

STATE REPORT FOR ARIZONA
From the Research Project Entitled
UNDERSTANDING PEOPLE IN PLACES



A Project of the Western Association of Fish and Wildlife Agencies

**Produced by the Department of Human Dimensions of Natural Resources
Colorado State University**

In cooperation with the Arizona Game and Fish Department

FINAL REPORT

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Report Authors

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EXECUTIVE SUMMARY

This report documents the results of a study assessing the attitudes and beliefs of residents living in Tucson, Arizona, toward the place where they live, wildlife (including the wildlife near their homes), and management actions aimed at alleviating conflict with javelinas, coyotes, bobcats, and mountain lions. Findings are part of the larger research program entitled *Understanding People in Places*, a multi-state study designed to demonstrate the utility of geographically-tied human dimensions information for fish and wildlife management, and to introduce and test a spatially-explicit approach to depicting such data.

Data were collected using a self-administered survey delivered door-to-door to residents in Tucson, Arizona beginning October 2008 and continuing through January 2009. Sampling was stratified by census block group, and by urban core and urban fringe designations, to allow for generalizations at localized levels in addition to the overall study area. A total of 3,493 surveys were returned, resulting in a 57.8% response rate for the door-to-door approach. A short, oral nonresponse survey was administered during the door-to-door approach for those choosing not to take the full paper survey, and tests for differences between respondents to the paper survey and those completing the nonresponse survey were conducted. Demographic comparisons between respondent data and U.S. census information were additionally conducted to determine if the sample was adequately representative of the diversity of residents living in the Tucson study area. Based on these tests and comparisons, data were weighted by gender to adjust, as necessary, for any overrepresentation of males or females that may have occurred within the census block groups so that data reflect the true gender distribution. For reporting at the aggregate study-area level, data were also weighted to reflect the true proportions of the population living in the urban core and urban fringe.

Key findings include:

- *People hold a diversity of wildlife value orientations in Tucson.*

The four wildlife value orientation types identified through previous research include Utilitarian, Mutualist, Pluralist, and Distanced. Utilitarians believe that wildlife should be used and managed primarily for human benefit and are more likely to prioritize human well-being over wildlife in their attitudes and behaviors. They are also more likely to find justification for treatment of wildlife in utilitarian terms and to rate actions (e.g., hunting, lethal removal) that result in death or harm to wildlife as acceptable. Mutualists view wildlife as capable of living in relationships of trust with humans, as if part of an extended family, and as deserving of rights and care. They are less likely to support actions resulting in death or harm to wildlife and more likely to engage in perceived welfare-enhancing behaviors for individual wildlife (e.g., feeding). Pluralists hold both utilitarian and mutualism wildlife value orientations, and the situation or context determines which orientation plays a role in their thinking. Distanced individuals do not have a well-formed value orientation toward wildlife, and they tend to be less interested in wildlife and wildlife-related issues. The distribution of these wildlife value orientation types in the Tucson area is as follows: 40.1% Mutualist, 25.3% Pluralist, 21.9% Utilitarian, and 12.7% Distanced.

- *Comparing the results of attitudes toward wildlife-related issues in Tucson by wildlife value orientation type and by geographic location enhances understanding of the diversity of public opinions.*

Comparisons among the value orientation types on key variables of interest to this study allowed for a more thorough understanding of the diversity of public opinions on wildlife-related issues in Tucson. While the Arizona Game and Fish Department (AZGFD) can target certain geographic areas (e.g., census block groups) in its communication and outreach efforts, it is more difficult for the agency to target specific wildlife value orientation types; however, by knowing the composition of wildlife value orientation types within an area, the agency is in a better position to anticipate how people there will respond to management decisions, as public attitudes toward wildlife-related issues are often rooted in more fundamental beliefs, including wildlife value orientations. As an illustration, Mutualists were less accepting than Utilitarians of lethal control as a management response to different human-wildlife interactions investigated in this effort. Findings as a whole suggest that locations where a greater number of Mutualists live will have greater resistance to traditional forms of management such as lethal control. Furthermore, we would expect increased conflict among people in places with a mix of opposing value orientations (e.g., 50% Utilitarians, 50% Mutualists). By collecting and analyzing data at the census block group level, conclusions could be made about where AZGFD can anticipate higher levels of social conflict regarding management of wildlife in the form of mixed public sentiment or resistance to proposed management strategies. These are areas where the agency may consider targeting additional outreach and communication initiatives to reduce potential controversy over management decisions. When coupled with biological data (e.g., species distributions, conflict incidents), findings offer a useful tool for addressing wildlife-related issues and communicating with the public at more local levels.

- *Tucson residents have a multitude of views related to nature. However, residents primarily perceive nature as being accessible/inviting and in need of protection. Findings provide information useful in gauging people's thoughts on how the natural world, including wildlife, should be managed.*

Tucson residents overwhelmingly found nature to be accessible/inviting (91.6%) and in need of protection (88.3%). Many residents also believed nature was limited/scarce (78.8%) and fragile (63.8%). A little less than half of residents thought nature was unpredictable/chaotic (47.7%). Mutualists had the largest percentages of individuals viewing nature as fragile, limited/scarce, and in need of protection, suggesting that, of the value orientation types, Mutualists would be more likely to want nature, and therefore wildlife, to be protected. Residents in both the urban core and urban fringe viewed nature as accessible/inviting, in need of protection, and limited/scarce, indicating that Tucson residents, in general, are likely to prefer management actions that cause little or no harm to wildlife.

- *Residents primarily perceive the area near their homes to be safe, beautiful/attractive, and unique.*

Residents largely considered the area near their homes to be safe (80.4%), beautiful/attractive (75.9%), and unique (53.7%), which suggests that many Tucson residents feel connected to the area near their homes. Residents with such beliefs may be more likely to participate in

outdoor activities near their residences and want those areas to be managed in such a way that maintains or promotes its perceived splendor. Distanced individuals were least likely of the value orientation types to view the area near their homes as safe, while Mutualists were more likely than the other types to view the area near their homes as unique. More residents in the urban fringe found the area near their homes to be beautiful (94.2%), safe (89.4%), and unique (77.7%) than did residents in the urban core (68.6%, 76.8%, and 44.2%, respectively), suggesting that urban fringe residents may be more attached than urban core residents to the areas in which they live.

- *Rates of participation in outdoor activities are high in Tucson.*

The majority (68.6%) of Tucson residents reported frequent participation in outdoor recreation near their homes. Of the four value orientation types, Distanced individuals reported the lowest rates of participation (57.2%) and Pluralists reported the highest (72.9%). More residents living in the urban fringe participated in outdoor activities around their residences than did residents living in the urban core (77.8% vs. 65.1%, respectively). This finding is consistent with the fact that residents living in the urban fringe are physically closer to large tracts of open space and protected areas (e.g., Sabino Canyon, Saguaro National Park, Coronado National Forest, Catalina State Park) in which people can participate in outdoor activities.

- *Almost half of Tucson residents believe that climate change is currently affecting the area near their homes. Local-level results serve to highlight areas where beliefs about climate change impacts are prevalent and other areas where residents do not believe localized effects are occurring.*

More residents agreed that climate change is currently affecting the area near their homes than those who did not agree (49.1% vs. 30.4%, respectively). Some residents (20.5%) neither agreed nor disagreed on this topic. Utilitarians had a majority of individuals disagreeing that climate change was currently affecting their local areas, while both Pluralists and Mutualists had a majority of residents agreeing. Beliefs about climate change affecting the local area did not differ between residents living in the urban fringe and residents living in the urban core, suggesting that other factors are likely influencing beliefs about climate change impacts.

- *Residents considered the wildlife near their homes as enjoyable to have there, and to a lesser degree, that wildlife were valuable opportunities for recreation. However, some residents also felt that wildlife were dangerous or a nuisance around their homes.*

Many residents indicated that they consider the wildlife near their homes as enjoyable to have around (78.8%), while others viewed wildlife near their homes as providing valuable opportunities for recreation (44.2%). Some residents felt that the wildlife in their area were dangerous (22.1%) or a nuisance (13.2%). Forty-three percent of all residents indicated they rarely observe wildlife near their homes. Mutualists and Pluralists reported the largest percentages of individuals who thought wildlife were enjoyable to have near their homes, and Mutualists further reported the lowest percentages of those who thought wildlife were a nuisance. Distanced individuals were less likely than the other types to believe that wildlife in their areas provide valuable opportunities for recreation. Urban core residents were much more likely than urban fringe residents to indicate that they rarely see wildlife near their

homes, and urban fringe residents were more likely to believe that wildlife were enjoyable to have around their homes.

- *Residents see a variety of wildlife near their homes, with coyotes and other types of wildlife being observed more often than javelinas, bobcats, and mountain lions. Knowing where residents are likely to see wildlife, and how often, can help to pinpoint locations where coexistence or conflict between humans and wildlife is likely to occur.*

Many Tucson residents reported that they have occasionally or often observed coyotes near their homes (74.9%), while fewer residents had seen javelinas (49.2%), bobcats (26.7%) or mountain lions (5.7%). A majority of residents also reported having seen other types of wildlife not listed on the survey (73.5%). Utilitarians were more likely than the other value types to report having personally observed coyotes, while Distanced individuals were least likely of the value types to report having observed other types of wildlife. A majority of residents in the urban fringe reported that they have observed coyotes, bobcats, javelinas, and other wildlife near their homes, while a majority of urban core residents indicated they have observed only coyotes and other wildlife. Twelve percent of urban fringe residents indicated they observed mountain lions near their homes, while only 3% of urban core residents reported the same.

- *Most residents living in Tucson have not experienced wildlife-related problems near their homes. The residents who have experienced problems with wildlife most often reported javelinas and coyotes as the species involved. Certain areas in Tucson (e.g., the urban fringe) are more likely to experience wildlife-related problems – these human-wildlife conflict “hotspots” are areas that AZGFD may want to target in future management and public outreach efforts aimed at reducing the occurrence of conflict incidents.*

Approximately 18% of residents reported that they had experienced problems during the previous year with javelinas and wildlife species other than those listed on the survey, while 10.4% reported having had problems with coyotes. Very few residents reported having problems with bobcats (3.3%) or mountain lions (1.6%). Of the four wildlife value orientation types, Distanced individuals were more likely to report having experienced conflict with bobcats, and Utilitarians were more likely to report having experienced problems with javelinas and other types of wildlife. Urban fringe residents were more likely to report javelinas as causing problems than any other species listed on the survey.

- *Lethal control of wildlife is more acceptable to residents when used to address increasingly severe incidents of human-wildlife conflict and less acceptable in relatively benign human-wildlife interactions. Tucson residents’ levels of acceptability for lethal control were higher when used in response to incidents with mountain lions than incidents with javelinas or coyotes/bobcats.*

Some residents found lethal removal of javelinas (20.0%), coyotes/bobcats (22.6%), and mountain lions to be acceptable (34.9%) when the animal has been observed near the home. However, lethal control was much more acceptable to Tucson residents when applied to address wildlife that have attacked pets or humans, or have diseases that are potentially transmittable to humans. Consensus among residents over the acceptability of lethal removal was lowest for nuisance interactions (e.g., the animal is getting into trash or pet food),

suggesting that the use of lethal control in this scenario is likely to be contentious throughout the study area. Mutualists, in general, were less accepting than the other value types of lethal control for javelinas, coyotes/bobcats, or mountain lions in each scenario investigated, while Utilitarians were, in general, more accepting of lethal control. Acceptance of lethal control was also higher in the urban core in instances where wildlife are observed or getting into trash/pet food containers than acceptance was when these two situations occur in the urban fringe. This result may be explained by the urban core generally being densely populated by humans and therefore less suitable for wildlife, and residents may not expect to see wildlife in these places and demand quick action from the agency in response to wildlife there. The percents of residents in both the urban core and fringe who found lethal control of coyotes/bobcats, javelinas, or mountain lions to be acceptable were relatively similar when an animal has a transmittable disease or has attacked a pet or human; in these situations, acceptance of lethal control was high.

This summary serves only as a high-level overview of findings for the sake of providing a sense of general conclusions to the broader study area. Detailed information, available for comparison by the census block groups that were sampled, wildlife value orientation types, and demographic characteristics, is provided in the corresponding project report. Furthermore, *predictions* of responses to survey items (extrapolations of data collected in sampled census block groups to all census block groups within the Tucson study area) are geographically depicted and discussed within the body of this report.

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SECTION I. INTRODUCTION AND OVERVIEW

This report is one of a series from a research project entitled *Understanding People in Places*. The research project was a collaboration of the Western Association of Fish and Wildlife Agencies (WAFWA) Human Dimensions Committee with Colorado State University (CSU) and four WAFWA-member state fish and wildlife agencies (Arizona Game and Fish Department; Montana Fish, Wildlife, and Parks; South Dakota Game, Fish and Parks; and Washington Department of Fish and Wildlife). The overall purpose of this study was to demonstrate the utility of geographically-tied human dimensions information for fish and wildlife management, and to introduce and test a spatially-explicit approach to depicting such data.

Understanding People in Places is a unique research program that addresses both state and region-specific issues of concern related to fish and wildlife management through the use of a geographically-specific approach. Data were collected in such a way as to allow each participating state agency to assess its publics' responses to state-specific issues at finer degrees of resolution (e.g., region, county, or census block group level) and compare similar item sets across participating states. The focus of this report is to provide results specific to residents living within Tucson, Arizona. Specific issues of interest identified by Arizona Game and Fish Department (AZGFD) staff as important to examine in this effort include management (in the form of lethal control) of coyotes, bobcats, javelinas, and mountain lions.

An important emphasis of the *Understanding People in Places* project is to provide information that can be used to understand and address human-wildlife conflict issues at local levels. The adaptability of humans to wildlife (and vice versa) in conflict situations depends on people's knowledge, attitudes, and values. Certainly, experience plays an important role in this relationship; by living at a particular location over time, and through trial and error, residents will presumably find ways to prevent or reduce the severity of conflict situations. An examination of the dynamic processes of human-wildlife interactions can benefit from an understanding of different segments of the broader population of Tucson residents. Knowing how different population subgroups (e.g., groups defined by their demographics and value orientations) are distributed across the landscape and at various geographic scales (e.g., census block group) will be a very important tool for managers in attempting to plan for and address human-wildlife conflict at more local levels. Additionally, the success of specific management actions depends on the level of public support for such actions as well as their impacts on local communities. Information about public reactions to potential management strategies can be useful for anticipating and addressing the *social* conflict that can arise with local implementation of these strategies. With these considerations in mind, results are presented in this report in descriptive form and using maps that depict the *predicted* distribution of public sentiment regarding wildlife and wildlife-related issues throughout Tucson.

A. STUDY OBJECTIVES

This report offers findings from the *Understanding People in Places* project for Tucson, Arizona. In addition to overall study goals, each participating state agency had unique study objectives which address state-specific management issues of interest. Consistent objectives

across the multi-state project include Objectives 1-5 below, whereas Arizona-specific interests are outlined in Objective 6.

1. To develop an approach for collecting and displaying geographically-tied human dimensions of wildlife information.
2. To improve the use of human dimensions data by integrating additional sources of information (e.g., census data, habitat and species distribution overlays, reported conflict incidents) consistent with Objective 1.
3. To extend the applicability of the “wildlife value orientations” concept in a wildlife management context.
4. To understand people’s perceptions of nature and the area near their homes, including beliefs about local wildlife and experiences with wildlife-related problems.
5. To determine levels of participation in outdoor activities near the home.
6. To assess residents’ attitudes toward lethal control of the following species:
 - Coyotes and bobcats
 - Javelinas
 - Mountain lions

B. STUDY APPROACH

An important focus of this multi-state project is on improving the utility of human dimensions (HD) information for fish and wildlife management, as current HD approaches are typically limited in their application due to a lack of geographic specificity. HD information, or information about human values, attitudes, and behaviors, would be more useful if examined at more local levels, in the context of a specific community, or in the location of a particular resource problem. To address the need for information adequate in responding to localized wildlife-related issues in Tucson, Arizona, data were collected via a self-administered questionnaire delivered door-to-door to residents in 53 of 536 census block groups within the study area during the months of October, November, and December 2008, and January 2009. A total of 3,493 residents participated, resulting in an overall response rate of 57.8%. When reporting results at the region level for the entire sample of Tucson residents, assuming maximum possible variance on a dichotomous (i.e., two category) variable, the margin of error was $\pm 2\%$ at the 99% confidence level. For reporting at the census block group level, we targeted for a minimum of 68 completed surveys per census block group to achieve a margin of error within $\pm 10\%$ at the 90% confidence level. This level of confidence and associated margin of error are adequate for making generalizations about the public at the census block group level and for testing the utility of geographically-linked HD information; however, it is important to note that sample sizes in some census block groups were lower than our initial target, and results, in some cases (e.g., CBG 262, which had the largest margin of error), should not be interpreted with the same degree of accuracy as results from other locations in this report (Table I.B.1). These reported margins of error take into account that each census block group had a finite

population of households from which to sample. Margin of error estimates also take into account unweighted sample sizes, population sizes for the sampling unit of interest, and estimated populations sizes for the census block groups based on the proportions that the groups represent in the weighted sample.

Table I.B.1. Margin of error for census block groups (CBGs) in the Tucson, Arizona study area at the 90% confidence level.

Core CBGs	Sample Size	Margin of Error	Fringe CBGs	Sample Size	Margin of Error
18	99	7.9	15	109	7.2
166	68	9.2	16	84	8.3
200	63	9.4	20	82	8.7
223	47	11	21	29	14.8
231	61	9.9	23	79	9.1
262	11	23.6	37	94	7.7
270	49	11.5	49	49	9.9
274	59	9.6	62	85	8.5
283	29	14.3	68	54	9.6
313	80	8.3	72	70	9.2
315	19	18.1	74	109	7.3
319	91	8.1	94	100	7.4
332	41	11.8	98	95	7.7
343	39	12.8	109	80	7.7
354	34	13.2	139	96	7.4
364	80	8.8	142	76	8.6
369	24	15.2	158	72	9.2
385	59	10	261	89	7.9
402	41	11.3	335	34	12.8
427	31	13.9	344	107	7.4
430	107	7.2	454	81	8.2
431	54	10.4	476	75	9.3
442	72	9.3	501	81	8
447	74	9.1	503	22	16.2
456	84	8.1	504	36	12.4
517	45	11.5	536	61	9.6
540	62	9.9			

Note: Census block groups considered “core” were those having high human density (>922.6 people/km²), whereas those considered “fringe” had low human density (200-922.6 people/km²). See Appendix E for more details on the sampling approach.

The margin of error was within $\pm 5\%$ at the 95% confidence level for data reported by specific subgroups of interest (i.e., wildlife value orientation types) within the Tucson sample (Table I.B.2).

Table I.B.2. Margin of error for population subgroups at the 95% confidence level.

Population subgroups	Margin of Error
Wildlife value orientation type	
Utilitarian	$\pm 3.6\%$
Pluralist	$\pm 3.3\%$
Mutualist	$\pm 2.6\%$
Distanced	$\pm 4.7\%$

An extensive non-respondent survey was administered during the door-to-door approach, allowing for tests of differences between respondents to the paper survey and those completing the oral nonresponse survey. Results of these comparisons indicated only marginal variation between respondents and nonrespondents, except for a “small” to “moderate” effect found when comparing participation rates in outdoor activities. Respondents participated in outdoor activities near their homes more often than nonrespondents did (t -value = 10.35, p -value < .001, $\eta^2 = .198$). Data were also explored in relation to U.S. Census data and other independent sources of information (e.g., the National Survey on Fishing, Hunting, and Wildlife-Associated Recreation) to determine if weighting of data was necessary. Based on results of these comparisons, data were weighted by gender at the census block group level to account for the true proportion of males and females within each census block group. For reporting at the aggregate region-wide level, data were weighted to reflect the true proportions of the population living in the urban core and urban fringe (see Appendix E for more details on methods and weighting of data).

C. ORGANIZATION OF THE REPORT

Sections II and III identify particular ways in which Tucson residents can be characterized (e.g., wildlife value orientations, demographic characteristics) to further understand how specific population segments may respond to wildlife-related issues. Sections IV through VI present results related to the study objectives by each of the following categories:

- Region
- Urban core and urban fringe
- Wildlife value orientation
- Census block group

Throughout the report, the degree to which population subgroups (e.g., wildlife value orientation types) differ on responses to particular variables is discussed relative to the statistical significance as well as *practical* significance of findings. Effect sizes, an indicator of practical significance representing the strength of association among variables, are reported for this purpose, where .100 indicates a “small” effect, .243 indicates a “medium” effect, and .371 indicates a “large” effect (Cohen, 1988). Larger effect sizes denote a stronger relationship

between variables, or more meaningful differences among subgroups on variables of interest. This report concludes with a summary of pertinent findings and management implications. A list of cited references appears at the end of this document. Supporting tables for results presented throughout this report can be found in Appendices A-D. Detailed information on project methods and data weighting is reported in Appendix E. Appendix F provides a more thorough description of the wildlife value orientations concept discussed throughout this report. A copy of the self-administered survey instrument used during the door-to-door data collection effort is provided in Appendix G. Appendix H contains a copy of the nonresponse survey questions.

D. GUIDE FOR INTERPRETING THE MAPS

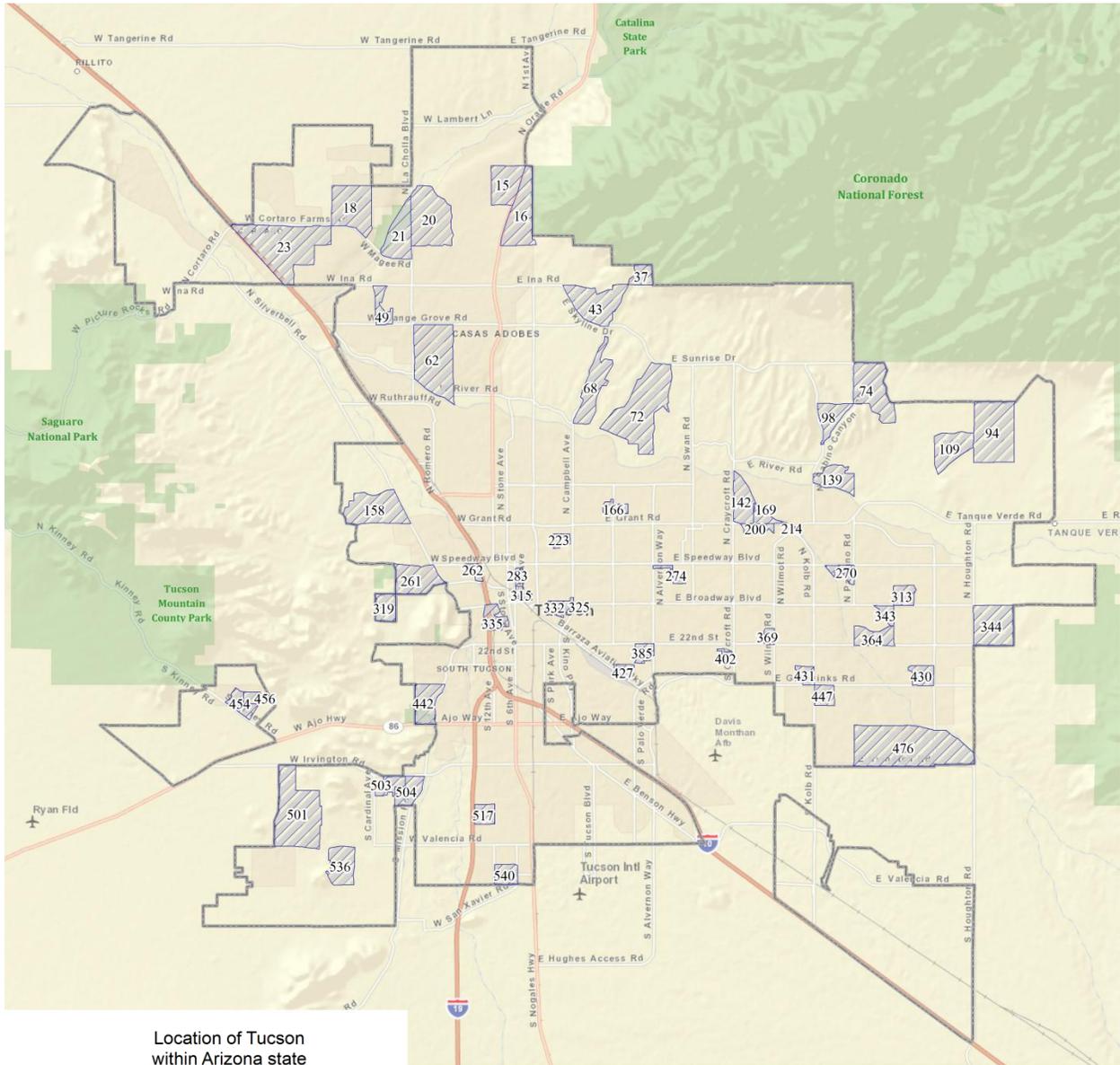
Maps used in this report offer a spatial display of findings at the census block group level to aid in understanding the distribution of and variation within public responses to wildlife-related issues throughout Tucson. It is critical to note that these findings are *predictions* of responses to survey measures based on four demographic variables (i.e., median age, median income, education level, and human density) obtained from U.S. Census (2000)¹. These demographic measures were used in linear regression models as independent variables² because they were expected to have reasonable impacts on the survey measures.

For detailed results from census block groups sampled during the door-to-door approach, see text within the report and corresponding tables contained within the Appendices. A map depicting the 53 census block groups that were sampled within the Tucson study area is provided in Figure I.D.1. *Data displayed in all other maps contained within this report are predictions only, and do not represent actual measured responses.*

¹ We recognize that many things have changed since 2000, including a significant economic recession beginning in 2008 that has had (and may still have) implications for many residents of Tucson. Although more recent data are available, our sampling design was based on census block group boundaries delineated by U.S. Census (2000) and on reported human density for those census block groups at that time. Due to changes in some census block group boundaries and human densities for those block groups in 2010, we used 2000 U.S. census data to predict responses for maps displayed within this report.

² Demographic variables were used, in unstandardized form, as they were provided by U.S. census (e.g., income was measured in dollars, education was measured in years) and variables were dropped from the regression model if they were not statistically significant predictors (i.e., dropped if $p > .05$). Furthermore, only models with an r value greater than .30, indicating a “moderate” or greater effect size (Cohen, 1988), are spatially-depicted with the use of maps in this report.

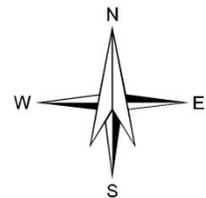
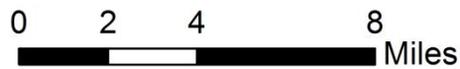
Figure I.D.1. Map of the Tucson study area.



Location of Tucson within Arizona state



- Surveyed block groups
- Study Area



SECTION II. WILDLIFE VALUE ORIENTATIONS

The purpose of this section is to explore the values and basic beliefs that Tucson residents hold concerning wildlife and wildlife management. A study conducted by CSU, in cooperation with WAFWA, entitled *Wildlife Values in the West* that was completed in 2005 serves as the foundation for results reported in this section. The primary objectives of the 2005 investigation, involving a survey of residents in 19 western states, were: (1) to describe the current array of public values toward wildlife and identify their distribution across states; (2) to segment publics on the basis of their values toward wildlife and understand their sociodemographic characteristics; and (3) to begin to understand how and why wildlife values are changing and determine the possible implications of a value shift for wildlife management.

Findings related to these objectives are documented in a report by Teel, Dayer, Manfredo, and Bright (2005). The 2005 report (along with subsequent publications, including Teel & Manfredo [2009]) additionally provides a thorough description of the history and utility of understanding wildlife values, the development of the concept of wildlife value orientations, and more information about Arizona's place in the regional distribution of public values toward wildlife. Additional background information, including the survey items used to measure Tucson residents' wildlife values, can be found in Appendix F of this report.

A. BRIEF OVERVIEW OF THE WILDLIFE VALUE ORIENTATION CONCEPT

The concept of wildlife value orientations has emerged as a way of capturing the diversity of values that people hold toward wildlife. Because wildlife value orientations provide a foundation for more specific cognitions like attitudes and behaviors, identification of wildlife value orientations allows for anticipation of how people will react to a host of wildlife-related topics. In addition, an examination of how wildlife value orientations are changing at a societal level and how they are distributed at various geographic scales can provide direction in planning for the future of wildlife management.

A useful way of summarizing information about wildlife value orientations is to identify different "types" of people on the basis of their orientations. Characterizing segments of the public in this manner allows for a better understanding of the diversity of public thought that exists as well as anticipation of how different groups of people will respond to proposed management strategies and programs. The *Wildlife Values in the West* study identified the following four population subgroups:

1. ***Utilitarian Wildlife Value Orientation Type.*** Utilitarians believe that wildlife should be used and managed primarily for human benefit. Individuals with a strong utilitarian orientation are more likely to prioritize human well-being over wildlife in their attitudes and behaviors. They are also more likely to find justification for treatment of wildlife in utilitarian terms and to rate actions (e.g., hunting, lethal removal) that result in death or harm to wildlife as acceptable.
2. ***Mutualist Wildlife Value Orientation Type.*** Mutualists view wildlife as capable of living in relationships of trust with humans, as if part of an extended family, and as deserving of rights and care. Those with a strong mutualism orientation are less likely to support actions

resulting in death or harm to wildlife and more likely to engage in perceived welfare-enhancing behaviors for individual wildlife (e.g., feeding).

3. ***Pluralist Wildlife Value Orientation Type.*** Pluralists hold both a mutualism and a utilitarian value orientation toward wildlife. The name for this group was taken from Tetlock's (1986) Value Pluralism Model, which describes how people can endorse values that have conflicting evaluative implications for specific issues. Drawing upon this model, the influence of the two value orientations is believed to be situationally-contingent, meaning that the role of a specific orientation can vary depending upon the given situation. For certain issues, Pluralists are likely to respond in a manner similar to that of Utilitarians, whereas for other issues they may behave more like Mutualists.
4. ***Distanced Wildlife Value Orientation Type.*** Distanced individuals do not hold either a mutualism or a utilitarian orientation. As their label suggests, they tend to be less interested in wildlife and wildlife-related issues. The Distanced group is also more likely than the other value orientation types to express fear, or a concern for safety, while in the outdoors due to the possibility of negative encounters with wildlife (e.g., risk of being attacked or contracting a disease).

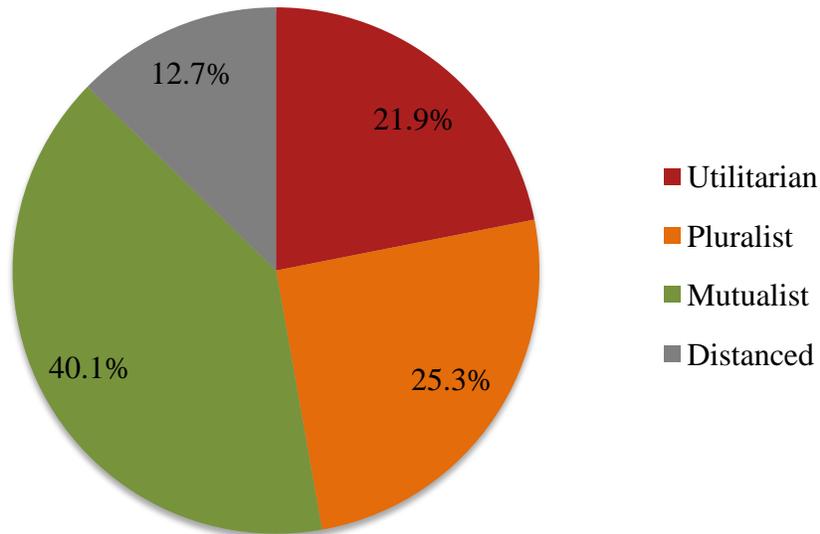
The *Wildlife Values in the West* study revealed that Utilitarians and Pluralists possess certain similar sociodemographic characteristics, which differ from those of Mutualists and Distanced individuals (Teel et al., 2005). Utilitarians and Pluralists, for example, were more likely than the other two value orientation types to be male and also were slightly older on average and had lived in their respective states for a longer period of time. The types were also found to differ in their responses to wildlife-related issues and participation in wildlife-related recreation (Teel et al., 2005). As an illustration, Mutualists and Distanced individuals were less likely to indicate past and current involvement in hunting and were also less likely than the other two groups to express an interest in participating in this activity in the future. Mutualists were more likely than the other value types to participate in wildlife viewing and to express an interest in future participation in this activity.

B. SEGMENTATION OF TUCSON RESIDENTS ON THE BASIS OF THEIR WILDLIFE VALUE ORIENTATIONS

The *Wildlife Values in the West* study classified residents in the 19-state region as follows: 34% Utilitarian, 20% Pluralist, 33% Mutualist, and 13% Distanced. Arizona state-specific results from the same study classified residents as 38.8% Utilitarian, 16.9% Pluralist, 34.0% Mutualist, and 10.3% Distanced. In comparison, the distribution of wildlife value orientation types in Tucson revealed by the current investigation (*Understanding People in Places*) is as follows: 21.9% Utilitarian, 25.3% Pluralist, 40.1% Mutualist, and 12.7% Distanced (Figure II.B.1). Results from the 2005 *Wildlife Values in the West* study are presented alongside current findings from the *Understanding People in Places* investigation in Figure II.B.2. Smaller percentages of Utilitarians and larger percentages of Mutualists, Pluralists, and Distanced individuals were

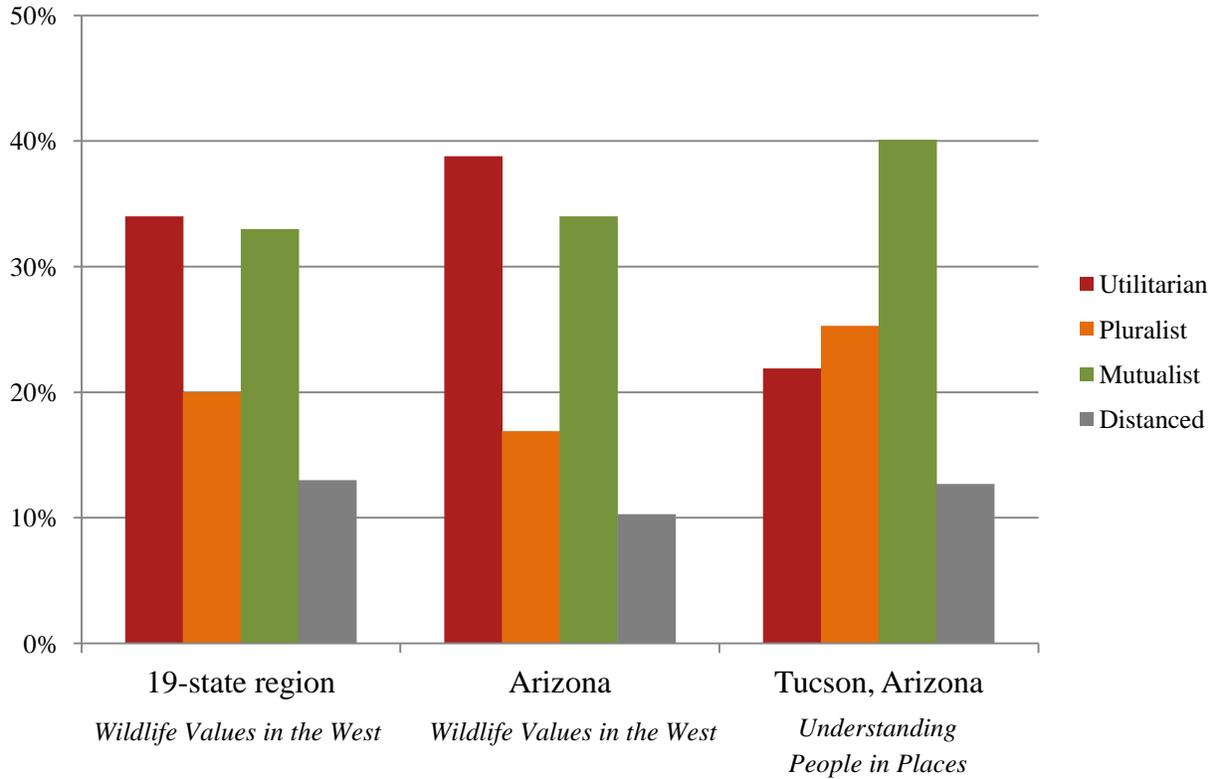
detected in the Tucson study area as compared to statewide findings from the *Wildlife Values in the West* project.¹

Figure II.B.1. Distribution of wildlife value orientation types in Tucson, Arizona from the current investigation, *Understanding People in Places*.



¹ Interpretation of findings from this comparison should be made with caution for a few reasons. First, the items used to measure wildlife value orientations differed somewhat between the two studies – a reduced set of items was extracted from the *Wildlife Values in the West* survey for use in the *Understanding People in Places* study. Second, the *Wildlife Values in the West* project used data that were weighted by demographic and lifestyle variables to adequately represent populations of interest in each participating state, whereas the current study made adjustments on the basis of gender at the census block group level, and population within each census block group at the region level.

Figure II.B.2. Distribution of wildlife value orientation types found by two different studies.



Results by urban core or fringe designation. Both the urban core and urban fringe had more Mutualists than any other value orientation type; however, there were more Utilitarians living in the urban core than living in the urban fringe (26.7% vs. 21.5%, respectively). The fewest number of residents were identified as Distanced, with similar percentages found in the urban core and fringe (12.8% and 12.7%, respectively, of residents were identified as Distanced).

Results by census block group. The *measured* percent of value orientation types across the census block groups ranged as follows:

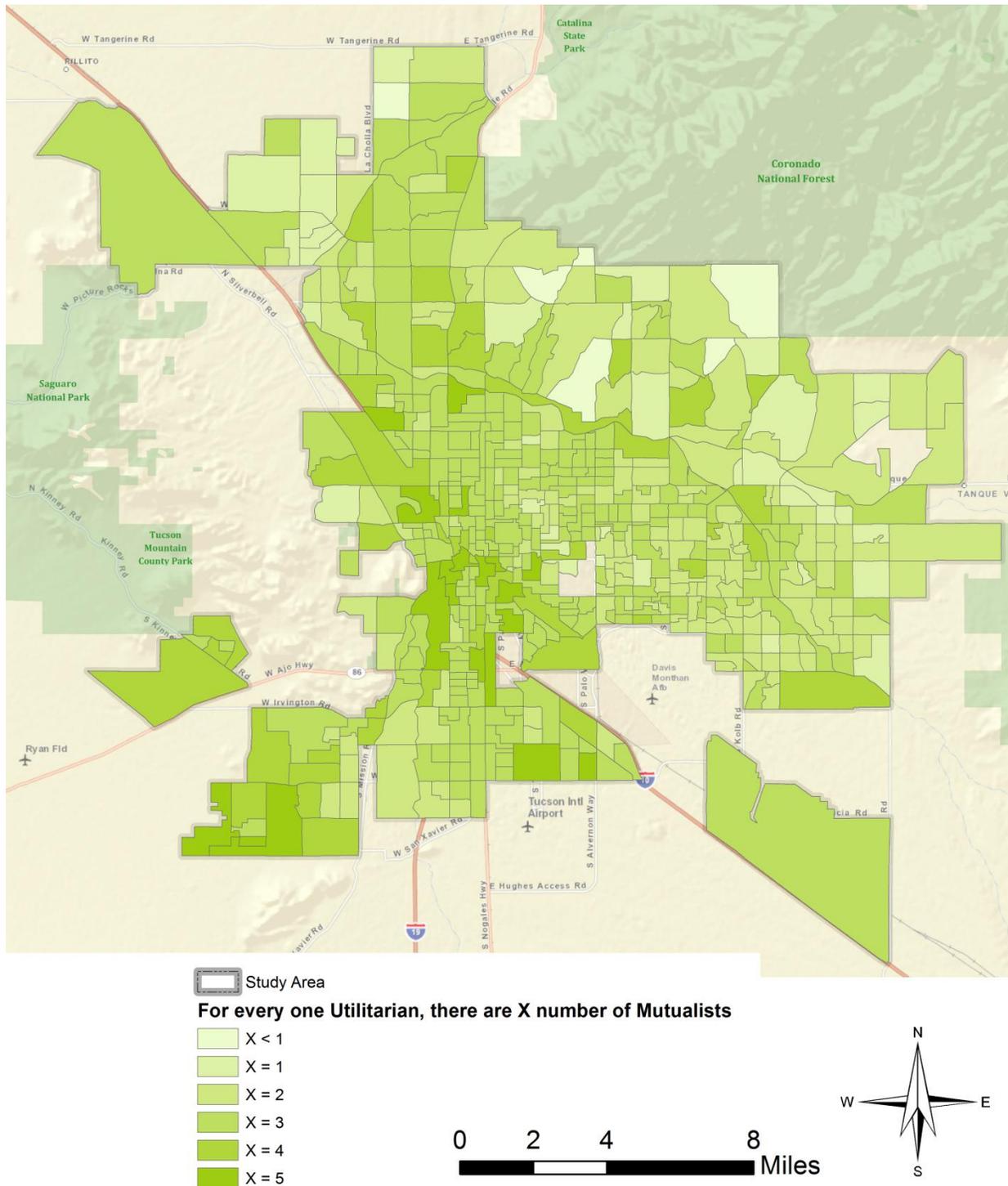
- Utilitarians from 2.9% in CBG 335 to 36.1% in CBG 139
- Pluralists from 3.6% in CBG 283 to 44.1% in CBGs 354 and 385
- Mutualists from 23.7% in CBG 385 to 57.1% in CBG 283
- Distanced from 3.3% in CBG 231 to 25.9% in CBG 21.

