The Stewardship Mapping and Assessment Project of Southeast New England (StewMAP SNE): Learn About Organizations and Find New Collaborations Across SNEP Watersheds

Bryce DuBois, Jesse S. Sayles, Lynn Carlson, Casey Merkle, and Curt Spalding

SNEP Network Webinar
June 27, 2022





Go to **www.menti.com** and use the code **3396 3124**

What is your name, organization and what watershed(s) do you work in?

Mentimeter

Research team

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Webinar agenda

StewMap Webinar Opening Remarks

What is StewMAP and why do it?

Results of Southeast New England Stewardship Mapping

- Attribute data → information about the organization
- Spatial data → the area they steward, a.k.a their “turf”
- Network data → who they turn to for knowledge, funding, etc.

Use Case: The Blackstone River Watershed

Conclusion and Resources

StewMap Webinar Opening Remarks

Curt Spalding

Spalding Environment and Climate Strategies

Brown, EPA, Save The Bay

Stewardship: Adaptively considered

- **Stewardship Historic** – natural places and spaces –Conservation/Preservation
- **Stewardship New** – Restoration, Protection, Management, Education.
- **Stewardship Today** – All actions that conserve, preserve, restore, management and know more about a place – a turf.

From organizing for Action – Government will do it



To taking Action – we will do it



Context Matters:

- In New England decades of Land Conservation Stewardship– Roosevelt, Leopold, Olmstead
  - Audubons/TNC/Trustees of Reservation/Land Trust Movement
- 20th Century Social/Ecological System decline – MAD -Managed Adaptive Decline.
- 1970 Environmental Movement – “New Stewardship” – although we that’s not what we called it.
- “Place Based” strategy - Revised “Theory of Action”/“Cooperative Federalism” and amplify civic engagement.

Environmental Movement - 1970



The New York Times

NEW YORK, THURSDAY, APRIL 23, 1970

Millions Join Earth Day Observances Across the Nation

Throngs jamming Fifth Avenue yesterday in response to a call for the regeneration of a polluted environment. View is north from 43d Street, with Central Park in background.

Summaries of environmental laws and EOs

- Atomic Energy Act (AEA)
- Beaches Environmental Assessment and Coastal Health (BEACH) Act
- Chemical Safety Information, Site Security and Fuels Regulatory Relief Act
- Clean Air Act (CAA)
- Clean Water Act (CWA) (original title: Federal Water Pollution Control Amendments of 1972)
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund)
- Emergency Planning and Community Right-to-Know Act (EPCRA)
- Endangered Species Act (ESA)
- Energy Independence and Security Act (EISA)
- Energy Policy Act
- EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income PopulationsEO 13045: Protection of Children From Environmental Health Risks and Safety Risks
- EO 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use
- Federal Food, Drug, and Cosmetic Act (FFDCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Food Quality Protection Act (FQPA) - See also FFDCA and FIFRA

Laws, Regulations - Government

- Marine Protection, Research, and Sanctuaries Act (MPRSA, also known as the Ocean Dumping Act)
- National Environmental Policy Act (NEPA)
- National Technology Transfer and Advancement Act (NTTAA)
- Noise Control Act
- Nuclear Waste Policy Act (NWPA)
- Occupational Safety and Health (OSHA)
- Ocean Dumping Act - See Marine Protection, Research, and Sanctuaries Act
- Oil Pollution Act (OPA)
- Pesticide Registration Improvement Act (PRIA) - See FIFRA
- Pollution Prevention Act (PPA)
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act (SDWA)
- Shore Protection Act (SPA)
- Superfund - See Comprehensive Environmental Response, Compensation, and Liability Act
- Superfund Amendments and Reauthorization Act (SARA) - See Comprehensive Environmental Response, Compensation, and Liability Act
- Toxic Substances Control Act (TSCA)

Why Stewardship New: (we did not call it stewardship)

- People care about Places more than Laws and Programs.
- Local connections are stronger connections
- Environmental Government generally could not do it at scale of place:
  - Habitat Restoration
  - Environmental Education

Stewardship New – My Save The Bay Story

- Winning Advocacy
  - Stopped Industrialization – built a strong constituency and public trust
  - Championed investment – over $2.0 billion
  - Connected land use to water quality
  - Multiple positive policy outcomes
- Community Based Restoration
  - Pew/Restore Americas Estuaries
  - Connected to civic engagement tradition – “barn raising”
- Building ecological system understanding
  - Environmental Education – Chesapeake Bay Foundation Model

How did we make it happen?

- Defining and redefining Turf – Bay and Rivers Keepers
- Learning from others:
  - New England Environmental Group Directors – Red Sox
  - Restore Americas Estuaries
- Helping others
  - Capacity sharing - pass through grant making – small groups hate government grants
  - Capability sharing - GIS

Stewardship New

- More Complex – embraces full scope of work needed to sustain coastal and watershed ecology.
- More engaging – In era of shrinking environmental government, community based opportunities for engagement enhance connection, concern and support
- Most of all----- More Important to the resilience of the social/ecological systems that sustains quality of all life in Southern NE.

Go to **www.menti.com** and use the code **3396 3124**

In one word, describe what stewardship means to you.

Mentimeter

STEW-MAP is a survey and public database designed to help map stewardship activities and networks with the goal of strengthening community capacity for stewardship.

What can you learn?

- Who takes care of this region?
- Where are there gaps and where are there concentrations of care?
- Where are groups working, on what issues, and who is working in a community or on a topic?

USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

THE STEWARDSHIP MAPPING AND ASSESSMENT PROJECT



StewMAP Southeastern New England

- Large geographic scope
- Beyond urban boundaries
- Watershed focus
- Embedded within a collaborative effort to support stormwater and green infrastructure projects

Twelve Functions of Stewardship:

conserve, manage, monitor, transform, care for specific living things, build partnerships, engage in place-based traditional gathering of resources for consumption, restore native habitat, prepare for environmental disturbances, fund or provide in-kind material support, and educate on and/or advocate for the environment across across a a defined city, region, or landscape.

Example:
Manage and educate



Urban farm of Saint-Dents, Paris

Example:
Transform



Volunteers at a tree planting in Chicago

Example:
Monitor



Tree monitoring in San Fernando Valley



Organizational 'Attribute' Characteristics

including year founded, mission, primary work sites, services offered, budgets and staff.



Geographic 'Turf'

the area of activity, or 'stewardship turf,' of each group. Stewardship turf could be an entire park, a forest patch, or a watershed.

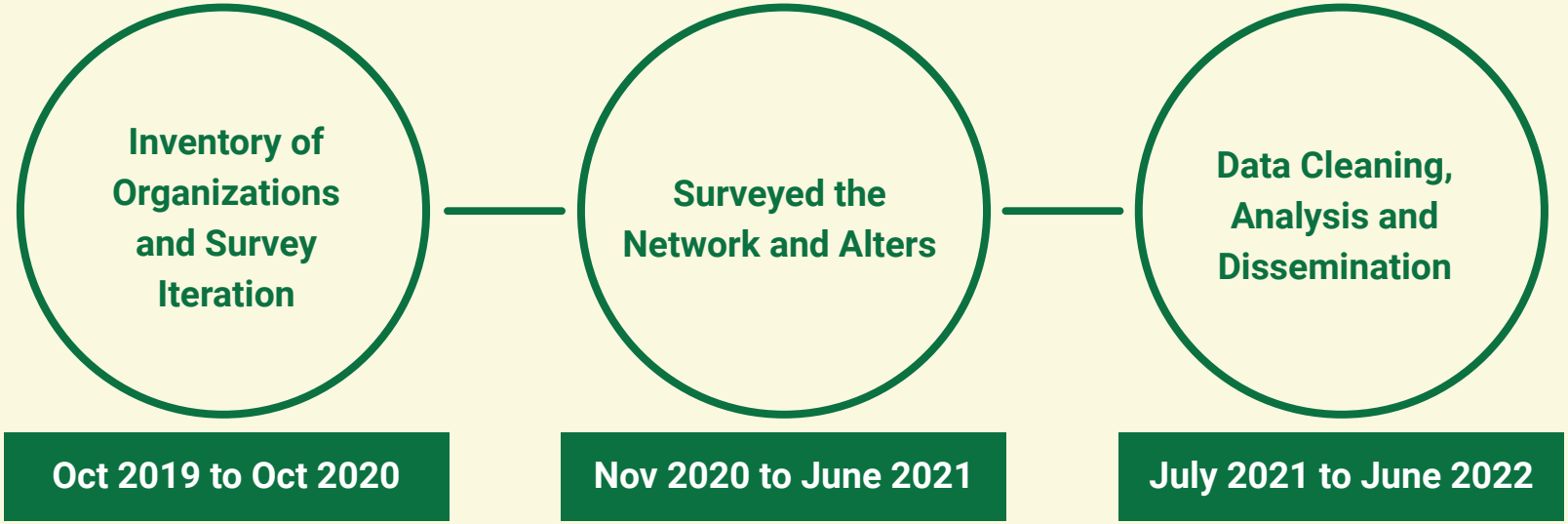


Networks

how organizations are connected to examine the structure and function of environmental stewardship across the region

Images adapted from: https://www.nrs.fs.fed.us/STEW-MAP/

StewMAP SNE Methods



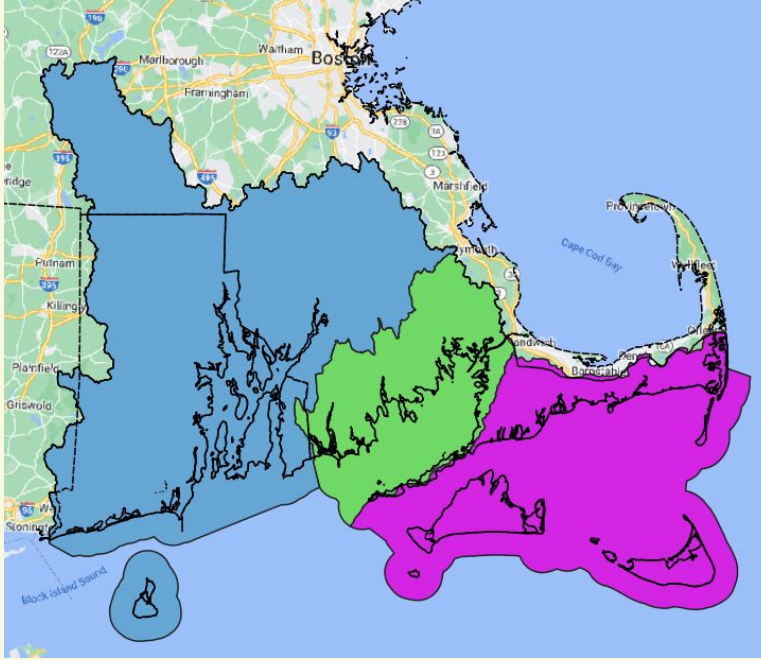
Inventory of Organizations and Survey Iteration

Adapted the Stewardship Mapping and Assessment Project (STEW-MAP) methodology

Developed survey in collaboration with twelve members of environmental organizations in the region to focus on relevant questions / phrasing regarding stewardship functions, collaborators, site location, and other attributes.

Snowball sample:

- Initial database from: regional coalition websites, SNEP Network outreach databases, lists of stormwater coalitions and green infrastructure collaboratives, and through organizational lists shared by a group of key informants.

