

SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

**CORKSCREW SWAMP SANCTUARY AND BLAIR AUDUBON CENTER,
NAPLES, FL**

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Corkscrew Swamp Sanctuary & Blair Audubon Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

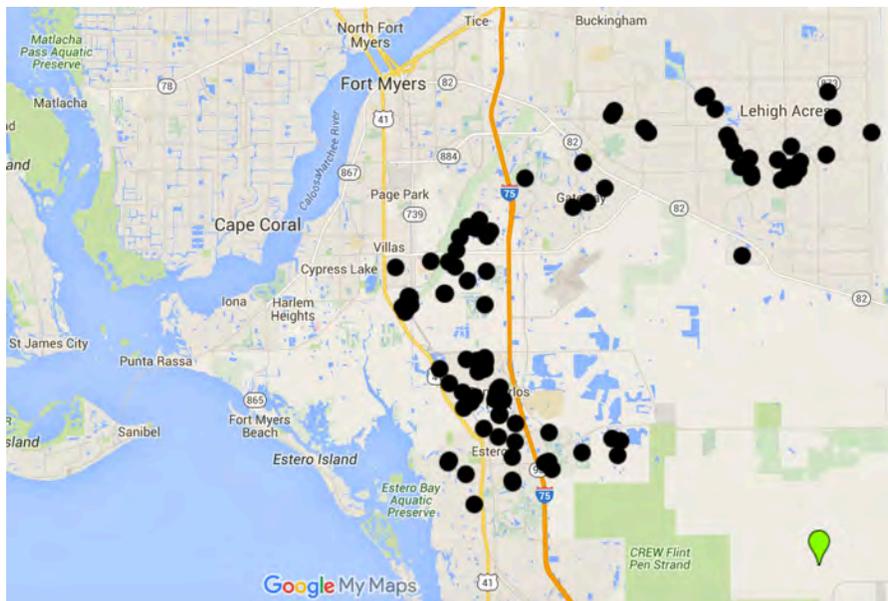
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 0% (nation-wide = 2%)
- Asian 2% (nation-wide = 5%)
- Black or African American 8% (nation-wide = 6%)
- Hispanic or Latino 5% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 85% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 56 (nation-wide = 54)
- Age range of respondents..... 19-88 (nation-wide = 19-97)
- Percentage of female respondents..... 27% (nation-wide = 23%)
- Percentage of married respondents..... 66% (nation-wide = 67%)
- Percentage of home-owning respondents 75% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 27% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree 35% (nation-wide = 46%)
- Average length of residency for respondents in current town 15yrs (nation-wide = 23yrs)
- Average time it would take respondent to drive to center..... 44mins (nation-wide = 17mins)

One-hundred and three people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Corkscrew Swamp Sanctuary & Blair Audubon Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 82% (nation-wide = 62%)
- indicated they had visited center 41% (nation-wide = 60%)
- indicated they had volunteered at center 1% (nation-wide = 3%)
- indicated they had donated to center 7% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 5% (nation-wide = 8%)
- believed staff members volunteered in local community 18% (nation-wide = 28%)
- believed staff members shared similar values as them 93% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 62% (nation-wide = 65%)
- believed center provided educational programs for youth 68% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 55% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 64% (nation-wide = 67%)
- believed center provided rental facilities 22% (nation-wide = 39%)
- believed center provided activities in language other than English..... 30% (nation-wide = 27%)
- believed center staff members participated in community events 21% (nation-wide = 34%)
- believed their friends like the center 42% (nation-wide = 47%)
- believed their family likes the center 49% (nation-wide = 52%)
- believed their local community likes the center 28% (nation-wide = 36%)
- were satisfied with their past visits to the center (visitors only)..... 86% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only):

- to discover new things 84% (nation-wide = 88%)
- to enjoy myself..... 95% (nation-wide = 94%)
- to expose my children/family to something new 72% (nation-wide = 77%)
- to get away from everyday life 77% (nation-wide = 70%)
- to spend time with friends/family 78% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 9% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 33% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 0% (nation-wide = 4%)
- I have poor health 14% (nation-wide = 10%)

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- I'm too busy with other commitments..... 72% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 27% (nation-wide = 31%)
- People like me are not treated as well as others [at the nature center]. 1% (nation-wide = 2%)
- The entrance or program fees are too expensive 35% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 11% (nation-wide = 13%)
- It is far from where I live or work 51% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.36	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.63	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.71	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.61	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.34	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.03	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.43	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.81	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 40% (nation-wide = 45%)
 - highly likely to donate..... 2% (nation-wide = 6%)
- likely to volunteer 31% (nation-wide = 38%)
 - highly likely to volunteer 4% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 60% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 13% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

CONTACT INFORMATION FOR THE RESEARCH TEAM

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AUDUBON CENTER AT DEBS PARK, LOS ANGELES, CA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

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This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

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The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

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STUDY RESULTS

Description of Audubon Center at Debs Park Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

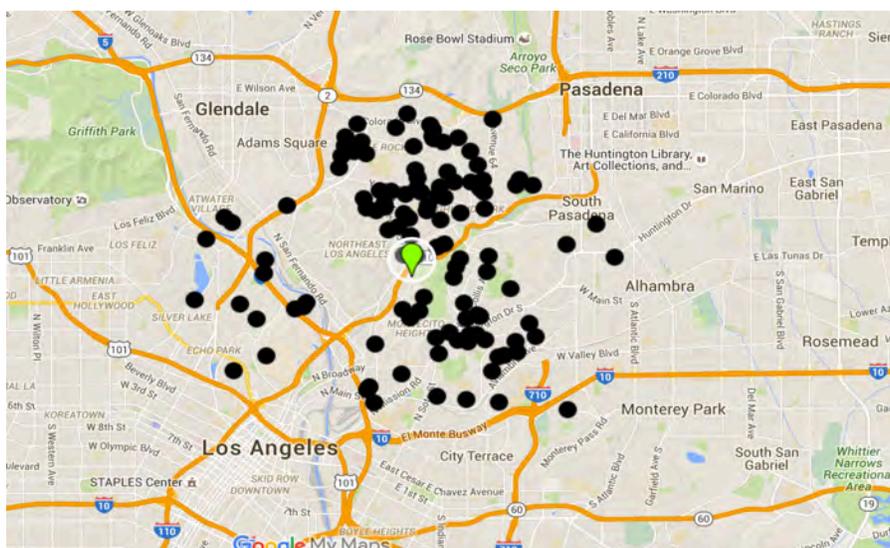
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 0% (nation-wide = 2%)
- Asian 13% (nation-wide = 5%)
- Black or African American 2% (nation-wide = 6%)
- Hispanic or Latino 33% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 50% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 50 (nation-wide = 54)
- Age range of respondents 22-88 (nation-wide = 19-97)
- Percentage of female respondents 24% (nation-wide = 23%)
- Percentage of married respondents 58% (nation-wide = 67%)
- Percentage of home-owning respondents 68% (nation-wide = 73%)
- Percentage of respondents with children living in their home 33% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree 38% (nation-wide = 46%)
- Average number of years respondents lived in current town 23years (nation-wide = 23years)
- Average time it would take respondent to drive to center 8mins (nation-wide = 17mins)

One-hundred and twenty-three people living around your center responded to the survey (approx. locations below)



Attitudes and Behaviors of Audubon Center at Debs Park Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 46% (nation-wide = 62%)
- indicated they had visited center 30% (nation-wide = 60%)
- indicated they had volunteered at center 2% (nation-wide = 3%)
- indicated they had donated to center 8% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 5% (nation-wide = 8%)
- believed staff members volunteered in local community 14% (nation-wide = 28%)
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- believed their friends likes the center 48% (nation-wide = 47%)
- believed their family likes the center 51% (nation-wide = 52%)
- believed their local community likes the center 28% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 87% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 80% (nation-wide = 88%)
- to enjoy myself..... 91% (nation-wide = 94%)
- to expose my children/family to something new 68% (nation-wide = 77%)
- to get away from everyday life 68% (nation-wide = 70%)
- to spend time with friends/family 73% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 10% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 36% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 6% (nation-wide = 4%)
- I have poor health..... 4% (nation-wide = 10%)
- I'm too busy with other commitments..... 60% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 20% (nation-wide = 31%)

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- People like me are not treated as well as others [at the nature center]. 2% (nation-wide = 2%)
- The entrance or program fees are too expensive 2% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 2% (nation-wide = 13%)
- It is far from where I live or work 6% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

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An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.45	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.89	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.31	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.66	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.16	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.18	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.77	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.97	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 57% (nation-wide = 45%)
 - highly likely to donate..... 8% (nation-wide = 6%)
- likely to volunteer 47% (nation-wide = 38%)
 - highly likely to volunteer 4% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 83% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 25% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

ELACHEE NATURE SCIENCE CENTER, GAINESVILLE, GA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Elachee Nature Science Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

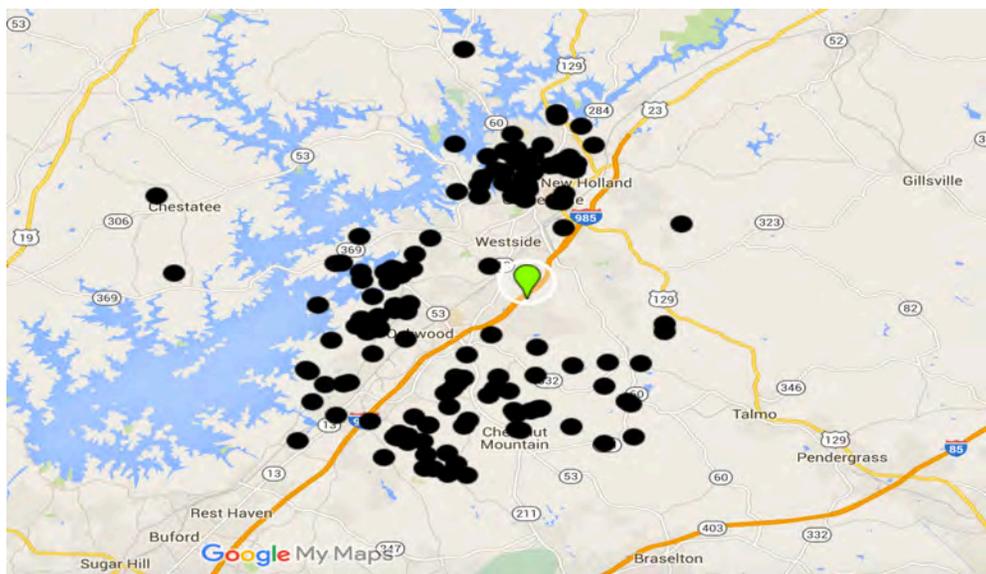
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 4% (nation-wide = 2%)
- Asian 1% (nation-wide = 5%)
- Black or African American 4% (nation-wide = 6%)
- Hispanic or Latino 5% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 84% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 55 (nation-wide = 54)
- Age range of respondents..... 21-83 (nation-wide = 19-97)
- Percentage of female respondents..... 17% (nation-wide = 23%)
- Percentage of married respondents..... 74% (nation-wide = 67%)
- Percentage of home-owning respondents 79% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 24% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree..... 38% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 25years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 12mins (nation-wide = 17mins)

