2014, there were 179 HMAs.

<sup>2</sup>Bureau of Land Management. 2014. Herd Area and Herd Management Area Statistics. Available at [http://www.blm.gov/style/medialib/blm/wo/Planning\\_and\\_Renewable\\_Resources/wild\\_horses\\_and\\_](http://www.blm.gov/style/medialib/blm/wo/Planning_and_Renewable_Resources/wild_horses_and_)

In 2011, BLM commissioned the National Research Council of the National Academy of Sciences to conduct an independent technical evaluation of the science, methodology, and technical decision-making approaches of the Wild Horse and Burro Program. Among the many tasks given the National Research Council's study committee was evaluation of information related to the effectiveness of fertility-control methods to prevent pregnancies and reduce herd populations. For that topic, the Committee to Review the Bureau of Land Management Wild Horse and Burro Management Program evaluated the methods available on the basis of the criteria related to delivery method, availability, efficacy, duration of effect, and potential physiological and behavioral side effects. Considering those criteria, it judged porcine zona pellucida (PZP) and GonaCon™ vaccination of females and chemical vasectomy in males as the most promising approaches. The committee noted that no method existed that did not affect physiology or behavior. It advised BLM that reducing the population growth rate with contraceptive vaccines and vasectomies would require that a large proportion of the population be treated in a comprehensive, strategic fashion. Given the short duration of effect of the available contraceptives and the ability of one fertile stallion to impregnate many mares, intensive management of free-ranging horse and burro herds would be required. Intensive management would entail more frequent gathers to deliver fertility-control treatments to the animals.<sup>3</sup>

After the publication of those conclusions in the National Research Council's 2013 report *Using Science to Improve the Wild Horse and Burro Program: A Way Forward* in the fall of 2013, BLM issued a Request for Information on free-ranging horse and burro sterilization or contraception specifically related to the development of techniques and protocols. On March 6, 2014, it issued a Request for Applications (RFA) for research proposals "aimed at developing new or refining existing techniques and establishing protocols for the contraception or permanent sterilization of either male or female wild horses and/or burros in the field."<sup>4</sup> The RFA responds to the conclusion of a 2008 Government Accountability Office report that costs associated with continuing to remove horses from the range to long-term holding facilities would overwhelm the Wild Horse and Burro Program, a conclusion with which the National Research Council report agreed.<sup>5</sup> The RFA also fulfills the recommendation of a 2010 DOI Office of Inspector General report for research on improving population-control methods for horses and burros.<sup>6</sup> The RFA's call for new or refined fertility-control techniques implicitly acknowledges that the short-duration drugs currently available to BLM can reduce the population growth rate only if delivered every 1–3 years to all equids on the range. Conducting gathers to treat the animals and manufacturing and procuring the available contraceptives are both expensive. The agency is seeking more cost-effective alternatives

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burros/statistics\_and\_maps/holding\_\_adoption.Par.19711.File.dat/HMAs%20and%20HAs%20March%202014.pdf/. Accessed January 4, 2015.

<sup>3</sup>National Research Council. 2013. *Using Science to Improve the Wild Horse and Burro Program: A Way Forward*. Washington, DC: National Academies Press.

<sup>4</sup>Bureau of Land Management. 2014. *Wild Horse and Burro Sterilization or Contraception—Development of Techniques and Protocols*. Grant L14AS00048. Issued March 6.

<sup>5</sup>U.S. Government Accountability Office. 2008. *Effective Long-Term Options Needed to Manage Unadoptable Wild Horses*. Washington, DC: U.S. Government Accountability Office.

<sup>6</sup>Office of Inspector General. 2010. *Bureau of Land Management Wild Horse and Burro Program*. Report No. C-IS-BLM-0018-2010. Washington, DC: U.S. Department of the Interior.

to the practice of gathering animals and removing them from public lands, which it has historically done, or to the frequent gathering of animals and treating them with the short-duration fertility-control treatments that are currently available.

The application period for the RFA was scheduled to close on May 7 but was extended to May 28, 2014. After the end of the RFA period, BLM commissioned the National Research Council to assemble a committee of experts to review and rank 19 proposals in order of merit. BLM will decide how many awards to grant.

