

Technical Reviewers' Rating Summary

Proposal Number	G-025-02
Application Title	Effects of Oil and Gas Development on Mule Deer Populations in Western North Dakota
Submitted By	North Dakota Game and Fish Department
Request For	\$329,374.00
Total Project Costs	\$658,747.00

Section A. Scoring

Statement	Weight	G-025-A1	G-025-A2	G-025-A3	Avg. Score
1. Objectives	9	3	4	4	33
2. Achievability	7	2	3	4	21
3. Methodology	8	3	5	4	32
4. Contribution	8	4	5	4	34
5. Awareness / Background	5	3	4	4	18
6. Project Management	3	2	4	3	9
7. Equipment / Facilities	2	4	5	4	8
8. Value / Industry - Budget	4	3	4	3	13
9. Financial Match - Budget	4	3	5	3	14
Avg. Weighted Score		150	215	189	184
OVERALL					
FUND			X	X	
TO BE CONSIDERED		X			
DO NOT FUND					

Section B. Ratings and Comments

1. The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Oil and Gas Research Council goals are:

“The primary purpose of the study should be to determine WHETHER there are actual, significant long-term impacts to mule deer populations as a result of oil and gas activity. The intrinsic bias against oil and gas development and the assumed conflict with big game species should be eliminated. In the event long-term impacts are found, only then should mitigation measures be considered based upon the study's findings in conjunction with consultation with the oil and gas industry. Appropriate mitigation measures can only be appropriately defined by taking into account existing processes and technologies utilized by industry. The study should also consider the work already completed in other areas, such as Wyoming, by BLM, state game and fish departments and industry-funded studies. Long-term studies have already been conducted on mule deer in southwest Wyoming for the Jonah and Pinedale fields. These studies addressed population dynamics, recruitment, resource use, avoidance and possible mitigation measures. This long-term work was funded by BLM and the WY Landscape Conservation Initiative, in cooperation with industry working groups established for these two project areas. See: <http://www.west-inc.com/biggamereports.html> We are not advocates of modeling in general because it is difficult to tailor them appropriately to specific areas and do not effectively relate to all areas. It is also too easy to manipulate models to achieve desired results, as we have seen with other species. ”

- Reviewer: G-025-A1

- Rating: 3 (Clear)

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- Applicant

“Goals on investigation of impacts of development, possible mitigation measures, and modeling are clearly stated.”

- Reviewer: G-025-A2

- Rating: 4 (Very Clear)

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- Applicant

“Clearly identified objectives include quantifying effects of oil and gas development on mule deer; to identify mitigation measures that the industry can use to reduce/avoid impacts to mule deer; and model the effects of oil and gas on mule deer populations. As mule deer are highly prized and economically significant to the state of ND, the objectives are consistent with OGRC goals to promote environmentally sound exploration, development and use of oil and gas.”

- Reviewer: G-025-A3

- Rating: 4 (Very Clear)

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- Applicant

2. With the approach suggested and time and budget available, the objectives are:

“The budget for the study appears quite low while the time frame for the study should be sufficient. Utilizing existing data as part of the project may help offset the low budget. However, based upon the study elements proposed, it does not appear this is likely. Past experience has shown, e.g., USFS big horn sheep study, that funding is typically significantly understated and additional funds are typically needed. In our opinion, it is likely that the budget identified is actually half of what will be required.”

- Reviewer: G-025-A1

- Rating: 2 (Possibly Achievable)

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- Applicant

“My concern here is the time frame. This study is typical of many such in wildlife biology, attempting to accomplish major ecological goals in a relatively short window of time.”

- Reviewer: G-025-A2

- Rating: 3 (Likely Achievable)

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- Applicant

“Time and budget appear to be adequate to meet objectives of this study. Study parameters appear to be sufficiently fluid to adjust for potential significant weather anomalies, such as excessive snowfall, that may increase deer mortality above that normally expected.”

- Reviewer: G-025-A3

- Rating: 4 (Most Likely Achievable)

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- Applicant

3. The quality of the methodology displayed in the proposal is:

“The methodology appears to be similar to that used in other studies. It should be noted that ONLY GPS collars offer adequate rigor for such a study. Reference the above link to Hall Sawyer's work as the most current and comprehensive mule deer work to date. ”

- Reviewer: G-025-A1

- Rating: 3 (Average)

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- Applicant

“The study proposes use of cutting-edge technology, software, and statistical analysis.”

