USDA

United States Department of Agriculture

STEW-MAP in the Baltimore Region

Survey Results of the Stewardship Mapping and Assessment Project, 2019

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EXECUTIVE SUMMARY

Addressing the challenges of sustainable and equitable city management in the 21st century requires innovative solutions and integration from a range of dedicated actors. In order to form and fortify partnerships of multi-sectoral collaboration, expand effective governance, and build collective resiliency, it is important to understand the network of existing stewardship organizations.

The term 'stewardship' encompasses a spectrum of local agents dedicated to the evolving process of community care and restoration. Groups involved in stewardship across Baltimore are catalysts of change through a variety of conservation, management, monitoring, transformation, education, and advocacy activities for the local environment – many with common goals of joint resource management, distributive justice, and community power sharing.

The Stewardship Mapping and Assessment Project (STEW-MAP) is a method of data collection and visualization that tracks the characteristics of organizations and their financial and informational flows across sectors and geographic boundaries. Data were collected in 1999 in the Gwynns Falls Watershed, and in 2011 the effort was expanded to Baltimore City. This effort was repeated in 2019, when a survey asking about attributes and relationships was sent out to 1318 potential environmental stewardship groups. Responses from 163 groups established a stewardship network connecting 1,197 organizations.

Organizational characteristics:

- Half (50%) of respondents were 501(c)(3) non-profits and another 14% were other community organization types
- Partnership and education were the most common forms of stewardship, but over 80% of organizations participated in multiple forms
- Community gardens were the most frequent site type
- Individual donations were the leading source of funding; endowments and fee-for-service contributed the least

Network patterns:

- 71% of organizations were loosely connected, with just one network tie of any kind
- Less than 1% of the network (10 organizations) held over 26% of the total connections
- The National Aquarium alone held 7% of network ties
- About 1.1% of possible network connections were utilized

WHAT'S IN THIS REPORT

This report uses data from the 2019 and 2011 surveys to answer basic questions about the stewardship organizations, networks, and their work in Baltimore's neighborhoods over time using data summaries and visualizations.

WANT MORE?

We recognize that the data collected through the STEW-MAP survey are extensive and that many more analyses are possible than what we have included in this report. Because of this, we have created a publicly-accessible online map and database with tools for network and spatial analysis. These tools have the STEW-MAP data already included. Links to these resources can be found at the end of this report.

Finally, we are available to discuss the Baltimore STEW-MAP data and analyses that might be of interest to you. Please contact Nancy Sonti (nancy.f.sonti@usda.gov) or Dexter Locke (dexter.locke@usda.gov) and we will do our best to answer your questions.

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INTRODUCTION

STEWARDSHIP IN BALTIMORE

Baltimore City's stewardship organizations represent a robust and extensive population that is highly committed to community care and support. Stewards may cultivate a deep understanding of the connection between the environment and social well-being, with an emphasis on both a personal and group responsibility to engage and care for the city's inhabitants and resources. As a post-industrial city with past and persisting policies of explicit and implicit segregation, Baltimore's history and location create a unique set of intertwined social and biophysical stewardship opportunities. Groups are driven by diverse social, environmental, or faith-based motives, with learning and knowledge-sharing often central to constructing inclusive networks of long-term support and resiliency.

MAPPING STEWARDSHIP ORGANIZATIONS

A model of shared stewardship, which encourages the integration of groups with common social, economic and environmental aims to take joint action, is often inhibited by geographic, administrative, or sectoral barriers. Acknowledging the existence and maximizing the potential of these organizations and their networks can be a crucial step in urban governance moving forward, for policy shaping and establishing durable practices of sustainability.

The Stewardship Mapping and Assessment Project (STEW-MAP) is a mapping tool and database that tracks the ties between environmental stewardship organizations to construct a web of informational and financial flows across spheres and physical boundaries. STEW-MAP projects are currently being undertaken and expanded on an international scale; from Honolulu to Valledupar, Colombia.

ABOUT THE 2019 SURVEY

This survey defined acts of stewardship as engagement in conservation, management, monitoring, transformation, education, advocacy, and/or partnerships for the local environment. The sampling frame of groups to receive the 2019 STEW-MAP survey was constructed from lists of potential environmental stewardship organizations provided by the key nodes from the 2011 Baltimore STEW-MAP. These lists were combined, and efforts were made to remove entries that did not qualify (individual actors, or groups located outside Baltimore City). 711 organizations involved in environmental stewardship activities in Baltimore were identified and received a questionnaire inquiring about their organization's activities, administrative structure, and information sharing practices. Organizations could name other organizations with which they collaborate; provide or receive knowledge; or from which they receive funding. The survey received 140 responses, leading to a response rate of 19.7% to the initial survey. Respondents named an additional 607 organizations, for a total collaborative network of 1197 organizations. The 607 additional organizations named by respondents were also surveyed, but with only a 3.8% response rate. The total number of completed surveys was 163.

ABOUT THE BALTIMORE FIELD STATION

The USDA Forest Service's Baltimore Field Station is a key member of the Baltimore Ecosystem Study and an international leader in the field of urban ecology research, training, and education. The Baltimore Field Station is a flagship federal research investment in the Chesapeake Bay Watershed for understanding relationships between urban and urbanizing areas and the Chesapeake Bay. Field Station researchers provide policymakers, government agencies, NGOs, local communities, and businesses with technical capabilities and application tools, scientific expertise, and unique information to facilitate urban natural resource stewardship; monitor and evaluate investments in green infrastructure; and promote environmental education and careers.