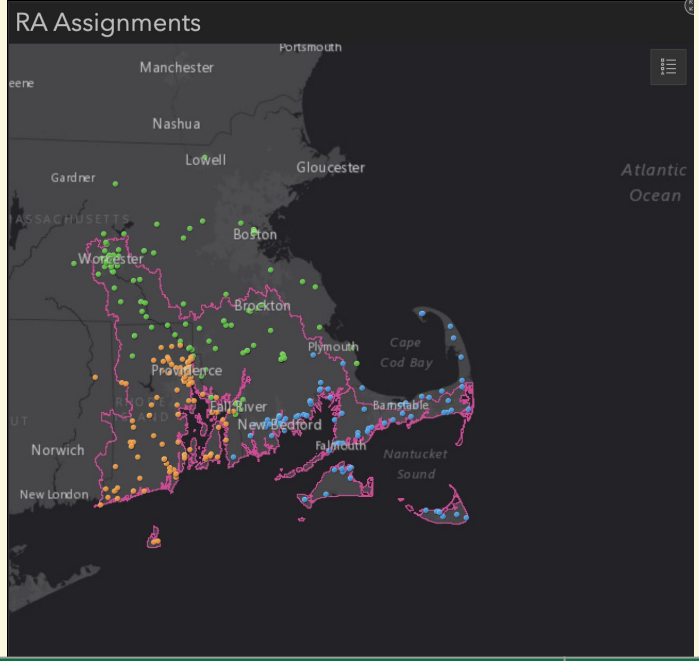


Study area map of the SNEP region showing the three major estuary watersheds (Narragansett Bay, Buzzards Bay, Cape Cod, and adjacent Islands), spanning the states of Rhode Island and Massachusetts, USA.

Initial sampling frame	390

Surveyed the Network and Alters

- Targeted recruitment (phone and email)
- Respondents listed additional groups
  - Knowledge, funding, other key partners, & desired relationships
  - New groups contacted → 3 rounds
- Manually validated data
- **Focused on civic society "like" groups**
  - Some subjectivity
  - Sub-groups and agencies vs. parent org



Initial sampling frame	**390**
Groups in final sampling frame	**718**
# of total responses	**170**
Final (less groups that requested to be omitted from public database)	**149** (143 public dashboard)

Data Cleaning, Analysis and Dissemination

Data Structure

- Attribute data: .csv files
  - Data dictionary .xlsx
- Spatial data: turf polygons
  - Replaced with authoritative sources including RIGIS, MASSGIS, Municipal Parcel Data, USGS watershed delineations (HUC 8, 10, 12), among others.
- Network data: .csv files (edgelist)
  - Aggregated (data available and reported) and disaggregated (data available) organizational networks

Data Access

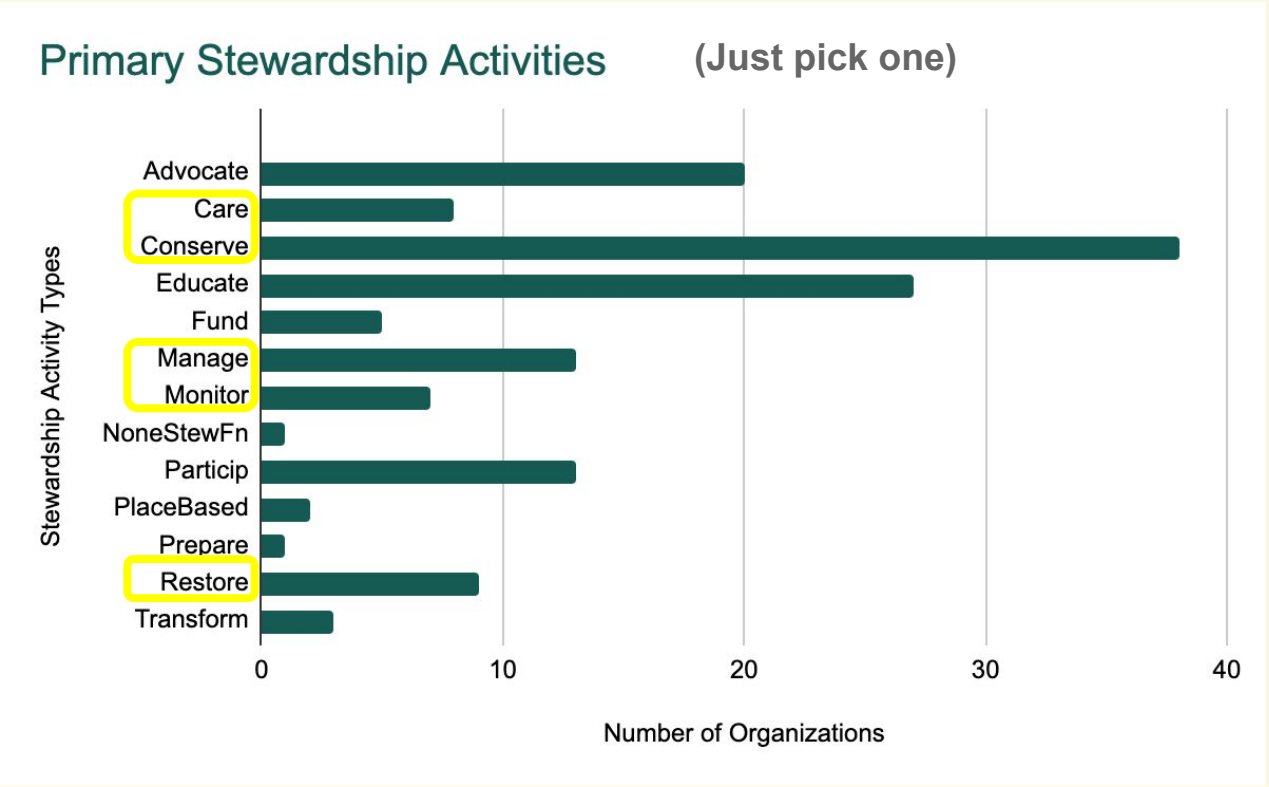
- SNEP Network website as zip file: https://snepnetwork.org/stewardship-mapping/



In the Q&A: Any questions so far?

Organizational attribute data

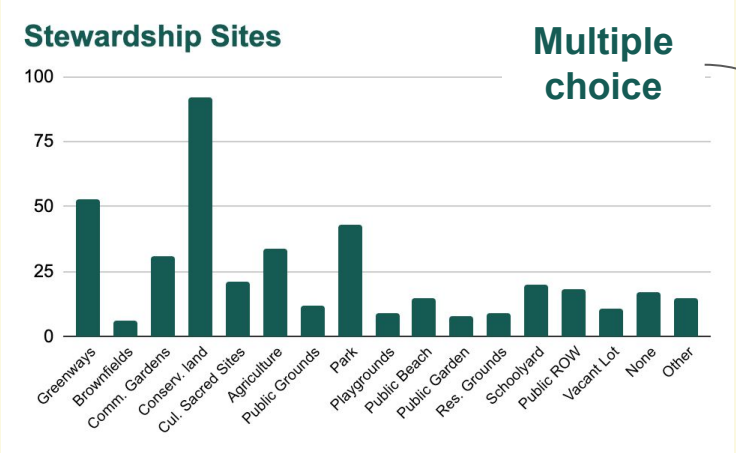
Stewardship Activities

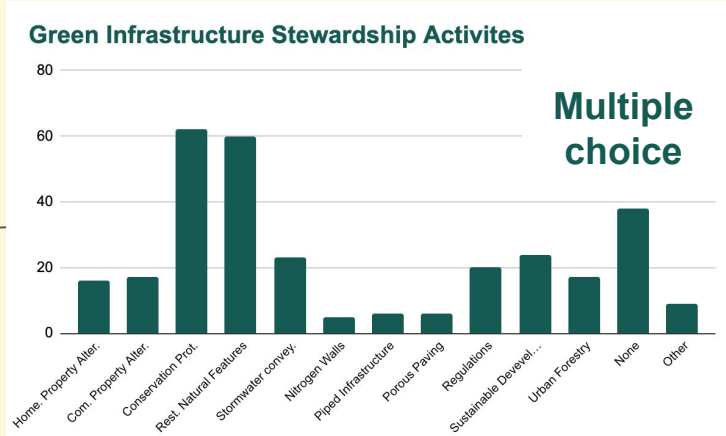


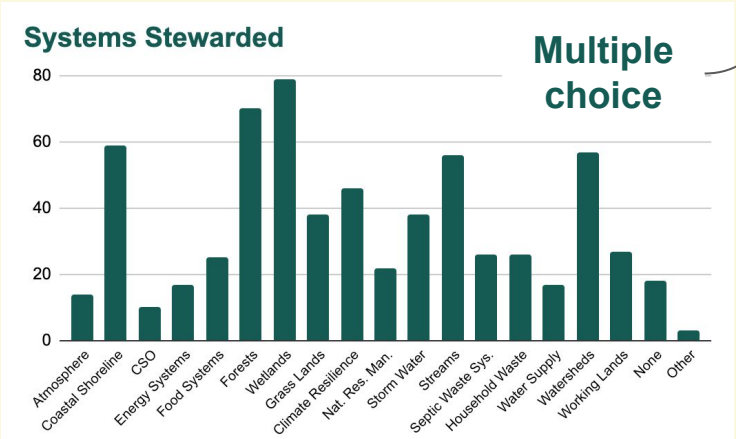
Multiple choice Stewardship Activities
(reporting moderate correlations only, 49-60%)

- Care
  - + Conserve (.49)
  - + Manage (.50)
  - + Monitor (.49)
  - + Restore (.53)
- Conserve
  - + Monitor (.49)
  - + Restore (.57)
- Restore
  - + Monitor (.60)

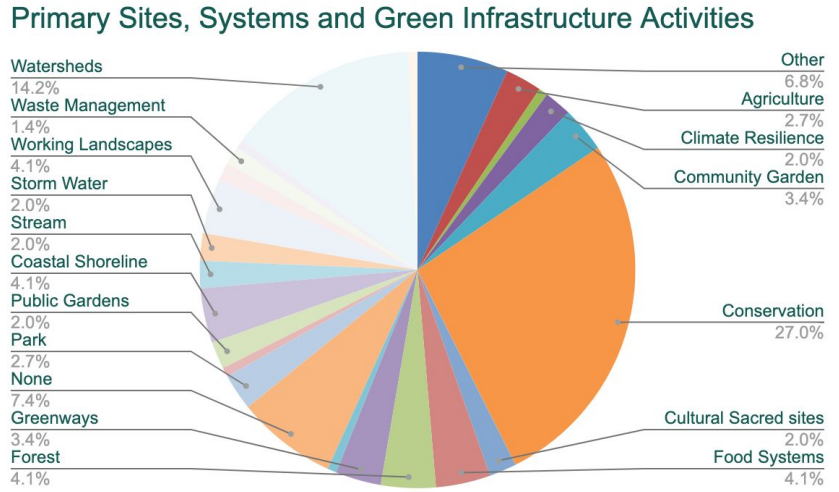
Stewardship Sites, Systems and Green Infrastructure Activities







