



**Bryant University**

HONORS THESIS

# Effectiveness of Agency and Non-Government Organizational Efforts in Rhode Island Environmental Conservation

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**ABSTRACT**

The effectiveness of woodland conservation in Rhode Island is increasingly important as economic development pressures sacrifice critical forestland for commercial, residential and infrastructure purposes. This study looks to determine components of forest conservation practices that could be better suited to best protect this important land. Through the content analysis of interviews and citizen surveys, the most critical areas in need of improved efforts were revealed. It was discovered that the various lenses used by entities prevented the most beneficial cooperative efforts and further sharing of limited resources would increase efficiency. Additionally, educational efforts are limited and too often performed by government agencies as opposed to NGOs, something the citizens of Rhode Island stated they were less apt to believe. To unify the perspectives of woodland conservation entities, a natural capital model should be adopted. Greater emphasis should be placed on the need for NGOs to increase their educational efforts, with a resulting ratio of two parts NGO and one part agency education. Meetings and website forums should be used for the entities to better share resources needed to properly and effectively conserve woodlands. By making changes in the areas described woodland conservation entities can expect increased success in their overall field of work that is so important for the future of the state and the world as a whole.

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**INTRODUCTION**

Forest Conservation and Environmental Awareness

In discussing the matter of woodland conservation it is crucially important that one first distinguish between two terms that most presume to be interchangeable, preservation and conservation. The goal of preservation is to stop the alteration in any way of protected lands. Conversely, conservation is the process by which the natural state of the land is maintained. Conservation, unlike its related counterpart, can involve changes made to the land and management practices on the land, provided that the alterations do not hinder the sustainable natural state of protected land (Rhode Island Division of Fish and Wildlife, 2009). The latter of the two terms is the focus here. This distinction is important, as the latter term opens up to a world of goals and subsequent policies that relate to how land is managed while maintaining the protected state. The goals and policies involved in preservation are far more narrow and simple. Conservation results in a complex matrix of various organizations and agencies, and the policies they use to protect land as they see fit are equally as multifaceted (Leopold, 1999; Cawley, 2002).

It is difficult to note where the origins of environmental conservation arose, not unexpected since most ideas of an important nature seem to appear among several individuals working towards a similar goal simultaneously. Yet, it is apparent that environmental awareness and how it relates to forest conservation arose most prominently from Aldo Leopold, when he wrote that people “must feel for the soil, water, plants, and animals the same affectionate solicitude he feels for family and friends” (Newton, 2006). His workings and philosophy have influenced how goals and policies for woodland conservation efforts have unfolded in the 21<sup>st</sup> century. Specifically, it is his concept of environmental awareness that shapes how forest protection takes place today (Leopold, 1999; Meine, 1988). This concept further complicates the idea of conservation. Due to Leopold’s philosophy on environmental awareness, conservation has evolved into an attempt to “harmonize nature with the demanding, consuming American culture” (Newton, 2006). It is this juxtaposed interaction that results in

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the complexity of the policies arising from environmental conservation efforts (Leopold, 1999; Flader, 1994).

Forest Conservation in Rhode Island

Forest land once covered 90% of the state of Rhode Island. At the pinnacle of the agricultural sector in the mid-1800s, forests covered a mere 25% of the land. With the efforts of various state agencies and non-governmental organizations the forest cover grew to peak at nearly 60% in early 2000. These agencies and organizations achieved such a feat primarily through the natural progression of these farmlands being turned back into forestland (Butler & Wharton, 2002).

Today, however, forestlands are no longer sacrificed for agriculture, but for residential, commercial, or infrastructure uses. The current changes being made to the Rhode Island landscape cannot naturally return to forestlands in the manner that they once could. This means that woodlands cannot increase, they can only be lost (Ricard, 2006; Rhode Island Statewide Planning Program, 2003). Thus, now more than ever before, there is a need to protect the forest cover that currently exists. How can the state of Rhode Island and its various agencies and organizations effectively protect this precious resource? What should be the current focus for which type of organization? What needs to change to achieve what needs to be? In going forward with this difficult task of forestland conservation, these questions will have to be answered by conservation experts (Keller, Tosches, & Mycroft, 2001; Rhode Island Statewide Planning Program, 2005).

With all these agencies and organizations working towards the same ultimate goal of forest conservation it seems natural that they cooperate in the process, and that they are most effective when doing so. Jesse B. Mowry, Rhode Island's first forest commissioner said in 1924, "Cooperation has become a favorite catchword so incessantly stressed these days that one is led to inquire where in the boundless maze of sociological therapy the limitation of its worth may be set" (Butler & Wharton, 2002). This study asks how far these words of the famous forestland conservationist of the past have affected the actual workings of organizations and agencies in the same field today. Particularly, how does cooperation fit into

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the framework of current conservation efforts and what is the role of partnerships in the main questions being asked of conservation experts today?

Forest Conservation in Rhode Island, as explained by The Rhode Island Statewide Planning Program, has progressed to encompass eight goals within the same overarching vision of woodland protection. These goals are explained in the following chart.

Focus	Goal
<b>1. Forest Resources Management</b>	The ongoing effort to maintain conserved forest land post the protection phase.
<b>2. Forest Sustainability</b>	The need to maintain diverse forests that will exist for generations to come despite any human interactions.
<b>3. Information and Education</b>	Educating the public with regard to conservation issues and emanating information via workshops, pamphlets, on site instruction, and the like.
<b>4. Forest Health</b>	Maintaining forest health. This is important to the program because an unhealthy forest will not survive and could be permanently lost.
<b>5. Regulation of Use</b>	This goal pertains to the use of forest resources for commercial products. Forestlands should not be under nor over utilized for commercial products.
<b>6. Water Resource</b>	An ecological service, and thus purpose for forest lands, is the maintenance of clean water.
<b>7. Forestland Recreation and Tourism</b>	Land must be allocated and regulated for the purpose of citizenry use.
<b>8. Fragmentation</b>	In a small state such as Rhode Island, conservation experts are seeing a trend toward smaller parcel sizes being protected. These small parcels result in the fragmentation of ecosystems and the subsequent destruction of animal habitats. A fragmented forest is less effective in comparison to an unfragmented forest with regard to cleaning water, preserving biodiversity, or retaining nutrients and organic biomass cycles. In other words, it is ecologically more desirable to preserve one parcel of ten acres than five parcels of two acres each.

Within each of these goals there are policies that are intended to achieve each respective goal. It is at this level, the policy level that the organization and agency cooperation should occur. It seems that as the conservation program in Rhode Island is faced with dwindling manpower and budget reductions, cooperation should be occurring within all goals of woodland protection in order to maximum on what resources do exist (Rhode Island Statewide Planning

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Program, 2005). I hypothesize that it is when the work of the NGOs operates in conjunction with that of the government agencies that achieving the previously discussed goals of woodland conservation becomes the most effective.