One-hundred and fifty-six people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Elachee Nature Science Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 93% (nation-wide = 62%)
- indicated they had visited center 76% (nation-wide = 60%)
- indicated they had volunteered at center 9% (nation-wide = 3%)
- indicated they had donated to center 28% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 13% (nation-wide = 8%)
- believed staff members volunteered in local community 30% (nation-wide = 28%)
- believed staff members shared similar values as them 94% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 67% (nation-wide = 65%)
- believed center provided educational programs for youth 88% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 66% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 75% (nation-wide = 67%)
- believed center provided rental facilities 51% (nation-wide = 39%)
- believed center provided activities in language other than English..... 37% (nation-wide = 27%)
- believed center staff members participate in community events..... 36% (nation-wide = 34%)
- believed their friends likes the center 62% (nation-wide = 47%)
- believed their family likes the center 67% (nation-wide = 52%)
- believed their local community likes the center 54% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 88% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 88% (nation-wide = 88%)
- to enjoy myself..... 91% (nation-wide = 94%)
- to expose my children/family to something new 76% (nation-wide = 77%)
- to get away from everyday life 60% (nation-wide = 70%)
- to spend time with friends/family 85% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 3% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 29% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 5% (nation-wide = 4%)
- I have poor health..... 11% (nation-wide = 10%)
- I'm too busy with other commitments..... 68% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 30% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center]. 4% (nation-wide = 2%)
- The entrance or program fees are too expensive 19% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 10% (nation-wide = 13%)
- It is far from where I live or work 11% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.34	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.02	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.73	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.68	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.35	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.24	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.67	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.91	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 50% (nation-wide = 45%)
 - highly likely to donate..... 9% (nation-wide = 6%)
- likely to volunteer..... 51% (nation-wide = 38%)
 - highly likely to volunteer..... 8% (nation-wide = 5%)
- likely to respond to a threat (e.g., development)..... 73% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development)..... 28% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

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Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February
2016

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Summary Report: Nature Centers & Communities study

THE ENVIRONMENTAL LEARNING CENTER, VERO BEACH, FL

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

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- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of the Environmental Learning Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

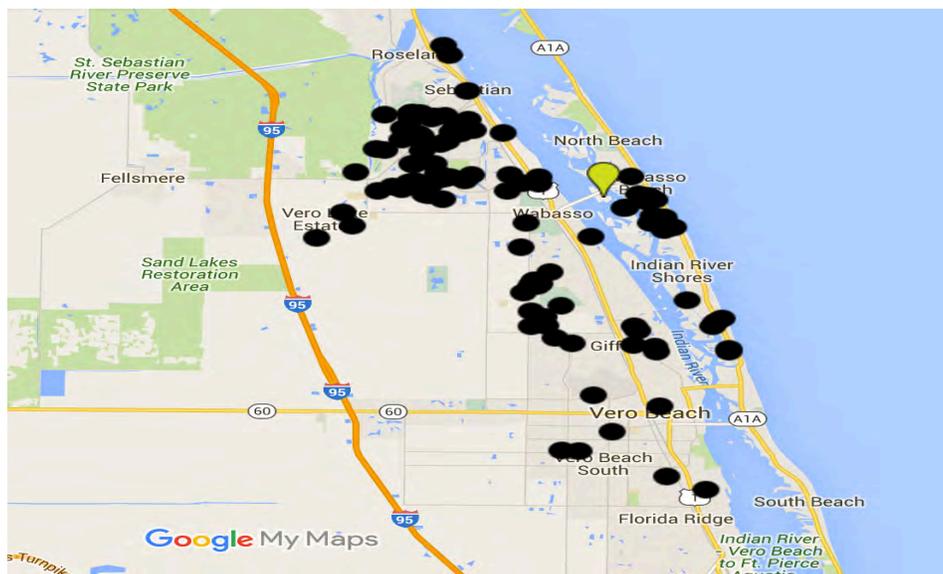
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 2% (nation-wide = 2%)
- Asian 0% (nation-wide = 5%)
- Black or African American 4% (nation-wide = 6%)
- Hispanic or Latino 3% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 89% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 61 (nation-wide = 54)
- Age range of respondents..... 19-87 (nation-wide = 19-97)
- Percentage of female respondents..... 16% (nation-wide = 23%)
- Percentage of married respondents..... 71% (nation-wide = 67%)
- Percentage of home-owning respondents 78% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 9% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree..... 34% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 16years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 11mins (nation-wide = 17mins)

One-hundred and sixteen people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of the Environmental Learning Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 84% (nation-wide = 62%)
- indicated they had visited center 61% (nation-wide = 60%)
- indicated they had volunteered at center 10% (nation-wide = 3%)
- indicated they had donated to center 22% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 16% (nation-wide = 8%)
- believed staff members volunteered in local community 43% (nation-wide = 28%)
- believed staff members shared similar values as them 95% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 73% (nation-wide = 65%)
- believed center provided educational programs for youth 85% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 75% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 82% (nation-wide = 67%)
- believed center provided rental facilities 37% (nation-wide = 39%)
- believed center provided activities in language other than English..... 16% (nation-wide = 27%)
- believed center staff members participate in community events..... 51% (nation-wide = 34%)
- believed their friends likes the center 59% (nation-wide = 47%)
- believed their family likes the center 66% (nation-wide = 52%)
- believed their local community likes the center 50% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 89% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 95% (nation-wide = 88%)
- to enjoy myself..... 94% (nation-wide = 94%)
- to expose my children/family to something new 85% (nation-wide = 77%)
- to get away from everyday life 41% (nation-wide = 70%)
- to spend time with friends/family 79% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 6% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 30% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 2% (nation-wide = 4%)
- I have poor health..... 13% (nation-wide = 10%)
- I'm too busy with other commitments..... 56% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 27% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center]. 1% (nation-wide = 2%)
- The entrance or program fees are too expensive 15% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 20% (nation-wide = 13%)
- It is far from where I live or work 12% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.44	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.12	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.78	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.47	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.46	Yes
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.85	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.35	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.83	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 46% (nation-wide = 45%)
 - highly likely to donate..... 9% (nation-wide = 6%)
- likely to volunteer..... 47% (nation-wide = 38%)
 - highly likely to volunteer..... 11% (nation-wide = 5%)
- likely to respond to a threat (e.g., development)..... 72% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development)..... 20% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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Bob Petty (grant administration) rpetty@audubon.org

SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

Grange Insurance Audubon Center and
Scioto Audubon Metro Park, Columbus, OH

Matt Browning, University of Illinois at Urbana-Champaign

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Nicole Ardoin, Stanford University

Joe Heimlich, The Ohio State University

Bob Petty, National Audubon Society

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Summary Report: Nature Centers & Communities study

GRANGE INSURANCE AUDUBON CENTER AND SCIOTO AUDUBON METRO PARK, COLUMBUS, OH

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
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Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Grange Insurance Audubon Center and Scioto Audubon Metro Park Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

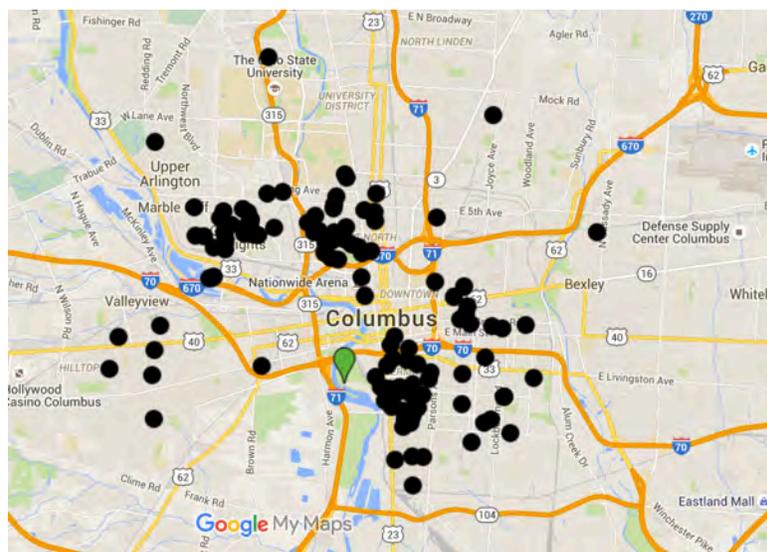
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 2% (nation-wide = 2%)
- Asian 2% (nation-wide = 5%)
- Black or African American 7% (nation-wide = 6%)
- Hispanic or Latino 2% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 8% (nation-wide = 0.2%)
- White 83% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 49 (nation-wide = 54)
- Age range of respondents..... 21-93 (nation-wide = 19-97)
- Percentage of female respondents..... 26% (nation-wide = 23%)
- Percentage of married respondents..... 45% (nation-wide = 67%)
- Percentage of home-owning respondents 65% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 18% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree 50% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 23years (nation-wide = 23years)
- Average time it would take respondent to drive to center 9mins (nation-wide = 17mins)

One-hundred and fifty people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Grange Insurance Audubon Center and Scioto Audubon Metro Park Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 70% (nation-wide = 62%)
- indicated they had visited center 47% (nation-wide = 60%)
- indicated they had volunteered at center 2% (nation-wide = 3%)
- indicated they had donated to center 6% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 3% (nation-wide = 8%)
- believed staff members volunteered in local community 12% (nation-wide = 28%)
- believed staff members shared similar values as them 100% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 64% (nation-wide = 65%)
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- believed center provided educational programs/trainings for adults.... 44% (nation-wide = 61%)
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- believed their local community likes the center 33% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 90% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

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- to expose my children/family to something new 54% (nation-wide = 77%)
- to get away from everyday life 89% (nation-wide = 70%)
- to spend time with friends/family 83% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 9% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 48% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 12% (nation-wide = 4%)
- I have poor health 7% (nation-wide = 10%)

Summary Report: Nature Centers & Communities study

- I'm too busy with other commitments..... 72% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 20% (nation-wide = 31%)
- People like me are not treated as well as others [at the nature center]. 0% (nation-wide = 2%)
- The entrance or program fees are too expensive 10% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 13% (nation-wide = 13%)
- It is far from where I live or work 16% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.32	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.11	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.99	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.88	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.05	Yes
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.05	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.54	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.03	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 48% (nation-wide = 45%)
 - highly likely to donate..... 4% (nation-wide = 6%)
- likely to volunteer 41% (nation-wide = 38%)
 - highly likely to volunteer 2% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 64% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 19% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February
2016

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Center and Sanctuary, Greenwich, CT

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Summary Report: Nature Centers & Communities study

AUDUBON GREENWICH KIMBERLIN NATURE EDUCATION CENTER AND SANCTUARY, GREENWICH, CT

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Audubon Greenwich Kimberlin Nature Education Center and Sanctuary Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

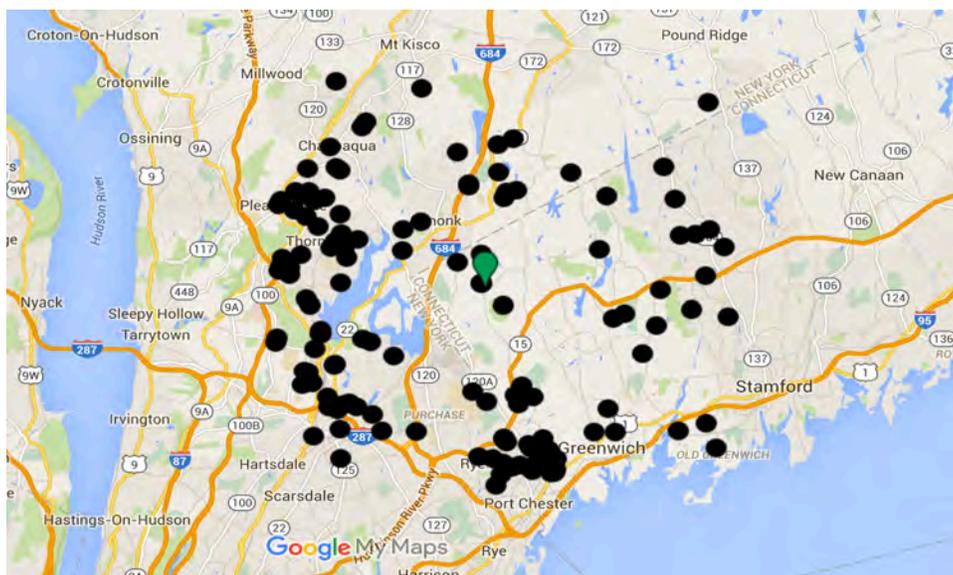
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 0% (nation-wide = 2%)
- Asian 3% (nation-wide = 5%)
- Black or African American 1% (nation-wide = 6%)
- Hispanic or Latino 2% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 89% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 57 (nation-wide = 54)
- Age range of respondents..... 21-89 (nation-wide = 19-97)
- Percentage of female respondents..... 19% (nation-wide = 23%)
- Percentage of married respondents..... 77% (nation-wide = 67%)
- Percentage of home-owning respondents 78% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 27% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree..... 61% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 23years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 13mins (nation-wide = 17mins)