The Baltimore Ecosystem Study (BES; https://baltimoreecosystemstudy.org/) aims to understand metropolitan Baltimore as a social-ecological system. The program brings together researchers from the biological, physical, and social sciences to collect new data and synthesize existing information on how both the ecological and engineered systems of Baltimore work. With a focus on long-term research, BES also seeks to understand how Baltimore's ecosystems change over long time periods. The ecological knowledge we create helps support educational and community-based activities, and interactions between the project and the Baltimore community are important components of our project. Such an integrative project includes many disciplines and many research and educational institutions, both in Baltimore and beyond.

The USDA Forest Service's Baltimore Field Station and the Baltimore Ecosystem Study are based on the campus of the University of Maryland, Baltimore County (UMBC) and have close ties to UMBC's Center for Urban Environmental Research and Education (CUERE) and the United States Geological Survey (USGS).

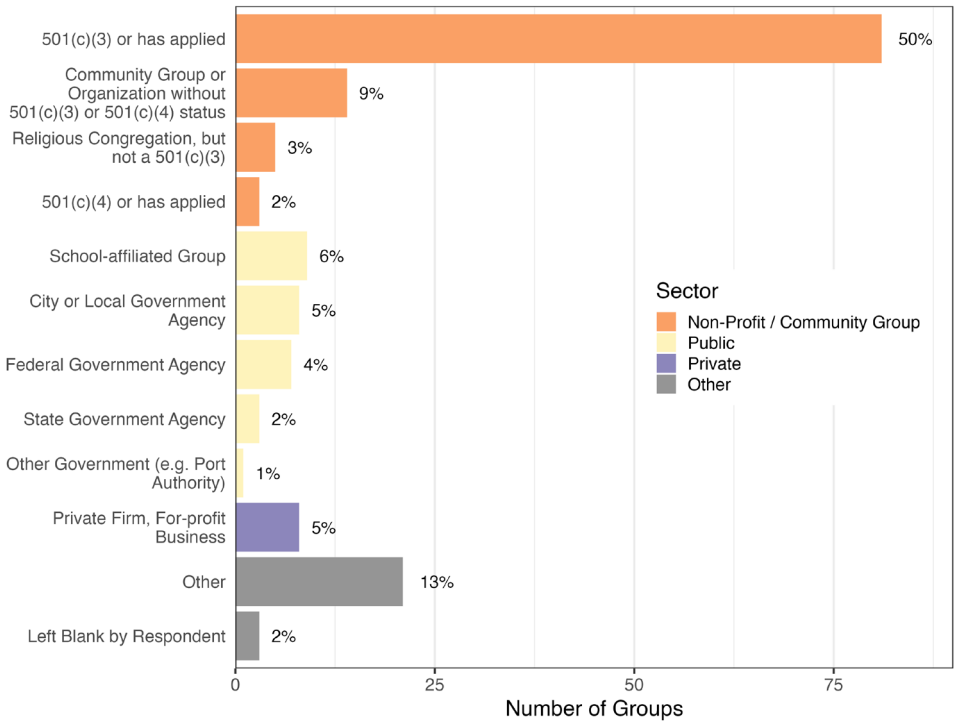
STEWARDSHIP ORGANIZATIONS

The population of groups directly performing or supporting conservation, preservation, management, restoration, monitoring, advocacy, education, or partnership activities about the environment across Baltimore

ORGANIZATION TYPE

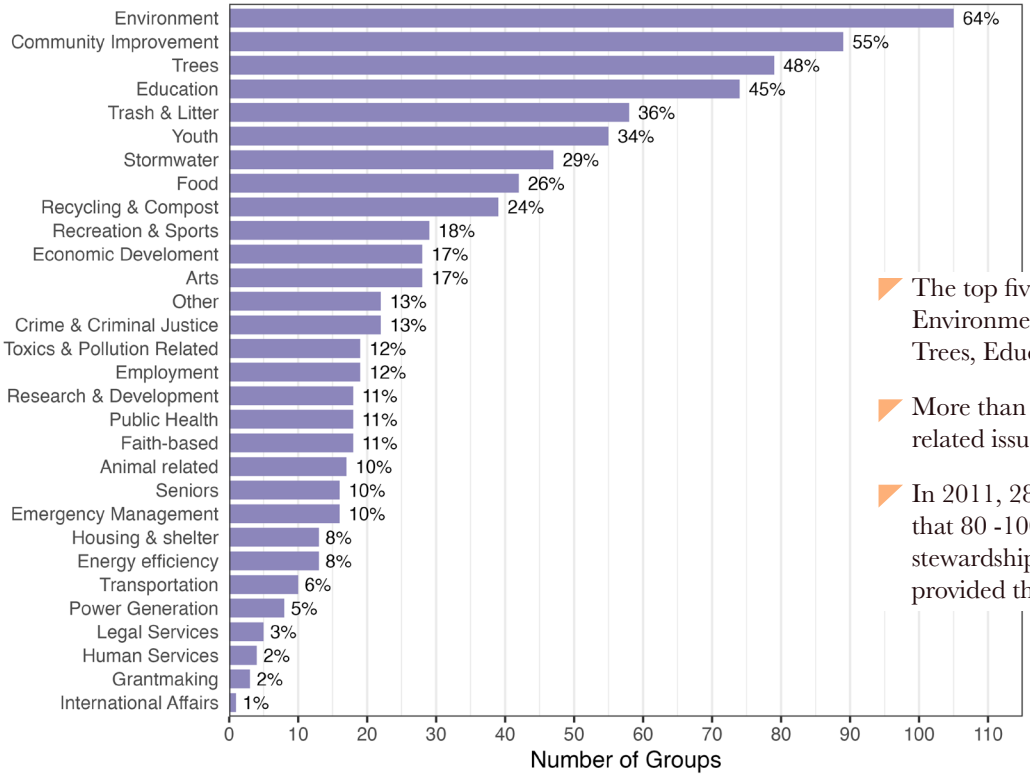
What types of organizations are engaging in stewardship?

