

SEEDS leadership meeting 2012

Title: Ecological science and public policy: an intersection of action ecology

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Ecological science and public policy; these are two realms that must be integrated when taking into consideration the welfare of society, its future generations, and the resources upon which we all depend. The question whether scientists should engage in policy, and the degree of appropriateness that it entails, has been strongly debated by scientists and non-scientists (e.g. policy makers) for a century (Nelson and Vucetich 2009). It has been long believed that scientists should avoid advocacy because this action is subjective, and consequently it conflicts with their scientific objectivity (Nelson and Vucetich 2009), but science and policy do not have to be two disparate worlds (Fallon and Pepper 2011). By engaging in policy, scientists do not have to necessarily be advocating for a particular stance, and they should be clear about their intentions of whether they will be advocating or serving as advisors for the policy-making process (ESA 2011). Nevertheless, advocacy cannot be classified as inappropriate for scientists, since as citizens first and scientists second, scientists have the responsibility to share their knowledge in a transparent manner for the betterment of society (Nelson and Vucetich 2009).

It is this important intersection of science and policy that brought students of the Ecological Society of America's SEEDS (Strategies for Ecology Education Diversity and Sustainability) program together in our Nation's capital for the 2012 ESA-SEEDS Leadership Meeting. This meeting serves as a forum for students to make advancements in a specific and contemporary topic in the field of ecological science. Scientists from federal agencies (USDA Forest Service, NOAA, and the National Park Service) and non-governmental organizations (Ecological Society of America, Natural Resources Defense Council, and the Union of Concerned Scientist) assisted the group in creating new insights in the topic of the meeting; Ecological Science and Public Policy: an Intersection of Action Ecology.

We, the SEEDS students, are a dedicated and diverse group of aspiring ecologists who have been taking the extra steps to extend our university education beyond the confines of the classroom. In particular, we take our classroom education and research data and translate them into environmental action. Termed "action ecology," this concept has been the flagship objective of SEEDS students and Chapters across the United States and Puerto Rico for the past three years. We built on prior SEEDS leadership themes that have resulted in the development of action ecology: "We wish to conduct scientific research that is credible in the scientific community, but that can also be applied in real-world settings" (Wong et al. 2006). The term action ecology was originally coined in 2009 by the SEEDS students Ana Elisa Pérez and Leonardo Calle. Action ecology is conducting research that has broader socio-ecological implications for the welfare of society as well as the ecosystems, and it requires collaboration with other disciplines, stakeholders, and any sector that compose the socio-ecological system (Colón-Rivera et al. 2011 & Marshall et al. 2011). Since it was proposed, SEEDS has been

forwarding the concept of action ecology during its annual Leadership Meeting and the Revolutionary Ecology symposia during the ESA Annual Meetings. Along with the practice of action ecology, we are promoting a system of training and rewarding ecologists to align with this purpose due to the fact that the traditional path in academic ecology has little room for “action efforts.”

Engaging in policy is a very important aspect of action ecology. Because ecologists possess considerable and inherent knowledge for the sustainability of life we really encourage them to engage in this realm. Many ecologists support the idea of conducting action efforts and engaging in policy; however, most of them are not trained to take their work to the level of integrating it into the communities in which they work and accomplishing the change that they would like to see (Pouyat 1999 & Fallon and Pepper 2011). In addition, some ecologists even lack the interest to do so because they don't find any rewards from working in an action ecology framework (Colón-Rivera et al. 2011). We believe that ecologists should be aware of methods that engage the general public and allow them to make their research relevant to contemporary socio-ecological issues that affect people's livelihoods on a local and a global scale. Our knowledge must be translated so that the general public can better understand the role of ecological science in society and the importance of scientists in the policy-making process regarding environmental and socio-ecological issues. To achieve this, ecologists need to collaborate with other organizations, professionals, and disciplines that have shared goals and interests. The media could be an effective tool to communicate scientific knowledge as well as the role of ecologists as scientists and citizens.

