Developing a Watershed Council for the Rio Espiritu Santo Watershed in Puerto Rico

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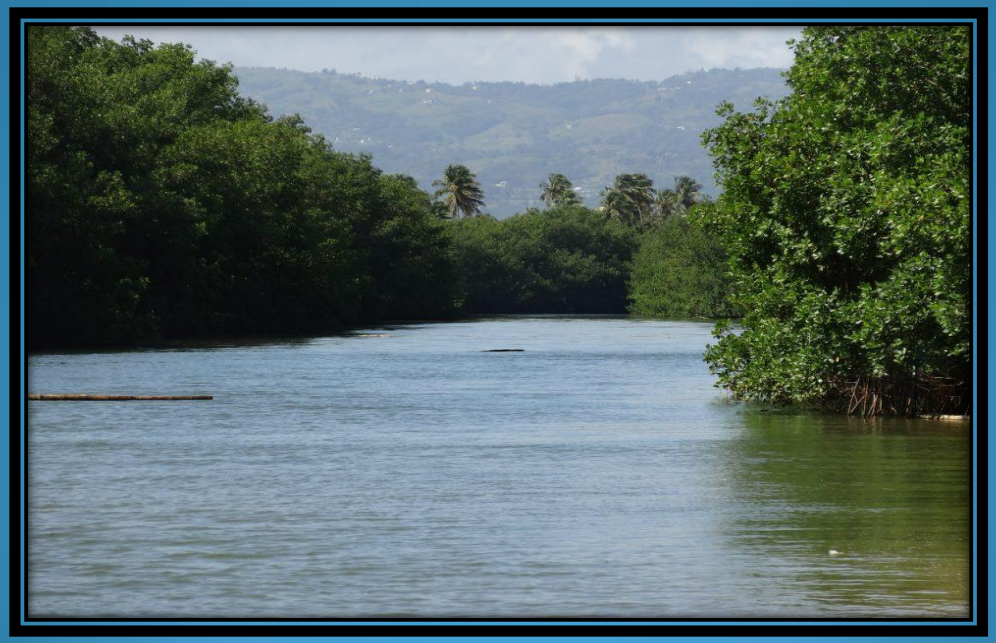
Sponsor: Pedro Rios, U.S. Forest Service



Presentation Outline

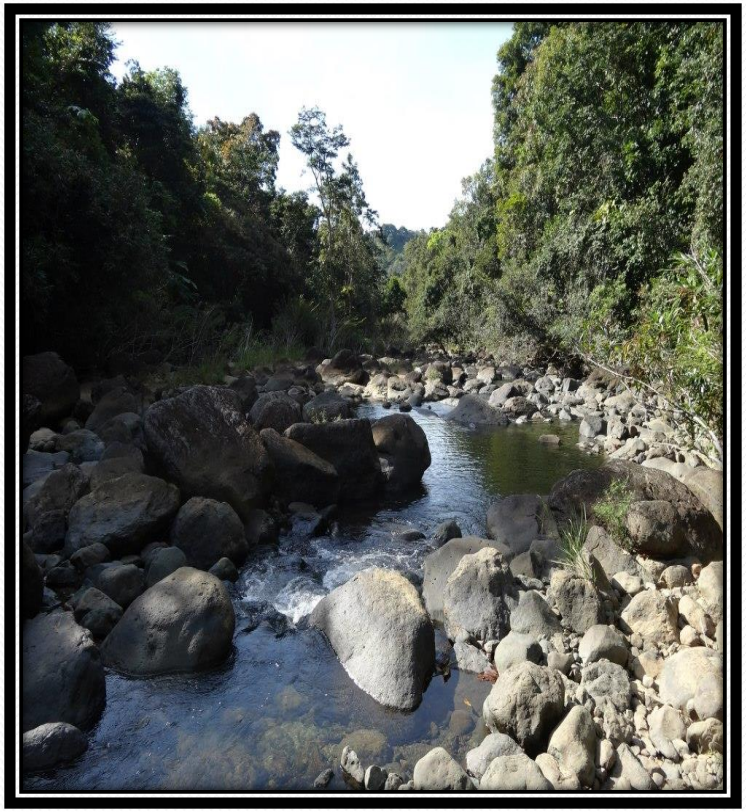
- Project Context
- Project Goal
- Background
- Methodology
- Results
- Deliverables
- Discussion
- Conclusion

Project Context

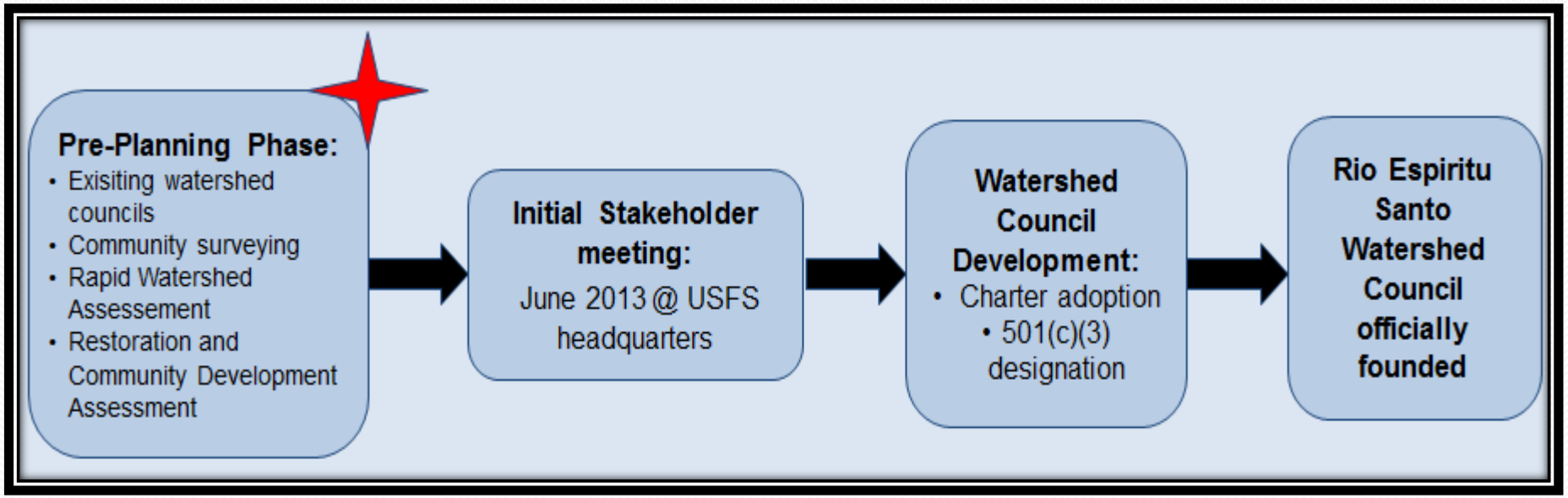
- Declining health of the global environment
- Environmental preservation and management
- Without proper management decline will continue
- Preservation is primarily supported on large, national scales

Project Goal

- Aid the U.S. Forest Service in the development of the Río Espiritu Santo Watershed Council.
  - Give the Río Espiritu Santo community a forum to voice their environmental concerns.
  - Educate the community in ecological preservation practices.
  - Improve the environmental health of the area.