Natural Capitalism

A new concept has become progressively more prevalent within the realm of environmental conservation in recent years, natural capitalism, in which natural capital is viewed as one of the four pillars of capitalism, along with financial, human, and infrastructure. Concomitantly, scholars in the field of environmental economics emphasize that economic values are associated with the ecological and employment benefits that result from environmental conservation (Swallow & Paton, 2001). Valuing natural capital is important because without advancing to this level, “the earth’s ability to sustain life, and therefore economic activity, is threatened” (Lovins, Lovins, & Hawken, 2007). In terms of woodlands with respect to natural capital, the environmental services of forest conservation include but are not limited to:

- Cleaner water (including watersheds, ponds, lakes, the ocean, etc)
- Reduced atmospheric carbon dioxide
- Erosion control
- Retention of nutrients and organic biomass cycling
- Oxygen production factory
- Wildlife preservation
- Aesthetic pleasure
- Tourism and recreation
- Mental benefits for people (i.e. relaxation, solitude, harmony, etc.)
- Lack of expenses from costly infrastructure (i.e. less need for school, police, etc)

Clearly, there is a great importance in preserving woodlands, yet how does this get accounted for in an economic system? What is the worth of the goals involved in forest conservation in a system where if a monetary value cannot be assigned to something it is worthless? Natural capital is the answer, it creates importance for something that is innately necessary, but does not fit into the present economic system (Swallow & Paton, 2001). When woodlands are eliminated the environmental services too are lost and must be paid for in some respect. A

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land tends to be overvalued in terms of built capital, but undervalued in the ecosystem perspective (Lovins, Lovins, & Hawken, 2007) (Hawken, Lovins, & Lovins, 2000). Thus, a concerted effort to create a natural capital system within Rhode Island forest conservation will result in better understanding of the specifics of when and how goals are achieved.

Ultimately, this understanding will result in better cooperation among key agencies and organizations (Swallow & Paton, 2001) (Hawken, Lovins, & Lovins, 2000). The question that will be examined in this paper is whether an effective level of partnering and cooperation has yet occurred? If so, is it working? Then there is always the question of continuous improvement, how can it work better?

## **METHODOLOGY**

There are several players involved in Rhode Island forest conservation and to presume to know anything about the process, all of these players had to be accounted for. In Rhode Island these people include conservation site managers, non-profit organization employees, state government agency workers, municipal government staff, Rhode Island citizens and municipal planners. To account for the perspective of all members in this list, excepting the citizens, interviews took place between June and December 2009. In October 2009 surveys were distributed to obtain input from Rhode Island citizens on the subject matter. The grounded theory and conceptual analysis methods of research analysis were used to interpret the information gained. Outside perspective interviews then took place to test the concepts and theories developed in the analysis. It should be briefly noted here that zoning ordinances provide an additional protection tool for small woodland areas, yet this paper does not explore the implications of zoning.

### **Key People Interviews**

Interviews were used for the key individuals in this study because this method of gaining information allows for an in depth explanation of how environmental conservation efforts unfold in the state. In order to determine whom to interview, first specific woodland conservation sites were chosen. This project uses the Arcadia Management Area and the George Parker Woodlands as samples to evaluate the state conservation efforts as a whole.

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The Arcadia Management Area was chosen for its ecological diversity and the great spans of land and environmental conservation it contains. The George Parker Woodlands was chosen to counter the size and plant life of the Arcadia Management Area. Combined, these two conservation areas are meant to provide an accurate depiction of the diversity of the ecological conservation areas found in Rhode Island.

The key organizations and agencies involved in protecting these two conservation areas then become the focus for interviews. The following non-governmental organizations (NGOs) were interviewed:

- The Nature Conservancy of Rhode Island (TNC)
- The Audubon Society of Rhode Island (ASRI)
- The Coventry Land Trust

Governmental agencies studied include:

- The municipal government of West Greenwich
- The Rhode Island Department of Environmental Management (RIDEM)
- The Rhode Island Division of Fish and Wildlife (RIDFW)

ASRI is the only player involved in protecting the George Parker Woodlands, the rest pertain to the Arcadia Management Area. All those interviewed were involved in the policy making process of protecting either the Arcadia Management Area or the George Parker Woodlands in particular. An attempt to create a well rounded representation of the types of involved players was considered during the process of finding interview subjects. Yet, it is critically important to note that these agencies and organizations are just a select few of the countless entities either directly or indirectly involved in the conservation of Rhode Island forests.

Citizenry Survey

As expressed previously, education is a dominant goal in woodland conservation in Rhode Island. In a forestland owners' survey conducted by the RIDEM, 72% of respondents said that education is critical or very important (Rhode Island Statewide Planning Program, 2005). Thus, citizens of Rhode Island were surveyed to determine if in fact the education component of conservation was being successfully fulfilled. Further questions were asked in the survey to

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determine the perception of the citizens in how effective they saw woodland conservation efforts in the state. These surveys took place at grocery stores in Rhode Island during the month of October in 2009. Locations for surveys were selected based on town nearness to conservation sites and conservation entities.

Analysis of Interview and Survey Data

The methodologies of grounded theory analysis and conceptual analysis were adopted for interpretation of the interview and survey data collected as part of this study. Grounded theory of content analysis allows for the researcher to become more intimate with the data collected. This method of analysis allows the researcher to develop a “set of concepts that provide a thorough theoretical explanation of [the] phenomena under study” (Corbin & Strauss, 1990). Analysis of the data took place from the instant the data was collected. The formulation of concepts in the woodland conservation matrix in the state developed throughout the interview and survey process. Cues are generated at the very beginning of data gathering that are then noted throughout subsequent data gathering episodes. Yet, it is important to note that the analysis is dynamic throughout the process so as to not miss important concepts in future data gathering. Patterns in these cues result in the concepts needed to form a theoretical explanation of the phenomenon (Corbin & Strauss, 1990).

In conceptual analysis the researcher uses concepts to code the existence and frequency of them in the data collected. The coding terms and subjects used here in the conceptual analysis originated from the understanding gained in grounded theory analysis. Ultimately, these two methodologies created a clearer, holistic picture of how woodland conservation takes place, the cooperation used, and inefficiencies in the process. The concepts found in the grounded theory and then coded in the conceptual analysis became the major themes found as lacking in efficiency. The understanding of inefficiencies in the major theme areas gives rise to suggested future steps to enhance the current operations of the ultimate goal of forest conservation (Krippendorff, 2004).

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Outside Perspective Interviews

In order to further explore the ineffective policy aspects that become apparent in the interview and survey results analysis, individuals with close understanding yet an outside perspective on the matter were interviewed. Those interviewed are from the following backgrounds:

- Rhode Island Policy Advising
- Rhode Island Statewide Planning Program
- Former RIGIS Coordinator

These individuals were able to interpret the appropriateness of conclusions from previously analyzed data. In this manner theoretical concepts created during analysis of previous data could be tested using this sampling to determine what will have an impact on the phenomenon in question. These interviews took place in December 2009.

