



# FROM ACORNS GROW OAKS

Exploring How Childhood  
Exposure to Nature Influences  
Adult Behavior

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# Outline of Presentation

- Review of Literature
- Project Development
- Exploratory Survey and Research Aims
- Results and Analysis
- Interpretation of Results
- Study Limitations
- Relevance to Public Health and Phipps



# Contact with Nature

- Physical and Psychological Benefits
  - Recovery from stress and attention fatigue
  - Encourages exercise and physical activity
  - Stimulates psychological and physical development in children
  - Personal sense of purpose and social development
- Community Benefits
  - Encourages social contact
  - Builds community capacity
  - Reduces violence
  - Reduces graffiti



# Project Development

- Community-based participatory research approach
- Childhood exposure to nature influence adult behavior
  - Does this hold true for Phipps patrons?
  - Design exploratory survey to investigate

# Community of Interest

- Adults who have demonstrated interest in Phipps
  - Phipps members
  - Non-member visitors
  - Facebook and Twitter



# Exploratory Phipps Survey

- Questions based on previous studies
  - Available upon request
- Distributed via e-mail, Facebook, and Twitter
- Three sections to survey
  - Exposure to nature as adult
  - Exposure to nature as child
    - Before age eleven
  - How engage next generation
- Focusing on small portion of data collected



# Specific Research Aims

- 1) **Characterize the engagement** the Phipps patrons have with nature as an adults and in their childhood
- 2) **Examine the interaction** between childhood experiences and adult experiences through bivariate statistical analysis
- 3) **Characterize the nature-based activities** that make Phipps patrons feel the most physically and psychologically well
- 4) **Examine the interaction** between contact with nature and perceived physical or psychological health benefit through bivariate statistical analysis

# Exploratory Phipps Survey

- 270 Individuals Responded
  - 86% Female
  - 98% White
  - Age ranged from 20-88 with average of 46
  - 65% higher than \$50,000 annual household income
  - 72% held college degree or higher
- Very similar to previous membership survey



# Specific Aim 1: Characterize Engagement

Table 1. Adult Exposure to Nature

|  | <b>Never</b> | <b>Rarely</b> | <b>Occasionally</b> | <b>Often</b> |
|--|--------------|---------------|---------------------|--------------|
| <b>Spend time in outdoor places with trees and plants?</b> | 1 (0.4%)     | 6 (2%)        | 19% (52)            | 78% (211)    |
| <b>Spend time in indoor place caring for plant life?</b>   | 23 (9%)      | 20% (54)      | 35% (94)            | 37% (99)     |

Table 2. Childhood Exposure to Nature

|  | <b>Never</b> | <b>Rarely</b> | <b>Occasionally</b> | <b>Often</b> |
|--|--------------|---------------|---------------------|--------------|
| <b>Spend time in outdoor places with trees and plants?</b> | 1 (0.4%)     | 2.8% (7)      | 9.3% (23)           | 87.4% (215)  |
| <b>Spend time in indoor place caring for plant life?</b>   | 23.3% (57)   | 38.4% (94)    | 27.8% (68)          | 10.6% (26)   |

# Specific Aim 1: Characterize Engagement

Table 3. Frequency of Adult Nature-Based Activities

| <b>Active Gardening</b>                              | <b>Never</b> |       | <b>Rarely</b> |       | <b>Occasionally</b> |       | <b>Often</b> |       |
|--|--------------|-------|---------------|-------|---------------------|-------|--------------|-------|
| Picking flowers, fruits, or vegetables from a garden | 17           | (6%)  | 46            | (17%) | 78                  | (29%) | 129          | (48%) |
| Planting trees, seeds, or plants                     | 16           | (6%)  | 42            | (16%) | 74                  | (28%) | 137          | (51%) |
| Taking care of indoor plants                         | 30           | (11%) | 42            | (16%) | 80                  | (30%) | 118          | (44%) |
| Taking care of outdoor plants                        | 13           | (5%)  | 32            | (12%) | 74                  | (27%) | 151          | (56%) |