- Majority (64%) of respondents were community organizations, with 52% of all respondents being 501(c)(3) or 501(c)(4) nonprofits and 12% having no legal status
- School-affiliated groups were the most common public-sector respondents (6% of all respondents)



ORGANIZATION FOCUS

What issues or topics are related to organizations' activities?

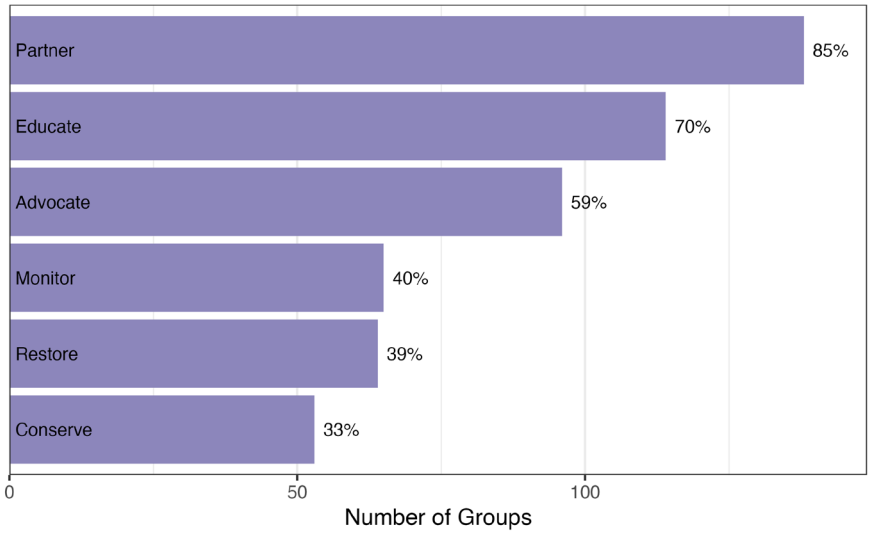


- The top five organizational foci were Environment, Community Improvement, Trees, Education, and Trash & Litter
- More than 40 groups work on Stormwater-related issues
- In 2011, 28% of respondents estimated that 80 -100% of their activities focused on stewardship; in 2019, 31% of respondents provided this estimate

STEWARDSHIP TYPE

What types of environmental stewardship do organizations perform?

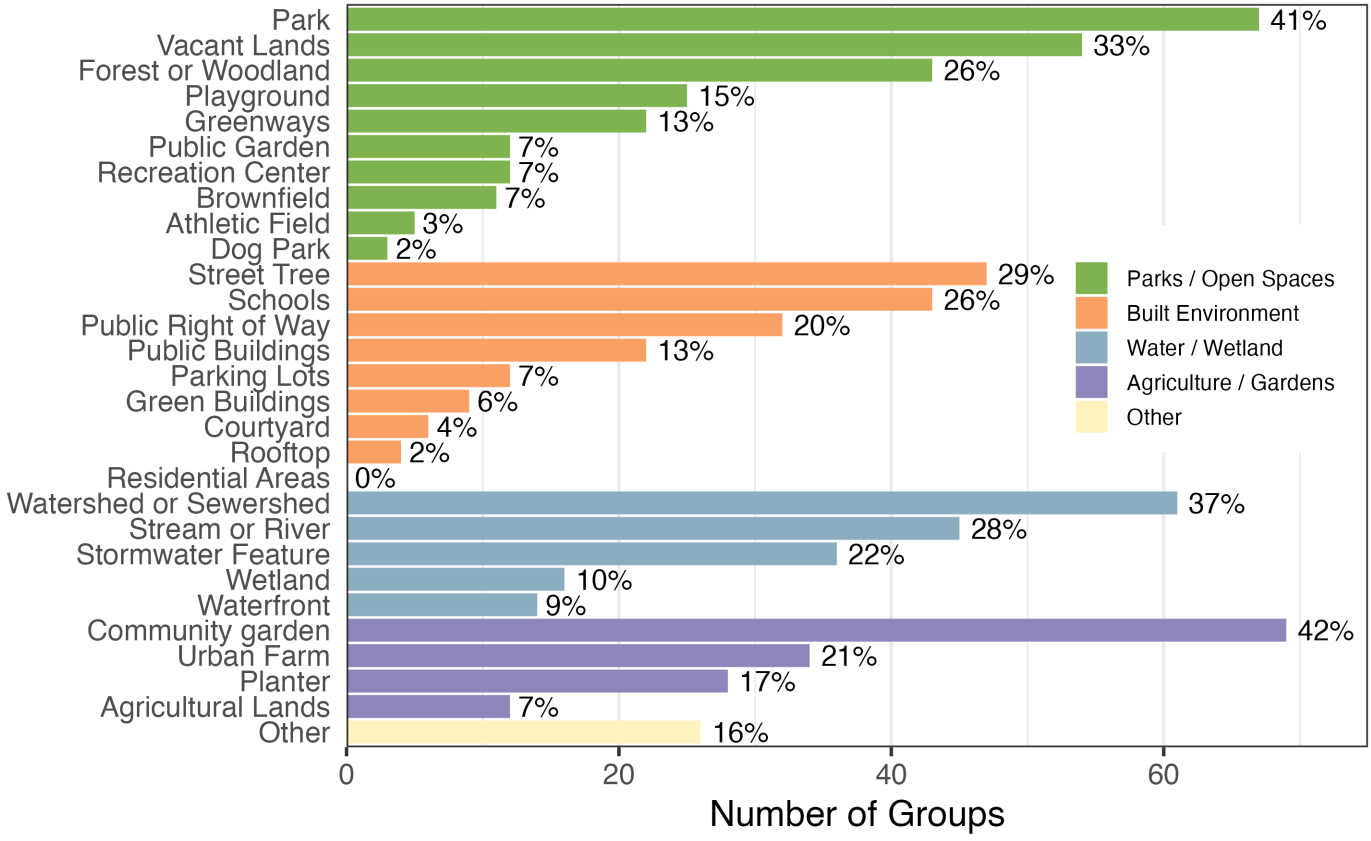
- Partnership was the most common form of stewardship; 85% of respondents did this type of stewardship
- The top-three most popular forms of stewardship (Partner, Educate, and Advocate) do not focus on direct physical changes to the landscape
- More than 50 organizations do Conservation work in Baltimore City
- 80% of respondents identified with more than one form of stewardship, compared to over 90% of respondents in 2011



