Crossing Boundaries

The 9th Annual
Environmental Joint Campus Conference
Linking People, Policy, & Science

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University of Oregon

Abstracts

Posters

Global Thematic Index Project

Barclay Charles
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I am creating a global – multi-layered database/index to consolidate country specific worldwide data. All data is categorized into one of the four layers (economic, social, environmental, political). A world-wide thematic map of the earth shaded in various colors will represent the underlining information in the database using ArcGIS and associated web and database software programs. A color spectrum of red (danger), yellow (caution), green (good), grey (no information) will be used according to the output of the underlining data queries. Each section of color on the map will be able to be selected via mouse click and a hyperlink will lead users to original data sets that make up each data layer. You will be able to look at the global map layer by layer (economic, social, political, environmental) or in any combination of layers – scaling down to a county level if data availability permits. The purpose of the database/index is to drive world-wide awareness of (economic, social, political, environmental) issues and put them in context relative to each other and the rest of the world.

Keywords: Global, Thematic, Awareness, ArcGIS, Index, Database

Emerging Conservation Strategies in Madagascarian NGO case study

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The island of Madagascar is an international conservation priority due to its incredible biodiversity, high levels of species endemism and rapidly declining forest habitat. Proponents of environmental preservation applaud President Marc Ravalomanana's pledge to more than triple the size of Madagascar's protected areas by 2008, while others contend that protected areas are unjust as they prohibit residents' access to resources while tourism and research by foreigners is encouraged. Integrated Conservation and Development Projects (ICDPs), which seek to combine economic development opportunities with protected area conservation in order to gain the support of communities and further environmental protection, have been criticized for requiring excessive outside funding, using a top-down approach and promoting environmental priorities over human development opportunities. This poster examines how an NGO working in southeastern Madagascar has attempted to address human needs along with environmental concerns in a more grassroots fashion.

Keywords: conservation, development, Madagascar, NGO, preservation, protected areas

Leopold's second prescription: a review of Aldo Leopold's work highlights a lifetime of critical interdisciplinary inquiry beside an idealistic land ethic

Adam Novick
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Conservationists cite Aldo Leopold's land ethic to advocate conflicting prescriptions for conserving biodiversity on private land. Some argue that Leopold was calling for the public to regulate land use to limit destructive practices. Others argue that Leopold was calling for the public to create a positive alliance with private landowners, to cultivate their love for the environment. Reviewing Leopold's work, I find that in advocating a land ethic, Leopold was concerned by a broad range of environmental problems and had concluded that sustainable land use could come only through widespread change in personal preferences to sufficiently value the environment over short-term profit, and while he at times advocated various policy prescriptions, he never felt he resolved how to bring about such a deep and widespread love for land. I also find that throughout Leopold's life, Leopold offered another prescription for conservation policy, in cautioning that land is complex; that its relationship to people is complex; that conservation policies can backfire and succumb to orthodoxy and overly narrow goals; that conservation policies must be based on open-minded, interdisciplinary study of land and its relationship to people; and that policies should be evaluated by their effect on the landscape. Citing the Willamette Valley's oak savanna as an example, I suggest

this “second prescription” might be critically relevant to improving the conservation of biodiversity on private land, in suggesting analysis to identify contextually appropriate policy, in light of social and biophysical constraints.

Keywords: Aldo Leopold, land ethic, biodiversity, planning

Conscientization and Misconceptions' Roles in Natural Hazard Preparedness

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Charley Faria
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Natural hazards such as earthquakes/tsunamis (e.g., Sumatra 2004, Indonesia), hurricanes (e.g., Katrina 2005, USA), volcanoes (e.g., Nevado del Ruiz 1985, Colombia), and floods (e.g., Venezuela 1999), can exact a tremendous toll on both lives and property. And yet, most damage from natural hazards can be mitigated or even avoided completely with proper preparedness. Why, then, do so few people take precautions? A primary method for presenting disaster education is via free-choice learning (Falk & Dierking, 2002), which takes place when an individual opts to engage in a learning activity (e.g., reading about earthquakes, going to a science museum). Because most of the learning we do about things like natural hazards is done on our own free time by our own choice, participation in free-choice learning activities can enhance the "conscientization" process or the ongoing process of becoming aware of the impacts of self-behaviors (Freire, 1970, 1997, 1998), which contributes to emergency preparedness (Norris et al., 2002). The process of *Conscientization (Awareness plus Actions)* about natural hazard preparedness often occurs as part of free-choice learning in informal educational environments such as museums, parks, afterschool or outdoor school programs, or public presentations at libraries, rotary clubs, scientific films, etc. The research reported here examines critically the idea that scientific factual knowledge about natural hazards correlates positively with natural hazard preparedness by examining the general audience responses. Conclusions are drawn for environmental education programs in free-choice learning environments. Over the summer of 2006, as part of the EarthScope Education & Outreach Program efforts, we conducted a pilot research project on common misconceptions about geosciences, natural hazard preparation styles, and awareness for natural disasters at the entry of some informal learning environments on both