The percentages of wildlife value orientation type for each sampled census block group can be found in Table A-1.

Figure II.B.3 displays the *predicted* ratio of Mutualists to Utilitarians in Tucson (i.e., the number of Mutualists for every one Utilitarian). A number greater than 1 on the map signifies that more Mutualists were predicted to live there than Utilitarians, a number equal to 1 indicates a relatively equal distribution of Mutualists and Utilitarians, and a number less than 1 indicates that more Utilitarians were predicted to live there than Mutualists.

Social conflict regarding wildlife management actions (e.g., lethal control) is most likely to occur in areas where there are equal numbers of residents holding divergent value orientations (i.e., an area with 50% Utilitarians and 50% Mutualists). Alternatively, areas predominately comprised of individuals having the same value orientation are more likely to be in consensus regarding their responses to particular management strategies. For example, residents in locations denoted by the darker color are locations predicted to have approximately five Mutualists for every one Utilitarian, and residents living in these places are likely to be in greater consensus on wildlife-related issues (e.g., lower acceptance of lethal control as a management strategy) than residents living in other census block groups within Tucson.

Figure II.B.3. Ratio of Utilitarians to Mutualists.²



² In addition to using census data as described in the Introduction of this report (Section I.D), the regression equation used to produce this map takes into account differences between the urban core and fringe.

SECTION III. DEMOGRAPHIC CHARACTERISTICS

This section explores the demographic characteristics of Tucson residents, including gender, age, number of people under the age of 18 years living at home, length of residence, income, education, and ethnicity and racial background. In addition to providing information useful in characterizing Tucson residents, data reported in this section can help in determining the overall representativeness of the study sample. Demographic characteristics can also be useful in the context of identifying factors that may be linked to shifts in wildlife value orientations occurring at the regional or more localized levels. Supporting tables for results reported in this section can be found in Appendix A (Tables A-2 to A-5). Items used in this section are presented below.

The following **demographic information** will be used to help make general conclusions about the residents of Tucson. **Your responses will remain completely confidential.**

Are you...? Male Female How many people under 18 years of age _____ Person(s)
 What is your age? (*Write response.*) _____ Years are currently living in your household?
 (*Write response.*)

About how long have you lived in... Arizona? _____ Years, OR Less than one year.
 (*Write response or check box for less than one year.*) Your current home? _____ Years, OR Less than one year.

What is your approximate annual household Less than \$10,000 \$35,000 - \$49,999 \$100,000 - \$149,999
 income before taxes? (*Check one.*) \$10,000 - \$24,999 \$50,000 - \$74,999 \$150,000 - \$199,999
 \$25,000 - \$34,999 \$75,000 - \$99,999 \$200,000 or more

What is the highest level of Less than high school diploma 4-year college degree
 education that you have achieved? High school diploma or equivalent (GED) Advanced degree beyond 4-year college degree
 (*Check one.*) 2-year associates degree or trade school

Are you...? White Asian
 (*Check one or more categories.*) Hispanic or Latino Native Hawaiian or Other Pacific Islander
 Black or African American Other (*Please print on line below.*)
 American Indian or Alaska Native _____

Results by region. Respondents were primarily white (74.0%) and of Hispanic (21.2%) ethnicity, an average of 50 years old, and had lived in Tucson a significant portion of their lives (26.9 years), spending more than a decade, on average, residing in their current homes (11.8 years). There was an average of 0.68 people under the age of 18 years living at home. This can also be interpreted to mean that, on average, approximately every other household reported at least one person under the age of 18 years living at home. Residents also reported an average household income between \$35,000 and \$49,999 and had an average of two years of post high school education (equivalent to an associate’s degree or trade school).

Results by urban core or fringe designation. Residents from the urban core were, on average, younger than those living in the urban fringe (49 years for urban core residents vs. 53 years for urban fringe residents), and had lived in their current homes a shorter amount of time (i.e., 12 years for urban core residents vs. 13 years for urban fringe residents). Residents in the urban fringe reported higher levels of education and income than residents living in the urban core. There were no statistical differences between residents in the urban core and urban fringe with regard to the number of people living in the household under the age of 18 years or length of residence in Arizona.

Results by wildlife value orientation. A majority of Mutualists and Distanced individuals were female (65.7% and 54.5% respectively), whereas a majority of Utilitarians and Pluralists were male (67.4% and 55.5% respectively). Mutualists and Pluralists reported lower numbers of people under the age of 18 years living at home than did Utilitarians and Distanced individuals. Distanced individuals reported the youngest average age (47 years old). Of the four value types, Pluralists reported the longest length of residences, both in Tucson and in their current homes, and reported, on average, the lowest average level of education. Utilitarians reported the highest average level of income. Hispanic ethnicity was represented in greater proportions among Distanced individuals and Pluralists than among the other two value types. Utilitarians had the largest percentage of respondents indicating they were white.

Results by census block group. The average age of respondents at the census block group level ranged from 32-71 years. Residents from CBG 503 reported the most number of people under the age of 18 years living at home (on average, almost 2 individuals), and residents in CBG 456 reported the fewest (on average, 0.1 individuals). Residents from this same census block group (CBG 456) reported that they had lived in Arizona the least amount of time (14 years), whereas residents from CBG 427 had lived in Arizona the longest (44 years). Residents living in CBG 427 also had the longest residencies in their current home (24 years), whereas residents from CBG 315 had lived at their residences the shortest length of time (4 years). Residents from CBG 231 reported the lowest levels of income (\$25,000-\$34,999), while residents from CBG 72 reported the highest (\$100,000-\$149,999). Residents from CBG 72 had the highest levels of education (on average, a 4-year degree), and residents from CBG 517 reported the lowest levels of education (on average, a high school or GED level). These results show significant differences in demographics across the census block groups of Tucson, which can further impact the attitudes of residents living there.

SECTION IV. PERCEPTIONS OF NATURE AND THE PLACE NEAR HOME

The purpose of this section is to explore the beliefs and attitudes of Tucson residents regarding nature and the place near their homes (defined as the place of residence and the area within a few miles of it). By categorizing people’s broad perceptions of nature, resource managers can gain a better understanding of human-nature relationships. These relationships can provide a foundation for understanding conflict among different people regarding natural resources and their use. For example, a person who believes nature is limited and fragile may be more likely to oppose invasive management techniques such as lethal control of wildlife in their area than a person who believes that nature is robust and can take care of itself. Additionally, residents who are more active in the place where they live may have a greater awareness and knowledge of the natural environment, including the wildlife that may be present. This may further affect how people think about local natural resource issues and the myriad of agency responses possible to address them. In conjunction with information about wildlife value orientations (see Section II), this information can help gauge people’s thoughts about how the natural world, including wildlife, should be managed.

A. EXPLORING HUMAN-NATURE RELATIONSHIPS

Survey items presented in this section stem from Douglas’s (1992) “grid/group model” and the “myths of nature” (Douglas, 1992; Milton, 1996), with additional input from the literature on categorizations of nature and place (e.g., Relph, 1980; Tuan, 1974). Supporting tables can be found in Appendix B (Tables B-1 to B-4).

This survey begins with a list of paired phrases representing different ways that people might think about nature. We want to know which phrase out of each pair below best describes **how you think about nature**.

There are two parts to this question

PART 2. Circle one number for each phrase circled in Part 1.

PART 1. Circle one phrase for each pair below.

To what extent does the phrase to the left represent how you think about nature?

I think <u>nature</u>...			<u>Slightly</u>	<u>Moderately</u>	<u>Extremely</u>
is fragile	or	is durable	1	2	3
is unlimited, abundant	or	is limited, scarce	1	2	3
is unpredictable, chaotic	or	is predictable, ordered	1	2	3
is remote, uninviting	or	is accessible, inviting	1	2	3
can take care of itself	or	needs to be protected	1	2	3

We are now interested in knowing more about **how you think about the area near your home** (including your place of residence and the area within a few miles of it).

There are two parts to this question

PART 2. Circle one number for each word/phrase circled in Part 1.

PART 1. Circle one word/phrase for each pair below.

To what extent does the word/phrase to the left represent how you think about the area near your home?

I think the area near my home is...			<u>Slightly</u>	<u>Moderately</u>	<u>Extremely</u>
ugly, unattractive	or	beautiful, attractive	1	2	3
safe	or	dangerous	1	2	3
common	or	unique	1	2	3

This study served as a pilot for testing a new measurement approach to understanding human-nature relationships. A more detailed cluster analysis for grouping people based on their beliefs about nature was conducted separately from this report (see Dietsch, 2010); however, percentages listed below stem from that investigation. Generally, five patterns of beliefs regarding the way people think about nature (i.e., “myths of nature” groups) could be found in Tucson: *Nature is Benign*, *Nature is Tolerant*, *Nature is Ephemeral*, *Nature is Capricious*, and *Nature is Resilient*. Adding to the role of the wildlife value orientation concept, categorizing people in this way can be useful in understanding the basis for and variation in public responses to management issues. Below is a description of the five groups, along with an illustration of how the groups may differ in the acceptability of lethal control measures examined in this study.

- *Nature is Benign* individuals (10%) thought nature was durable, unlimited/abundant, predictable/ordered, and accessible/inviting; this may further indicate that these residents are more likely to agree with traditional, invasive management actions that can result in harm or death to wildlife. As an illustration, this group reported the highest acceptance levels for lethal control of coyotes/bobcats, javelinas, and mountain lions in comparison with the other “myths of nature” groups.
- *Nature is Tolerant* individuals (25%) viewed nature as durable, limited/scarce, predictable/ordered, accessible/inviting, and in need of protection. Residents in this group are likely to find traditional, invasive management actions acceptable within reasonable bounds. As an illustration, this group’s levels of acceptance of lethal control was most similar to those in the *Nature is Benign* group when coyotes/bobcats, javelinas, and mountain lions have a transmittable disease or have attacked a human; in other scenarios, acceptance of lethal control was somewhat lower than the *Nature is Benign* group.
- *Nature is Ephemeral* individuals (52%) viewed nature as fragile, limited/scarce, accessible/inviting, and in need of protection. This is a group that is likely to support measures that conserve natural resources. Residents in this category had the lowest acceptance levels for lethal control of wildlife in a situation where wildlife are observed near the home or have been a nuisance.
- *Nature is Capricious* individuals (6%) thought nature was unpredictable/chaotic and remote/uninviting. According to the literature, this group will oftentimes reflect the beliefs of other “myths of nature” groups, making it difficult to find a predictable and consistent pattern in their responses. Results showed that this segment of the population was more supportive of lethal control of wildlife in less severe situations (e.g., animal is seen near the home and a nuisance), but similar to other groups when the situational severity increases (e.g., animal has a transmittable disease, or attacks a pet or human).
- *Nature is Resilient* individuals (6%) thought nature was durable, unlimited/abundant, unpredictable/chaotic, and accessible/inviting. This group is likely to be accepting of traditional management approaches. Residents in this group found lethal control of coyotes/bobcats, javelinas, and mountain lions to be acceptable when the animal attacks a pet or human, or has a spreadable disease; however, this group had lower acceptance levels for lethal control than did individuals in the *Nature is Benign* group.

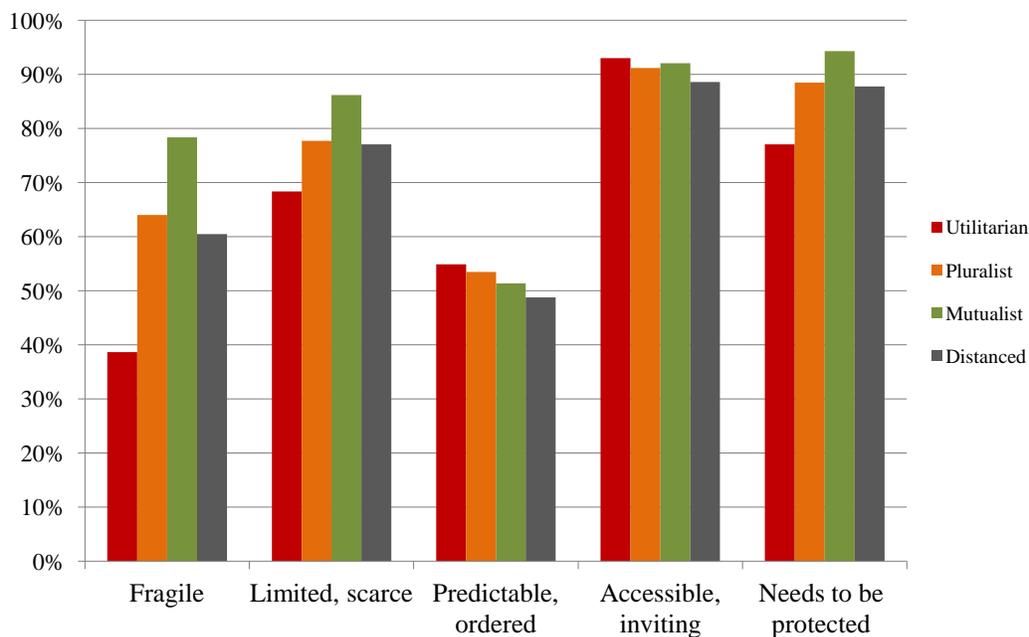
Results presented in this report are largely descriptive and intended to give a general understanding of the ways in which Tucson residents view nature and the area near their homes.

Results by region. Tucson residents overwhelmingly found nature to be *accessible/inviting* (91.6%) and *in need of protection* (88.3%). Residents also indicated, to a lesser degree, that nature was *limited/scarce* (78.8%) and *fragile* (63.8%). Less than half of Tucson residents found nature to be *unpredictable/chaotic* (47.7%). When asked about their local area, residents reported that they found the area near their homes to be *safe* (80.4%), *beautiful/attractive* (75.9%), and *unique* (53.7%). Results largely indicate that Tucson residents feel connected to the area near their homes and therefore may be inclined to want their local area to be managed in such a way that maintains or promotes the perceived splendor of their area.

Results by urban core or fringe designation. Residents in both the urban core and urban fringe viewed nature as *accessible/inviting*, *in need of protection*, and *limited/scarce*, indicating that residents in these areas are less likely to support traditional, invasive management actions (e.g., lethal control). Residents in the urban fringe were much more likely to find the area near their homes to be *beautiful* (94.2%), *safe* (89.4%), and *unique* (77.7%) than were residents in the urban core (68.6%, 76.8%, and 44.2%, respectively).

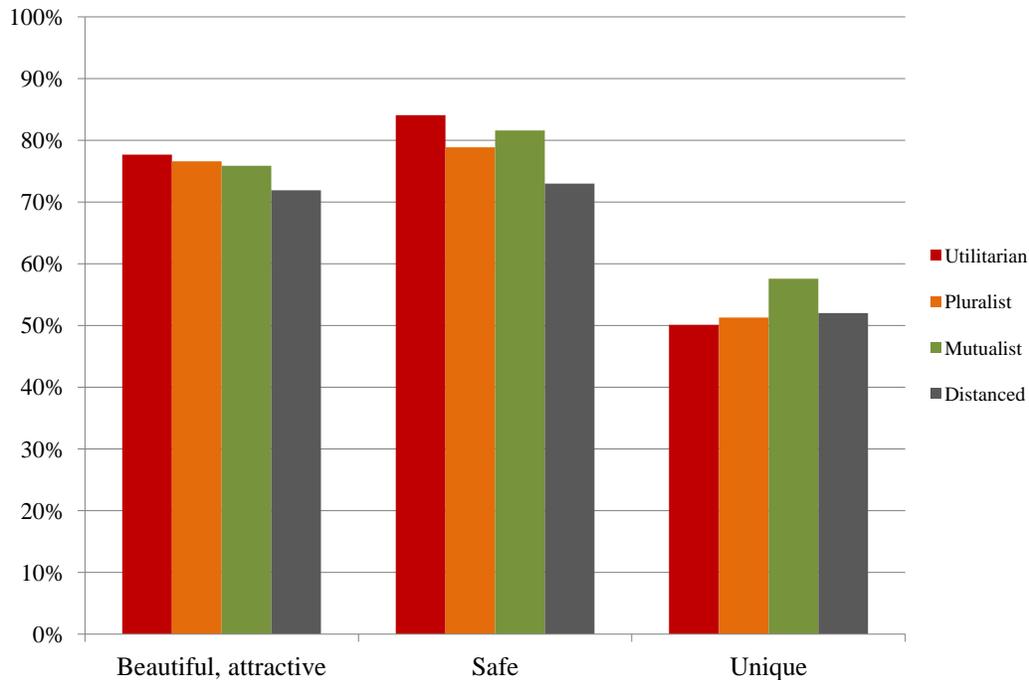
Results by wildlife value orientation. Of the value types, Mutualists had the largest percentages of respondents viewing nature as *fragile* (78.4%), *limited/scarce* (86.2%) and *in need of protection* (94.3%), whereas Utilitarians had the fewest people feeling this way (38.7%, 68.4%, 77.1%; Figure IV.A.1). Such results suggest that Mutualists, as predicted by their wildlife value orientation, would be likely to support management actions that do not have adverse effects on wildlife. Only Distanced individuals had a majority who felt that nature was *unpredictable/chaotic* (51.2%). All four of the value types overwhelmingly found nature to be *accessible/inviting* (>88% for each type).

Figure IV.A.1. Percent of wildlife value orientation type agreeing with specific beliefs about nature.



Mutualists reported the largest percentages of residents finding the area near their homes to be *unique* (57.6%), while Distanced individuals reported the fewest residents finding the area near their homes to be *safe* (73.0%; Figure IV.A.2). All value orientation types largely found the area near their homes to be *beautiful/attractive* (>71%), *safe* (>73%), and, to a lesser degree, *unique* (>50% for each type).

Figure IV.A.2. Percent of wildlife value orientation type agreeing with specific beliefs about the area near their homes.



Results by census block group. The *measured* percent of people across census block groups who found nature to be *fragile* ranged from 47.7% in CBG 139 to 83.9% in CBG 335; *limited/scarce* from 61.1% in CBG 503 to 100% in CBG 335; *unpredictable/chaotic* from 32.0% in CBG 21 to 65.4% in CBG 354; *accessible/inviting* from 74.0% in CBG 540 to 100% in CBGs 21, 37, and 332; and, *needs to be protected* from 79.2% in CBG 369 to 100% in CBG 503.

The *measured* percent of residents across census block groups who found the area near their homes to be *beautiful/attractive* ranged from 32.1% in CBG 231 to 100% in CBGs 21, 37, 94, 98, and 344; *safe* from 52.3% in CBG 166 to 96.1% in CBG 23; and, *unique* from 6.5% in CBG 427 to 91.3% in CBG 74.

B. PARTICIPATION IN OUTDOOR ACTIVITIES NEAR THE HOME

This section explores the frequency in which residents participated in outdoor activities near their homes. Participation in outdoor activities near the home can impact the way people relate to nature and wildlife. Supporting tables for results reported in this section are located in Appendix B (Table B-5 to B-7), and the survey item used is below.

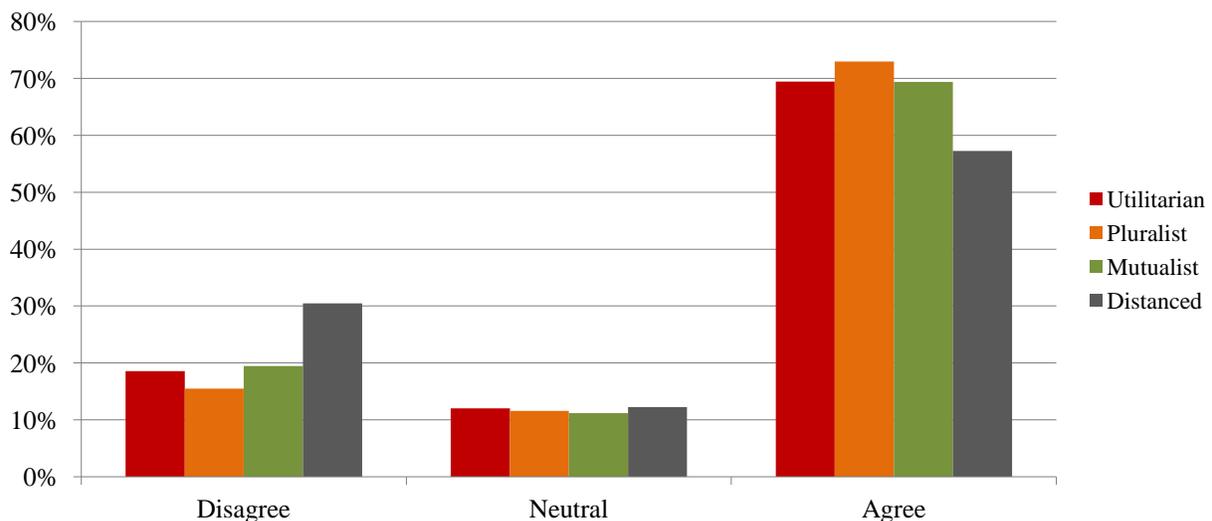
Do you disagree or agree with the following?	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
I often participate in outdoor activities near my home.	1	2	3	4	5	6	7

Results by region. Tucson residents actively participate in outdoor activities near their homes (68.6%). Almost 20% of residents *strongly* agreed that they often participated in outdoor recreation near their homes, which is similar to the total percentage of individuals who indicated that they disagreed altogether (slightly, moderately, or strongly).

Results by urban core or fringe designation. More residents living in the urban fringe participated in outdoor activities around their residences than did residents living in the urban core (78% of urban fringe residents vs. 65% of urban core residents).

Results by wildlife value orientation. More than 50% of each wildlife value orientation type reported that they participated in outdoor recreation near their homes; however, Distanced individuals were the least likely of the value types to participate in outdoor activities. For example, only 57.3% of Distance individuals indicated they often participate in outdoor activities near their homes, while 72.9% of Pluralists indicated the same. Statistical tests revealed that the effect size associated with the difference between mean responses on outdoor participation was minimal.

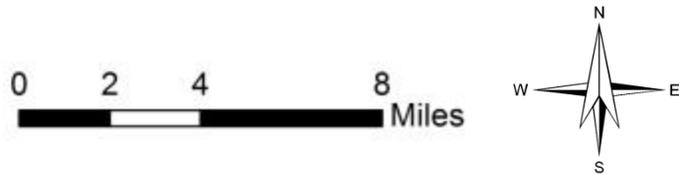
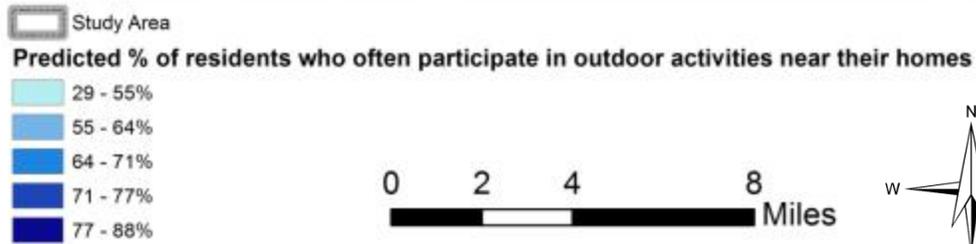
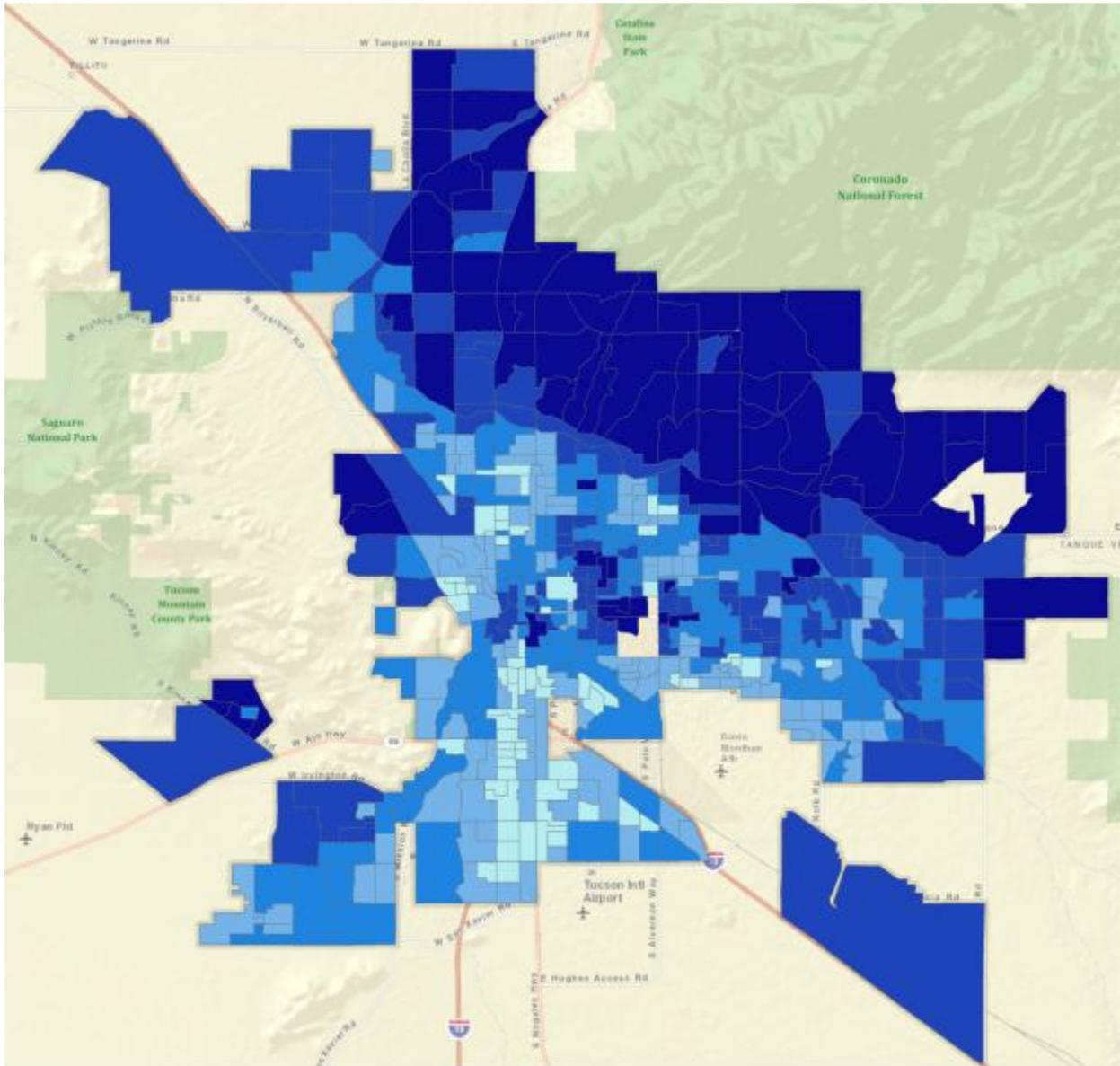
Figure IV.B.1. Participation in outdoor activities near the home by wildlife value orientation.



Results by census block group. The *measured* percentages across census block groups of residents who agreed that they often participate in outdoor activities near their homes ranged from 45.0% in CBG 540 to 88.2% in CBG 139.

The *predicted* percentage of residents by census block group is spatially depicted in Figure IV.B.2. Residents living in the more northern and northeastern portions of Tucson, locations which are closer to the Coronado National Forest and other public recreation areas (e.g., Sabino Canyon), were predicted to be more active in outdoor recreation near their homes than urban core residents.

Figure IV.B.2. Predicted percent of residents by census block group who often participate in outdoor activities near their homes.



C. BELIEFS ABOUT CLIMATE CHANGE IMPACTS NEAR THE HOME

The potential effects of climate change on the natural environment, including wildlife and wildlife habitat, are multifaceted, and natural resource agencies are increasingly considering the ways in which the public may respond to this topic. An understanding of residents' beliefs regarding climate change impacts could be used to inform approaches which AZGFD may take, including public outreach initiatives, in response to climate change. Appendix B (Tables B-8 to B-10) presents results regarding residents' beliefs about the effects of climate change near their homes. The survey item used is below.

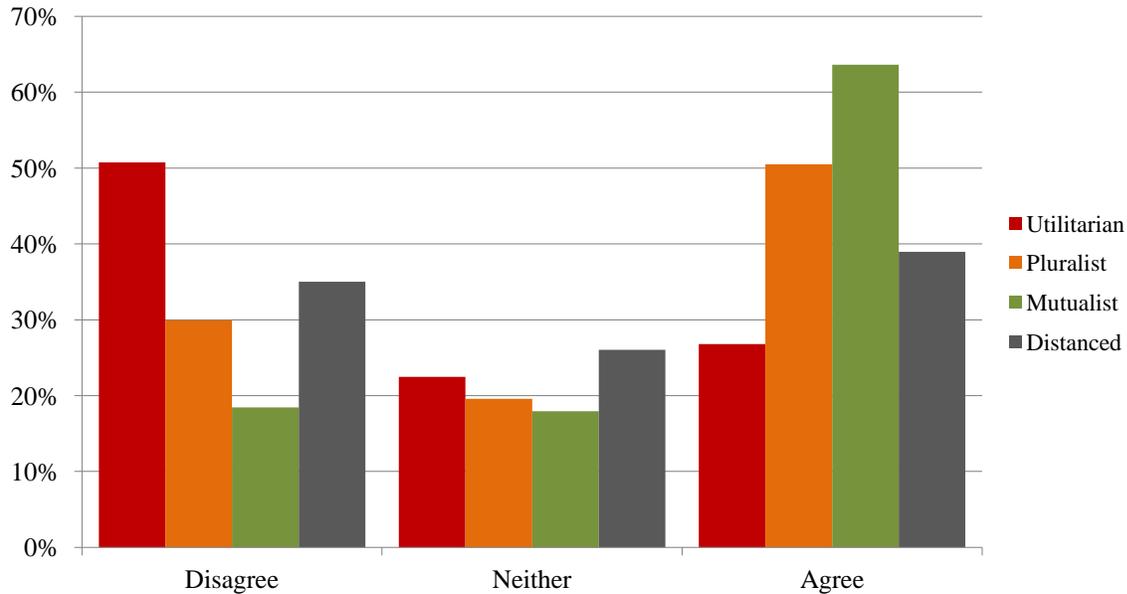
Do you disagree or agree with the following?	<u>Strongly Disagree</u>	<u>Moderately Disagree</u>	<u>Slightly Disagree</u>	<u>Neither</u>	<u>Slightly Agree</u>	<u>Moderately Agree</u>	<u>Strongly Agree</u>
I believe that climate change is currently affecting the area near my home.	1	2	3	4	5	6	7

Results by region. Almost half of Tucson residents believe that climate change is currently affecting the area near their homes (49.1%). Some residents were neutral on the topic (20.5%), whereas others disagreed that climate change was having any localized effects (30.4%).

Results by urban core or fringe designation. Beliefs that climate change is affecting the local area did not differ greatly between residents living in the urban fringe and residents living in the urban core; 51.4% vs. 48.1%, respectively, of urban fringe and core residents thought climate change was having localized impacts.

Results by wildlife value orientation. A little over half of Utilitarians (50.9%) disagreed that climate change is currently affecting the area near their homes, whereas a majority of Mutualists (63.6%) and Pluralists (50.5%) agreed that climate change is having local-level impacts (Figure IV.C.1). More Distanced individuals agreed that climate change was having an impact than those who disagreed (39.0% and 35.0%, respectively). Statistical tests denoted that the differences in responses regarding climate change beliefs were meaningful, indicating a moderate to large effect size.

Figure IV.C.1. Percent of wildlife value orientation type disagreeing or agreeing that climate change is currently affecting the area near their homes.



Results by census block group. Twenty-six of the 53 sampled census block groups had more than 50% of residents agreeing that climate change is currently affecting the area near their homes. None of the census block groups had more than 50% of residents who disagreed. The *measured* percentages of residents who agreed that climate change is having localized impacts ranged from 30.0% in CBG 427 to 85.3% in CBG 335.

The *predicted* percentage of residents by census block group agreeing that climate change is currently affecting the area near their homes is spatially depicted in Figure IV.C.2. Results suggest that there is a wide range of beliefs on this issue. While there is no obvious spatial pattern to these results, residents predicted to have the lowest levels of agreement on climate change were primarily located south of the intersection of Interstate-10 and Interstate-15. In contrast, residents predicted to have the highest levels of agreement about the localized impacts of climate change lived near the University of Arizona and in outlying areas (e.g., areas within the urban fringe).

SECTION V. WILDLIFE NEAR THE HOME

This section explores how people think more specifically about the wildlife near their homes and whether residents have experienced problems with local wildlife in the recent past. Combined with other sources of information, such as residents’ wildlife value orientations, results reported in this section offer additional background that can be useful in understanding public thought and how different segments of the population may respond to local management strategies. For example, those who perceive wildlife near their homes to generally be a nuisance or a threat, and who have experienced wildlife-related problems, may be more likely to support aggressive management responses to human-wildlife conflict situations. In addition, this information may be used to identify human-wildlife conflict “hotspots” (i.e., places with higher incidences of reported problems). Supporting tables for results in this section can be found in Appendix C (Table C-1 to C-9).

A. GENERAL BELIEFS ABOUT WILDLIFE NEAR THE HOME

Residents were asked to rate their level of agreement with a series of statements representing beliefs about wildlife near their homes. Items reported in this section are presented below.

Now we’re interested in your views about the wildlife near your home. Circle one number for each statement below.

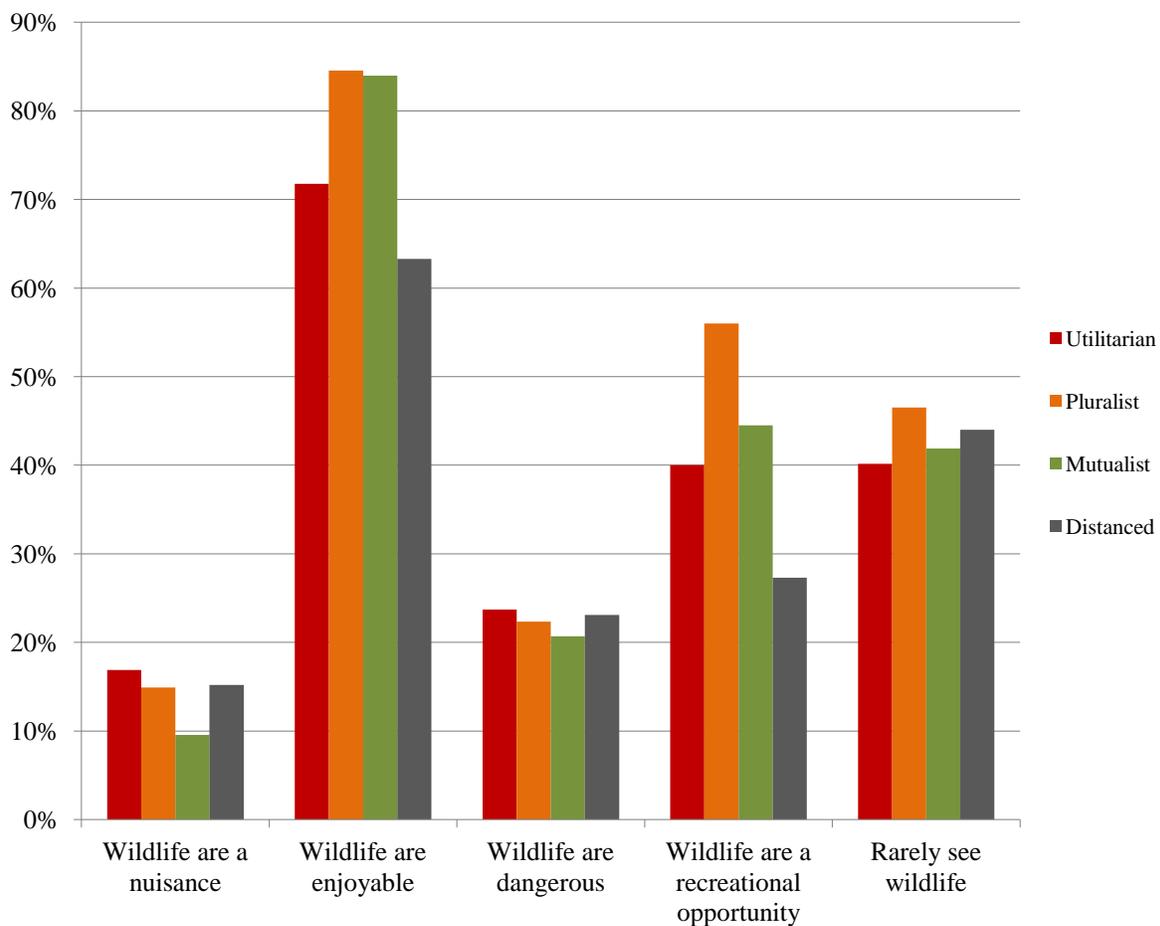
The wildlife near my home...	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
...are generally a nuisance (cause problems).	1	2	3	4	5	6	7
...are enjoyable to have around.	1	2	3	4	5	6	7
...pose a dangerous risk to people.	1	2	3	4	5	6	7
...provide valuable opportunities for recreation.	1	2	3	4	5	6	7
I rarely see any wildlife near my home.	1	2	3	4	5	6	7

Results by region. Forty-three percent of Tucson residents agreed that they rarely observe wildlife near their homes. Many residents indicated they perceive wildlife near their homes as enjoyable to have around (78.8%), while others viewed wildlife as providing valuable opportunities for recreation (44.2%); however, some residents also considered the wildlife in their area to be dangerous (22.1%) or a general nuisance (13.2%). Residents who *rarely* see wildlife near their homes were less likely to believe wildlife were enjoyable to have around and valuable opportunities for recreation (70.3% and 36.4%, respectively) than residents who *disagreed* that they rarely see wildlife (88.1% and 52.1%, respectively). No differences in beliefs regarding whether wildlife were a nuisance or dangerous exists on the basis of residents observing (or not) wildlife near the home.

Results by urban core or fringe designation. Residents living in the urban core were much more likely than urban fringe residents to indicate that they rarely see wildlife near their homes, and urban fringe residents were more likely than urban core residents to believe that wildlife were enjoyable to have around their homes.

Results by wildlife value orientation. Mutualists and Pluralists were more likely than the other value orientation types to view wildlife as enjoyable to have around their homes (Figure V.A.1). Pluralists and Distanced individuals were more likely than the other value types to indicate they rarely see wildlife near their homes. Utilitarians reported the largest percentage of people indicating that wildlife were a nuisance. Pluralists were more likely than the other value orientation types to agree that wildlife provide valuable recreation opportunities. Although statistical differences did exist on these variables, the effect sizes were small, indicating only marginal variation across the value types on all items. One exception was responses to wildlife around the home being enjoyable, when a moderate effect size was noted.

Figure V.A.1. Percent of wildlife value orientation type agreeing with general beliefs about wildlife near their homes.



Results by census block group. The *measured* percentages of residents who indicated they rarely see wildlife near their homes ranged from 3.0% in CBG 94 to 75.0% in CBG 231. More than 60% of residents in all census block groups viewed the wildlife near their homes as enjoyable to have around, with 95.3% of residents in CBG 344 feeling this way (the largest reported percentage). The percentages of residents who felt that wildlife were a nuisance ranged from 0% (CBG 335) to 27.3% (CBG 503). CBG 319 (an area near the intersection of North Silverbell Road and West Speedway Boulevard) reported the largest percentage of residents indicating that wildlife near their homes pose a dangerous risk to people (42.5%), whereas CBG 223 had the least number of residents who felt this way (6.8%). The percentages of residents who felt that wildlife provide a valuable opportunity for recreation ranged from 20.0% (CBG 315) to 60.3% (CBG 109).