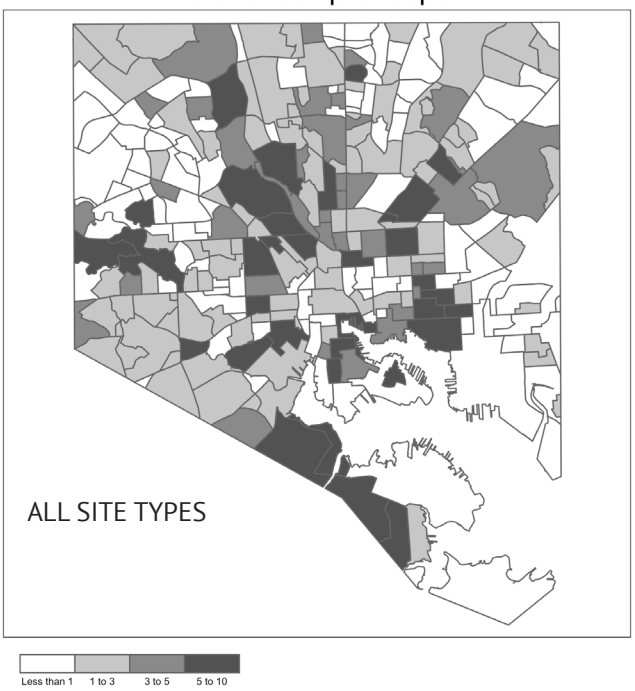
SITE TYPE

What sites do organizations work on?

- The top three most popular site types were Community Garden, Park, and Watershed/Sewershed
- 82% of organizations named more than one site type; respondents named 4.7 site types on average, down from 9.7 site types in 2011