**RESULTS**

Table I. Key People Interviewed

Agency/ Organization	Related Conservation Site	Main Role of Agency/ Organization	Division of Individual	Purpose of This Interview
<b>Rhode Island Department of Environmental Management</b>	Arcadia Management Area	Planning, design, and oversight of consultants	Division of Planning and Development	Gain perspective on state planning methods for large conservation areas.
<b>Rhode Island Department of Environmental Management</b>	Arcadia Management Area	Steward of natural resources, operational, funding, and supporting	Division of Fish and Wildlife	Understand state based woodland preservation from an environmental systems view as well as a manager perception.
<b>Rhode Island Department of Environmental Management</b>	Arcadia Management Area	Steward of natural resources, operational, funding, and supporting	Division of Forest Environment	Consider state woodland preservation based on those focusing on it.
<b>The Nature Conservancy of Rhode Island</b>	Arcadia Management Area	Advising, promoting public support, and initiating projects	Division of Conservation	This interview allowed for the NGO perspective of a large conservation site.
<b>The Nature Conservancy of Rhode Island</b>	Arcadia Management Area	Advising, promoting public support, and initiating projects	Division of Conservation	Gain perspective on the management of forestland from an NGO standpoint.

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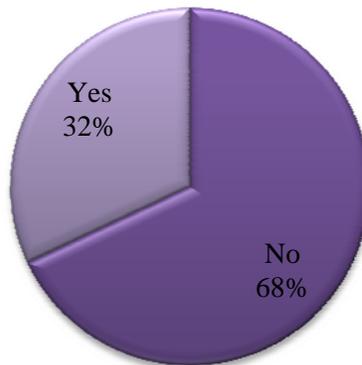
<b>The Coventry Land Trust</b>	Arcadia Management Area	Initiating Projects, promoting public support	Committee	Comprehend the role of the small local NGO in the grand scheme of Rhode Island woodland protection.
<b>Town of West Greenwich</b>	Arcadia Management Area	Planning and managing	Municipal Government	Take into account the local government perspective.
<b>Audubon Society of Rhode Island</b>	George Parker Woodlands	Advocacy, promoting public support, and initiating projects	Division of Conservation	Understand the methods in an individual effort of protecting smaller plots of forestlands.

Table II. Citizenry Survey

Location	Date	Conservation Site Relation	Number of Individuals Surveyed
<b>Lincoln, Rhode Island</b>	17 October 2009	George Parker Woodlands	19
<b>Coventry, Rhode Island</b>	16 October 2009	Arcadia Management Area	15

Figure I: Pertinent Citizen Survey Data

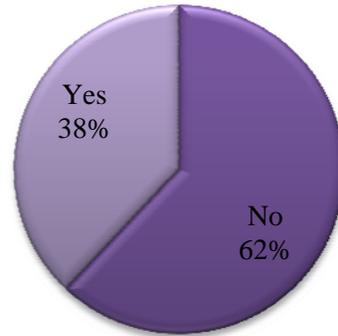
Understand Need for Conservation



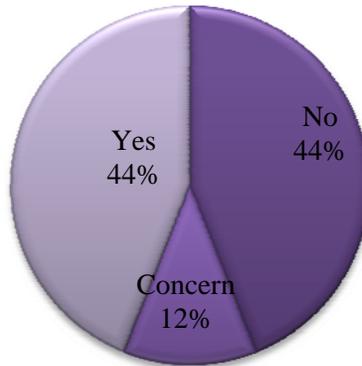
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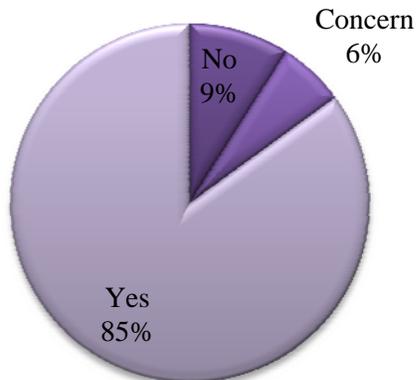
Given Enough Information on Environmental Conservation



Trust Agency Education Information



Trust NGO Educational Information



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Table III. Major Themes that Emerged

Major Theme	Interview Frequency	Citizen Comment
<p><b>I. Differences in lenses create the need for some unifying means of analysis in order to expand capabilities.</b></p>	<p>-When asked basic questions about how to define environmental awareness and what citizens should be aware of in terms of conservation, all interviews reflected the roll their agency plays in the process.                      -All agencies and organizations differ in terms of their valuation of forestland. In order to better partner and protect land, these entities need some means of harmony that can be brought to a negotiation table.                      -When asked if forests were worth more stand than cut, agencies said that proper management results in a benefit on both ends while NGOs stated that standing forests are better. There is going to be inherent disagreements with certain aspects of forest conservation, the goal need not be to create complete agreement but rather a unifying system for analyzing various specific situations.</p>	<p>-An overwhelming 94% of surveyed citizens said they were concerned with conservation and they found woodland conservation to be of particular importance for Rhode Island’s future. Yet, when asked if they predicted strong efforts to occur in the future towards conservation, overwhelmingly the answers were in the middle of the spectrum, closer to “unsure” than any definite answer. Clearly the citizens feel that efforts must be expanded in these areas, yet they too see the difficulty in doing so without some alteration in the matrix of current conservation operations.</p>
<p><b>II. There is a definite lack in alignment of educational efforts amongst agencies and NGOs and what citizens perceive to be necessary.</b></p>	<p>-Educational efforts towards expanding knowledge of environmental awareness are more focused in the public sector than in the private.                      -Most agencies and NGOs found that conservation efforts were still a top priority.</p>	<p>-A majority of the surveyed citizens said that they trust information given by NGOs, while only half believe the public sector. Most also felt that NGOs have more impact on influencing public opinions.                      -Citizens feel for the most part that they are not given enough information on woodland conservation. They also find that other Rhode Island citizens do not understand the need for woodland conservation, something that would best be remedied through education.                      -The message that conservation is a top priority is not conveyed well to the citizens of Rhode Island, who do not see this as a focus of the state in the future.</p>

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<p><b>III. Economic restrictions create an ever increasing need for sharing resources amongst agencies and NGOs.</b></p>	<p>-Interviews expressed that the most common and preferred form of cooperation is by pooling their economic resources. One local government did express the need to share other resources.</p>	<p>-An overwhelming majority of people who had visited a conservation site had been to several that were managed by all different entities, public and private.</p>
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**DISCUSSION**

Varying Lenses and there Unifying Force

The agencies and NGOs interviewed were all coming from different perspectives on the matter of woodland conservation. Due to their general roles in forest conservation each entity focuses on varying aspects as their main concerns. For example, most agencies felt that environmental awareness encapsulated some component of public understanding, while NGOs tended to focus on the ecological system and services as important in this matter. Even further, the individual in an entity holds biases that reflect their particular role. An individual whose role was in planning was understandably most concerned with regulation when discussing how citizens should feel about conservation. Yet, when asked the same question conservation land managers were most concerned with health of protected land, and assessors spoke of development issues, etc. Thus, when the entities partner together to achieve varying goals, or when they are brought together to discuss various issues facing woodland conservation as they do, discussions can be greatly stalled or face standstills due to different viewpoints of the matter at hand. Different entities will find importance in diverse aspects of one particular issue. Yet, all parties merit respect for their bias. The greatest difficulty here is thus appropriately allocating all view points in the discussion process and ultimate decision (State Policy Office, 2009).