Single Choice

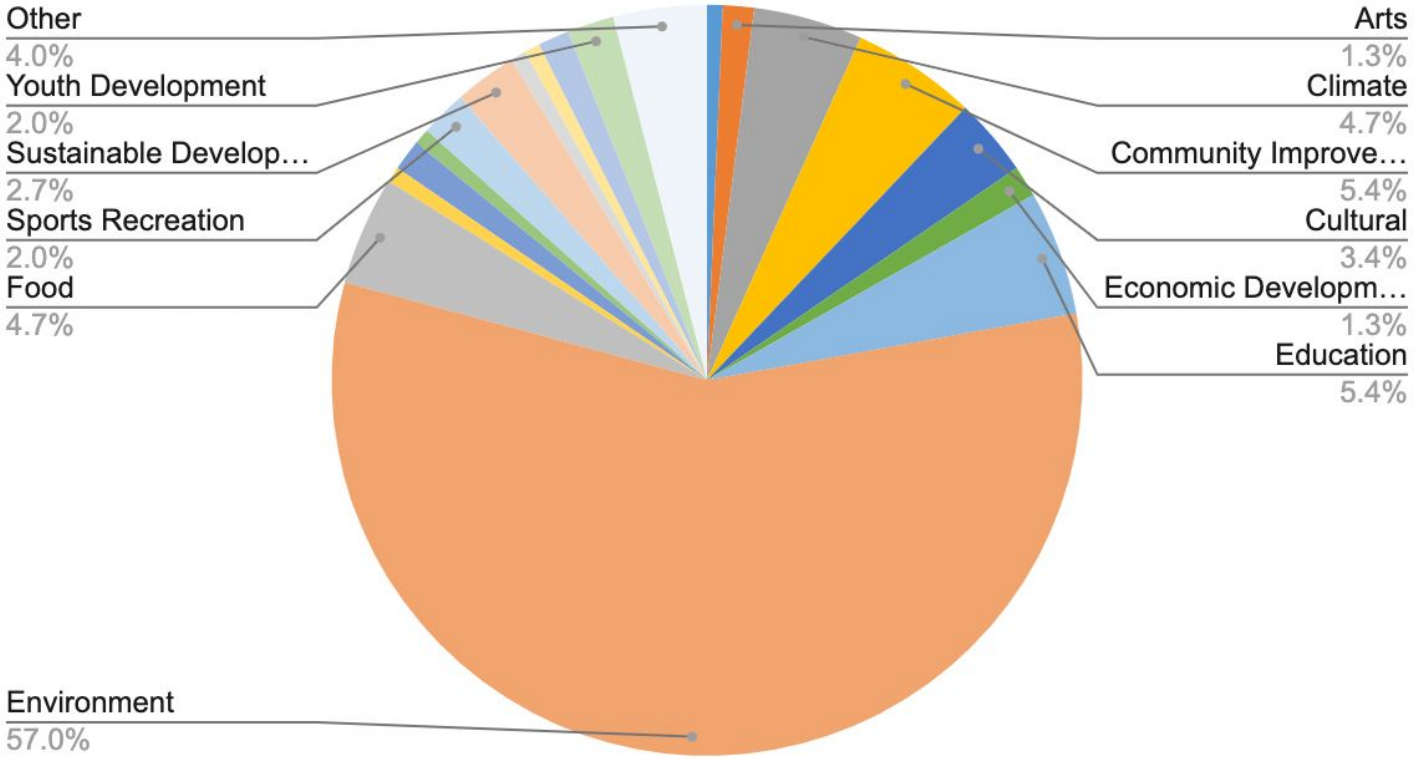


Mission



(n=149)

Primary Stewardship Group Focus

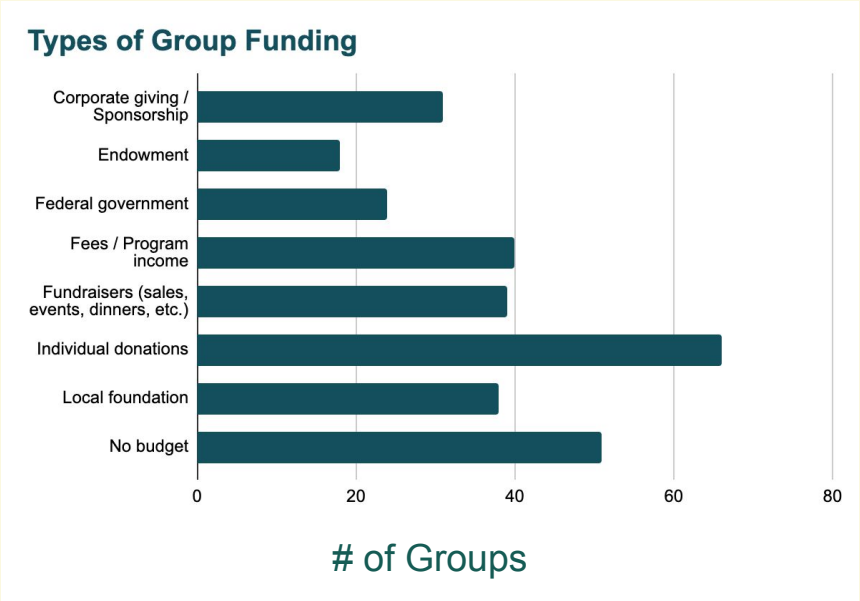


Other:

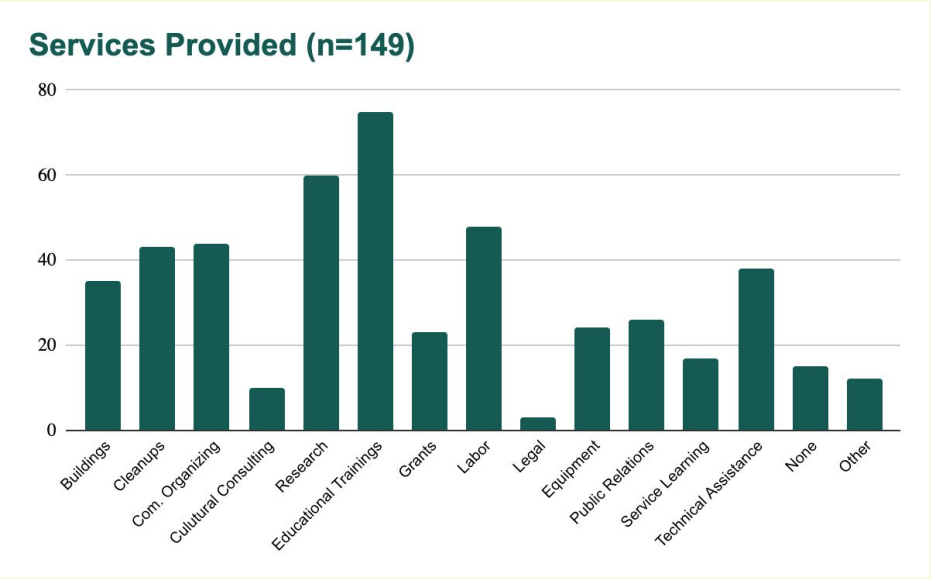
- Advocacy for sewage treatment and similar means of protecting water quality
- Forest management and forestland conservation for wildlife/forest health/water quality and climate change
- Funding - philanthropy
- Protection open space by acquiring land or Conservation Restrictions
- Water quality
- Water Systems

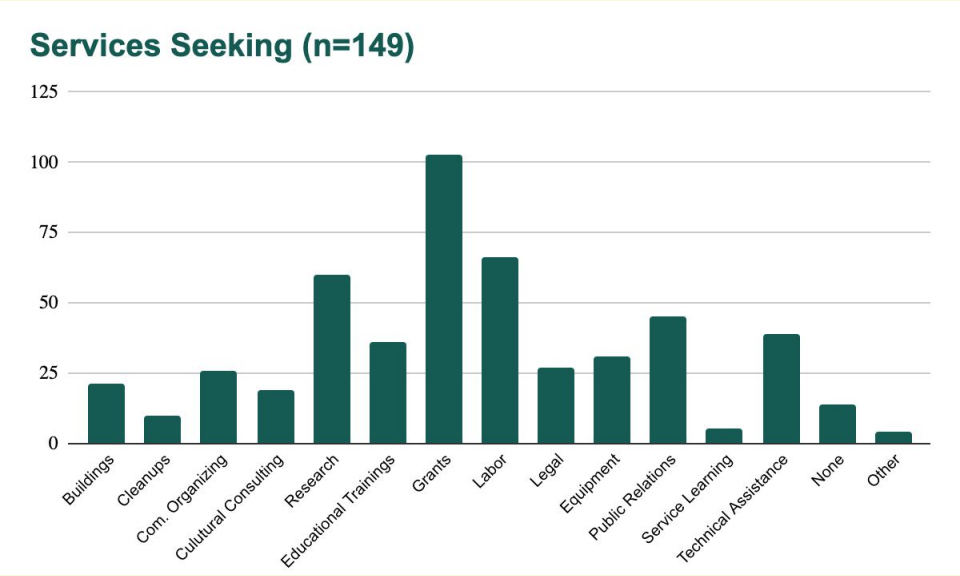
Organizational Capacity

n=149	Org. Age (yrs)	Staff				Budget
		Full Time	Part Time	Members	Volunteers	
Mean	36	81	27	7,105	374	$1,068,840.01
Median	32	0	1	100	40	$75,000.00
Max	181	1,000	600	170,000	15,000	$40,121,000.00
Min	<1	0	0	0	0	$0 (51)



Org. Services Provided and Seeking

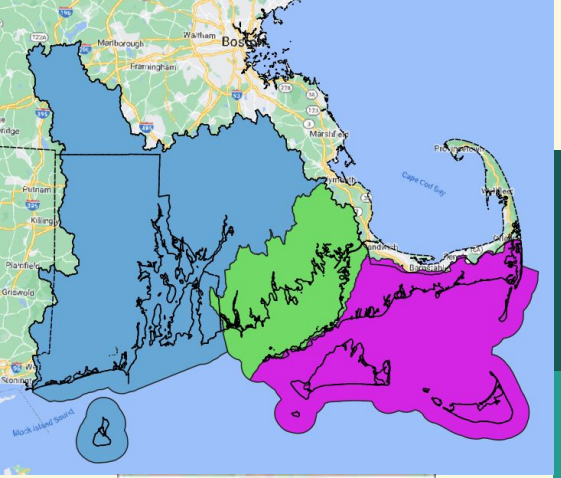




Caveats:

- **We did not survey Federal, State, and similar entities**
- **Note: later on, we will report a larger funding network**