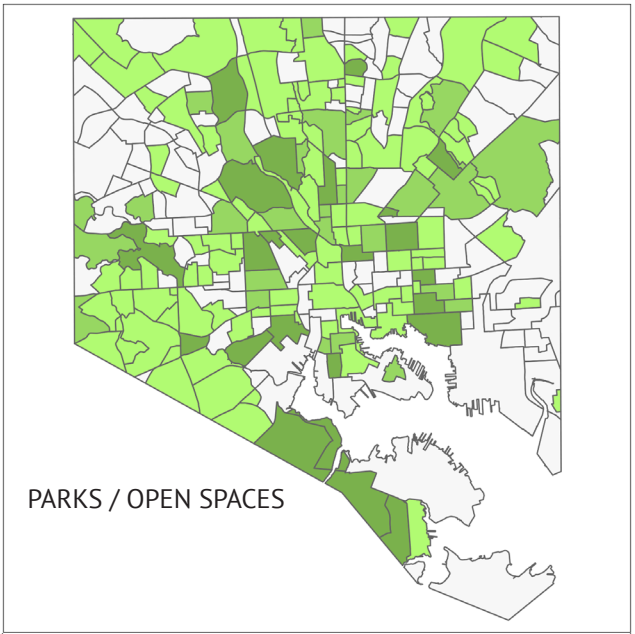
Stewardship Groups

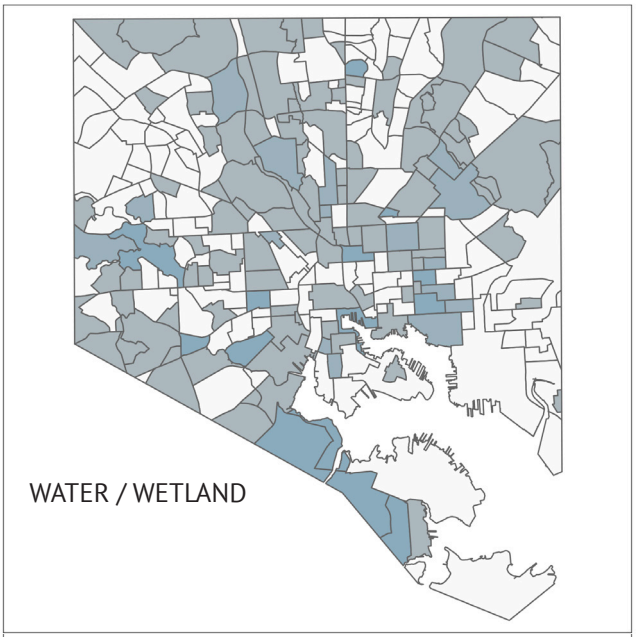


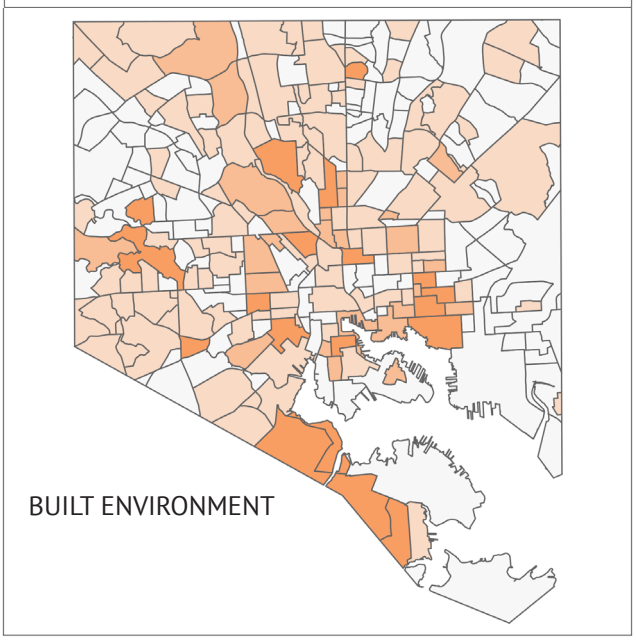
SITE TYPE DISTRIBUTION

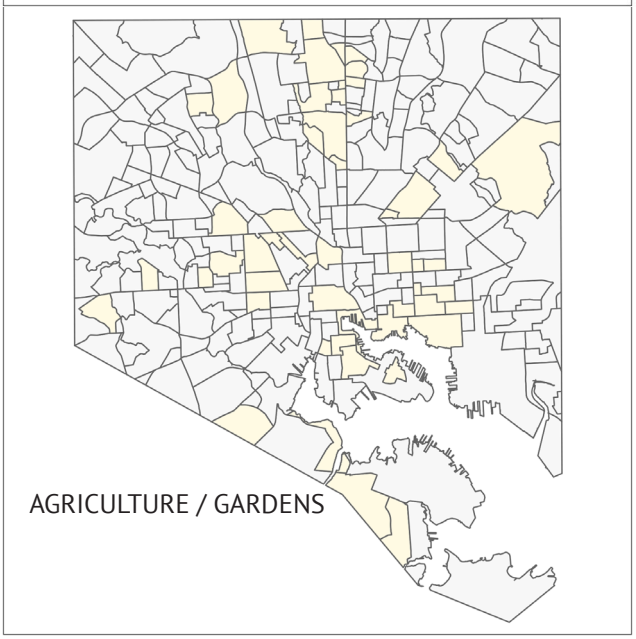
What is the distribution of site type stewardship across neighborhoods?

- Bolton Hill, Curtis Bay, Gwynns Falls/Leakin Park, and Mid-Govans were tied for the most stewardship groups in 2019 with 9 groups each.
- Brooklyn and Herring Run Park ranked second for the most total groups with 8 groups in each of these neighborhoods
- Gwynns Falls, Patterson Park and Charles Village had 7 groups
- In 2019, 116 neighborhoods (or ~42%) had no known stewardship organization, compared to 90 neighborhoods in 2011
- In 2011, Highlandtown and Patterson Park had the highest organization count overall and for every site type



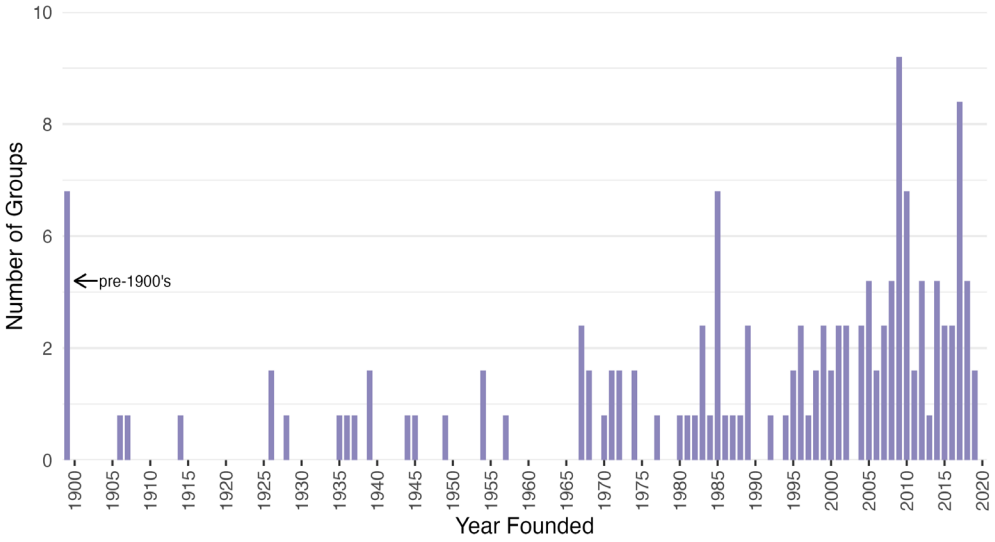






YEAR FOUNDED

What year were organizations established?