| <b>Passive Interactions with Plants</b> | <b>Never</b> |       | <b>Rarely</b> |       | <b>Occasionally</b> |       | <b>Often</b> |       |
|---|--------------|-------|---------------|-------|---------------------|-------|--------------|-------|
| Camping                                 | 75           | (28%) | 83            | (31%) | 83                  | (31%) | 28           | (10%) |
| Hunting or fishing                      | 144          | (53%) | 76            | (28%) | 34                  | (13%) | 16           | (6%)  |
| Going to the beach                      | 16           | (6%)  | 79            | (29%) | 129                 | (48%) | 46           | (17%) |
| Bird watching                           | 51           | (19%) | 59            | (22%) | 77                  | (29%) | 83           | (31%) |
| Visiting or playing in local parks      | 9            | (3%)  | 36            | (13%) | 108                 | (40%) | 116          | (43%) |

# Specific Aim 1: Characterize Engagement

Table 4. Frequency of Childhood Nature-Based Activities

| <b>Active Gardening</b>                              | <b>Never</b> |       | <b>Rarely</b> |       | <b>Occasionally</b> |       | <b>Often</b> |       |
|--|--------------|-------|---------------|-------|---------------------|-------|--------------|-------|
| Picking flowers, fruits, or vegetables from a garden | 22           | (9%)  | 32            | (13%) | 82                  | (33%) | 109          | (44%) |
| Planting trees, seeds, or plants                     | 25           | (10%) | 55            | (23%) | 74                  | (30%) | 89           | (37%) |
| Taking care of indoor plants                         | 56           | (23%) | 80            | (33%) | 70                  | (29%) | 39           | (16%) |
| Taking care of outdoor plants                        | 33           | (13%) | 48            | (20%) | 73                  | (30%) | 91           | (37%) |

| <b>Passive Interactions with Plants</b> | <b>Never</b> |       | <b>Rarely</b> |       | <b>Occasionally</b> |       | <b>Often</b> |       |
|---|--------------|-------|---------------|-------|---------------------|-------|--------------|-------|
| Camping                                 | 72           | (30%) | 54            | (22%) | 73                  | (30%) | 45           | (18%) |
| Hunting or fishing                      | 94           | (38%) | 61            | (25%) | 58                  | (24%) | 32           | (13%) |
| Going to the beach                      | 48           | (20%) | 67            | (27%) | 82                  | (33%) | 48           | (20%) |
| Bird watching                           | 93           | (38%) | 55            | (23%) | 66                  | (27%) | 29           | (12%) |
| Visiting or playing in local parks      | 13           | (5%)  | 42            | (17%) | 72                  | (29%) | 118          | (48%) |