A unifying method of discussion could thus be used to bring all members of the conservation framework to the same understanding and thus foster more effective woodland conservation efforts. Developing a comprehensive natural capital system would be very effective in achieving this goal. Currently, the woodland conservation system is one in which conservation entities gather to attack specific insults rather than using a system-based comprehensive plan that guides in all conservation matters. Thus, when partnering to attack

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specific insults these entities have no unifying plan that allows the process to move forward as quickly as possible while maintaining that all viewpoints have been heard. A natural capital system allocates real dollar values to the critical ecosystem services of forested areas “that contribute to ecological quality and quality of life” (Swallow & Paton, 2001). If entities involved in forest conservation came together to denote real money value to the ecological and life benefits that arise from woodlands, then they would create a comprehensive guideline that takes into consideration all perspectives of forest conservation that could then be used for dealing with future specific issues.

In interviews many individuals expressed that environmental systems components (like the ones expressed previously) or sustainability were their key means for valuation of forestlands, but none expressed attaching real dollar amounts to these environmental systems. Yet, there would be two great advantages if these entities were to attach real dollar amounts to their valuation methods of forestland. First, the real dollar amounts would create concrete metrics of measuring the importance of varying woodlands. This would then allow entities to use these metrics when partnering together on projects. By using natural capital in this manner, the entities will feel as if they have all been accounted for in the discussion, and the process would move much swiftly when dealing with specific insults. As discussed later, anything that can quicken the process involved in group discussions is beneficial for woodland conservation. The second greatest advantage to using natural capital is in creating cost-benefit analyses. As opposed to countering dollar amounts for the cost of cutting down forestland with terms like “carbon reduction” or “clean water protection” in the benefit column, real dollar amounts can be used in the benefit as well. By comparing apples to apples, a cost-benefit analysis becomes innately more comprehensible and decisions clearer and thus quicker. Furthermore, a cost-benefit analysis that uses natural capital provides evidentiary support for decisions that are made if any be contested by another entity. Additionally, when interviewees were asked how they explain ecological benefits to individuals who focus on a financial value many explained that translating the ecological system value to dollars and cents would be most effective in this scenario. Thus, there is some inherent understanding amongst these entities of the basic benefit to using a natural capital system, even if it has yet

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to achieve any definitive status in the conservation system. Ultimately, combining forces with participating entities of woodland conservation to create a system based plan for valuating ecosystem services of forestlands would thus prove to be very beneficial for the future needs of the land. This effort will move woodland conservation into ecosystem based management, which has already proven to be beneficial for water protection in Rhode Island but has yet to be seen for forestlands (RIGIS, 2009). The result of this unified creation of a natural capital system in Rhode Island will be increased ability in addressing conservation issues and achieving goals.

### Educational Force

The interviews and citizen surveys conducted revealed a concerning contrast in what should occur with regard to citizen education on the matter of woodland conservation and what is actually happening. As can be seen previously in Figure I, 62% of citizens expressed that they are not given enough information on environmental conservation. Furthermore, 68% feel that Rhode Island citizens do not understand the need for forest conservation. When then asked if the citizens trust information they are given on the subject matter from the government, 44% said they would not, and 12% expressed concern about trusting the government yet they did not harbor a complete distrust. However, 85% of citizens stated that they would trust information given to them by NGOs. Thus, two key features are embedded in these responses. First, there must be a greater effort being undertaken for education of the Rhode Island citizens on forest conservation issues. Second, this effort should comprise both agency and organizational entities, with a particular weight on the organizations.

With regard to the entities involved in woodland protection, most expressed concern that the citizens of Rhode Island do not understand the need for forest conservation or that they only understand it to a degree. Thus, the agencies and organizations also see that there is a need for more education. Then, when asked which entities took direct part in educational efforts it was predominately the agencies that emphasized this as part of their overall conservation framework. This is in blatant contradiction to what the citizens expressed as being most effective with regard to education. Citizens are essentially expressing that education should be

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two parts organizational and one part governmental agency. Yet, actually, education is occurring as two parts governmental agency and one part non-for-profit organization. Hence, in order to achieve the previously expressed important goal of education the entities involved in woodland conservation should increase their efforts in this area while maintaining a roughly two parts NGO to one part agency ratio in their dealing. This will most effectively occur through a partnership between NGOs and governmental agencies, as it tends to be the governmental agencies that have the resources for education. Additionally, if education were focused around the environmental services components, this would further the success of efforts towards unifying efforts as expressed previously. Ultimately, with this knowledge the educational efforts will allow for greater understanding of the citizens and stronger support for conservation goals, resulting in more effective woodland conservation efforts based on agency and NGO cooperation.

Sharing Resources

Woodland conservation entities perceive partnership as a must across the board. Thus, at first it appears Jesse Mowry's words have not fallen limp to these entities. Yet, at closer glance the interviews reveal that cooperation is mostly occurring for the purpose of splitting the cost of land acquisition. The second dominant use of cooperation, yet to a much lesser degree, is in jointly holding development rights. In these two manners the process of partnership has been predominately effective in creating successful conservation efforts, as expressed by interviewees. Disagreement on these matters will arise due to the diverse goals and expectations held by the different entities (yet, as expressed previously this would be one area in which a natural capital system would aid in the resolution of these disagreements). Outside of these two areas little was discussed by way of cooperating to share other resources aside from financial.

All entities have a great deal of knowledge, ideas, research, tools, technical expertise, etc. that aid each separately in their goals for woodland conservation. On a system wide basis, there is a lack of cooperation in sharing these resources, predominately due to economic constraints of the various entities (most notably time and staff). However, there is inherent value in

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roundtables, workshops, and periodic meetings that bring together people from various agencies and NGOs (Statewide Planning, 2009). While these methods are currently used to varying degrees, greater attention in this area would benefit conservation at large. Local smaller entities expressed in their interviews the need to share more resources. This request is understandably coming from the entities that feel the greatest brunt from economic constraints. However, larger entities too feel a great deal of restriction of their resources. Thus, while it is the smaller entities that most see the need to share the resources, the larger entities too would benefit from such practices.