Spatial ‘Turf’ data



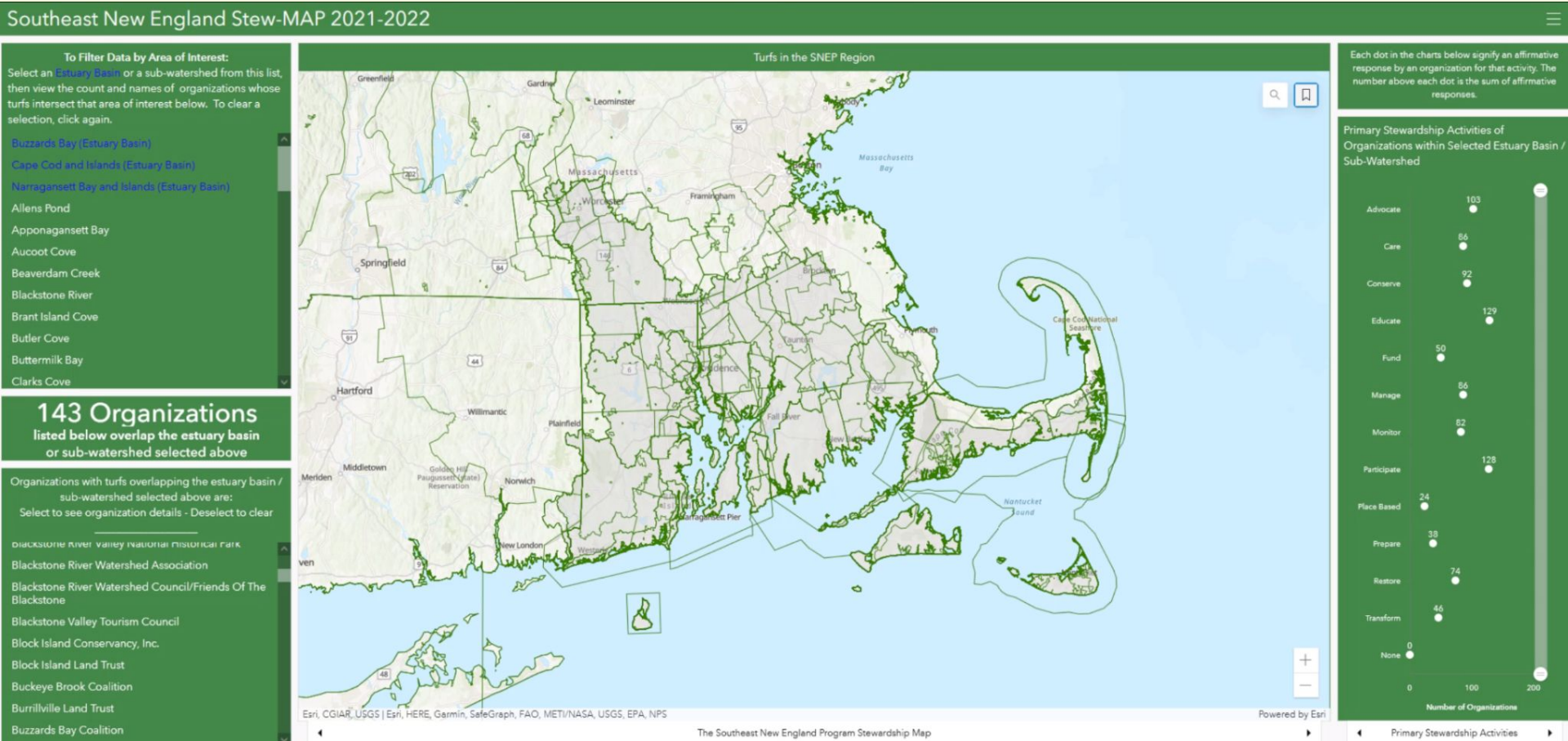


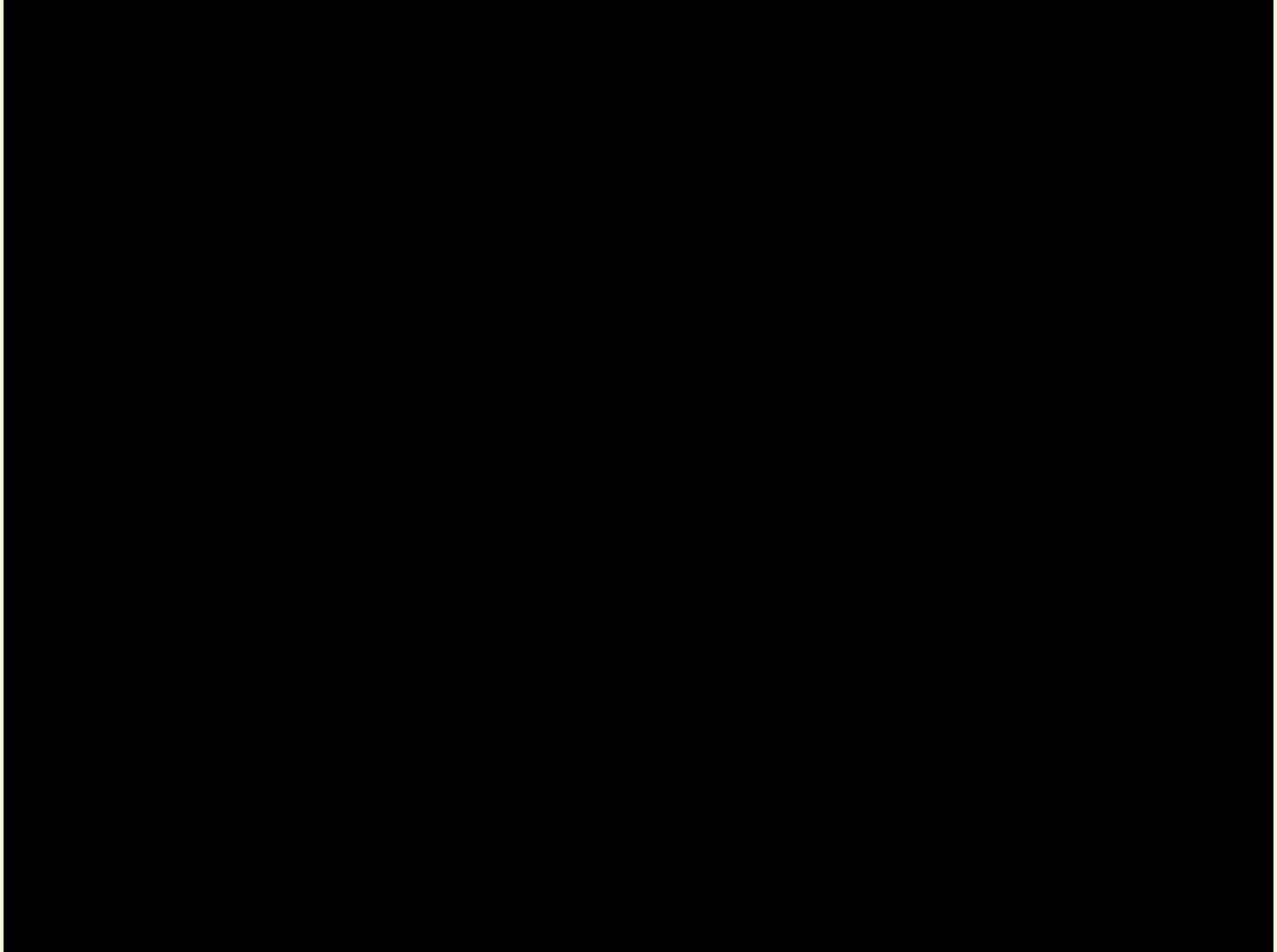
= 2.47 hectares

Org. Turf Spatial Analysis

Basins	Count	Turf Area (hectares) Mean	Max	Min
Narrag...	62	39,637.33	602,116.91	0.05
Buzzards	7	3,216.70	9,619.87	0.02
Cape Cod	18	20,271.77	189,915.17	113.65
Nar/Buz	28	230,311.42	432,591.23	279.57
Buz/Cape	7	94,778.33	280,107.37	92.70
All three	21	6,920,020.39	37,531,652.18	9,472.80
Total	**143**			

ArcGIS online spatial dashboard





Network data

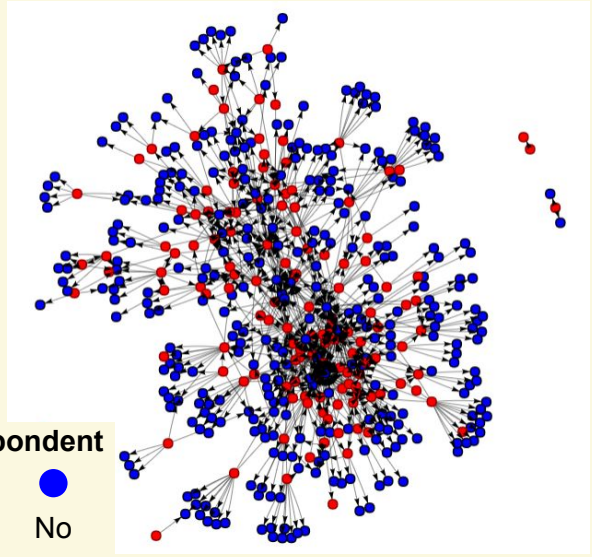
Stewardship networks

Survey respondents = 149

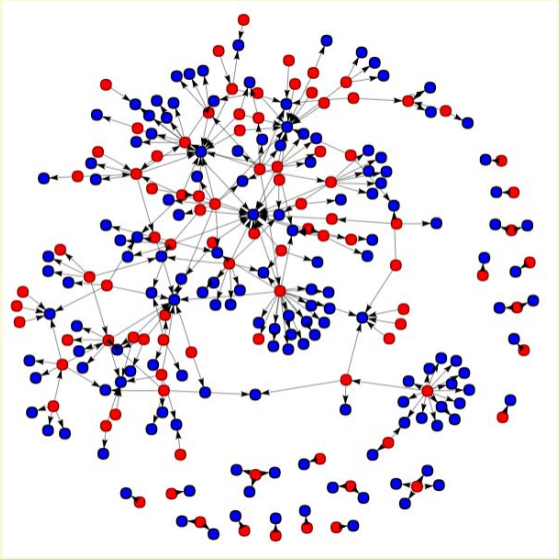
Total reported network

- **740 with sub-programs / chapters**
- **638 aggregated**

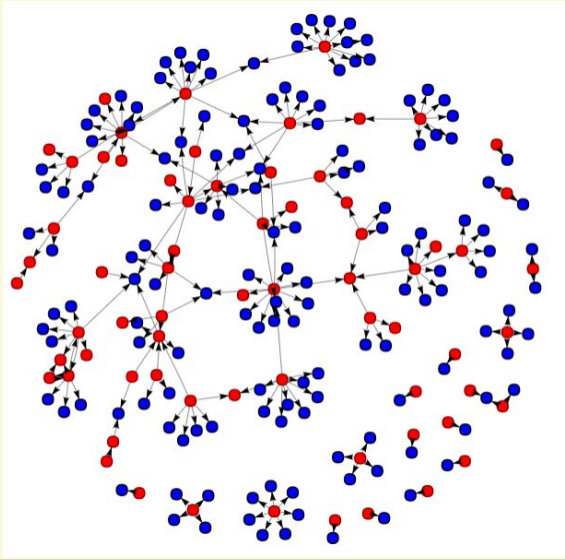
Aggregated knowledge source network (n = 466)



Aggregated funding source network (n = 245)



Aggregated other key collaborator network (n = 214)



For all networks

- **Density low for all nets** **< 0.0046**
- **All nets are decentralized** **< 0.086**

- **Reciprocity variable (ratio, for respondents only)**
  - **Knowledge** **~ 15%**
  - **Funding** **0.00%**

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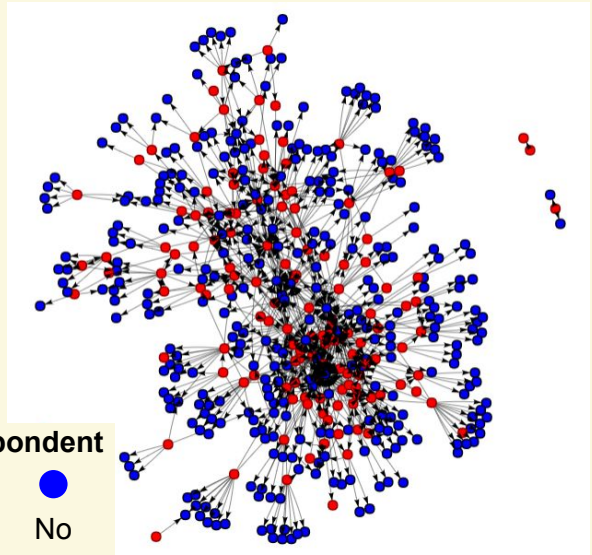

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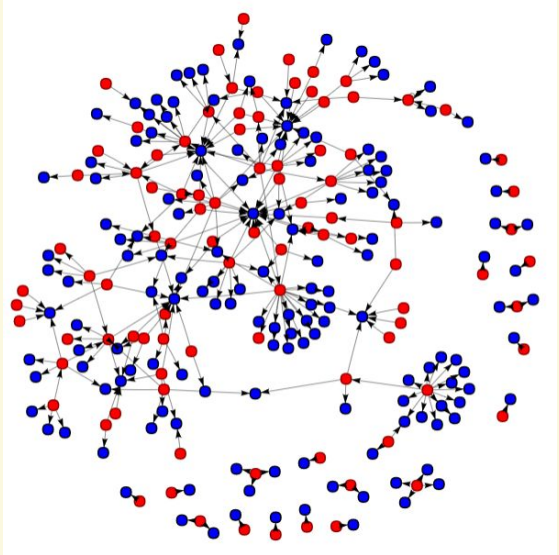