During the leadership meeting, SEEDS students divided into four breakout groups to make advancements in four aspects necessary for engaging in policy: translation of research results, the role of the media, building coalitions, and steps for engaging in policy.

Translation of research results

Through scientific research we generate valuable information that can be useful to many groups in society. Research results should not be restricted to written articles in peer-reviewed journals. We believe that findings from ecological research should also be published in the media that target the general public in a non-technical language and should not be limited to written material. Many of the ecologists that would promote this often lack the time or knowledge of other venues in which to publish their findings. We believe that publishing non-technical worded articles in a web-based magazine would help in filling the gap between scientific information and the general public. This web-based magazine can incorporate different tools (e.g. video and images) to aid the communication of scientific information to the general public. This tool can serve as the basis for a network of community members and organizations with scientists.

Role of the media

Media is the fastest way to disseminate knowledge to the general public. However, it can be a double edged sword: “...media and science presents an opportunity and challenge to accurately share scientific knowledge, making it widely accessible and relevant to a diverse society” (Rivera et al. 2010). The next generation is known as the “YouTube” generation, and video plays a key role in integrating ecological education into our schools and communities. How we portray and communicate our research will have a directly proportional effect on the impact it will have. Ecologists should empower themselves to be directors and photographers and to film and edit because we are the ones working in the field and we know what our goals and focus are, and what message we want to convey to the public. Media could help in converting research results into action through conservation and restoration initiatives for the socio-ecological welfare. As part of the meeting, the role of the media breakout group created a video titled “Media is a Thread: Connections through Multimedia” to portray media as a string that could connect different disciplines and people together. This video is intended to empower youth to become the leaders and agents of change. Media is a powerful tool that must be used when integrating science in the policy-making process, especially in building coalitions.

Building coalitions

Diverse perspectives are essential to understand and address socio-ecological issues. Collaborations with other institutions in their action efforts (e.g. conservation projects) can allow the ecologists access to new opportunities for research and education (Colón-Rivera et al. 2011). In turn, these new opportunities create a positive feedback loop that contributes to policy engagement; new opportunities on research and education mean more knowledge given back to the community, and consequently more engagement in the policy-making process (Figure 1).

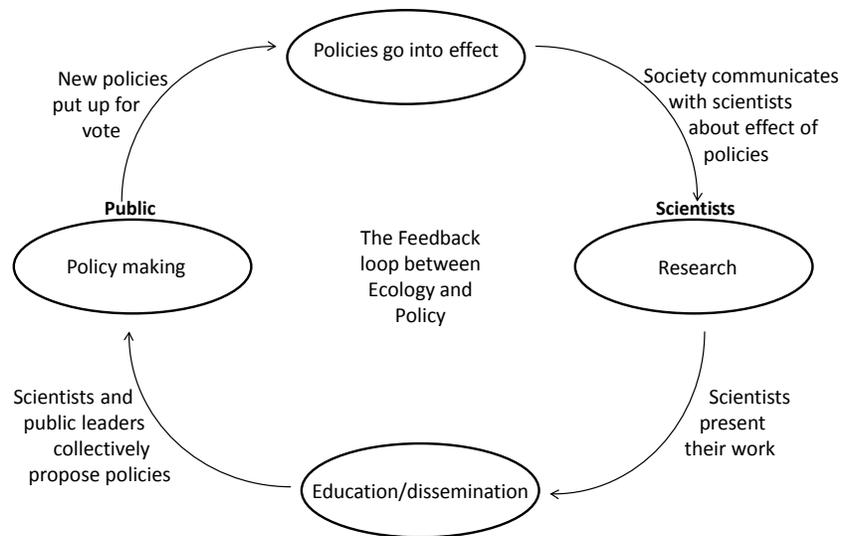


Figure 1 - The feedback loop between scientists and the general public. Scientific research leads to findings and subsequent dissemination. The process of dissemination allows scientists and the public to communicate which may lead to policy revisions or proposals. Policies that go into effect are then evaluated by the public and scientists alike. It is at this intersection that scientists and the public communicate and steer the direction of future research.