One past effort that did occur with regard to sharing resources outside of the monetary realm resulted in a great achievement for the forestland conservation entities. The geographic information systems (GIS) tool is a visual mapping tool that aids in conservation efforts. There was a time when all entities had their protected lands all separately on their own GIS tools. Then, The Nature Conservancy decided to step forward and compile all the separate data (Statewide Planning, 2009). All entities shared the data they had with TNC to achieve their goal. Ultimately, the protected areas of Rhode Island were all compiled to create an all-inclusive RIGIS for all entities to use. This has proved to be very advantageous in forest conservation efforts. Yet, sharing resources would even continue to generate more success for these entities with regard to the RIGIS. For example, smaller entities today still cannot fully utilize this tool that greatly enhances the efforts of larger entities. Furthermore, many entities do not have resources to keep working with GIS and often depend on volunteers for the information (RIGIS, 2009). As the outside perspective interviews explained and as is apparent by the RIGIS example, while there is a large transactional cost of time and effort involved in bringing these entities together for further cooperation it is ultimately worth the results of more effective woodland conservation.

**SUMMARY**

It is clear through the interviews that strategic land acquisition and management were important in the future of woodland conservation in Rhode Island. Yet, with the scarce resources allocated to each agency and organization, maintaining statewide goals for

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woodland conservation is progressively becoming more difficult. As the years pass the stakes are getting higher for woodland conservation. Natural land is under a great deal of economic pressure to be sacrificed for the sake of commercial use. Strategic land that is then surrendered to the pressures cannot be returned to natural land as it once did from farmland. It is for this reason that more efficient efforts towards woodland conservation are imperative.

After conducting key people interviews, citizen surveys, and outside perspective interviews three clear areas for more efficient efforts arose. The first realization was that the different entities involved in woodland conservation are operating from different perspectives that can hinder the effectiveness of collaborative efforts. Unifying these entities will allow for a more efficient force on behalf of woodland conservation. Rhode Island woodland conservation currently operates on a piece by piece effort, yet more effectual efforts would result from a systems based approach. Thus, a natural capital system would enhance the inefficiency described by creating a system based approach that allows entities to individually and collaboratively better value forestland based on a comprehensive perspective.

It was also discovered that the educational goal in woodland conservation is unsuccessful in certain aspects. Education is acknowledged as a critical goal for woodland conservation. Education begets support for the cause, and the support of the public will aid in facilitating success in other goals. Yet, the citizens of Rhode Island have expressed that there is not enough education taking place. They do not feel that all citizenry have enough knowledge of woodland conservation and its practices. Additionally, the citizen expressed that education would be most beneficial if it was coming in majority from NGOs. In actuality, however, most educational efforts are coming from the governmental agencies.

Economic restrictions resulted in the final key theme that sharing resources would result in more powerful forest conservation measures. While all entities currently combine forces for monetary purposes, it is less common that they partner for sharing other crucial resources. Yet, in the occasions where they have the result has been vastly beneficial. Thus, further efforts in this area would create overall greatly enhanced conservation practices.

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While agencies and NGOs have been quite effective in the past at achieving the goals they have expressed, the previous three arenas would result in more effective achievements of these goals. All areas require a greater degree of agency and NGO concerted efforts, and thus more effective woodland conservation does result from agency and NGO cooperation. Furthermore, by establishing the three areas discussed in the manner suggested the overall force and league of woodland conservation entities will become more influential in other ways. Politically, these entities could become a stronger voice in all issues that affect woodlands. Outside perspective interviews unanimously expressed the importance in these entities holding a greater significance politically.

**RECOMMENDATIONS**

Overall, woodland conservation in Rhode Island has a definitive method for protecting parcels of land. Yet, any functioning unit can always take steps towards becoming more effective. This study has shown three areas in which altering or enhancing the current operations can beneficially impact the forest conservation process. Initial steps must be taken to begin achieving these goals.

To unify the entities and prevent many issues that arise in cooperative efforts, a natural capital system should be adopted. In order to do so, entities must first come together to create an agreed upon means of monetarily valuating forest land. There will undeniably be disagreements at these meetings, yet when an agreement is finally reached the result will be more powerful and efficient future decisions for particular insults. This definitive base will also create a forum for future decisions that do not allow any entity to trump another in discussions since all entities have been considered in the creation of that base.

Increasing the overall efforts in education on behalf of the NGOs would of course result in the two parts NGO and one part agency educational system discussed previously. Yet, it is understood that trying to increase education alone can be difficult. Thus, partnering with governmental agencies that are currently performing education actions would be a first step to take to improve educational efforts. By partnering the governmental agencies, the NGOs will

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become more aware of what educational efforts consist and will also benefit from agency resource allocation to education. Furthermore, the agency efforts already taking place will have the added benefit of drawing more citizen attention and genuine consideration when the NGOs name is attached. Of course this is not going to create the 2:1 ratio suggested to improve woodland conservation education in Rhode Island, but it is a step in the right direction and it is anticipated that this move will facilitate an increase in NGO educational efforts in the future.

Improving resource sharing amongst woodland conservation entities can begin through internet collaborations. There are several online sources that can be used as a forum for entities working together on particular projects. In undertaking this first step towards resource sharing, there should be assigned a point person that facilitates the website. It is absolutely crucial however that contingency plan be in place for when the point person is lost. While few efforts similar to this have occurred in the past, and were quite successful, they were quickly deflated when the point person left (Statewide Planning, 2009). If contingency plans are in place these sites should result in greater successes. These websites should be able to increase overall partnerships and sharing of resources.

Again, these are strictly first steps to take in the overall process of enhancing woodland conservation. Further improvements in the areas discussed, as well as others that arise, should be perpetually considered and established. Additional improvements could include better cooperation with towns and cities through municipal zoning for groundwater protection, erosion control, and open space. Doing so would further enhance the partnership potential for long term protection programs. It is also suggested that part of collaborative efforts amongst agencies and NGOs be brainstorming for other improvements needed to the woodland conservation matrix that will effectively and efficiently achieve each entity's supreme goal of protecting the critical land in a small state before it is lost forever.

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**APPENDICES**

Appendix A – Key Person Interview Questions

**Entities**

1. What is environmental awareness?
2. Should citizens be worried about environmental conservation?
3. Is your organization trying to create environmental awareness? If so how?
4. Do you think other environmental organizations or agencies understand the need for forest conservation? Do the citizens of Rhode Island?
5. Do you think your organization has an impact on public opinion? Why?
6. Is your organization making efforts to educate the public on forest conservation?
  - a. What are these efforts (i.e. classes, pamphlets, camps, etc)?
7. What is your organizations concept of natural capital being part of an economic system?
  - a. What is your organizations valuation of forest?
8. What are the ecosystem services provided by forestlands?
9. Are forestlands worth more standing than cut? Why?
10. How do you explain the importance of natural capital to people who limit their view of capital to financial value?
11. When considering the environment is natural capital more important than economic capital?
12. How much conservation land is owned by your organization?
13. How much easement land is under the organizations control?
14. With regards to the George B. Parker Woodlands, how much land is particularly preserved by your organization?
15. Are there managers that help monitor this land for ASRI?
16. Who are the other government agencies and NGOs that play a part in the protection of this area?
17. What conservation policies do you find most effective in protecting this land? (i.e. outright acquisitions, partnered acquisitions, easements, development rights, land donations, etc.)
18. What do you believe should happen in the future with regards to woodland conservation?
19. What is most important for Rhode Island conservation in the decade to come?
20. What are your predictions for the future?