The *predicted* percentage of residents for all of Tucson by census block group who rarely see wildlife near their homes ranged from 0-100% (Figure V.A.2), with the lowest percentages found in the urban fringe near conservation areas (e.g., Coronado National Forest, Saguaro National Park). The *predicted* percentages of residents who thought wildlife near their homes were enjoyable ranged from 44-97% (Figure V.A.3), wildlife were dangerous from 16-31% (Figure V.A.4), and wildlife were valuable opportunities for recreation from 39-54% (Figure V.A.5). The urban fringe area generally had greater percentages of residents who thought wildlife were enjoyable and valuable opportunities for recreation than did the urban core. There does not appear to be a spatial pattern to the predictions for areas where residents felt wildlife were dangerous; this result may stem from the fact that the regression model predicting responses to this belief was driven by age (i.e., census block groups with an older mean age were more likely to respond that wildlife were dangerous). Census data could not be used to predict the percentages of residents who thought wildlife were a nuisance ($p > .05$), and, therefore, a spatial depiction of results for this belief is not contained within the report.

Figure V.A.2. Predicted percent of residents by census block group who rarely see wildlife near their homes.

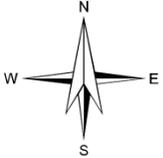
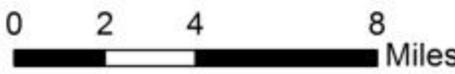
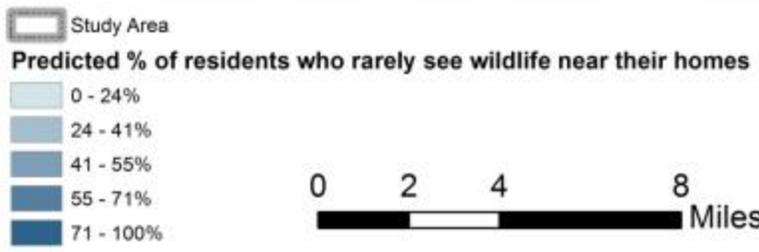
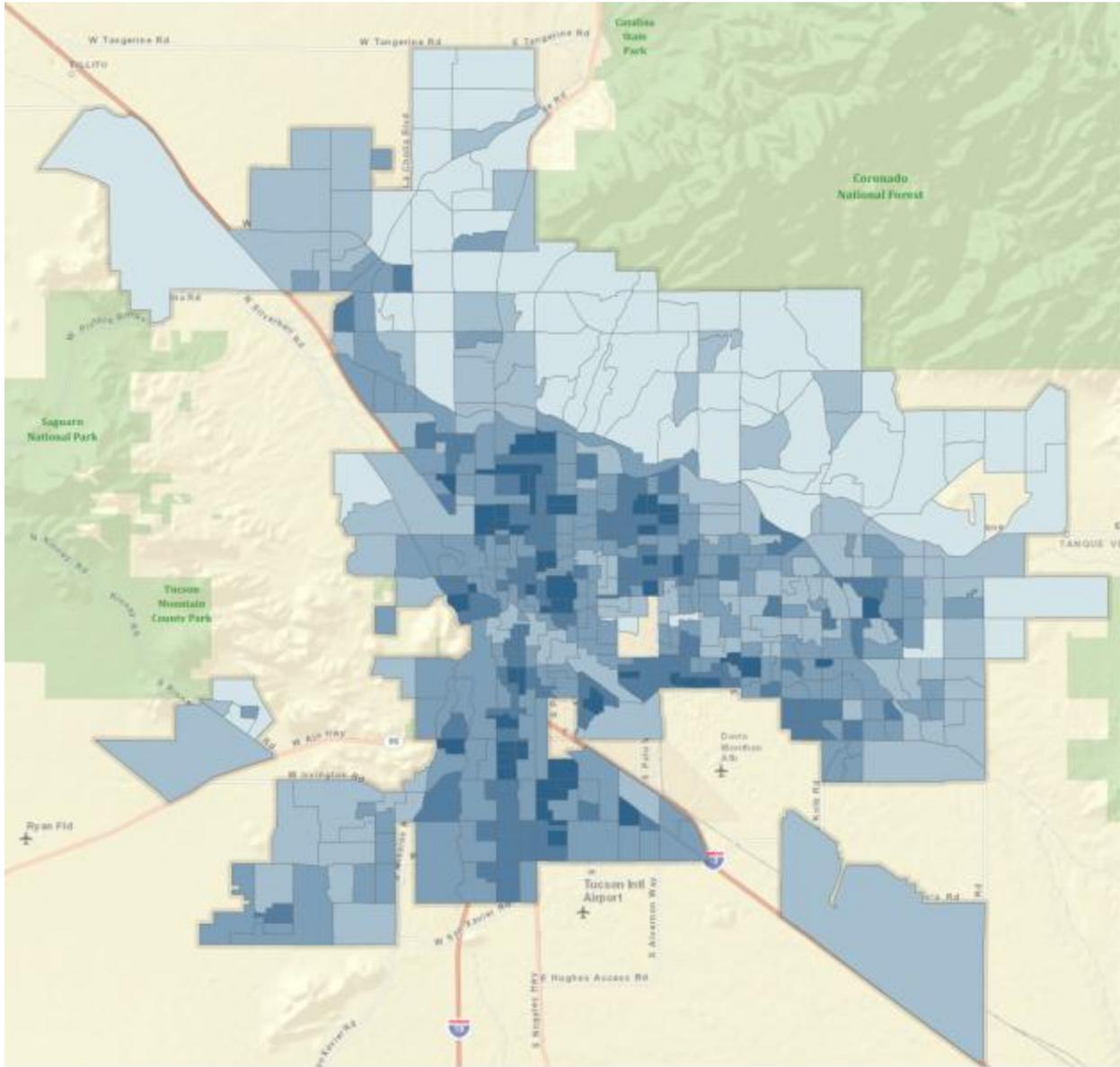


Figure V.A.3. Predicted percent of residents by census block group who think the wildlife near their homes are enjoyable.

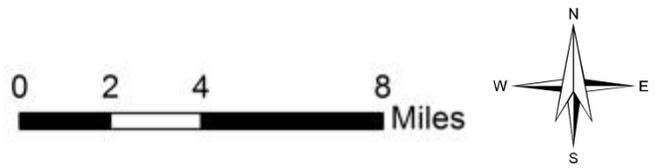
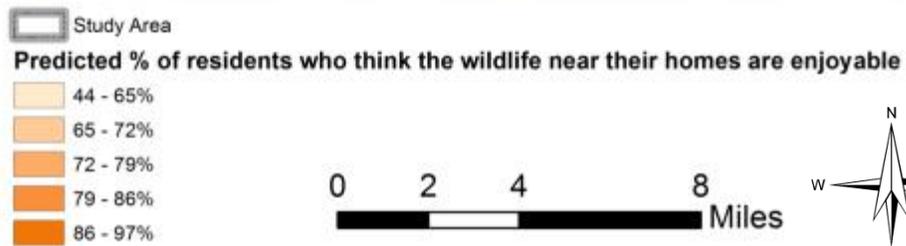
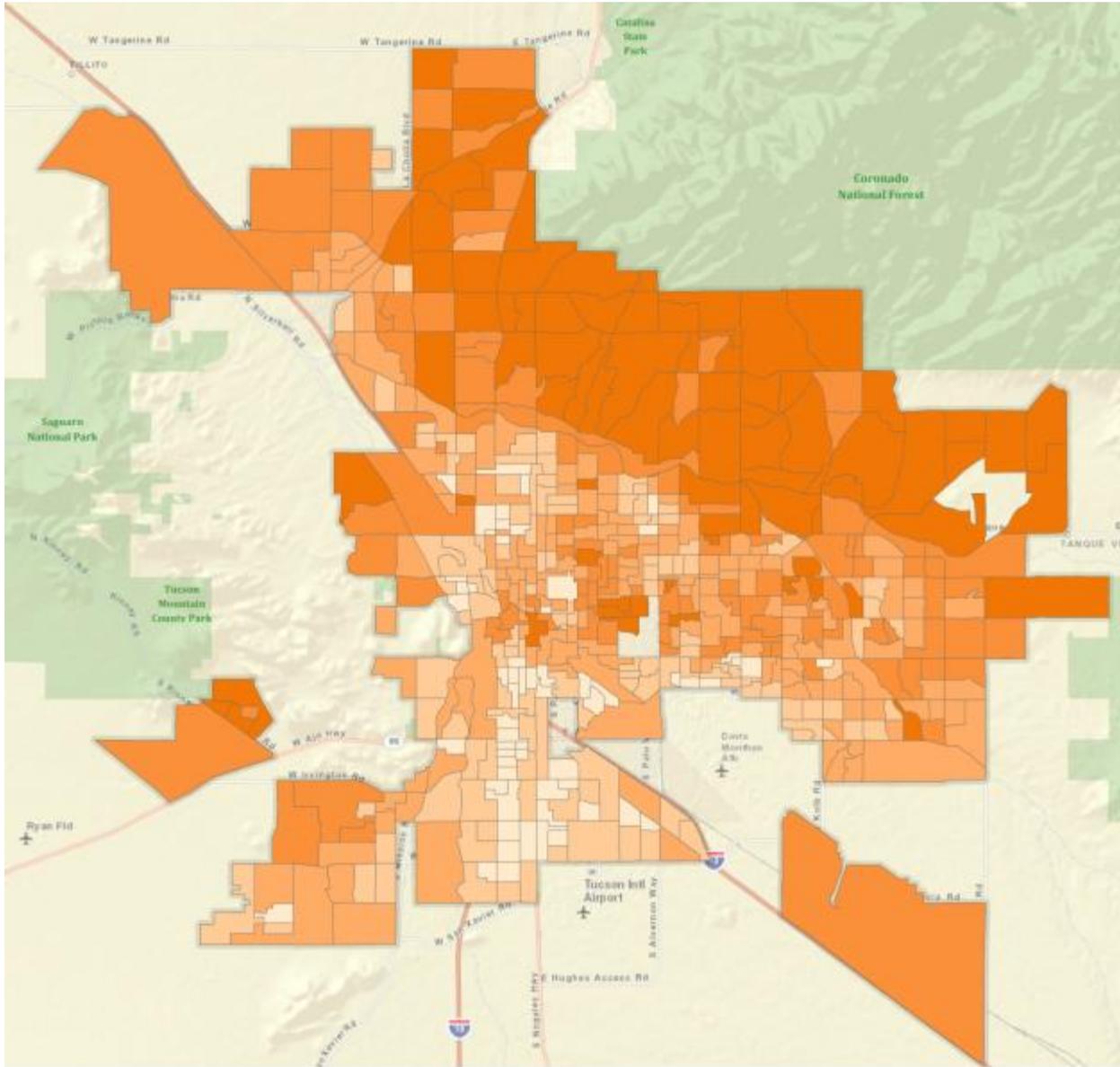


Figure V.A.4. Predicted percent of residents by census block group who think the wildlife near their homes are dangerous.

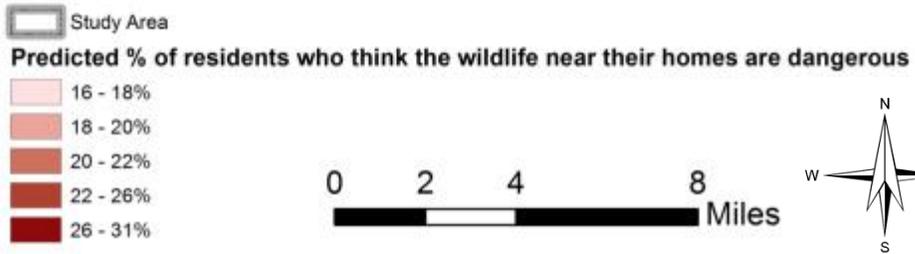
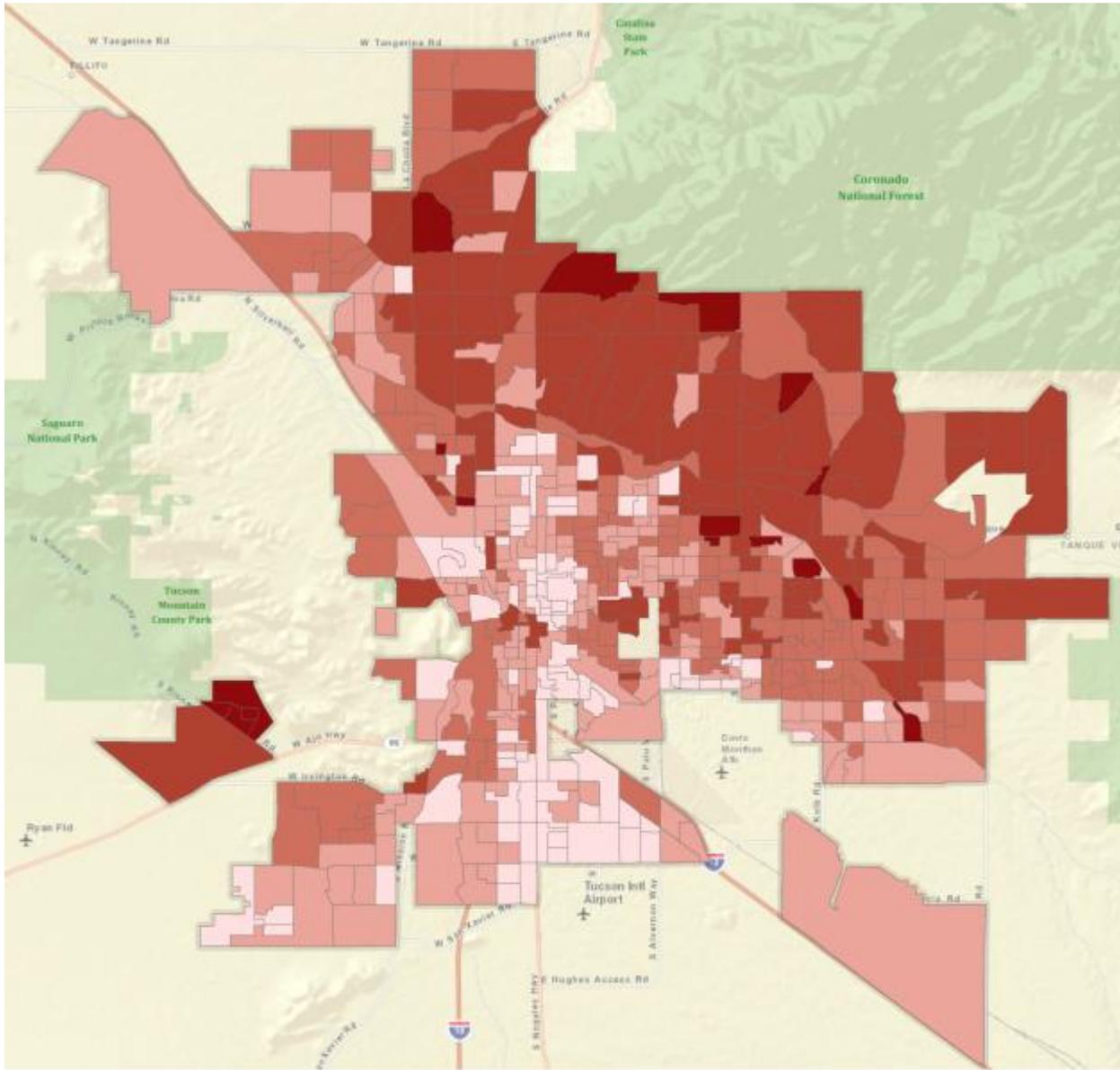
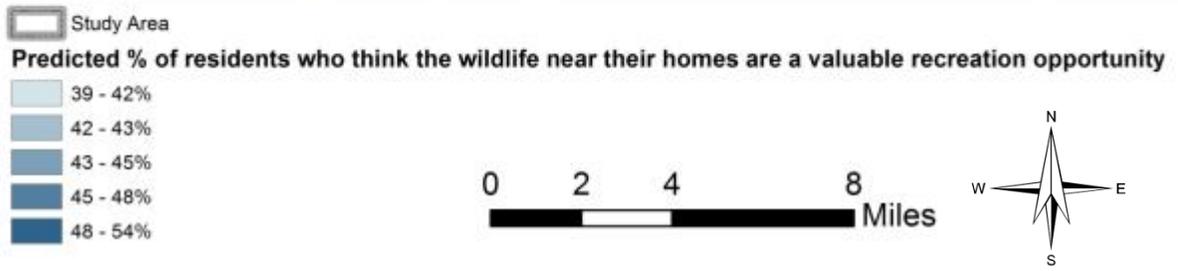
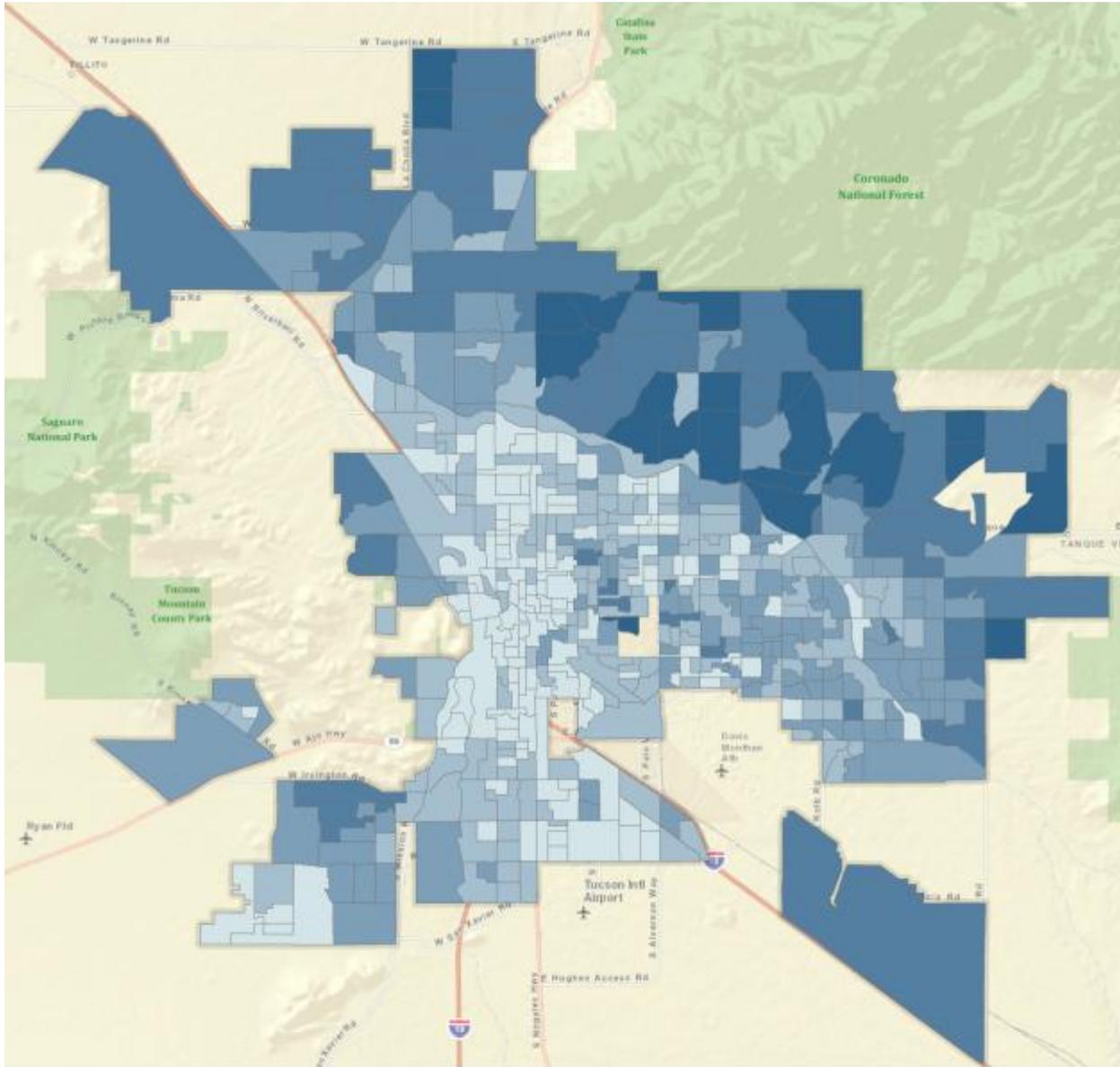


Figure V.A.5. Predicted percent of residents by census block group who think the wildlife near their homes are a valuable recreation opportunity.



B. WILDLIFE-RELATED EXPERIENCES NEAR THE HOME

Although Tucson residents generally found wildlife near their homes to be enjoyable (see previous section), different species may be observed more often or more regularly cause problems for residents in certain areas. Whereas many residents may learn to live with wildlife over time and adapt to the conflicts they experience, AZGFD is often called upon to respond to particular nuisance situations. This section explores the frequency of which Tucson residents observe certain wildlife species and the frequency of problems that residents have faced in the recent past with coyotes, bobcats, javelinas, mountain lions, and other wildlife. By providing information about the location and nature of wildlife-related problems that residents are experiencing, results can help AZGFD target its efforts aimed at addressing human-wildlife conflict. Items used are presented below.

The following questions ask about **your experiences with wildlife near your home** over the last 12 months.

There are two parts to this question.

	How often have you <u>observed</u> ...?			How often have they been a <u>nuisance or a problem</u> for you?		
	<u>Not at All</u>	<u>Occasionally</u>	<u>Often</u>	<u>Not at All</u>	<u>Occasionally</u>	<u>Often</u>
Coyotes	1	2	3	1	2	3
Bobcats	1	2	3	1	2	3
Javelinas	1	2	3	1	2	3
Mountain Lions	1	2	3	1	2	3
Other Wildlife (besides those listed above)	1	2	3	1	2	3

Results by region. Many Tucson residents indicated they had observed coyotes near their homes (74.9%), while almost half of Tucson residents had also seen javelinas near their homes (49.2%). Fewer residents had seen bobcats (26.7%) or mountain lions (5.7%). Nearly 74% of residents reported observing wildlife near their homes other than those listed on the survey.

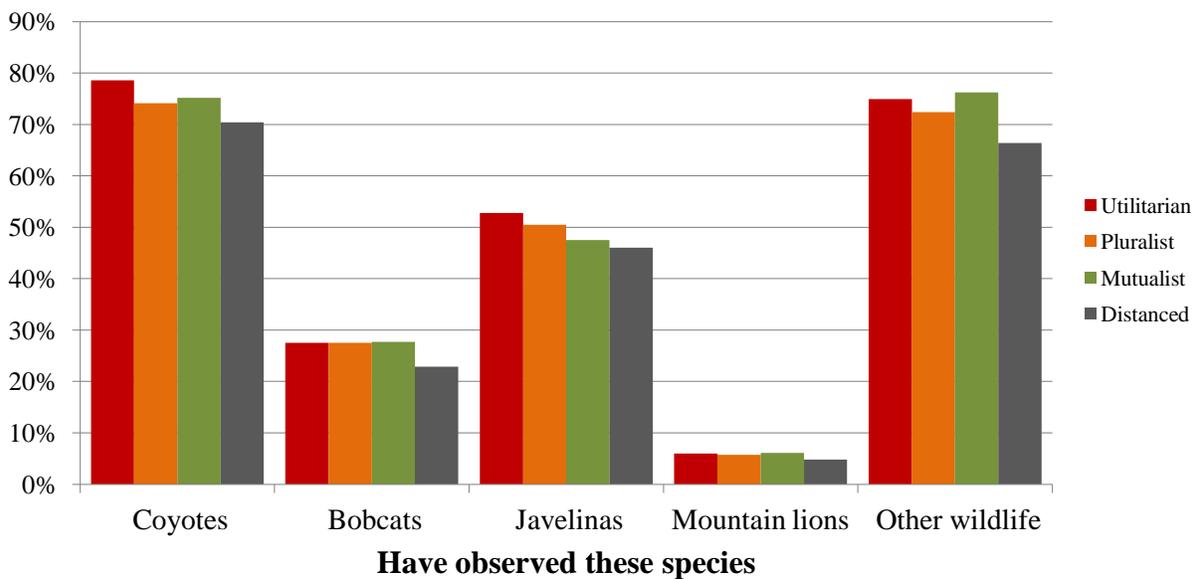
Residents also experienced problems with wildlife near their homes in the past year, most often with other wildlife not indicated on the survey (17.8%), javelinas (17.7%), and, to a lesser extent, coyotes (10.4%). Very few residents had experienced problems with bobcats (3.3%) or mountain lions (1.6%).

Results by urban core or fringe designation. A majority of residents in the urban fringe reported that they have observed coyotes, bobcats, javelinas, and other wildlife near their homes, while a majority of urban core residents indicated that they have only observed coyotes and wildlife other than those listed on the survey. Twelve percent of urban fringe residents indicated they have seen mountain lions near their homes, while only 3% of urban core residents reported the same.

More urban fringe residents reported problems with javelinas than any other species listed on the survey, while more urban core residents reported problems with wildlife other than those listed on the survey.

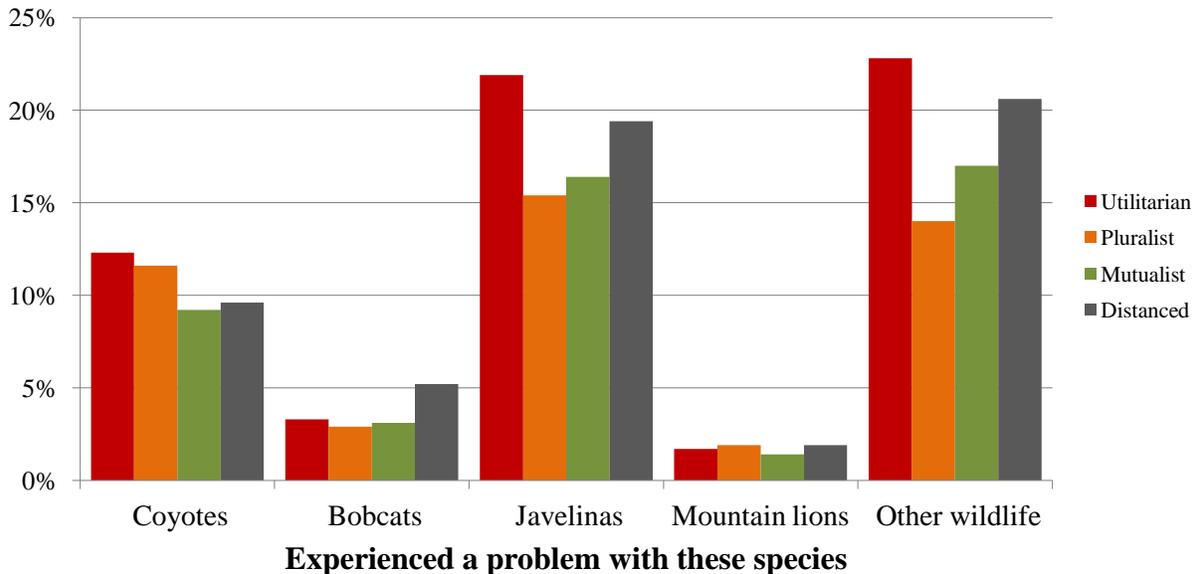
Results by wildlife value orientation. As depicted in Figure V.B.1, Utilitarians reported the largest percentage of respondents to have personally observed coyotes and javelinas, while Mutualists and Utilitarians reported the largest percentages of individuals who observed other wildlife species. However, some variation existed in the frequency of observation. For example, Distanced individuals reported the largest percentages of residents who had *occasionally* observed coyotes, whereas Utilitarians reported the largest percentages of residents reporting that they *often* observed coyotes (see Tables C-4 and C-5 for such differences). Considering *total* observations, Distanced individuals reported the fewest respondents who had observed wildlife near the home.

Figure V.B.1. Percent of residents indicating they have observed different wildlife near their homes.



Distanced individuals were more likely to report having experienced a problem with bobcats, while Utilitarians were more likely to report having experienced problems with javelinas, coyotes, and other types of wildlife. (Figure V.B.2). Percentages of residents regarding problems with mountain lions across the value types were very low.

Figure V.B.2. Percent of residents indicating they have experienced different wildlife-related problems near their homes.



Results by census block group. The *measured* percentages of residents who indicated they have occasionally or often observed different wildlife species ranged as follows:

- Coyotes: from 20.7% in CBG 283 to 100% in CBGs 49 and 94
- Bobcats: from 0% in CBG 274 to 90.8% in CBG 72
- Javelinas: from 6.1% in CBG 354 to 100% in CBG 16
- Mountain lions: from 0% in 12 different CBGs to 25.9% in CBG 16
- Other wildlife: from 35.2% in CBG 540 to 99.0% in CBG 344

The *predicted* percentage of residents by census block group who have occasionally or often observed coyotes ranged from 13-100% (Figure V.B.3), bobcats ranged from 0-100% (Figure V.B.4), javelinas ranged from 0-100% (Figure V.B.5), mountain lions ranged from 0-19% (Figure V.B.6), and other wildlife ranged from 0-99% (Figure V.B.7). Likely because of a proximity to areas typically inhabited by wildlife, the largest percentages of residents observing these species were found in the urban fringe near established conservation areas (e.g., Coronado National Forest, Saguaro National Park) and some urban core census block groups that are near city parks and natural areas.

Figure V.B.3. Predicted percent of residents by census block group who have occasionally or often observed coyotes near their homes.

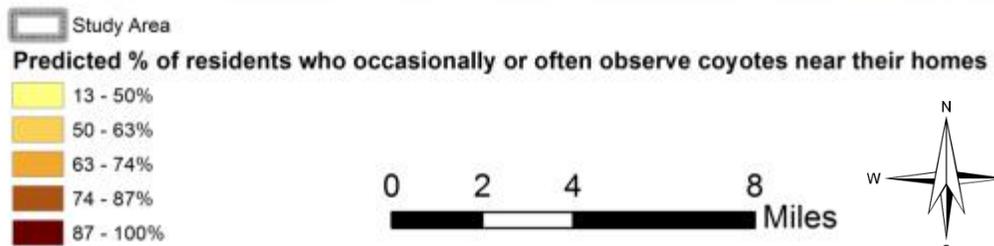
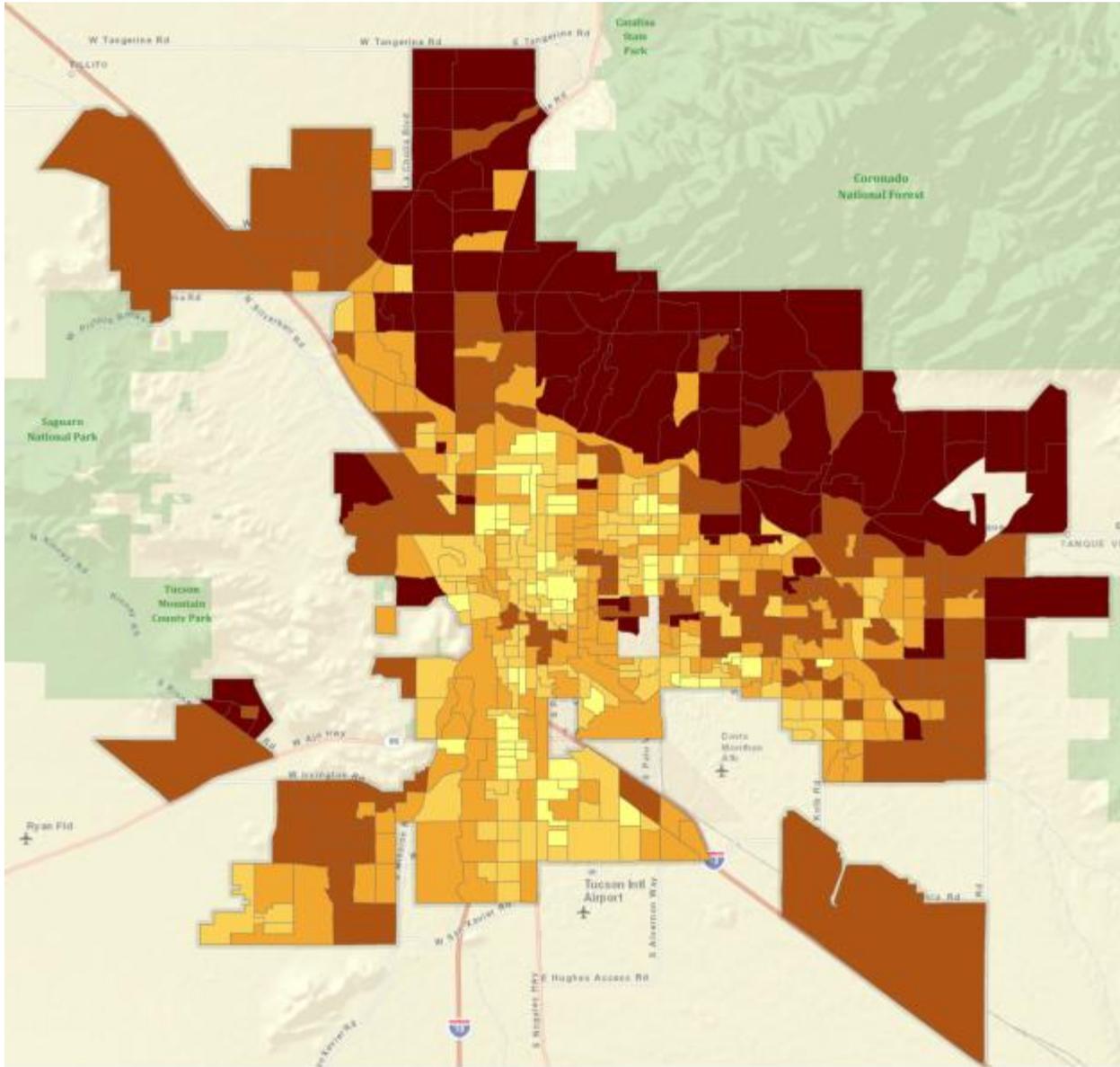


Figure V.B.4. Predicted percent of residents by census block group who have occasionally or often observed bobcats near their homes.

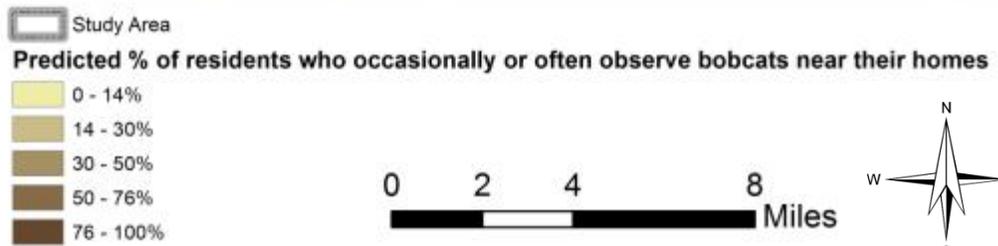
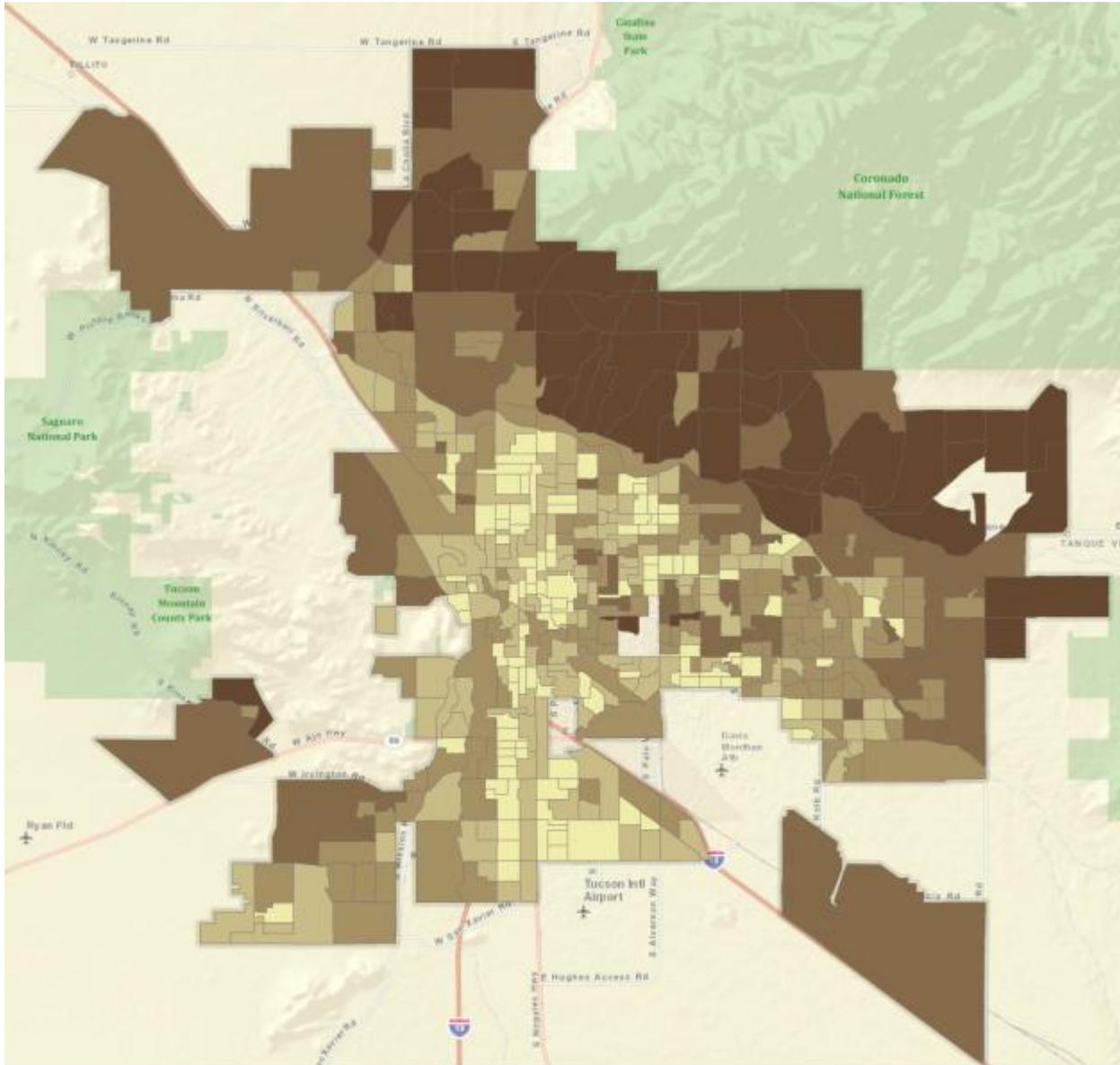
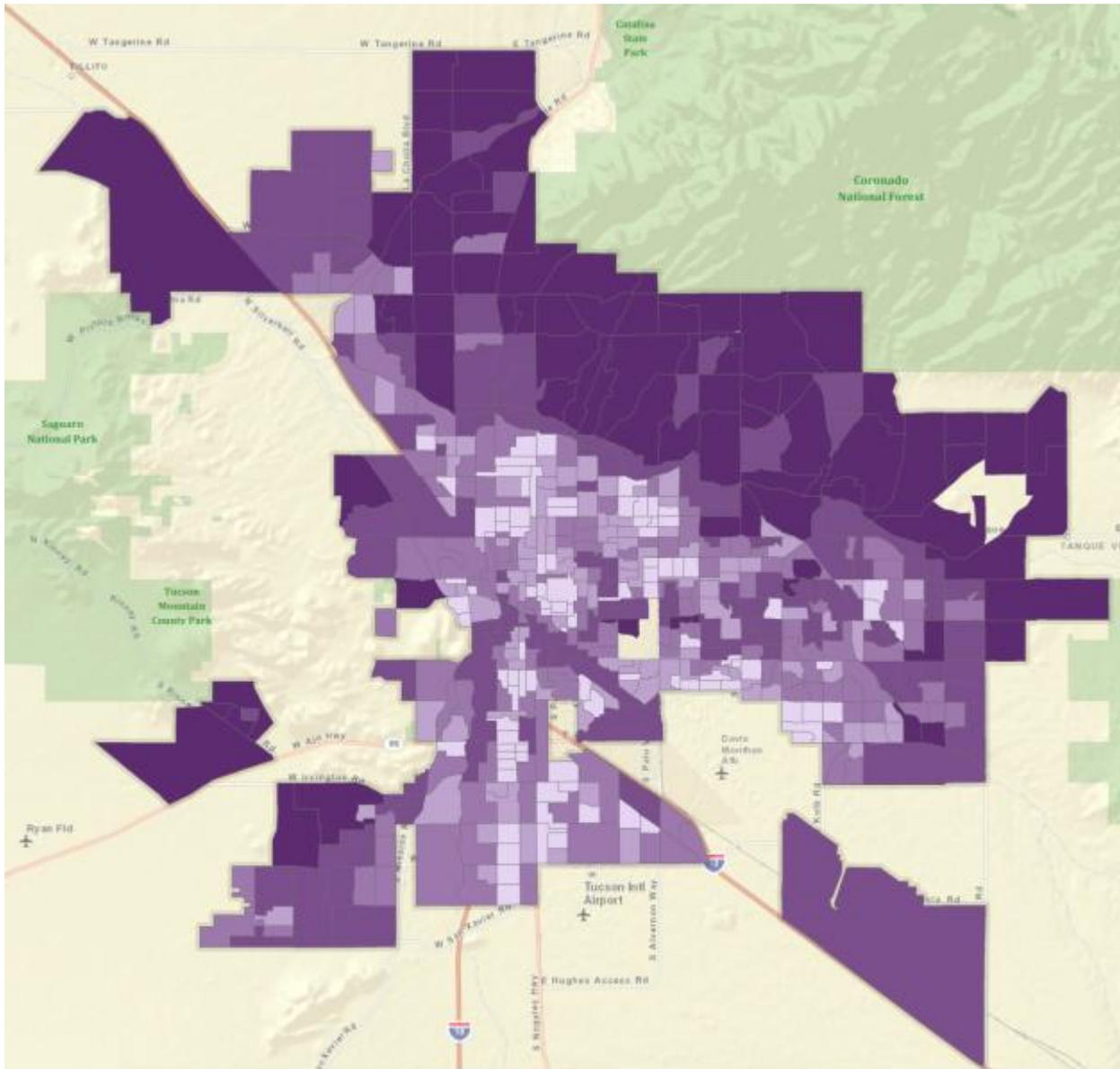


Figure V.B.5. Predicted percent of residents by census block group who have occasionally or often observed javelinas near their homes.