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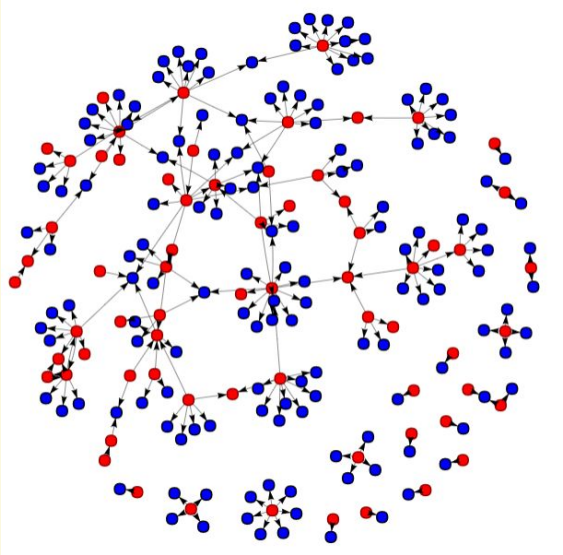
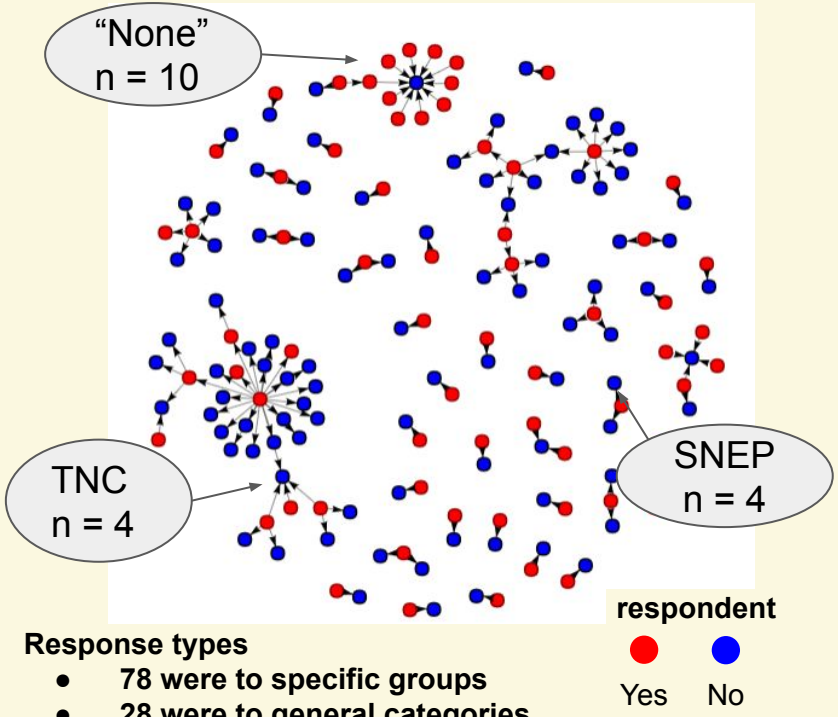


Top Orgs	**RI DEM (n = 42)**	**URI (n = 26)**	**RI Foundation (n = 17)**	**RI DEM (n = 11)**	**TNC (n = 4)**	**URI (n = 4)**
	TNC (n = 31)	**Mass Audubon (n = 20)**	**USDA NRCS (n = 12)**	**SNEP (n = 9)**	**Mass Audubon (n = 4)**	**(Many Orgs.)**

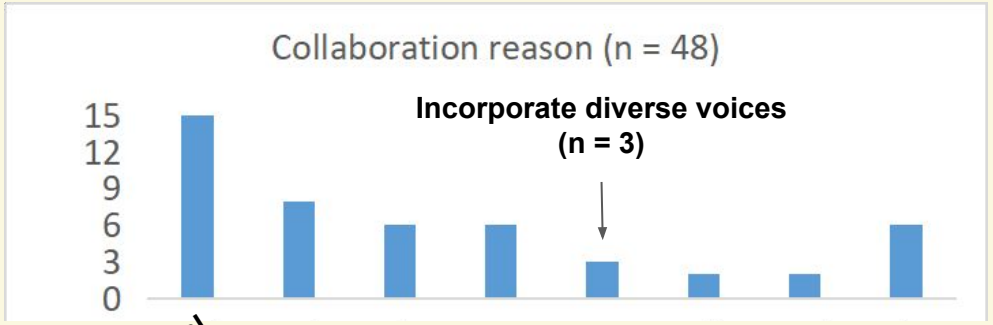
Stewardship networks

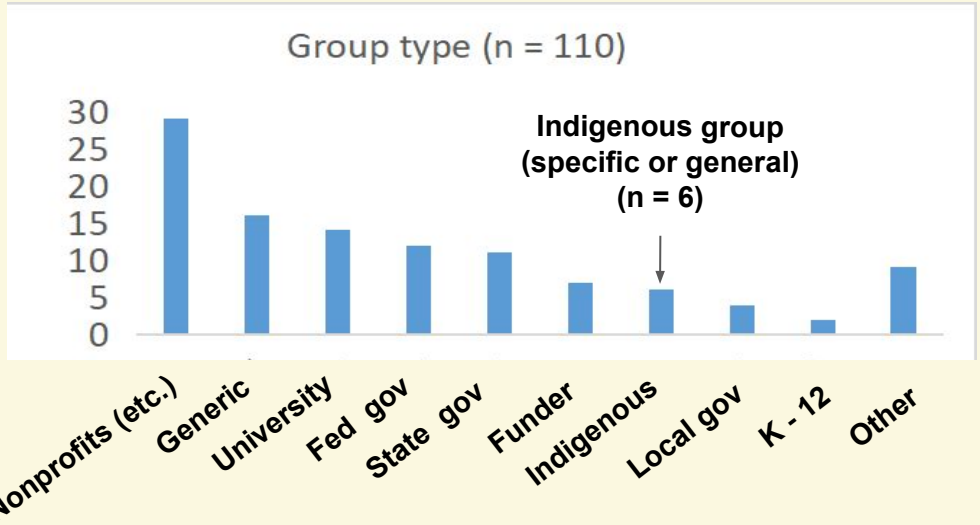
Non-aggregated "unable but would like to" network
(n = 163, reciprocity = 0.00)



Response types

- **78 were to specific groups**
- **28 were to general categories**
- **10 were to "none"**
- **03 were to "all groups"**
- **03 were to "other"**



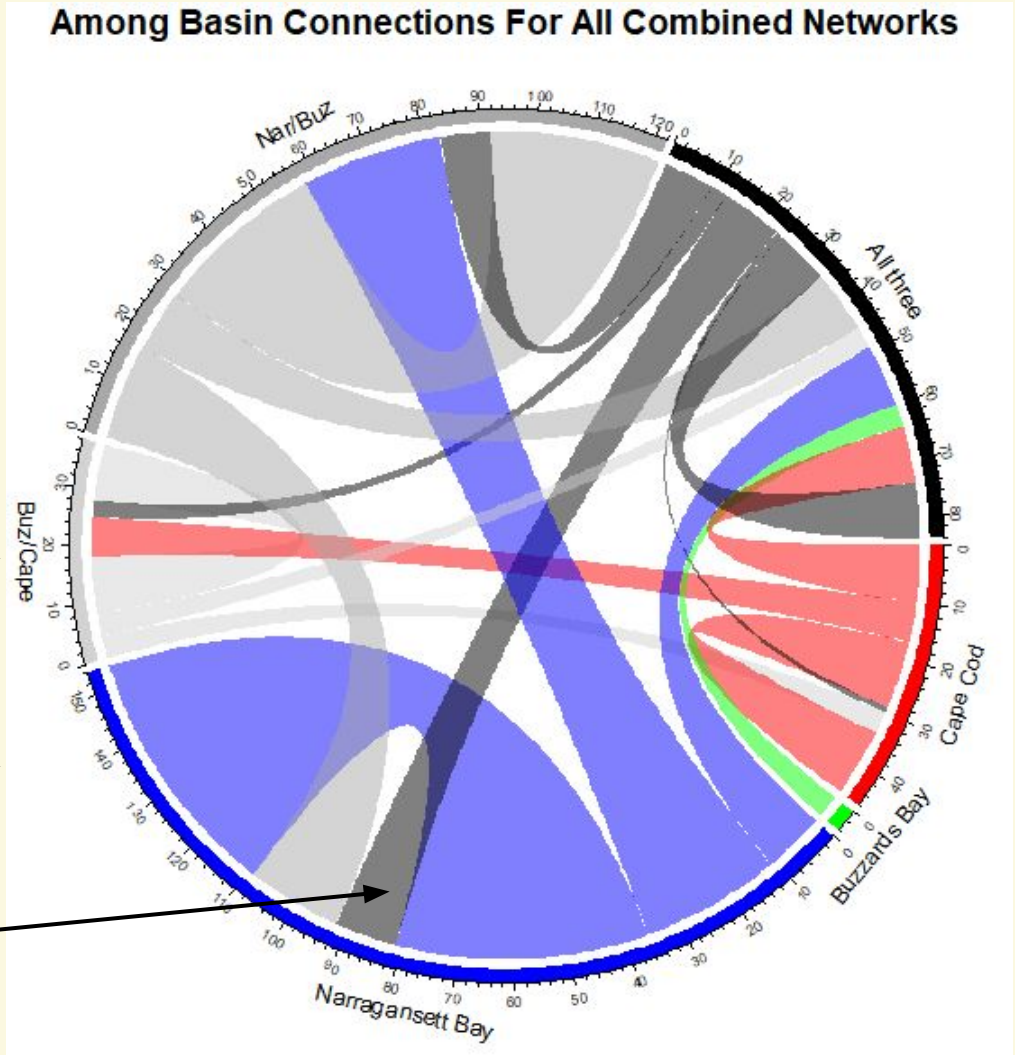


Colored sections show group locations

Example:
Groups overlapping Buzzards Bay & Cape Cod

Example:
Groups overlapping Narragansett Bay

Bar thickness shows number of relationship



N = 120 organizations

Organizations are only included if they:

1. participated in the survey,
2. mapped a turf,
3. named someone in the network with a mapped turf,
4. or were named by someone with a mapped turf.

Combined network includes:

- **Knowledge**
- **Funding**
- **Other key collaborators**

Data visualization tool:
Linking spatial and network data (in prep)

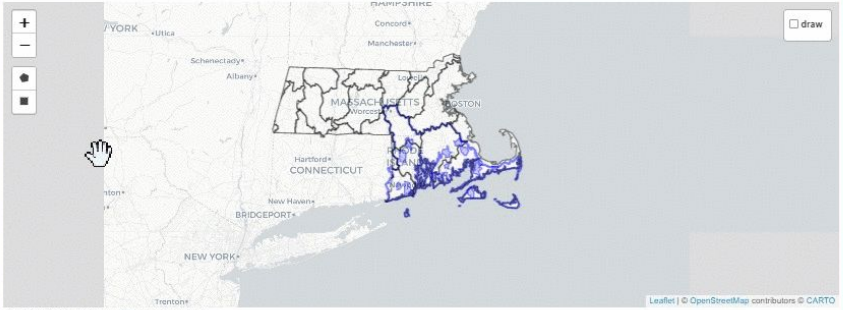
StewMap of Southeastern New England (SNEP) data explorer

About

Explore

Map

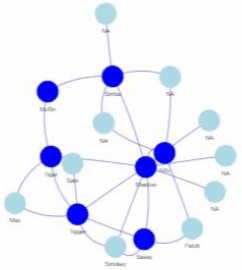
Please draw a polygone or square to select places. It may take a second for the map to load.



90820 90885 91127 91409 91444 94465 174677

Network

Network relations will show here. Selected polygones in darkblue; additional partners in lightblue



91444 175205 175008 174966 94465 90885 91409

Descriptive stats

A pie chart of atribute values will show here



Qualitative responses

Entire Network | Selected Node & Neighbors

Show 10 entries Search:

	name	phrase
1	NA	no data
2	NA	no data
3	NA	no data
4	NA	no data
5	NA	no data
6	NA	no data
7	Simba	A dish fit for the gods
8	Shadow	A different kettle of fish

Use Case
Supporting collaboration in the Blackstone River Watershed.

Use Case
Supporting collaboration in the Blackstone River Watershed.

- What groups work in Worcester (the headwaters) and what groups work in RI / Pawtucket (the mouth)?
- How do the funding source networks of Worcester groups differ from RI / Pawtucket groups?
- How do the knowledge networks of Worcester groups differ from RI / Pawtucket groups?

Southeast New England Stew-MAP 2021-2022

To Filter Data by Area of Interest:
Select an Estuary Basin or a sub-watershed from this list, then view the count and names of organizations whose turfs intersect that area of interest below. To clear a selection, click again.