Building coalitions is a process that occurs gradually and involves an interplay of community engagement, networking with social leaders, availability of scientific experts, and hands on experience (Figure 2). In order to build a coalition and engage the community, one must connect with a social capital and channel the message through this social entity that people trust and respond to (e.g. governmental agencies, non-governmental organizations, and community leaders). In addition it would help to build personal relationships with community members and encourage participation and feedback. To facilitate with communication of the issue and engaging the community both broadly and personally, one must understand community demographics and culture, provide incentives, prepare lay and specialized explanations, and act on them personally too. An important step in the process would be to evaluate the availability of resources for the project(s) being planned. Once this is accomplished, the growing coalition can draw from these resources to more effectively communicate the message and encourage greater participation and feedback. Finally, coalitions can be strengthened through hands-on activities such as organizing outdoor activities (e.g. community gardens) that will impart ecological knowledge and at the same time community responsibility for their natural resources.

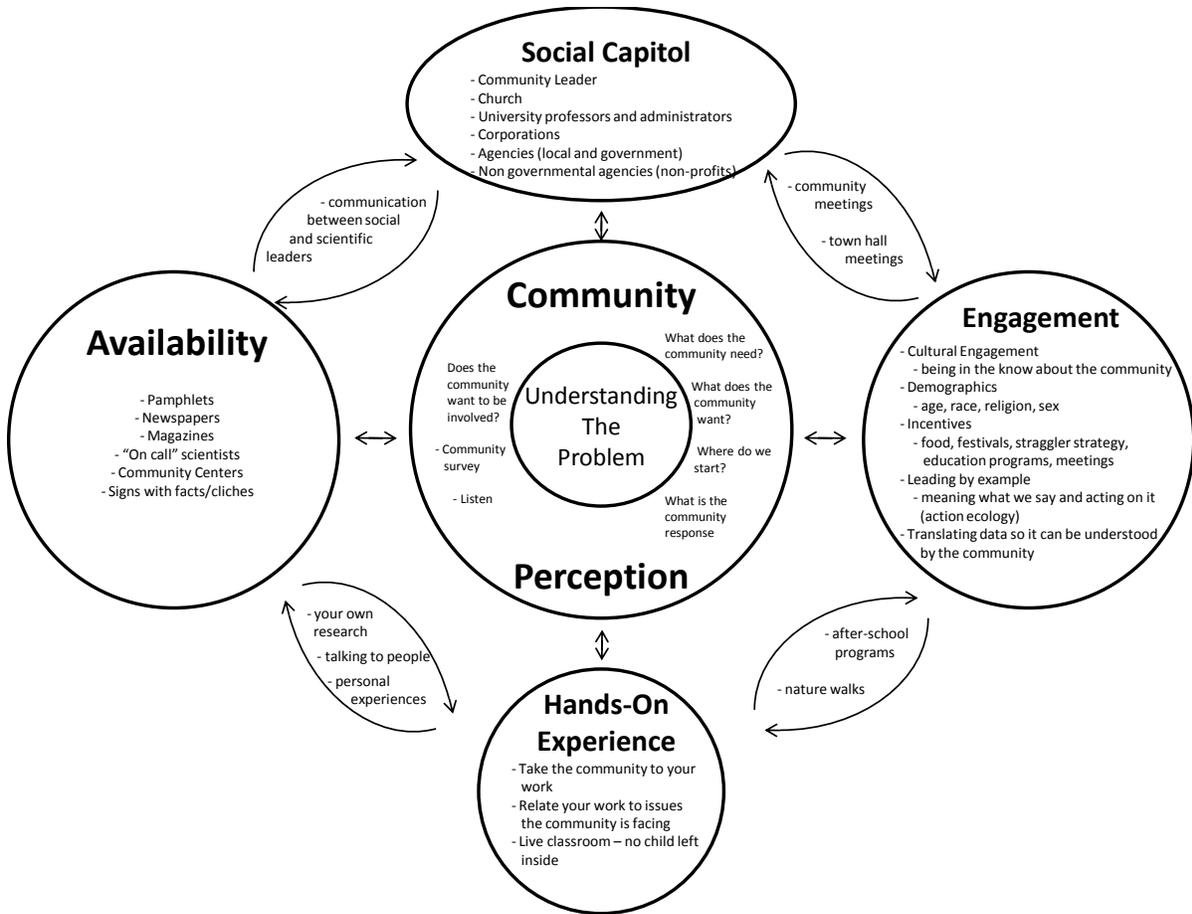


Figure 2 - The multifaceted network important in the process of building coalitions. Building coalitions requires multiple interconnected processes. Community engagement, employing social capital, promoting hands on experiences, and simply being available to the public form the basis of this process. However, most importantly we must first understand the problem, community needs and desires, and community perception of the issue.

Steps for engaging in policy

Ecologists are crucial agents in the policy-making process regarding socio-ecological matters; they can provide the policy makers with the necessary tools and professional expertise to create sound environmental policies (Rivera et al. 2010). The breakout group working on this topic identified five essential steps for engaging in policy which entails the three topics described above, and shows the interconnection among these venues of the intersection of science and policy.

The first step for engaging in policy is identifying and defining the socio-ecological issue and its implications. The second step is to acquire expertise on the issue. This is achieved by understanding its background, what has been accomplished thus far, who are the stakeholders (e.g. the community, the media, and other organizations or people involved), and the authorities that have jurisdiction on the issue. Furthermore, knowing the mechanism of the issue is important because one must know the desired change and how it can be achieved. The third step is crafting a strategy for engagement. An important tool for this step is the “elevator