 Study Area

Predicted % of residents who occasionally or often observe javelinas near their homes

-  0 - 20%
-  20 - 37%
-  37 - 52%
-  52 - 71%
-  71 - 100%

0 2 4 8 Miles

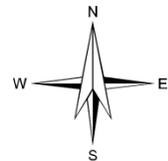
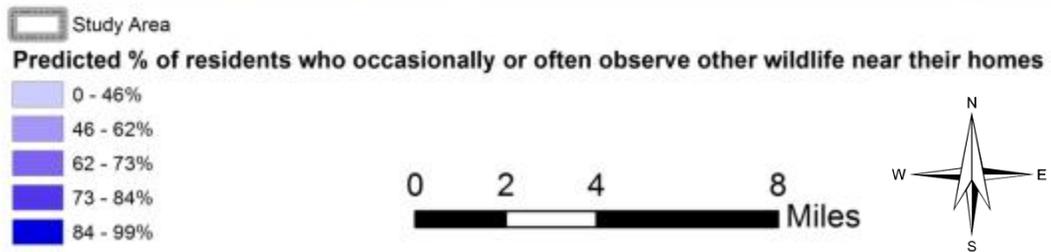
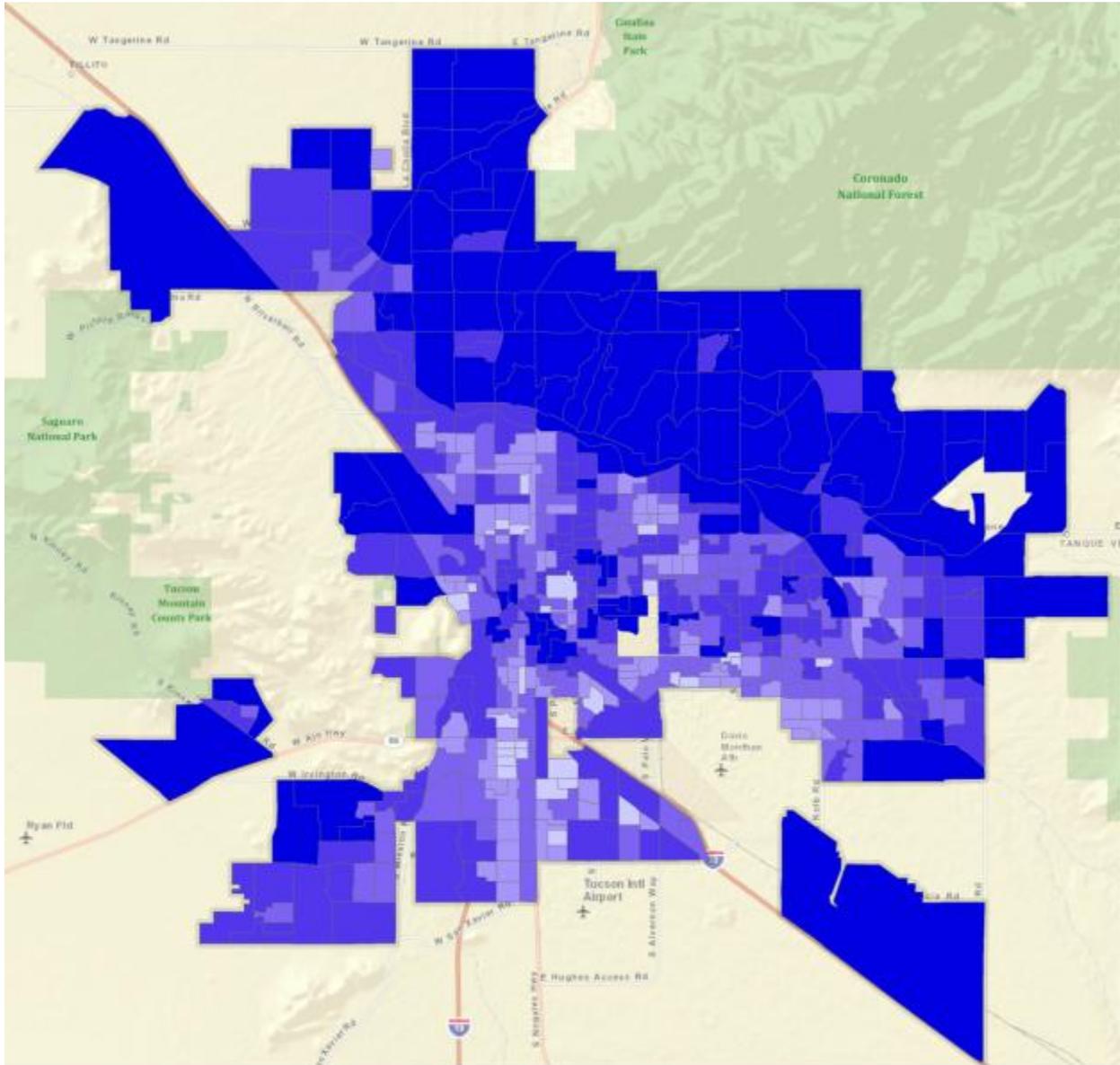


Figure V.B.7. Predicted percent of residents by census block group who have occasionally or often observed other wildlife near their homes.



The *measured* percentages of residents who indicated they have occasionally or often had a problem with different wildlife species ranged as follows:

- Coyotes: from 0% in 3 different CBGs to 33.3% in CBG 503
- Bobcats: from 0% in 17 different CBGs to 13.6% in CBG 49
- Javelinas: from 0% in 5 different CBGs to 63.6% in CBG 158 (an area adjacent to North Silverbell Road, nearby the CBG reporting the most number of residents believing wildlife to be dangerous)
- Mountain lions: from 0% in 27 different CBGs to 8.3% in CBG 21
- Other wildlife: from 5.3% in CBG 427 to 38.1% in CBG 68

Results indicate that javelinas are more often a problem for residents than are other wildlife.

The *predicted* percentage of residents for all of Tucson by census block group who have occasionally or often had a problem with coyotes ranged from 0-11% (Figure V.B.8), bobcats from 1-8% (Figure V.B.9), javelinas from 0-47% (Figure V.B.10), mountain lions from 0-4% (Figure V.B.11), and other wildlife from 0-25% (Figure V.B.12). Likely because of a proximity to areas typically inhabited by wildlife, the largest percentages of residents having a problem with these species were found in the urban fringe near established conservation areas (e.g., Coronado National Forest, Saguaro National Park) and some urban core census block groups that are near city parks and natural areas. It is important to consider this type of information in a spatial context, as wildlife can cause localized problems (such as those problems with javelinas indicated by residents of CBG 158), and people may be more likely to perceive or report problems in certain areas than are residents living in other areas.

Figure V.B.9. Predicted percent of residents by census block group who have occasionally had problems with bobcats near their homes.

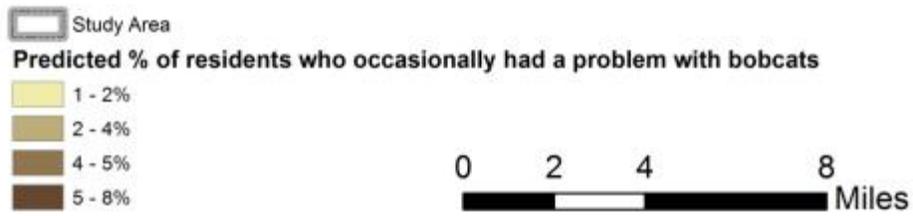
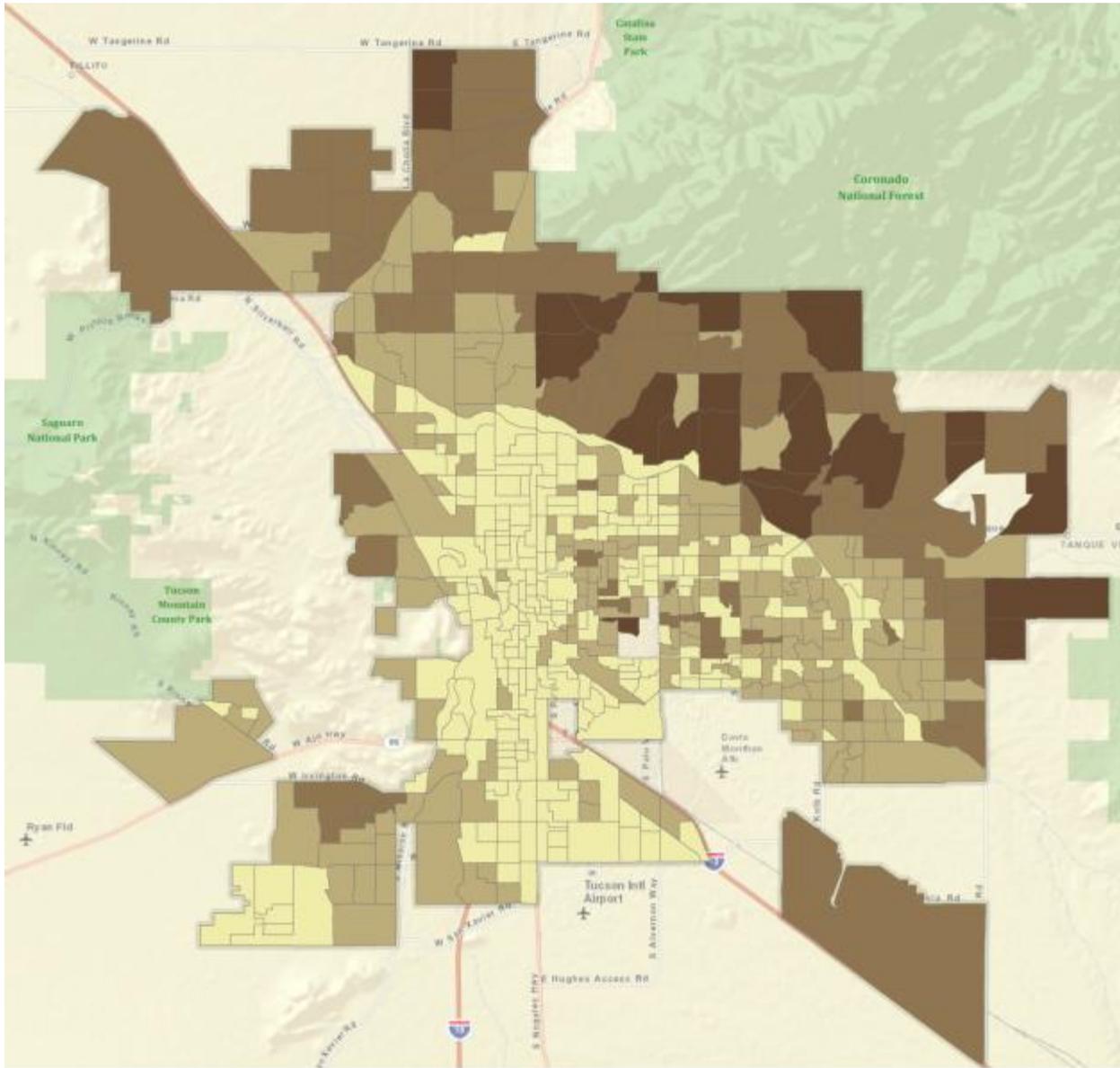


Figure V.B.10. Predicted percent of residents by census block group who have occasionally had problems with javelinas near their homes.

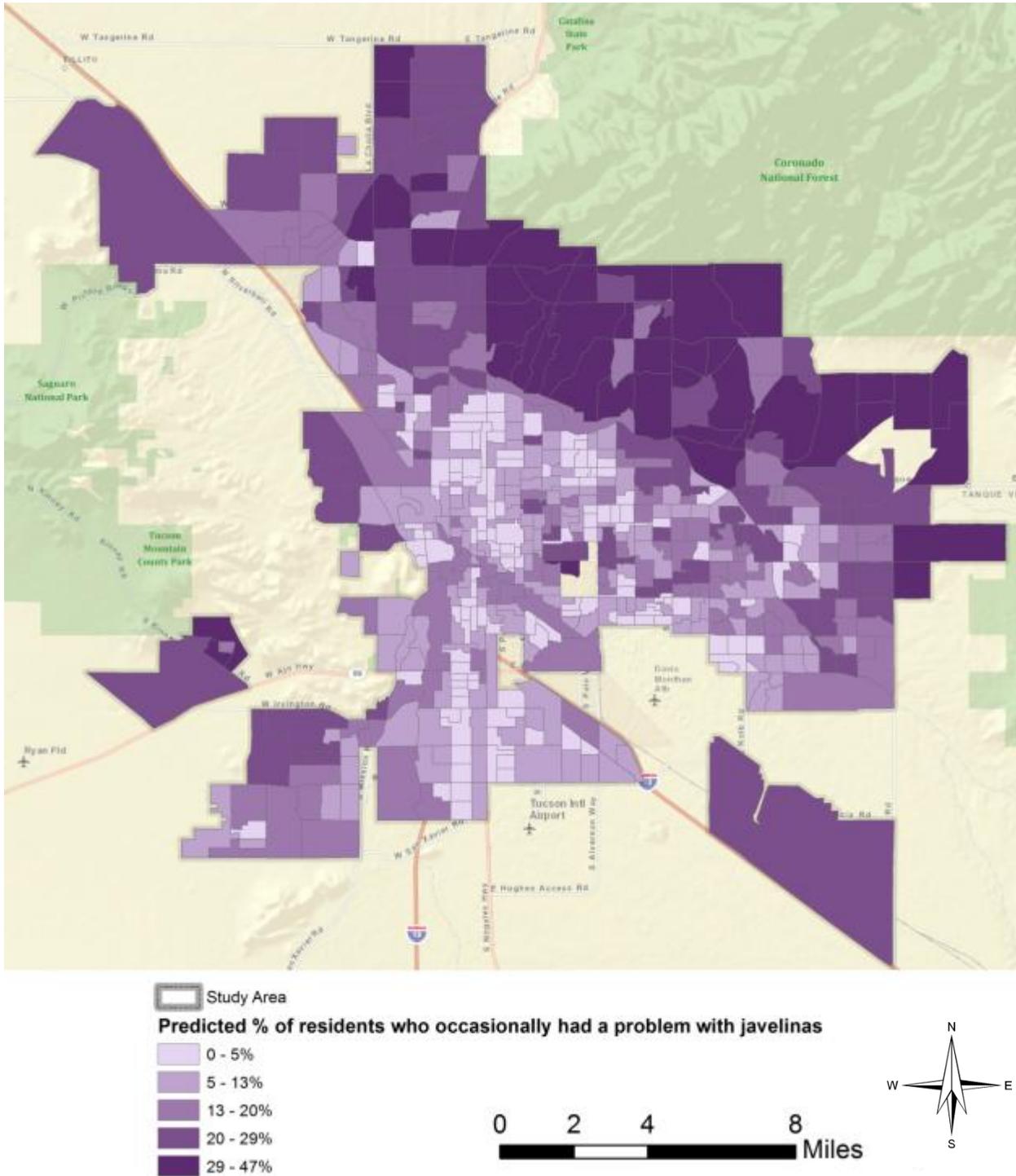
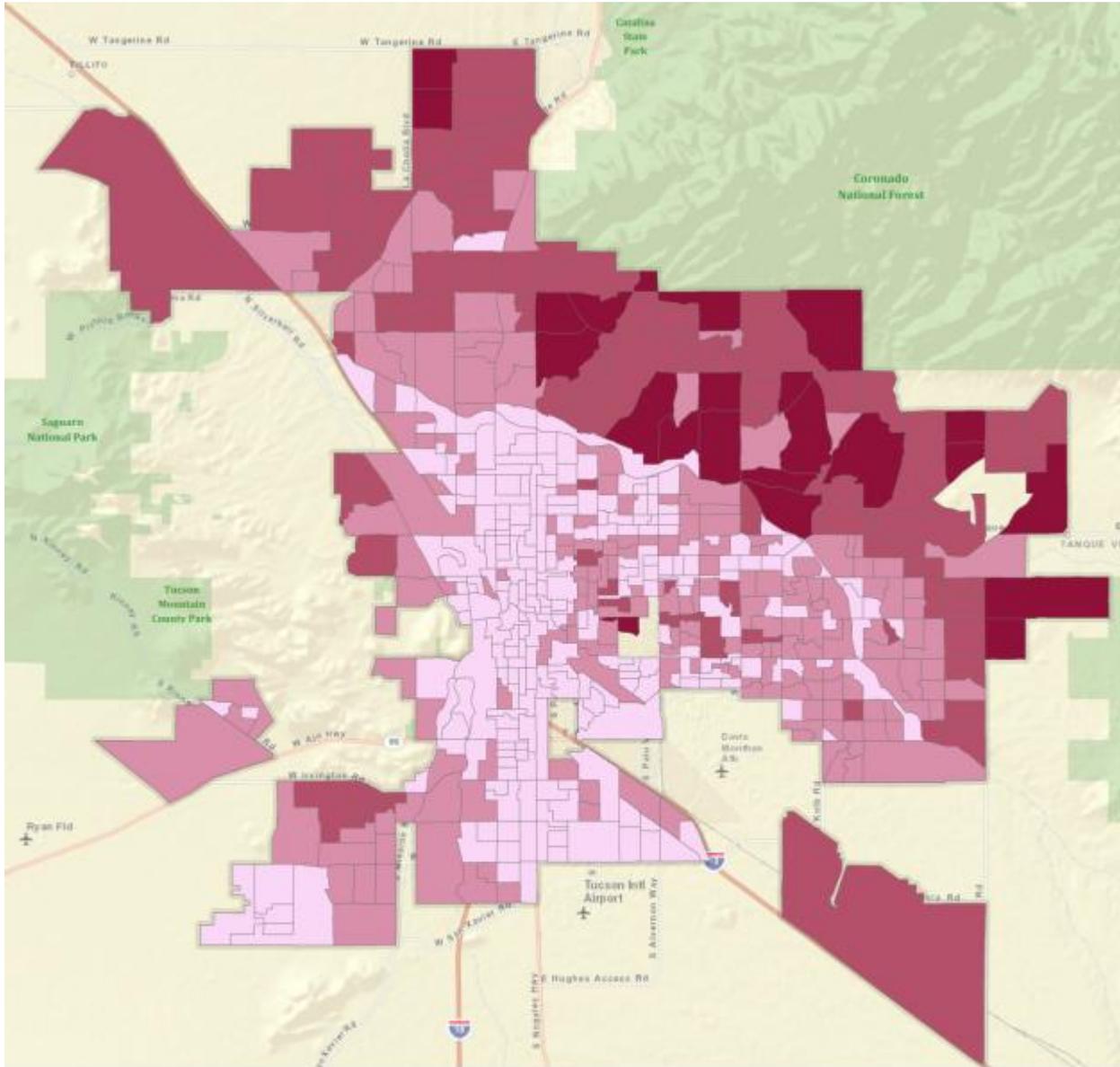


Figure V.B.11. Predicted percent of residents by census block group who have occasionally had problems with mountain lions near their homes.



 Study Area

Predicted % of residents who occasionally had a problem with mountain lions

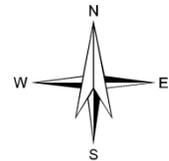
 0 - 1%

 1 - 2%

 2 - 3%

 3 - 4%

0 2 4 8 Miles



SECTION VI. ATTITUDES TOWARD LETHAL CONTROL OF WILDLIFE

This section explores the attitudes of Tucson residents toward lethal control of coyotes/bobcats, javelinas, and mountain lions. Residents were asked to evaluate the acceptability of AZGFD lethally removing these species in five hypothetical situations that could occur near residents' homes: the animal is seen near the home, is a nuisance, has a disease that may be spread to humans, attacks a pet, and attacks a human. Supporting tables for results reported in this section can be found in Appendix D (Table D-1 to D-14).

A. COYOTE AND BOBCAT

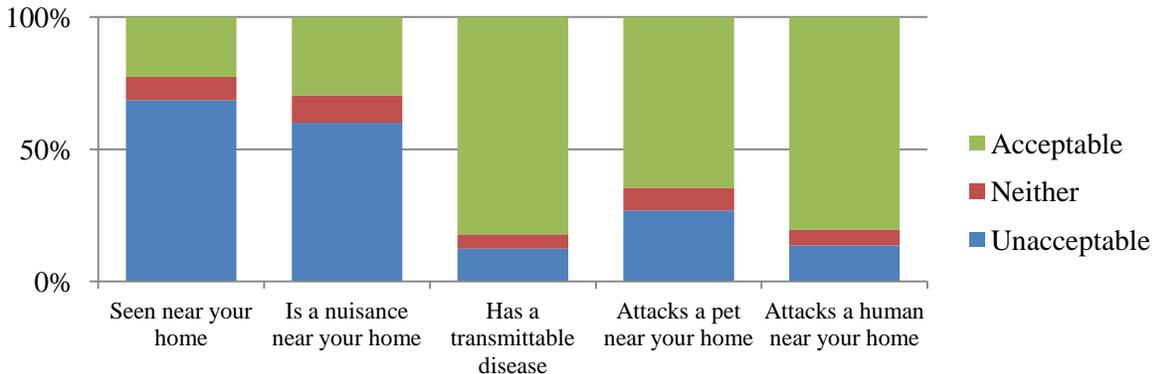
In this section, residents were asked to evaluate the acceptability of AZGFD lethally removing a coyote or bobcat in five hypothetical situations that could occur near residents' homes. Coyotes and bobcats were combined into one group for purposes of this survey because the agency would typically handle these species in the same manner when presented by the human-wildlife interactions of interest to this study. Furthermore, an extensive pretest of survey items that separated coyotes from bobcats indicated little to no variation in responses across species. Survey items used are presented below.

We're interested in knowing under what circumstances (if any) you think it is acceptable for the state fish and wildlife agency (AZGF) to **lethally remove certain wildlife**. Circle one number for each statement below.

Is it unacceptable or acceptable for AZGF to lethally remove a <u>COYOTE</u> or <u>BOBCAT</u> if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

Results by region. Tucson residents generally found lethal control of coyotes or bobcats that are observed near the home or a nuisance to be unacceptable. Meanwhile, residents found lethal removal of coyotes or bobcats that have a disease transmittable to humans or attack a pet or human near the home acceptable (Figure VI.A.1). Lethal control of coyotes or bobcats was most acceptable when the animal has a transmittable disease (82.2%) or attacks a person (80.5%).

Figure VI.A.1. Acceptability of lethal removal of a coyote or bobcat in different scenarios.

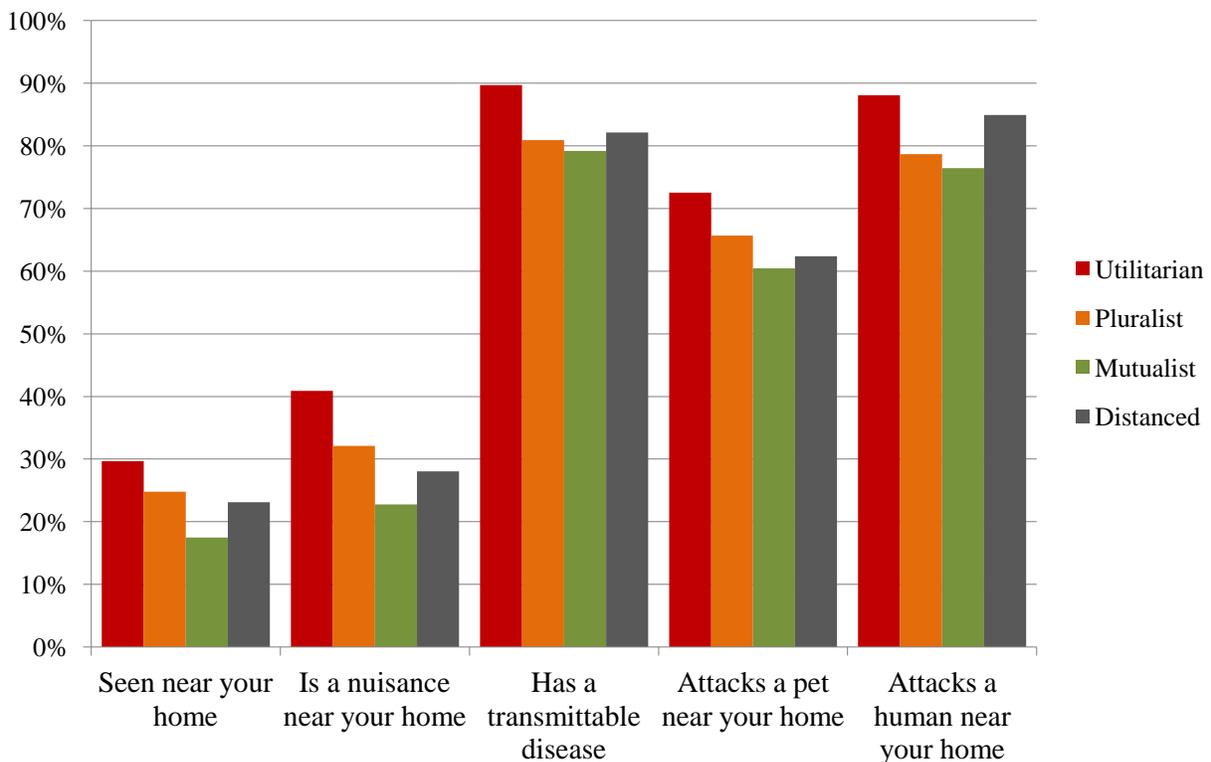


Results by demographics. Some demographic differences existed on responses to lethal control acceptance. For instance, lethal control of coyotes or bobcats in all five scenarios increased as age of respondents increased, but the *r* values denoting practical significance in these relationships was near 0.1, indicating a small effect size. The strongest relationships between demographics and responses to lethal control of coyotes or bobcats, which ranged from 0.1-0.2, were between the variables measuring education and responses to the scenarios in which a coyote or bobcat is seen near the home, is a nuisance, or attacks a pet near the home; as education increased, acceptance of lethal control in these scenarios decreased.

Results by urban core or fringe designation. Acceptance of lethal control of coyotes or bobcats was higher in the urban core than in the urban fringe for more benign scenarios (e.g., coyote or bobcat is observed or is getting into trash/pet food containers). The percentages of residents in both the urban core and fringe who found lethal control of coyotes or bobcats to be acceptable were relatively similar when the species has a transmittable disease, or attacks a pet or human (acceptance was high in these scenarios).

Results by wildlife value orientation. Utilitarians were more accepting than any of the other wildlife value orientation types of lethal control of coyotes or bobcats in all five scenarios, while Mutualists were least accepting (Figure VI.A.2). Although statistical differences did exist on these variables, the effect sizes were small, indicating only marginal variation.

Figure VI.A.2. Percent of wildlife value orientation type accepting of lethal control of coyotes or bobcats in different scenarios.



Results by census block group. The *measured* percentages of residents who indicated that lethal control of coyotes or bobcats was acceptable in five different scenarios ranged as follows:

- Is seen near the home: from 5.3% in CBG 315 to 46.2% in CBG 427
- Is a nuisance: from 5.3% in CBG 315 to 55.2% in CBG 427
- Has a transmittable disease: from 65.9% in CBG 517 to 94.1% in CBG 430
- Attacks a pet: from 31.6% in CBG 315 to 90.0% in CBG 427
- Attacks a human: from 54.5% in CBG 262 to 96.7% in CBG 427

None of the census block groups had a majority of residents who found lethal control when a coyote or bobcat is seen near the home to be acceptable. Only two census block groups (CBGs 402 and 427) had a majority of residents who found lethal control to be acceptable when a coyote or bobcat is a nuisance. A majority of residents from all but four census block groups (CBGs 68, 72, 315, and 335) found lethal control to be acceptable when a coyote or bobcat attacks a pet. All census block groups had a majority of residents who found lethal control acceptable when a coyote or bobcat has a transmittable disease or attacks a human.

The *predicted* percentage of residents by census block group who found lethal control of coyotes or bobcats to be acceptable when the species is observed near the home ranged from 4-51% (Figure VI.A.3), is a nuisance from 15-61% (Figure VI.A.4), and attacks a pet from 55-76% (Figure VI.A.5). Spatial depictions of results are not presented for two scenarios (when the coyote or bobcat has a transmittable disease or attacks a human) because of low variation in responses; in general, acceptance of lethal control is high in these two scenarios.

Figure VI.A.3. Predicted percent of residents by census block group accepting of lethal control of a bobcat or coyote that has been seen near the home.

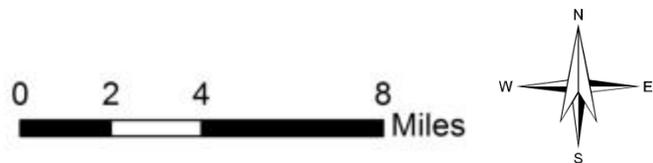
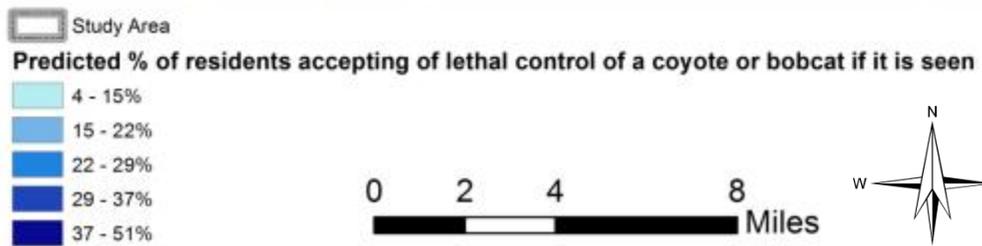
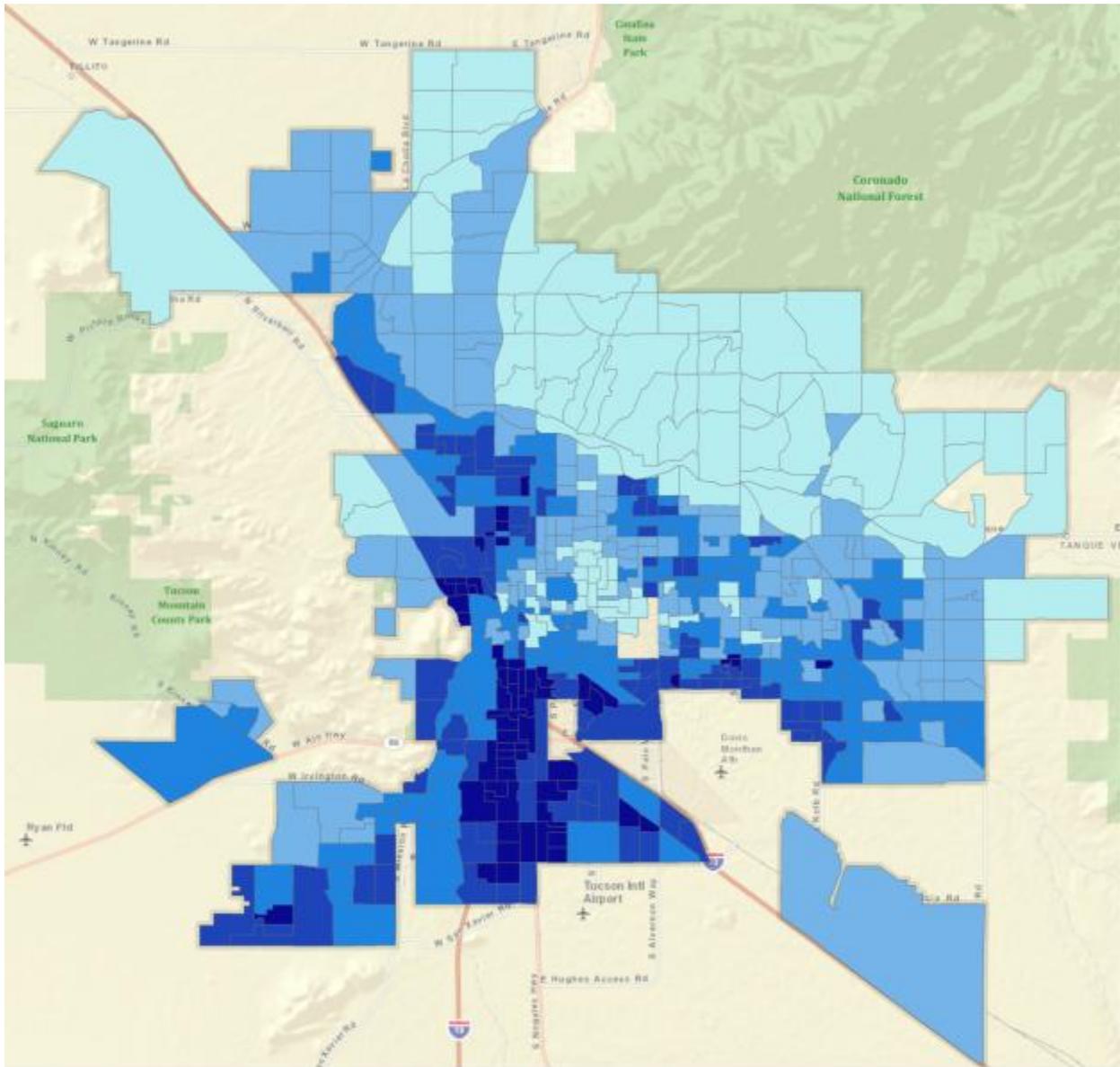


Figure VI.A.4. Predicted percent of residents by census block group accepting of lethal control of a nuisance bobcat or coyote.

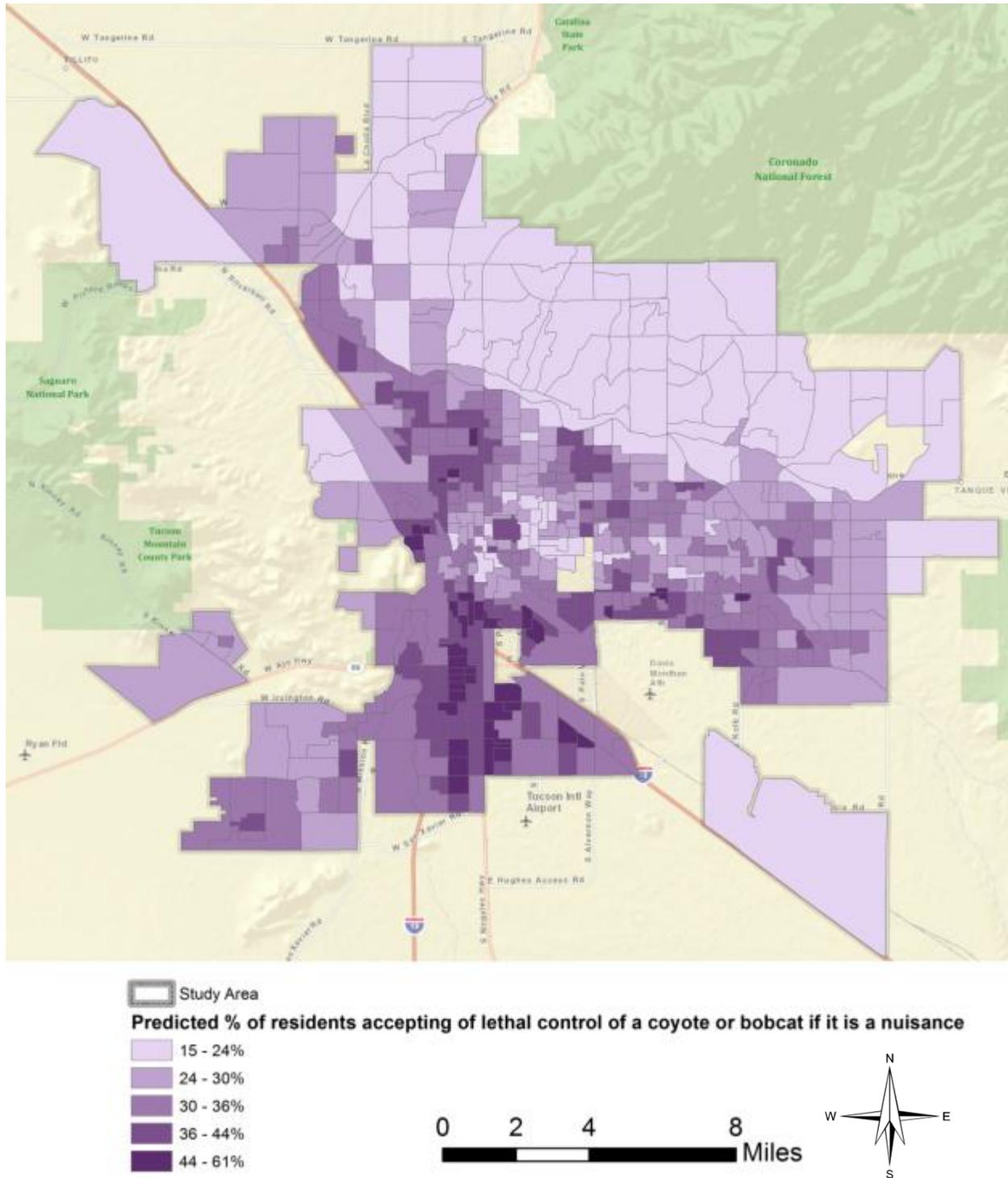


Figure VI.A.5. Predicted percent of residents by census block group accepting of lethal control of a bobcat or coyote that attacks a pet near the home.