One-hundred and fifty people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Audubon Greenwich Kimberlin Nature Education Center and Sanctuary Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 55% (nation-wide = 62%)
- indicated they had visited center 31% (nation-wide = 60%)
- indicated they had volunteered at center 2% (nation-wide = 3%)
- indicated they had donated to center 12% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 10% (nation-wide = 8%)
- believed staff members volunteered in local community 20% (nation-wide = 28%)
- believed staff members shared similar values as them 97% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 62% (nation-wide = 65%)
- believed center provided educational programs for youth 68% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 59% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 58% (nation-wide = 67%)
- believed center provided rental facilities 30% (nation-wide = 39%)
- believed center provided activities in language other than English..... 15% (nation-wide = 27%)
- believed center staff members participate in community events..... 26% (nation-wide = 34%)
- believed their friends likes the center 37% (nation-wide = 47%)
- believed their family likes the center 42% (nation-wide = 52%)
- believed their local community likes the center 27% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 93% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 83% (nation-wide = 88%)
- to enjoy myself..... 93% (nation-wide = 94%)
- to expose my children/family to something new 77% (nation-wide = 77%)
- to get away from everyday life 73% (nation-wide = 70%)
- to spend time with friends/family 69% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 7% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 47% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 3% (nation-wide = 4%)
- I have poor health 4% (nation-wide = 10%)

Summary Report: Nature Centers & Communities study

- I'm too busy with other commitments..... 72% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 29% (nation-wide = 31%)
- People like me are not treated as well as others [at the nature center]. 0% (nation-wide = 2%)
- The entrance or program fees are too expensive 20% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 13% (nation-wide = 13%)
- It is far from where I live or work 24% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.26	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.50	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.58	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.32	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.26	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.10	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.50	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.97	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 35% (nation-wide = 45%)
 - highly likely to donate..... 4% (nation-wide = 6%)
- likely to volunteer 22% (nation-wide = 38%)
 - highly likely to volunteer 5% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 54% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 11% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

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Bob Petty (grant administration) rpetty@audubon.org

SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

Hitchcock Nature Center, Honey, Creek, IA

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Marc Stern, Virginia Tech

Nicole Ardoin, Stanford University

Joe Heimlich, The Ohio State University

Bob Petty, National Audubon Society

Wonjun Choi, University of Illinois at Urbana-Champaign

Summary Report: Nature Centers & Communities study

HITCHCOCK NATURE CENTER, HONEY, CREEK, IA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

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Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Hitchcock Nature Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

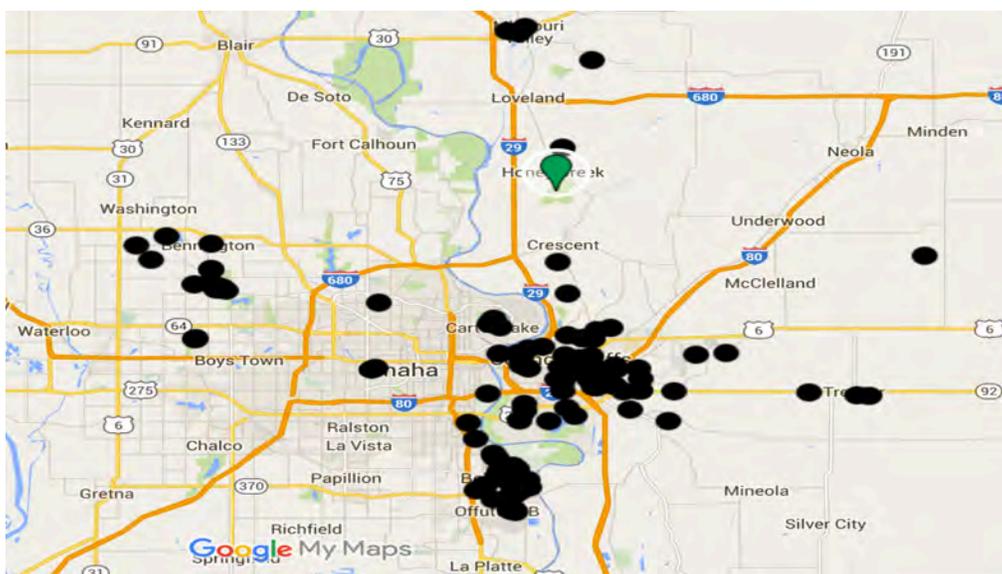
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 2% (nation-wide = 2%)
- Asian 5% (nation-wide = 5%)
- Black or African American 2% (nation-wide = 6%)
- Hispanic or Latino 2% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 92% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 57 (nation-wide = 54)
- Age range of respondents..... 20-97 (nation-wide = 19-97)
- Percentage of female respondents..... 17% (nation-wide = 23%)
- Percentage of married respondents..... 71% (nation-wide = 67%)
- Percentage of home-owning respondents 82% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 30% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree..... 34% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 32years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 28mins (nation-wide = 17mins)

One-hundred and thirty-three people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Hitchcock Nature Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 74% (nation-wide = 62%)
- indicated they had visited center 44% (nation-wide = 60%)
- indicated they had volunteered at center 2% (nation-wide = 3%)
- indicated they had donated to center 11% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 11% (nation-wide = 8%)
- believed staff members volunteered in local community 20% (nation-wide = 28%)
- believed staff members shared similar values as them 95% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 69% (nation-wide = 65%)
- believed center provided educational programs for youth 73% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 56% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 63% (nation-wide = 67%)
- believed center provided rental facilities 52% (nation-wide = 39%)
- believed center provided activities in language other than English..... 17% (nation-wide = 27%)
- believed center staff members participate in community events..... 25% (nation-wide = 34%)
- believed their friends likes the center 49% (nation-wide = 47%)
- believed their family likes the center 50% (nation-wide = 52%)
- believed their local community likes the center 32% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 93% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 87% (nation-wide = 88%)
- to enjoy myself..... 96% (nation-wide = 94%)
- to expose my children/family to something new 88% (nation-wide = 77%)
- to get away from everyday life 78% (nation-wide = 70%)
- to spend time with friends/family 82% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 11% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 33% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 3% (nation-wide = 4%)
- I have poor health..... 13% (nation-wide = 10%)
- I'm too busy with other commitments..... 69% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 27% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center]. 1% (nation-wide = 2%)
- The entrance or program fees are too expensive 16% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 9% (nation-wide = 13%)
- It is far from where I live or work 43% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.29	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.93	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.72	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.54	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.26	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.23	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.66	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.02	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 53% (nation-wide = 45%)
 - highly likely to donate..... 10% (nation-wide = 6%)
- likely to volunteer 31% (nation-wide = 38%)
 - highly likely to volunteer 8% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 62% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 24% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

MITCHELL LAKE AUDUBON CENTER, SAN ANTONIO, TX

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Mitchell Lake Audubon Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

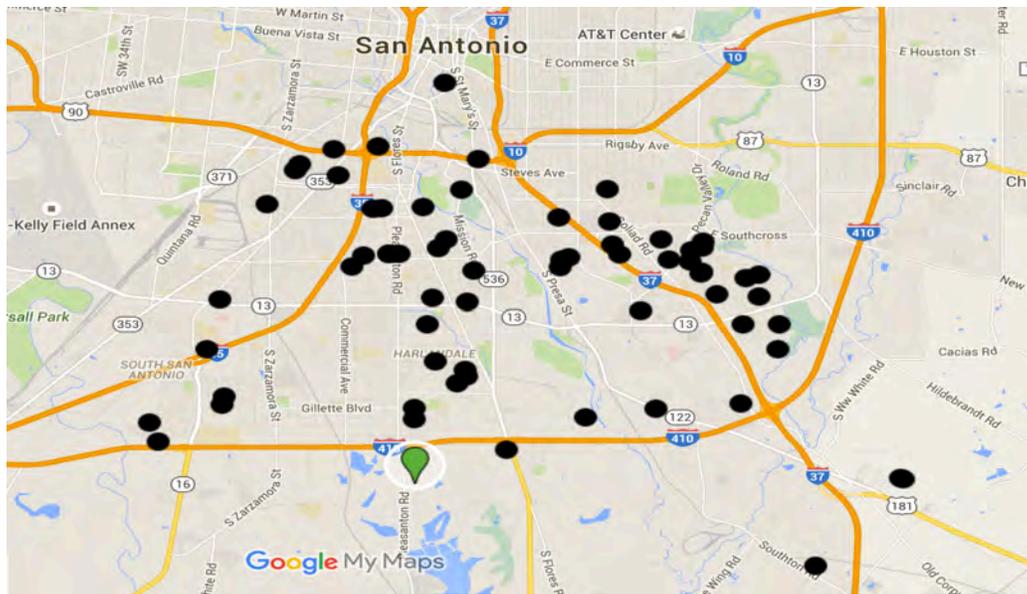
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 4% (nation-wide = 2%)
- Asian 1% (nation-wide = 5%)
- Black or African American 3% (nation-wide = 6%)
- Hispanic or Latino 74% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 26% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 52 (nation-wide = 54)
- Age range of respondents..... 19-95 (nation-wide = 19-97)
- Percentage of female respondents..... 21% (nation-wide = 23%)
- Percentage of married respondents..... 71% (nation-wide = 67%)
- Percentage of home-owning respondents 82% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 32% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree..... 14% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 35years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 12mins (nation-wide = 17mins)

Seventy-two people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Mitchell Lake Audubon Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 42% (nation-wide = 62%)
- indicated they had visited center 11% (nation-wide = 60%)
- indicated they had volunteered at center 1% (nation-wide = 3%)
- indicated they had donated to center 3% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 3% (nation-wide = 8%)
- believed staff members volunteered in local community 21% (nation-wide = 28%)
- believed staff members shared similar values as them 93% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 63% (nation-wide = 65%)
- believed center provided educational programs for youth 55% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 52% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 52% (nation-wide = 67%)
- believed center provided rental facilities 21% (nation-wide = 39%)
- believed center provided activities in language other than English..... 31% (nation-wide = 27%)
- believed center staff members participate in community events..... 32% (nation-wide = 34%)
- believed their friends likes the center 35% (nation-wide = 47%)
- believed their family likes the center 41% (nation-wide = 52%)
- believed their local community likes the center 17% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 75% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 100% (nation-wide = 88%)
- to enjoy myself..... 100% (nation-wide = 94%)
- to expose my children/family to something new 100% (nation-wide = 77%)
- to get away from everyday life 88% (nation-wide = 70%)
- to spend time with friends/family 100% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 10% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 54% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 11% (nation-wide = 4%)
- I have poor health..... 4% (nation-wide = 10%)
- I'm too busy with other commitments..... 69% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 36% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center]. 4% (nation-wide = 2%)
- The entrance or program fees are too expensive 24% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 13% (nation-wide = 13%)
- It is far from where I live or work 7% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.58	Yes
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.10	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.48	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.13	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.38	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.20	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	4.08	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.25	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 69% (nation-wide = 45%)
 - highly likely to donate..... 10% (nation-wide = 6%)
- likely to volunteer 41% (nation-wide = 38%)
 - highly likely to volunteer 14% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 72% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 28% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