Overall Project Timeline



Watershed Councils

- Non-governmental regulatory agencies made up of various stakeholders
- Focused on one local watershed
- Grew out of desire for more rapid, tailored response to needs of individual watershed

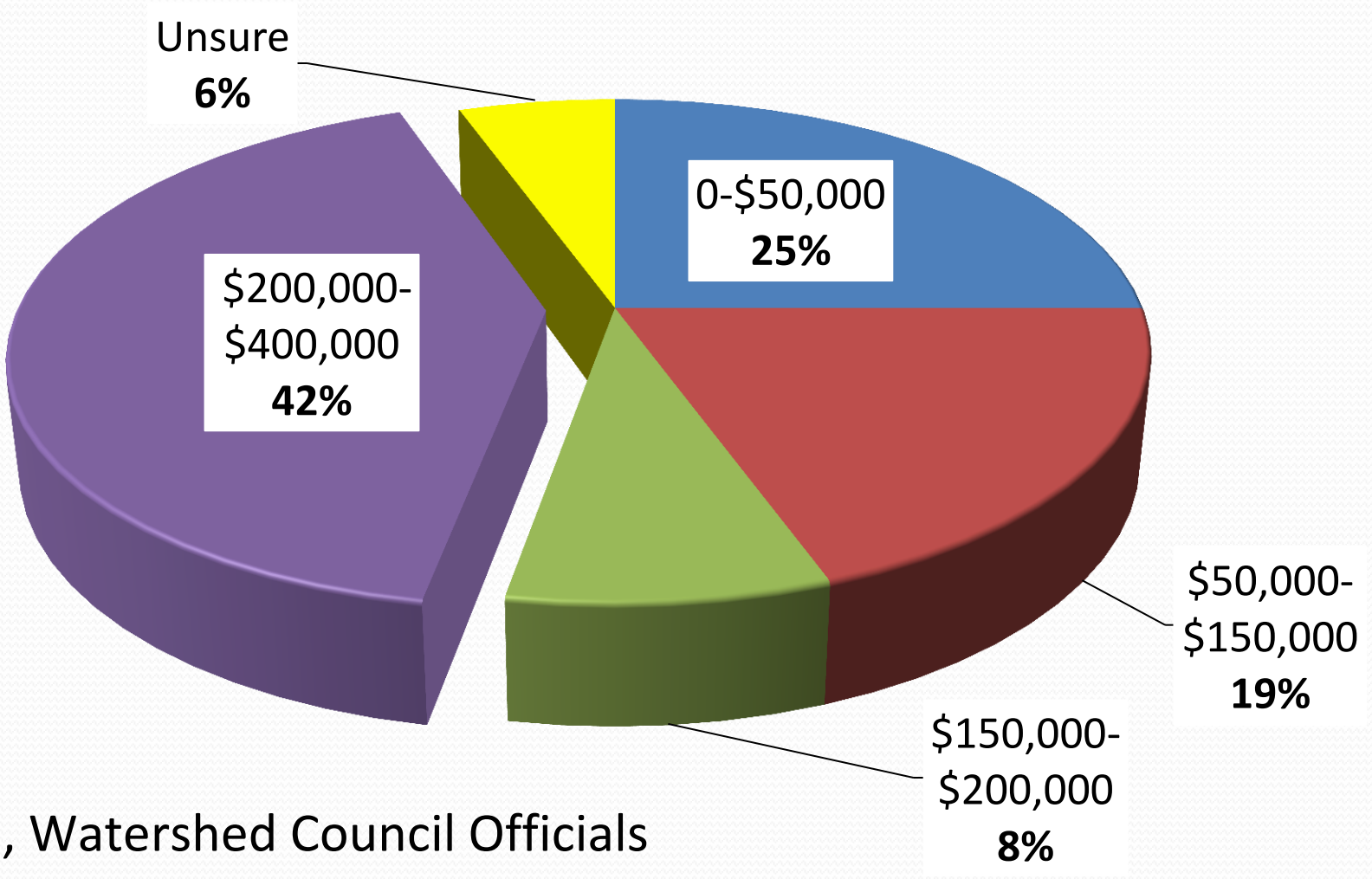
Governance Structure Samples

	Luckiamute Watershed Council, OR	Powder Basin Watershed Council, OR	Long Tom Watershed Council, OR	Coast Fork Williamette Watershed Council, OR
Term Length	1 Year	3 Years	4 Years	2 Years
Election Method	Popular election	Appointment by county court	Popular election	Volunteer
Number of Members	12	10	14	8
Number of Officers	3	3	5	4
Officer Positions	• Council Chair • Treasurer • Secretary	• Council Chair • Council Vice Chair • Treasurer	• Council Chair • Council Vice Chair • Council Past Chair • Treasurer • Secretary	• Council Chair • Council Past Chair • Treasurer • Secretary

Methodology

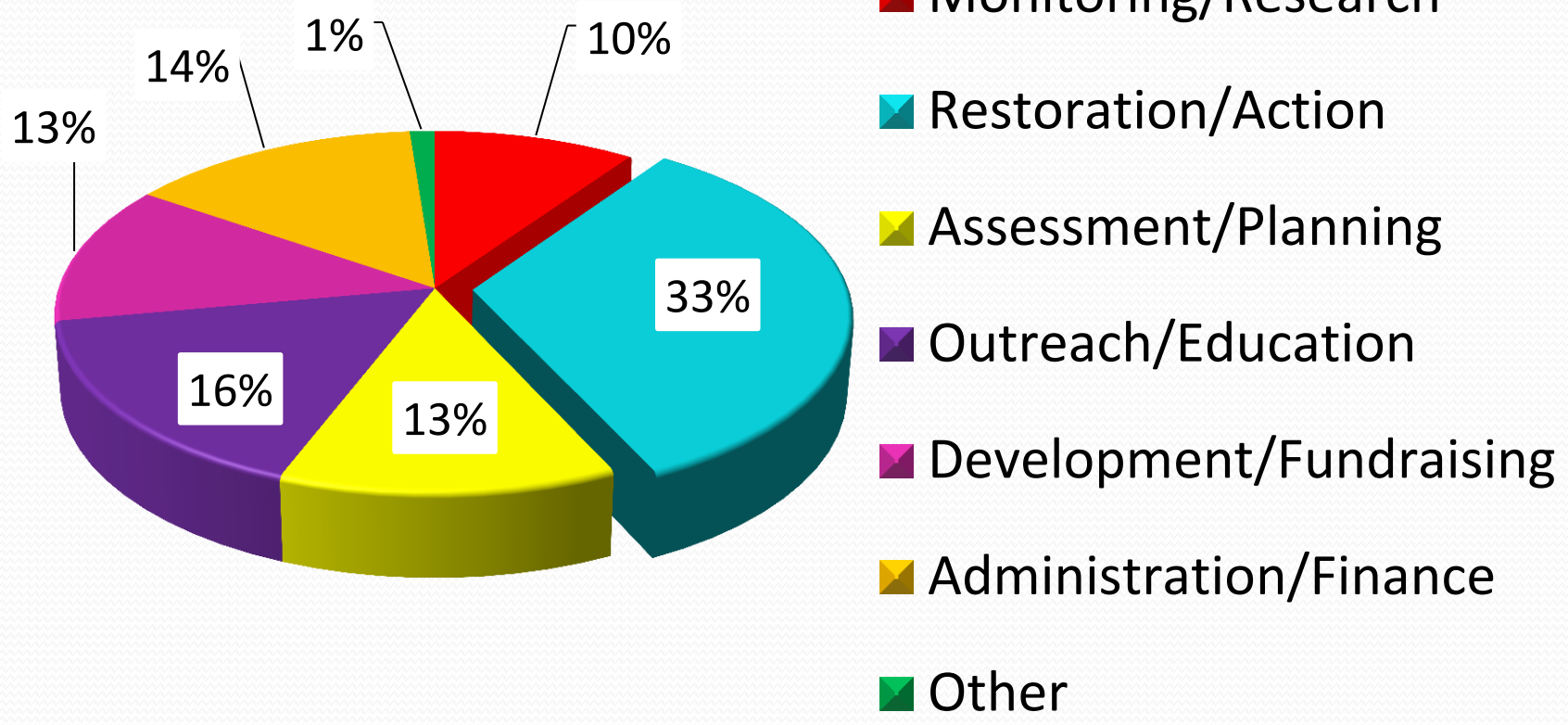
- Interviews and on-line survey to watershed council officials (n=3, n=37)
- Interview to initial stakeholders (n=16)
- On-line survey to general community(n=100)
- Rapid Watershed Assessment (RWA)
- Restoration and Community Development Assessment (RCDA)
- Developed Google blog