To conduct the independent review, the National Research Council appointed a nine-person Committee on the Review of Proposals to the Bureau of Land Management on Wild Horse or Burro Sterilization or Contraception, whose membership is listed at the end of this letter. The committee members' expertise included theriogenology,<sup>7</sup> equine veterinary medicine, reproductive physiology, behavioral ecology, immunology, nanotechnology, pharmacology, and endocrinology.

### **Responsibilities of the Committee**

Each committee member was tasked with reviewing four to eight proposals and generating a brief summary assessment of how well each proposal met the criteria of the RFA. The full, formal statement of task is in Box 1. Committee members were also asked to comment on the RFA and to give their sense of the quality of the process and of the proposals themselves to improve the assessment process in the event of any future funding rounds.

#### **BOX 1**

The National Research Council will convene a committee to review research project proposals submitted to the Bureau of Land Management (BLM) and aimed at developing new or refining existing techniques and establishing protocols for the contraception or permanent sterilization of either male or female wild horses and/or burros in the field. The scientific review committee will consider factors related to the scientific validity of the proposed technique(s), goals and objectives of the work, research methodology and design of the study, proposed statistical analysis and interpretation of anticipated data obtained, animal welfare implications and Institutional Animal Care and Use Committee approvals, feasibility, as well as the qualifications, expertise, and experience of the investigators. The committee will rank the proposals in order of merit and provide a brief report on additional factors for BLM to consider in selecting proposals to fund. The number of awards will depend on the committee's recommendations and final decisions by BLM.

Prior to their formal appointment to the committee, all prospective members were screened for potential conflicts of interest, including for financial relationships with organizations and with individuals involved with the submitted proposals. The committee held a formal discussion of issues related to bias and conflict of interest, and it reviewed

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<sup>7</sup>Theriogenology is the branch of veterinary medicine that has to do with reproduction.

the composition of its membership relative to the expertise needed for the assessment of the proposals that it had been given. None of the panel members had responded to the RFA. In cases in which a committee member had an institutional association with an applicant, the committee member did not review that applicant's proposal.

The committee met twice by conference call in late October 2014: once to discuss a common scoring and ranking process and once in public session with BLM to clarify questions related to the RFA. The committee met in person on December 16–17, 2014, to conduct the final review and approved this letter report via conference calls in January 2015.

## REVIEW PROCESS

Each proposal was assigned three principal reviewers on the basis of disciplinary expertise. Those reviewers were given the responsibility of providing individual written review comments and scores and leading the discussion of the proposal in the committee meeting.

On the basis of the review criteria described in the RFA, the reviewers used a worksheet to evaluate proposals and score them for three general aspects:

### **1. Relevance to the fundamental objectives of the award program:**

Likelihood that the proposed research can contribute substantially to the contraception or sterilization of free-ranging horses and burros.

Clearly articulated, reasonable, and justified objectives of the research.

### **2. Scientific quality of the proposed work, including:**

Appropriateness and feasibility of the experimental approach and work plan (the likelihood of accomplishing research objectives).

Consistency of timelines and milestones with the nature of the project and proposed level of effort.

Scientific soundness of the research approach.

Overall strength of the rationale for pursuing the proposed approach.

### **3. Capacity of personnel and facilities and appropriateness of budget:**

Backgrounds, expertise, and experience of the principal investigator, coinvestigators, and collaborators.

Appropriateness and completeness of the research team.

Adequacy of research facilities.

Appropriateness of the budget request for the proposed task and clarity of the budget narrative.

Before the December meeting, the committee members submitted their reviews. At the meeting, a reviewer of each proposal gave a brief summary presentation and outlined the proposal's strengths and weaknesses. The full committee then discussed the merits of the proposal on the basis of scientific quality and relevance to sterilization or contraception of free-ranging horses and/or burros. After the discussions, the proposals were placed into increasingly refined groups on the basis of scientific merit and practical applicability. To determine the groups, the committee answered the following questions as they pertained to each proposal:

- What are the major scientific outcomes expected from the proposed project? What are the chances of achieving the expected outcomes (scientific merit)?
- How are the expected outcomes to be applied in field situations? What are the chances of applying the proposed fertility-control treatment successfully?
- Is there significant overlap with existing or proposed projects? Is the overlap of value or is it a redundancy not likely to be beneficial?