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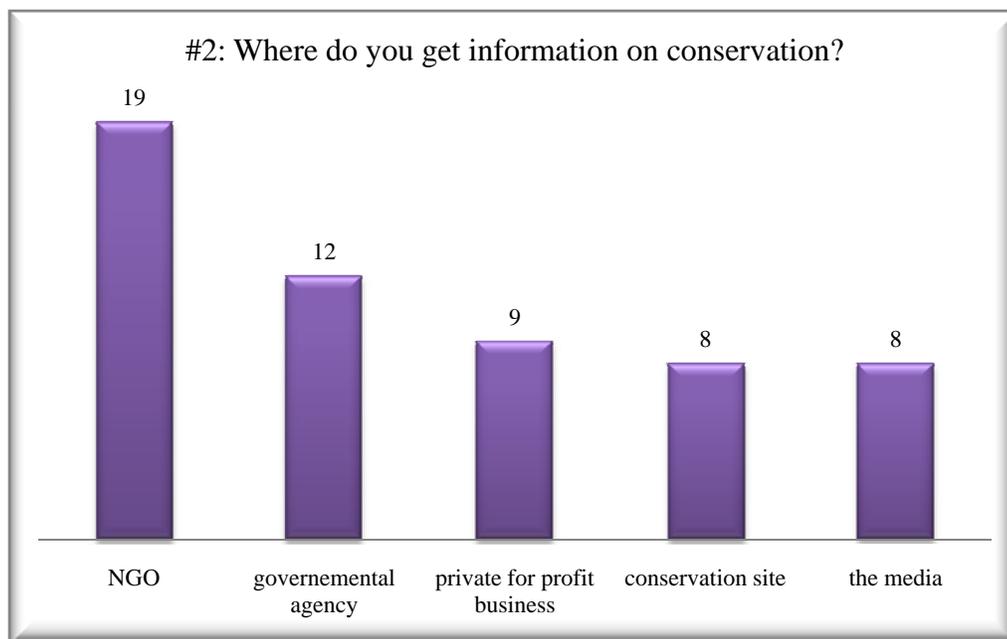
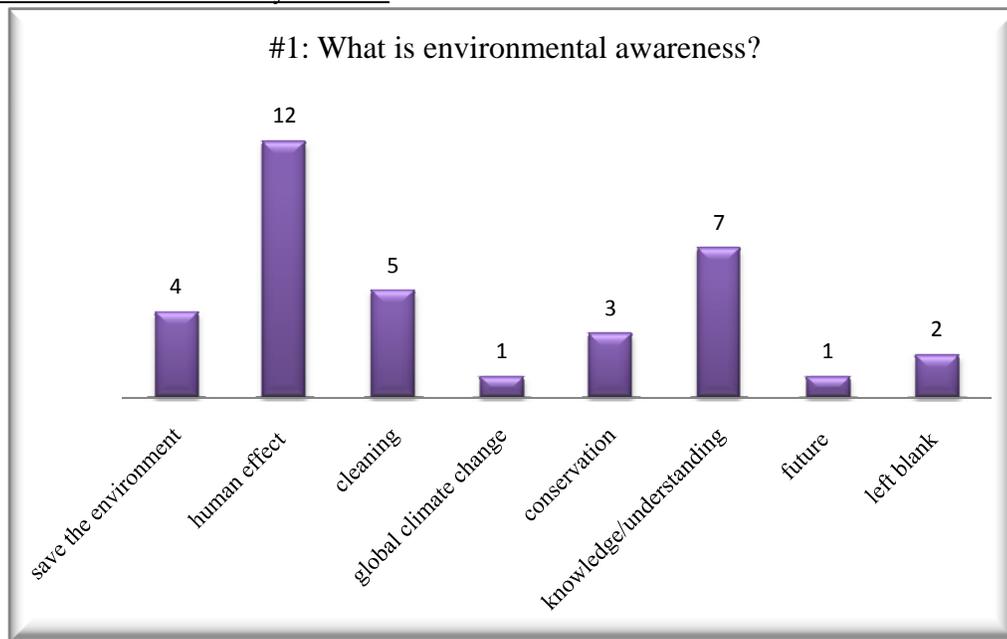
**Managers**

21. What is environmental awareness?
22. Should citizens be worried about environmental conservation?
23. Are you trying to create environmental awareness? If so how?
24. Do you think other environmental organizations or agencies understand the need for forest conservation? Do the citizens of Rhode Island?
25. Which org/agency has more impact on public opinion? Why?
26. What organizations are making efforts to educate the public on forest conservation?
  - a. What are these efforts?
  - b. Who is best at their education efforts?
27. Are you aware of the concept of natural capital?
  - a. What is your understanding of this concept?
  - b. How did you learn about it?
28. What are the ecosystem services provided by forestlands?
29. Are forestlands worth more standing than cut? Why?
30. How do you explain the importance of natural capital to people who limit their view of capital to financial value?
31. When considering the environment is natural capital more important than economic capital?
32. How much conservation land is under your control?
33. What conservation policies do you find most effective in protecting this land? (i.e. outright acquisitions, partnered acquisitions, easements, development rights, land donations, etc.)
34. What do you believe should happen in the future with regards to forestland conservation?
35. What do you predict the future holds for environmental conservation?
36. What is more important for Rhode Island conservation efforts at the beginning of a new decade?

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Appendix B – Citizen Survey Results



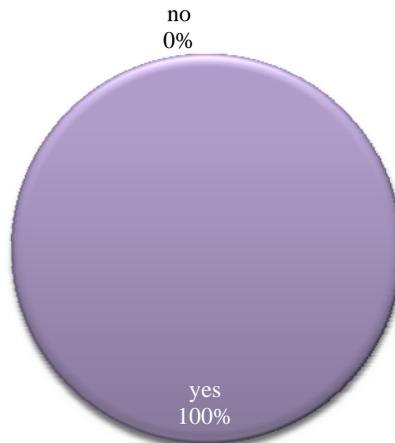
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#3: Are you concerned with environmental conservation?



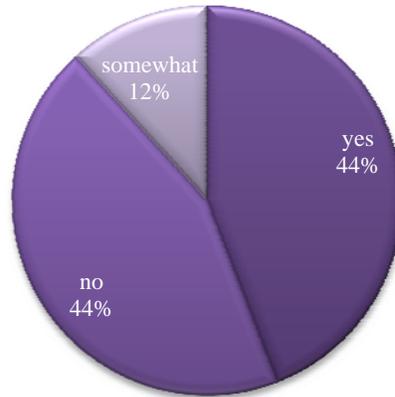
#4: Should you be concerned?