Watershed Council Budget



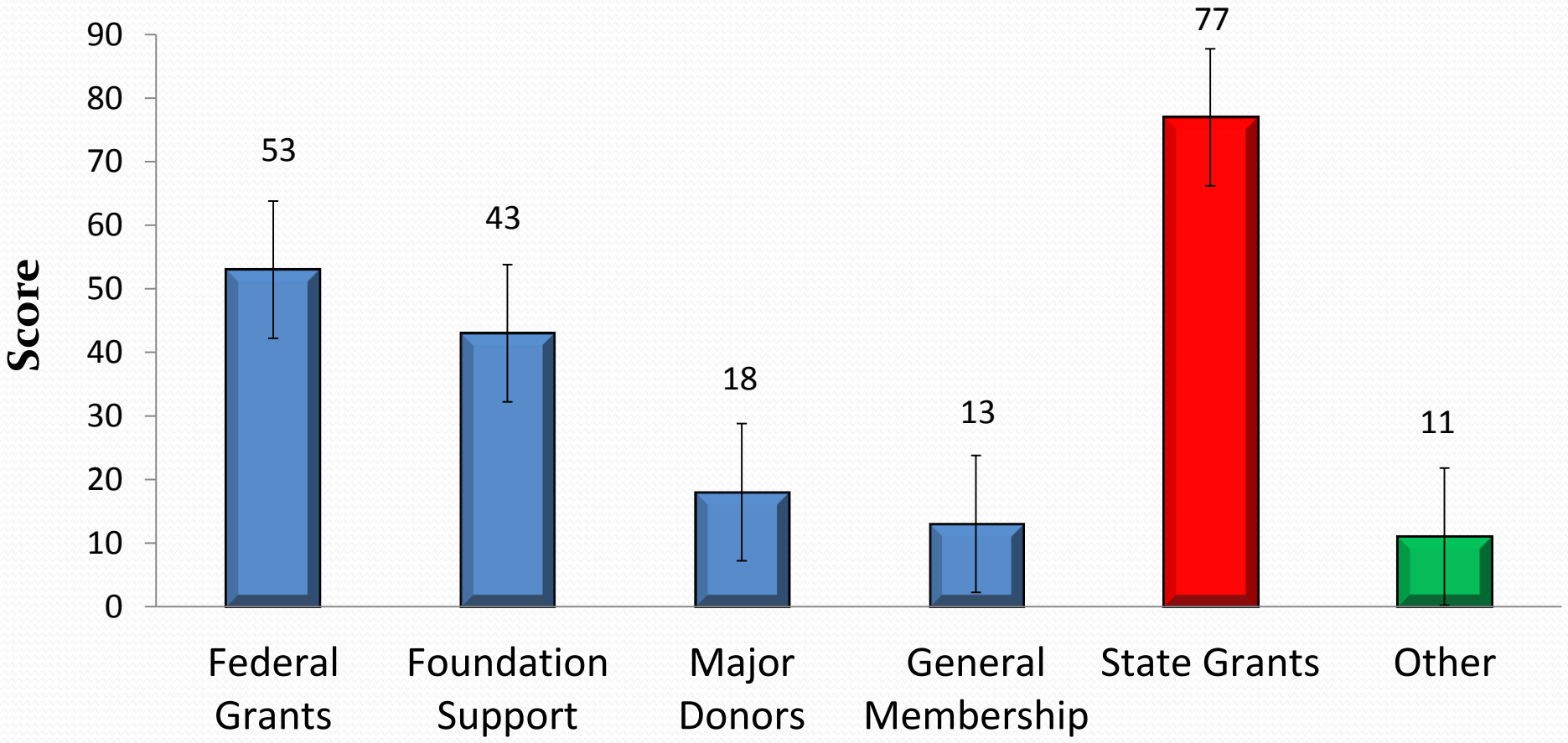
n=37, Watershed Council Officials

Watershed Council Activities



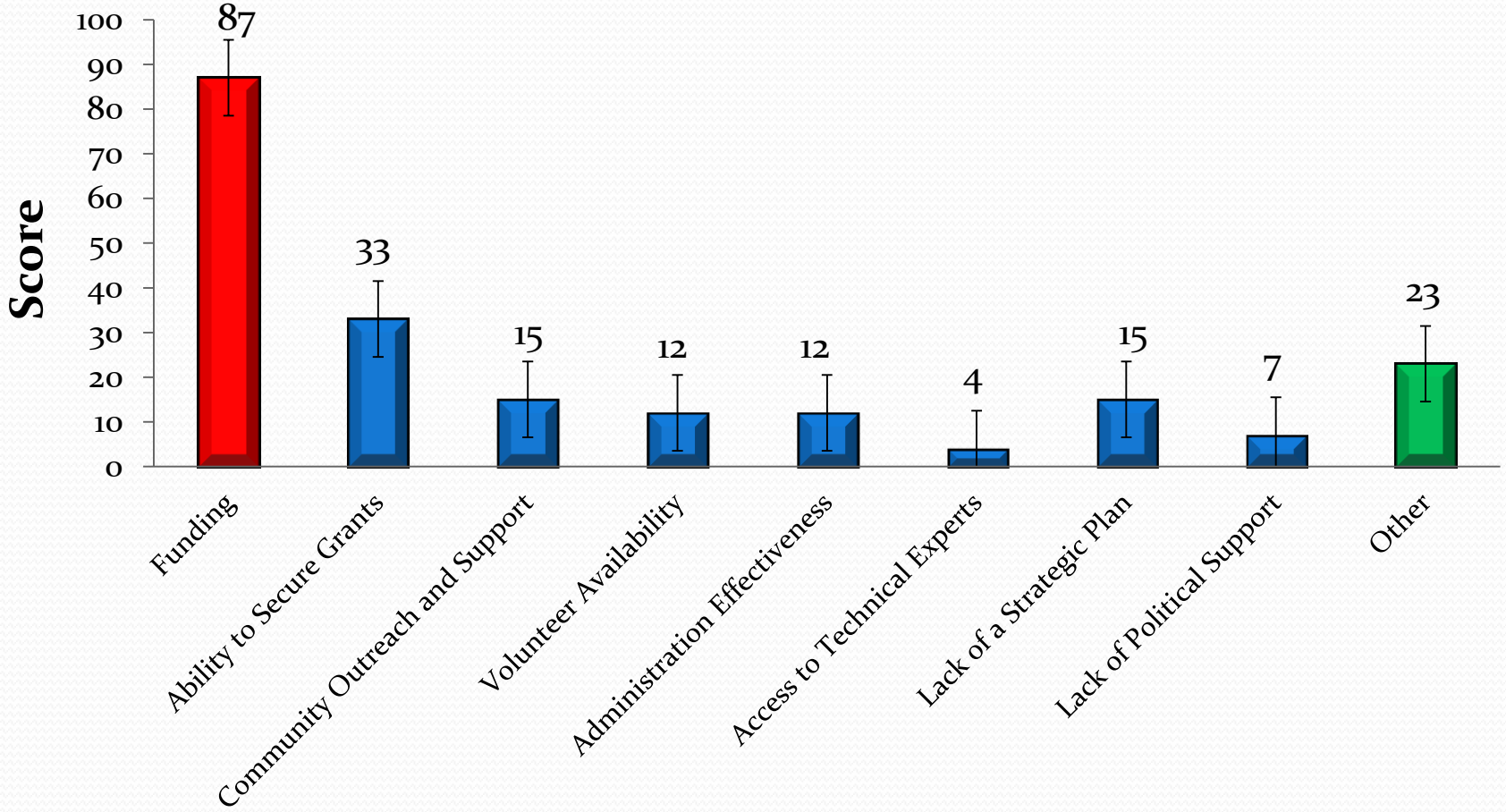
n=37, Watershed Council Officials

Watershed Council Funding



n=37, Watershed Council Officials

Watershed Council Challenges