# Specific Aim 2: Examine the Interaction

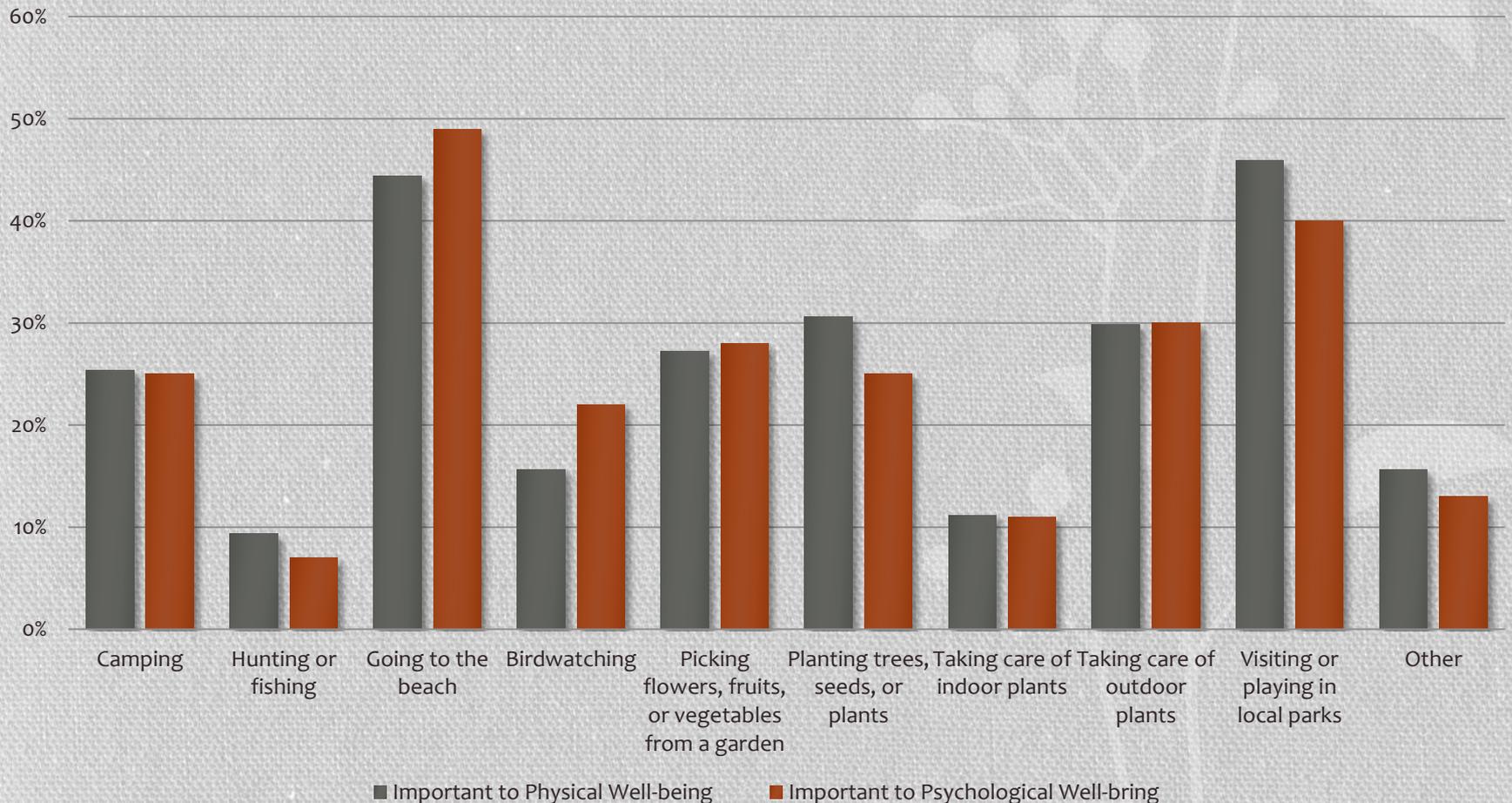
Table 5: Reported P-values from Chi-Squared Test for Association

|   | Spend time in outdoor places with trees and plants as an adult | Spend time in indoor places caring for plant life as an adult | Participation in passive interactions with plants as an adult | Participation in active gardening experiences as an adult |
|---|--|---|---|---|
| Spend time in outdoor places with trees and plants as a child | <b>0.002*</b>  | 0.559   | 0.806   | <b>0.009*</b>   |
| Spend time in indoor places caring for plant life as a child  | 0.218  | <b>0.002*</b>   | <b>0.044*</b>   | <b>0.022*</b>   |
| Participation in passive interactions with plants as a child  | <b>0.025*</b>  | 0.471   | <b>0.001*</b>   | 0.281   |
| Participation in active gardening experiences as a child      | <b>&lt; 0.000*</b>   | <b>0.012*</b>   | 0.654   | <b>&lt; 0.000*</b>  |