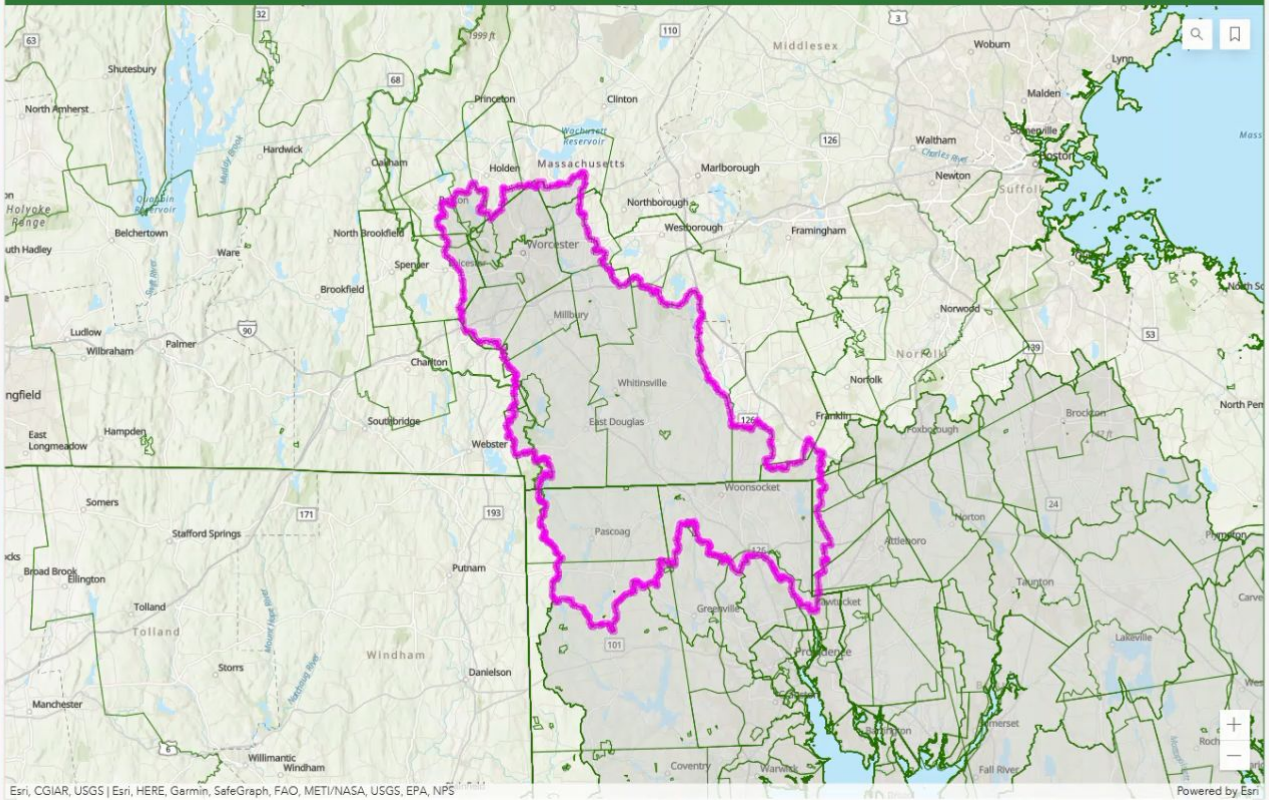
- Apponagansett Bay
- Aucoot Cove
- Beaverdam Creek
- Blackstone River
- Brant Island Cove
- Butler Cove
- Buttermilk Bay
- Clarks Cove
- Cuttyhunk Pond
- East Branch Westport River
- Eel Pond (M)

67 Organizations
listed below overlap the estuary basin or sub-watershed selected above

Organizations with turfs overlapping the estuary basin / sub-watershed selected above are:
Select to see organization details - Deselect to clear

- Blackstone River Coalition
- Blackstone River Valley National Historical Park
- Blackstone River Watershed Association
- Blackstone River Watershed Council/Friends Of The Blackstone
- Blackstone Valley Tourism Council
- Burrillville Land Trust
- Coalition for Social Justice Education Fund
- College of the Holy Cross

Turfs in the SNEP Region



The Southeast New England Program Stewardship Map

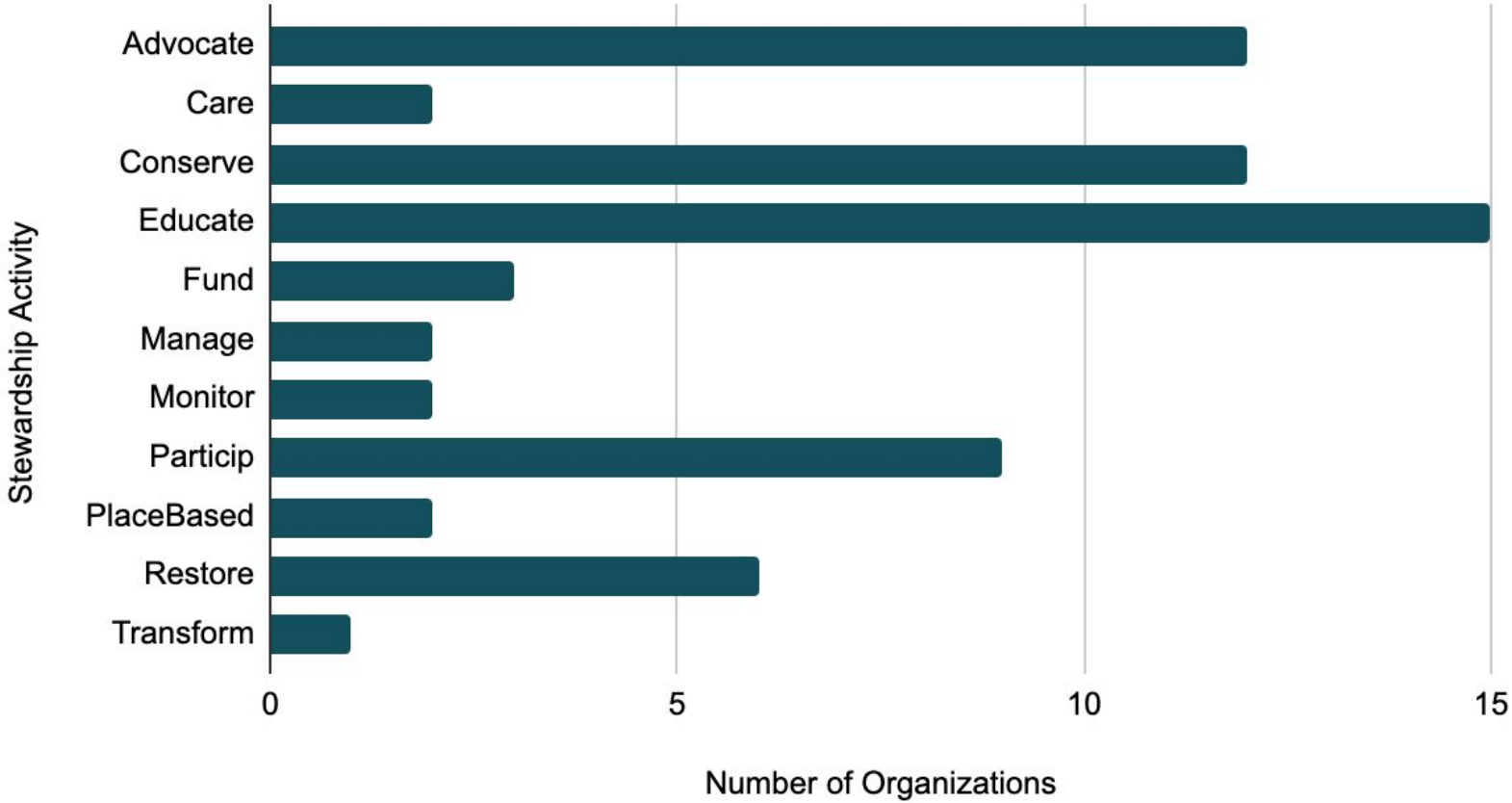
Each dot in the charts below signify an affirmative response by an organization for that activity. The number above each dot is the sum of affirmative responses.

Primary Stewardship Activities of Organizations within Selected Estuary Basin / Sub-Watershed

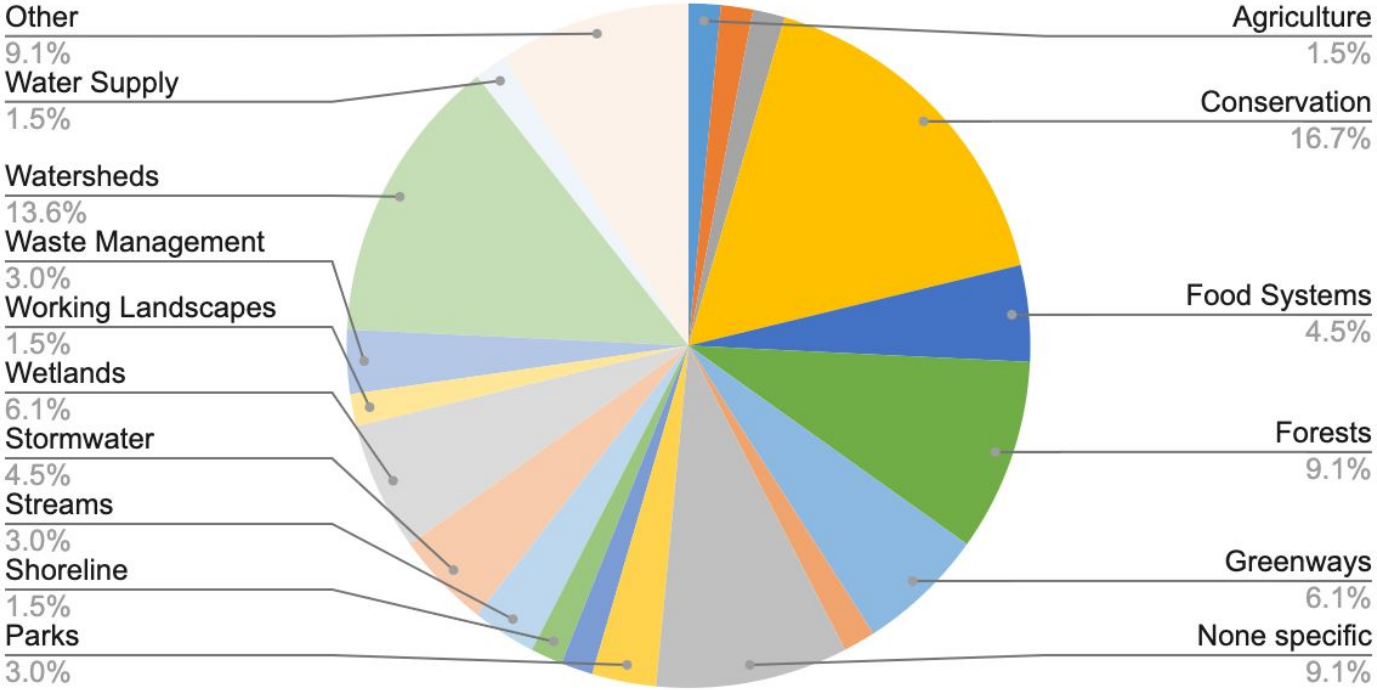


Primary Stewardship Activities

Blackstone River Watershed Primary Stewardship Activity



Blackstone River Watershed Primary Site, System or Green Infrastructure Types



Other:

A mixture- focus on Traditional land use; forest/field/fresh & salt waters

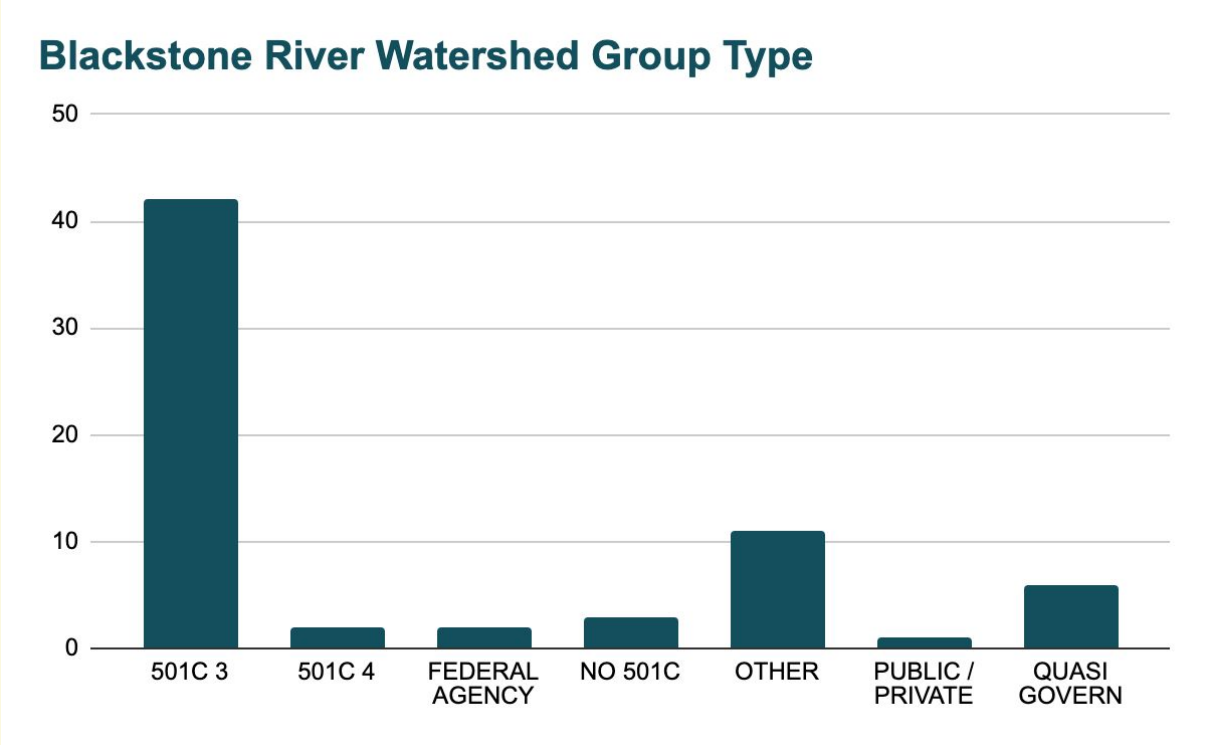
[Name redacted] funds grassroots groups, some of whom work on environmental focuses.

Public transportation planning

Sustainable development (LID, community planning, land use planning, watershed planning

We really do work on nearly all of these as advocates

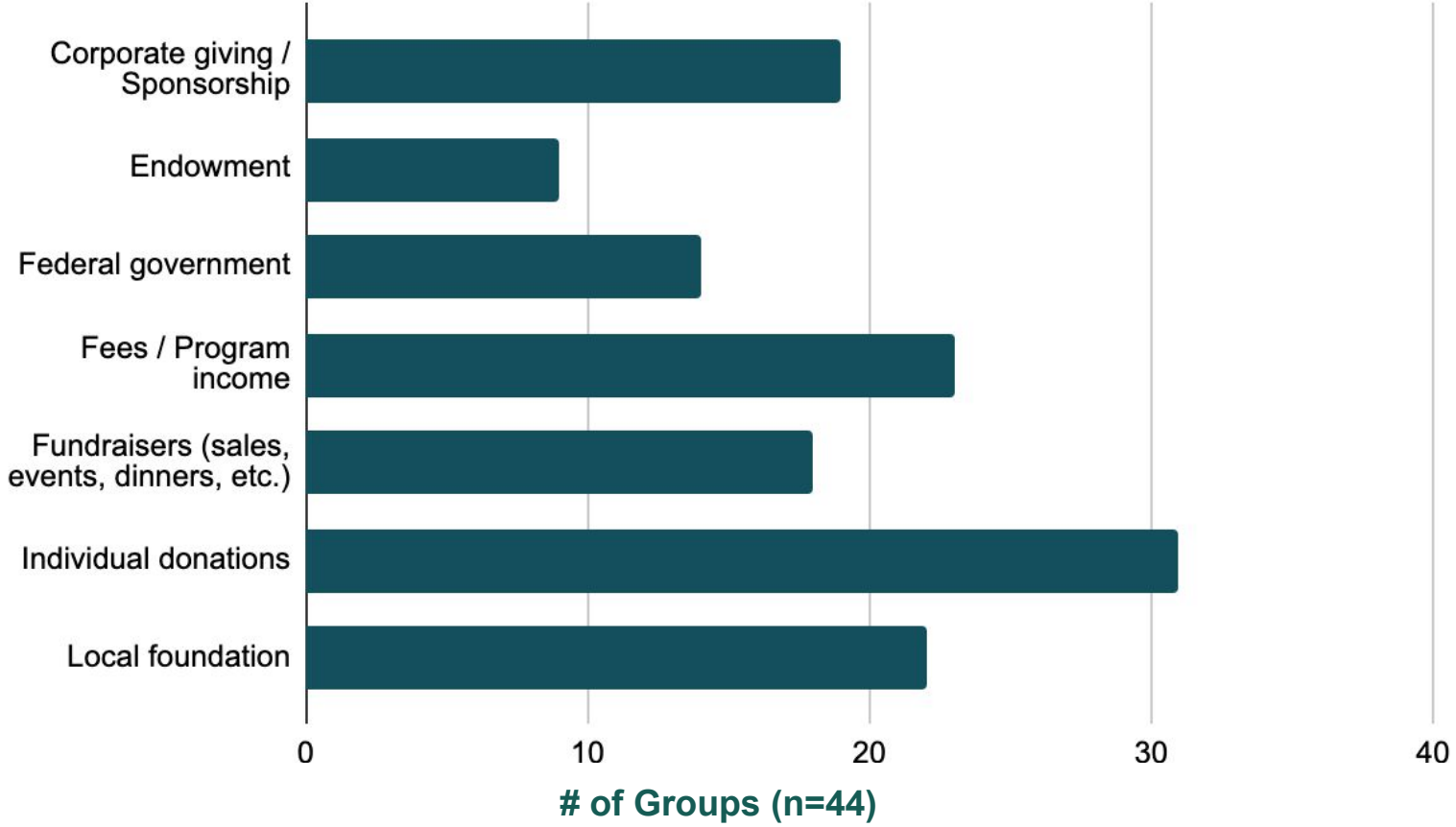
We work on a wide variety of issues



Other:

- Coalition made up of NGOs, government and business
- Coalition of NGO, government, private sector
- Cooperative Extension - university based
- Fiscally sponsored project of Farm Fresh RI, a registered 501c3 organization
- Fiscally-sponsored by a 501c3
- Grant-making advisory committee
- Regional Conservation Partnership
- Self-nominating committee or working group
- Stakeholder-led nonprofit organization with federal funds
- State recognized tribe with a 501(c)3
- We are a state designated 501 c 3, but not federally designated.

Types of Blackstone River Watershed Group Funding

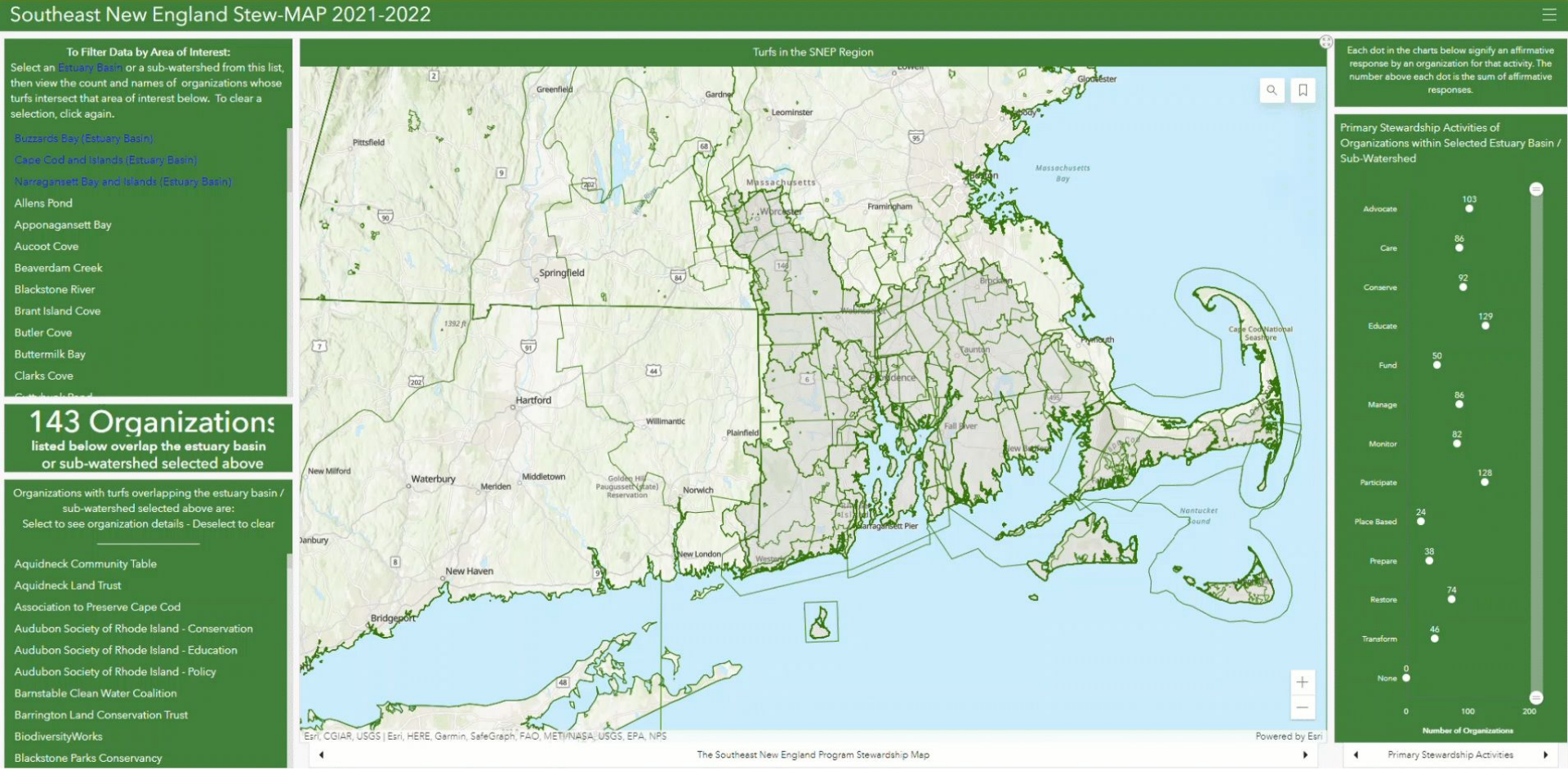


$1,726,719.74 (mean budget)

$75,000.00 (median budget)