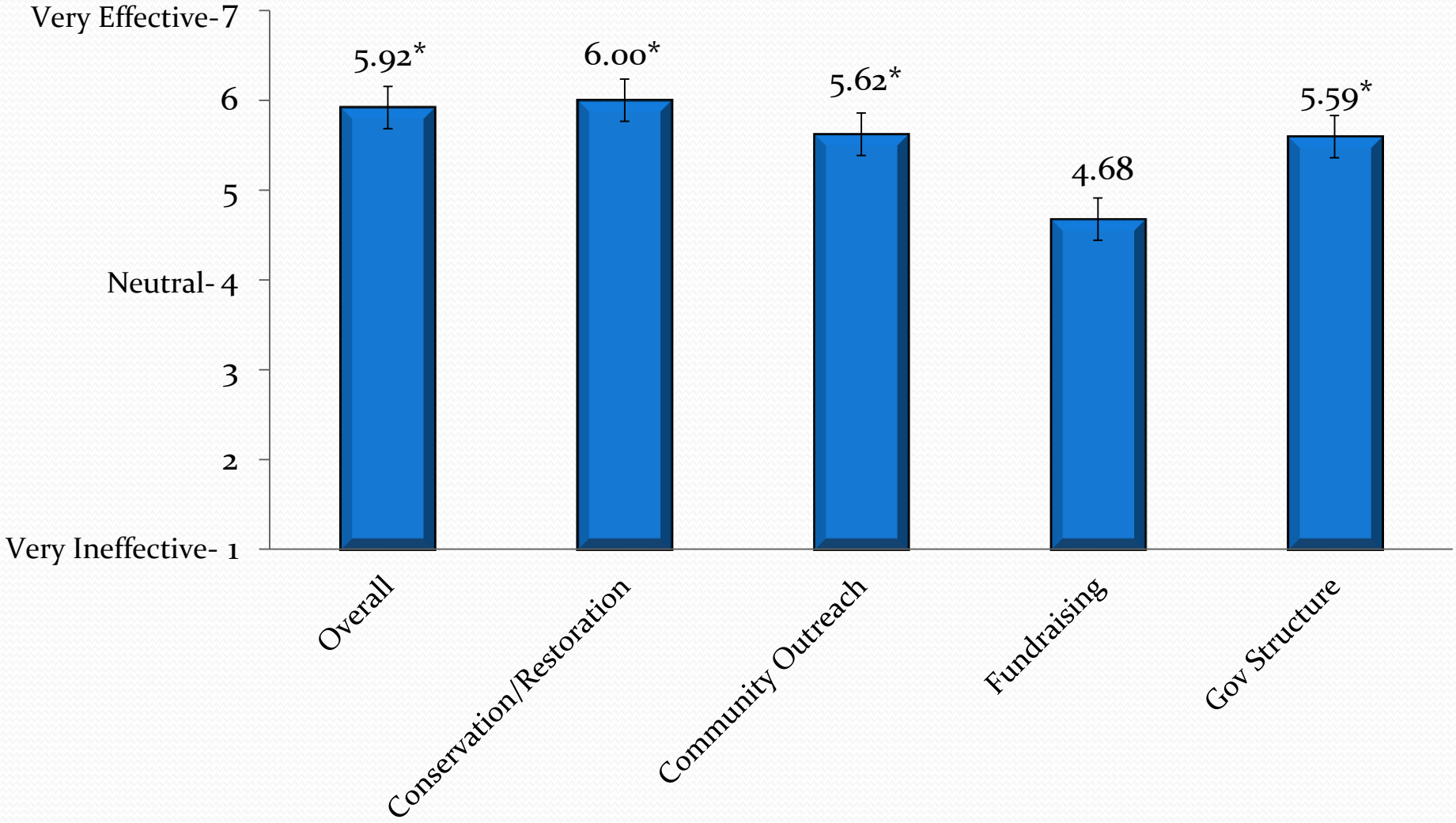


n=37, Watershed Council Officials

Challenge Regressions

Independent	Dependent	P-value	R^2	Coefficient
Funding- "State Grants"	**Challenges**- "Funding"	0.0129	0.1640	+
Funding- "General Membership"	**Challenges**- "Administration Effectiveness"	0.0492	0.1061	+