PLAINS CONSERVATION CENTER, AURORA, CO

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
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- The Environmental Learning Center, Vero Beach, FL
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- Mitchell Lake Audubon Center, San Antonio, TX
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- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Plains Conservation Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

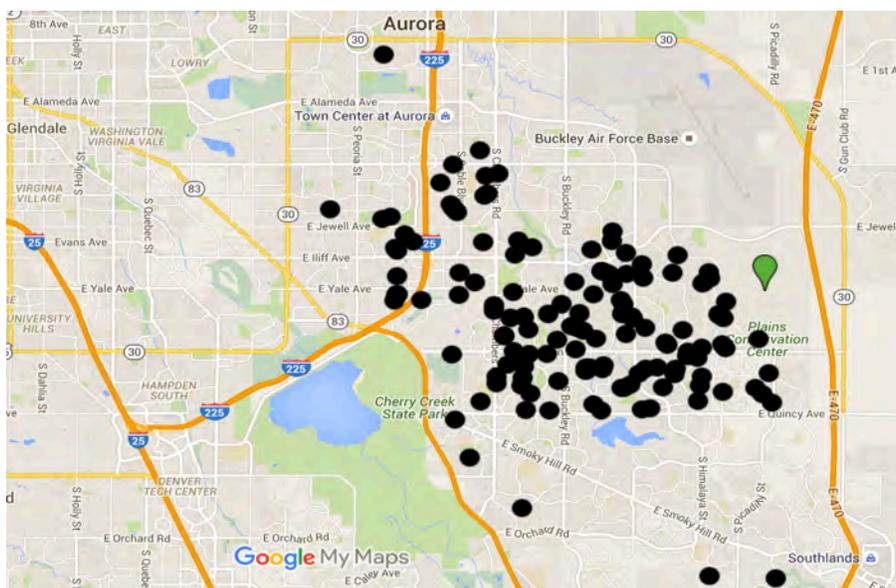
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 3% (nation-wide = 2%)
- Asian 6% (nation-wide = 5%)
- Black or African American 9% (nation-wide = 6%)
- Hispanic or Latino 9% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0% (nation-wide = 0.2%)
- White 73% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 52 (nation-wide = 54)
- Age range of respondents..... 22-79 (nation-wide = 19-97)
- Percentage of female respondents..... 16% (nation-wide = 23%)
- Percentage of married respondents..... 70% (nation-wide = 67%)
- Percentage of home-owning respondents 76% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 29% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree 38% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 21 years (nation-wide = 23years)
- Average time it would take respondent to drive to center..... 9mins (nation-wide = 17mins)

One-hundred and forty-seven people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Plains Conservation Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 65% (nation-wide = 62%)
- indicated they had visited center 29% (nation-wide = 60%)
- indicated they had volunteered at center 4% (nation-wide = 3%)
- indicated they had donated to center 7% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 3% (nation-wide = 8%)
- believed staff members volunteered in local community 27% (nation-wide = 28%)
- believed staff members shared similar values as them 95% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 57% (nation-wide = 65%)
- believed center provided educational programs for youth 75% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.... 59% (nation-wide = 61%)
- believed center provided volunteer opportunities..... 67% (nation-wide = 67%)
- believed center provided rental facilities 23% (nation-wide = 39%)
- believed center provided activities in language other than English..... 28% (nation-wide = 27%)
- believed center staff members participate in community events..... 34% (nation-wide = 34%)
- believed their friends likes the center 29% (nation-wide = 47%)
- believed their family likes the center 50% (nation-wide = 52%)
- believed their local community likes the center 24% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 81% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 97% (nation-wide = 88%)
- to enjoy myself..... 90% (nation-wide = 94%)
- to expose my children/family to something new 87% (nation-wide = 77%)
- to get away from everyday life 66% (nation-wide = 70%)
- to spend time with friends/family 85% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 7% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 51% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 2% (nation-wide = 4%)
- I have poor health..... 6% (nation-wide = 10%)
- I'm too busy with other commitments..... 76% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 40% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center]. 6% (nation-wide = 2%)
- The entrance or program fees are too expensive 21% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 17% (nation-wide = 13%)
- It is far from where I live or work 16% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.31	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.37	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.76	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.42	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.10	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.72	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.29	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.60	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 40% (nation-wide = 45%)
 - highly likely to donate..... 3% (nation-wide = 6%)
- likely to volunteer 44% (nation-wide = 38%)
 - highly likely to volunteer 6% (nation-wide = 5%)
- likely to respond to a threat (e.g., development) 67% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development) 20% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

Audubon Society of Portland Nature Sanctuary
and Facilities, Portland, OR

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Summary Report: Nature Centers & Communities study

AUDUBON SOCIETY OF PORTLAND NATURE SANCTUARY AND FACILITIES, PORTLAND, OR

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RESEARCH METHODS

Center Selection

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STUDY RESULTS

Description of Audubon Society of Portland Nature Sanctuary and Facilities Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

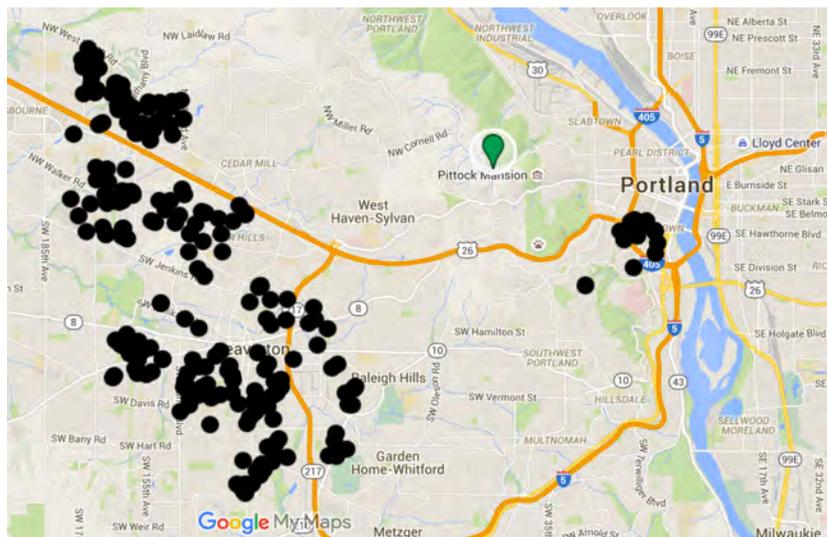
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native 4% (nation-wide = 2%)
- Asian 7% (nation-wide = 5%)
- Black or African American 3% (nation-wide = 6%)
- Hispanic or Latino 5% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander 0.4% (nation-wide = 0.2%)
- White 82% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent 51 (nation-wide = 54)
- Age range of respondents..... 20-94 (nation-wide = 19-97)
- Percentage of female respondents..... 31% (nation-wide = 23%)
- Percentage of married respondents..... 56% (nation-wide = 67%)
- Percentage of home-owning respondents 61% (nation-wide = 73%)
- Percentage of respondents with children living in their home..... 23% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree 52% (nation-wide = 46%)
- Average number of years respondents lived in current town..... 20years (nation-wide = 23years)
- Average time it would take respondent to drive to center 15mins (nation-wide = 17mins)

Two-hundred and forty-three people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Audubon Society of Portland Nature Sanctuary and Facilities Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center 67% (nation-wide = 62%)
- indicated they had visited center 43% (nation-wide = 60%)
- indicated they had volunteered at center 4% (nation-wide = 3%)
- indicated they had donated to center 20% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member 5% (nation-wide = 8%)
- believed staff members volunteered in local community 41% (nation-wide = 28%)
- believed staff members shared similar values as them 94% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well 76% (nation-wide = 65%)
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- believed center provided activities in language other than English..... 38% (nation-wide = 27%)
- believed center staff members participate in community events..... 46% (nation-wide = 34%)
- believed their friends likes the center 54% (nation-wide = 47%)
- believed their family likes the center 59% (nation-wide = 52%)
- believed their local community likes the center 40% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only) 92% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things 90% (nation-wide = 88%)
- to enjoy myself..... 98% (nation-wide = 94%)
- to expose my children/family to something new 76% (nation-wide = 77%)
- to get away from everyday life 74% (nation-wide = 70%)
- to spend time with friends/family 76% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]..... 17% (nation-wide = 10%)
- I don't know what there is to do [at the nature center]..... 29% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]..... 1% (nation-wide = 4%)
- I have poor health 13% (nation-wide = 10%)

Summary Report: Nature Centers & Communities study

- I'm too busy with other commitments..... 74% (nation-wide = 70%)
- My friends/family prefer to go elsewhere 38% (nation-wide = 31%)
- People like me are not treated as well as others [at the nature center]. 1% (nation-wide = 2%)
- The entrance or program fees are too expensive 20% (nation-wide = 18%)
- There's nothing I like to do [at the nature center] 11% (nation-wide = 13%)
- It is far from where I live or work 29% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.32	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.54	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.86	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.44	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.28	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.97	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.49	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.90	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate..... 47% (nation-wide = 45%)
 - highly likely to donate..... 7% (nation-wide = 6%)
- likely to volunteer..... 41% (nation-wide = 38%)
 - highly likely to volunteer..... 6% (nation-wide = 5%)
- likely to respond to a threat (e.g., development)..... 64% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development)..... 18% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

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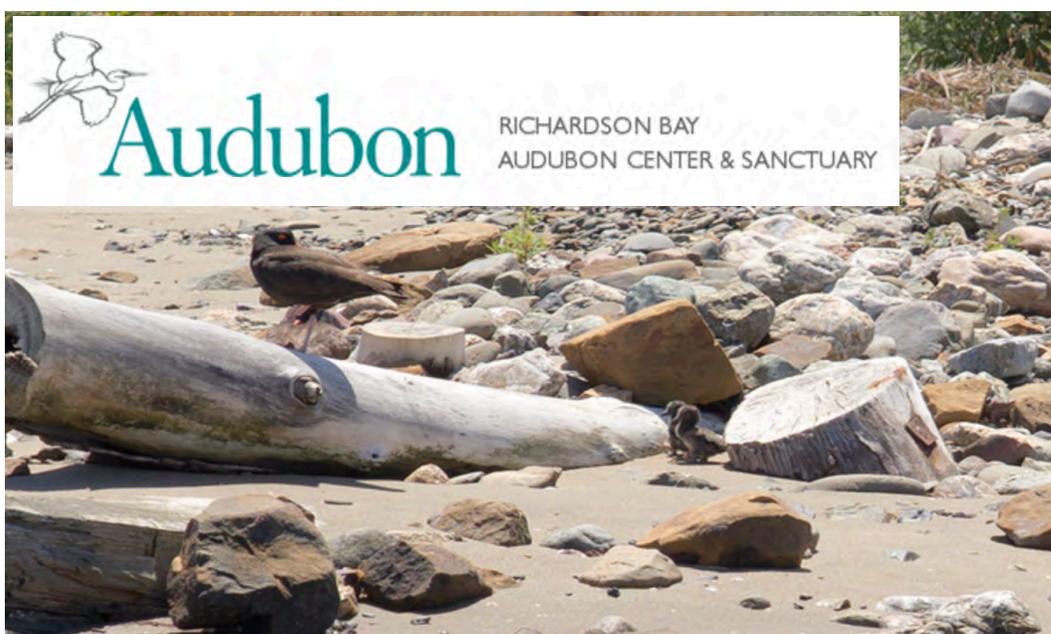
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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