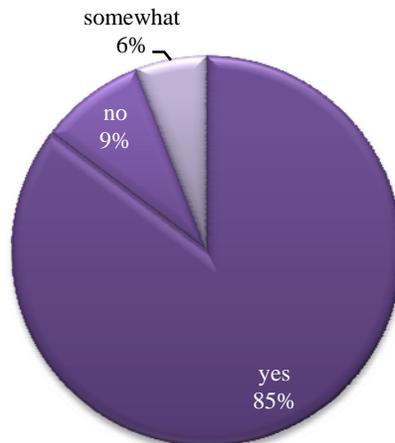
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#5: Do you trust information given from the government?

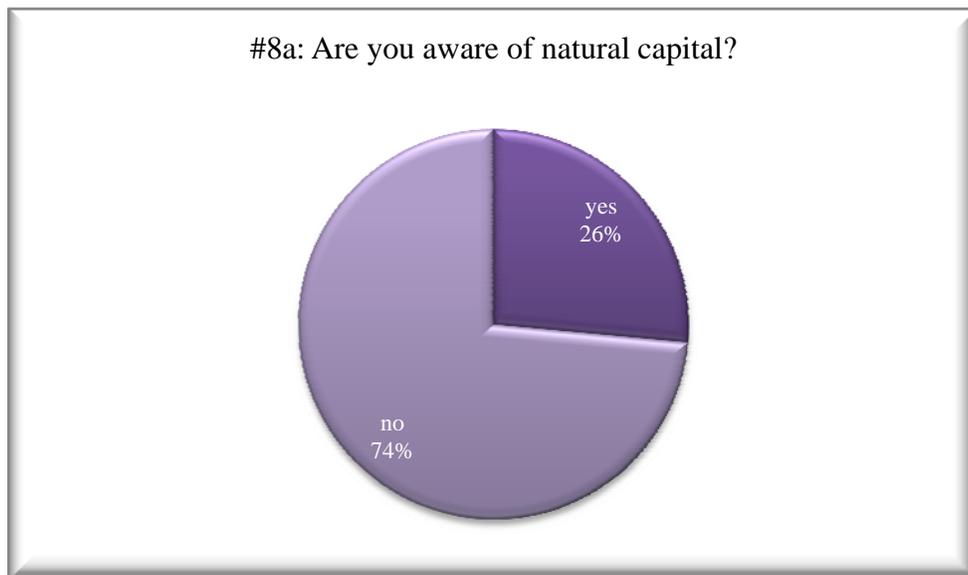
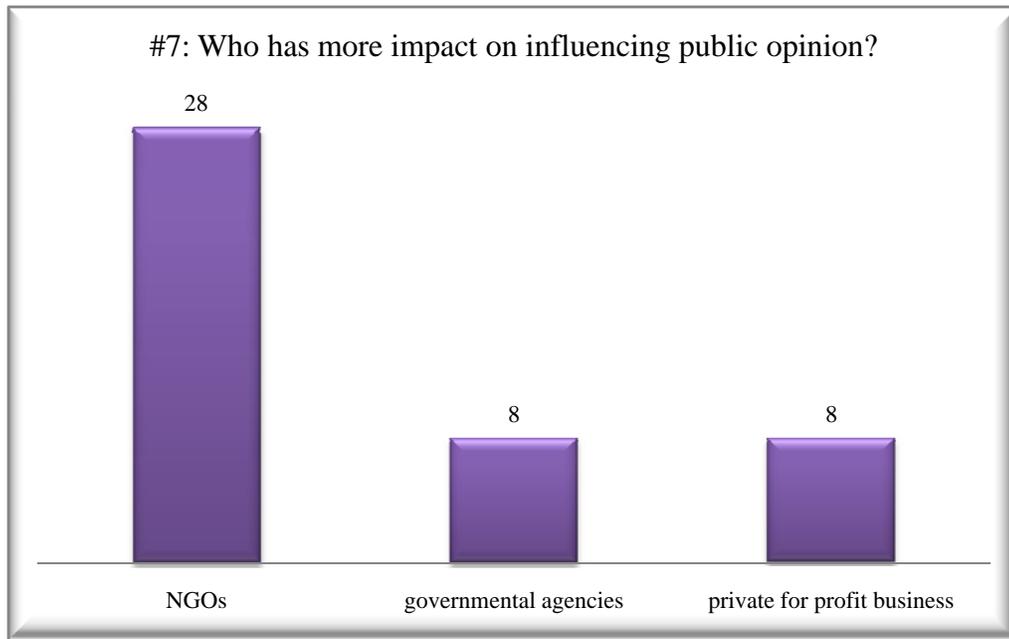


#6: Do you trust information given from NGOs?