speech” which can be addressed to authorities of the issue to highlight three to four main points; this speech will give way to one’s “key ask” which precisely explains the required action of the policy maker (ESA 2011). The fourth step is to adapt the strategy. Once engaged in policy, feedback will be received from different stakeholders including the media, policy makers, and the public. Responding to this feedback is crucial to getting one’s point across and adapting one’s supporting reasons if necessary. The final and fifth step is continuing working on the goal until the required action is achieved. At this point, coalitions should be strong enough that scientists could reduce the level of involvement sharing responsibilities with other members working toward the goal.

The big picture

The last 4 decades have seen immense changes in agricultural methods, construction, and medicine. Through the tremendous research that environmental scientist have conducted the general public is becoming aware that humanity is depleting natural resources more rapidly than they can be renewed. The excessive exploitation of natural resources by humanity alters ecosystems’ structure and function often causing irreversible losses of biodiversity and wildlife habitat, altering major biogeochemical cycles and how ecosystems interact with adjacent land, aquatic environments, and the atmosphere; thus driving global climatic change and causing a negative effect on the services that ecosystems bring to society (Vitousek et al. 1997). As ecologists, we should be willing to engage in policy and provide our expertise for the betterment of society, its future generations, and the resources upon which they all depend.

Action ecology has the power to address complex socio-ecological issues of human dominated-landscapes (Marshall et al. 2011) and move forward the profession of ecology and the role we play in society. The assessment to create sound environmental policies is a difficult challenge which entails multidisciplinary approaches from professionals, including ecologists, so scientist are fundamental in the policy-making process regarding socio-ecological issues (Nelson Vucetich 2009). Without science in the policy-making process the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, the Endangered Species Act, and the Resource Conservation Act, just to mention a few, would not have been enacted (Pouyat 1999).

As part of the 2012 ESA-SEEDS Leadership Meeting, students and alumni proposed two projects to promote policy engagement and communication between scientist and non-scientist citizens. We proposed the beginning of a SEEDS Engaging in Policy month, it will occur in October 2012 when Congress reconvenes session and is open to what their constituents have to say. SEEDS chapters all over the country will work on their specific issues over the course of the school year and be prepared to take action in October. We want to leave our readers with this message: if SEEDS can do it, you can do it!

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