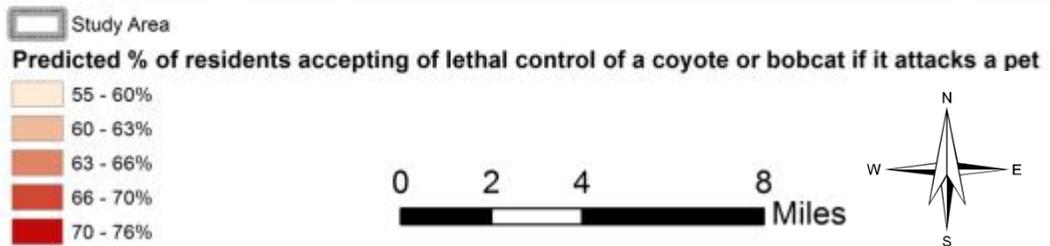
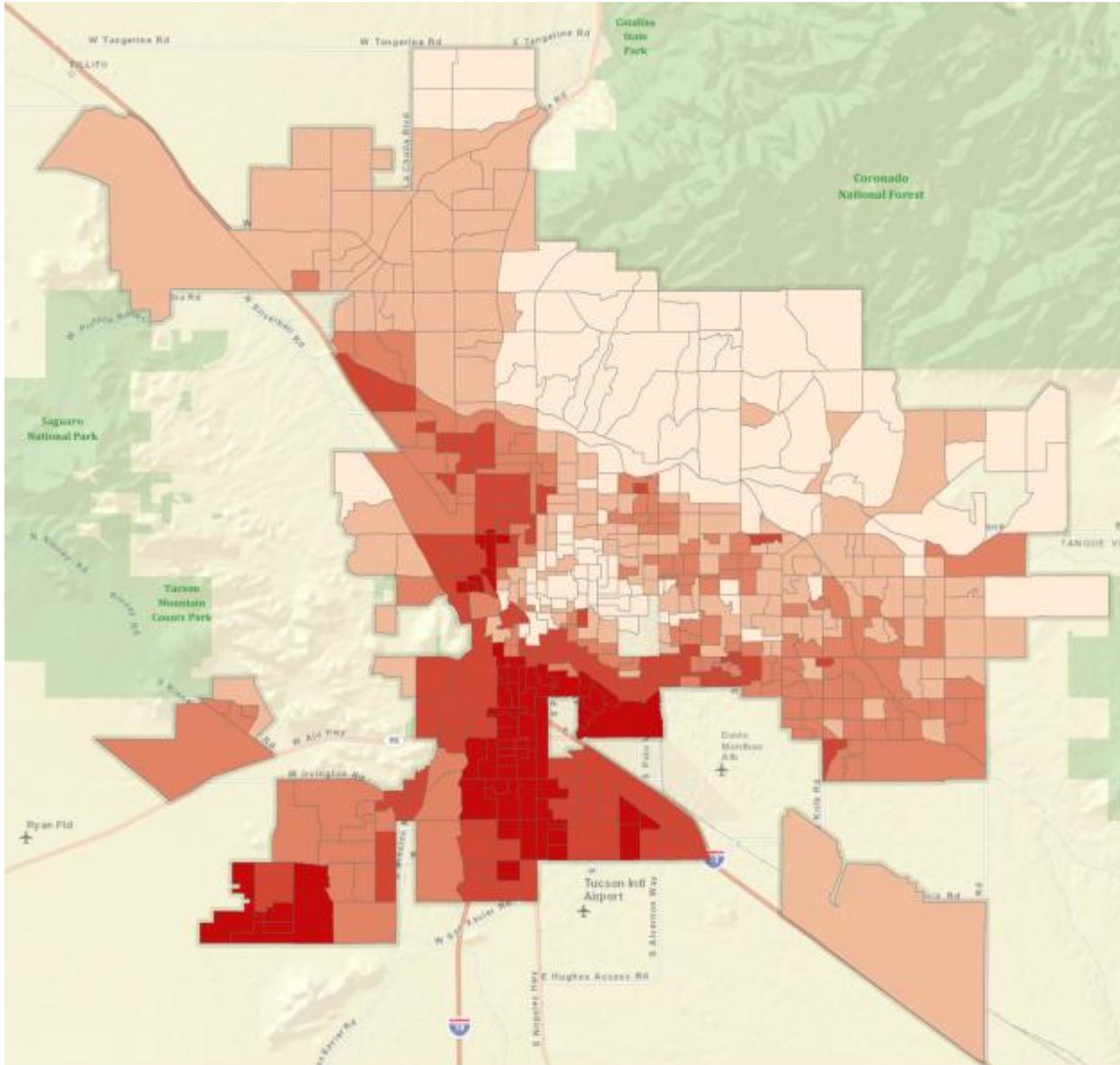
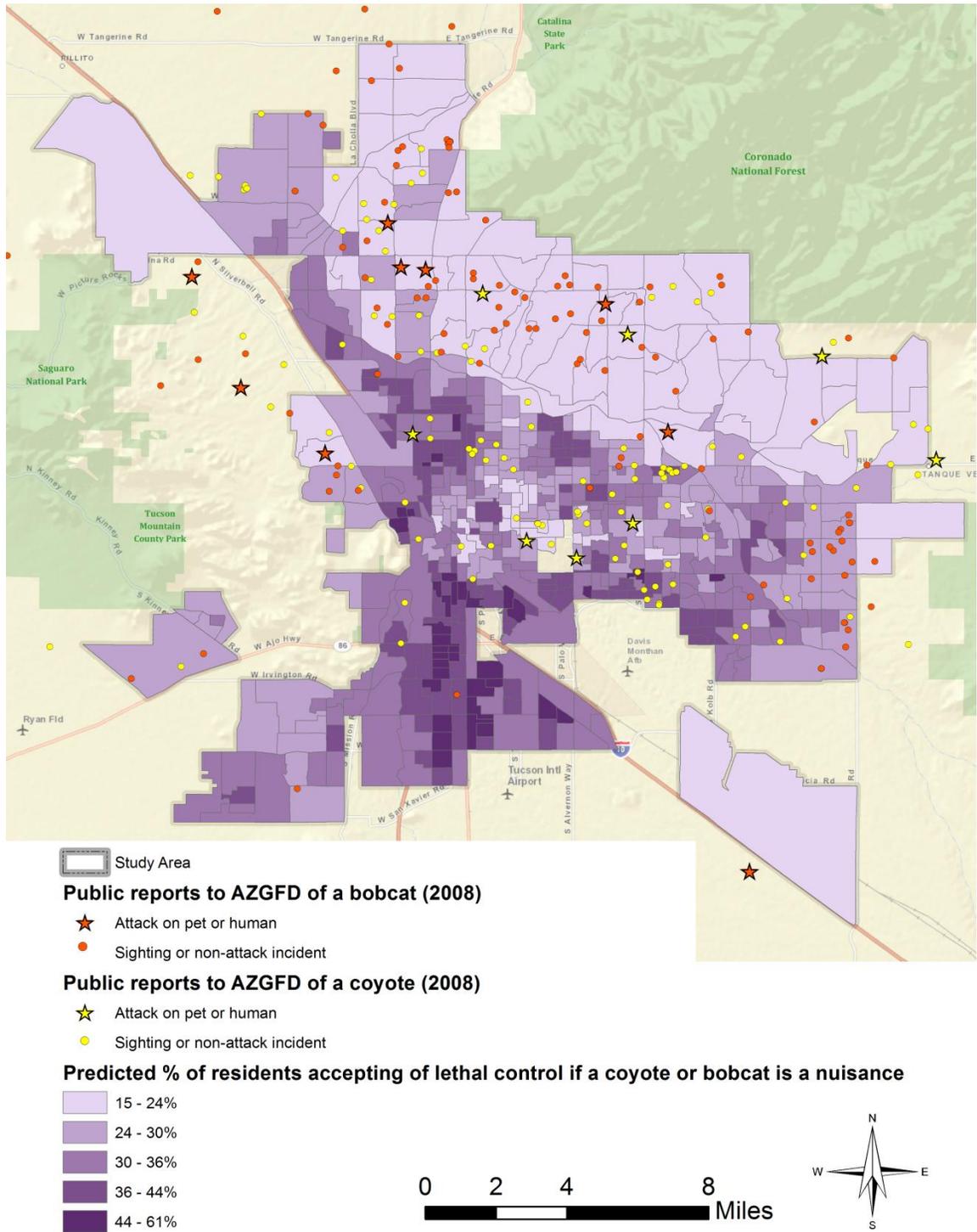


Figure VI.A.6 displays the percent of residents accepting of lethal removal of a coyote or bobcat in a nuisance scenario along with additional spatial data showing locations where residents reported some type of incident with a coyote or bobcat to AZGFD. These incident reports are from January to August 2008 (a month prior to the survey being conducted), and include both situations in which a coyote or bobcat was sighted or was involved in an incident that did not result in a physical attack on a pet or human, and situations involving actual physical attacks on pets or humans. Although the data reflect only those incidents that were reported to AZGFD, as opposed to all incidents that may have occurred, it appears that tolerance of coyotes and bobcats was higher (as indicated by lower levels of support for lethal control) in the urban fringe where a greater number of incident reports originated. Tolerance (as indicated by higher levels of support for lethal control) was *lower* in the urban core where fewer incidents were reported.

It is important to note that there were specific reports of attacks by coyotes on pets and humans in census block groups within the urban core, meaning that coyotes are accessing areas with higher human density and appear to be doing so more often than bobcats. These findings highlight the importance of taking into account multiple sources of information (social as well as biological) in a geographic context to understand wildlife-related issues and public responses to those issues. It is likely that a number of factors (e.g., wildlife presence/abundance, people's prior experiences with wildlife and wildlife-related problems, how the agency responds to wildlife situations, and the wildlife value orientations that people hold) play a role in shaping human responses to instances of wildlife-related conflict.

Figure VI.A.6. Overlay of incidents reported to AZGFD involving a coyote or bobcat with the percent of residents accepting of lethal removal of a *nuisance coyote or bobcat*.¹



¹ Data source: AZGFD, 2012, personal communications. Each dot on this map reflects a location reported to AZGFD where a coyote or bobcat was involved in some sort of sighting, incident, or attack. All reports occurred during January to August 2008.

B. JAVELINA

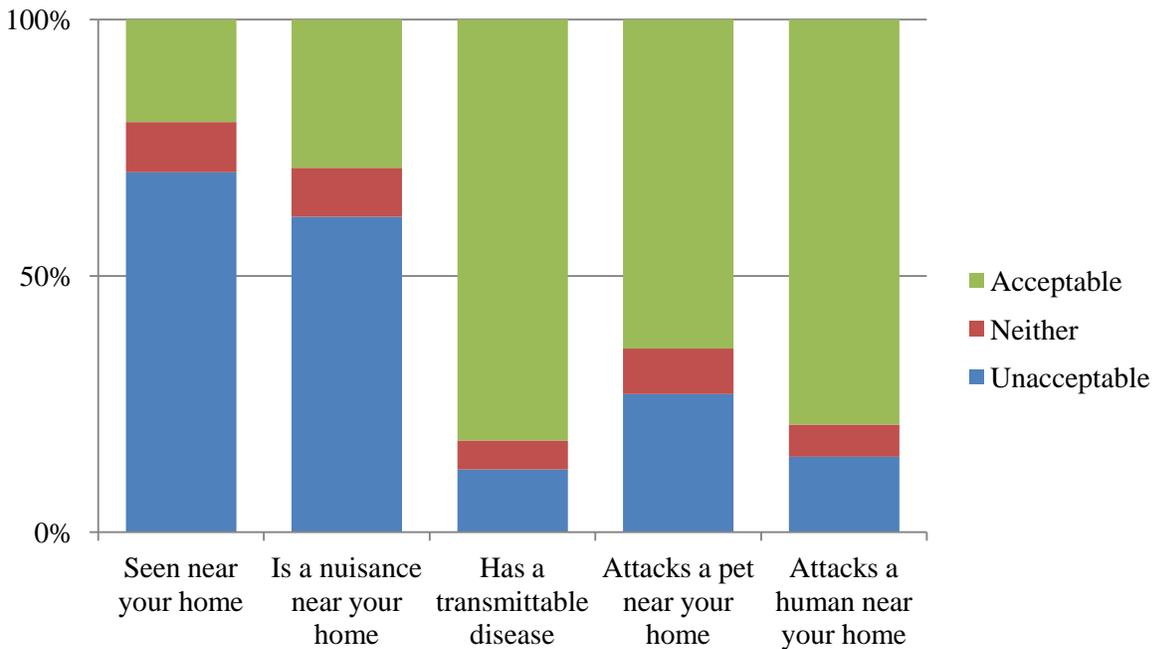
In this section, residents were asked to evaluate the acceptability of AZGFD lethally removing a javelina in five hypothetical situations that could occur near residents' homes. Survey items used are presented below.

We're interested in knowing under what circumstances (if any) you think it is acceptable for the state fish and wildlife agency (AZGF) to **lethally remove certain wildlife**. Circle one number for each statement below.

Is it unacceptable or acceptable for AZGF to lethally remove a <u>JAVELINA</u> if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

Results by region. Tucson residents generally were not accepting of lethal removal of javelinas that are observed near the home or a nuisance, but were accepting of lethal removal when javelinas have a disease transmittable to humans or have attacked a pet or human near the home (Figure VI.B.1). Residents were most accepting of lethal control of javelinas if they have a transmittable disease (82.1%) or attack a human near the home (79.0%).

Figure VI.B.1. Acceptability of lethal removal of a javelina in different scenarios.

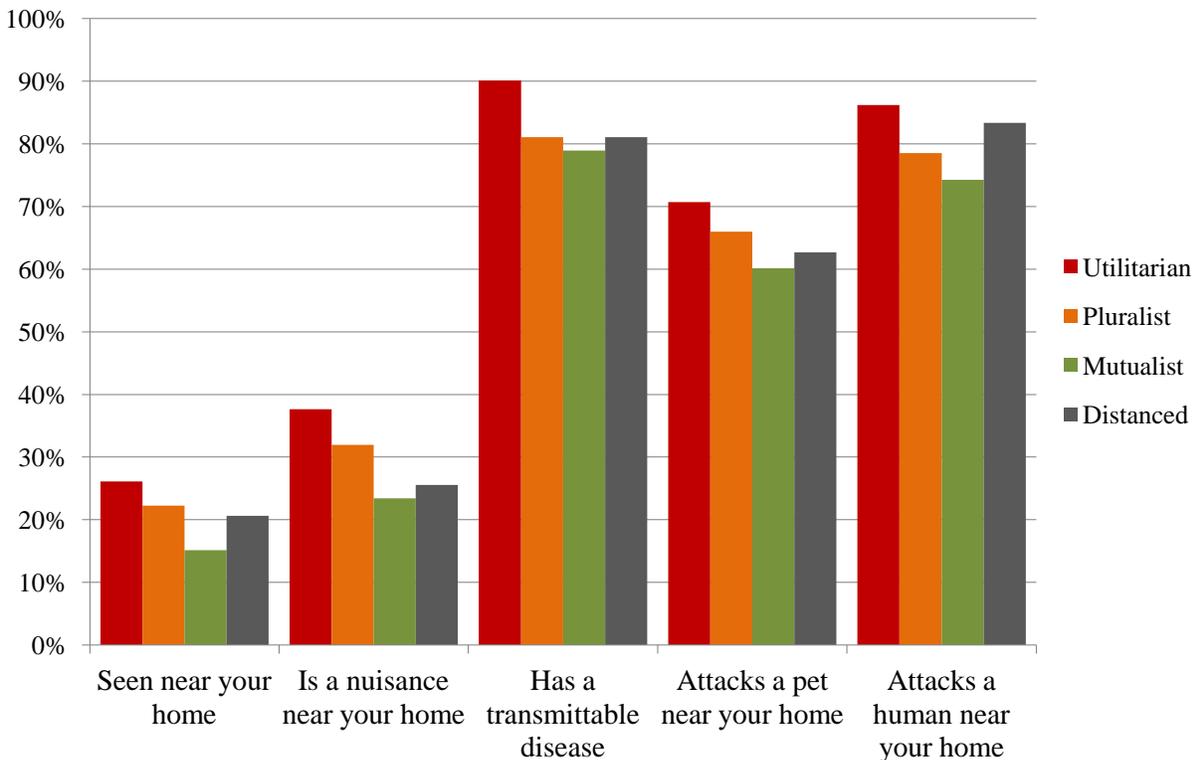


Results by demographics. Some demographic differences existed on responses to lethal control acceptance. For instance, acceptability of lethal control of javelinas in all five scenarios increased as age of respondents increased, but the *r* values denoting practical significance were near 0.1, indicating a small effect size. The strongest relationships between demographics and responses to lethal control of javelinas, which ranged from 0.1-0.2, were between the variables measuring education and responses to the scenarios in which a javelina is seen near the home, is a nuisance, or attacks a pet near the home; as education increased, acceptance of lethal control in these scenarios decreased.

Results by urban core or fringe designation. Acceptance of lethal control of javelinas was higher in the urban core than in the urban fringe for more benign scenarios (e.g., javelina is observed or is getting into trash/pet food containers). The percents of residents in both the urban core and fringe who found lethal control of javelinas to be acceptable were relatively similar when the species attacks a pet or human or has a transmittable disease (acceptance was high in these scenarios).

Results by wildlife value orientation. Utilitarians were more accepting of lethal control of javelinas in all five scenarios than any of the other wildlife value orientation types, while Mutualists were least accepting of lethal control (Figure VI.B.2). Although statistical differences did exist, the effect sizes indicated only marginal variation.

Figure VI.B.2. Percent of wildlife value orientation type accepting of lethal control of javelina in different scenarios.



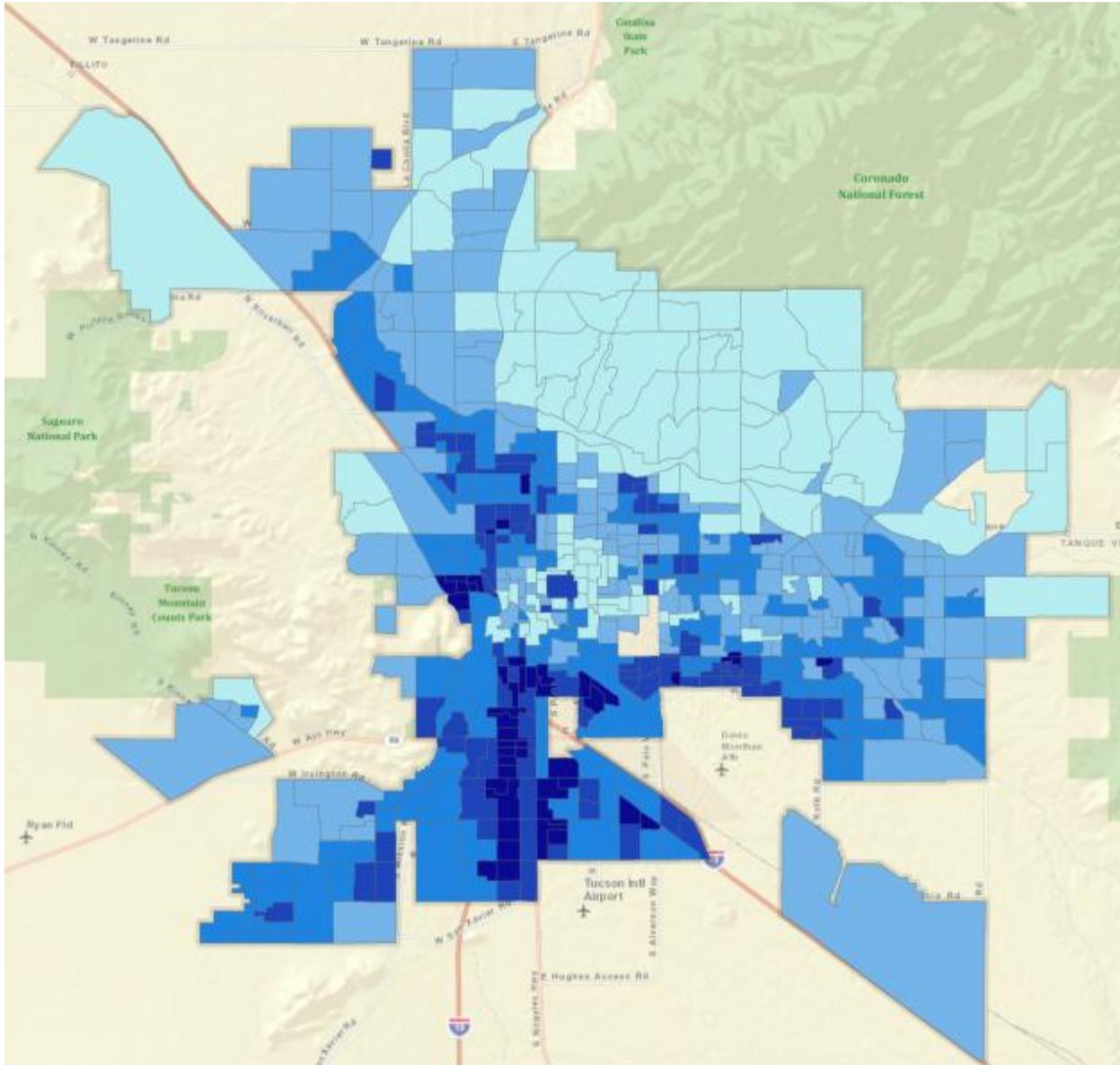
Results by census block group. The *measured* percentages of residents who indicated that lethal control of javelinas was acceptable in five different scenarios ranged as follows:

- Is seen near the home: from 0% in CBG 315 to 60.7% in CBG 427
- Is a nuisance: from 9.2% in CBG 74 to 60.0% in CBG 427
- Has a transmittable disease: from 61.8% in CBG 354 to 96.7% in CBG 427
- Attacks a pet: from 39.6% in CBG 68 to 90.0% in CBG 427
- Attacks a human: from 58.6% in CBG 283 to 93.3% in CBG 427

Only one census block group (CBG 427) had a majority of residents who found lethal control to be acceptable when a javelina is seen near the home or when a javelina is a nuisance. A majority of residents from all but five census block groups (CBGs 68, 94, 283, 315, and 501) found lethal control to be acceptable when a javelina attacks a pet. All census block groups had a majority of residents who found lethal control acceptable when a javelina has a transmittable disease or attacks a human near the home.

The *predicted* percentage of residents by census block group who found lethal control of javelinas to be acceptable when the species is observed near the home ranged from 0-65% (Figure VI.B.3), is a nuisance from 10-67% (Figure VI.B.4), and attacks a pet from 52-79% (Figure VI.B.5). Spatial depictions of results are not presented for two scenarios (i.e., when the javelina has a transmittable disease or attacks a human) because of low variation in responses; in general, lethal control is highly acceptable in these scenarios.

Figure VI.B.3. Predicted percent of residents by census block group accepting of lethal control of a javelina that has been seen near the home.



Study Area

Predicted % of residents accepting of lethal control of a javelina if it is seen

- 0 - 11%
- 11 - 19%
- 19 - 28%
- 28 - 39%
- 39 - 65%

0 2 4 8 Miles

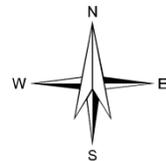


Figure VI.B.4. Predicted percent of residents by census block group accepting of lethal control of a nuisance javelina.

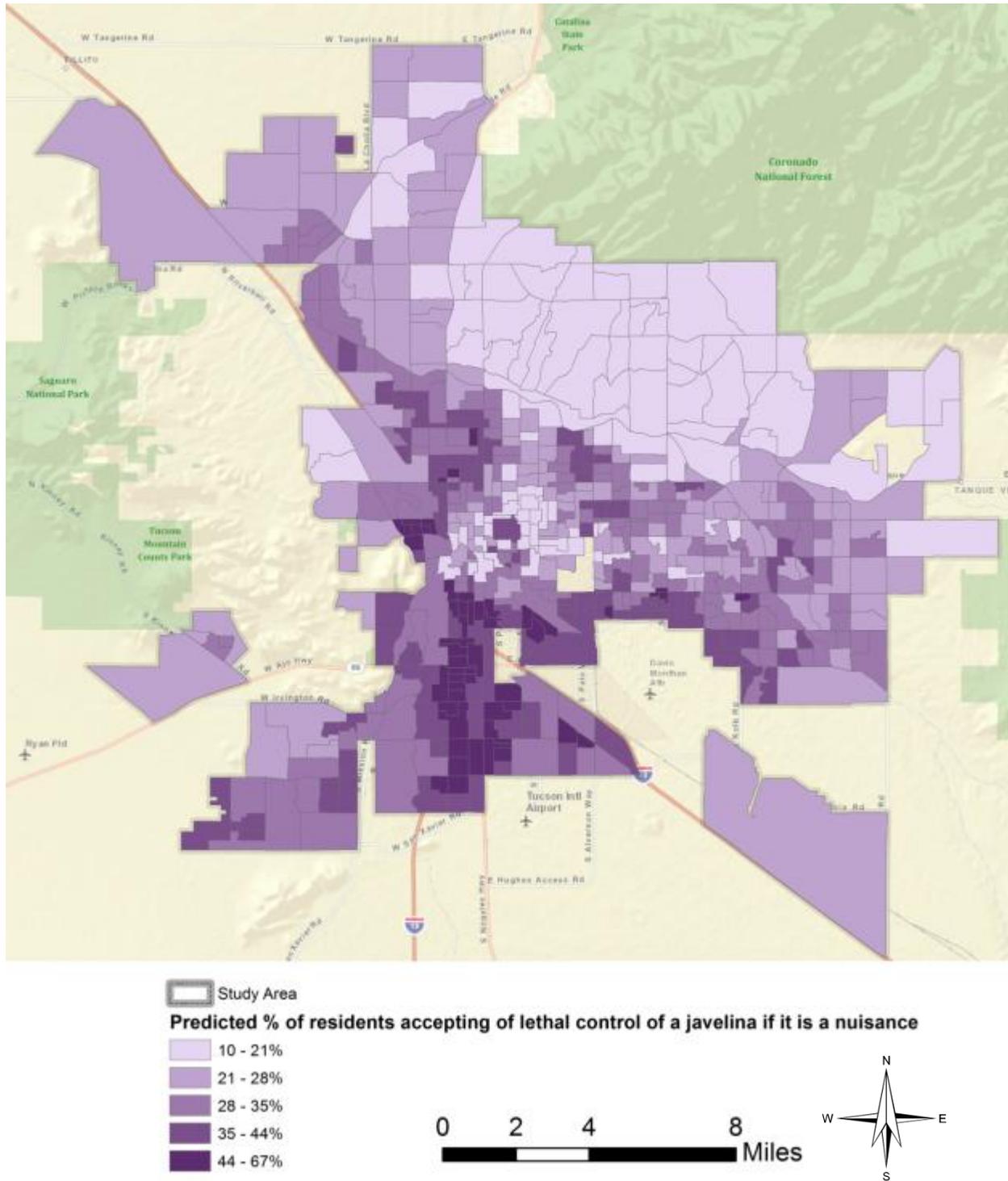


Figure VI.B.5. Predicted percent of residents by census block group accepting of lethal control of a javelina that attacks a pet near the home.

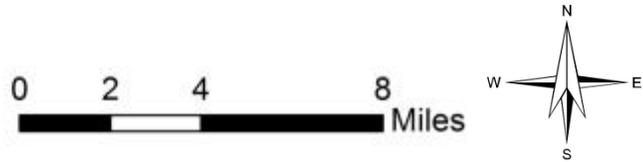
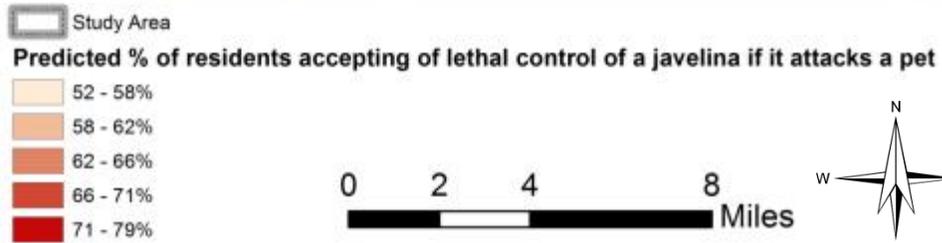
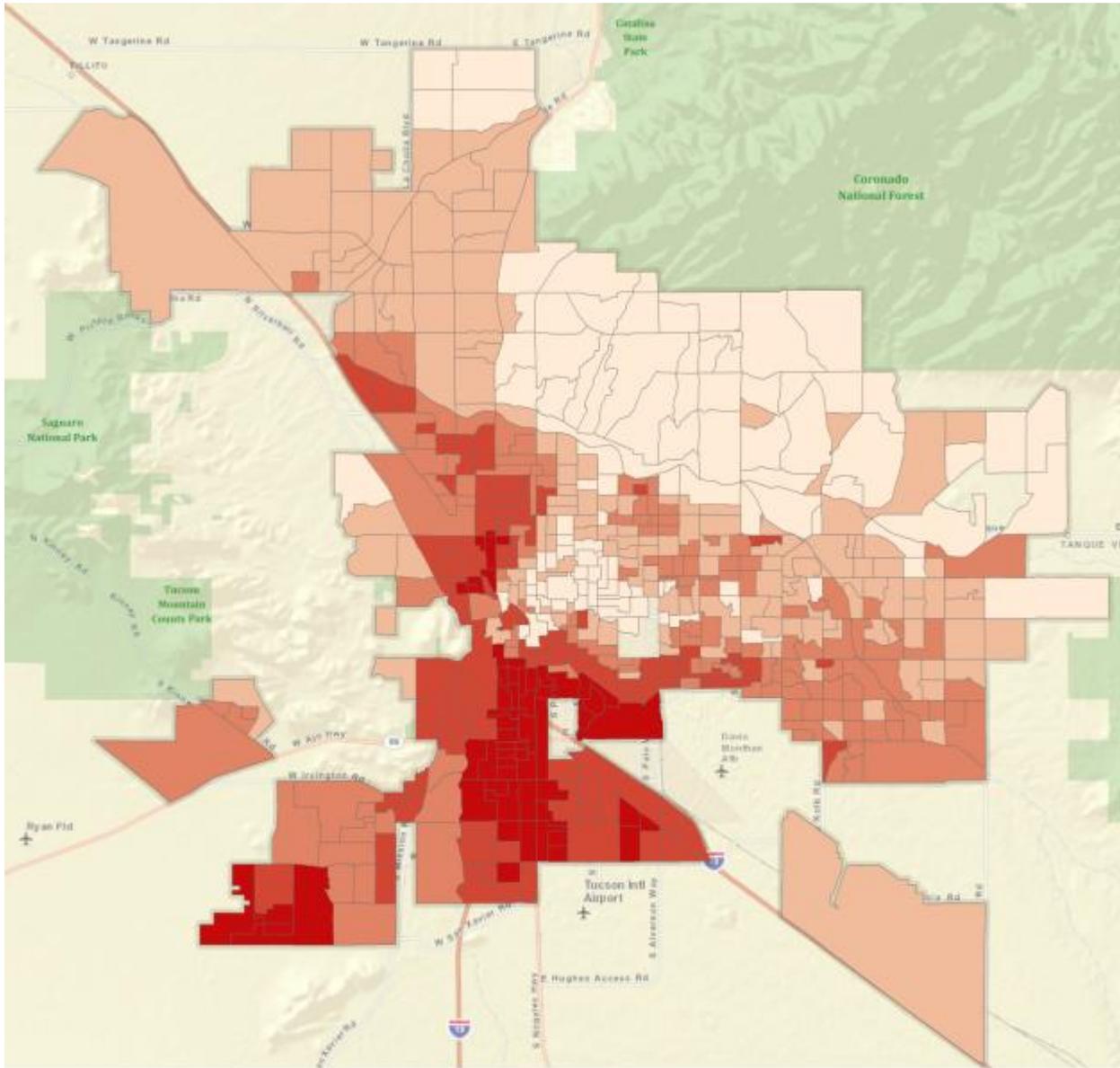
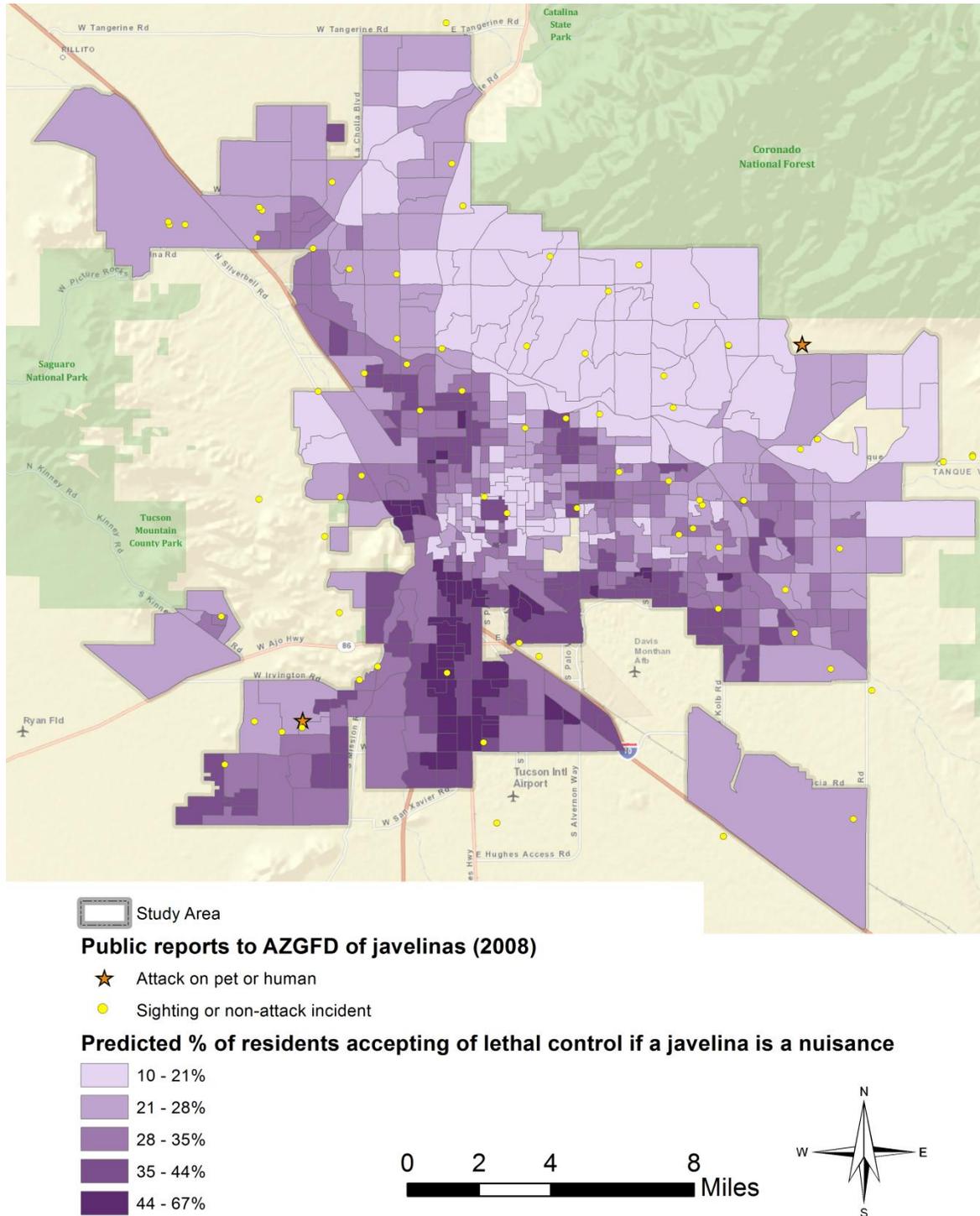


Figure VI.B.6 displays the percent of residents accepting of lethal removal of a javelina in a nuisance scenario along with additional spatial data showing locations where residents reported some type of incident with a javelina to AZGFD. These incident reports are from January to August 2008 (a month prior to the survey being conducted), and include both situations in which a javelina was sighted or was involved in an incident that did not result in a physical attack on a pet or human, and situations involving actual physical attacks on pets or humans. Although the data reflect only those incidents that were reported to AZGFD, as opposed to all incidents that may have occurred, it appears that incidents with javelinas in Tucson were not concentrated in any one area. It appears that tolerance of javelinas was higher (as indicated by lower levels of support for lethal control) in the urban fringe than in the urban core.

Javelinas are accessing areas with higher human density (i.e., the urban core) and may come into contact with humans in areas where there are lower levels of tolerance for such encounters. These findings highlight the importance of taking into account multiple sources of information (social as well as biological) in a geographic context to understand wildlife-related issues and public responses to those issues. It is likely that a number of factors (e.g., wildlife presence/abundance, people's prior experiences with wildlife and wildlife-related problems, how the agency responds to wildlife situations, and the wildlife value orientations that people hold) play a role in shaping human responses to instances of wildlife-related conflict.

Figure VI.B.6. Overlay of incidents reported to AZGFD involving a javelina with the percent of residents accepting of lethal removal of a *nuisance javelina*.²



² Data source: AZGFD, 2012, personal communications. Each dot on this map reflects a location reported to AZGFD where a javelina was involved in some sort of sighting, incident, or attack. All reports occurred during January to August 2008.

C. MOUNTAIN LION

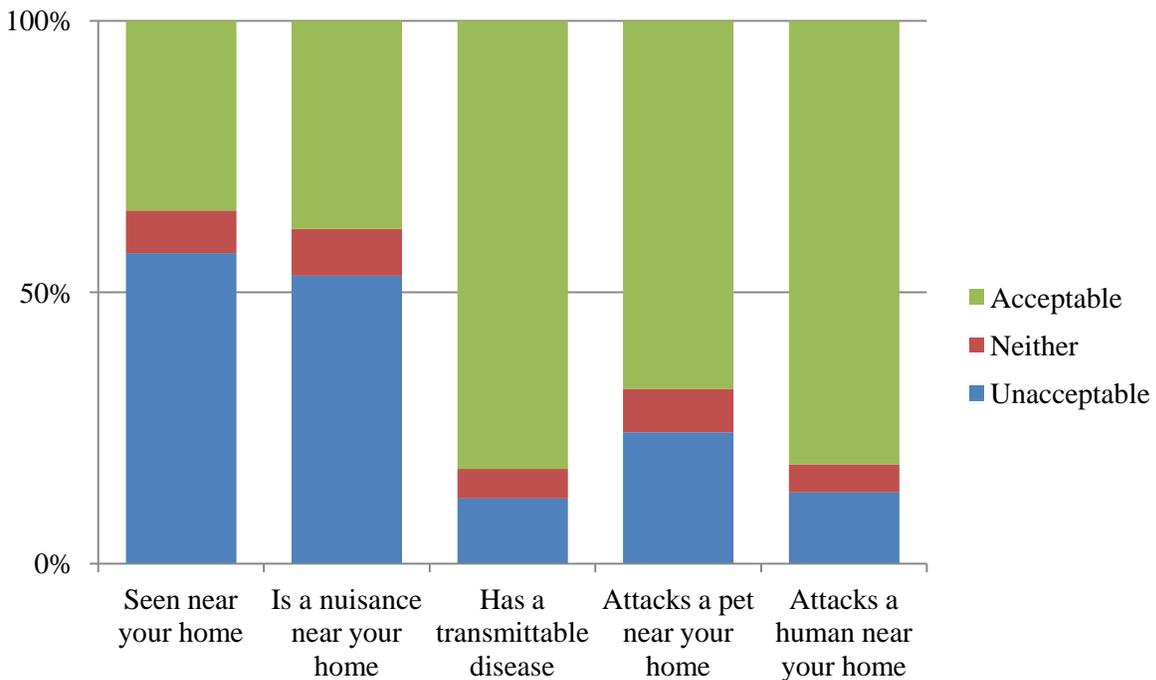
In this section, residents were asked to evaluate the acceptability of AZGFD lethally removing a mountain lion in five hypothetical situations that could occur near residents' homes. Survey items used are presented below.

We're interested in knowing under what circumstances (if any) you think it is acceptable for the state fish and wildlife agency (AZGF) to **lethally remove certain wildlife**. Circle one number for each statement below.

Is it unacceptable or acceptable for AZGF to lethally remove a <u>MOUNTAIN LION</u> if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

Results by region. Tucson residents, in general, were not accepting of lethal removal of mountain lions that are observed near the home or a nuisance, and were accepting of lethal removal of mountain lions that have a disease transmittable to humans, or attack a pet or human near the home (Figure VI.C.1). Lethal control of mountain lions was most acceptable when the species has a transmittable disease (82.5%) or attacks a human near the home (81.7%).

Figure VI.C.1. Acceptability of lethal removal of a mountain lion in different scenarios.