the East and West coasts of the United States. Our intent was to see if the level of misconceptions about geosciences concepts might correlate to the level of self-preparedness by using an instrument combining Likert-scale and forced choice items. The results of our research will be presented.

Key words: Natural Hazard Preparedness, conscientization, free-choice learning, informal science education, environmental education, Freire's Learning Theory.

Characterization of the effect of aquatic humic substances on the photosynthetic efficiency of phytoplankton in Upper Klamath Lake

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Aquatic humic substances (AHS) in natural waters are weak organic acids derived from soil humus, terrestrial and aquatic plants, and phytoplankton. The effects of AHS upon primary production are important ecological driving forces in natural waters. They include reduction in pH, increased light attenuation, absorption of UV radiation, changes in nutrient availability, and inhibition of photosynthesis. In this study, the effect of AHS on primary productivity through the inhibition of photosynthesis was studied in a small bay adjacent to a marsh in Upper Klamath Lake, OR. Samples were collected from two one-kilometer long transects on two different days. Each transect started at the marsh boundary and extended through the bay toward the open lake. Pulse amplitude modulated fluorometry was used to measure Fv/Fm and create productivity vs. intensity (P-I) curves using a hyperbolic tangent model. Each sample was also measured for pH, organic carbon, chlorophyll, color at 440nm and dissolved oxygen (mg). Spatial analysis of the parameters was completed using an inverse-weighted interpolation of the collection points with ArcGIS 9 ArcView software from ESRI. Regression analysis was completed using R 2.2.1. This study was carried out using the hypothesis that photosynthesis and chlorophyll would be positively correlated with distance from the marsh boundary. The results of the data set analysis indicates that this system is highly variable with very low correlations between marsh boundary distance and photosynthesis.
That data set also indicates that the variation is dependent on time of day, possibly due to wind patterns and lake hydrology.

Keywords: Aquatic humic substances, PAM fluorometry, Upper Klamath Lake, P-I curves, Fv/Fm.

Amphibian Mortality from Ambient UV-B Radiation

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Ultraviolet-B (UV-B) radiation is a ubiquitous stressor with negative effects on many aquatic organisms. In some amphibian species, ambient levels of UV-B can impair growth, slow development and increase mortality in larvae. UV-B

can also interact with other environmental stressors to amplify these negative effects on individuals. We studied the effects of UV-B and a pathogenic fungus (*Batrachochytrium dendrobatidis*) two species of larval amphibians, Western Toads (*Bufo boreas*) and Cascades frogs (*Rana cascadae*). Larvae were exposed to ambient UV-B and *B. dendrobatidis* in experimental ponds (mesocosms) in the Willamette valley. *B. boreas* were exposed to low levels of UV-B for 30 days when growth, developmental stage, and mortality were recorded. UV-B and *B. dendrobatidis* had no effect in this species. *R. cascadae* were exposed to high levels of UV-B for 18 days when growth and mortality were measured. Exposure to *B. dendrobatidis* had no effect on either growth or mortality of *R. cascadae* but UV-B resulted in a 33.6% reduction in survival. We demonstrated that exposure to ambient levels of UV-B can increase mortality in amphibian larvae, but results vary by species and exposure level.

Keywords: Ultraviolet-B radiation, Batrachochytrium dendrobatidis*, ozone depletion, Bufo boreas, Rana cascadae*.