- Reviewer: G-025-A2

- Rating: 5 (Well Above Average)

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- Applicant

“Techniques and methodology cited in the proposal are proven and well adapted to assessing the mule deer population. ”

- Reviewer: G-025-A3

- Rating: 4 (Above Average)

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- Applicant

4. The scientific and/or technical contribution of the proposed work to specifically address North Dakota Industrial Commission/Oil and Gas Research Council goals will likely be:
- “As long as adequate funding is provided to actually complete the entire study, the results should provide a good basis for determining the long-term effects of oil and gas development on mule deer populations and the formulation of appropriate mitigation measures for oil and gas activities. Again, however, development of mitigation measures must not be done without involvement of industry, which has a wealth of knowledge of measures that have proven successful in other areas.”**
- Reviewer: G-025-A1*
- Rating: 4 (Very Significant)
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- Applicant*
“The proposed study addresses major issues dealing with potentially conflicting interests. This has major implications to not only mule deer biology and management, but to many other western North Dakota species as well.”
- Reviewer: G-025-A2*
- Rating: 5 (Extremely Significant)
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- Applicant*
“This study has the potential to yield highly important data relative to oil and gas industry impacts and affects on mule deer populations and range. The baseline data derived from the study will lead to recommended mitigation strategies to reduce oil and gas impacts on mule deer, directly meeting OGCR goals to promote environmentally sound exploration, development, and use.”
- Reviewer: G-025-A3*
- Rating: 4 (Very Significant)
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- Applicant*
5. The background of the principal investigator and the awareness of current research activity and published literature as evidenced by literature referenced and its interpretation and by the reference to unpublished research related to the proposal is:
- “It appears the statistical methodology being used to model the response of mule deer to oil and gas activity is appropriate and consistent with current scientific standards. We also suggest the commission hire an independent 3rd party to review the methodology, the report and its findings. As mentioned previously, we do not advocate the use of modeling unless the accuracy of the model is confirmed through ground truthing.”**
- Reviewer: G-025-A1*
- Rating: 3 (Adequate)
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- Applicant*
“The background of the principal investigator is excellent for this type of research. However, there is a need to become familiar with prior North Dakota research in this area: Fox, R. A. 1989. Mule deer (*Odocoileus hemionus*) home range and habitat use in an energy-impacted area of the North Dakota badlands. MS thesis, University of North Dakota. 88 pp. Jensen, W. F. 1988. Summer and fall ecology of mule deer in the North Dakota badlands. PhD dissertation, University of North Dakota. 220 pp.; Jensen, W. F. 1992. Mule deer habitat use in the North Dakota badlands. *Prairie Naturalist* 24:97-108.”
- Reviewer: G-025-A2*
- Rating: 4 (Better Than Average)
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- Applicant*
“The principal investigator is very highly qualified to lead this study. The proposal could have been strengthened with more discussion and citations, particularly regarding similar studies of oil and gas impacts on ungulates, and a review of mule deer population dynamics specific to western North Dakota.”
- Reviewer: G-025-A3*
- Rating: 4 (Better Than Average)
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6. The project management plan, including a well-defined milestone chart, schedule, financial plan, and plan for communications among the investigators and subcontractors, if any, is:
- “We suggest 6-month reports on the status of the work being conducted with respect to the time table (not findings), i.e., were the target number of animals actually collared, were other identified project tasks achieved. Regular communication with the Commission must be built into the project beyond the annual reports and the final report. As previously stated, the budget for the project appears low.”**
- Reviewer: G-025-A1*
- Rating: 2 (Inadequate)
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- Applicant*
“Management plan is well-stated.”
- Reviewer: G-025-A2*
- Rating: 4 (Very Good)
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- Applicant*
“The proposal would have been better served with a more thorough discussion of the role of NDGF personnel and use of their equipment. However, the project management plan, schedule and budget all appear to be adequate for this study to go forward successfully.”
- Reviewer: G-025-A3*
- Rating: 3 (Adequate)
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- Applicant*
7. The proposed purchase of equipment and the facilities available is:
- “We are pleased to note that the equipment proposed for use is state-of-the-art and the best available at this time. However, the service to be used to transmit telemetry data is not identified nor is the statistician, both of which are important factors. ”**
- Reviewer: G-025-A1*
- Rating: 4 (Well Justified)
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- Applicant*
“Equipment, facilities, etc. are absolutely required for this research.”
- Reviewer: G-025-A2*
- Rating: 5 (Extremely Well Justified)
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- Applicant*
“The proposal includes a very good justification for purchase/use of GPS radio-tags, which, while being initially expensive, will save money in the long-term and provide significantly greater data than other methods. Given the initial effort to capture and collar 90 deer, a higher cost for helicopter useage would have been expected in the first year of the study.”
- Reviewer: G-025-A3*
- Rating: 4 (Well Justified)
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- Applicant*