The answers to those questions led the committee to group the proposals into four general categories:

- 1) Proposals that would result in sterilization and for which the research would be completed in 2 years or less.
- 2) Proposals that may result in sterilization or contraception and for which the research may be completed in 2–5 years.
- 3) Proposals that may result in sterilization or long-term contraception and for which the research would take at least 5 years.
- 4) Proposals that do not merit funding.

The committee grouped the proposals in that way in part because it understood from its discussion with BLM during its public meeting that BLM is looking both for techniques and protocols that can be used in the near term and for techniques and protocols of fertility control that may take more time to develop.

Ultimately, the committee recommended for funding proposals that fell into the first three groups, and it set priorities for funding within those groups. The committee also discussed suggestions for improving the RFA and commented on issues related to the review process. After the meeting, committee members reviewed for accuracy and completeness short summary reviews of each proposal prepared by National Research

Council staff. (The recommended proposals and the committee's summary reviews for all proposals are appended to this letter report as nonpublic Appendixes A & B.)

When prioritizing the proposals, the committee assessed them by scientific merit, practical applicability, and duration until delivery of research results. Overlapping or similar proposals were compared with each other to determine whether an overlap might be beneficial. The committee also identified instances in which budget requests seemed excessive or insufficient and noted less meritorious or less feasible elements in proposals that could be eliminated. In some cases, the committee concluded that, given the level of uncertainty or risk involved in a particular approach, the research should be supported initially for a period that would allow the investigator to establish "proof of concept" before further research proceeded.

## RECOMMENDATIONS OF THE COMMITTEE

### Proposals for Consideration

The committee recommends funding of those proposals that it rated as being of medium to high scientific merit. Recommended proposals vary in their practical applicability because some are at earlier stages of research than others. On the basis of its evaluation, the committee recommends funding 10 proposals. They are prioritized in Appendix A. Appendix A includes the name of the principal investigator(s), the title of the proposal, the proposed duration of the project and the amount of the requested direct costs, and recommendations on duration and budget by the committee where relevant. Proposals that did not meet the committee threshold for overall quality were not included in Appendix A.

The committee believes that the portfolio of proposals that it is recommending constitutes a diversity of high-quality approaches for developing or refining techniques and establishing protocols for the contraception or permanent sterilization of either male or female free-ranging horses and/or burros in the field. The responsibility for granting the awards lies with BLM.

### Other Considerations for the Future

#### *Issue another Request for Applications in 2–3 years*

Many of the proposals that were not recommended for funding lacked preliminary data. Without preliminary data, it was difficult for the committee to evaluate whether the concept proposed was worth further investigation. The committee suspects that in some cases the absence of preliminary data reflects inexperience with the application-submission process by some of the investigators. That may be in part because contraception and sterilization of large animals is not a well-funded field of research, and potential investigators may have few opportunities to generate preliminary data and write proposals. Having submitted an initial application in response to the 2014 RFA, those investigators may use the next year or two to generate the necessary data and improve their grant-writing skills. They would then be in a position to submit a stronger proposal

if another RFA is issued in a few years. Improved proposals may give BLM more options to consider for sterilization and contraception projects.

*Organize a preproposal seminar and an annual meeting of grant recipients*

The committee suggests that, if there are to be future competitions, BLM consider organizing a seminar to help prospective applicants to understand the requirements of the RFA and the submission forms. There was a great deal of variation in the quality of writing in the proposals. Some would have been stronger if more information on the pitfalls had been provided and if more support from the relevant scientific literature had been included. A conversation between BLM and potential applicants in a preproposal seminar may reduce some of those problems. Such a conversation would also allow BLM to explain to potential applicants the management context of the Wild Horse and Burro Program and the conditions under which fertility-control treatments would be delivered to the animals. Similarly, an annual meeting of grant recipients could lead to new insights and allow researchers working on fertility-control methods to exchange ideas and monitor progress of their projects. Because the research community in question is small, both types of meetings may help the field to advance by facilitating opportunities for collaboration. Such meetings could be held via webinar.