Changes in Historic Large Mammalian Carnivore Guild Ranges and Influential Ecological Parameters in North America

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There is strenthening evidence indicating that members of the large mammalian carnivore (LMC) guild can have a significant structural influence on ecological communities as a consequence of predation-induced trophic cascades that can ultimately lead to greater ecological integrity. The conservation value of LMC species is further related with the growing popularity of their use as umbrella species for conservation planning. Yet, nearly all of the supportive research and conservation effort has focused on the ecological importance of single LMC species with little attention paid to the significance of multiple LMC species in an ecosystem. Substantial evidence indicates that in many ecosystems this guild lacks inter-specific redundancy in their predation pressure on prey populations. These findings magnify the ecological and conservation concern for the dramatic reductions in the ranges of individual LMC species in North America. To date there has been no quantitative analysis on the changes in ranges and influential ecological parameters of the LMC guilds within this region. This proposed study seeks to perform such an assessment through the utilization of a geographic information system to carry out a spatially explicit analysis by mapping the historic and current ranges of LMC guilds in association with the changes in habitat use (e.g. biomes, elevation), prey biodiversity, and human impact, along with the degree of regulatory protection these guild ranges currently receive through their spatial association with protected areas. These findings are integral to land management initiatives that seek to preserve and/or restore historic ecological integrity to the landscape.

Keywords: carnivore guilds, range contractions, historical condition, geographic information system

Gunpowder Park: A Case Study of Ethico-Aesthetic Reclamation

Shannon Tyman
University of Oregon, Environmental Studies Department

Through this poster I will be presenting a preliminary version of my thesis research on the ethico-aesthetic implications of post-industrial reclamation. The site I focus on is Gunpowder Park, located just outside of Greater London. A former Royal Ordnance munitions testing facility, the renovation of Gunpowder Park provides an interesting example of the intersection of art, nature, and science. Underlying my investigation into the site is the work of Felix Guattari. His essay, *The Three Ecologies*, provides a means of qualitatively assessing the changes to the landscape and its lasting successes.

Key words: post-industrial, reclamation, urban ecology, aesthetics

Livestock Compensation Programs: Evaluating Effectiveness as a Means for Improving Human-Wildlife Relations

Stacy Vynne
University of Oregon, Environmental Studies Program

Over the last few centuries, human encroachment on primary habitat for wildlife has led to carnivores facing reduced prey populations and restrictions in range. As a result, human-wildlife conflicts are increasing. Human-wildlife conflicts occur in areas where wildlife is in direct competition with human for scarce land and resources (Mahusudan, 2003). In order to redress the inequitable distribution of costs and benefits associated with wildlife conservation, compensation programs have developed as a means of reimbursing those that bare the burden of living alongside wildlife (Naughton-Treves, 2003). The most common form of compensation is for livestock kills by predators. While a significant amount of money has been invested in these programs, there has been little assessment of their effectiveness and whether they make sense economically, politically, ecologically or culturally. Are they simply an easy 'payout' for the ranchers, or are they truly improving the lives of humans and wildlife that are forced to live side by side? In order to better understand how effective these programs are as a means for wildlife conservation, I plan to establish a methodology that could eventually be used by organizations, communities and governments in evaluating the effectiveness of livestock compensation programs.

Keywords: livestock compensation; human-wildlife relations; human-wildlife conflicts; carnivores; effectiveness

Environmental Leadership Program (ELP) Posters

Environmental Leadership Program: Forest Team

Project Manager: Bari Doeffinger
Team Members: Richard Burton, Heather Canapary, Nickolas J Gillespie, Rithy Khut, Katie MacDiarmid
University of Oregon, Environmental Leadership Program

The Environmental Leadership Program - Forest Team is working with the HJ Andrews Experimental Forest to develop a portion of the Lookout Creek old growth trail as an interpretative trail. In addition, we have designed seven lesson plans that enable educators to teach students about important old growth characteristics. The Forest Team is leading hikes on the trail and providing on-trail or in-class facilitation of our lesson plans.

Environmental Leadership Program: Marine Team

Team Members: Alexa Jefferis, Evan Smith, Megan Copley, and Nathan Liebenstein
University of Oregon, Environmental Leadership Program

As our impact on the natural world advances at a rapidly increasing rate, our need for environmental education becomes ever more pressing. The rocky shores of the southern Oregon coast are a place of extraordinary natural beauty and biological diversity. It is no wonder that it sparks the imagination and curiosity of such a broad spectrum of visitors. As part of the University of Oregon's Environmental Leadership Program, we are assisting the Oregon State Park system as environmental educators and interpreters in the rocky intertidal ecosystem within Sunset Bay and Cape Arago State Parks. Our focus is primarily directed towards K-12 students on field trips from regional public schools, and we are also providing interpretation for the general public. To further our knowledge of local marine ecosystems we are attending classes at the Oregon Institute of Marine Biology and shadowing local interpretive programs. This environmental leadership project is a unique opportunity to advance our own knowledge while providing a service to the surrounding communities.