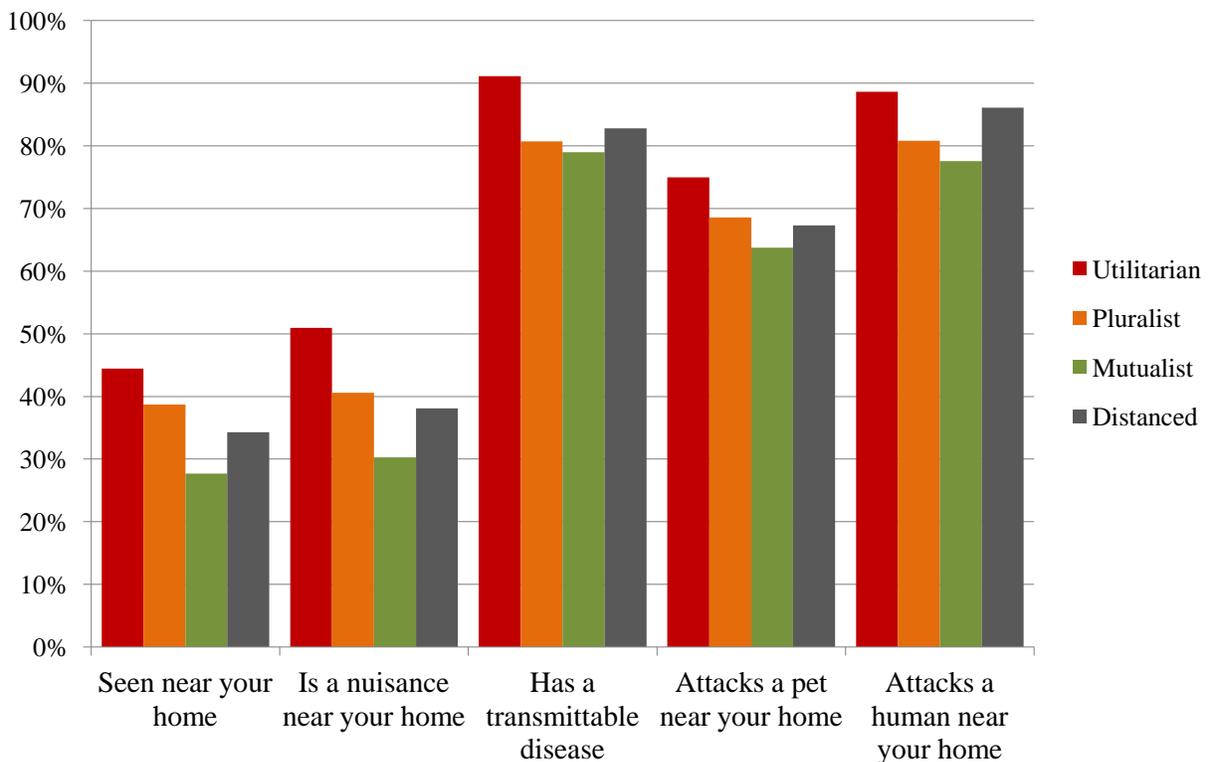


Results by demographics. Some demographic differences existed on responses to lethal control acceptance. For instance, lethal control of mountain lions in all five scenarios increased as age of respondents increased, but the *r* values denoting practical significance in these relationships was near 0.1, indicating a small effect size. The strongest relationships between demographics and responses to lethal control of mountain lions, which ranged from 0.1-0.2, were between the variables measuring education and responses to the scenarios in which a mountain lion is seen near the home, is a nuisance, or attacks a pet near the home; as education increased, acceptance of lethal control in these scenarios decreased.

Results by urban core or fringe designation. Acceptance of lethal control of mountain lions was higher in the urban core than in the urban fringe for more benign scenarios (e.g., mountain lion is observed or is getting into trash/pet food containers). The percents of residents in both the urban core and fringe who found lethal control of mountain lions to be acceptable were relatively similar when the species attacks a pet or human, or has a transmittable disease (lethal control was acceptable in these scenarios).

Results by wildlife value orientation. Utilitarians were more accepting than any of the other wildlife value orientation types of lethal control of mountain lions in all five scenarios, while Mutualists were least accepting (Figure VI.C.2). Although statistical differences did exist on these variables, the effect sizes were small, indicating only marginal variation.

Figure VI.C.2. Percent of wildlife value orientation type accepting of lethal control of mountain lions in different scenarios.



Results by census block group. The *measured* percentages of residents who indicated that lethal control of mountain lions was acceptable in five different scenarios ranged as follows:

- Is seen near the home: from 5.3% in CBG 315 to 76.7% in CBG 427
- Is a nuisance: from 15.8% in CBG 315 to 66.7% in CBG 427
- Has a transmittable disease: from 61.8% in CBG 354 to 95.1% in CBG 430
- Attacks a pet: from 39.6% in CBG 68 to 90.0% in CBG 427
- Attacks a human: from 63.6% in CBG 262 to 93.3% in CBG 427

Five of the census block groups (CBGs 262, 402, 427, 454, and 540) had a majority of residents who found lethal control when a mountain lion is seen near the home to be acceptable. Eight census block groups (CBGs 262, 343, 369, 402, 427, 454, 503, and 536) had a majority of residents who found lethal control to be acceptable when a mountain lion is a nuisance. A majority of residents from all but two census block groups (CBGs 68 and 315) found lethal control to be acceptable when a mountain lion attacks a pet. All census block groups had a majority of residents who found lethal control acceptable when a mountain lion has a disease that may be spread to humans or attacks a human.

The *predicted* percentage of residents by census block group who found lethal control of mountain lions to be acceptable when the species is observed near the home ranged from 15-70% (Figure VI.C.3), is a nuisance from 22-63% (Figure VI.C.4), and attacks a pet from 61-75% (Figure VI.C.5). Spatial depictions of results are not presented for two scenarios (i.e., when a mountain lion has a transmittable disease or attacks a human) because of low variation in responses; in general, lethal control is highly acceptable in these scenarios.

Figure VI.C.3. Predicted percent of residents by census block group accepting of lethal control of a mountain lion that has been seen near the home.

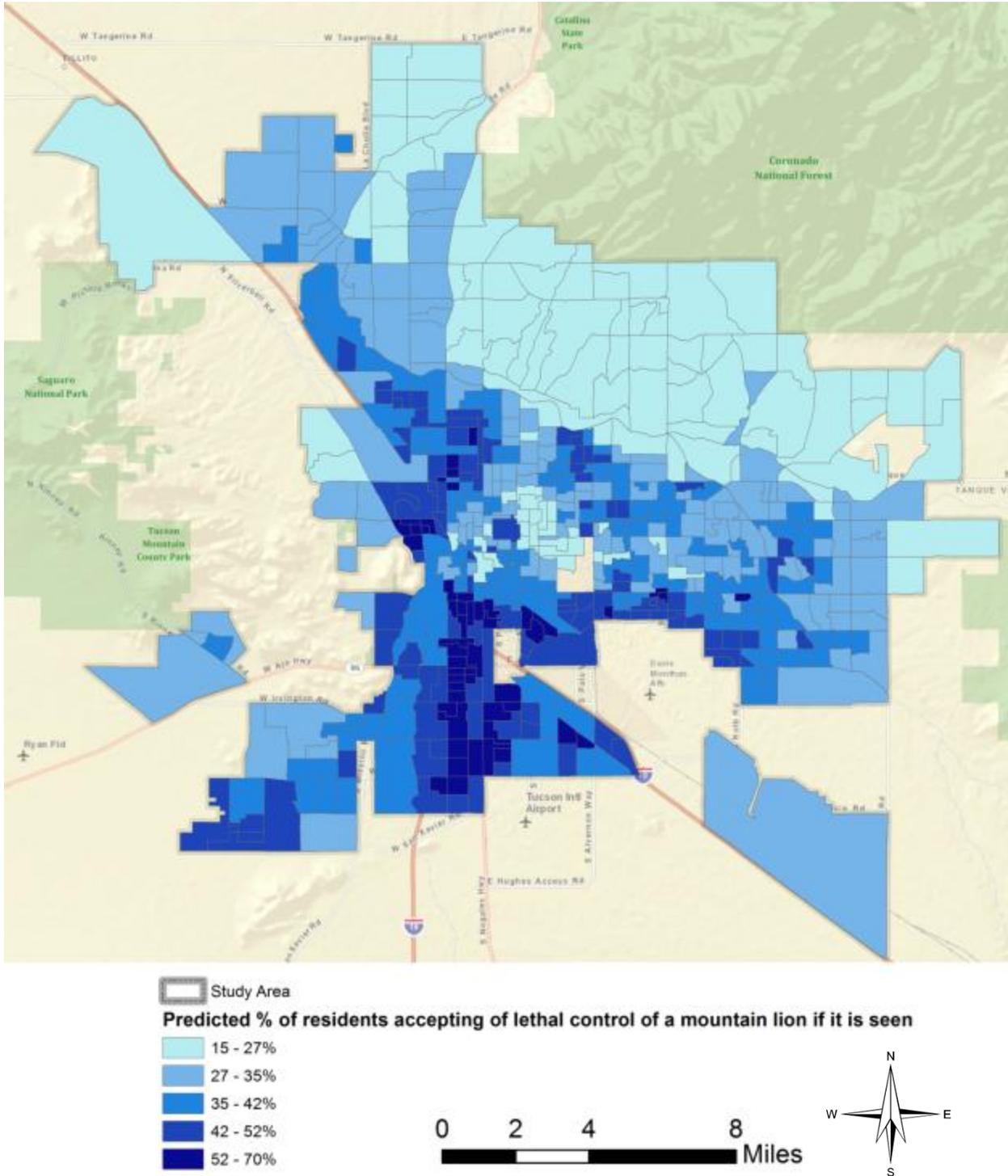


Figure VI.C.4. Predicted percent of residents by census block group accepting of lethal control of a nuisance mountain lion.

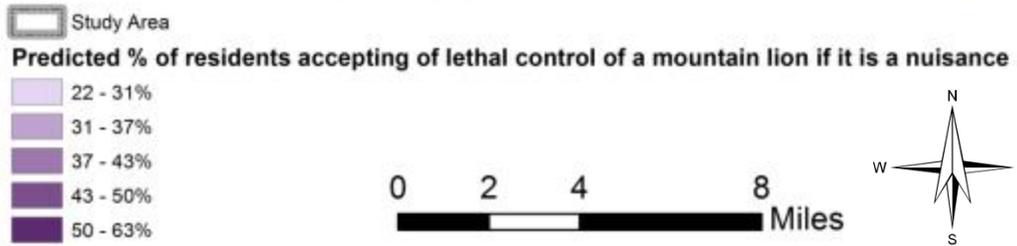
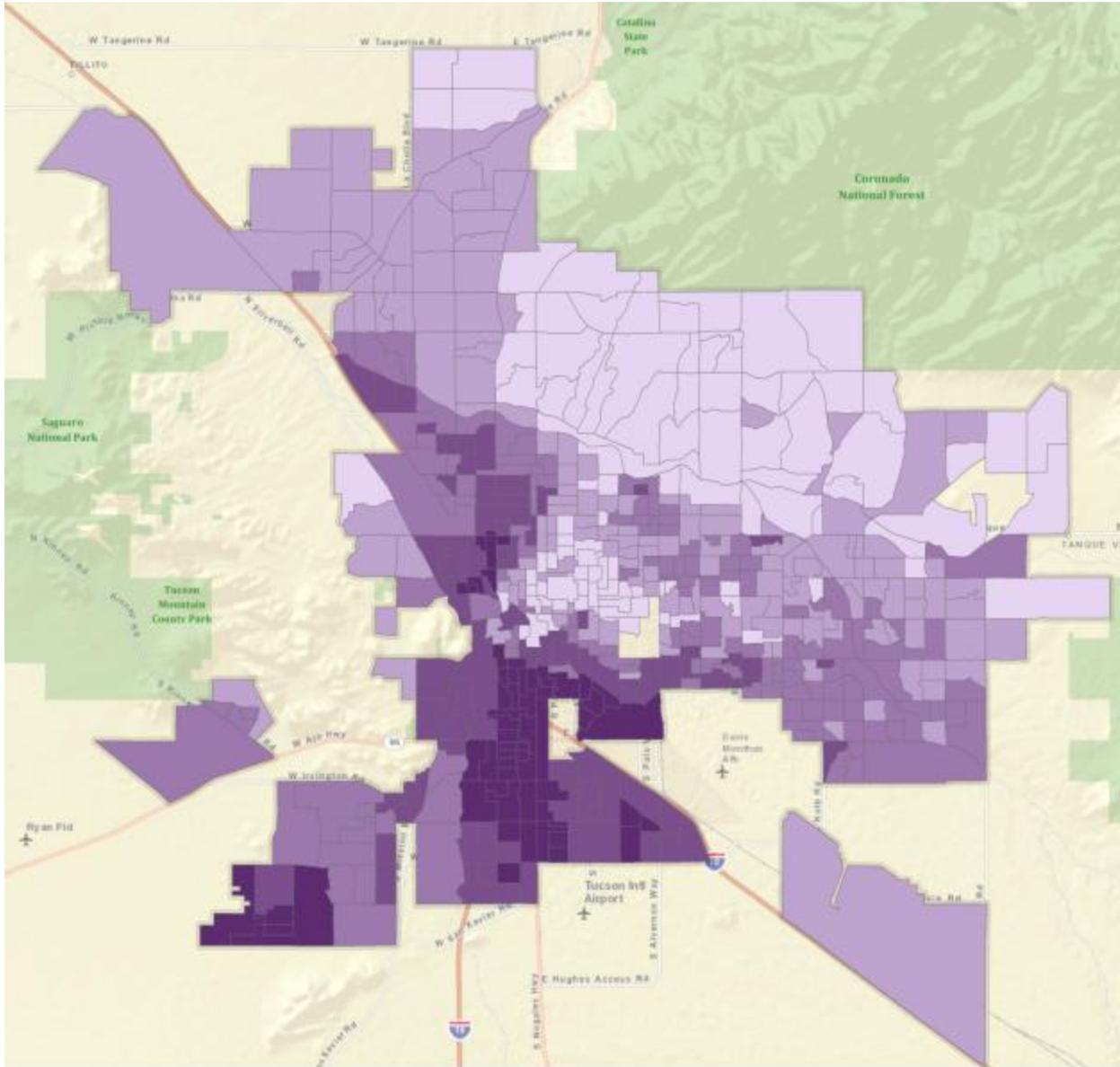


Figure VI.C.5. Predicted percent of residents by census block group accepting of lethal control of a mountain lion that attacks a pet near the home.

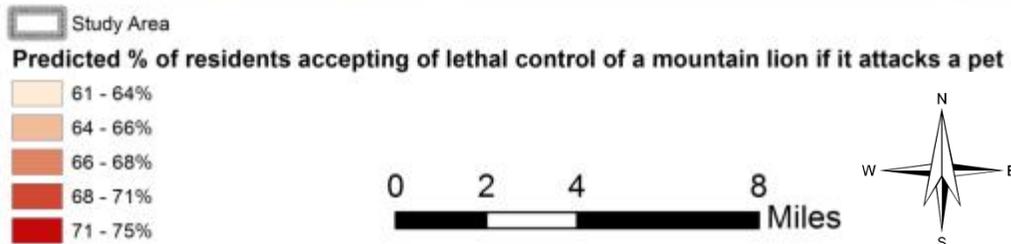
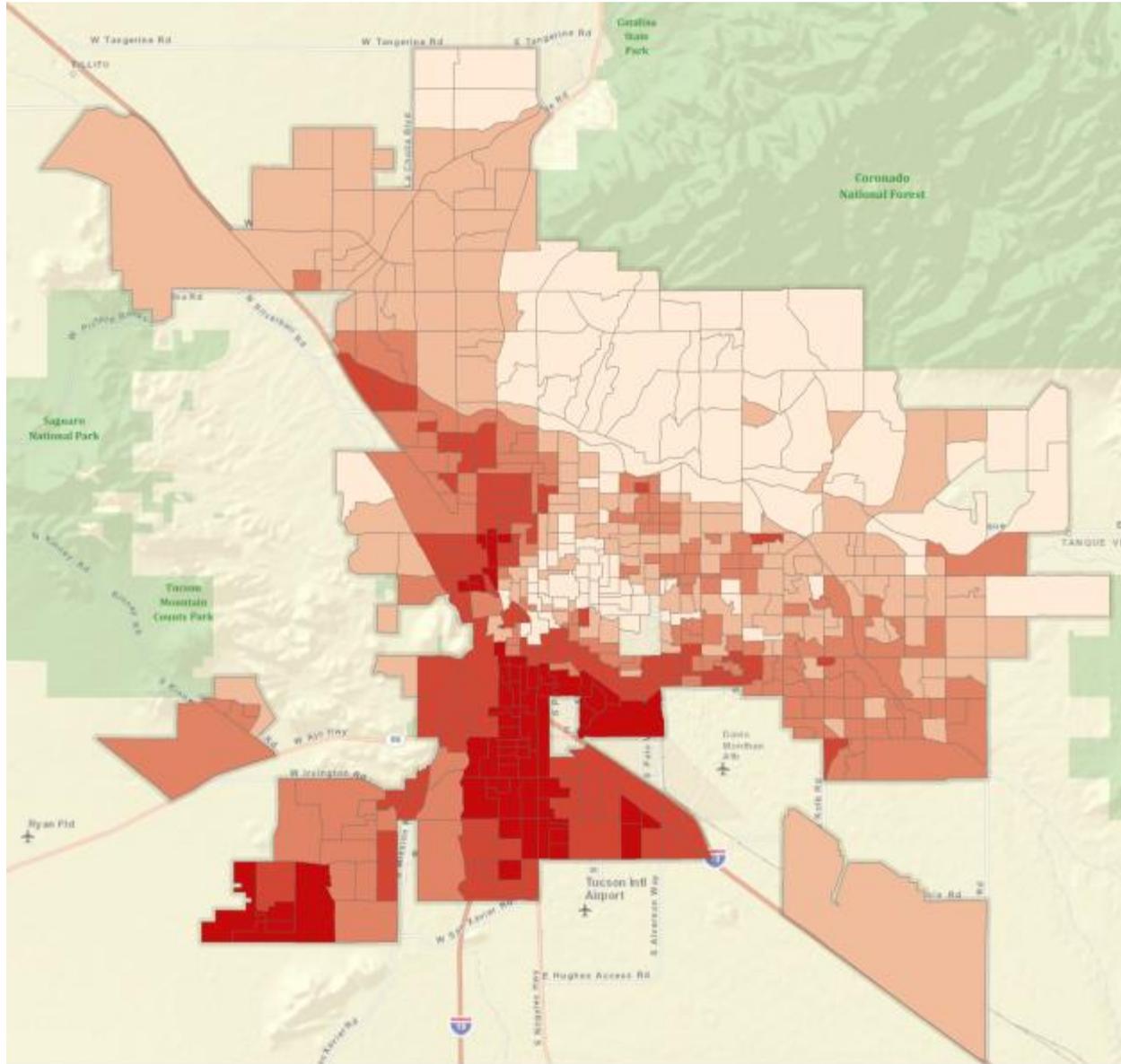
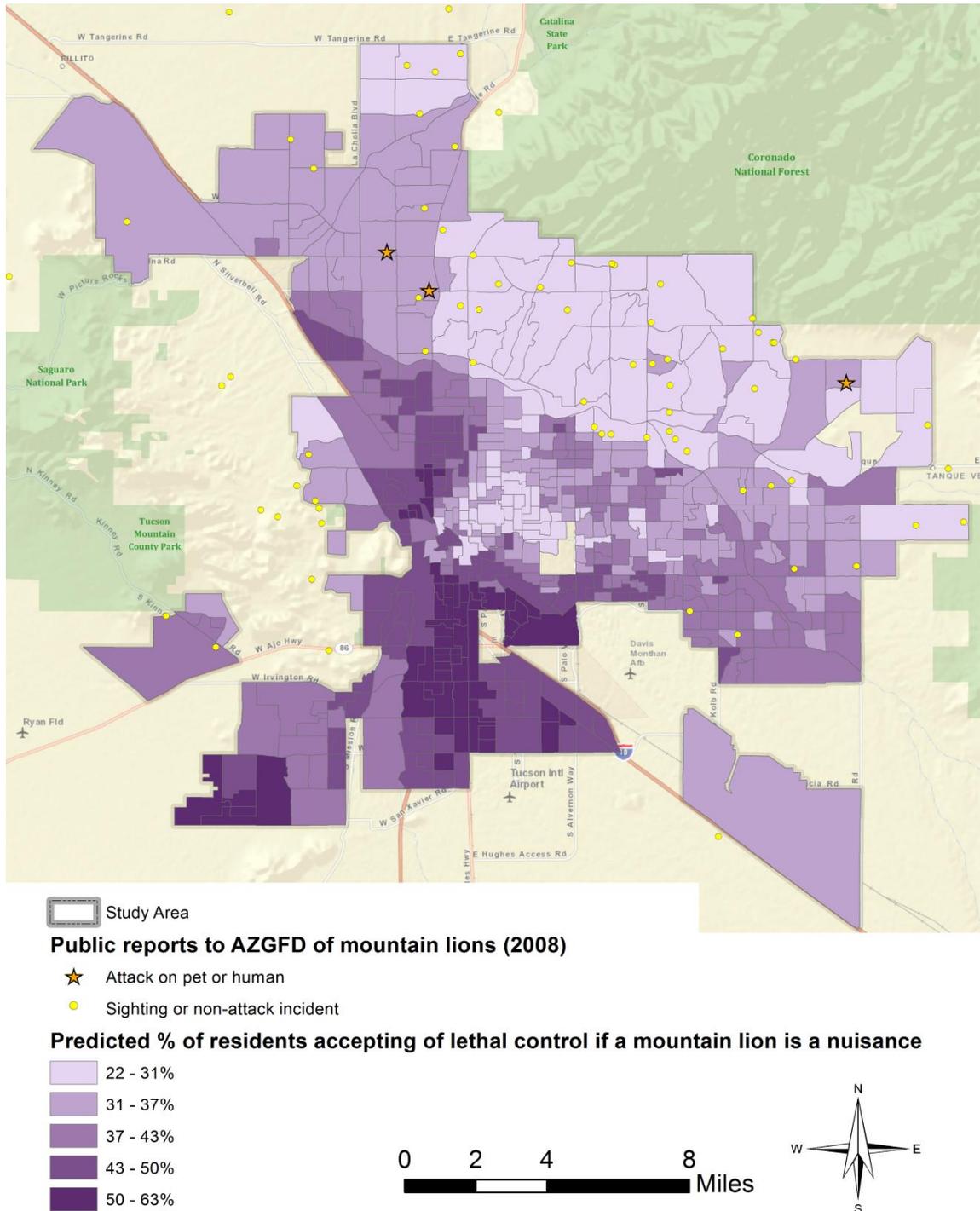


Figure VI.C.6 displays the percent of residents accepting of lethal removal of a mountain lion in a nuisance scenario along with additional spatial data showing locations where a resident reported some type of incident with a mountain lion to AZGFD. These incident reports are from January to August 2008 (a month prior to the survey being conducted), and include both situations in which a mountain lion was sighted or was involved in an incident that did not result in a physical attack on a pet or human, and situations involving actual physical attacks on pets or humans. Although the data reflect only those incidents that were reported to AZGFD, as opposed to all incidents that may have occurred, it appears that tolerance of mountain lions was higher (as indicated by lower levels of support for lethal control) in the urban fringe than in the urban core.

It is important to note that areas in which a resident has reported a mountain lion attack on a pet or human have higher acceptance levels for lethal control of a nuisance mountain lion than do some of the neighboring census block groups, suggesting that an actual attack may have an impact on the beliefs of residents living there. These findings highlight the importance of taking into account multiple sources of information (social as well as biological) in a geographic context to understand wildlife-related issues and public response to those issues. It is likely that a number of factors (e.g., wildlife presence/abundance, people's prior experiences with wildlife and wildlife-related problems, how the agency responds to wildlife situations, and the wildlife value orientations that people hold) play a role in shaping human responses to instances of wildlife-related conflict.

Figure VI.C.6. Overlay of incidents reported to AZGFD involving a mountain lion with the percent of residents accepting of lethal removal of a *nuisance mountain lion*.³



³ Data source: AZGFD, 2012, personal communications. Each dot on this map reflects a location reported to AZGFD where a mountain lion was involved in some sort of sighting, incident, or attack. All reports occurred during January to August 2008.

SECTION VII. CONCLUSION

The intent of the *Understanding People in Places* research program was to examine the utility of spatially depicted data at varying degrees of resolution to facilitate solutions for a variety of wildlife-related issues pertinent to participating state agencies. Geographically-referenced data can enhance the applicability of human dimensions information to fish and wildlife management and help in anticipating public responses to management strategies at more local scales. To further enhance local-level understanding, a unique emphasis of this project was on exploring how residents feel about the place in which they live and, more specifically, about the wildlife and wildlife-related issues and experiences residents may face in that context (i.e., near their places of residence).

For the Arizona component of this project, data were collected in a random selection of census block groups representing the urban core and urban fringe of Tucson, Arizona to improve AZGFD's ability to respond to localized issues, and furthermore, to inform the agency's strategic planning process by ensuring census block group-level representation of public opinions and concerns. A total of 3,493 completed surveys (58% response rate) obtained in this investigation allowed for adequate numbers to generalize to the study area and to census block groups, as well as to specific population subgroups of interest (e.g., groups defined by their wildlife value orientations and demographic characteristics).

Findings from this investigation offer many examples of where data collected at finer degrees of resolution can be helpful to agencies in depicting the attitudes of residents across a variety of issues. This type of information can be useful in understanding the variability in public responses to wildlife-related issues and management strategies that can exist at local scales, and it can also provide guidance as to where communication and outreach may be needed to alleviate controversy and garner greater support for agency efforts in the future. A more detailed discussion of these implications in relation to key concepts and management issues of interest to this study is provided below.

A. PRELIMINARY IMPLICATIONS OF STUDY FINDINGS

- **Wildlife Value Orientations:** The distribution of wildlife value orientation types in Tucson revealed by the current investigation is as follows: 40% Mutualist, 25% Pluralist, 22% Utilitarian, and 13% Distanced. The population of Mutualists within Tucson is higher than the population of Mutualists throughout Arizona, which has a variety of implications for wildlife management within the study area. Mutualists view wildlife as capable of having relationships of trust with humans, as if part of an extended family, and as deserving of rights and care. Mutualists are also less likely to support traditional forms of management that can result in death or harm to wildlife (e.g., hunting, lethal control). This orientation, or way of thinking, is in contrast to a more utilitarian orientation. Utilitarians believe that it is appropriate to use wildlife for human purposes and that management of wildlife should primarily benefit humans. As an illustration based on the results of the current study, Mutualists were less accepting than Utilitarians of lethal control in situations of human-wildlife conflict; due to the higher concentration of Mutualists in Tucson, lethal control is likely to be more controversial there than elsewhere within the state. Findings from this study highlight the importance of understanding public perceptions at more local levels.

Although Tucson has a relatively high number of Mutualists in comparison to the other value types, the study area also has locations with a roughly equal distribution of Mutualists and Utilitarians. The potential for *social* conflict among humans over wildlife-related issues in these places is high. Examining the ratio of Utilitarians to Mutualists by census block group helps to identify locations where AZGFD can anticipate higher levels of conflict in the form of mixed public sentiment or resistance to proposed management strategies. For example, locations where there is approximately 1 Utilitarian for every 1 Mutualist are areas where the agency may want to consider targeting additional outreach and communication initiatives to reduce potential controversy between people with different value orientations over future management decisions. Additionally, findings could be used to identify areas where greater consensus among publics on wildlife management issues is likely.

- **Beliefs about and Experiences with Local Wildlife:** Many residents indicated they consider the wildlife near their homes as enjoyable to have around (78.8%) and a valuable opportunity for recreation (44.2%); however, some residents felt that the wildlife in their area were dangerous (22.1%) or a nuisance (13.2%). As an example of variation in beliefs about wildlife that was detected among different levels of urbanization, residents living in the urban fringe were much more likely than residents living in the urban core to believe that wildlife were enjoyable to have around their homes.

Approximately 18% of residents reported that, during the year prior to taking the survey, they had experienced problems with javelinas and wildlife species other than those listed, while almost 11% reported having had problems with coyotes. Very few residents reported having problems with mountain lions or bobcats. Urban fringe residents most often reported problems with javelinas, while urban core residents most often reported problems with other wildlife (e.g., pigeons, snakes, rabbits). Findings related to which species have caused problems and where those problems occur, as well as the frequencies of those problems, are helpful in being able to pinpoint areas where human-wildlife conflict within Tucson is most prevalent. This information can then be used by AZGFD in conjunction with other sources of data (e.g., conflict incidents, as depicted in the body of this report) to determine where to focus its management and communication efforts aimed at conflict mitigation. Given limited agency resources and funds available to address human-wildlife conflict incidents, identification of these local “conflict hot spots” becomes critical for ensuring greater management efficiency.

- **Lethal Control of Wildlife:** While the general public typically finds lethal control measures less acceptable than nonlethal techniques for addressing wildlife-related problems, lethal removal often becomes more acceptable to residents when used to address increasingly severe incidents of human-wildlife conflict. Findings from the current study, for example, indicate that Tucson residents were more likely to support lethal control of wildlife when an animal attacks a human or has a transmittable disease. Consensus among residents over the acceptability of lethal control was lowest for situations when an animal is observed or causes a nuisance (e.g., the animal is getting into trash or pet food), suggesting that the use of lethal control in these scenarios is likely to be contentious among Tucson residents. Residents from some areas within the urban fringe reported lower rates of acceptability for lethal control of

wildlife than did residents within the urban core, suggesting that tolerance within the urban core for wildlife being there is relatively low.

Overall, findings regarding public acceptance of lethal removal have implications for AZGFD in terms of the agency's ability to anticipate where and under what circumstances controversy is more or less likely to develop over lethal control strategies. This information can be helpful in the context of evaluating which management alternatives should be pursued in a given area or situation, realizing that successful implementation of management strategies is oftentimes dependent upon public support. In addition, findings can offer guidance in terms of how and under what circumstances AZGFD may need to communicate more readily with the public on these issues. For example, lethal removal is likely to generate greater controversy in situations perceived by the public as nonthreatening to human (or pet) safety, and communication aimed at providing a clear justification for lethal control may be especially import for these types of situations.

As discussed in the body of this report, the applicability of these findings may be further enhanced by integrating the information with other sources of data, including, for example, reports identifying locations where human-wildlife interactions have been reported to the agency. These interactions may range from sightings to attacks on humans or pets, which could have a temporal, short-term influence on public attitudes about these issues. For example, we found higher acceptance for lethal control of mountain lions in locations where attacks on people or pets were reported to the agency during 2008, despite the concentration of Mutualists living in these areas who typically find lethal control less acceptable. Such results indicate the importance of integrating social and biological data when managing wildlife at more local levels.

B. NEXT STEPS

Human dimensions data presented in this report are primarily descriptive in nature and intended to portray the variety of beliefs and attitudes residents have regarding wildlife and wildlife-related issues throughout Tucson, Arizona. Implications of findings were illustrated in particular areas to highlight where AZGFD efforts may be augmented through the use of human dimensions information collected at finer degrees of resolution. In order to more fully explore the utility of these data in terms of their application to AZGFD planning and decision-making, CSU researchers are currently working with AZGFD staff to further investigate the larger array of management implications and potential recommendations stemming from this collaborative investigation, including investigating the use of additional sources of data. As part of the multi-state project, CSU is also working with participating state agencies to explore specific management issues of interest in greater depth using more complex spatial analysis techniques. For example, U.S. census data were used to predict responses in locations within the Tucson study area that were not sampled, and these data could also be used to explore predictability across time (e.g. changes from 2000 to 2010) and space (e.g., other locations within Arizona that exhibit similar demographic characteristics). A workshop is being planned for 2013 to share results with agency representatives, and to further enhance the application of project findings to fish and wildlife management in the western region.

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**APPENDIX A. SUPPORTING TABLES FOR WILDLIFE VALUE ORIENTATION
AND DEMOGRAPHIC CHARACTERISTICS SECTION**

Table A-1. Distribution of wildlife value orientation types.

CBG	Utilitarian	Pluralist	Mutualist	Distanced
15	32.1	18.3	36.7	12.8
16	31.0	25.0	35.7	8.3
18	26.5	19.4	40.8	13.3
20	28.0	26.8	31.7	13.4
21	22.2	18.5	33.3	25.9
23	27.8	20.3	39.2	12.7
37	20.2	12.8	53.2	13.8
49	28.6	20.4	40.8	10.2
62	16.7	25.0	48.8	9.5
68	20.4	9.3	50.0	20.4
72	18.8	11.6	50.7	18.8
74	22.0	23.9	41.3	12.8
94	27.0	25.0	38.0	10.0
98	21.1	18.9	41.1	18.9
109	30.9	14.8	39.5	14.8
139	36.1	16.5	35.1	12.4
142	23.4	18.2	46.8	11.7
158	23.6	25.0	34.7	16.7
166	17.6	33.8	41.2	7.4
200	20.6	23.8	34.9	20.6
223	17.4	17.4	43.5	21.7
231	13.3	30.0	53.3	3.3
261	10.3	24.1	52.9	12.6
262	27.3	27.3	36.4	9.1
270	14.6	20.8	54.2	10.4
274	19.0	13.8	50.0	17.2
283	21.4	3.6	57.1	17.9
313	26.3	20.0	38.8	15.0
315	15.8	26.3	42.1	15.8
319	20.0	26.7	43.3	10.0

Table A-1, *continued*. Distribution of wildlife value orientation types.

CBG	Utilitarian	Pluralist	Mutualist	Distanced
332	22.0	19.5	36.6	22.0
335	2.9	23.5	55.9	17.6
343	20.5	25.6	46.2	7.7
344	33.0	13.2	49.1	4.7
354	8.8	44.1	29.4	17.6
364	20.5	32.1	37.2	10.3
369	24.0	16.0	48.0	12.0
385	22.0	44.1	23.7	10.2
402	19.5	36.6	39.0	4.9
427	35.5	9.7	38.7	16.1
430	29.9	24.3	36.4	9.3
431	26.4	26.4	34.0	13.2
442	13.7	31.5	41.1	13.7
447	28.8	23.3	35.6	12.3
454	24.7	32.1	28.4	14.8
456	23.8	34.5	31.0	10.7
476	17.8	28.8	41.1	12.3
501	13.4	35.4	41.5	9.8
503	22.7	22.7	50.0	4.5
504	16.7	25.0	50.0	8.3
517	11.4	40.9	25.0	22.7
536	19.7	29.5	42.6	8.2
540	18.0	32.8	34.4	14.8
Core	21.3	26.7	39.3	12.8
Fringe	23.7	21.5	42.1	12.7
<i>Tucson</i>	<i>21.9</i>	<i>25.3</i>	<i>40.1</i>	<i>12.7</i>

Table A-2. Demographics by wildlife value orientation type.

	Gender ¹	Age ²	How many people under 18 in the house? ²	Length of residence in AZ (years) ²	Length of residence in current home (years) ²	Income ³	Education ⁴
Utilitarian	32.6	51.37	.76	27.27	12.77	3.68	2.33
Pluralist	44.5	51.01	.69	29.46	13.11	2.96	1.90
Mutualist	65.7	50.01	.59	25.56	10.86	3.29	2.33
Distanced	54.5	46.61	.77	25.43	10.84	3.01	2.24

¹ Cell entry is percent of respondents who are female.

² Cell entry is the mean.

³ Cell entry is the mean, where 0 = <\$10,000, 1 = \$10,000-\$24,999, 2 = \$25,000-\$34,999, 3 = \$35,000-\$49,999, 4 = \$50,000-\$74,999, 5 = \$75,000-\$99,999, 6 = \$100,000-\$149,000, 7 = \$150,000-\$199,999, and 8 = \$200,000+.

⁴ Cell entry is the mean, where 0 = Less than high school education, 1 = High school education or GED, 2 = 2-years Associates degree or trade school, 3 = 4-year degree, 4 = Advanced degree.

Table A-3. Percent of wildlife value orientation types' reported race and ethnicity.

	<i>Race</i>					<i>Ethnicity</i>	
	White	African-American	Native American	Asian	Pacific Islander	Indicated more than one race	Hispanic
Utilitarian	79.7	2.6	2.1	0.9	0.0	4.1	15.6
Pluralist	68.5	1.8	2.1	1.3	0.5	4.1	26.0
Mutualist	77.0	1.7	2.2	1.7	0.3	2.4	19.8
Distanced	68.0	4.0	1.7	2.3	0.4	2.7	25.6

Table A-4. Residents' demographics.

CBG	Gender ¹	Age ²	How many people under 18 in the house? ²	Length of residence in AZ (years) ²	Length of residence in current home (years) ²	Income ³	Education ⁴
15	50.4	46.90	0.56	23.36	9.14	3.16	2.42
16	52.3	56.50	0.49	29.90	16.84	4.45	2.70
18	51.3	51.00	0.64	22.53	8.18	4.60	2.49
20	57.8	55.00	0.70	30.38	15.02	4.47	2.53
21	56.7	61.30	0.74	20.02	9.44	5.59	2.93
23	50.5	48.90	0.68	27.96	12.88	3.53	1.98
37	51.2	56.50	0.54	22.90	12.30	6.13	3.26
49	48.0	54.40	0.60	30.78	15.50	4.42	2.42
62	58.6	51.40	0.70	30.64	15.17	4.21	2.52
68	51.6	57.30	0.78	28.46	13.26	5.91	3.18
72	52.0	57.60	0.73	22.18	11.00	6.15	3.38
74	51.0	54.40	0.50	24.65	14.12	4.77	2.88
94	50.1	55.00	0.70	26.43	14.56	5.16	2.80
98	51.6	53.50	0.28	18.58	7.08	3.40	2.46
109	49.9	54.40	0.75	23.18	12.43	4.95	2.73
139	52.2	55.80	0.65	28.14	14.92	5.20	3.09
142	53.2	48.50	0.72	26.34	12.11	3.52	2.48
158	53.1	49.40	0.53	31.26	12.34	3.41	2.59
166	50.8	42.90	0.59	23.32	7.89	2.97	2.25
200	62.0	56.00	0.41	30.81	14.44	3.90	2.58
223	45.1	38.40	0.39	22.10	8.04	2.58	2.50
231	47.8	48.50	0.43	25.60	6.72	1.70	1.84
261	55.2	59.80	0.32	37.32	16.79	3.44	2.57
262	53.6	49.5	0.8	36.1	13.8	2.0	1.6
270	58.3	47.5	0.2	22.1	4.4	2.1	1.9
274	50.3	47.8	0.5	25.6	9.8	3.0	2.5
283	48.6	37.5	0.3	15.7	5.7	2.0	2.5
313	51.3	54.4	0.7	28.7	14.2	3.8	2.2
315	35.9	32.4	0.7	16.0	3.5	2.3	2.4
319	53.1	46.7	0.4	28.0	13.1	2.7	2.1

Table A-4, *continued*. Residents' demographics.

CBG	Gender ¹	Age ²	How many people under 18 in the house? ²	Length of residence in AZ (years) ²	Length of residence in current home (years) ²	Income ³	Education ⁴
332	50.0	34.46	0.32	20.98	8.20	1.92	2.35
335	53.0	44.02	0.62	29.06	17.25	2.43	2.43
343	53.7	44.76	1.19	17.57	3.65	1.82	1.84
344	49.3	54.74	0.56	28.43	13.09	4.73	2.67
354	47.0	38.08	0.46	21.90	5.54	2.48	2.17
364	51.5	50.57	0.98	29.65	13.32	3.29	1.81
369	48.1	54.25	0.40	34.01	15.54	2.98	2.33
385	52.2	45.71	0.96	29.06	11.98	2.49	1.79
402	52.3	50.77	1.07	35.12	18.91	2.24	1.65
427	48.3	53.74	0.56	44.25	24.20	2.46	1.92
430	51.5	51.85	0.55	26.10	10.62	4.11	2.36
431	51.8	52.22	0.65	36.54	16.50	3.28	1.99
442	51.6	44.33	1.14	27.65	10.71	2.28	1.78
447	49.5	48.85	0.99	31.64	14.38	3.30	1.66
454	57.1	69.86	0.12	15.78	9.03	2.90	2.05
456	55.8	70.60	0.07	14.33	10.36	2.86	2.13
476	51.5	45.02	1.19	22.43	7.48	3.77	2.03
501	51.0	49.23	1.18	33.91	12.66	3.47	2.07
503	49.7	46.81	1.80	37.32	16.30	2.71	1.40
504	49.0	46.15	1.55	32.27	14.28	3.04	1.72
517	51.7	44.08	1.38	33.27	19.37	2.13	1.27
536	50.2	38.82	1.31	25.67	7.36	3.56	2.36
540	51.8	47.44	1.68	35.76	17.14	2.43	1.43
Core	51.6	48.96	.68	26.95	11.50	2.91	2.07
Fringe	52.2	53.23	.67	26.82	12.70	4.22	2.58
Tucson	51.7	50.16	.68	26.92	11.84	3.25	2.21

¹ Cell entry is percent of respondents who are female.

² Cell entry is the mean.

³ Cell entry is the mean, where 0 = <\$10,000, 1 = \$10,000-\$24,999, 2 = \$25,000-\$34,999, 3 = \$35,000-\$49,999, 4 = \$50,000-\$74,999, 5 = \$75,000-\$99,999, 6 = \$100,000-\$149,000, 7 = \$150,000-\$199,999, and 8 = \$200,000+.

