

Supporting Statement
Study of Human Behavior and Attitudes Linked to Human-Deer Transmission of SARS-
CoV-2
OMB Control Number 0579-XXXX

Part B

B. Collections of Information Employing Statistical Methods

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 are to 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 had been conducted previously, include the actual response rate achieved during the last collection.

The potential respondent universe for the Study of Human Behavior and Attitudes Linked to Human-Deer Transmission of SARS-CoV-2 are community members whose primary residence is within the states of Minnesota, Pennsylvania, New York, Illinois, and Tennessee, with the goal of obtaining up to 3,000 completed responses from each state.

Community households will be sampled using a multi-stage cluster sampling approach. The study sites will be chosen to represent a gradient of population density, land type, and spatial location across white-tailed deer (WTD) range at each site. Doing so will allow us to cover households in the state that live in close proximity to WTD populations, as well as open-space or natural areas. Site boundaries will also be informed by natural features, county lines, human features, and other factors deemed relevant.

Within each site boundary, all census tracts included in the boundary will be identified. The number of single-family residences located in each census block and the proportion of the total number of single-family homes located in each census block will be calculated. A proportional number of households per each census block that is numerically representative of the proportion of residences located in the entire study site will be randomly sampled. A total of 12,000 housing units will be randomly sampled across each of the 5 study sites.

Contact information for community members, including named and mailing addresses, will be obtained from a third-party data provider. Researchers at each site will verify the addresses after receiving the mailing lists.

Animal and Plant Health Inspection Service (APHIS) has established a cooperative agreement with the University of Minnesota to administer the Interactions with Deer Questionnaire to respondents who meet these criteria with an expected response rate of 25% or higher for a total of 15,000 responses.

2. Describe the procedures for the collection of information including:

Statistical methodology for stratification and sample selection:

The University of Minnesota is expected to administer the Interactions with Deer Questionnaire to approximately 60,000 potential respondents. Their goal is to obtain up to 3,000 completed responses from members of the public from each state (Minnesota, Pennsylvania, New York, Illinois, and Tennessee). Respondents will receive the Interactions with Deer Questionnaire during Summer 2025.

Estimation procedure:

The Study of Human Behavior and Attitudes Linked to Human-Deer Transmission of SARS-CoV-2 will be conducted using online and paper questionnaires. A sample of consenting respondents will be recruited from the target audience and asked to respond to questions regarding their experience, knowledge, and beliefs about interacting with WTD.

Degree of precision needed for the purpose described in the justification:

The study goals are to produce peer-review publications using descriptive statistics, significance testing, correlations, and regression analysis. Confirmatory factor analysis will be conducted on proposed latent constructs and structural equation modeling will be used to analyze relationships between constructs (Bowen and Guo, 2011; Brown and Moore, 2009). Based on these statistical calculations and tests, findings will be able to be summarized for members of the public for each of the 5 states (Minnesota, Pennsylvania, New York, Illinois, and Tennessee).

Unusual problems requiring specialized sampling procedures and data collection cycles:

There are no unusual problems requiring specialized sampling procedures and data collection cycles.

Any use of periodic (less frequent than annual) data collection cycles to reduce burden:

The data collection described is not planned to be carried out on an annual or less than annual frequency basis.

3. Describe methods to maximize response rates and to deal with issues of non-response. 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.

Questionnaire Design:

1. The study minimizes collection of data to that which is necessary to meet the stated objectives. The questionnaire was extensively reviewed by experts both in industry and in academia.
2. Study collaborators have made numerous contacts and have been involved in collaborative efforts to identify the information needs of the industry and the best way to encourage participation in the information collection via survey.
3. Skip logic is used in the questionnaire to guide respondents to sections relative to their knowledge and avoid sections that would not be applicable or meaningful for the respondent.
4. Respondents will receive \$20 to accelerate recruitment, maximize response rates, decrease the overall survey implementation cost, and to compensate respondents for their time.

Contacting Respondents:

The University of Minnesota will mail the Interactions with Deer Questionnaire invitation to approximately 60,000 potential respondents.

1. For the first round of community member contact, a personalized letter will be sent to each household. The letter will explain that the survey, the goals, and contain a QR code to allow individuals to complete an online version of the survey.
2. Approximately 1 week after the initial contact letters are sent to the respondent pool, a packet containing a paper version of the survey will be sent to potential respondents that have not yet responded to the online version of the survey.
3. Approximately 1 week after 2nd round envelopes are sent to the respondent pool, a packet containing a paper version of the survey will be sent to potential respondents that have not yet responded to the online or paper version of the survey.
4. In addition to the survey mailing, survey responses will be elicited using in-person contact at study sites, including visitor centers, nature centers, trail heads, or other central locations. Enumerators will use iPads or similar equipment that are preloaded with the online survey.

The University of Minnesota's goal to obtain up to 3,000 completed responses from members of the public from each state (Minnesota, Pennsylvania, New York, Illinois, and Tennessee). Potential respondents will receive the Interactions with Deer Questionnaire invitation during Summer 2025.

Nonresponse adjustment:

A shortened nonresponse follow-up questionnaire will be mailed to potential respondents that have not yet responded to any version of the survey. The University of Minnesota will compare those who complete the nonresponse survey to respondents of the original survey using a t-test. If there are no differences in responses to key survey questions between original and late responders, there is no apparent evidence of nonresponse bias. If differences are found, however, those differences will be described, and limitations will be noted.

Weight adjustment:

If necessary, the University of Minnesota will apply weights to the data based on community demographics by state. Public demographics will be obtained through the US Census Bureau's Information for Respondents.

Sampling and design strategies:

No additional sampling strategies will be applied.

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 University of Minnesota pretested the questionnaire with fewer than 10 respondents from members of the public and used the results of the pretest to refine the questionnaire to reduce respondent burden and improve the accuracy and usefulness of the information. The final questionnaire has been reviewed by conservation social and human dimensions scientists at the University of Minnesota and the University of Tennessee Knoxville, and at the Minnesota Department of Natural Resources.

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 survey design and methodology as well as statistical aspects of the design were coordinated by:

- Dr. Kyle Smith, Research Scientist, College of Biological Sciences, University of Minnesota, Minneapolis, MN (612-625-5256).
- Dr. David Fulton, Professor, College of Food, Agricultural and Natural Resource Sciences, University of Minnesota, Minneapolis, MN (612-625-5256).

Contact person for data collection is:

- Dr. Kyle Smith, Research Scientist, College of Biological Sciences, University of Minnesota, Minneapolis, MN (612-625-5256).

Analysis of the data will be accomplished under the direction of:

- Dr. Kyle Smith, Research Scientist, College of Biological Sciences, University of Minnesota, Minneapolis, MN (612-625-5256).

References:

Bowen, N. K., & Guo, S. (2011). *Structural equation modeling*. Oxford University Press.

Brown, T. A., & Moore, M. T. (2012). Confirmatory factor analysis. *Handbook of structural equation modeling*, 361, 379.