8. The proposed budget “value”¹ relative to the outlined work and the commitment from other sources is of:
- “The value of the proposed work is recognized provided it is scientifically based and without bias. See above comments”**
- Reviewer: G-025-A1*
- Rating: 3 (Average Value)*
- “”
- Applicant*
- “Accomplishment of the proposed research through non-university sources would be very unlikely for the proposed cost. Logistic and personnel support from cooperating agencies will also be essential to meet the research goals.”**
- Reviewer: G-025-A2*
- Rating: 4 (High Value)*
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- Applicant*
- “The proposal would have been better served with a more thorough discussion of the NDGF commitment to the project.”**
- Reviewer: G-025-A3*
- Rating: 3 (Average Value)*
- “”
- Applicant*
9. The “financial commitment”² from other sources in terms of “match funding” have been identified:
- “Per our discussion, this is ranked of average value.”**
- Reviewer: G-025-A1*
- Rating: 3 (Average Value)*
- “”
- Applicant*
- “In my experience, North Dakota Game and Fish Department support (vehicles, facilities, personnel) have always proved invaluable to this type of research.”**
- Reviewer: G-025-A2*
- Rating: 5 (Very High Value)*
- “”
- Applicant*
- “”
- Reviewer: G-025-A3*
- Rating: 3 (Average Value)*
- “”
- Applicant*

General Comments

“Overall, the proposed study could provide benefit to both wildlife and the oil and gas industry provided the findings are used to work with the oil and gas industry as a means to develop appropriate mitigation measures for exploration and development activities. We strongly recommend that consideration be given to the work that was completed in southern Wyoming. (<http://www.west-inc.com/biggamereports.html>)

We also urge that an innovative approach to determining appropriate mitigation be used. For example, we recognize that the ND Game and Fish Department collects big game hunting revenue. Placing severe restrictions on oil and gas activities, which also provide the state with sizeable revenue through tax and royalty payments, would be counter-productive in the long run. We believe a reasonable approach is possible.”

- Reviewer: G-025-A1

“The potential impact of oil and gas development on wildlife populations in North Dakota is significant, and research is needed to ascertain its nature, along with any needed mitigation. I strongly support the proposed study, with the following qualifications:

- a) I wonder if the stated time frame will be sufficient to draw definitive conclusions. Perhaps subsequent supplemental monitoring may be in order.
- b) The investigator should review prior work on mule deer and energy development in the badlands. There has been comparable North Dakota research on bighorn sheep as well. The Game and Fish Department should be able to provide the appropriate documents.”

- Reviewer: G-025-A2

“Overall: The data sought in this proposal is greatly needed. The proposal is well thought out, will be carried out by a highly qualified primary investigator, uses the latest in well-recognized techniques and methodology, and is fully expected to yield significant results that will directly meet OGCR goals. I fully recommend funding for this proposal.”

- Reviewer: G-025-A3

1 “value” – The value of the projected work and technical outcome for the budgeted amount of the project, based on your estimate of what the work might cost in research settings with which you are familiar. A commitment of support from industry partners equates to a higher value.

2 “financial commitment” from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Support less than 50% from Industrial Commission sources should be evaluated as favorable to the application; industry partnerships equates to increased favorability.