Watershed Council Effectiveness

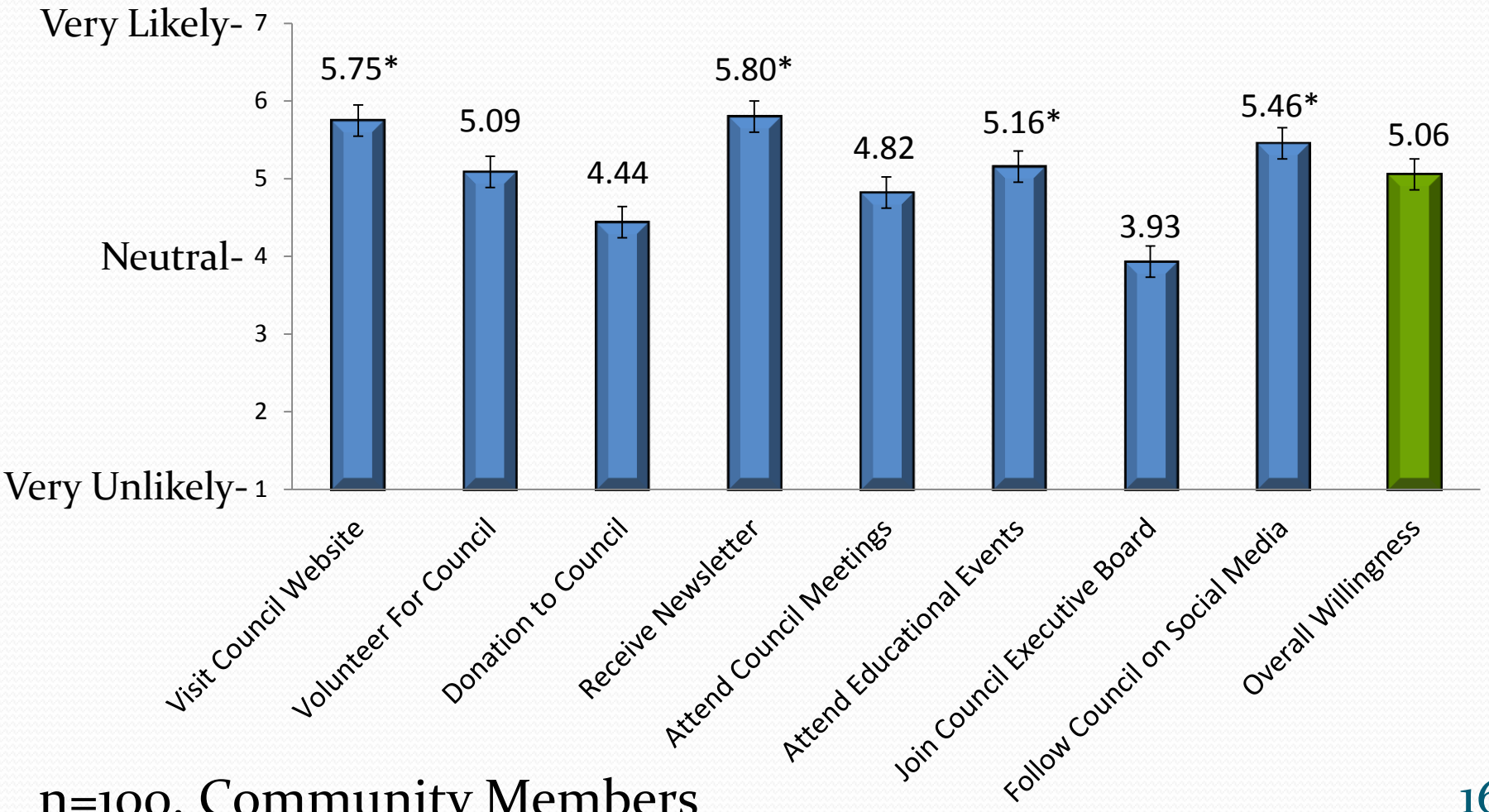


n=37, Watershed Council Official Survey

Drivers of Watershed Council Effectiveness

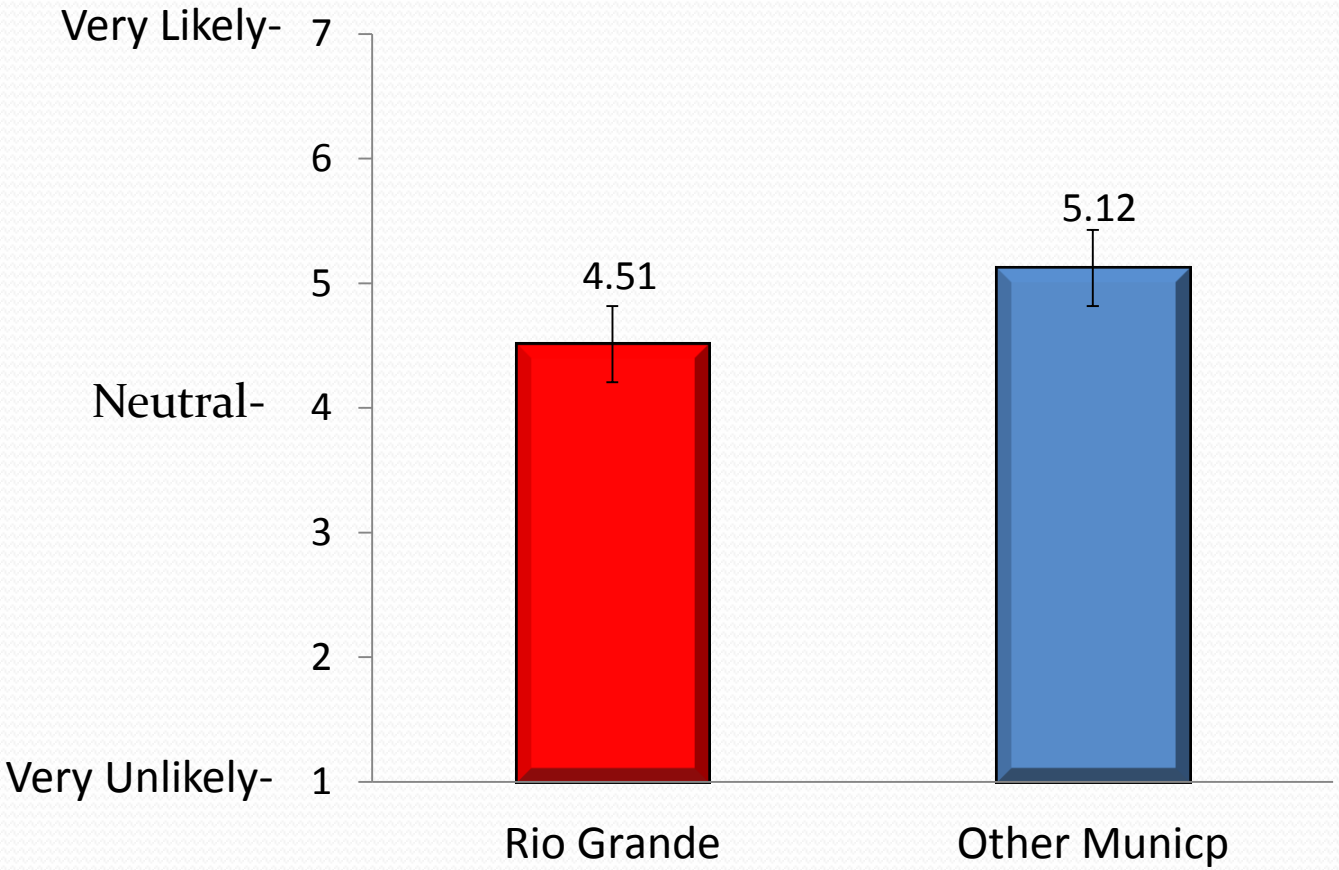
Independent	Dependent	P-value	R^2	Coefficient
Budget	**Effectiveness**- "Overall"	0.00007	0.3200	+
Budget	**Effectiveness**- "Conservation/Restoration"	0.0106	0.1984	+
Activities- "Restoration/Action"	**Effectiveness**- "Overall"	0.0252	0.1352	+