⁴ Cell entry is the mean, where 0 = Less than high school education, 1 = High school education or GED, 2 = 2-years Associates degree or trade school, 3 = 4-year degree, 4 = Advanced degree.

Table A-5. Percent residents' reported race and ethnicity.

CBG	<i>Race</i>						<i>Ethnicity</i>
	White	African-American	Native American	Asian	Pacific Islander	Indicated more than one race	Hispanic
15	83.5	2.9	0.0	1.9	0.0	2.5	9.8
16	91.4	0.0	1.7	2.6	0.0	1.0	7.9
18	89.3	0.0	2.7	0.0	0.8	0.0	9.1
20	92.3	0.0	0.0	1.4	0.0	3.4	7.6
21	81.8	5.2	0.0	2.7	0.0	1.9	10.3
23	84.9	1.6	0.0	1.6	0.0	3.9	12.4
37	92.0	0.0	0.0	3.1	1.3	1.0	3.4
49	91.2	2.4	2.0	0.0	0.0	3.6	6.4
62	89.2	0.0	1.6	3.6	1.0	1.0	7.2
68	91.7	0.0	0.0	2.0	0.0	3.0	8.2
72	94.2	1.4	1.5	1.4	0.0	3.5	4.6
74	89.4	2.9	0.0	4.8	0.0	4.6	4.8
94	96.1	0.0	1.0	0.0	0.0	1.9	2.8
98	95.6	0.0	0.0	1.1	0.0	5.1	3.3
109	86.4	0.0	0.0	1.2	0.0	1.1	8.2
139	94.3	0.8	0.0	0.8	0.0	0.0	4.0
142	83.7	1.1	5.8	1.8	0.0	5.5	13.4
158	73.3	1.6	1.3	1.3	1.6	3.2	25.1
166	83.2	1.4	4.1	1.8	1.8	3.0	9.5
200	93.3	0.0	0.0	2.7	1.3	2.7	6.7
223	82.3	0.0	0.0	2.4	0.0	6.4	19.9
231	74.8	3.8	2.1	0.0	0.0	1.6	17.0
261	59.8	1.9	2.3	2.3	0.9	2.6	33.7
262	29.3	0.0	8.7	0.0	0.0	7.7	62
270	83.8	5.7	8.7	1.9	0.0	9.9	5.7
274	81.6	0.0	0.0	1.9	0.0	3.8	12
283	74.0	0.0	0.0	3.7	0.0	0.0	14.9
313	87.0	3.9	2.6	1.3	0.0	5.0	9.1
315	79.2	9.9	4.9	0.0	0.0	0.0	6
319	53.8	5.8	1.3	2.5	0.0	5.6	35.3

Table A-5, *continued*. Percent residents' reported race and ethnicity.

CBG	<i>Race</i>					Indicated more than one race	<i>Ethnicity</i>
	White	African-American	Native American	Asian	Pacific Islander		Hispanic
332	65.8	7.9	5.3	2.6	0.0	4.9	18.4
335	57.9	0.0	2.9	0.0	0.0	5.5	38.9
343	65.6	5.3	2.5	0.0	2.8	4.9	23.5
344	92.1	0.8	0.0	0.0	1.3	0.7	5.0
354	61.8	0.0	2.8	0.0	0.0	3.4	36.1
364	80.6	2.7	2.2	0.0	0.0	2.1	13.9
369	77.6	0.0	0.0	0.0	0.0	0.0	22.4
385	34.6	1.6	0.0	5.4	0.0	1.9	52.2
402	61.9	2.1	2.1	2.1	0.0	9.1	41.3
427	45.0	0.0	0.0	0.0	0.0	8.2	61.2
430	89.7	1.1	3.1	2.0	0.0	1.9	6.3
431	77.0	1.8	1.8	2.0	0.0	1.7	15.4
442	30.9	8.5	7.3	3.0	0.0	5.3	59.0
447	82.6	4.2	1.4	2.9	0.0	6.6	13.1
454	91.4	0.0	1.0	0.0	0.0	3.5	4.8
456	98.7	0.0	1.3	0.0	0.0	8.2	1.2
476	77.6	7.0	1.3	2.9	0.0	5.1	16.2
501	54.5	1.2	1.5	0.0	0.0	9.2	48.5
503	22.5	5.0	9.2	0.0	0.0	8.2	67.6
504	34.4	2.5	2.5	2.5	0.0	6.5	67.3
517	23.5	0.0	4.0	0.0	0.0	2.0	72.5
536	35.0	5.0	3.4	0.0	1.6	0.9	56.7
540	21.4	1.9	1.9	0.0	0.0	2.9	76.0
Core	70.9	2.5	2.4	1.5	0.3	4.0	23.7
Fringe	82.2	1.4	1.1	1.6	0.3	2.9	14.6
Tucson	74.0	2.2	2.1	1.5	0.3	3.7	21.2

**APPENDIX B. SUPPORTING TABLES FOR
PERCEPTIONS OF NATURE AND PLACE SECTION**

Table B-1. Percent of residents agreeing with beliefs about nature and the area near their homes.

<i>Survey item</i>	Belief Strength		
	Slightly	Moderately	Extremely
I think nature...			
is fragile <i>or</i>	3.3	25.3	21.3
is durable	3.1	34.7	12.3
is unlimited, abundant <i>or</i>	5.9	23.7	6.2
is limited, scarce	11.4	37.2	15.6
is unpredictable, chaotic <i>or</i>	7.9	28.1	10.8
is predictable, ordered	7.3	34.1	11.7
is remote, uninviting <i>or</i>	0.9	2.7	0.6
is accessible, inviting	3.9	50.1	41.8
can take care of itself <i>or</i>	2.0	10.9	3.9
needs to be protected	8.6	32.4	42.2
I think the area near my home...			
is ugly, unattractive <i>or</i>	2.2	4.4	1.9
is beautiful, attractive	4.6	35.9	51.0
is safe <i>or</i>	2.8	52.6	37.2
is dangerous	2.8	3.1	1.5
is common, generic <i>or</i>	3.5	20.8	5.8
is unique	4.5	29.3	4.5

Table B-2. Percent of wildlife value orientation type agreeing with *specific* beliefs about nature and the area near their homes.

	Utilitarian	Pluralist	Mutualist	Distanced
I think nature...				
is fragile	38.7	64.0	78.4	60.5
is limited/scarce	68.4	77.7	86.2	77.1
is unpredictable/chaotic	45.1	46.5	48.6	51.2
is accessible/inviting	93.0	91.2	92.1	88.6
needs to be protected	77.1	88.5	94.3	87.8
I think the area near my home...				
is beautiful, attractive	77.7	76.6	75.9	71.9
is safe	84.1	78.9	81.6	73.0
is unique	50.1	51.3	57.6	52.0

Table B-3. Percent of residents agreeing with specific beliefs about *nature*.

CBG	I think nature...				
	is fragile	is limited	is unpredictable	is accessible	needs to be protected
15	63.5	75.2	56.0	91.3	87.5
16	67.1	77.2	41.6	91.0	87.3
18	52.2	76.3	48.9	94.5	80.6
20	56.6	74.4	43.2	93.4	81.3
21	74.1	76.9	32.0	100.0	84.6
23	67.5	73.7	52.0	94.8	84.6
37	63.3	76.1	39.5	100.0	94.4
49	63.8	76.1	44.4	93.6	89.4
62	67.9	73.2	45.7	92.7	85.2
68	67.9	87.0	40.8	94.3	96.3
72	56.9	77.8	35.4	95.4	87.5
74	62.5	69.9	45.0	97.1	86.7
94	52.1	69.2	40.0	96.8	82.8
98	58.7	75.8	46.7	92.2	91.5
109	61.3	82.9	41.3	97.4	89.6
139	47.7	72.9	44.7	96.5	82.1
142	73.2	84.3	50.7	91.2	93.1
158	58.8	80.3	41.5	94.0	89.6
166	66.7	82.3	53.2	93.5	90.8
200	57.4	78.0	35.7	91.5	90.3
223	72.3	86.4	43.2	93.2	89.1
231	75.4	80.4	49.1	90.9	89.3
261	75.0	84.2	50.7	92.1	91.4
262	63.5	75.2	56.0	91.3	87.5
270	67.1	77.2	41.6	91.0	87.3
274	52.2	76.3	48.9	94.5	80.6
283	56.6	74.4	43.2	93.4	81.3
313	74.1	76.9	32.0	100.0	84.6
315	67.5	73.7	52.0	94.8	84.6
319	63.3	76.1	39.5	100.0	94.4

Table B-3, *continued*. Percent of residents agreeing with specific beliefs about *nature*.

CBG	I think nature...				
	is fragile	is limited	is unpredictable	is accessible	needs to be protected
332	50.0	87.5	40.0	100.0	87.5
335	83.9	100.0	60.0	93.8	96.8
343	67.6	79.4	35.3	88.2	86.1
344	65.1	80.8	35.6	98.0	88.2
354	73.1	87.5	65.4	96.2	85.2
364	57.3	75.7	46.5	86.3	89.0
369	47.8	69.6	54.5	78.3	79.2
385	62.5	64.0	52.9	86.5	90.7
402	78.4	75.7	42.9	77.1	94.4
427	63.3	89.3	50.0	89.3	96.7
430	48.0	76.0	44.3	94.9	87.0
431	64.7	85.7	62.0	89.8	84.9
442	71.0	83.3	47.5	84.5	86.2
447	55.9	74.6	43.9	94.0	83.3
454	59.7	75.0	49.2	84.1	87.0
456	63.4	77.1	34.8	97.1	89.2
476	63.9	78.6	49.3	94.3	84.3
501	70.9	83.8	45.8	93.3	91.0
503	72.2	61.1	58.8	82.4	100.0
504	73.3	83.3	55.2	76.7	84.8
517	72.2	77.8	55.9	97.2	92.3
536	77.6	84.5	58.2	94.7	89.7
540	65.4	75.5	52.1	74.0	90.7
Core	63.7	79.3	48.5	90.6	88.3
Fringe	64.1	77.7	45.5	94.0	88.3
Tucson	63.8	78.8	47.7	91.6	88.3

Table B-4. Percent of residents agreeing with specific beliefs about *the area near their homes*.

CBG	The area near my home is...		
	beautiful/attractive	safe	unique
15	90.7	88.6	64.8
16	97.6	94.0	83.3
18	89.4	87.4	71.3
20	96.2	83.8	76.0
21	100.0	92.0	85.2
23	75.6	96.1	44.3
37	100.0	83.5	91.2
49	93.6	93.5	80.9
62	96.4	94.0	69.1
68	98.1	88.7	90.6
72	98.6	86.8	86.6
74	98.1	90.3	91.3
94	100.0	93.8	86.6
98	100.0	87.1	87.2
109	98.7	94.7	85.7
139	98.9	93.4	80.4
142	89.0	94.5	52.1
158	94.2	86.8	82.6
166	53.8	52.3	31.8
200	67.7	83.9	37.1
223	65.9	88.6	46.7
231	32.1	63.6	17.5
261	95.1	90.2	81.3
262	37.5	62.5	62.5
270	69.8	68.9	45.5
274	50.0	70.4	35.2
283	82.1	85.7	86.2
313	79.2	92.1	31.5
315	72.2	55.6	89.5
319	94.0	81.9	78.6

Table B-4, *continued*. Percent of residents agreeing with specific beliefs about *the area near their homes*.

CBG	The area near my home is...		
	beautiful/attractive	safe	unique
332	65.0	70.7	65.9
335	75.0	93.8	87.9
343	69.4	80.0	40.5
344	100.0	94.2	87.5
354	48.1	77.8	42.9
364	64.8	79.5	32.0
369	73.9	87.0	25.0
385	55.8	69.8	24.5
402	62.2	55.3	24.3
427	46.7	73.3	6.5
430	90.5	89.4	48.6
431	62.5	72.5	14.9
442	75.4	76.9	51.6
447	60.6	77.6	20.9
454	97.3	82.6	87.0
456	97.3	90.3	84.0
476	83.1	93.0	47.2
501	97.5	89.7	88.2
503	68.8	58.8	52.9
504	66.7	65.7	56.3
517	38.9	62.2	38.9
536	88.1	76.8	60.3
540	42.0	56.9	25.0
Core	68.6	76.8	44.2
Fringe	94.2	89.4	77.7
<i>Tucson</i>	<i>75.9</i>	<i>80.4</i>	<i>53.7</i>

Table B-5. Percent of wildlife value orientation type disagreeing or agreeing with the statement “*I often participate in outdoor activities near my home.*”

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	5.1	7.6	5.8	12.0	23.8	28.0	17.6
Pluralist	3.9	7.6	3.9	11.6	19.9	31.9	21.1
Mutualist	6.9	7.7	4.8	11.2	18.5	30.6	20.3
Distanced	12.9	10.2	7.4	12.2	20.1	22.6	14.6

Table B-6. Differences between wildlife value orientation types on outdoor recreation participation.

	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
I often participate in outdoor activities near my home.	4.96 ^a	5.16 ^a	5.00 ^a	4.43 ^b	17.20	.123

¹ Cell entries represent means ranging from 1 = Strongly disagree to 7 = Strongly agree. Different superscripts denote a statistical difference ($p < .05$) as reported by Dunnett’s T3 post hoc test, used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² *F*-value was statistically different ($p < .001$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

Table B-7. Percent of residents disagreeing or agreeing that they often participate in outdoor activities near their homes.

CBG	Disagree	Neither	Agree
15	24.8	11.0	64.2
16	6.0	7.1	86.9
18	9.3	12.4	78.4
20	11.0	7.3	81.7
21	7.4	14.8	77.8
23	12.8	19.2	67.9
37	13.3	8.9	77.8
49	17.4	8.7	73.9
62	15.5	15.5	69.0
68	11.5	3.8	84.6
72	7.2	8.7	84.1
74	8.3	5.6	86.1
94	9.0	4.0	87.0
98	12.2	5.6	82.2
109	7.6	8.9	83.5
139	7.5	4.3	88.2
142	7.0	12.7	80.3
158	17.6	7.4	75.0
166	20.0	7.7	72.3
200	23.8	9.5	66.7
223	11.1	11.1	77.8
231	43.1	5.2	51.7
261	16.3	12.8	70.9
262	20.0	10.0	70.0
270	28.3	17.4	54.3
274	28.6	14.3	57.1
283	21.4	3.6	75.0
313	20.3	11.4	68.4
315	15.8	15.8	68.4
319	14.8	14.8	70.5

Table B-7, *continued*. Percent of residents disagreeing or agreeing that they often participate in outdoor activities near their homes.

CBG	Disagree	Neither	Agree
332	24.4	4.9	70.7
335	17.6	8.8	73.5
343	33.3	16.7	50.0
344	7.7	8.7	83.7
354	15.6	12.5	71.9
364	15.8	13.2	71.1
369	29.2	4.2	66.7
385	27.6	12.1	60.3
402	25.6	17.9	56.4
427	36.7	3.3	60.0
430	12.5	16.3	71.2
431	30.2	15.1	54.7
442	25.4	15.5	59.2
447	27.4	13.7	58.9
454	5.5	15.1	79.5
456	7.6	11.4	81.0
476	13.5	20.3	66.2
501	17.9	9.0	73.1
503	5.0	25.0	70.0
504	30.6	11.1	58.3
517	33.3	14.3	52.4
536	23.0	6.6	70.5
540	38.3	16.7	45.0
Core	22.4	12.5	65.1
Fringe	12.5	9.7	77.8
<i>Tucson</i>	<i>19.7</i>	<i>11.7</i>	<i>68.6</i>

Table B-8. Percent of wildlife value orientation type disagreeing or agreeing with the statement “*I believe climate change is currently affecting the area near my home.*”

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Utilitarian	27.4	15.5	8.0	22.5	16.6	6.5	3.6
Pluralist	12.6	7.7	9.6	19.6	20.2	19.0	11.3
Mutualist	5.6	6.8	6.1	17.9	21.0	25.2	17.4
Distanced	14.5	13.4	7.1	26.0	18.7	13.6	6.7

Table B-9. Differences between wildlife value orientation types on the belief that climate change is currently affecting the area near their homes.

	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
I believe that climate change is currently affecting the area near my home.	3.20 ^a	4.29 ^b	4.87 ^c	3.89 ^d	149.73	.343

¹ Cell entries represent means ranging from 1 = Strongly disagree to 7 = Strongly agree. Different superscripts denote a statistical difference ($p < .05$) as reported by Dunnett’s T3 post hoc test, used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² *F*-value was statistically different ($p < .001$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

Table B-10. Percent of residents disagreeing or agreeing with the statement “*I believe climate change is currently affecting the area near my home.*”

CBG	Disagree	Neither	Agree
15	35.2	20.4	44.4
16	32.5	20.5	47.0
18	31.3	22.2	46.5
20	39.5	12.3	48.1
21	39.3	17.9	42.9
23	43.8	11.3	45.0
37	24.7	20.4	54.8
49	25.5	14.9	59.6
62	23.8	21.4	54.8
68	20.8	17.0	62.3
72	31.9	14.5	53.6
74	37.4	16.8	45.8
94	43.4	18.2	38.4
98	29.8	19.1	51.1
109	35.0	23.8	41.3
139	34.7	15.8	49.5
142	17.8	30.1	52.1
158	27.5	15.9	56.5
166	19.7	22.7	57.6
200	28.6	14.3	57.1
223	24.4	20.0	55.6
231	37.3	11.9	50.8
261	13.1	17.9	69.0
262	18.2	36.4	45.5
270	23.4	31.9	44.7
274	37.9	15.5	46.6
283	25.0	10.7	64.3
313	33.8	20.0	46.3
315	22.2	11.1	66.7
319	22.7	23.9	53.4

Table B-10, *continued*. Percent of residents disagreeing or agreeing with the statement “*I believe climate change is currently affecting the area near my home.*”

CBG	Disagree	Neither	Agree
332	29.3	26.8	43.9
335	8.8	5.9	85.3
343	27.8	30.6	41.7
344	27.6	20.0	52.4
354	15.6	25.0	59.4
364	26.7	28.0	45.3
369	25.0	16.7	58.3
385	30.5	13.6	55.9
402	32.5	12.5	55.0
427	40.0	30.0	30.0
430	40.6	19.8	39.6
431	26.9	19.2	53.8
442	33.8	19.7	46.5
447	35.1	18.9	45.9
454	23.3	30.1	46.6
456	32.1	25.9	42.0
476	30.1	24.7	45.2
501	23.8	11.3	65.0
503	19.0	28.6	52.4
504	35.3	26.5	38.2
517	41.9	14.0	44.2
536	23.0	19.7	57.4
540	35.6	33.9	30.5
Core	30.7	21.2	48.1
Fringe	29.7	18.8	51.4
<i>Tucson</i>	<i>30.4</i>	<i>20.5</i>	<i>49.1</i>

**APPENDIX C. SUPPORTING TABLES FOR
WILDLIFE NEAR THE HOME SECTION**

Table C-1. Percent of wildlife value orientation type agreeing with general beliefs regarding the wildlife near their homes.

	Wildlife are...				
	a nuisance	enjoyable	dangerous	a valuable recreation opportunity	I rarely see wildlife
Utilitarian	16.9%	71.8%	23.7%	40.0%	40.2%
Pluralist	14.9%	84.6%	22.4%	56.0%	46.5%
Mutualist	9.5%	84.0%	20.7%	44.5%	41.9%
Distanced	15.2%	63.3%	23.1%	27.3%	44.0%

Table C-2. Differences between wildlife value orientation types on statements about wildlife.

Wildlife are...	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
...a nuisance	2.72 ^a	2.58 ^a	2.20 ^b	2.79 ^a	26.09	.150
...enjoyable	5.27 ^a	5.79 ^b	5.93 ^b	4.96 ^c	72.72	.245
...dangerous ⁴	3.00 ^a	2.89 ^{ab}	2.70 ^b	3.18 ^a	10.27	.095
... valuable opportunities for recreation	4.31 ^a	4.87 ^b	4.59 ^c	3.96 ^d	34.21	.175
I rarely see any wildlife near my home.	3.50 ^a	3.82 ^b	3.60 ^{ab}	3.89 ^b	4.84	.065

¹ Cell entries represent means ranging from 1 = Highly unacceptable to 7 = Highly acceptable. Different superscripts denote statistical difference ($p < .05$) as reported by Dunnett's T3 post hoc test (unless otherwise noted), used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² All *F*-values were statistically different ($p < .01$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

⁴ Different superscripts denote statistical difference ($p < .05$) as reported by Scheffe's post hoc test.

Table C-3. Percent of residents agreeing with general beliefs about the wildlife near their homes.

CBG	Wildlife are...				
	a nuisance	enjoyable	dangerous	a valuable recreation opportunity	I rarely see wildlife
15	10.2	81.5	29.9	47.7	30.6
16	21.4	90.5	31.0	57.1	7.1
18	10.2	89.7	30.9	46.3	17.2
20	22.0	87.8	28.0	49.4	12.7
21	17.9	82.1	14.3	42.3	17.9
23	7.7	83.5	20.8	42.9	41.8
37	7.4	92.6	30.1	41.8	6.5
49	22.4	83.3	22.9	36.7	6.1
62	11.9	92.9	15.7	36.1	16.7
68	14.8	90.7	28.8	46.2	7.8
72	12.9	91.4	27.9	47.8	11.4
74	9.3	93.6	26.6	59.8	9.2
94	17.2	94.0	31.0	52.6	3.0
98	8.4	85.3	24.5	54.7	23.4
109	21.3	90.0	18.8	60.3	5.1
139	13.8	92.6	24.2	48.4	22.9
142	11.8	77.6	14.5	48.6	43.4
158	16.9	85.7	22.5	42.3	8.5
166	14.9	79.1	14.7	47.8	58.8
200	15.9	77.4	21.7	34.4	45.9
223	6.8	71.1	6.8	29.5	69.6
231	14.8	66.1	18.3	40.7	75.0
261	21.8	85.1	26.4	46.0	28.7
262	18.2	63.6	9.1	54.5	36.4
270	20.4	79.6	32.7	44.9	40.8
274	10.7	73.7	8.9	39.3	68.4
283	19.2	74.1	7.4	40.7	53.6
313	6.3	82.5	17.5	43.0	52.5
315	10.5	78.9	10.5	20.0	73.7
319	22.0	75.3	42.5	46.1	27.8

Table C-3, *continued*. Percent of residents agreeing with general beliefs about the wildlife near their homes.

CBG	Wildlife are...				
	a nuisance	enjoyable	dangerous	a valuable recreation opportunity	I rarely see wildlife
332	12.2	63.4	17.5	35.0	58.5
335	0.0	78.8	12.1	26.5	61.8
343	15.4	66.7	21.1	47.4	51.3
344	15.0	95.3	21.7	55.7	3.7
354	8.8	61.8	8.8	41.2	58.8
364	5.1	76.3	13.9	44.7	47.4
369	8.3	62.5	12.5	37.5	62.5
385	15.3	63.8	21.8	36.8	63.8
402	15.8	77.5	15.0	50.0	55.0
427	20.0	63.3	24.1	40.0	74.2
430	10.3	85.0	17.1	42.3	43.0
431	15.1	64.8	24.1	32.7	60.4
442	13.9	74.3	22.2	48.6	45.7
447	13.7	79.5	23.3	47.9	59.5
454	17.5	88.6	37.2	46.1	35.9
456	7.4	89.0	27.5	51.9	37.8
476	9.5	78.4	17.6	44.0	48.6
501	21.5	86.4	27.2	53.8	14.8
503	27.3	63.6	22.7	28.6	45.0
504	14.3	82.9	23.5	45.5	41.2
517	13.6	67.4	11.4	40.9	61.4
536	8.2	75.0	23.3	46.7	41.0
540	11.9	69.0	31.0	42.9	71.7
Core	12.7	75.5	21.0	42.6	51.5
Fringe	14.3	87.2	24.9	48.3	20.6
<i>Tucson</i>	<i>13.2</i>	<i>78.8</i>	<i>22.1</i>	<i>44.2</i>	<i>43.0</i>

Table C-4. Percent of residents by wildlife value orientation type indicating they have *occasionally* observed specific wildlife species near their homes.

	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
Utilitarian	50.3	25.4	36.6	5.6	37.5
Pluralist	46.3	23.6	34.0	5.0	38.9
Mutualist	49.0	25.4	33.6	5.7	38.5
Distanced	52.9	20.7	34.0	4.3	37.9

Table C-5. Percent of residents by wildlife value orientation type indicating they have *often* observed specific wildlife species near their homes.

	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
Utilitarian	28.3	2.1	16.3	0.4	37.4
Pluralist	27.8	2.7	16.5	0.7	33.5
Mutualist	26.2	2.3	13.9	0.3	37.7
Distanced	17.4	2.2	12.0	0.5	28.5

Table C-6. Percent of residents by wildlife value orientation type indicating specific wildlife species near their homes have *occasionally* been a nuisance or a problem.

	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
Utilitarian	9.2	2.3	17.4	1.0	16.6
Pluralist	9.1	2.9	12.0	1.6	9.8
Mutualist	7.3	3.0	13.8	1.0	13.8
Distanced	6.4	4.9	15.1	1.3	16.1

Table C-7. Percent of residents by wildlife value orientation type indicating specific wildlife species near their homes have *often* been a nuisance or a problem.

	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
Utilitarian	3.1	1.0	4.5	0.7	6.3
Pluralist	2.4	0.0	3.4	0.3	4.2
Mutualist	1.8	0.1	2.6	0.4	3.2
Distanced	3.2	0.3	4.3	0.6	4.5

Table C-8. Percent of residents by census block group indicating they *occasionally or often* observe specific wildlife species near their homes.

CBG	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
15	92.0	51.0	82.8	11.9	91.0
16	96.4	85.7	100.0	25.9	98.7
18	94.8	60.4	62.9	4.1	89.9
20	98.8	67.9	70.0	19.5	97.1
21	92.9	83.3	93.1	21.4	80.0
23	87.0	26.9	57.7	3.8	87.5
37	94.6	81.3	92.4	18.9	96.5
49	100.0	85.7	93.9	4.7	95.1
62	96.3	51.2	78.3	7.4	86.7
68	96.2	76.9	88.2	15.7	93.6
72	98.5	90.8	80.9	20.3	91.7
74	95.3	86.9	93.4	23.1	93.9
94	100.0	80.0	95.8	22.1	97.8
98	87.0	60.9	83.5	17.2	88.8
109	98.7	61.5	98.7	9.0	94.8
139	92.5	39.4	73.9	5.3	90.5
142	78.7	16.2	37.3	2.7	81.7
158	94.3	52.9	98.5	10.1	90.6
166	72.1	14.7	23.5	2.9	70.6
200	91.9	11.5	23.0	0.0	64.9
223	47.8	13.3	28.3	2.2	64.4
231	32.3	6.8	15.0	1.7	55.4
261	74.4	23.3	88.5	4.7	76.0
262	60.0	20.0	54.5	0.0	90.0
270	78.7	28.3	51.1	6.5	69.8
274	47.4	0.0	10.5	0.0	67.9
283	20.7	3.4	17.2	0.0	58.6
313	83.1	8.0	50.7	0.0	79.7
315	55.6	5.3	22.2	0.0	57.9
319	78.9	21.3	78.2	5.6	84.3

Table C-8, *continued*. Percent of residents by census block group indicating they *occasionally or often* observe specific wildlife species near their homes.

CBG	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
332	41.5	4.9	26.8	4.9	64.9
335	48.5	2.9	27.3	5.9	90.6
343	55.6	14.3	45.7	0.0	67.6
344	99.1	75.2	99.0	15.4	99.0
354	36.4	3.1	6.1	3.1	61.3
364	72.4	10.8	39.5	1.4	77.5
369	81.8	9.1	17.4	9.1	65.2
385	50.0	5.6	13.0	3.7	46.9
402	76.9	7.9	15.4	7.9	41.7
427	46.7	3.3	13.3	0.0	51.7
430	85.7	17.6	64.4	3.9	81.4
431	80.8	10.6	35.4	0.0	61.0
442	67.6	16.2	38.6	4.4	68.8
447	82.2	8.1	26.0	0.0	57.7
454	92.3	44.3	76.9	12.3	78.8
456	92.7	43.0	71.6	13.9	83.6
476	75.3	18.1	34.7	5.5	64.7
501	98.8	29.5	89.9	6.6	93.8
503	94.7	5.0	66.7	0.0	84.2
504	89.2	8.8	58.8	0.0	73.5
517	47.6	9.3	25.6	4.7	40.0
536	74.1	12.5	34.5	1.8	81.8
540	48.3	3.6	12.5	1.8	35.2
Core	68.8	16.0	37.6	3.3	67.6
Fringe	91.2	54.1	79.2	12.1	89.4
Tucson	74.9	26.6	49.1	5.7	73.5

Table C-9. Percent of residents by census block group indicating specific wildlife species near their homes have *occasionally or often* been a nuisance or a problem.

CBG	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
15	18.2	4.7	34.1	2.6	24.4
16	10.0	7.5	55.0	2.8	36.8
18	13.6	9.5	11.3	1.5	30.7
20	20.0	11.8	30.3	6.7	32.3
21	16.7	0.0	38.5	8.3	33.3
23	8.8	0.0	18.8	0.0	9.1
37	9.3	4.7	44.2	5.4	25.0
49	22.7	13.6	47.8	0.0	33.3
62	15.4	8.3	23.7	2.9	28.6
68	21.7	8.7	39.1	0.0	38.1
72	15.2	11.8	45.5	6.7	34.5
74	8.2	6.1	42.0	6.7	29.8
94	21.7	8.5	50.0	6.8	21.4
98	2.4	2.4	23.3	0.0	13.5
109	18.9	5.9	52.9	3.2	34.3
139	11.6	2.7	22.0	2.9	32.5
142	6.5	3.4	0.0	0.0	10.7
158	15.2	6.3	63.6	0.0	21.9
166	11.5	0.0	8.6	0.0	14.0
200	16.1	0.0	1.3	0.0	10.3
223	0.0	0.0	3.4	0.0	10.5
231	2.7	2.9	7.1	2.9	18.8
261	11.8	3.1	44.7	0.0	15.2
262	0.0	0.0	0.0	0.0	7.1
270	26.5	7.7	29.0	1.7	20.0
274	10.4	0.0	4.8	0.0	19.1
283	5.7	0.0	5.7	0.0	18.8
313	8.9	0.0	6.4	0.0	17.0
315	7.1	0.0	0.0	0.0	10.7
319	5.6	2.7	26.7	1.8	13.6

Table C-9, *continued*. Percent of residents by census block group indicating specific wildlife species near their homes have *occasionally or often* been a nuisance or a problem.

CBG	Coyotes	Bobcats	Javelinas	Mountain lions	Other wildlife
332	3.5	3.8	13.2	3.8	23.7
335	6.3	0.0	7.1	0.0	7.1
343	14.0	7.7	18.0	8.2	9.8
344	14.0	6.3	44.9	4.5	18.8
354	2.9	3.0	3.2	3.3	10.5
364	4.2	0.0	8.0	0.0	14.9
369	0.0	0.0	9.1	0.0	6.5
385	7.6	3.9	5.2	5.2	7.7
402	17.5	0.0	6.0	2.0	19.2
427	2.6	2.6	0.0	0.0	5.3
430	5.9	1.5	10.4	1.5	15.6
431	20.8	3.6	7.6	0.0	14.8
442	10.3	2.1	12.6	2.1	14.6
447	16.5	2.2	5.6	0.0	18.9
454	9.1	3.3	35.5	0.0	14.3
456	5.8	2.7	23.4	0.0	9.0
476	5.9	3.0	6.1	0.0	15.6
501	18.4	2.9	38.5	3.1	27.3
503	33.3	0.0	12.5	0.0	14.3
504	20.0	7.7	38.5	0.0	21.4
517	3.1	0.0	3.3	0.0	5.2
536	4.0	4.3	4.0	4.3	12.5
540	6.1	0.0	0.0	0.0	9.5
Core	9.1	2.3	9.9	1.1	15.4
Fringe	13.6	5.6	35.2	3.0	24.0
<i>Tucson</i>	<i>10.4</i>	<i>3.3</i>	<i>17.7</i>	<i>1.6</i>	<i>17.8</i>

**APPENDIX D. SUPPORTING TABLES FOR
ATTITUDES TOWARD LETHAL CONTROL OF WILDLIFE SECTION**

Table D-1. Percent of residents by wildlife value orientation type finding it unacceptable or acceptable for AZGFD to lethally remove a coyote or bobcat if it is *seen* near their homes.

	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	34.7	18.1	8.7	8.8	9.2	8.0	12.4
Pluralist	43.7	13.6	7.3	10.6	10.0	6.4	8.4
Mutualist	57.7	11.1	6.6	7.1	8.4	4.1	4.9
Distanced	39.8	16.6	10.0	10.4	9.7	6.4	7.1

Table D-2. Percent of residents by wildlife value orientation type finding it unacceptable or acceptable for AZGFD to lethally remove a coyote or bobcat if it is a *nuisance* near their homes.

	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	23.2	15.2	11.3	9.4	16.8	12.5	11.7
Pluralist	30.0	15.6	10.1	12.2	14.5	8.1	9.4
Mutualist	46.0	13.9	8.3	9.1	11.2	5.3	6.3
Distanced	29.9	17.8	13.1	11.2	13.1	5.9	9.0

Table D-3. Percent of residents by wildlife value orientation type finding it unacceptable or acceptable for AZGFD to lethally remove a coyote or bobcat if it has a *disease that may be spread to humans*.

	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	4.7	1.5	1.1	3.1	5.7	13.4	70.6
Pluralist	6.8	1.6	4.3	6.4	9.3	16.2	55.4
Mutualist	5.7	5.6	4.1	5.5	13.3	16.7	49.1
Distanced	4.2	2.6	4.5	6.6	11.3	18.9	51.9

Table D-4. Percent of residents by wildlife value orientation type finding it unacceptable or acceptable for AZGFD to lethally remove a coyote or bobcat if it *attacks a pet* near their homes.

	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	9.6	6.2	4.3	7.4	16.6	19.0	36.9
Pluralist	12.4	6.5	5.5	10.0	15.2	20.3	30.0
Mutualist	17.4	7.6	7.4	7.1	16.6	17.4	26.6
Distanced	10.6	8.7	6.1	12.1	16.5	19.9	26.0

Table D-5. Percent of residents by wildlife value orientation finding it unacceptable or acceptable for AZGFD to lethally remove a coyote or bobcat if it *attacks a human* near their homes.

	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
Utilitarian	5.8	1.3	1.5	3.4	4.8	7.4	75.8
Pluralist	9.1	1.6	3.0	7.6	6.9	12.4	59.4
Mutualist	8.9	5.9	2.8	5.9	9.5	14.8	52.1
Distanced	4.0	2.6	2.1	6.1	6.8	16.5	61.8

Table D-6. Correlations¹ among demographics and the acceptability of lethal removal² of coyotes or bobcats near the home in different scenarios.

Is it unacceptable or acceptable for AZGFD to lethally remove a COYOTE or BOBCAT if it ...	Demographics						
	Gender ³	Age	Residents <18 years at home	Years in Arizona	Years in household	Income ⁴	Education ⁵
...is seen near your home?	---	.054	.079	.107	.097	-.136	-.184
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	-.062	.089	.038	.091	.098	-.112	-.156
...has a disease that may be spread to humans?	---	.083	-.045	.076	.050	.064	---
...attacks a <u>pet</u> near your home?	.049	.048	---	.095	.057	-.044	-.099
...attacks a <u>person</u> near your home?	.035	.072	-.020	.073	.059	.055	---

¹ Unless otherwise noted, correlations are represented by Pearson's r , where .100 = "small", .300 = "medium", and .500 = "large" effects. Cell entries with a "----" are not significant ($p > .05$).

² Statements about the acceptability of lethal removal were measured on a 7-point scale ranging from "highly unacceptable" to "highly acceptable."

³ Gender was measured as a dichotomous variable, where 0 = "Male" and 1 = "Female." Correlations reported are point-biserial, where .100 = "small", .243 = "medium", and .371 = "large" effects.

⁴ Income was measured on a 9-point scale where a larger value corresponded to a higher income bracket.

⁵ Education was measured on a 5-point scale, where a larger value corresponded to a higher education level.

Table D-7. Correlations¹ among demographics and the acceptability of lethal removal² of javelinas near the home in different scenarios.

Is it unacceptable or acceptable for AZGFD to lethally remove a JAVELINA if it...	Demographics						
	Gender ³	Age	Residents <18 years at home	Years in Arizona	Years in household	Income ⁴	Education ⁵
...is seen near your home?	---	.057	.080	.095	.064	-.174	-.199
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	---	.100	---	.081	.089	-.135	-.161
...has a disease that may be spread to humans?	---	.107	-.035	.083	.072	.038	---
...attacks a <u>pet</u> near your home?	.061	.069	---	.103	.063	-.065	-.119
...attacks a <u>person</u> near your home?	.054	.095	---	.095	.078	---	---

¹ Unless otherwise noted, correlations are represented by Pearson's *r*, where .100 = "small", .300 = "medium", and .500 = "large" effects. Cell entries with a "----" are not significant ($p > .05$).

² Statements about the acceptability of lethal removal were measured on a 7-point scale ranging from "highly unacceptable" to "highly acceptable."

³ Gender was measured as a dichotomous variable, where 0 = "Male" and 1 = "Female." Correlations reported are point-biserial, where .100 = "small", .243 = "medium", and .371 = "large" effects.

⁴ Income was measured on a 9-point scale where a larger value corresponded to a higher income bracket.

⁵ Education was measured on a 5-point scale, where a larger value corresponded to a higher education level.

Table D-8. Correlations¹ among demographics and the acceptability of lethal removal² of mountain lions near the home in different scenarios.

Is it unacceptable or acceptable for AZGFD to lethally remove a <u>MOUNTAIN LION</u> if it...	Demographics						
	Gender ³	Age	Residents <18 years at home	Years in Arizona	Years in household	Income ⁴	Education ⁵
...is seen near your home?	-.038	.096	.068	.119	.108	-.125	-.170
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	-.061	.125	.038	.116	.119	-.097	-.146
...has a disease that may be spread to humans?	---	.120	-.041	.092	.083	.047	---
...attacks a <u>pet</u> near your home?	.039	.092	---	.097	.070	-.038	-.106
...attacks a <u>person</u> near your home?	---	.094	---	.082	.084	.061	---

¹ Unless otherwise noted, correlations are represented by Pearson's r , where .100 = "small", .300 = "medium", and .500 = "large" effects. Cell entries with a "----" are not significant ($p > .05$).

² Statements about the acceptability of lethal removal were measured on a 7-point scale ranging from "highly unacceptable" to "highly acceptable."

³ Gender was measured as a dichotomous variable, where 0 = "Male" and 1 = "Female." Correlations reported are point-biserial, where .100 = "small", .243 = "medium", and .371 = "large" effects.

⁴ Income was measured on a 9-point scale where a larger value corresponded to a higher income bracket.

⁵ Education was measured on a 5-point scale, where a larger value corresponded to a higher education level.

Table D-9. Differences between wildlife value orientation types on acceptability of lethal removal of coyotes or bobcats.

Is it unacceptable or acceptable for AZGFD to lethally remove a COYOTE or BOBCAT if it...	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
...is seen near your home?	3.14 ^a	2.82 ^b	2.30 ^c	2.81 ^b	31.54	.065
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	3.65 ^a	3.28 ^b	2.67 ^c	3.14 ^b	40.98	.165
...has a disease that may be spread to humans?	6.26 ^a	5.80 ^b	5.62 ^b	5.82 ^b	22.07	.188
...attacks a <u>pet</u> near your home?	5.20 ^a	4.91 ^b	4.56 ^c	4.78 ^b	15.52	.138
...attacks a <u>person</u> near your home?	6.26 ^a	5.76 ^b	5.54 ^b	6.05 ^a	26.36	.116

¹ Cell entries represent means ranging from 1 = Highly unacceptable to 7 = Highly acceptable. Different superscripts denote statistical difference ($p < .05$) as reported by Dunnett's T3 post hoc test, used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² All *F*-values were statistically different ($p < .001$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

Table D-10. Differences between wildlife value orientation types on acceptability of lethal removal of javelinas.