RICHARDSON BAY AUDUBON CENTER AND SANCTUARY, TIBURON, CA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Richardson Bay Audubon Center and Sanctuary Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

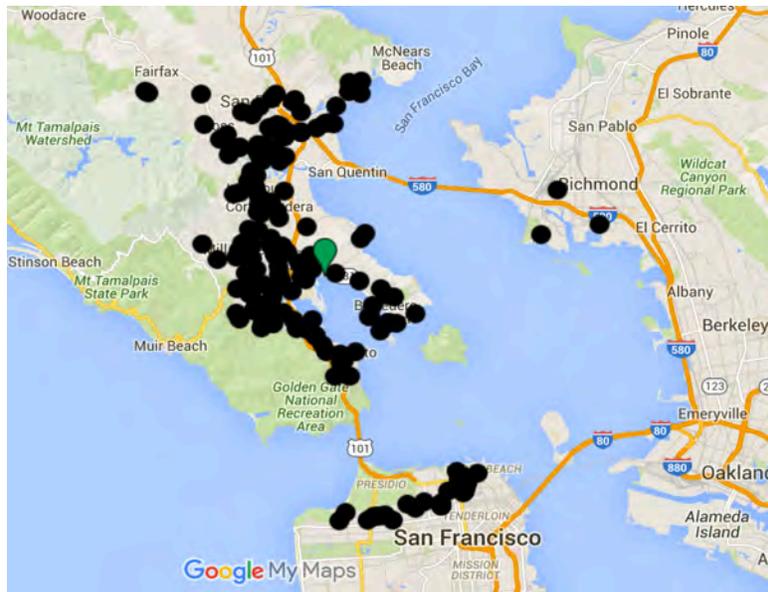
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native.....3% (nation-wide = 2%)
- Asian3% (nation-wide = 5%)
- Black or African American.....0.5% (nation-wide = 6%)
- Hispanic or Latino.....4% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0.5% (nation-wide = 0.2%)
- White.....85% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent.....58 (nation-wide = 54)
- Age range of respondents21-90 (nation-wide = 19-97)
- Percentage of female respondents30% (nation-wide = 23%)
- Percentage of married respondents.....60% (nation-wide = 67%)
- Percentage of home-owning respondents64% (nation-wide = 73%)
- Percentage of respondents with children living in their home14% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....66% (nation-wide = 46%)
- Average number of years respondents lived in current town23years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....12mins (nation-wide = 17mins)

Two-hundred and seven people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Richardson Bay Audubon Center and Sanctuary Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center61% (nation-wide = 62%)
- indicated they had visited center.....28% (nation-wide = 60%)
- indicated they had volunteered at center.....2% (nation-wide = 3%)
- indicated they had donated to center.....8% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member2% (nation-wide = 8%)
- believed staff members volunteered in local community24% (nation-wide = 28%)
- believed staff members shared similar values as them.....90% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well51% (nation-wide = 65%)
- believed center provided educational programs for youth69% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.....61% (nation-wide = 61%)
- believed center provided volunteer opportunities65% (nation-wide = 67%)
- believed center provided rental facilities.....30% (nation-wide = 39%)
- believed center provided activities in language other than English28% (nation-wide = 27%)
- believed center staff members participate in community events.....27% (nation-wide = 34%)
- believed their friends likes the center36% (nation-wide = 47%)
- believed their family likes the center40% (nation-wide = 52%)
- believed their local community likes the center27% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only).....72% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things89% (nation-wide = 88%)
- to enjoy myself93% (nation-wide = 94%)
- to expose my children/family to something new83% (nation-wide = 77%)
- to get away from everyday life56% (nation-wide = 70%)
- to spend time with friends/family.....80% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]14% (nation-wide = 10%)
- I don't know what there is to do [at the nature center].57% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]2% (nation-wide = 4%)
- I have poor health.....9% (nation-wide = 10%)

Summary Report: Nature Centers & Communities study

- I'm too busy with other commitments64% (nation-wide = 70%)
- My friends/family prefer to go elsewhere.....35% (nation-wide = 31%)
- People like me are not treated as well as others [at the nature center] .3% (nation-wide = 2%)
- The entrance or program fees are too expensive.....8% (nation-wide = 18%)
- There's nothing I like to do [at the nature center].....21% (nation-wide = 13%)
- It is far from where I live or work21% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.42	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.21	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.86	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.32	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.08	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.69	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.26	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.79	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....36% (nation-wide = 45%)
 - highly likely to donate5% (nation-wide = 6%)
- likely to volunteer.....26% (nation-wide = 38%)
 - highly likely to volunteer.....2% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....64% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....19% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

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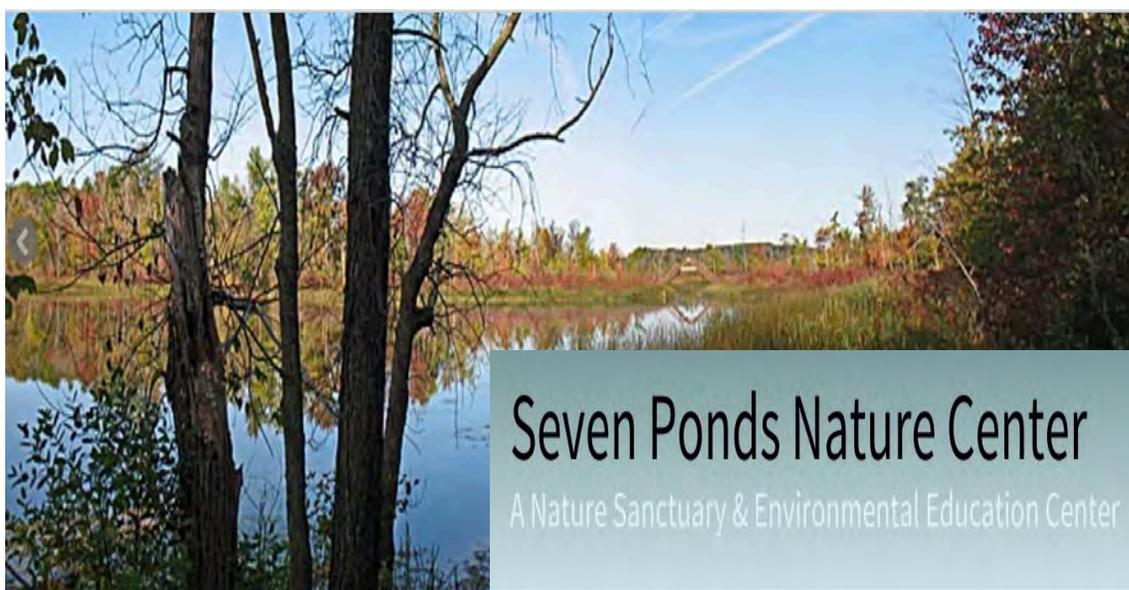
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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February
2016

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Summary Report: Nature Centers & Communities study

SEVEN PONDS NATURE CENTER, DRYDEN, MI

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

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- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
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STUDY RESULTS

Description of Seven Ponds Nature Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

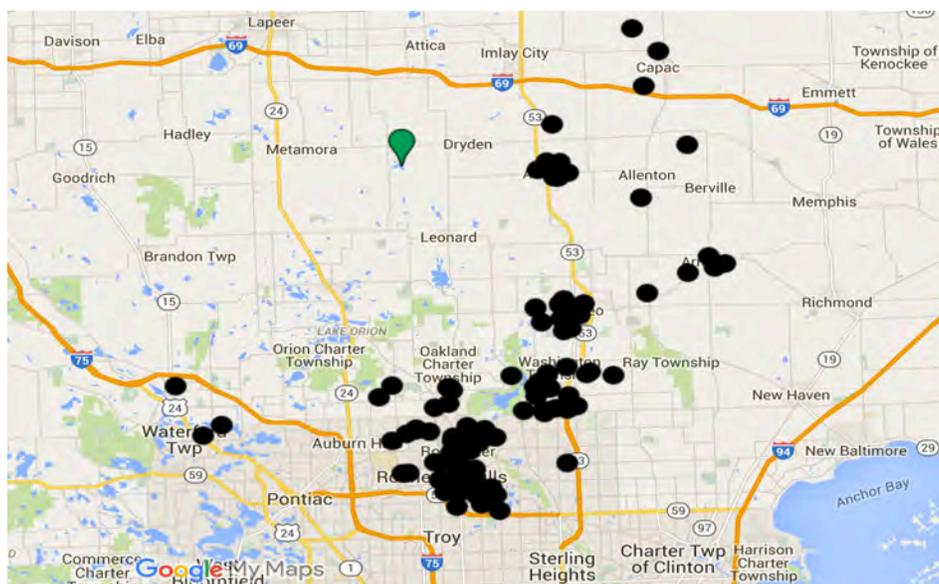
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native.....0% (nation-wide = 2%)
- Asian5% (nation-wide = 5%)
- Black or African American.....4% (nation-wide = 6%)
- Hispanic or Latino.....3% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0% (nation-wide = 0.2%)
- White.....84% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent.....53 (nation-wide = 54)
- Age range of respondents20-80 (nation-wide = 19-97)
- Percentage of female respondents20% (nation-wide = 23%)
- Percentage of married respondents.....81% (nation-wide = 67%)
- Percentage of home-owning respondents.....79% (nation-wide = 73%)
- Percentage of respondents with children living in their home36% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....45% (nation-wide = 46%)
- Average number of years respondents lived in current town17years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....34mins (nation-wide = 17mins)

One-hundred and twenty-two people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Seven Ponds Nature Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center45% (nation-wide = 62%)
- indicated they had visited center.....23% (nation-wide = 60%)
- indicated they had volunteered at center.....0.8% (nation-wide = 3%)
- indicated they had donated to center5% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member2% (nation-wide = 8%)
- believed staff members volunteered in local community9% (nation-wide = 28%)
- believed staff members shared similar values as them.....98% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well57% (nation-wide = 65%)
- believed center provided educational programs for youth52% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.....37% (nation-wide = 61%)
- believed center provided volunteer opportunities42% (nation-wide = 67%)
- believed center provided rental facilities.....22% (nation-wide = 39%)
- believed center provided activities in language other than English13% (nation-wide = 27%)
- believed center staff members participate in community events.....26% (nation-wide = 34%)
- believed their friends likes the center43% (nation-wide = 47%)
- believed their family likes the center43% (nation-wide = 52%)
- believed their local community likes the center30% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only).....89% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things96% (nation-wide = 88%)
- to enjoy myself100% (nation-wide = 94%)
- to expose my children/family to something new91% (nation-wide = 77%)
- to get away from everyday life71% (nation-wide = 70%)
- to spend time with friends/family84% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]12% (nation-wide = 10%)
- I don't know what there is to do [at the nature center].49% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]0% (nation-wide = 4%)
- I have poor health.....8% (nation-wide = 10%)
- I'm too busy with other commitments70% (nation-wide = 70%)
- My friends/family prefer to go elsewhere.....25% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center] .0% (nation-wide = 2%)
- The entrance or program fees are too expensive.....12% (nation-wide = 18%)
- There's nothing I like to do [at the nature center]7% (nation-wide = 13%)
- It is far from where I live or work43% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.47	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.90	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.82	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.65	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.51	Yes
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.24	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.81	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.10	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....37% (nation-wide = 45%)
 - highly likely to donate4% (nation-wide = 6%)
- likely to volunteer.....30% (nation-wide = 38%)
 - highly likely to volunteer.....4% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....49% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....17% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