\* Denotes significant association at the 0.05 level

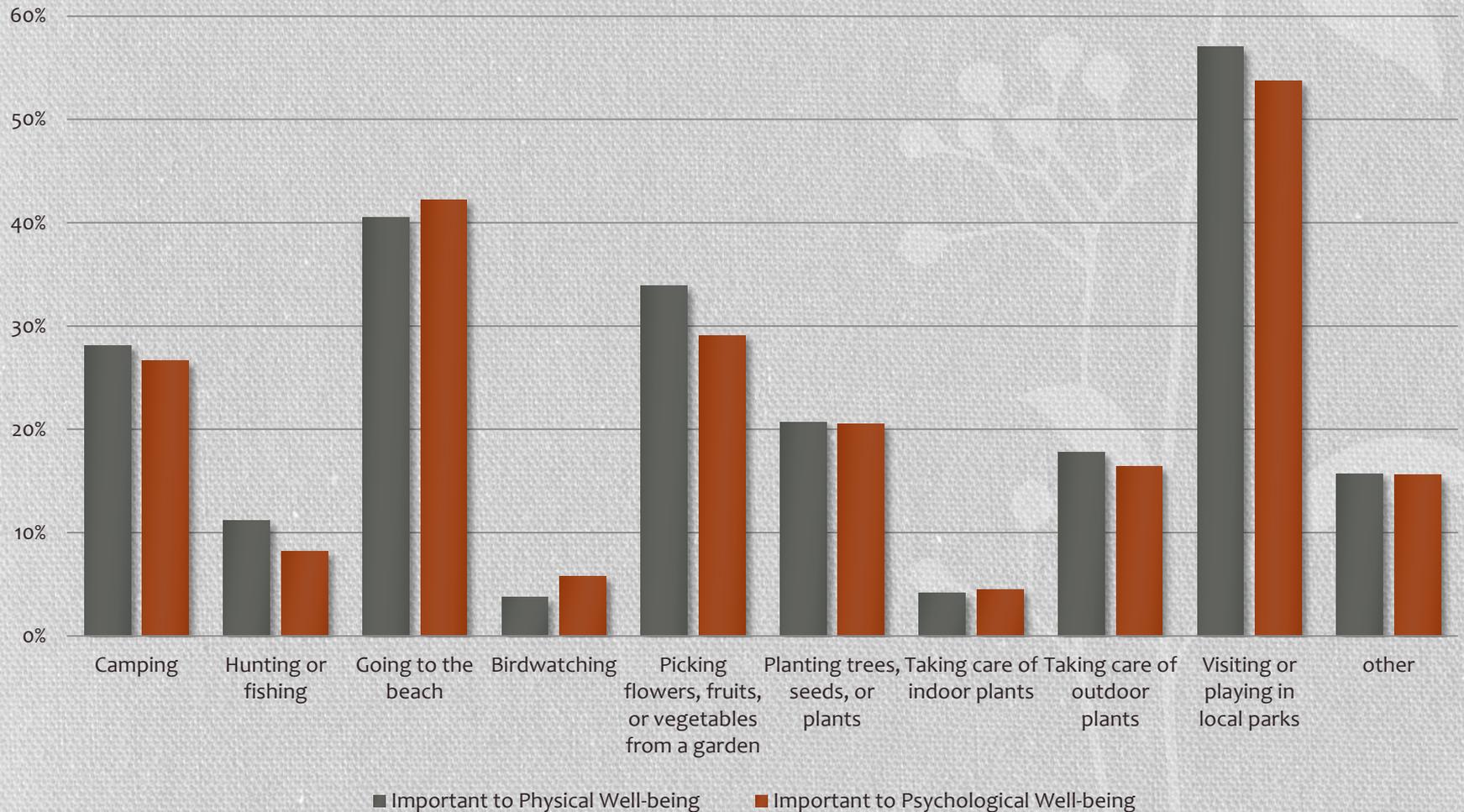
# Specific 3: Activities and Well-Being

Figure 1. Perceived Health Benefits from Nature-Based Activities in Adulthood



# Specific 3: Engagement with Nature and Health

Figure 2. Perceived Health Benefits from Nature-Based Activities in Childhood



# Specific Aim 4: Health and Behavior

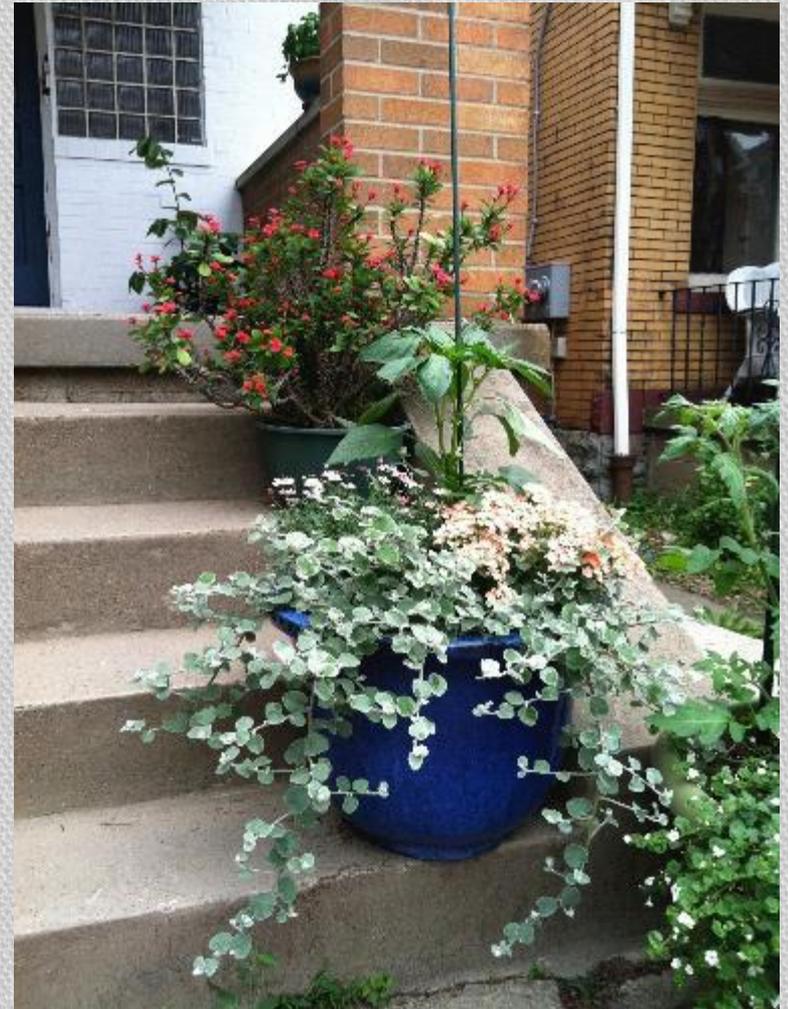
Table 6. Reported P-values from Chi-Squared Test for Association

|  | Trees and plants are important to physical well-being | Trees and plants are important to psychological well-being |
|--|---|--|
| <b>Childhood</b>   |   |  |
| Spend time in outdoor places with trees and plants as a child  | 0.133   | 0.11   |
| Spend time in indoor places caring for plant life as a child   | 0.115   | 0.058  |
| Participation in active gardening experiences as a child       | 0.053   | 0.157  |
| Participation in passive interactions with plants as a child   | <b>0.049*</b>   | 0.206  |
| <b>Adulthood</b>   |   |  |
| Spend time in outdoor places with trees and plants as an adult | <b>0.009*</b>   | <b>&lt; 0.000*</b>   |
| Spend time in indoor places caring for plant life as an adult  | 0.114   | 0.363  |
| Participation in active gardening experiences as an adult      | <b>0.029*</b>   | 0.113  |
| Participation in passive interactions with plants as an adult  | 0.081   | 0.417  |

\* Denotes significant association at the 0.05 level

# Interpretation of Exploratory Data

- What influences adult nature-based behavior?
  - Spending time in indoor places caring for plants in childhood
  - Active gardening experiences in childhood