ELP Restoration Stewardship Project

Project Manager: Matt Peterson
Team Members: Noelle Harden, Jordan Shaeffner, Phillip Sprague, Lynn Dean, Moksha Rainbowlight
University of Oregon, Environmental Leadership Program

The Watershed Restoration Stewardship team is a branch of the University Of Oregon's Environmental Leadership Project. Since it was created in 2005, the team has worked with the Mohawk Watershed Partnership, and the Long Tom,

McKenzie, and Middle Fork Willamette Watershed Councils, to monitor restoration sites throughout the Willamette basin. In winter term, the team monitored over 350 native trees and shrubs and completed a yearly progress report for six restoration sites. The team will continue monitoring work throughout spring term, while also working on some exciting new projects including a GIS mapping project, an extended data analysis project, and plant identification book featuring the native trees and shrubs and the invasive weeds at the restoration sites. The team is also leading a one credit field studies class designed to help students get hands on experience doing watershed restoration work.

Wetlands Educational Team – Environmental Leadership Program

Project Coordinator: Rebecca Briggs
Team Members: Amanda Atkins, Kate Bullard, Terra Chaney, Andrew Hirtle, Steve Jang, and Chelsea Prine
University of Oregon, Environmental Leadership Program

The Wetlands Educational Team is working with the Willamette Resources and Educational Network (WREN) to strengthen the organization's existing educational programs. Located in the West Eugene Wetlands, WREN is a non-profit organization that encourages environmental stewardship through programs both in the wetlands and local classrooms. During the winter term, the six undergraduate team members created lesson plans that focus on various wetland themes. They presented these programs at a public event on May 19 as part of WREN's annual celebration of American Wetlands Month. The team's goal is to help create adaptive curriculum for primary school students, assist with and facilitate outreach programs, and conduct field activities for students visiting the wetlands. The team will also provide interpretive roving at the wetlands for the broader Eugene community.

Keywords: wetlands, environmental education

Environmental Leadership Program: X Stream Team

Project Manager: Shannon Tyman
Team Members: Jamie Messenger, Amanda Fay, Ryan Warner-Steel, Carolynne Bohannon, Jerri Moro
University of Oregon, Environmental Leadership Program

The X-Stream Team of the ELP's Environmental Education Initiative would like to take this opportunity to publicly present our project. Our presentation will discuss university-based environmental education as well as real-world classroom implementation. Our program has developed unique relationships with community partners and our talk will focus on the role such relationships might play in future academic projects. The X-Stream Team worked specifically with the USFS to develop stream ecology lesson plans for K-12

students. Using a stream simulator, on loan from the Forest Service, we have been able to bring awareness to action. In this talk we would like to share our experiences in the hope of inspiring similar programs across Oregon's University campuses.

Keywords: stream ecology, environmental education, riparian zone, salmon habitat, water conservation

Oral Presentations, Session A

One Tribe and Its Environment

Suzanne Fluharty
Oregon State University, PhD candidate, Environmental Studies Program, Applied Anthropology, Botany and Plant Pathology Departments

The Coquille Indian Tribe's ancestral lands once covered one of Oregon's larger coastal watersheds, however, this paper looks at one small landscape component to consider the creation of place. While a usefulness lies with recording the story of the Coquille Indians and their land in its own right, it also provides the focus for my basic premise that environmental histories viewed at the landscape level, offer an understanding of "the way people live on this Earth, experience the places they inhabit, confer meaning to these experiences, and anchor their identities within their environments" (Clavel 2001: 130). I suggest that the connectedness between Coquille Indians and Euphoria Ridge within their ancestral homelands is a specific example of countless iterations of culture-environment interactions that have transformed natural landforms, creating unique place-meaning. Using the theoretical framework of Memmott and Long (2002), I offer a depiction of the transformation through 1) the alteration of the environment's physical characteristics, 2) the enactment of special behaviors and emotions to a particular environment, and 3) the group knowledge of past events, legends, or memories. In this way I show the dynamic construction of the Euphoria Ridge landscape as both a specific locale and as a cultural product, validating it as an appropriate means for studying the collective nature of place. Only through landscape studies that include complementary methodologies from across the sciences can we begin to perceive and comprehend the great breadth and interdependency among the web of people's interactions that bond them with their environment.

