



The Goodwin-Niering Center for Conservation Biology and Environmental Studies



Senior Integrative Project Abstracts for the Class of 2006

Ben Alander

Aquariums: Balancing Visitors and Creatures

According to the American Zoo and Aquarium Association (AZA), as of September 2005, there are 210 accredited zoos and aquariums in the United States. As the majority of these institutions is funded by non-profit organizations and relies heavily on visitor support, the ability to balance both animal exposure and animal health is of primary importance. To achieve this balance, zoos and aquariums employ a number of design schemes including “walkthrough” and “wheel and spoke.” This study explores how aquarium design relates to attraction of visitors at two AZA accredited aquariums: Mystic Aquarium located in Mystic, Connecticut and Institute for Exploration, located in the New England Aquarium in Boston, Massachusetts.

Allison Baldwin

Italy's Green-as-Grass Movement: Examining the Strength of Local Activism and Factors that Keep the Movement on the Grassroots Level

In general, environmental movements work primarily on the national level in industrialized countries and on the grassroots level elsewhere. This is not the case in Italy, however, as environmental activism is prevalent only on the local, grassroots level. Italy's environmental movement followed the same pattern as that in other countries: it began with student protests in the 1960s and 1970s, environmental legislation in the 1970s, an increase in Environmental Non-Governmental Organizations in the 1980s, and the formation of a Green Party. Today, the movement looks much different from the environmental movement in other countries because lobbying and professional tactics are simply not used. This project proposes that Italy's political structure provides more opportunities for activists to be effective on local levels through legislative initiatives, petitions, litigation and binding referendums while its national government is inaccessible. As one example, citizens mobilized around the threat of nuclear energy in the 1980s and successfully passed three referendums that effectively ruled out the possibility of nuclear power in Italy. It is a result of Italy's political structure that effective environmental campaigns like the nuclear example can occur through direct or indirect action in communities.

Selin Devranoglu

The EU's Role in Development of Waste Management Policies and Practices in the Candidate and Newly Accessed Countries: Effectiveness of the EU Factor Facilitating Sustainable Waste Management in Hungary, Greece and Turkey

In this study, I analyzed the influence of the European Union on the development of waste management policies and practices in the candidate and newly accessed countries. Currently, the EU is the main driving force for the developments in the waste management area in these countries. Thus the direction toward which the EU leads them has a deliberating effect on how successfully these countries are able to adopt sustainability principles and put them into action. Because waste management is generally of primary environmental importance in most countries, the sustainability levels of waste management practices highly influence the general sustainability level of these countries' ecological interactions. The findings in this regard provide considerable ground for taking on a skeptical position on the sustainability implications of the EU's presence in the relevant developments in Greece, Hungary and Turkey.

Meghan Lucy
The Marine Use of Biodiesel

Interest in the marine use of biodiesel came about through my internship aboard the Cape Ann Whale Watch out of Gloucester Massachusetts. With the time I spent with the whales and aboard the boat, I became extremely interested in how a loud, noisy, diesel boat could in any way be helping the conservation of the whales' habitat. I spent the past semester researching and investigating how applicable biodiesel use would be in a diesel engine on a marine vessel. I found many examples out on the west coast and through expanded research in articles and also through interviews; I found that the developments with the fuel are very recent, exciting and also inspiring. I decided that I would take the information and knowledge that I put together into the research of the marine use of biodiesel and gear it towards a final product that I would actually be able to apply in my life, working with local whale watch companies towards a greater level of environmental conservation and helping them lead the industry and the public through example.

Alaya Morning
The Problem with Organic: Examining the Social Implications of Uniform Certification Standards for Small Landholders in the United States and Mexico

The global organic market is growing rapidly. As trade of organic commodities across international borders increases, the potential for the premium quality expected by consumers from the organic label has the potential to be compromised. There is an attempt to create minimum universal standards in order to encourage international sales of organic products. While the ecological and economic impacts of organic certification have been structured, this paper strives (through literature review) to examine the social implications of organic certifications for small farmers (nationally and internationally) and recent efforts to streamline this process. Within this paper, the situation for small farmers in the United States is discussed as well as an international perspective from Mexico. In each case, the social and economic implications of the certification process for small farmers are examined within the context of the anthropological field of agroecology which allows us to analyze the agroecosystem as a whole.

Adanna Roberts
Indoor Air Quality: The New Environmentalism?