*Seek outside scientific expertise for evaluating progress reports*

The committee urges BLM to make use of outside scientific advice as the funded projects progress. That advice could be in the form of a scientific review panel, but it could also be as simple as requesting a relevant expert to assess a study's progress report. Such input would help BLM to evaluate research that demonstrates a continuity of progress as well as research that is not advancing adequately to merit further funding.

### **Comments on the Request for Applications**

The committee has some suggestions for improving the RFA. The following comments are offered in that regard.

*Request more-detailed study designs*

In addition to the lack of preliminary data, a notable shortcoming of many of the proposals was the lack of detail on study design. The committee was left either to make assumptions or to downgrade a proposal because of missing information. The proposals were limited to 10 pages, and the committee finds that adequate to describe a strong study. However, many submitters spent too much time in explaining the nature of the wild horse and burro problem rather than in describing the details of their study. In the future, submitters should not be asked to provide such a justification for their proposals, inasmuch as the problem at hand is the reason for issuing the RFA in the first place. Space in the application would be better used in describing the details of the proposed study. In addition, the requirement to include a timeline and milestones needs to be made explicit in the RFA.



*Improve the proposal format*

The proposals reviewed were in a number of formats, and this made comparing the documents more difficult than necessary. In addition, many of the proposals had formatting problems that made them challenging to read. The proposal forms seemed to require the same information in more than one place, so the proposals were repetitive and longer than necessary. If a RFA is issued in the future, the committee suggests that all proposals be submitted in pdf form.

Information about Institutional Animal Care and Use Committee (IACUC) approvals was absent or incomplete in many of the proposals. BLM should ensure that IACUC approvals are in place before distributing funds to any selected proposal.

*Extend application window and circulation*

If another RFA is issued, the committee suggests a longer application window—at least 3 months. The committee is aware that BLM made efforts to circulate the RFA to reach researchers who had an interest in the topic. To reach as many applicants as possible, the committee encourages BLM to make use of the following organizations to circulate a future RFA: the American Association of Equine Practitioners, the Society for the Study of Reproduction, the American Society of Animal Science, and the Society for Theriogenology.

*Require letters of support or collaboration and progress reports*

For proposals that need access to products that are not commercially available, letters of support indicating that the investigators will have access to the products should be included. The letters should not count towards the length of the proposal (10-page limit).

Progress reports on multi-year projects should be required so that BLM can evaluate (perhaps with the help of outside experts as discussed above) the strides being made by the funded researchers.

## CONCLUSION

The committee is very supportive of the effort by BLM to support research in developing techniques and establishing protocols for the contraception or permanent sterilization of free-ranging horses and burros in the field. The committee believes in the maxim that “two heads are better than one.” By supporting work in this field, BLM attracts more researchers to the table and increases the likelihood of developing a practical set of cost-effective tools for safe contraception or sterilization of horses and burros.

Identifying tools to address the rate of population growth of horses and burros on BLM lands requires a commitment to this type of investment. The committee hopes that BLM will be in a position to continue to fund research in this field through future RFAs.

The committee expects the quality of proposals to improve as experience is gained with each new round of the awards.

I appreciate the efforts of my fellow committee members. Their insights on the proposals were invaluable in the selection of the most meritorious ones. The National Research Council staff—particularly Robin Schoen, Kara Laney, and Jenna Briscoe—allowed us to have an organized, efficient, and effective review process.

We hope that BLM's Wild Horse and Burro Program will find our recommendations and comments useful in its effort to identify practical and effective tools to manage the rate of population growth of free-ranging horse and burro herds on BLM lands.

Sincerely,



David Powell, Wildlife Conservation Society/Bronx Zoo  
Chair, Committee on the Review of Proposals to the  
Bureau of Land Management on Wild Horse or Burro  
Sterilization or Contraception

Members, Committee on the Review of Proposals to the Bureau of Land Management on Wild Horse or Burro Sterilization or Contraception:

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Adel Talaat, University of Wisconsin–Madison

Barbara Wolfe, The Ohio State University and Columbus Zoo and Aquarium and the  
Wilds

Attachments:

Appendix A (nonpublic)—Recommended proposals

Appendix B (nonpublic)—Summary proposal comments