Keywords: landscape, environmental history, place-meaning, Native American

Natural Resource Assessment of Channel Islands National Park

Elise Ferrarese
Oregon State University, Department of Environmental Science, Graduate Student; National Parks Conservation Association: Center for State of the Park

The National Park Conservation Association (NPCA) initiated the State of the Parks program to assess the current condition of natural and cultural resources in the National Park system in order to "provide an accurate, comprehensive understanding of resource conditions" in our national parks. A natural resource assessment was completed for Channel Islands National Park using a methodology developed by The Nature Conservancy to rate key ecosystem components and functions. Existing information and data pertaining to the park were collected, analyzed, and synthesized into a report. The Channel Islands are often called the "Galapagos of North America" because of the wealth of biodiversity they harbor, but the natural resources in the park are far from pristine. A history of grazing was responsible for extensively degrading terrestrial ecosystems. Overfishing, DDT contamination, and extirpation of a keystone predator have caused significant harm to marine systems within the park. Park staff have facilitated some successful resource management projects in recent years, including an intensive Inventory and Management program that monitors key resources and has acted as an early warning signal for several species declines. I will discuss the assessment methodology and my findings.

Keywords: Natural resource assessment, Channel Islands National Park, ecosystem function

Using wetland diatom communities to indicate watershed land-use: Is there a difference between epiphytic and benthic diatom signals?

Christian A. Parker
Portland State University, Environmental Sciences and Resources Program

Diatom communities are used to indicate the health of aquatic systems. These communities have been shown to respond to substratum, with different communities existing on different substratum. We looked at both benthic and epiphytic diatom communities to see if they differed and therefore reflect different environmental characteristics. We used procrustes analysis to compare NMDS ordinations of each assemblage. Environmental vectors were fitted to the ordinations to evaluate the strength of the variable to each assemblage. Results indicate that benthic and epiphytic assemblages are not significantly different from each other and have similar environmental signals.

Keywords: Diatoms, Wetlands, NMDS, Procrustes, Bioassessment

Ecovillages: The Role of Place in Challenging Consumer Culture

Diana M. Fischetti
University of Oregon, Environmental Studies Program & Department of Geography, dual Master's candidate

Voluntary simplicity addresses not only the patterns of material consumption in industrialized nations and their associated environmental, political, social,

and cultural impacts, but also the psychological impacts of consumer culture, and the often associated desire for a more fulfilling and meaningful existence. Accepting the assertion that consumption, as structured by capitalism, results in the construction of consumers' sense of personal identity as well as the production of meaning (Goss 2004; White 2002) has led many to question whether personal identity is enhanced, satisfaction gained, or happiness found through consumption. Social scientists have begun to discover that within industrialized consumer culture, beyond a certain threshold people's ability to derive satisfaction from consumption actually decreases with increasing consumption. The relationship between materialism and well-being is now understood to be an inverse one (Etzioni 1999; Myers 2004; Sterns 2001). In addition to consumption, sense of place also plays a role in the construction of personal identity (Massey 2000; Rose 2000; Tuan 1996). Ecovillages are communities whose members strive to employ voluntary simplicity and to live in a socially and environmentally sustainable manner (Kirby 2004). Ecovillages represent the deliberate creation of a place that embodies the rejection of consumer culture and the cultivation of other means of constructing meaning. These communities exhibit specific social and environmental design characteristics. In the case of the ecovillage, a challenge to consumer culture has indeed resulted in a landscape that embodies this rejection. Cultural landscape theories can illuminate the ways in which identity, contestation, and values are wrapped up in the creation and re-creation of the built landscape of the ecovillage (Black 2003; Brace 2003; Robertson & Richards 2003).