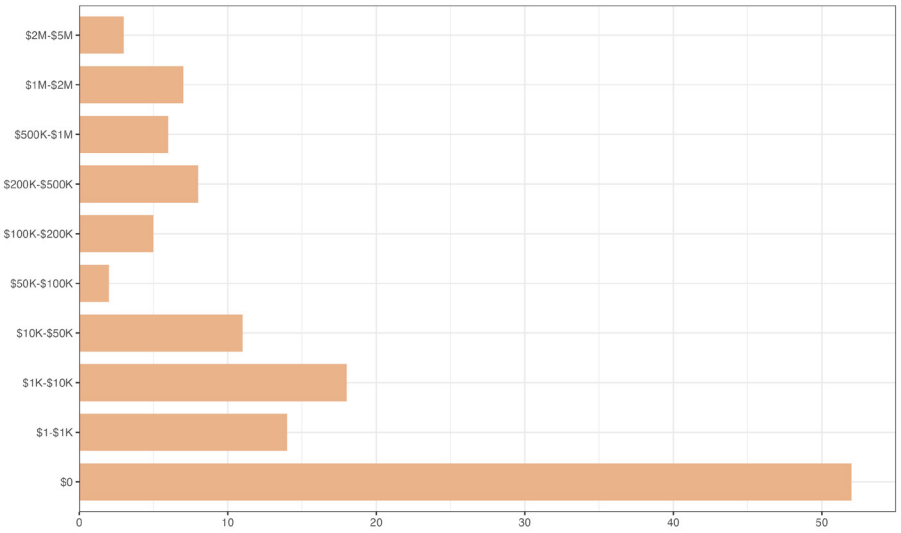
- Half of responding organizations were founded after 1984
- 6 groups were founded before 1900, including groups from public, private, and nonprofit sectors

BUDGET

What are the annual budgets?

Only 45% of respondents reported their annual budget.

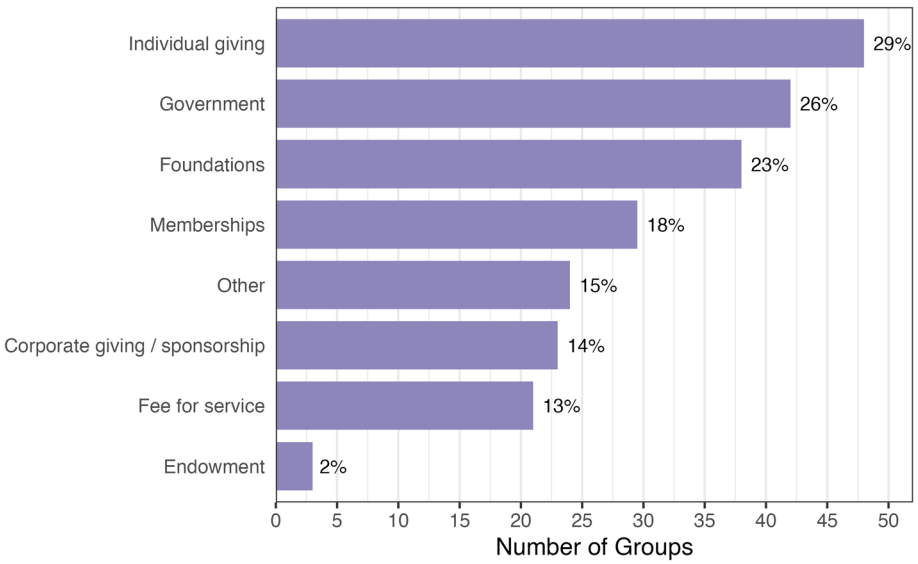
- Among those who reported their budget, 43 organizations operate with less than $50,000 / year.
- Baltimore City also has 10 organizations operating with budgets of $1+ million



FUNDING SOURCES

Where are funds coming from?

- Individual Giving, Government, and Foundations are the top-three funding sources for environmental stewardship groups in Baltimore City.
- Individual giving was the most common funding source in 2011 and 2019
- Endowments are rare; 3 organizations or just 2% of respondents are endowed



STEWARDSHIP NETWORK

The combination, arrangement and distribution of collaborative, informational or funding relationships between stewardship organizations across Baltimore

CONNECTIONS ACROSS THE NETWORK

- The collaboration network includes 1197 groups, including 163 respondents and 77 named groups (some respondents are also named groups).
- 24 organizations have no ties and are not included in the network statistics below

CENTRALIZATION

How are connections distributed across the network?

High centralization exists when few organizations hold most of the connections, which can be effective for collective action and coordination, but also increases network vulnerability and possibilities for asymmetry.

In 2019

- The top 10 total degree organizations (less than one percent of the network) account for 26.4 percent of the total connections
- A single organization held 6.75 percent of the ties