Community Willingness



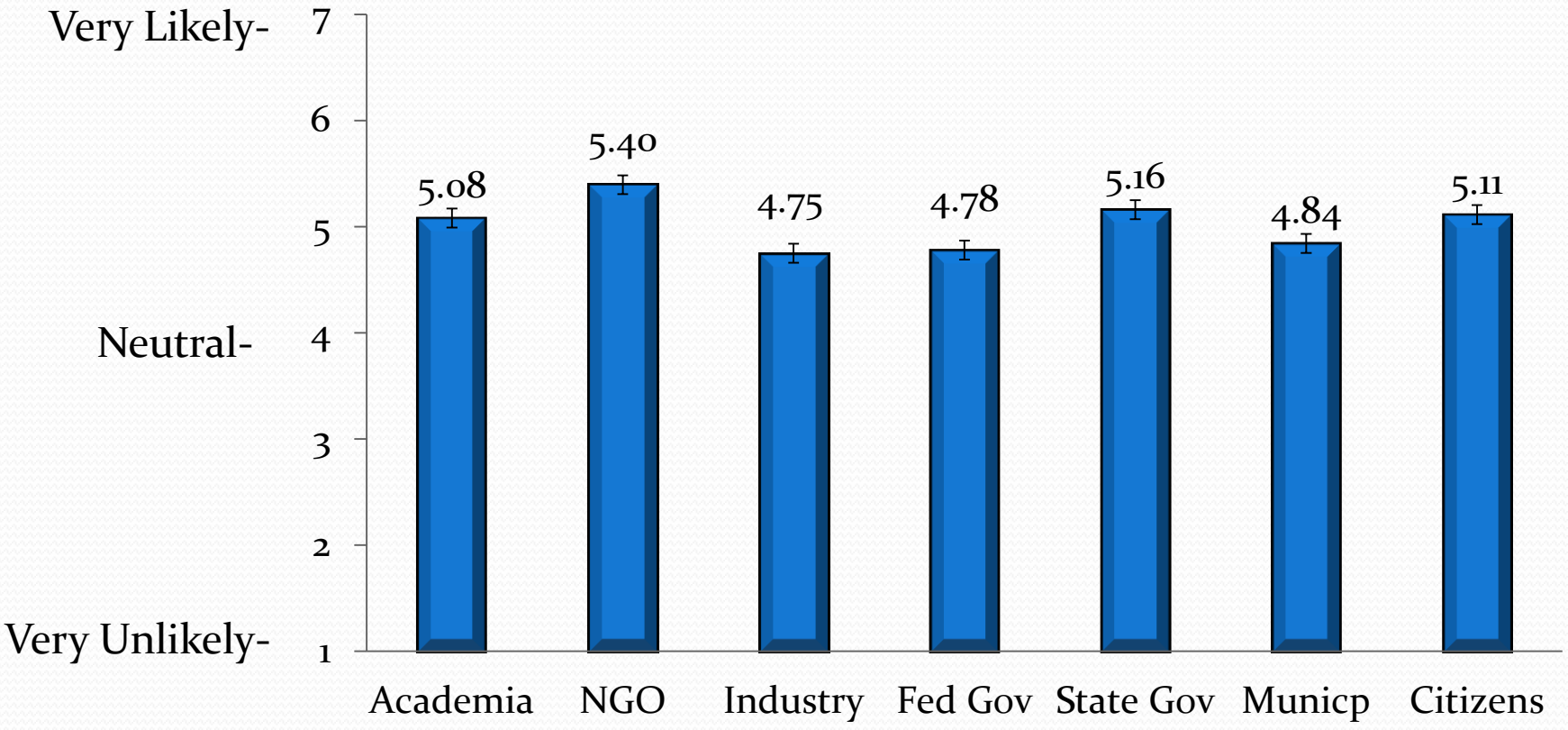
n=100, Community Members

Municipality Willingness



n=100, Community Members

Citizen Group Willingness



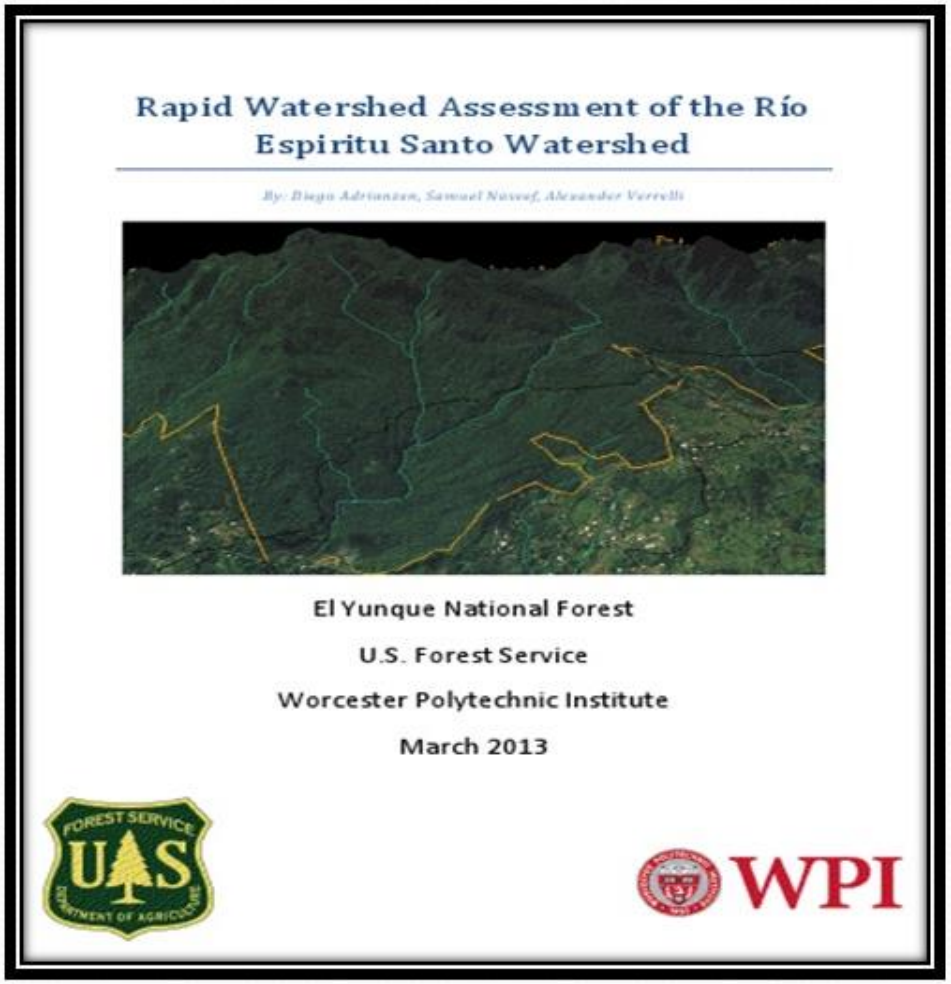
n=100, Community Members

Environmental Issues

- Lack of education
- Damming
- Erosion
- Misuse

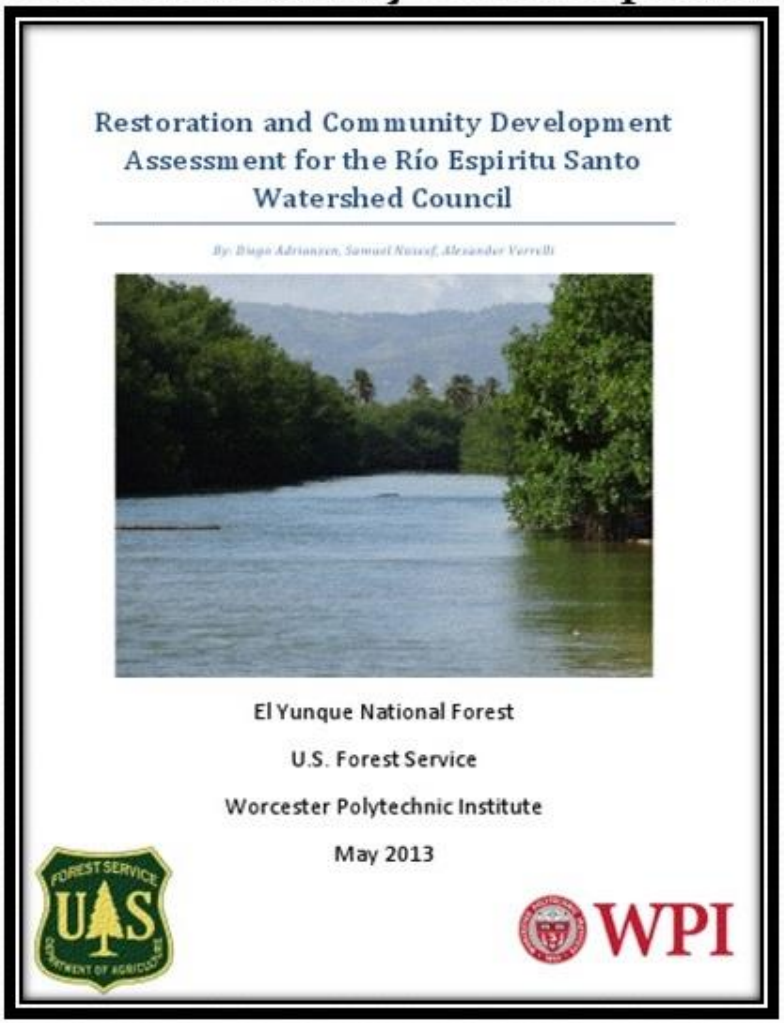
Deliverables

Rapid Watershed Assessment



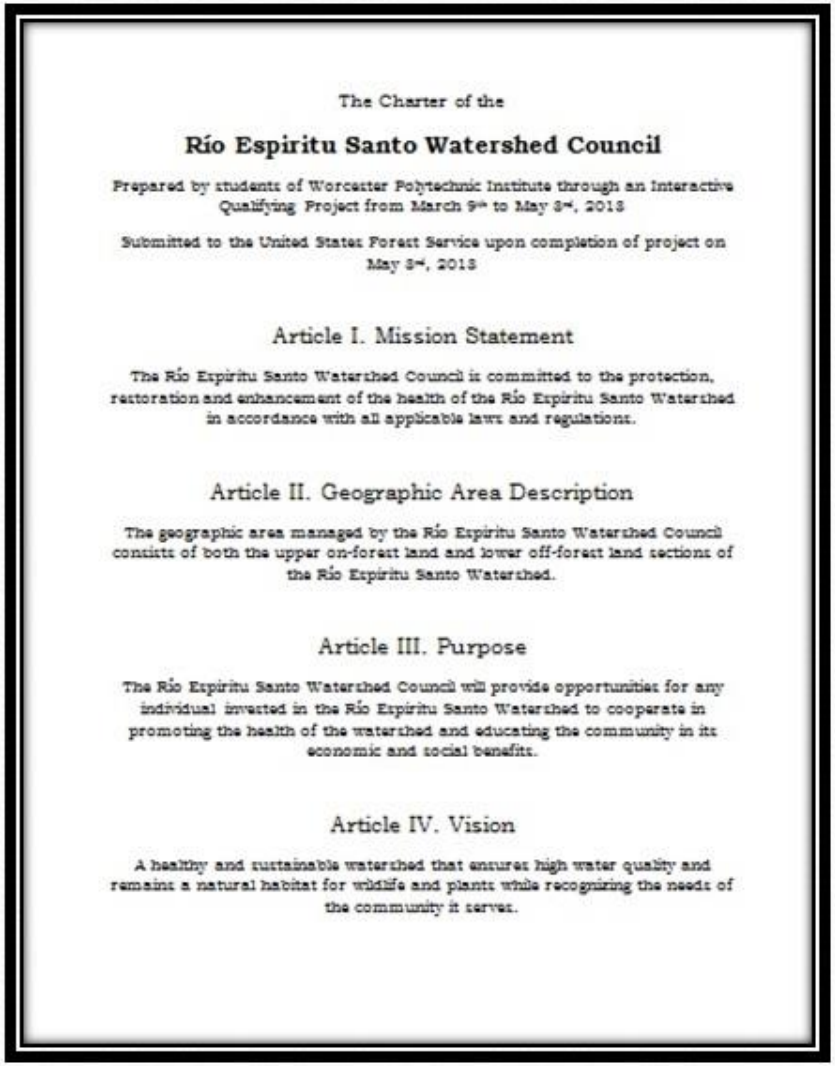
Deliverables

Restoration and Community Development Assessment



Deliverables

Charter draft



The Charter of the

Río Espiritu Santo Watershed Council

Prepared by students of Worcester Polytechnic Institute through an Interactive Qualifying Project from March 9th to May 3rd, 2013

Submitted to the United States Forest Service upon completion of project on May 3rd, 2013

Article I. Mission Statement

The Río Espiritu Santo Watershed Council is committed to the protection, restoration and enhancement of the health of the Río Espiritu Santo Watershed in accordance with all applicable laws and regulations.