Keywords: sense of place, ecovillage, consumption, identity, materialism, consumer culture

Oral Presentations, Session B

Risk to biodiversity on private land from orthodoxy in the regulation of species: a political ecology of the Willamette Valley's oak savanna

Adam Novick
University of Oregon, Environmental Studies Program, Graduate Student

From primary evidence and research by others, I find that orthodoxy in the regulation of species inadvertently risks exacerbating the loss of biodiversity on private land, by ignoring or discounting any risk to species from their regulation and any benefit to species from voluntary conservation and maintenance. These regulatory externalities include discouraging voluntary conservation and maintenance and encouraging defensive management, due to the effect of regulation on the market value of selectively regulated land. The orthodoxy apparently arises from a now discredited belief in "the balance of nature", yet serves to defend the power of individuals to use species as weapons to limit development on the property of others. I suggest that with constraints on public funding, the conservation of biodiversity might be improved by clarifying policy goals and expanding the range of regulatory strategies to consider allowing private ownership of particular ecosystems, where such a strategy might offer a net benefit to species. I also suggest that

such change might be possible under existing law, under theories of substantive due process and reasonable investment-backed expectations; that such change might recognize present de facto policy; that recent conservation rhetoric seems to foretell such change; and that such change might improve political support for biodiversity and more productive types of environmental regulation. I further suggest that despite the orthodoxy, actors might initiate such change by recognizing or declaring a right for citizens to use private investment to conserve or maintain particular ecosystems, based on biological impact analysis of policy alternatives.

Keywords: biodiversity, conservation, regulatory externalities, orthodoxy, planning

Conscientization and Misconceptions' Roles in Natural Hazard Preparedness

Carlos A. Rios, (John DeLaughter, Shawn Rowe, & Charley Faria)
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Natural hazards such as earthquakes/tsunamis (e.g., Sumatra 2004, Indonesia), hurricanes (e.g., Katrina 2005, USA), volcanoes (e.g., Nevado del Ruiz 1985, Colombia), and floods (e.g., Venezuela 1999), can exact a tremendous toll on both lives and property. And yet, most damage from natural hazards can be mitigated or even avoided completely with proper preparedness. Why, then, do so few people take precautions? A primary method for presenting disaster education is via free-choice learning (Falk & Dierking, 2002), which takes place when an individual opts to engage in a learning activity (e.g., reading about earthquakes, going to a science museum). Because most of the learning we do about things like natural hazards is done on our own free time by our own choice, participation in free-choice learning activities can enhance the "conscientization" process or the ongoing process of becoming aware of the impacts of self-behaviors (Freire, 1970, 1997, 1998), which contributes to emergency preparedness (Norris et al., 2002). The process of *Conscientization (Awareness plus Actions)* about natural hazard preparedness often occurs as part of free-choice learning in informal educational environments such as museums, parks, afterschool or outdoor school programs, or public presentations at libraries, rotary clubs, scientific films, etc. The research reported here examines critically the idea that scientific factual knowledge about natural hazards correlates positively with natural hazard preparedness by examining the general audience responses. Conclusions are drawn for environmental education programs in free-choice learning environments. Over the summer of 2006, as part of the EarthScope Education & Outreach Program efforts, we conducted a pilot research project on common misconceptions about geosciences, natural hazard preparation styles, and awareness for natural disasters at the entry of some informal learning environments on both the East and West coasts of the United States. Our intent was to see if the level of misconceptions about geosciences concepts might correlate to the level of

self-preparedness by using an instrument combining Likert-scale and forced choice items. The results of our research will be presented.

Key words: Natural Hazard Preparedness, conscientization, free-choice learning, informal science education, environmental education, Freire's Learning Theory.

The density and associated fauna of the invasive burrowing isopod Sphaeroma quoianum in a temperate Pacific Northwest estuary

Timothy M. Davidson
University of Oregon, Oregon Institute of Marine Biology; Portland State University, Environmental Sciences and Resources Department, Aquatic Bioinvasions Research and Policy Institute,