CONTACT INFORMATION FOR THE RESEARCH TEAM

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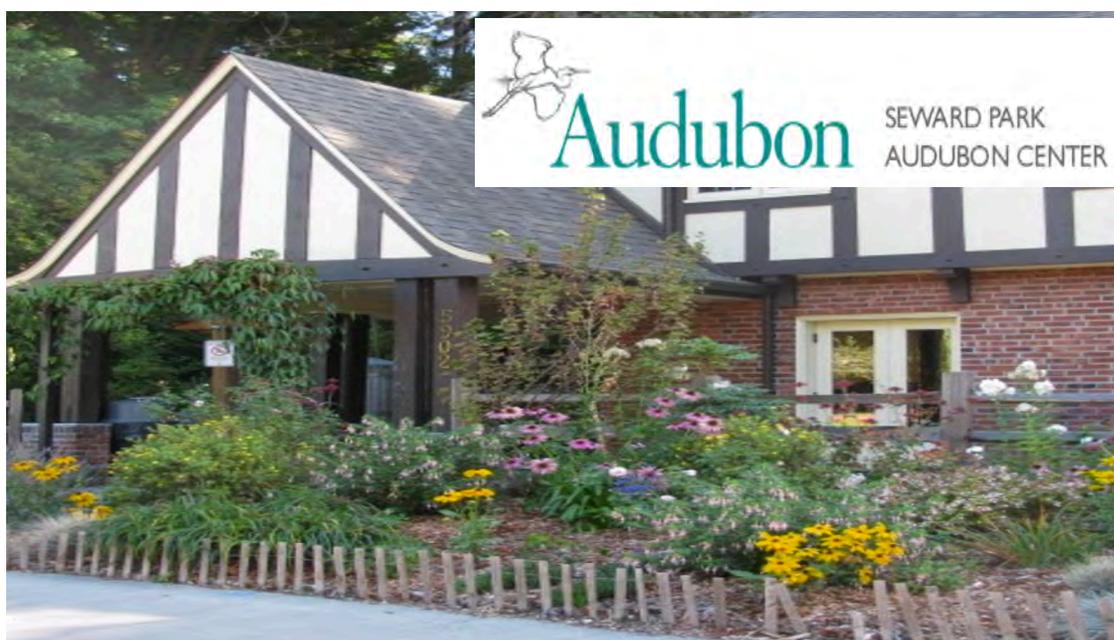
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Nicole Ardoin (theoretical framing and study implications) nmardoin@stanford.edu

Joe Heimlich (theoretical framing and study implications) jheimlich@cosi.org

Bob Petty (grant administration) rpetty@audubon.org

SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February
2016

Seward Park Audubon Center, Seattle, WA

Matt Browning, University of Illinois at Urbana-Champaign

Marc Stern, Virginia Tech

Nicole Ardoin, Stanford University

Joe Heimlich, The Ohio State University

Bob Petty, National Audubon Society

Wonjun Choi, University of Illinois at Urbana-Champaign

Summary Report: Nature Centers & Communities study

SEWARD PARK AUDUBON CENTER, SEATTLE, WA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

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STUDY RESULTS

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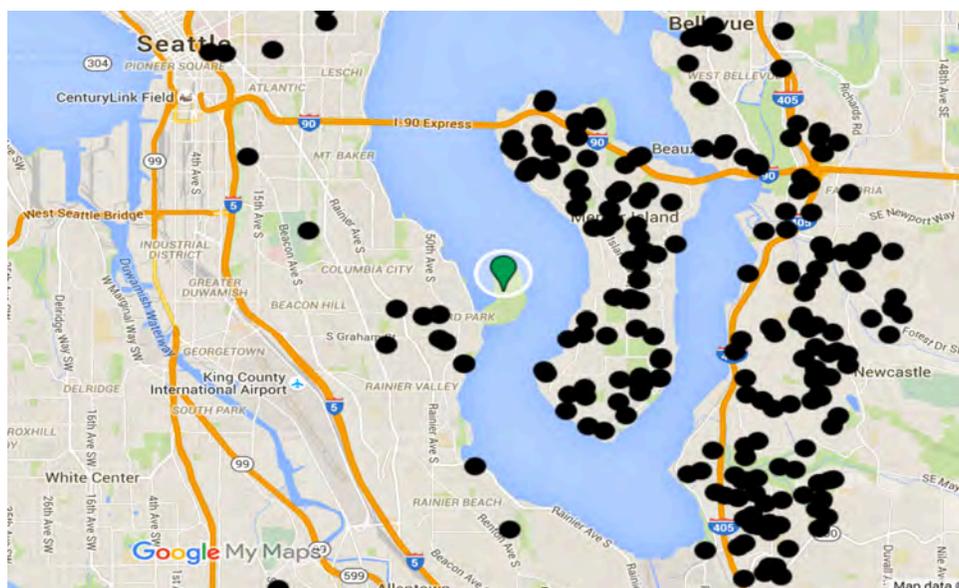
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- Asian13% (nation-wide = 5%)
- Black or African American.....4% (nation-wide = 6%)
- Hispanic or Latino.....2% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0.9% (nation-wide = 0.2%)
- White.....75% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent56 (nation-wide = 54)
- Age range of respondents22-85 (nation-wide = 19-97)
- Percentage of female respondents16% (nation-wide = 23%)
- Percentage of married respondents.....82% (nation-wide = 67%)
- Percentage of home-owning respondents81% (nation-wide = 73%)
- Percentage of respondents with children living in their home26% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....66% (nation-wide = 46%)
- Average number of years respondents lived in current town23years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....21mins (nation-wide = 17mins)

Two-hundred and thirty-three people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of Seward Park Audubon Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center29% (nation-wide = 62%)
- indicated they had visited center.....10% (nation-wide = 60%)
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Percentage who...(calculated only from people who were aware of your center)

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- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.25	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.62	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.15	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.51	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	3.82	Yes
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.65	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.33	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.60	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....28% (nation-wide = 45%)
 - highly likely to donate2% (nation-wide = 6%)
- likely to volunteer.....31% (nation-wide = 38%)
 - highly likely to volunteer.....2% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....59% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....19% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

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Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



Courtesy of Erich Martin/Levittownnow.com

February
2016

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Summary Report: Nature Centers & Communities study

SILVER LAKE NATURE CENTER, BRISTOL, PA

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of Silver Lake Nature Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

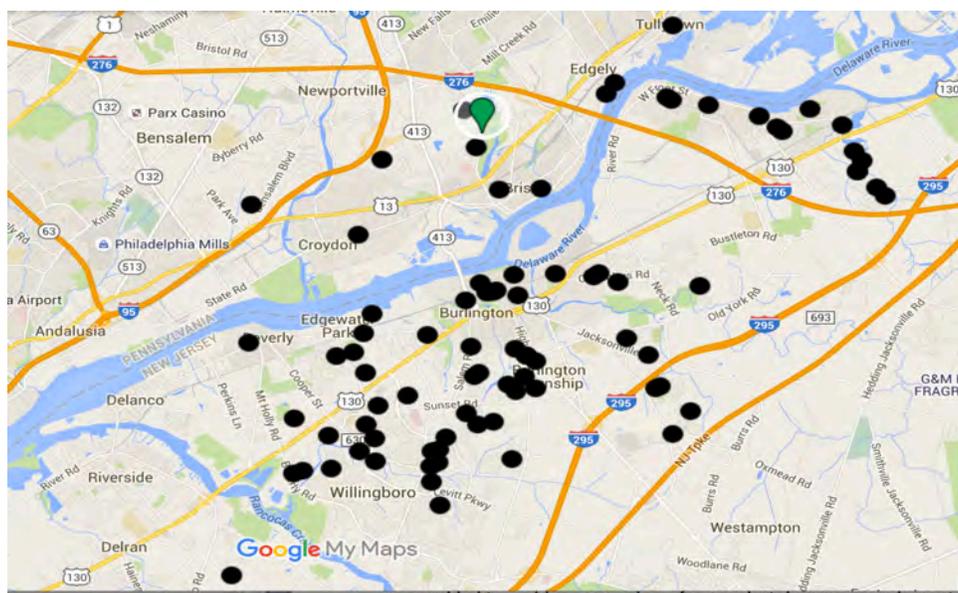
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native.....3% (nation-wide = 2%)
- Asian2% (nation-wide = 5%)
- Black or African American.....30% (nation-wide = 6%)
- Hispanic or Latino.....2% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0% (nation-wide = 0.2%)
- White.....57% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent51 (nation-wide = 54)
- Age range of respondents20-74 (nation-wide = 19-97)
- Percentage of female respondents28% (nation-wide = 23%)
- Percentage of married respondents.....70% (nation-wide = 67%)
- Percentage of home-owning respondents79% (nation-wide = 73%)
- Percentage of respondents with children living in their home31% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....34% (nation-wide = 46%)
- Average number of years respondents lived in current town21 years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....12mins (nation-wide = 17mins)

Two-hundred and thirty-three people living around your center responded to the survey (approx.. locations below).



Attitudes and Behaviors of Silver Lake Nature Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center21% (nation-wide = 62%)
- indicated they had visited center.....10% (nation-wide = 60%)
- indicated they had volunteered at center.....2% (nation-wide = 3%)
- indicated they had donated to center3% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member5% (nation-wide = 8%)
- believed staff members volunteered in local community30% (nation-wide = 28%)
- believed staff members shared similar values as them.....95% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well50% (nation-wide = 65%)
- believed center provided educational programs for youth68% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.....58% (nation-wide = 61%)
- believed center provided volunteer opportunities68% (nation-wide = 67%)
- believed center provided rental facilities.....42% (nation-wide = 39%)
- believed center provided activities in language other than English21% (nation-wide = 27%)
- believed center staff members participate in community events.....32% (nation-wide = 34%)
- believed their friends likes the center39% (nation-wide = 47%)
- believed their family likes the center39% (nation-wide = 52%)
- believed their local community likes the center22% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only).....78% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things.....67% (nation-wide = 88%)
- to enjoy myself100% (nation-wide = 94%)
- to expose my children/family to something new67% (nation-wide = 77%)
- to get away from everyday life.....67% (nation-wide = 70%)
- to spend time with friends/family78% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]0% (nation-wide = 10%)
- I don't know what there is to do [at the nature center].19% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]11% (nation-wide = 4%)
- I have poor health.....26% (nation-wide = 10%)
- I'm too busy with other commitments60% (nation-wide = 70%)
- My friends/family prefer to go elsewhere.....16% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center] .5% (nation-wide = 2%)
- The entrance or program fees are too expensive.....6% (nation-wide = 18%)
- There's nothing I like to do [at the nature center]0% (nation-wide = 13%)
- It is far from where I live or work10% (nation-wide =27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.26	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.12	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.80	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.82	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	3.86	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.79	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.78	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.67	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....42% (nation-wide = 45%)
 - highly likely to donate5% (nation-wide = 6%)
- likely to volunteer.....37% (nation-wide = 38%)
 - highly likely to volunteer.....5% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....63% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....16% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