DENSITY

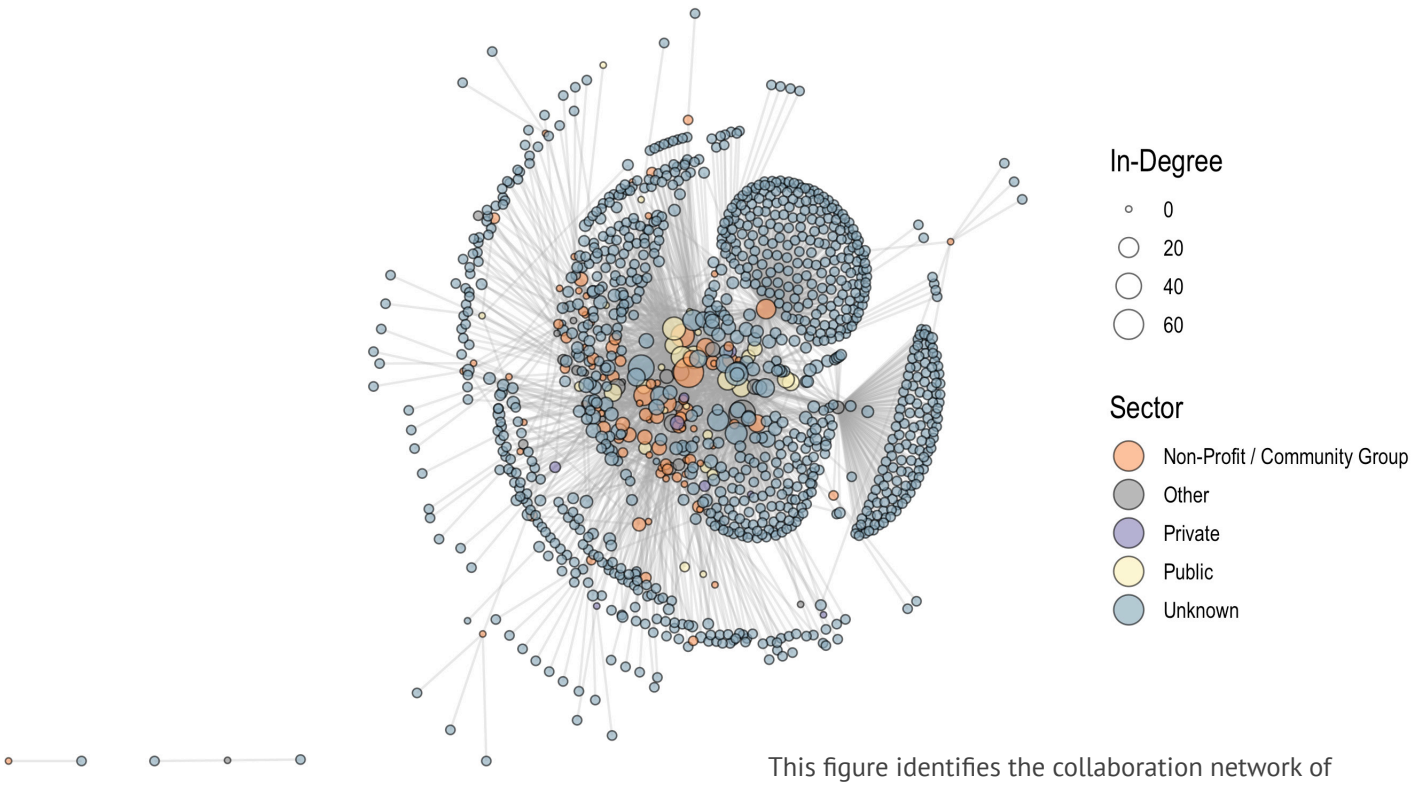
What is the connective potential of the network?

The total number of connections in the network divided by the number of connections possible

There is generally a positive relationship between density and joint action for natural resource management. High density can also enhance shared knowledge and understanding however it may inhibit the network's ability to adapt and receive new information.

In 2019

- 1.11 percent density means the network utilized 1.1 percent of the possible ties (fairly characteristic of large networks)



This figure identifies the collaboration network of respondents and named groups. Respondents are color-coded by sector and named groups are either non-respondents or did not receive the survey.

CONNECTIONS OF AN ORGANIZATION

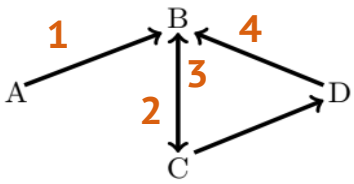
How many ties exist to/from organizations?

DEGREE

How many total connections does an organization have?

Highly connected organizations are "hubs" for diffusing information. However, they do not necessarily reach diverse portions of the network and the quantity of ties may indicate lack of strength.

Ex: B has a degree of 4



In 2019

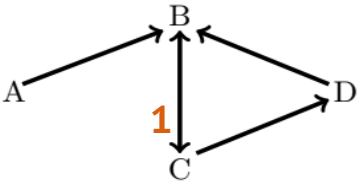
- The single most connected organization in Baltimore (The National Aquarium) had 317 ties
- The majority (71% or 845 organizations) were found to be loosely connected, with one tie to the network
- Top 5 Degree:
  - National Aquarium (317)
  - Chesapeake Bay Trust (175)
  - University of Maryland Sea Grant Extension (169)
  - Baltimore Office of Sustainability (99)
  - Blue Water Baltimore (98)

OUT-DEGREE

How many out-going connections?

In general, organizations with high outdegree can reach many others and spark the flow of information across a network (but may not be the most efficient at spreading the information).

Ex: B has an out-degree of 1



In 2019

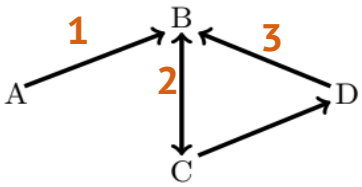
- The top out-degree organization (National Aquarium) had an out-degree of 298
- Top 5 Out-Degree:
  - National Aquarium (298)
  - University of Maryland Sea Grant Extension (165)
  - Chesapeake Bay Trust (131)
  - Baltimore Office of Sustainability (75)
  - US Environmental Protection Agency - Region 3 (72)

IN-DEGREE

How many in-coming connections?

In general, organizations with high indegree are the leaders, looked to by others as a source of advice, expertise, or information.