Invasive species that physically alter habitat may have drastic impacts on the composition of biological communities. The Australasian burrowing isopod *Sphaeroma quoianum* is a non-native habitat-altering species present in many estuaries of the Pacific coast of North America. *Sphaeroma quoianum* burrow in firm intertidal substrata, creating extensive interconnected burrow networks. These burrow networks provide habitat for many estuarine organisms and may increase the rate of shoreline erosion. This study examines how densities of *S. quoianum* individuals, their burrows, and inquilines (burrow cohabitants) changed over time and between different substrata. Densities of *S. quoianum*, burrows, and inquilines all were significantly higher in wood and sandstone than marsh banks, likely since these firm substrata can withstand more burrowing before collapsing. Across all substrata, *S. quoianum* density was highest in August followed, in descending order, by January and April. Inquilines were present in approximately 86.3% of all samples. Fifty-six species from seven phyla were found inhabiting occupied and unoccupied burrows of *S. quoianum*. The predominant inquilines were free-living amphipods and isopods. Five sedentary non-native species were found living within burrows at tidal heights higher than their typical range. Thus, the novel habitat provided by burrows of *S. quoianum* may alter the intertidal distribution of some non-native estuarine fauna. Burrows may provide a host of ecological benefits for an intertidal organism including cover from predators, amelioration of environmental stresses, and an enriched interior surface. Although burrows of this invasive isopod are utilized by a variety of estuarine species, most inquilines are likely incidental inhabitants.

Keywords: bioeroder, burrowing isopod, ecosystem engineer, invasive species, Sphaeroma quoianum

Presentation of the University of Oregon Campus Sustainability Assessment

Coeylen Barry, Bari Doeffinger, Diana Fischetti, Meghan Murphy, Rebecca Silver, (Rebecca Briggs, Matt Peterson)
University of Oregon, Environmental Studies Program, Graduate Students

The University of Oregon's Mission Statement commits the institution to sustainable policies and practices. The Mission Statement affirms that, in addition to a commitment to education, the University has an obligation to "the acceptance of the challenge of an evolving social, political, and technological environment by welcoming and guiding change rather than reacting to it." In addition, the Mission Statement expresses a responsibility to promote "the cultivation of an attitude toward citizenship that fosters a caring, supportive atmosphere on campus and the wise exercise of civic responsibilities and individual judgment throughout life." It is critical for the University of Oregon to be a model of sustainability, in terms of its educational goals, its mission to produce conscientious citizens, and its ambition to guide change in response to shifting environmental circumstances.

Campus environmental sustainability is a topic of growing interest for universities across the country. The University of Oregon has been a leader in sustainability, adopting environmental programs, such as campus recycling, long before most other institutions. Many faculty, staff, and student-driven initiatives have contributed to campus sustainability efforts. For example, the Campus Recycling Program has won numerous national awards. The University population has decreased water consumption per capita by 13% in the last 5 years. The University has made considerable investment into energy conservation and renewable energy use. Alternative transportation incentives and infrastructure are well developed on campus. President Frohnmayer recently signed the President's Climate Commitment to reduce greenhouse gas emissions by 80% by 2050. However, there has been little coordinated effort to systematically evaluate the effectiveness of these initiatives. During the 2007 winter and spring terms, seven Master's students in the Environmental Studies Program, under the guidance of the University's Sustainability Coordinator, researched and produced this University of Oregon Campus Sustainability Assessment. This comprehensive Assessment examines the degree to which campus activities, institutional commitment, and infrastructure encourage progress towards sustainability. The authors sought to address the following issues: 1)The University of Oregon's progress towards sustainability; 2) The change in the environmental impacts of the University of Oregon's activities over the last five to ten years; and 3)The identification of baseline data and creation of benchmarks, which can be used for internal and external comparison over time. In addressing these issues, the Assessment demonstrates the University's leadership in sustainability, as well as opportunities for improvement.

The Assessment evaluates eleven indicators that reveal the University's performance in and progress towards sustainability. Each indicator is comprised of several measurements: Governance, Endowment Investment, Academics and Culture, Materials Management, Food, Greenhouse Gas Emissions, Energy, Transportation, Water, Landscape, Building. While it is clear that the University is making progress toward sustainability, there is plenty of opportunity for improvement. Based on the findings from this Assessment, we recommend the following high-priority actions. 1) The University of Oregon should establish new sustainability-related policies and modify existing policies. 2) The University should make programmatic changes to support sustainability efforts.3) The University should increase its information gathering capabilities to allow a more thorough evaluation of sustainability efforts and their successes or failures. 4) The University should continue to invest in reasonable and prudent capital projects that have significant sustainability payoffs. These recommendations respond to the University's current performance, and we recognize that circumstances will shift in the future. Sustainability is an evolving process, not a static condition. As the University continues to assess and reform its policies and practices, we are confident that it will successfully rise to meet the challenges posed by changing environmental conditions. We hope this Assessment provides momentum for the University's efforts to strengthen its commitment to educate responsible citizens and demonstrate leadership in campus sustainability.