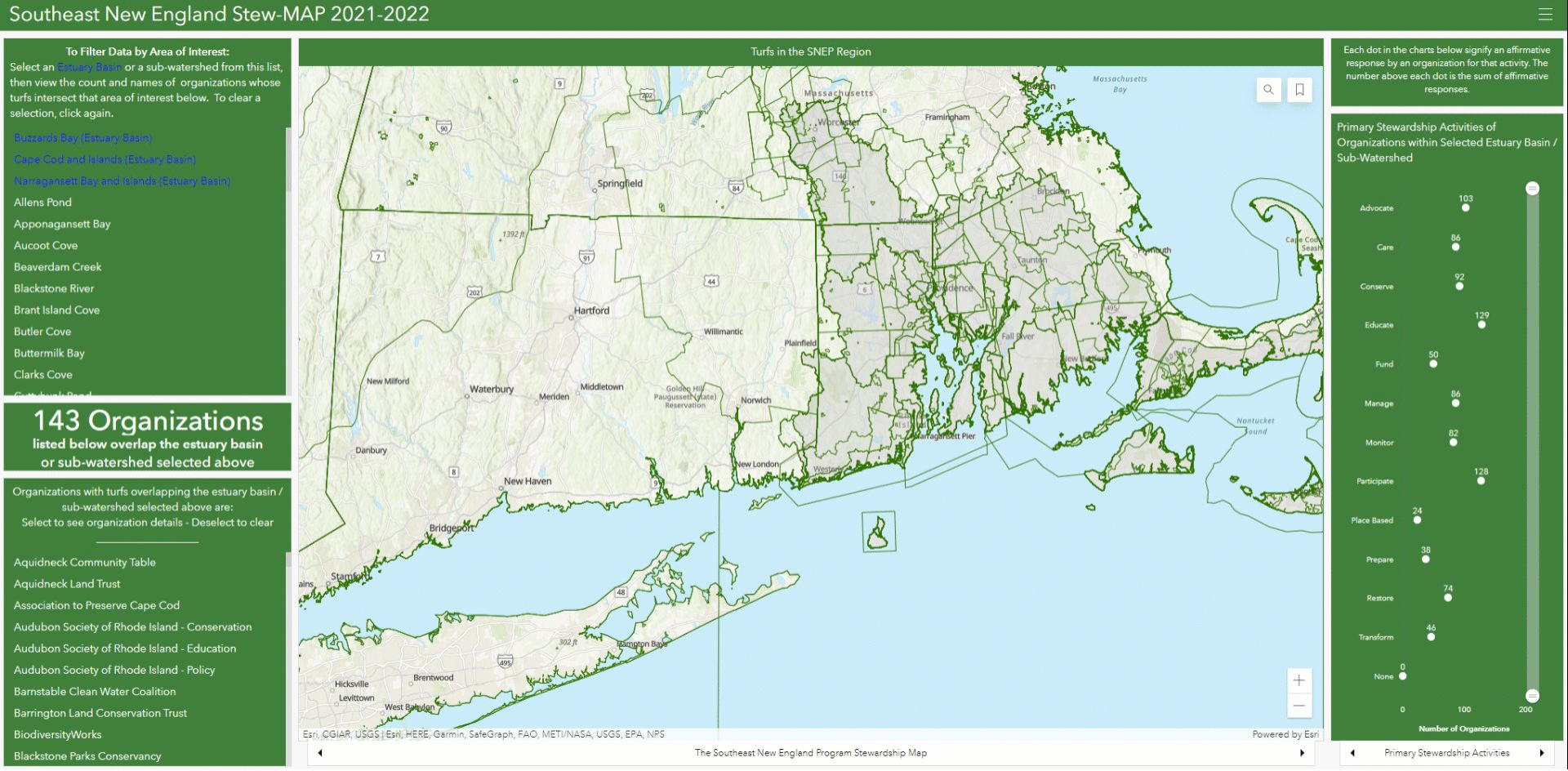
$40,121,000.00 (max budget)

23 groups report having no budget



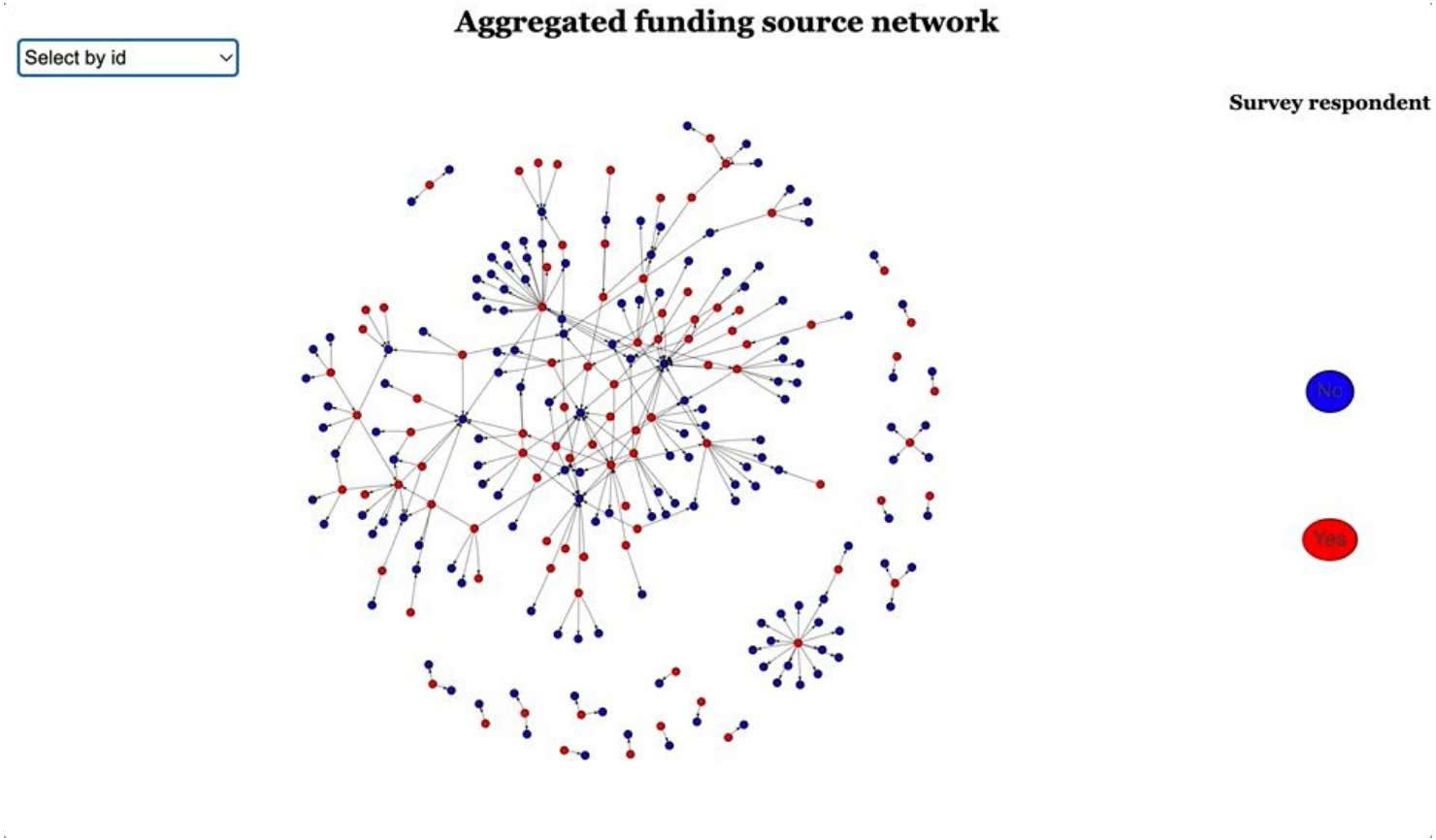
Selecting a point in Worcester to view groups whose turfs overlap

- This shows that out of the 67 groups that intersect with the Blackstone, 20 have turfs in this point

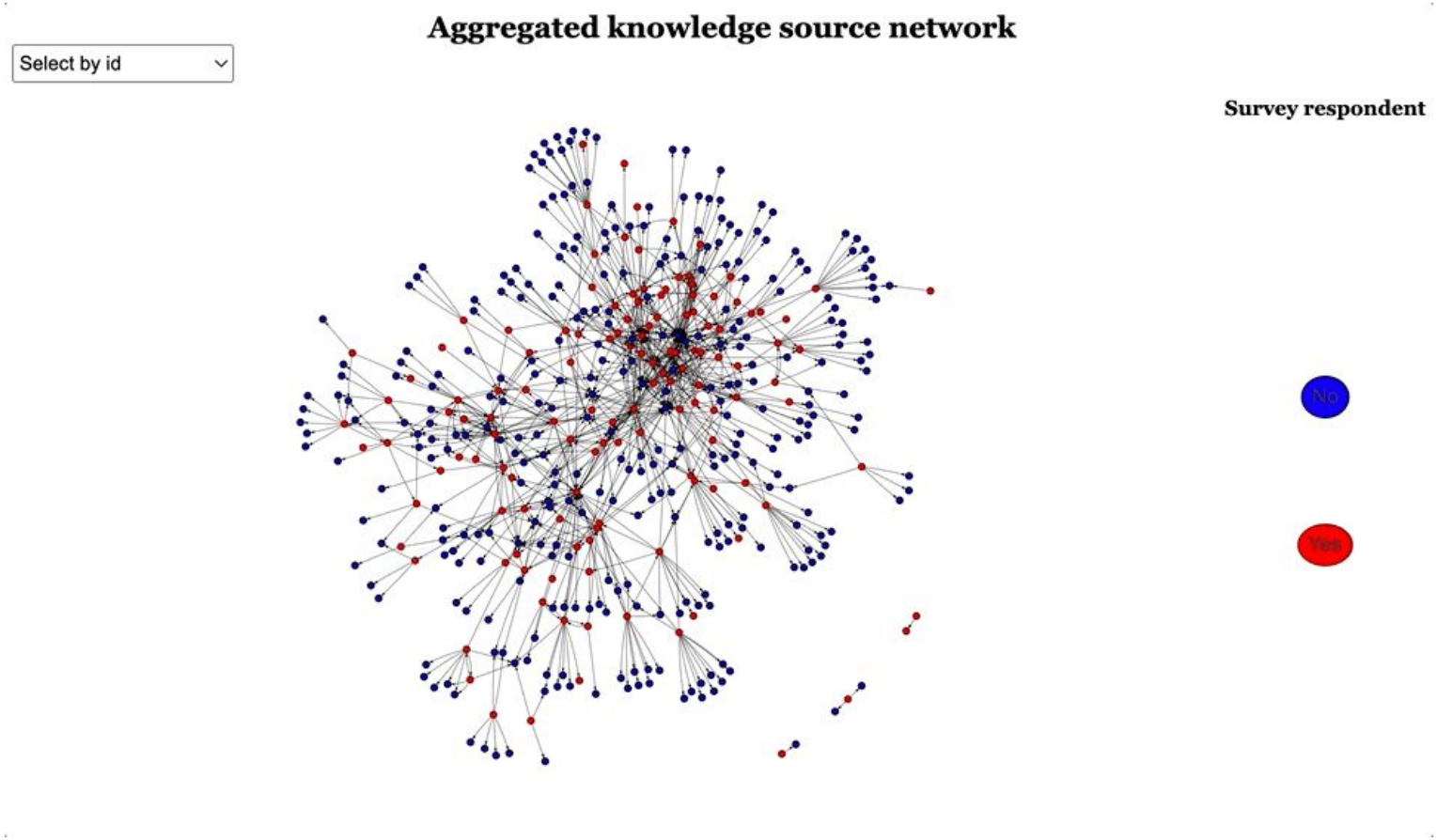


Selecting a point in Pawtucket to view groups whose turfs overlap

- This shows that out of the 67 groups that intersect with the Blackstone, 37 have turfs in this point



Selecting Blackstone River Coalition (Worcester) then Blackstone River Watershed / Friends of the Blackstone (RI group) in Aggregated Funding Source Network



Selecting Blackstone River Coalition (Worcester) then Blackstone Valley Tourism Council (RI Group) in Aggregated Knowledge Source Network

In the Q&A: What kinds of questions do you want to ask to the data?

Conclusion

The natural resource community focuses a great deal on measuring the *natural* environment and less on the *people* doing the work. StewMAP SNE is a systematic analysis of environmental organizations in the Southeast New England region; measuring the *groups* of people who care for this region.

Opportunities for your groups:

- Enable or enhance collaboration and coordination
- Examine strengths and gaps in a given area or on a given topic

Supporting Environmental Justice Work

- Many ways in which our data can help with env. justice inquiries
  - E.g., who works where and with what mission / interests?
  - E.g., who are central and peripheral orgs in network?
  - E.g., where might we build partnerships?
- Working with the SNEP Env. Justice Advisory group

Resources

- Dashboard: review and hosting by USDA US Forest Service
- Report: to be shared on the SNEP Network website
- Data Download: publicly available data layers hosted on the SNEP Network website

Thank you!

PLEASE BE IN TOUCH WITH SPECIFIC INTERESTS OR QUESTIONS

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