Is it unacceptable or acceptable for AZGFD to lethally remove a JAVELINA if it...	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
...is seen near your home?	2.91 ^a	2.68 ^a	2.17 ^b	2.71 ^a	28.13	.151
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	3.58 ^a	3.24 ^b	2.64 ^c	3.03 ^b	36.55	.156
...has a disease that may be spread to humans?	6.28 ^a	5.81 ^b	5.63 ^b	5.79 ^b	22.42	.177
...attacks a <u>pet</u> near your home?	5.14 ^a	4.93 ^a	4.60 ^b	4.82 ^{ab}	11.08	.140
...attacks a <u>person</u> near your home?	6.15 ^a	5.72 ^b	5.46 ^c	5.92 ^{ab}	22.67	.099

¹ Cell entries represent means ranging from 1 = Highly unacceptable to 7 = Highly acceptable. Different superscripts denote statistical difference ($p < .05$) as reported by Dunnett's T3 post hoc test, used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² All *F*-values were statistically different ($p < .001$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

Table D-11. Differences between wildlife value orientation types on acceptability of lethal removal of mountain lions.

Is it unacceptable or acceptable for AZGFD to lethally remove a <u>MOUNTAIN LION</u> if it...	Wildlife value orientation type ¹				<i>F</i> -value ²	ES ³
	Utilitarian	Pluralist	Mutualist	Distanced		
...is seen near your home?	3.82 ^a	3.55 ^{ab}	2.83 ^c	3.43 ^b	35.64	.140
...is a nuisance (for example: it gets into trash or pet food containers) near your home?	4.23 ^a	3.72 ^b	3.07 ^c	3.61 ^b	44.19	.175
...has a disease that may be spread to humans?	6.33 ^a	5.85 ^b	5.65 ^b	5.85 ^b	24.47	.194
...attacks a <u>pet</u> near your home?	5.44 ^a	5.13 ^b	4.82 ^c	5.08 ^{bc}	13.71	.146
...attacks a <u>person</u> near your home?	6.32 ^a	5.88 ^b	5.64 ^c	6.13 ^{ab}	24.56	.110

¹ Cell entries represent means ranging from 1 = Highly unacceptable to 7 = Highly acceptable. Different superscripts denote statistical difference ($p < .05$) as reported by Dunnett's T3 post hoc test, used due to a violation of the equal-variances assumption in analysis of variance (ANOVA).

² All *F*-values were statistically different ($p < .001$).

³ Effect size measures. Eta values are presented, where .100 = small, .243 = medium, and .371 = large effects.

Table D-12. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a coyote or bobcat in various situations.

CBG	Lethal removal is acceptable if a coyote or bobcat...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
15	17.8	24.1	83.3	52.3	80.6
16	11.0	12.2	91.7	59.8	80.7
18	11.1	24.2	89.9	62.6	86.9
20	13.6	21.3	92.7	65.1	84.1
21	7.1	28.6	85.7	75.0	85.7
23	17.1	28.6	81.8	64.9	82.9
37	7.5	14.9	89.4	59.6	80.9
49	14.3	20.4	85.7	61.2	85.7
62	14.5	15.9	82.9	57.8	85.5
68	9.4	15.1	75.5	39.6	79.2
72	7.4	11.6	87.1	48.6	85.7
74	5.6	18.3	90.7	62.4	84.4
94	9.1	22.2	87.0	50.0	85.0
98	15.1	22.6	84.0	66.0	83.0
109	11.3	25.0	85.0	56.3	77.2
139	17.0	27.1	90.4	59.4	84.2
142	24.3	29.7	80.0	60.5	78.4
158	9.9	15.5	87.3	67.6	81.7
166	26.5	36.8	85.3	70.6	80.9
200	27.1	26.7	82.0	70.0	82.0
223	25.0	29.5	88.9	65.9	88.6
231	18.3	26.7	77.0	63.3	71.2
261	24.7	29.8	84.9	60.5	82.6
262	45.5	45.5	72.7	63.6	54.5
270	22.9	29.8	79.2	66.0	75.0
274	10.2	22.8	71.2	56.1	72.9
283	24.1	28.6	75.9	55.2	65.5
313	25.0	36.7	88.6	76.3	87.3
315	5.3	5.3	68.4	31.6	73.7
319	20.7	29.4	77.9	64.0	74.1

Table D-12, *continued*. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a coyote or bobcat in various situations.

CBG	Lethal removal is acceptable if a coyote or bobcat...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
332	24.4	29.3	85.4	63.4	85.4
335	26.5	20.6	67.6	44.1	67.6
343	34.2	47.4	71.1	63.2	63.2
344	9.3	21.3	82.1	57.9	83.2
354	23.5	29.4	69.7	55.9	70.6
364	21.5	35.4	88.6	75.6	84.6
369	20.8	29.2	87.5	60.9	82.6
385	29.3	38.6	74.1	65.5	79.3
402	42.5	50.0	90.0	75.6	90.0
427	46.2	55.2	82.8	90.0	96.7
430	26.0	34.0	94.1	75.5	90.3
431	30.2	32.1	79.6	70.4	85.2
442	26.1	27.9	68.6	64.3	73.9
447	32.4	33.3	83.8	66.2	75.7
454	17.9	34.2	82.3	61.5	83.5
456	20.7	31.3	84.1	54.9	84.1
476	19.2	29.6	81.9	69.4	83.3
501	16.3	18.8	80.0	54.4	73.4
503	33.3	36.4	77.3	77.3	81.0
504	31.4	34.3	82.4	79.4	85.7
517	38.6	38.6	65.9	56.8	70.5
536	35.6	34.5	84.7	71.2	88.3
540	44.1	34.5	70.0	70.0	70.0
Core	25.5	32.5	81.2	66.4	79.8
Fringe	15.1	22.7	84.8	60.0	82.3
Tucson	22.6	29.8	82.2	64.6	80.5

Table D-13. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a javelina in various situations.

CBG	Lethal removal is acceptable if a javelina...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
15	10.3	18.7	80.6	56.0	75.0
16	7.2	14.6	86.7	56.0	77.1
18	11.0	29.3	90.9	67.0	84.8
20	9.8	19.5	92.7	60.2	81.7
21	3.6	21.4	78.6	53.6	78.6
23	15.6	27.8	84.6	65.4	85.7
37	4.3	14.0	88.3	57.4	76.6
49	16.3	20.4	85.7	63.3	87.8
62	9.8	22.0	79.3	61.4	82.9
68	9.4	15.1	75.0	39.6	71.7
72	4.3	17.1	87.0	51.4	80.0
74	6.4	9.2	91.7	59.6	78.9
94	8.1	17.2	87.9	42.0	80.0
98	10.8	23.7	84.9	68.5	80.4
109	10.1	17.7	84.0	53.2	75.9
139	10.4	20.0	88.3	60.4	81.3
142	12.0	22.4	78.9	60.5	71.1
158	4.2	16.9	80.3	56.3	71.4
166	25.4	35.8	85.3	70.6	79.4
200	26.2	31.7	85.5	68.9	79.4
223	15.9	18.2	86.4	65.9	86.4
231	18.3	26.2	75.4	63.3	70.0
261	12.6	25.6	84.9	62.1	81.6
262	36.4	45.5	72.7	63.6	63.6
270	25.0	32.7	77.6	65.3	72.9
274	11.9	22.4	72.9	62.1	72.9
283	10.3	17.2	69.0	44.8	58.6
313	20.0	37.5	89.9	73.4	86.1
315	0.0	10.5	63.2	42.1	73.7
319	14.8	26.1	80.7	62.1	78.2

Table D-13, *continued*. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a javelina in various situations.

CBG	Lethal removal is acceptable if a javelina...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
332	22.0	29.3	82.9	56.1	82.9
335	17.6	18.2	64.7	52.9	70.6
343	40.5	43.2	84.2	57.9	68.4
344	4.7	19.8	81.3	52.3	78.5
354	14.7	23.5	61.8	50.0	64.7
364	14.1	28.9	86.8	73.1	84.8
369	26.1	30.4	87.0	65.2	87.5
385	36.2	40.4	68.4	66.1	77.2
402	40.0	47.5	85.0	75.6	85.0
427	60.7	60.0	96.7	90.0	93.3
430	26.9	33.7	92.3	75.0	86.5
431	28.3	35.8	81.1	69.8	84.9
442	26.1	26.9	69.6	66.7	70.6
447	28.2	31.0	83.1	67.6	76.1
454	23.4	37.7	89.5	64.9	86.8
456	18.3	34.6	84.1	58.5	84.1
476	13.7	27.4	82.2	69.9	84.9
501	13.9	18.8	81.3	48.8	68.8
503	31.8	28.6	68.2	81.8	81.8
504	23.5	39.4	88.2	74.3	85.3
517	27.3	36.4	68.2	56.8	70.5
536	24.1	31.0	83.1	72.4	86.4
540	44.1	38.3	74.6	73.3	71.7
Core	23.4	32.1	81.4	66.3	78.9
Fringe	11.1	20.8	84.1	58.5	79.1
Tucson	20.0	29.0	82.1	64.2	79.0

Table D-14. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a mountain lion in various situations.

CBG	Lethal removal is acceptable if a mountain lion...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
15	29.0	34.0	81.5	65.1	83.3
16	21.4	24.1	85.5	60.2	79.8
18	27.3	38.8	89.9	68.7	85.9
20	26.8	36.3	92.7	65.1	89.0
21	13.8	29.6	82.1	69.2	85.2
23	35.1	37.2	84.4	74.0	87.0
37	13.7	17.2	85.1	66.0	84.0
49	30.6	33.3	87.5	70.8	87.5
62	26.8	31.7	81.9	69.1	84.3
68	20.4	18.9	75.9	39.6	81.1
72	21.4	30.4	85.7	57.1	88.6
74	17.4	25.0	90.8	62.4	83.5
94	17.2	23.0	88.9	62.0	87.0
98	21.3	25.3	85.3	68.4	85.3
109	22.8	36.3	86.3	53.8	78.8
139	25.0	33.3	86.5	71.6	90.6
142	25.0	25.3	84.2	65.3	80.0
158	20.0	31.9	81.2	59.4	78.3
166	33.8	39.7	84.1	76.1	85.3
200	42.6	41.0	85.2	75.4	85.5
223	45.5	45.5	91.1	70.5	90.9
231	31.7	31.7	70.0	61.7	66.7
261	39.5	38.4	85.9	67.4	83.5
262	54.5	54.5	72.7	63.6	63.6
270	35.4	35.4	79.2	68.8	76.6
274	22.0	25.9	76.3	59.6	75.9
283	27.6	24.1	65.5	55.2	65.5
313	42.3	37.5	88.5	78.5	87.3
315	5.3	15.8	63.2	47.4	73.7
319	34.1	40.9	80.7	65.9	81.6

Table D-14, *continued*. Percent of residents by census block group indicating it is acceptable for AZGFD to lethally remove a mountain lion in various situations.

CBG	Lethal removal is acceptable if a mountain lion...				
	Is seen near home	Is a nuisance	Has a disease that may be spread to humans	Attacks a pet	Attacks a human
332	24.4	29.3	85.4	63.4	85.4
335	35.3	30.3	73.5	58.8	70.6
343	48.6	50.0	81.6	63.2	65.8
344	26.4	29.2	82.4	58.9	84.9
354	29.4	36.4	61.8	52.9	70.6
364	35.4	38.0	85.9	75.6	84.8
369	33.3	50.0	87.5	75.0	87.5
385	39.3	41.1	69.6	59.6	73.2
402	52.5	61.0	82.5	70.0	82.5
427	76.7	66.7	93.3	90.0	93.3
430	35.2	40.0	95.1	79.0	89.5
431	42.6	40.4	83.0	73.6	86.8
442	37.7	44.1	65.7	65.7	73.9
447	43.1	47.2	84.7	69.4	79.2
454	52.0	50.0	90.8	71.1	87.2
456	41.5	45.6	88.8	64.2	87.7
476	30.1	38.9	82.2	73.6	86.3
501	25.3	29.1	82.1	61.0	73.4
503	40.9	54.5	77.3	77.3	81.0
504	42.9	48.5	80.0	74.3	80.0
517	38.6	43.2	72.7	56.8	72.7
536	46.6	51.7	83.1	77.6	91.5
540	60.0	48.3	72.9	71.7	71.7
Core	38.0	40.8	81.6	68.9	84.1
Fringe	26.7	31.8	84.7	64.9	80.8
Tucson	34.9	38.3	82.5	67.8	81.7

APPENDIX E. METHODS AND WEIGHTING

Sampling and Data Collection

Results reported here are for Arizona's portion of the *Understanding People in Places* project.

Residents living in Tucson, Arizona were the target population for this study. Sampling was stratified by census block group and by urban core and urban fringe designations to allow for generalizations at localized levels in addition to the overall region level. The study area consisted of 536 total census block groups, which were obtained from U.S. Census (2000) designations. Census block groups with less than 200 people/km² were disregarded as having too low of population density to feasibly conduct a door-to-door approach. Core and fringe designations were defined by a quartile split, where census block groups defined as *urban fringe* had a density of 200-922.6 people/km² (the lowest quartile) and the *urban core* had a density of 922.6 people/km² or more (the three highest quartiles). Household within the sample of urban core and urban fringe census block groups were then targeted for participation. Each household within the census block group was visited once. This stratification allowed for comparisons by census block group and by fringe and core areas on key questions of interest. A pretest of the survey instrument with a small sample of Tucson residents was conducted in the summer of 2008. Data were collected via a questionnaire (see Appendix G) administered using a door-to-door approach between October 2008 and January 2009. Data from completed questionnaires were analyzed using the *Statistical Package for the Social Sciences (SPSS)* software.

A total of 3,493 Tucson residents responded to the door-to-door survey effort, resulting in an overall response rate of 57.8%. Of the people who agreed to take the survey, 78.8% returned the survey as instructed. Response rates obtained for each census block group are reported in Table E-1. The population estimate for the entire Tucson study area was within $\pm 2\%$ at the 99% confidence level. Sixty-eight responses per census block group were targeted to allow for population estimates within $\pm 10\%$ margin of error at the 90% confidence level for each sampled census block group. Margins of error were different for each census block group because of varying response rates and sample sizes (see Table I.B.1 in the body of this report).

Table E-1. Response rates to the survey.

Census Block Group	Total Households Surveyed	Response rate (%)	Number of nonrespondents
15	105	59.0	27
16	84	70.6	5
18	99	69.7	7
20	82	75.9	6
21	30	65.2	3
23	80	59.3	10
37	94	62.7	18
49	49	71.0	6
62	85	68.0	12
68	54	83.1	3
72*	70	74.5	3
74	109	73.2	16
94	101	70.1	15
98	94	57.0	15
109	80	69.0	6
139	96	58.2	25
142	77	55.4	18
158	71	65.7	5
166	68	58.6	6
200	64	54.7	5
223	47	58.8	5
231	62	45.3	22
261	90	58.4	22
262	11	45.8	1
270	50	48.1	8
274	61	61.0	11
283	30	62.5	3
313	80	52.6	6

Table E-1, *continued*. Response rates to the survey.

Census Block Group	Total Households Surveyed	Response rate (%)	Number of nonrespondents
332	41	49.4	7
335	35	71.4	3
343	39	37.9	16
344	106	71.6	3
354	35	66.0	6
364	80	50.6	22
369	24	50.0	9
385	62	45.3	12
402	41	55.4	6
427	33	40.2	8
430	107	62.9	22
431	56	50.9	2
442	72	46.5	27
447	75	57.3	21
454	81	58.7	19
456	84	62.7	8
476	76	54.7	20
501	85	62.5	19
503	22	51.2	1
504	36	51.4	4
517	44	39.3	15
536	63	37.7	12
536	62	39.5	7
332	41	49.4	7
335	35	71.4	3

*Not all houses in this census block group had an equal chance of selection. Permission was denied to distribute surveys within a gated community that consisted of a large portion of this area. The homeowner's associations agreed to announce the survey, and blank surveys were left at the gate; however, none of these surveys were returned.

Nonresponse Check

Residents who chose not to participate in the full survey were asked to participate in a short, orally-administered 4-question survey instead ($n = 594$ completed interviews; see Appendix H for nonresponse survey questions). This nonresponse survey allowed for an exploration of whether differences existed between nonrespondents and respondents who completed the full-length survey on key variables of interest to the study (Table E-2). *Unweighted data* were used in these analyses. Slight differences were noted between respondents and nonrespondents on certain variables. As examples, nonrespondents were less likely to have participated in outdoor activities near their homes and to think that wildlife near their homes were a nuisance, but had lived in their current resident longer and were more likely to think that the needs of humans should take priority over fish and wildlife protection. Although all items except two (gender and age) were found to be statistically significant, effect size measures indicated only marginal variation between respondents and nonrespondents, *except* for the item related to outdoor participation which had a medium effect size. Although we did not weight data based on the results of the nonresponse comparisons, the results did contribute to the weighting procedures described in the next section of this appendix.

Table E-2. Comparing respondents (RE) and nonrespondents (NR) on key survey items.

Items		N	Mean	<i>t</i> -value	<i>p</i> -value	Eta
I often participate in outdoor activities near my home	RE	3370	5.14	10.350	.000	.198
	NR	480	4.06			
The needs of humans should take priority over fish and wildlife protection	RE	3420	4.09	-2.225	.027	.038
	NR	441	4.32			
Wildlife are a nuisance	RE	3432	2.44	4.633	.000	.073
	NR	522	2.08			
Respondent gender ¹	RE	3377	51%	2.475	.116	.025
	NR	590	47%			
Respondent age (years)	RE	3361	51.43	-.480	.631	.008
	NR	590	51.80			
Length of residence in current home (years)	RE	3170	12.17	-5.189	< .001	.098
	NR	489	15.78			

¹ The results for this item are different than those for the remainder of the table. The mean reported here is actually the percentage of females within the sample, the *t*-value is actually a chi-square value (both independent and dependent variables were dichotomous), and eta is actually a *Phi* value with the breakpoints of .1 = small, .243 = medium, and .371 = large (as opposed to .1, .3, and .5 for *eta*).

Data Weighting Procedures

Unless otherwise noted, results reported in this document were obtained from data weighted to more accurately represent the resident population of interest on key variables. Specifically, an overrepresentation of males or females in certain areas was found in the unweighted sample as compared to the actual population. Findings reported at the census block group level were weighted to represent the true proportions of males and females in each census block group. Findings reported at the regionwide level for Tucson are based on data that have been weighted to accurately reflect the true proportions of residents in each census block group. This weighting procedure was necessary given that sampling was stratified at the outset to ensure relatively equal representation of residents in each census block group for comparison purposes.

Population estimates for gender and population weighting were obtained from U.S. Census data (2000). These estimates and applied weights can be found in Tables E-3 and E-4.

Table E-3. Percent of males and females in the population and study sample.¹

CBG	Population, Male (%)	Population, Female (%)	Sample, Male (%)	Sample, Female (%)	Male Weight ²	Female Weight ²
15	49.7	50.3	51.9	48.1	0.96	1.05
16	47.6	52.4	62.2	37.8	0.77	1.39
18	48.5	51.5	60.2	39.8	0.81	1.29
20	42.3	57.7	46.9	53.1	0.90	1.09
21	43.4	56.6	59.3	40.7	0.73	1.39
23	49.4	50.6	59.0	41.0	0.84	1.23
37	48.8	51.2	53.8	46.2	0.91	1.11
49	51.8	48.2	57.1	42.9	0.91	1.12
62	41.5	58.5	54.3	45.7	0.76	1.28
68	48.5	51.5	51.9	48.1	0.93	1.07
72	48.0	52.0	51.5	48.5	0.93	1.07
74	49.1	50.9	50.0	50.0	0.98	1.02
94	49.8	50.2	53.1	46.9	0.94	1.07
98	48.4	51.6	47.9	52.1	1.01	0.99
109	50.1	49.9	57.0	43.0	0.88	1.16
139	47.6	52.4	34.0	66.0	1.40	0.79
142	46.8	53.2	58.7	41.3	0.80	1.29
158	46.8	53.2	51.4	48.6	0.91	1.09
166	49.2	50.8	55.9	44.1	0.88	1.15
200	38.1	61.9	45.2	54.8	0.84	1.13
223	54.8	45.2	57.8	42.2	0.95	1.07
231	52.2	47.8	43.9	56.1	1.19	0.85
261	45.0	55.0	54.0	46.0	0.83	1.20
262	46.3	53.7	54.5	45.5	0.85	1.18
270	41.8	58.2	47.9	52.1	0.87	1.12
274	49.8	50.2	55.2	44.8	0.90	1.12
283	51.3	48.7	51.9	48.1	0.99	1.01
313	48.8	51.2	48.7	51.3	1.00	1.00
315	64.0	36.0	68.4	31.6	0.94	1.14
319	47.0	53.0	49.4	50.6	0.95	1.05

Table E-3, *continued*. Percent of males and females in the population and study sample.¹

CBG	Population, Male (%)	Population, Female (%)	Sample, Male (%)	Sample, Female (%)	Male Weight ²	Female Weight ²
332	50.1	49.9	50.0	50.0	1.00	1.00
335	47.2	52.8	50.0	50.0	0.94	1.06
343	46.3	53.7	43.6	56.4	1.06	0.95
344	50.7	49.3	63.5	36.5	0.80	1.35
354	52.9	47.1	58.8	41.2	0.90	1.14
364	48.6	51.4	59.0	41.0	0.82	1.25
369	51.8	48.2	56.5	43.5	0.92	1.11
385	48.0	52.0	52.5	47.5	0.91	1.10
402	47.9	52.1	57.5	42.5	0.83	1.23
427	51.5	48.5	69.0	31.0	0.75	1.56
430	48.3	51.7	49.5	50.5	0.98	1.02
431	48.2	51.8	51.9	48.1	0.93	1.08
442	48.4	51.6	51.4	48.6	0.94	1.06
447	50.4	49.6	52.8	47.2	0.96	1.05
454	43.1	56.9	59.5	40.5	0.72	1.41
456	44.2	55.8	46.2	53.8	0.96	1.04
476	48.4	51.6	44.6	55.4	1.09	0.93
501	48.9	51.1	54.4	45.6	0.90	1.12
503	50.3	49.7	54.5	45.5	0.92	1.09
504	50.9	49.1	63.9	36.1	0.80	1.36
517	48.2	51.8	43.2	56.8	1.12	0.91
536	49.8	50.2	50.8	49.2	0.98	1.02
540	48.2	51.8	53.4	46.6	0.90	1.11

¹ Numbers based on U.S. Census data (2000).

² Weighting factor = population % / sample %.

Table E-4. Population and sample distribution.

Core/Fringe	Population Estimates¹	Population Estimates¹ (%)	Sample Population² (%)	Population Weight³
Core	380,641	72.3	43.9	1.65
Fringe	145,956	27.7	56.1	0.49

¹ Numbers based on U.S. Census data (2000) for the 536 census block groups that constitute the study area.

² Percents calculated following weighting by sex at the county level.

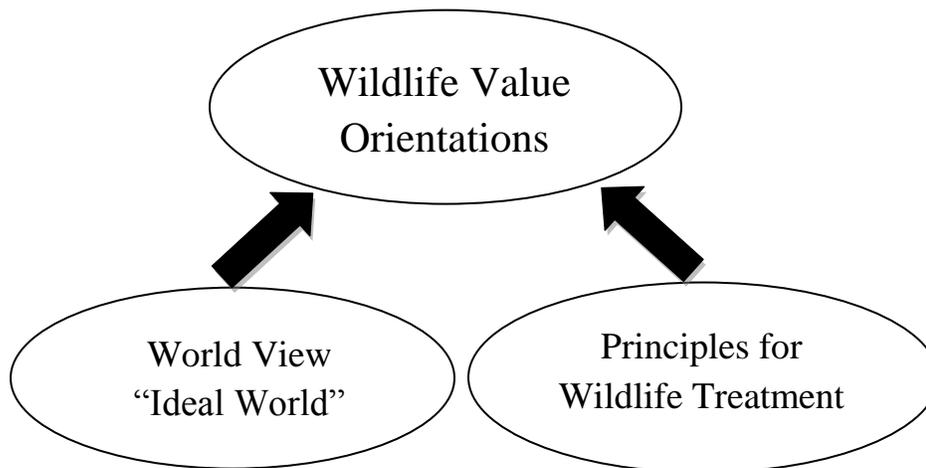
³ Weighting factor = population % / sample %.

APPENDIX F. ADDITIONAL BACKGROUND ON THE WILDLIFE VALUE ORIENTATION CONCEPT¹

Wildlife value orientations are a component of an individual's hierarchical belief structure. They consist of networks of beliefs that organize around one's values and provide contextual meaning to those values in relation to wildlife. Wildlife value orientations are assumed to play an important role in explaining individual variation in wildlife-related behaviors and attitudes toward the treatment of wildlife. Value orientations provide the foundation for an individual's attitudes and norms, which in turn guide their behavior. Prior research has shown that wildlife value orientations are effective in predicting participation in wildlife-related recreation (Fulton et al., 1996) as well as support for wildlife management actions (e.g., Bright et al., 2000; Manfredo et al., 1998; Manfredo et al., 1999; Manfredo & Fulton, 1997; Manfredo & Zinn, 1996; Whittaker, 2000; Zinn et al., 1998).

Wildlife value orientations can be viewed as *expressions of fundamental values*. A classic definition states that values are enduring beliefs about desired end states and modes of conduct (Rokeach, 1973). They are "goals for living" that define how we want the world to be (i.e., a "worldview") and principles that guide our behavior. In extending this idea to how people relate to wildlife, two "classes" or categories of thought have been identified (Figure F-1; Teel et al., 2005). Worldview captures the notion of "desired end states" in the values definition – an ideal view of what one would want the world to be regarding wildlife. Principles for wildlife treatment represent the idea of "desired modes of conduct" – guiding principles for how an individual perceives we should interact with and treat wildlife.

Figure F-1. Conceptual model for wildlife value orientations.



¹ Some of the content appearing in this section has been extracted from Teel et al. (2005).

As described by Fulton et al. (1996), wildlife value orientations are comprised of “dimensions,” or sets, of basic beliefs about wildlife and wildlife management. They are revealed through the pattern of direction and intensity among these beliefs. Recent work as part of the *Wildlife Values in the West* project has identified two primary value orientations toward wildlife that exist in the United States. Each of these orientations, including their corresponding belief dimensions, is described briefly below.

1. *Utilitarian Wildlife Value Orientation*

The utilitarian wildlife value orientation is one involving a view that wildlife should be used and managed for human benefit, and that human needs should take precedence over wildlife.

Ideal World

- Wildlife exists for human use and enjoyment.
- Manage wildlife so that humans benefit.

Principles for Wildlife Treatment

- There is an abundance of wildlife for hunting and fishing.
- Prioritize the needs of humans over wildlife.

Basic Belief Dimensions

A. *Appropriate Use Belief Dimension*

Philosophy regarding utilization of wildlife for human benefit.

B. *Hunting Belief Dimension*

Philosophy regarding hunting as a humane and positive activity.

2. *Mutualism Wildlife Value Orientation*

This orientation is associated with a view of wildlife as capable of relationships of trust with humans and as deserving of rights and compassion. Data collected in the *Wildlife Values in the West* study suggest that a shift toward mutualism is occurring in the United States and that this shift is a function of broad, societal forces, including urbanization and a rise in economic well-being (Teel et al., 2005).

Ideal World

- Humans and wildlife are able to live side by side without fear.
- All living things are seen as part of one big family.
- Emotional bonding and companionship with animals is part of human experience.
- There is no animal suffering.

Principles for Wildlife Treatment

- Assign animals rights like humans.
- Take care of wildlife.
- Prevent cruelty to animals.

Basic Belief Dimensions

A. Social Affiliation Belief Dimension

Philosophy regarding a relationship of trust with wildlife, as if part of an extended family.

B. Caring Belief Dimension

Philosophy regarding a desire to care for animals and prevent them from suffering.

Statements used on the survey as part of this study to measure wildlife value orientations and specific belief dimensions are presented in Table F-1.

Table F-1. Items used to measure wildlife value orientations and basic belief dimensions with reliability results.¹

<p>Wildlife value orientation <i>Basic belief dimension</i> Items comprising the basic belief dimension²</p>	Cronbach's Alpha
<p>Utilitarian value orientation <i>Appropriate use belief dimension</i> Humans should manage fish and wildlife populations so that humans benefit. The needs of humans should take priority over fish and wildlife protection. Fish and wildlife are on earth primarily for people to use.</p>	.776 .616
<p><i>Hunting belief dimension</i> We should strive for a world where there's an abundance of fish and wildlife for hunting and fishing. Hunting does not respect the lives of animals.³ Hunting is cruel and inhumane to the animals.³ People who want to hunt should be provided the opportunity to do so.</p>	.807
<p>Mutualism value orientation <i>Social affiliation belief dimension</i> We should strive for a world where humans and fish and wildlife can live side by side without fear. I view all living things as part of one big family. Animals should have rights similar to the rights of humans. Wildlife are like my family and I want to protect them.</p>	.874 .813
<p><i>Caring belief dimension</i> I care about animals as much as I do other people. I feel a strong emotional bond with animals. I value the sense of companionship I receive from animals.</p>	.771

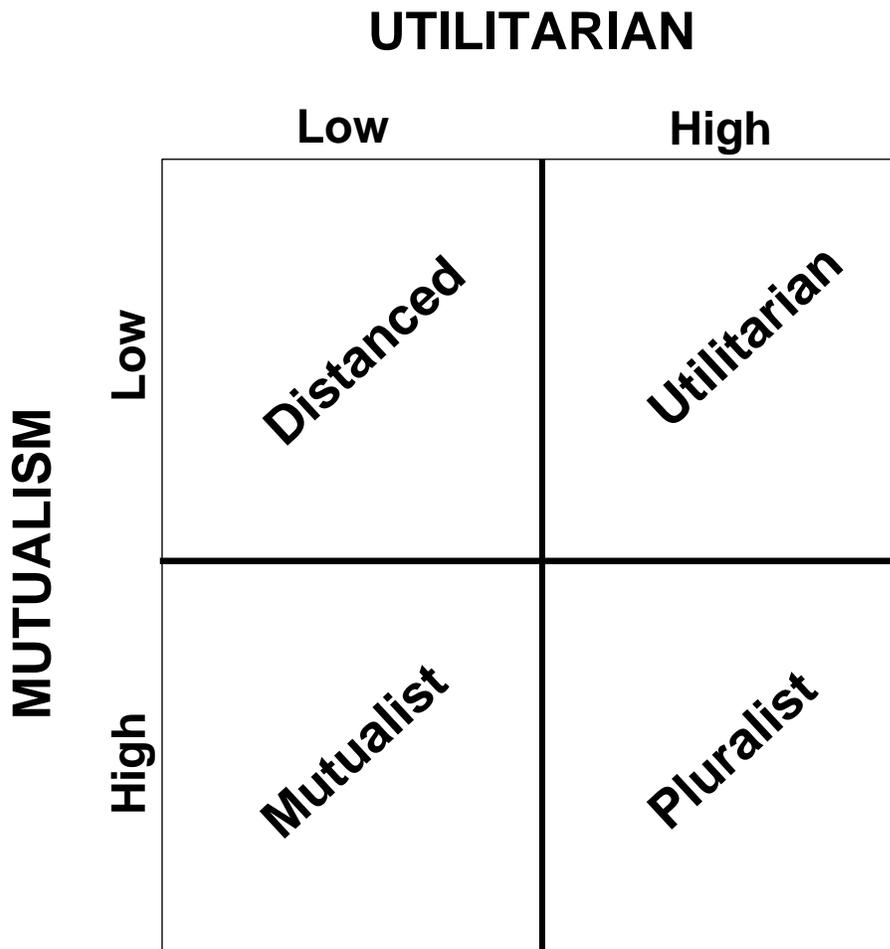
¹ This item set was extracted from the *Wildlife Values in the West* study.

² Items were measured on a scale ranging from 1 = “strongly disagree” to 7 = “strongly agree.”

³ Item reverse-coded prior to analysis.

The next step in being able to use this information is to classify people into types based on their responses to the survey items and explore how the types differ in their wildlife-related attitudes and behaviors. Figure F-2 provides a visual depiction of the four value orientation types identified in the *Wildlife Values in the West* study and discussed elsewhere in this report. For more detail on the analysis procedures used to segment people into these types and findings on key attitudinal/behavioral differences, see Teel et al. (2005).

Figure F-2. Wildlife value orientation classification scheme (from Teel et al., 2005).



APPENDIX G. SURVEY INSTRUMENT

Tucson Residents' Attitudes toward Place & Wildlife

This survey begins with a list of paired phrases representing different ways that people might think about nature. We want to know which phrase out of each pair below best describes **how you think about nature**.

There are two parts to this question.



PART 2. Circle one number for each phrase circled in Part 1.

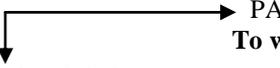
PART 1. Circle one phrase for each pair below.

To what extent does the phrase to the left represent how you think about nature?

I think <u>nature</u> ...			<u>Slightly</u>	<u>Moderately</u>	<u>Extremely</u>
is fragile	or	is durable	1	2	3
is unlimited, abundant	or	is limited, scarce	1	2	3
is unpredictable, chaotic	or	is predictable, ordered	1	2	3
is remote, uninviting	or	is accessible, inviting	1	2	3
can take care of itself	or	needs to be protected	1	2	3

We are now interested in knowing more about **how you think about the area near your home** (including your place of residence and the area within a few miles of it).

There are two parts to this question.



PART 2. Circle one number for each word/phrase circled in Part 1.
To what extent does the word/phrase to the left represent how you think about the area near your home?

PART 1. Circle one word/phrase for each pair below.

I think <u>the area near my home</u> is...			<u>Slightly</u>	<u>Moderately</u>	<u>Extremely</u>
ugly, unattractive	or	beautiful, attractive	1	2	3
safe	or	dangerous	1	2	3
common, generic	or	unique	1	2	3

Do you disagree or agree with the following?

	<u>Strongly Disagree</u>	<u>Moderately Disagree</u>	<u>Slightly Disagree</u>	<u>Neither</u>	<u>Slightly Agree</u>	<u>Moderately Agree</u>	<u>Strongly Agree</u>
I often participate in outdoor activities near my home.	1	2	3	4	5	6	7
I believe that climate change is currently affecting the area near my home.	1	2	3	4	5	6	7

Below are statements representing different ways that people might think about fish and wildlife. We're interested in knowing **your views about fish and wildlife**. Circle one number for each statement.

	<u>Strongly Disagree</u>	<u>Moderately Disagree</u>	<u>Slightly Disagree</u>	<u>Neither</u>	<u>Slightly Agree</u>	<u>Moderately Agree</u>	<u>Strongly Agree</u>
Humans should manage fish and wildlife populations so that humans benefit.	1	2	3	4	5	6	7
Animals should have rights similar to the rights of humans.	1	2	3	4	5	6	7
We should strive for a world where there's an abundance of fish and wildlife for hunting and fishing.	1	2	3	4	5	6	7
I view all living things as part of one big family.	1	2	3	4	5	6	7
Hunting does not respect the lives of animals.	1	2	3	4	5	6	7

Strongly Moderately Slightly Neither Slightly Moderately Strongly

	<u>Disagree</u>	<u>Disagree</u>	<u>Disagree</u>		<u>Agree</u>	<u>Agree</u>	<u>Agree</u>
I feel a strong emotional bond with animals.	1	2	3	4	5	6	7
The needs of humans should take priority over fish and wildlife protection.	1	2	3	4	5	6	7
I care about animals as much as I do other people.	1	2	3	4	5	6	7
Fish and wildlife are on earth primarily for people to use.	1	2	3	4	5	6	7
Hunting is cruel and inhumane to the animals.	1	2	3	4	5	6	7
We should strive for a world where humans and fish and wildlife can live side by side without fear.	1	2	3	4	5	6	7
I value the sense of companionship I receive from animals.	1	2	3	4	5	6	7
Wildlife are like my family and I want to protect them.	1	2	3	4	5	6	7
People who want to hunt should be provided the opportunity to do so.	1	2	3	4	5	6	7

Now we're interested in **your views about the wildlife near your home**. Circle one number for each statement below.

The wildlife near my home...	<u>Strongly Disagree</u>	<u>Moderately Disagree</u>	<u>Slightly Disagree</u>	<u>Neither</u>	<u>Slightly Agree</u>	<u>Moderately Agree</u>	<u>Strongly Agree</u>
...are generally a nuisance (cause problems).	1	2	3	4	5	6	7
...are enjoyable to have around.	1	2	3	4	5	6	7
...pose a dangerous risk to people.	1	2	3	4	5	6	7
...provide valuable opportunities for recreation.	1	2	3	4	5	6	7
I rarely see any wildlife near my home.	1	2	3	4	5	6	7

In the past 12 months, how frequently have you **observed or had problems with** the following wildlife near your home?

	How frequently have you observed...			Have you had problems with...	
	<i>Circle one number for each.</i>			<i>Check one box for each.</i>	
	<u>Not at All</u>	<u>Occasionally</u>	<u>Often</u>		
Coyotes	1	2	3	<input type="checkbox"/> yes	<input type="checkbox"/> no
Bobcats	1	2	3	<input type="checkbox"/> yes	<input type="checkbox"/> no
Javelinas	1	2	3	<input type="checkbox"/> yes	<input type="checkbox"/> no
Mountain Lions	1	2	3	<input type="checkbox"/> yes	<input type="checkbox"/> no
In the past 12 months, have you had problems with other wildlife (besides those listed above)?				<input type="checkbox"/> yes	<input type="checkbox"/> no

If you answered yes for any of the above, **please briefly explain the problem(s)**, the wildlife that caused it, and how often it occurred (once during the year, once a month, once a week, etc.). *Write your response below.*

We're interested in knowing under what circumstances (if any) you think it is acceptable for the state fish and wildlife agency (AZGFD) to **lethally remove certain wildlife**. *Circle one number for each statement below.*

Is it unacceptable or acceptable for AZGFD to lethally remove a COYOTE or BOBCAT if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

Is it unacceptable or acceptable for AZGFD to lethally remove a JAVELINA if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

Is it unacceptable or acceptable for AZGFD to lethally remove a MOUNTAIN LION if it...	Highly Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither	Slightly Acceptable	Moderately Acceptable	Highly Acceptable
...is seen near your home?	1	2	3	4	5	6	7
...is a nuisance (for example: it gets into trash, damages landscaping) near your home?	1	2	3	4	5	6	7
...has a disease that may be spread to humans?	1	2	3	4	5	6	7
...attacks a <u>pet</u> near your home?	1	2	3	4	5	6	7
...attacks a <u>person</u> near your home?	1	2	3	4	5	6	7

The following **demographic information** will be used to help make general conclusions about the residents of Tucson. **Your responses will remain completely confidential.**

Are you...? Male Female How many people under 18 years of age _____ Person(s) are currently living in your household? (Write response.)

What is your age? (Write response.) _____ Years

About how long have you lived in... Arizona? _____ Years, OR Less than one year.
 (Write response or check box for less than one year.) Your current home? _____ Years, OR Less than one year.

What is your approximate annual household income before taxes? (Check one.)

<input type="checkbox"/> Less than \$10,000	<input type="checkbox"/> \$35,000 - \$49,999	<input type="checkbox"/> \$100,000 - \$149,999
<input type="checkbox"/> \$10,000 - \$24,999	<input type="checkbox"/> \$50,000 - \$74,999	<input type="checkbox"/> \$150,000 - \$199,999
<input type="checkbox"/> \$25,000 - \$34,999	<input type="checkbox"/> \$75,000 - \$99,999	<input type="checkbox"/> \$200,000 or more

What is the highest level of education that you have achieved? (Check one.)

<input type="checkbox"/> Less than high school diploma	<input type="checkbox"/> 4-year college degree
<input type="checkbox"/> High school diploma or equivalent (GED)	<input type="checkbox"/> Advanced degree beyond 4-year college degree
<input type="checkbox"/> 2-year associates degree or trade school	

Are you...?

(Check one or more categories.)

White

Hispanic or Latino

Black or African American

American Indian or Alaska Native

Asian

Native Hawaiian or Other Pacific Islander

Other (*Please print on line below.*)

Thank you for your participation in this study!

APPENDIX H. NONRESPONSE CHECKSHEET

Non-Response Check Sheet

Initials:

Date:

Census Block Group:

House # and Street	Sex	Age	Ethnicity	Years at this address?	Do you agree or disagree that:					
					...you often participate in outdoor activities near your home?		...the wildlife near your home are generally a nuisance (cause problems)?		...the needs of humans should take priority over fish and wildlife protection?	
					<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly
					<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately
						<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly
					<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly
					<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately
						<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly
					<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly
					<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately
						<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly
					<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly
					<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately
						<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly
					<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly	<input type="checkbox"/> Agree	<input type="checkbox"/> Slightly
					<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately	<input type="checkbox"/> Disagree	<input type="checkbox"/> Moderately
						<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly		<input type="checkbox"/> Strongly