Indoor Air Quality (IAQ) has been treated as a health and labor issue by the Environmental Protection Agency (EPA) rather than as an environmental issue. Considering that there is not much emphasis placed on the protection of the indoor environment as a whole, indoor air quality now seems to be making its mark as the new environmentalism. When people think about the environment they think about trees, oceans, lakes and other natural resources, but in an industrial society the indoor environment must be considered. Indoor air quality problems have become widespread throughout the years; one out of every four buildings has indoor air pollution stressing the need for a solution. Statistics show that indoor air pollution is one of the four greatest threats to human health and indoor air can be 1000 times more polluted than outdoor air. The responsibility however, for the maintenance of indoor air quality is not under one particular agency but is scattered throughout many different government agencies. Among these agencies, the EPA, Occupational Safety and Health Administration (OSHA), Department of Labor (DOL) and Department of Energy (DOE), as well as the Office of Conservation and Renewable Energy (OCRE) are represented. Each of these agencies has a different approach to addressing indoor air quality however there is no significant evidence that shows that there is a workable solution to indoor air pollution within the last 20 years. The biggest step that needs to be taken toward IAQ prevention is the uniting of all the agencies as one big committee to select the EPA as the main agency in charge of IAQ. This way they can be successful and assertive in addressing this 'new' found environmentalism of indoor air pollution head on. Although this may seem unrealistic, considering that each agency has their own wants, the problem of IAQ is steadily increasing resulting in an increase of health problems over the nation. Differences between the agencies as a result need to be set aside and the EPA should take charge of addressing the problem of IAQ for the welfare of all Americans.

Joel Scata

Oil Dependence: A Threat to the Future of the United States' Energy Security

The focus of my senior project was the threat oil dependence presents to the future of the United States energy security. For the context of my research I defined energy security as minimizing the susceptibility of the U.S. economy against prolonged supply disruptions and price volatility in the world oil market. Further, I addressed how this could translate into negatively impacting our national security and foreign policies. I discussed possible remedies, such as increasing our domestic supply of oil, but reasoned that the most effective policy would be a demand side solution, specifically reducing consumption levels. Since over 68% of oil consumption in the United States occurs in the transportation sector, I targeted it as the best candidate for reducing consumption levels. In the paper I discussed how currently available technology, such as hybrid vehicles and alternative fuels, was the solution to reducing the oil intensity of the transportation sector. However, I realized that the natural growth of these products would not be sufficient to have any impact on consumption levels. In order to bring about the needed changes it would require the federal government providing the right incentives. I analyzed two current plans, one by the Apollo Alliance and the other by the Energy Future Coalition, which make suggestions on how the federal government through tax-based incentives could encourage change in the auto industry and consumer support of these new technologies. I judged the plans on the feasibility of

their implementation, their proposed benefits, and the level of reduced consumption actually achieved

Ceileigh Syme

Elephant Conservation in Thailand

The condition of the Asian elephant in Thailand is complex: endangered and worshiped, this forgotten idol needs international attention. In rapidly developing Thailand, it is a struggle to protect, conserve, and cherish the elephant as it desperately needs. Awareness of the issues that surround the Thai elephant is crucial to its survival. Her ears are tattered and speckled pink from old age. The skin behind her ears is cool and soft, but deeply wrinkled. She has scars across her head, on her legs, down her back. In one eye, the amber color of all elephant eyes is slowly becoming muted. The other eye covered with blue, milky color is blind. Kiota was a logging elephant, and then when logging became illegal in 1989, she became a transporter for tourists looking for the “real” Thailand experience. Kiota like so many other elephants in Thailand today has come to represent the changing place elephants have in Thai society. Once the builders of the country they are now unemployed, homeless or simply just entertainment to the nearly 10 millions tourists per year who come to Thailand. She has been sold and bought too many times to know if she was born captive, or was taken out of the forests to become a worker. This elephant standing in front of me is almost twice my age. Her life has not been easy, but now she is one of the lucky ones living in a sanctuary away from the demands of people, but still not free. A century ago there were approximately 100,000 elephants in Thailand, both domestic and wild. Today, there are 5,000 animals left; 3,000 are domesticated, 2,000 are wild. The Asian elephant is listed on The World Conservation Union (IUCN) endangered species red list. Because in Thailand, the entire elephant population is neither wild nor captive there is no one solution to help all of the elephants. But the many issues that are facing the whole population are complex and difficult. The culmination of these issues is resulting in the realistic prediction that these animals will soon cease to exist.

Laurinda Wong

Sonar and Mass Stranding: Is There A Connection?

Anthropogenic impacts have been a large input on the affects towards marine mammals, and cetaceans in particular. These impacts come from transportation, recreational and industrial needs that can lead to entanglements, toxins, and boat injuries. One of the most rising concerns is sound pollution. Many mass stranding events have occurred around the world that may be linked to sonar use by the U.S. Navy. This study examines literature on the impacts of low frequency active sonar (LFAS) on various cetacean species. Stranding events have occurred in places including the Bahamas, the Canary Islands and the Greek Ionian Sea. Some of the strandings have not been linked to sonar use, and could have been caused by disease, injuries, or confusion with echolocation. The stranding events that have been associated with sonar use have shown that stranded cetaceans developed many physiological problems. The main concern is gas cavity formation within blood vessels and tissues in the liver and kidneys. Gas cavities can lead to lesions in tissues and could grow large enough to block blood vessels. Studies have shown that high sound pressure levels are needed to cause gas cavities to grow at increased rates that are potentially dangerous. It is not conclusive that sonar leads to immediate strandings; more research is necessary to show this. However, evidence has shown physiological damage due to

gas cavity formation, which could lead to diseases that may eventually cause the cetaceans to strand.