Supporting Statement B for
Paperwork Reduction Act Submission

Survey of Rancher Opinions about
Wildlife and Jaguar Habitat Management
OMB Control Number 1018-XXXX

1. **Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample must be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection has been conducted previously, include the actual response rate achieved.**

This is a one-time data collection. The universe of respondents is approximately 325 and is defined as all active ranchers in the portions of southern Arizona and southwestern New Mexico that contain jaguar habitat (including critical habitat). Generally, this includes the area bordered by the Baboquivari Mountains to the west, Interstate-10 to the north, and the Animas Mountains to the east. The information collection will be conducted as a census of all ranchers in the study area; therefore, no sampling methods will be used.

Contact information is readily available from a number of different sources. We compiled a comprehensive list of all ranchers in the study area using Bureau of Land Management and U.S. Forest Service grazing allotment information (nearly all ranchers in the study region rely on a Federal grazing allotment), county tax assessors' data, and membership lists from various associations and organizations representing the ranching community. These sources were cross-referenced to identify gaps and eliminate duplicates, resulting in a final sample population of approximately 325. This information collection is a census of all ranchers in the study area.

Because this is a new information collection, we do not have direct estimates of response rates for this survey. However, past surveys of ranchers in the study area on different topics have yielded response rates of 61% (Conley et al. 2007) and 73% (Fernandez-Gimenez et al. 2005). We expect a response rate of approximately 70%. Based on the response rates from cited surveys, we have no reason to expect significant nonresponse or nonresponse bias.

2. **Describe the procedures for the collection of information including:**
   - *** Statistical methodology for stratification and sample selection,**
   - *** Estimation procedure,**
   - *** Degree of accuracy needed for the purpose described in the justification,**
   - *** Unusual problems requiring specialized sampling procedures, and**
   - *** Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

The survey is designed to follow a progressive structure, beginning with general questions about the rancher's operations and attitudes toward wildlife management generally, then attitudes about jaguar habitat, jaguar critical habitat designation, payments for ecosystem services programs to promote jaguar habitat management, and finally jaguar depredation issues. This order was selected to limit biasing of questions about wildlife habitat management and jaguar habitat management with issues related to critical habitat and the Endangered Species Act. Our overall hypothesis is that concerns about the regulatory implications of critical

habitat designation negatively skews ranchers' opinions about promoting jaguar habitat on their ranches.

The majority of the survey consists of closed-ended questions to simplify statistical analysis of the results. We will use standard parametric and nonparametric statistical approaches to analyze survey data as appropriate. We include a basic set of demographics questions to allow for testing on the impacts of a number of potential response variables (e.g., willingness to participate in a payments for ecosystem services program, current and planned participation in wildlife/jaguar habitat management, etc.) on demographics-based explanatory variables (e.g., age, years ranching, education, percent income from ranching, etc.). We will also test to determine if there are differences in the groups that elected to respond to the survey online versus by mail, and differences between ranchers located within, adjacent to, or outside of the proposed critical habitat units. We will use standard statistical measures of significance for social science research. Results with a $p < .05$ (95% confidence) will be considered statistically significant. Results with a $p < .1$ (90% confidence) may be reported with qualification that a less rigorous standard of statistical significance was applied. We will report confidence intervals, regression coefficients, standard errors, estimated standard deviation, r-squared, adjusted r-squared, etc., as appropriate for each statistical test utilized.

To protect ranchers' privacy, we will use names and addresses compiled for this project only for the purposes of this project: this information collection, distribution of educational materials resulting from analysis of the survey results and other components of the project, and invitations to educational workshops that will draw on the results of the survey.

Survey methodology will follow Dillman et .al. (2009) for internet, mail, and mixed mode surveys. Respondents will receive a series of mailings in order to maximize response rates, including an introduction letter to the survey; a notification postcard; a mailing with the survey and a stamped, addressed envelope; and up to two reminder mailings. All respondents will receive the introduction letter, the postcard, and the first mailing. Nonrespondents will receive a second mailing with a survey reminder and a replacement survey form. A third mailing of a reminder and a replacement survey will be sent to nonrespondents. In all mailings, ranchers will be encouraged to respond by mail or online, according to their preference. All respondents will receive a thank you letter.

3. Describe methods to maximize response rates and to deal with issues of nonresponse. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

We will use the Tailored Design Method (Dillman et.al. 2009) to maximize response to this information collection. The Tailored Design Method is a comprehensive survey methodology that provides guidelines for all aspects of development, design, and implementation of a survey. This method has been shown to maximize response and minimize non-response bias.

We will use several waves of mailings of surveys and thank you letters to maximize response. The University of Arizona, a trusted entity in the study region, will distribute the survey. The University of Arizona Cooperative Extension will also help promote the survey through extension agents and specialists. The researchers conducting the survey are known to the ranching community and have been talking with the community for the past year about this project to increase trust and willingness to complete the survey. Response rates are higher for surveys sponsored by a trusted entity. The survey and accompanying materials will also have a pleasing, professional layout and design and cover letter language emphasizing the importance of the survey. We will treat the respondents with respect, acknowledging their knowledge and

expertise and requesting their assistance in learning about the topics covered by the survey. Finally, all respondents will be invited to workshops that will focus on the results of survey and respond to the issues and questions raised in the responses we receive.

We will address potential non-response bias through modified double sampling (Groves 2004) and by weighting responses as needed. Double sampling involves comparing the initial group of responses received to the first mailing of the survey with responses received from the second or subsequent mailings (refusals converted to responses), with the assumption that non-respondents share similar characteristics. We will analyze respondents and initial refusals for statistically significant differences in responses (Groves 2004 and OMB 2006). Second, we will compare the number of responses from ranches inside and outside jaguar critical habitat areas with the expected proportion of responses from ranches in these areas. If there are significant differences in expected proportion of responses, we may weight responses to account for differences.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.

The survey was tested with members of the University of Arizona School of Natural Resources and the Environment faculty, the University of Arizona Cooperative Extension faculty, and professional employees of the Udall Center for Studies in Public Policy. Test subjects provided feedback on the survey instructions, wording and structure of the questions, and the length of the survey. Questions were edited to simplify the language and shorten the overall length of the survey.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

The following individuals will be responsible for the collection and analysis of the information on behalf of the U.S. Fish and Wildlife Service:

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Others consulted on statistical aspects of survey design:

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