Article II. Geographic Area Description

The geographic area managed by the Río Espiritu Santo Watershed Council consists of both the upper on-forest land and lower off-forest land sections of the Río Espiritu Santo Watershed.

Article III. Purpose

The Río Espiritu Santo Watershed Council will provide opportunities for any individual invested in the Río Espiritu Santo Watershed to cooperate in promoting the health of the watershed and educating the community in its economic and social benefits.

Article IV. Vision

A healthy and sustainable watershed that ensures high water quality and remains a natural habitat for wildlife and plants while recognizing the needs of the community it serves.

Deliverables

Google blog

Rio Espiritu Santo Watershed Council

Welcome to the Rio Espiritu Santo Council Blog site! Here, we hope you will share stories about the Rio Espiritu Santo Watershed history, people, wildlife, weather and other daily events. We are particularly interested in your river observations!

Friday, April 26, 2013

WPI Project Details

From January 10th to May 3rd we worked with the U.S. Forest Service on the Pre-Planning Phase of their Rio Espiritu Santo Watershed Council Project. In order to gather data, we conducted two surveys; one of existing U.S. based Watershed Council Officials, and one of community members throughout Puerto Rico. In addition, we interviewed 16 Initial Stakeholders for the project. Using the data from these methods, we created several deliverables for the council to utilize:

The Rapid Watershed Assessment (RWA) detailed the current environmental health of the watershed and will allow the council to determine what areas need improvement.

The Restoration and Community Development Assessment (RCDA) brainstormed potential restoration and community development activities that the council could undertake.

The Project Poster described the methods and results of our project, as well as the overall timeline for the Rio Espiritu Santo Watershed Council Project. This poster was used at the Leatherback Turtle Festival on April 13th and the El Yunque Forest Clean-Up Day on April 20th to promote the council.

We also created a draft of a charter for the Rio Espiritu Santo Watershed Council containing the Mission Statement and proposed bylaws.

The fifth and final deliverable in our project was this blog. We hope the stakeholders will use

Rio Espiritu Santo Slideshow

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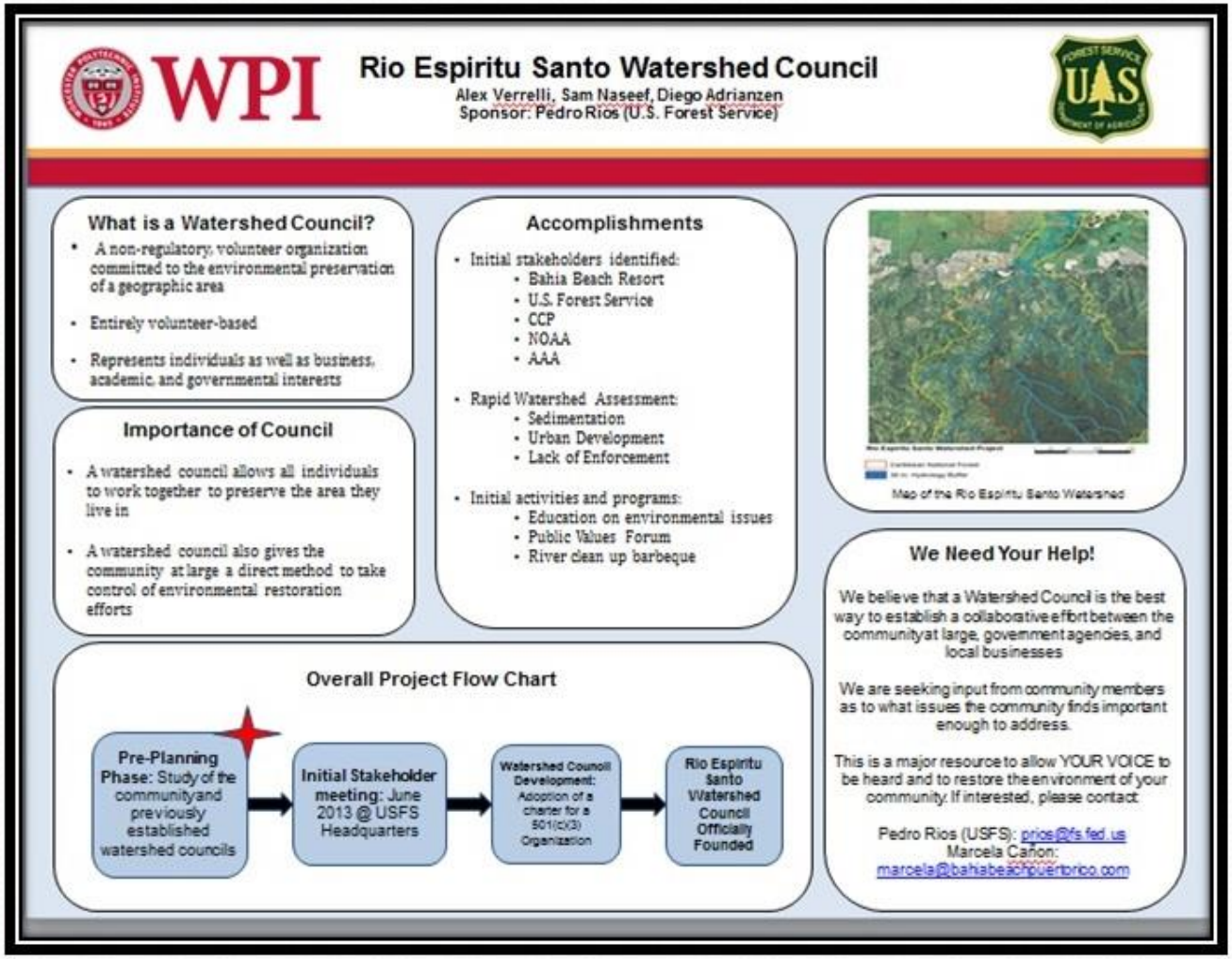
Blog Archive

Deliverables

Project poster



Ideal Watershed Council Structure

- Charter with well-defined mission statement and bylaws
- Executive board of 10-14 members
- Committees focused on specific tasks
- 501(c)(3) designation
- Hiring of a grant writer

Ideal Watershed Council Activities

- Infrastructure improvement
- Clean-up days
- Educational events
- Public values forum

Conclusions

- Deliverables will give the initial stakeholders the following:
  - Current watershed conditions
  - Attributes of effective watershed councils
  - Challenges they should expect to encounter
  - Options and recommendations for governance structure
  - Potential activities to undertake

- Aid the initial stakeholders in officially forming the Rio Espiritu Santo Watershed Council

Acknowledgments

We would like to thank the following people:

The U.S. Forest Service employees, especially Pedro Rios, Benjamin Fuentes, Bruce Drapeau, Anastacio Gomez, and Orlando Carrasquil

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Questions/Comments