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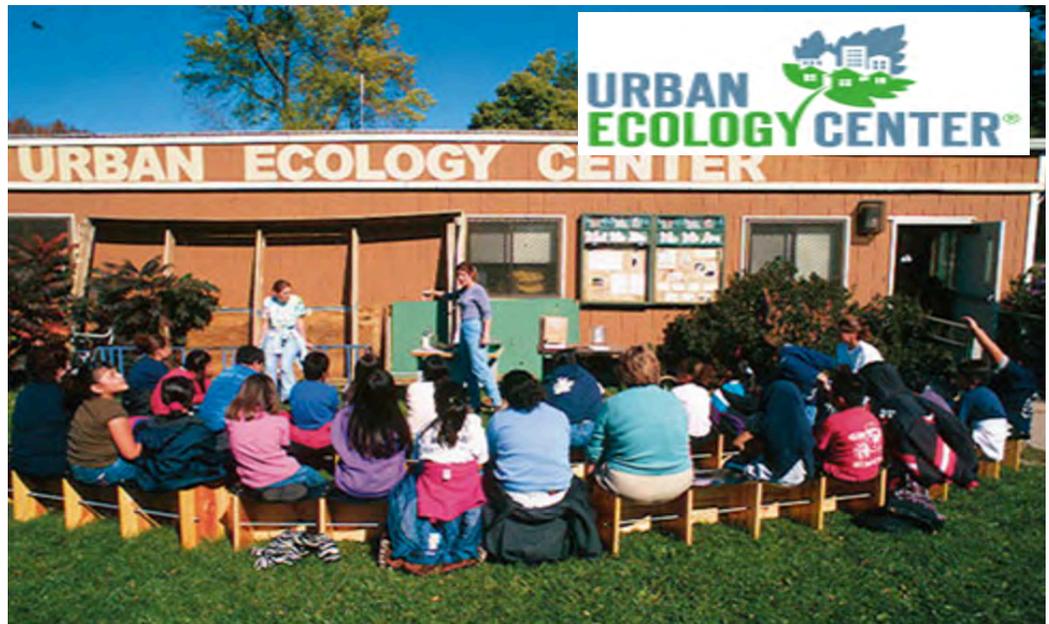
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SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February 2016

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Summary Report: Nature Centers & Communities study

THE URBAN ECOLOGY CENTER, MILWAUKEE, WI

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OVERVIEW

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RESEARCH METHODS

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The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

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- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
- Mitchell Lake Audubon Center, San Antonio, TX
- Plains Conservation Center, Aurora, CO
- Audubon Society of Portland Nature Sanctuary and Facilities, Portland, OR
- Richardson Bay Audubon Center and Sanctuary, Tiburon, CA
- Seven Ponds Nature Center, Dryden, MI
- Seward Park Audubon Center, Seattle, WA
- Silver Lake Nature Center, Bristol, PA
- The Urban Ecology Center, Milwaukee, WI
- The Wilderness Center, Wilmot, OH

Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of the Urban Ecology Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

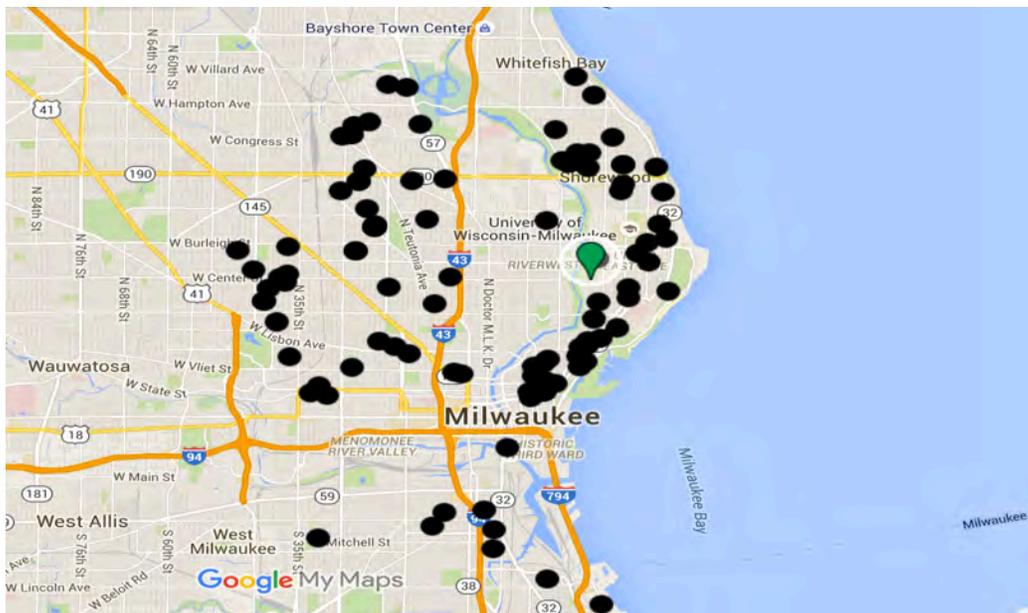
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native.....2% (nation-wide = 2%)
- Asian3% (nation-wide = 5%)
- Black or African American.....31% (nation-wide = 6%)
- Hispanic or Latino.....4% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0% (nation-wide = 0.2%)
- White.....54% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent49 (nation-wide = 54)
- Age range of respondents21-81 (nation-wide = 19-97)
- Percentage of female respondents41% (nation-wide = 23%)
- Percentage of married respondents.....40% (nation-wide = 67%)
- Percentage of home-owning respondents.....49% (nation-wide = 73%)
- Percentage of respondents with children living in their home44% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....43% (nation-wide = 46%)
- Average number of years respondents lived in current town30years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....9mins (nation-wide = 17mins)

One-hundred and four people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of the Urban Ecology Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center73% (nation-wide = 62%)
- indicated they had visited center.....41% (nation-wide = 60%)
- indicated they had volunteered at center.....5% (nation-wide = 3%)
- indicated they had donated to center15% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member21% (nation-wide = 8%)
- believed staff members volunteered in local community57% (nation-wide = 28%)
- believed staff members shared similar values as them.....99% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well72% (nation-wide = 65%)
- believed center provided educational programs for youth81% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.....69% (nation-wide = 61%)
- believed center provided volunteer opportunities71% (nation-wide = 67%)
- believed center provided rental facilities.....59% (nation-wide = 39%)
- believed center provided activities in language other than English37% (nation-wide = 27%)
- believed center staff members participate in community events.....51% (nation-wide = 34%)
- believed their friends likes the center53% (nation-wide = 47%)
- believed their family likes the center47% (nation-wide = 52%)
- believed their local community likes the center51% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only).....88% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things.....95% (nation-wide = 88%)
- to enjoy myself87% (nation-wide = 94%)
- to expose my children/family to something new68% (nation-wide = 77%)
- to get away from everyday life.....74% (nation-wide = 70%)
- to spend time with friends/family76% (nation-wide = 81%)

Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]13% (nation-wide = 10%)
- I don't know what there is to do [at the nature center].39% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]4% (nation-wide = 4%)
- I have poor health.....11% (nation-wide = 10%)
- I'm too busy with other commitments70% (nation-wide = 70%)
- My friends/family prefer to go elsewhere.....25% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center] .3% (nation-wide = 2%)
- The entrance or program fees are too expensive.....21% (nation-wide = 18%)
- There's nothing I like to do [at the nature center]15% (nation-wide = 13%)
- It is far from where I live or work17% (nation-wide =27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.34	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.73	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.41	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.80	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.34	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.15	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.91	Yes
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	4.26	Yes

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown ($p < .05$)

 Summary Report: Nature Centers & Communities study

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....56% (nation-wide = 45%)
 - highly likely to donate8% (nation-wide = 6%)
- likely to volunteer.....47% (nation-wide = 38%)
 - highly likely to volunteer.....4% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....75% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....15% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection*, *leisure provision*, *civic engagement*, and *community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

ACKNOWLEDGEMENTS

We greatly appreciate all the nature center directors, staff, and community members who gave generously of their time to participate in the interviews and surveys. We are also grateful to our National Audubon Society and Association of Nature Center Administrators colleagues who assisted with this work. This work was supported by an Institute of Museum and Library Services award.

FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

CONTACT INFORMATION FOR THE RESEARCH TEAM

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Bob Petty (grant administration) rpetty@audubon.org

SUMMARY REPORT: NATURE CENTERS & COMMUNITIES STUDY



February
2016

The Wilderness Center, Wilmot, OH

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Summary Report: Nature Centers & Communities study

THE WILDERNESS CENTER, WILMOT, OH

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OVERVIEW

Nature centers hold tremendous potential to serve as hubs for learning and connection, not only between people and nature, but also between fellow community members. This study examined the relationship between nature centers and the people living around them – including both people who visit and people who don't visit but still perceive value in a nature center existing in their community. Our ultimate goal is to help strengthen the link between nature centers and their communities. To this end, we studied three qualities of the nature center-community relationship. First, we determined the values that community members hold toward local centers. Second, we measured the extent to which different factors prevented community members from visiting local centers. Third, we tested a range of hypothetical predictors of nature center support to understand why community members might donate, volunteer, or respond to a threat at their local center.

Through online surveys with over 2,400 respondents living near 16 nature centers across the United States, we identified four distinct values community members feel local centers should, and often do, provide: *environmental connection, leisure provision, community resilience, and civic engagement*. We also determined that lack of awareness was the major constraint to visitation for our sample of respondents. The next most significant constraints were financial, time, and transportation limitations. Lastly, we found a broad range of factors that encouraged people to support local centers. Most prominently, community members' belief that their local center provided the four value sets identified in this study were the strongest predictors of members' reported likelihood to support their local center. Other significant predictors included positive evaluations of staff members, perceptions of positive attitudes toward the center held by other community members, familiarity with center activities, pro-environmental attitudes, and previous support.

This report summarizes the study's results and provides a comparison of responses collected from people living around your nature center to people living around all 16 centers in our national sample. It is important to note that your local sample of respondents was not statistically representative of the broad community surrounding your center. Therefore, the trends shared here may not apply across your entire local community. The primary purpose of sharing our study results is to provide insights into how people who answered the survey in your area might be similar or different to people living around other nature centers in our study, as well as identification of the diverse sets of values centers might provide, possible constraints to visitation, and possible predictors of support.

RESEARCH METHODS

Center Selection

The nature centers in this study were a subset of a list developed by senior staff members of the National Audubon Society and the Executive Director of the Association for Nature Center Administrators representing their opinions of some of the best centers in the country. The centers in our sample, selected to ensure geographic distribution, included those listed below:

- Corkscrew Swamp Sanctuary and Blair Audubon Center, Naples, FL
- Audubon Center at Debs Park, Los Angeles, CA
- Elachee Nature Science Center, Gainesville, GA
- The Environmental Learning Center, Vero Beach, FL
- Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH
- Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT
- Hitchcock Nature Center, Honey Creek, IA
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Data Collection

We hired a marketing firm to invite local residents to take the surveys. For urban centers, residents living within a 4-5 mile radius were randomly selected. For suburban and fringe centers, the radii were 6-12 miles, and for rural centers, the radius was 20 miles. Despite inviting 192,000 local people within each population to take the survey, we were unable to achieve statistically representative samples of any single community. Rather, we received 2,276 completed surveys across the entire national sample. As such, the results shared in this report do not represent the values and beliefs of the entire community surrounding your center. They are provided to enable a comparison of respondents in your general area to respondents at all other centers combined (we refer to these as the “nation-wide” results in this report). Survey invites were sent in two rounds. The first round started with a postal letter invitation in both English and Spanish. These included a website link to the online survey. One half of the initial sample received a \$2 bill as a token of appreciation along with their invitation to encourage response. Two follow-up email reminders were also sent. The second round used an email invitation and two email reminders. The surveys took respondents approximately eight minutes to complete on average. We included a range of survey items to attempt to answer our three primary research questions (in what ways do communities’ value nature centers, what factors lead community members to support nature centers, and what issues constrain community members from visiting nature centers). We also collected self-reported race/ethnicity and length of residency to understand differences between community groups. Other socio-demographic variables were provided by the marketing firm using multiple sources, which have been found to be approximately 95% accurate in identifying the true characteristics of sample members.