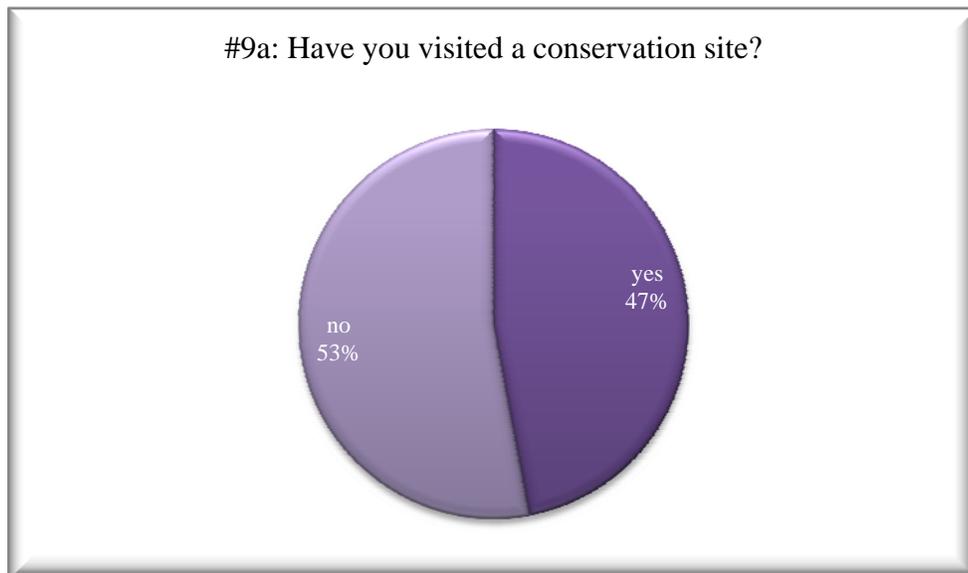
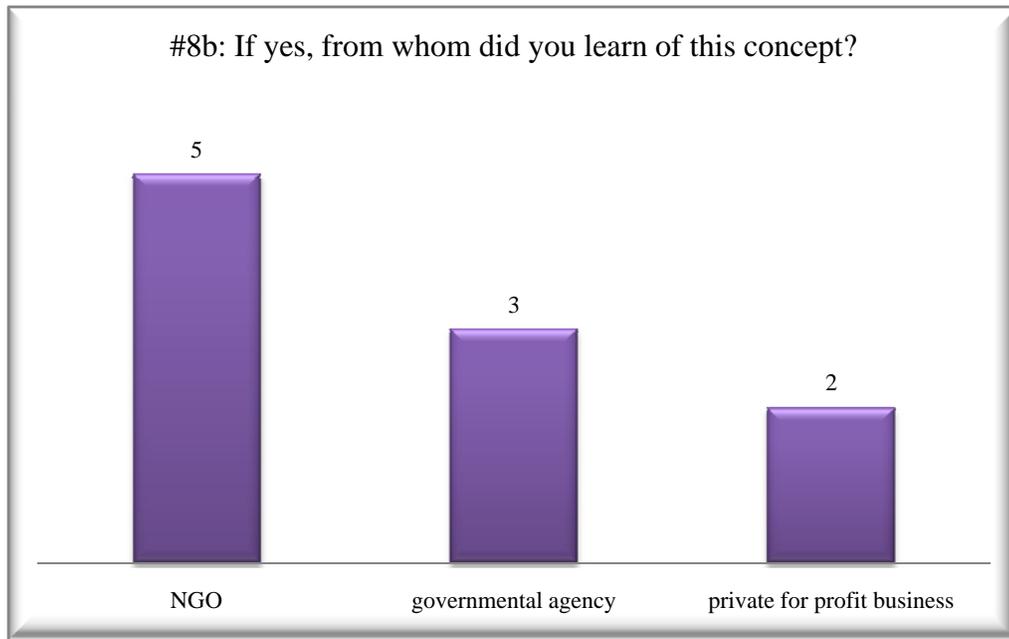
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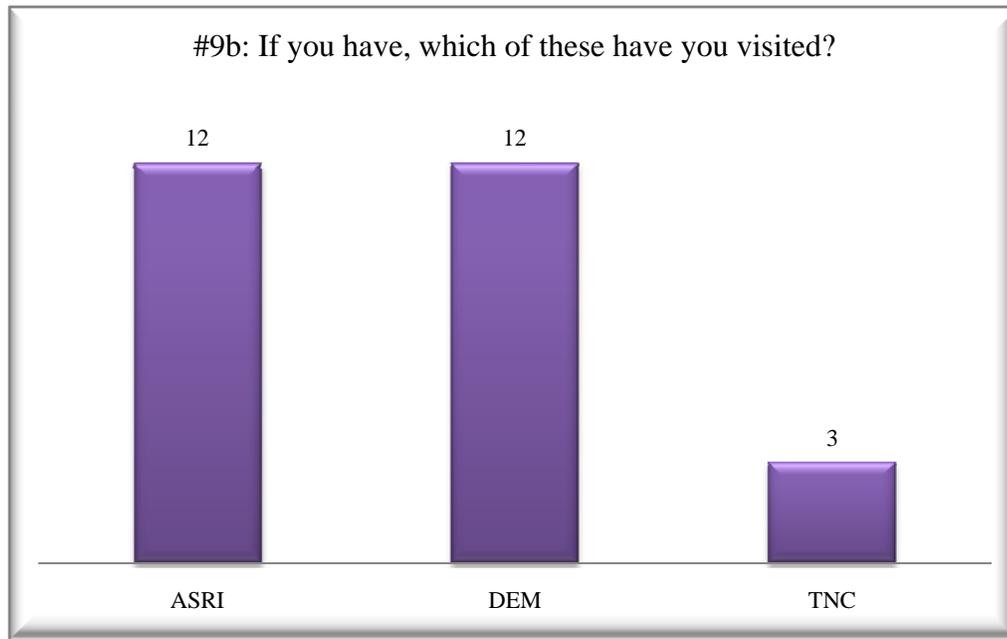
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	Agree	Somewhat agree	No opinion	Somewhat disagree	Disagree
#10: I am given enough information on environmental conservation	5	8	0	15	6
#11: Other Rhode Island citizens understand the need for forest conservation.	4	7	0	16	7
#12: Forests are worth more standing than cut.	24	8	2	0	0
#13: Natural capital is more important than economic capital.	10	10	11	2	1
#14: I believe in the importance of woodland conservation for the future of RI.	25	8	1	0	0
#15: I see strong woodland conservation efforts in Rhode Island's future.	5	8	11	8	2

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Appendix C – Outside Perspective Interview Questions

1. What role does statewide planning play in environmental conservation?
2. Which of the statewide planning guide elements would best apply to the policy area?
3. Have you encountered a common theme in situations where governmental agencies and NGOs are working together on projects that their own orientation or perspective may influence the effectiveness of their concerted actions?
  - a. Have you observed this type of behavior?
  - b. In your role can you offer any advice for making these collaborations more effective?
4. Do you know of a particular example that would illustrate how different agencies and/or NGO's have worked together particularly well?
5. Would sharing resources between governmental agencies and NGOs allow for more effective woodland conservation efforts?
  - a. Is this possible? Do you have any examples of this being done?
6. If all parties viewed woodlands as an important type of Natural Capital for the State of Rhode Island, do you think we could create more focused woodland conservation efforts?
7. Would partnering be more effective and efficient if public policy makers and private entities viewed that they were protecting the same resource (i.e., shared, common view of the woodland under protection)?
8. I know that policymaking regularly uses scenario development (best and worst case scenarios) for identifying alternative strategies for statewide environmental policies- how does NGO input come into play here?
9. In terms of legislative roles in environmental policy making, do you think it's effective right now?
10. What key pieces of legislation do you think might be most helpful for forest and watershed protection in Rhode Island?
11. Should organizations/agencies focus more on the particular role they plan in conservation efforts, or is it more effective to try to bring these individual actions together in order to get "more bang for the buck?"
12. Do you think that the RI-DEM divisions that play a role in forest protection would welcome or appreciate the NGOs that might be potential partners?
13. Would better partnering of technical staff and NGO resources result in more effective or more focused efforts?
  - a. Do you think that the watershed model of combining conservation efforts of multiple groups could be applied to protection of woodlands in Rhode Island?
14. If all parties viewed woodlands as an important type of Natural Capital for the State of Rhode Island, do you think we could create more focused woodland conservation efforts?
15. How is technical information used differently by the public and private sectors?
16. In your experience, is technology better funded in the public sector or in the private sector?
17. Are there different situations where the two sectors will lean towards or away from using technical information?
18. Do you see in any ways that GIS tools could be better utilized for woodland protection in the state?
19. What are some of the important mapping projects not yet completed that might help RI policy makers in addressing land conservation needs?
20. Do you believe that more should be done with making local government and local conservation groups aware of existing maps and other documents that could help them in protecting valued tracts of land in their respective towns?

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