Ex: B has an in-degree of 3



In 2019

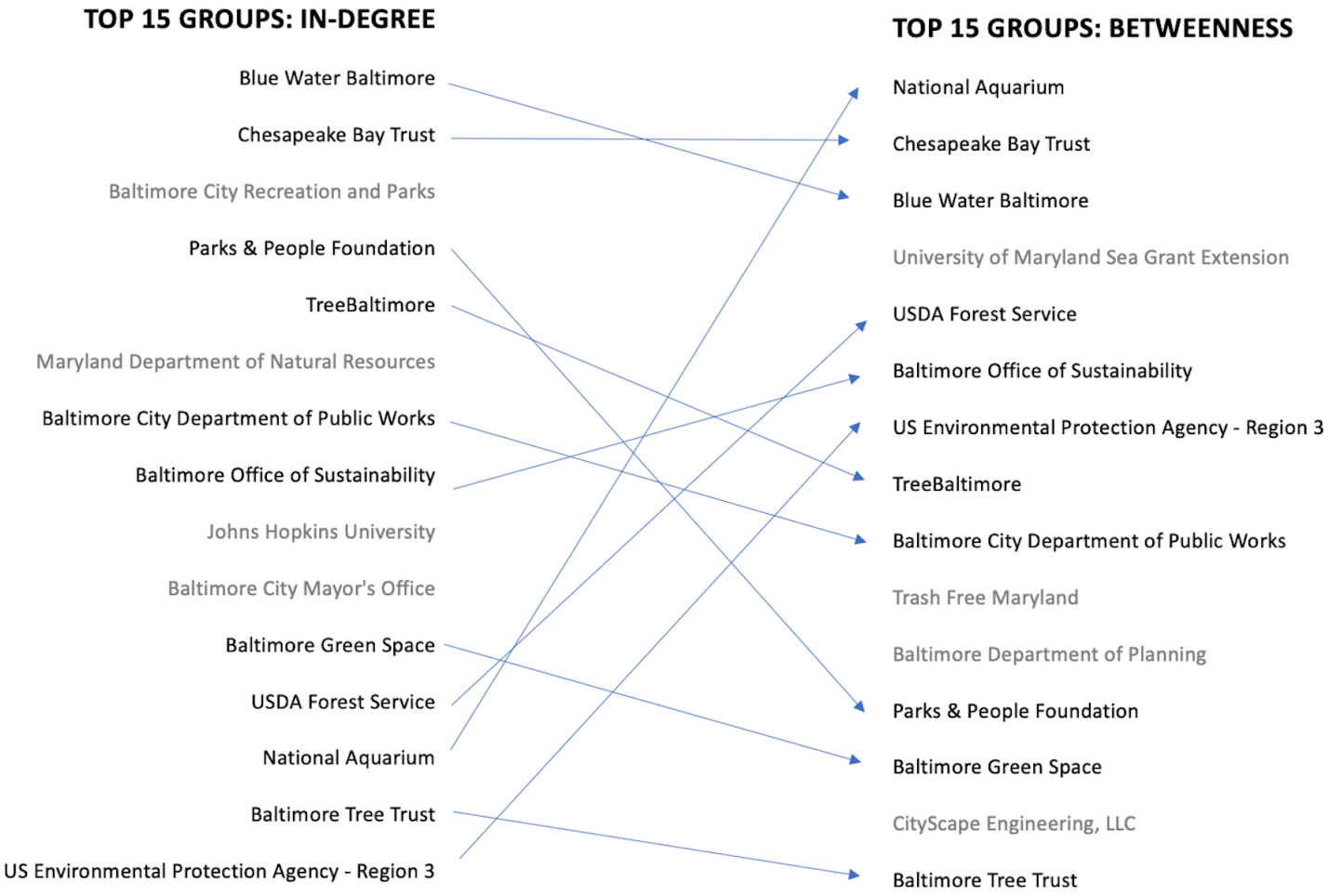
- The top in-degree organization (Blue Water Baltimore) had an in-degree of 62
- 77 organizations (6 percent) had an in-degree of 0
- By far the most organizations have an in-degree of 1 (857 groups, 72 percent)
- The average in-degree was 1.958
- Top 5 In-Degree:
  - Blue Water Baltimore (62)
  - Chesapeake Bay Trust (44)
  - Baltimore City Recreation and Parks (41)
  - Parks & People Foundation (31)
  - TreeBaltimore (30)

BETWEENNESS

How influential is an organization?

The number of times an organization lies between two organizations that otherwise would not be connected

This bridging or brokering position is considered a measure of influence, and highlights quality of ties over quantity. However, many high betweenness scores within a network can indicate that large numbers of organizations are peripheral or receive information from limited sources.



- A highly-connected organization is not necessarily the most effective or impactful.
- Looking at an organization's scores of influence (betweenness) can help inform the strength of such connections.
- Of the top 15 in-degree organizations in Baltimore (which hold 17 or more in-degree ties), meaning they were frequently named by other organizations, 11 also had the highest betweenness score.

ACKNOWLEDGMENTS

Thanks to all of those who completed a survey, without you this work would be impossible. Additional thanks to our data providers, intern James Fleming, and the STEW-MAP community of practice.

Data providers: the Parks & People Foundation, Baltimore Office of Sustainability, Maryland Department of Natural Resources, Blue Water Baltimore, Baltimore City Public Schools, Baltimore City Department of Recreation & Parks, Community Law Center, USDA Forest Service, TreeBaltimore, the Alliance for the Chesapeake Bay, Urban Waters Federal Partnership, CivicWorks, the National Aquarium, and Baltimore Green Space.

For more information

Additional information and data can be found here:

Sonti, N., D. Locke, J.M. Grove, M. Romolini, S. Carpe, and M. Radwell. 2023. Baltimore Ecosystem Study: Stewardship Mapping And Assessment Project (STEW-MAP) survey results 2011 and 2019. Environmental Data Initiative. https://doi.org/10.6073/pasta/ed8e2529ed68f9c697385d1bcf6eaf44

Interactive maps for 2019 data can be found here:
https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=7aa7323ff7fb4bcfb9d3b0bc69c8ee23

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