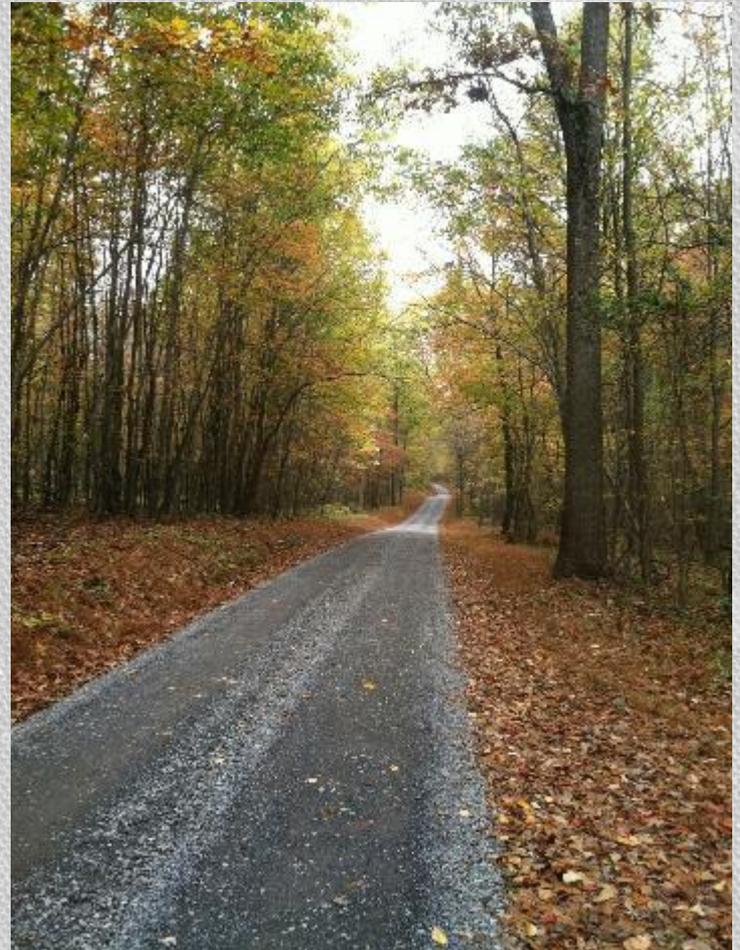
# Interpretation of Exploratory Data

- Fostering connection to the natural world
  - Kids getting their hands dirty
  - Ask questions about their local environment
  - Appreciation how our daily lives impact and are impacted by nature



# Interpretation of Exploratory Data

- Childhood contact with nature
  - Little impact on perceived health benefits from trees and plants
- Time outdoors as an adult
  - Associated with perceiving health benefits from trees and plants



# Interpretation of Exploratory Data

- When remembering childhood, not thinking about “health”
  - Viewed interacting with nature as a fun activity
- Appreciation of the health benefits from living an active nature-centered life comes later as health becomes larger part of education



# Study Limitations

- Recall bias
  - Might not be remembering the actual frequency and settings
  - Highly active adults might report higher levels of contact with nature in their childhood than actually experienced
- Generalizability
  - Captured Phipps population well
  - Demographics of Phipps patrons does not match general population of Pittsburgh
- Great potential for further research
  - Continue analysis of data
  - Improve survey

# Relevance to Public Health and Phipps

- “Contact with nature” as public health intervention
  - Improve individual well-being
  - Approach to help address chronic health issues
  - Build community capacity
- Support for educational programs
  - Justification for funding
- Public Policy
  - Green spaces and access to nature when developing urban communities
  - Justify conservation efforts
  - “Contact with nature” as a social justice issue



# Summary

- Literature provide support that there are health benefits from contact with nature
- Project provides evidence-based support that contact with nature in childhood is important to development
- Great opportunities for Phipps to impact the Pittsburgh community



# Questions



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