STUDY RESULTS

Description of the Wilderness Center Sample

RESPONDENTS' SOCIO-DEMOGRAPHICS

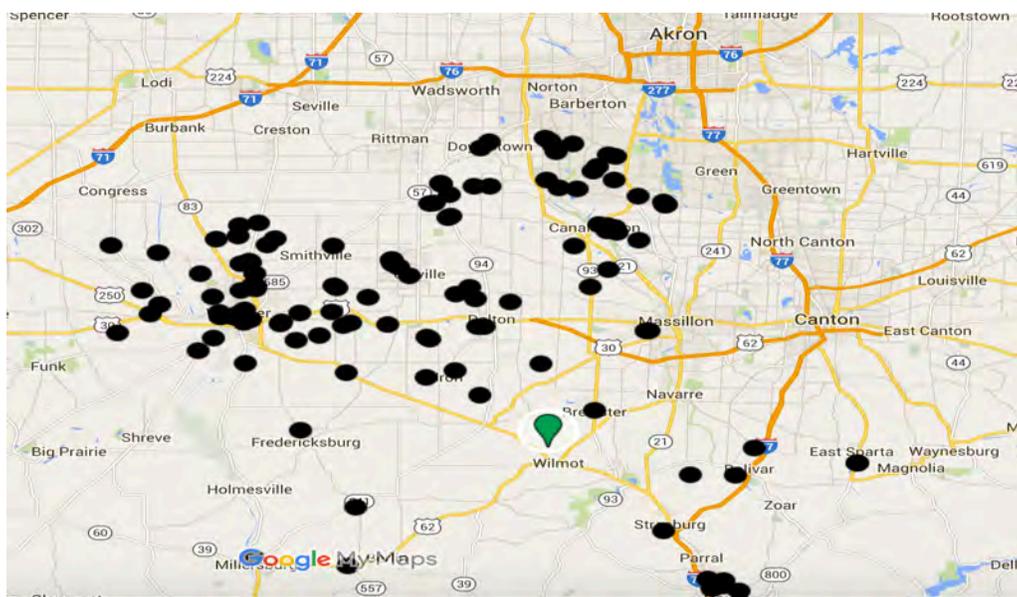
Percentage who identified as... (sum of percentages may be >100%, because respondents could identify with more than one race or ethnicity in the survey).

- American Indian or Alaska Native.....2% (nation-wide = 2%)
- Asian1% (nation-wide = 5%)
- Black or African American.....1% (nation-wide = 6%)
- Hispanic or Latino.....0.7% (nation-wide = 7%)
- Native Hawaiian or other Pacific Islander.....0% (nation-wide = 0.2%)
- White.....93% (nation-wide = 78%)

Other traits of local sample of respondents:

- Average age of respondent55 (nation-wide = 54)
- Age range of respondents28-88 (nation-wide = 19-97)
- Percentage of female respondents14% (nation-wide = 23%)
- Percentage of married respondents.....80% (nation-wide = 67%)
- Percentage of home-owning respondents.....80% (nation-wide = 73%)
- Percentage of respondents with children living in their home34% (nation-wide = 26%)
- Percentage of respondents with college degree/graduate degree.....30% (nation-wide = 46%)
- Average number of years respondents lived in current town29years (nation-wide = 23years)
- Average time it would take respondent to drive to center.....29mins (nation-wide = 17mins)

One-hundred and forty-one people living around your center responded to the survey (approx. locations below).



Attitudes and Behaviors of the Wilderness Center Sample

RESPONDENTS' LEVEL OF INVOLVEMENT AT CENTER

Percentage who:

- indicated they were aware of center77% (nation-wide = 62%)
- indicated they had visited center.....65% (nation-wide = 60%)
- indicated they had volunteered at center.....6% (nation-wide = 3%)
- indicated they had donated to center23% (nation-wide = 12%)

RESPONDENTS' BELIEFS ABOUT CENTER AND ITS STAFF MEMBERS

Percentage who...(calculated only from people who were aware of your center)

- indicated they knew a staff member11% (nation-wide = 8%)
- believed staff members volunteered in local community33% (nation-wide = 28%)
- believed staff members shared similar values as them.....91% (nation-wide = 95%)
- indicated they trusted staff members to do their jobs well73% (nation-wide = 65%)
- believed center provided educational programs for youth85% (nation-wide = 74%)
- believed center provided educational programs/trainings for adults.....74% (nation-wide = 61%)
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- believed their local community likes the center42% (nation-wide = 36%)
- were satisfied with past visits to the center (visitors only).....88% (nation-wide = 87%)

RESPONDENTS' MOTIVES AND CONSTRAINTS TO VISITING CENTER

Percentage who indicated the following items were a major reason to visit (visitors only)

- to discover new things81% (nation-wide = 88%)
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Percentage who indicated the following items were major issues/challenges that prevented them from visiting (only includes those who had visited the center previously at least once):

- I don't have a convenient way of getting [to the nature center]5% (nation-wide = 10%)
- I don't know what there is to do [at the nature center].29% (nation-wide = 39%)
- I don't think I'm welcome/safe [at the nature center]1% (nation-wide = 4%)
- I have poor health.....12% (nation-wide = 10%)
- I'm too busy with other commitments82% (nation-wide = 70%)
- My friends/family prefer to go elsewhere.....36% (nation-wide = 31%)

Summary Report: Nature Centers & Communities study

- People like me are not treated as well as others [at the nature center] .1% (nation-wide = 2%)
- The entrance or program fees are too expensive.....19% (nation-wide = 18%)
- There's nothing I like to do [at the nature center]8% (nation-wide = 13%)
- It is far from where I live or work62% (nation-wide = 27%)

Community Valuation of Nature Centers

To measure the perceived value of nature centers, we asked survey respondents about the importance and performance of 14 items reflecting services that nature centers might provide. These items were initially based on the sets of values found for museums and further developed through a 2014 proof-of-concept study at six U.S. nature centers by the three principal investigators of this study (Ardoin, Heimlich, and Stern).

Perceptions of importance were solicited by asking, 'How important is it to you that [the nature center's name] does each of the following?' (range = 1 to 5 where 1 = 'not at all important' and 5 = 'extremely important'). Perceptions of performance were measured by asking, 'How well does [the nature center's name] actually accomplish each of the following?' (range = 1 to 5 where 1 = 'not at all well' and 5 = 'extremely well').

An exploratory factor analysis on respondents' importance scores suggested four underlying value sets that community members hold toward nature centers:

- *Leisure provision* included providing opportunities for physical exercise, safe outdoor recreation, retreat, restoration, and relaxation.
- *Environmental connection* included promoting environmental awareness and behaviors, protecting wildlife habitats and natural areas with ecosystem services, and providing places to learn.
- *Civic engagement* included bringing together people from different races and ethnicities and linking people to political action.
- *Community resilience* included beautifying the local community, contributing to the local economy, and developing a sense of pride in the local community.

We created importance indices for each of these factors by averaging respondents' importance scores for those items that loaded most strongly on each factor. Similarly, we created performance indices by averaging performance scores. We compared the average score for each index between community sub-groups in our nation-wide sample (e.g., different educational levels or races/ethnicities) and found a number of statistically significant differences. The valuation of *leisure provision* differed between visitors and non-visitors to the centers, while the valuation of the other three factors did not. This suggests that community members value the existence of nature centers even if they do not personally visit. *Community resilience* and *civic engagement* were particularly valued among respondents who were non-White, those who were younger, those who were less educated, and those who lived in urban areas.

Your center's average importance and performance scores, and whether or not these scores varied in a statistically significant way from our nation-wide sample, are identified on the next page.

PERCEIVED IMPORTANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all important, and 5 = extremely important	4.28	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	3.83	Yes
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	2.76	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.51	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

PERCEIVED PERFORMANCE OF NATURE CENTER(S) PROVIDING SETS OF VALUES

Value set	Survey items ^a	Range	Center average	Different than nation-wide average? ^b
Environmental connection	<ul style="list-style-type: none"> Encouraging environmental behavior (e.g., recycling or saving electricity and water) Increasing environmental awareness (e.g., introducing people to native wildlife/plants) Providing access to nature Providing a place for children to learn Providing wildlife habitat or ecosystem services (e.g., slowing storm water runoff) 	1 to 5 where 1 = not at all well, and 5 = extremely well	4.30	No
Leisure provision	<ul style="list-style-type: none"> Providing a place for physical exercise Providing a place for retreat/restoration/relaxation Providing a safe place for outdoor recreation 	(same as above)	4.10	No
Civic engagement	<ul style="list-style-type: none"> Helping bring together people from different races/ethnicities Linking people to political action Providing a place for people in the local community to gather 	(same as above)	3.63	No
Community resilience	<ul style="list-style-type: none"> Contributing to the local economy (e.g., increasing property values or attracting businesses) Developing a sense of pride in the local community Making the community a more beautiful place 	(same as above)	3.78	No

^aresponses from bulleted survey items were averaged to create indices ('value set' in column one); ^bonly statistically significant differences shown (p < .05)

Predictors of Nature Center Support

We found that a broad range of factors significantly predicted the likelihood of community members indicating they would donate, volunteer, or otherwise support their local nature center. The four sets of values nature centers provide (*environmental connection, leisure provision, civic engagement, and community resilience*) were the strongest and most consistent predictors of whether respondents in our sample indicated that were likely to support their local nature center. Other factors were included:

- visitation frequency;
- respondents' commitment to nature;
- perceptions of staff performance (e.g., how well they perform their jobs);
- perceptions of shared values with staff;
- perceptions of whether nature center staff volunteer in the local community;
- awareness of nature center activities (e.g., children's programs, adult programs, and rental facilities);
- perceptions of the attitudes about the center from friends, family and other community members;
- whether or not a respondent knew a center staff member; and
- past donations to the nature center or volunteering at the center.

A majority of respondents indicated they would engage in at least one form of support behavior. Your center's results in comparison to the nation-wide sample are below.

LIKELIHOOD OF SUPPORTING NATURE CENTER

Percentage who indicated that they were...(calculated only from people who were aware of your center):

- likely to donate.....41% (nation-wide = 45%)
 - highly likely to donate4% (nation-wide = 6%)
- likely to volunteer.....36% (nation-wide = 38%)
 - highly likely to volunteer.....2% (nation-wide = 5%)
- likely to respond to a threat (e.g., development).....56% (nation-wide = 65%)
 - highly likely to respond to a threat (e.g., development).....16% (nation-wide = 19%)

CONCLUSION

Our study suggests centers have the potential to hold considerable value in broad ways to diverse groups of people living around them. In particular, we identified four key sets of values that appear broadly important to local communities and were linked to support for local centers: *environmental connection, leisure provision, civic engagement, and community resilience*. These values provide food-for-thought for centers, as they consider their place within their local communities. Expanding beyond the more traditional roles for nature centers could expand centers' reach and enhance local support.

Our national findings were generally quite similar to those which we found in the sample of people living around your center who responded to our survey. While this latter sample is not representative for all people living around your center, this study's findings provide a basic understanding of the ways in which the broader community might value your center's existence, the reasons the broader community might not visit your center, and the reasons that the broader community might donate, volunteer at, or otherwise support your center. We encourage further research with representative samples of community members to understand how best to serve the diverse groups of people living around your center.

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FURTHER RESOURCES

Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., and Charles, C. (in review). The values of nature centers to local communities. *Environmental Education Research*.

Browning, M., Stern, M., Ardoin, N., and Heimlich, J. (in review). Understanding visitors' perceived constraints at educational leisure settings with the hierarchy-of-effects model. *Leisure Sciences*.

Browning, M. (2015). Nature centers in local communities: Perceived values, support factors, and visitation constraints. Dissertation, Virginia Tech, Blacksburg, VA. Available online:

<http://vtechworks.lib.vt.edu/handle/10919/54581>

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