Knowing your community: fostering biodiversity awareness in our students' daily existence

My thoughts for this presentation came from my re-reading of "Hot Spots and the Globalization of Conservation" a chapter in David Ehrenfeld's 2009 book *Becoming Good Ancestors: How we balance nature community and technology.*

In the chapter Ehrenfeld criticizes the conservation movement's seeming pre-occupation with species diversity as the major criteria for judging conservation outcomes. He discusses the concept of Biodiversity Hot Spots, those areas of the earth's surface, which though relatively small in number and proportion of the earth's area, hold incredibly high levels of endemism and species diversity, and have been used to argue for these places as deserving of greater attention and funding from limited conservation resources. Ehrenfeld goes on to criticize this concept, not for necessarily being wrong unto itself, but for it's underpinnings which might give the impression that we can solve the world's biodiversity crisis without having to change the way in which we live and interact with nature both in our local communities, and more broadly as part of a globalized and increasingly destructive consumer driven economic web.

Ehrenfeld posits that maybe the question we should be asking is not which of the world's ecosystems deserve

the most attention for preservation, but rather "How can we live in a way that reduces the burden on species and ecosystems elsewhere… and protect the species and ecosystems in our own community?" He concludes his chapter by pointing out that if individuals can begin embracing conservation locally and not just in far off lands, then we are more likely to have success in meaningful conservation outcomes in the long run.

In his book *Ecological Literacy*, David Orr also raises similar points in his discussion of the formation of attitudes. "People who do not know the ground on which they stand miss one of the elements of good thinking, which is the capacity to distinguish between health and disease in natural systems and their relation to health and disease in human ones." He then goes on to assert that "even a thorough knowledge of the facts of life and of the threats to it will not save us in the absence of the feeling of kinship with life of the sort that cannot entirely be put into words".

The connections I see between these authors' ideas and Study Abroad both specifically and generally, is a reinforcement of the need for us as educators to use our exotic ecological and cultural settings as a backdrop to bring about the transformative change in our students' emotional grounding that will give them the foundation to live and interact meaningfully in their local communities and beyond, once they move on

from our programs. The fact of the matter is that after our programs, most of our students will not live in "hot spots", nonetheless as Ehrenfeld and Orr point out, for conservation of special places and their biotic inhabitants to ultimately be successful there is a need for human perceptions and sensitivities to the natural world to span a range of spatial scales. Both authors argue that conservation needs to start in what I would call the "Not Spots", the areas out our back doors that we live in and interact with on a daily basis, and which may not be a biological "hot spot", but nevertheless often have important ecological values worth conserving.

Each of us in this room have places with which we feel a deep affinity, and for SIT Academic Directors these places are often our program sites. These are our "hot spots" and though they may not be the traditional biodiversity "hot spots" recognized by international conservation groups (though many locations in which SIT operates program are in "hot spots" as defined by conservation literature), the places in which we deliver our programs are crucial to capturing students' imaginations for the short time that we have them on our programs. The students certainly are drawn to the natural and cultural assets of our program destinations through our marketing and development of our program themes around the natural and cultural assets of the places in which we work. Yet as educators, our

ultimate challenge remains in making our programs relevant for students in their daily lives after they have moved on from our programs and are carrying out their lives in what is likely to be a very different context, and quite likely a "Not Spot".

In the rest of this presentation I would like to discuss some of the approaches that we are using on the Cairns program to try and make our local biological context a part of students greater understanding and learning, in hopes of developing that "feeling of kinship" which Orr was talking about.

Before I address the approaches though I need to talk about our assumptions

We probably all have some degree of assumptions regarding our students "cultural baggage" and backgrounds when they arrive at our destinations. In our program's case we often assume the following about the majority of our students:

-We assume that until their arrival on the program, the majority of our students' educational experience has taken place indoors. We assume even biology majors haven't had the experience of a professor taking them outdoors and asking them to look at nature and say, "what patterns and processes can you see, and how

have they made or affected this plant, animal, or place?" Often we are right, and this reinforces and justifies our emphasis on field based learning approach, as our pre-occupation with getting students in the field is really where SIT makes ourselves different from many of the students' home institutions and most other study abroad providers.

- We assume that our students suffer from "zoochauvinism" or a pronounced greater interest in animals than plants. We know plants are the primary mediators between the physical and biological world, but even the journal Nature has been criticized for not doing enough to remedy "plant blindness", a general lack of appreciation and awareness of plants in biology education and society in general. On the Cairns program we therefore attempt to make our students "see" the plants around them and to try and see the trees and the forest.

-We assume most students have looked through a microscope before, but very few have spent any time looking through a pair of binoculars or observing plants and animals in their natural settings.

-We assume students have fairly short attention spans for the natural world, and have led very busy and highly structured lives with very little time to contemplate and watch the world go by, and ask "what is happening in this place?"

-We assume that though our students are generally good at answering questions, they still need practice in posing questions about the natural world in a measured and meaningful manner

Approaches

In our attempts to develop an appreciation of the diversity of life in students on our program, we use a range of assignments and learning techniques, which I would briefly like to go over.

Shortly after arrival, we provide every student with a pair of program binoculars and a magnifying glass. Even though we hope students will show immediate enthusiasm for trying to see plants and wildlife in situ, we still have to "wow" most students first by visiting an animal park where they can see wildlife up close and personal (just like on TV!). We then work hard throughout the rest of the semester to try and get them to pursue findings animals in their native habitats.

An important assignment is our Natural History Field Notebook in which we ask students to make regular and frequent entries based on their observations of the natural and cultural settings of the program. We ask students to make drawings and use creativity and challenge themselves to go out of their comfort zone when putting their observations to paper. We force

students to develop their own styles by recommending possible approaches without specific strict formatting guidelines. On our field excursions we ask students to catalogue a "species of the day", any organism which they observe on their own, or as a group. Students are asked to convey as much information from observations, and research from field guides that they are able to obtain. Students are also asked to synthesize and integrate their observations through space and time, as well as re-visiting their entries throughout the semester to either edit information, or add new observations and thoughts to their entries so that they can attempt to track changes in their thinking and understanding of the place in which our program operates.

This assignment challenges students to become better observers and to look more closely at organisms in a systematic manner

Suburban Bird Project

During a two week Homestay in a suburb of Cairns, students are asked to map out their homestay neighbourhood and run comparative transects of the bird communities on their street and in a nearby "natural" area over the course of 6 morning and afternoon sampling sessions. The students are required to become familiar in identifying approximately 15 to 30 bird species by sight and sound and record where

the birds were seen and what they were doing. Students undertake a habitat assessment to examine the structural and floristic features of their neighbourhood and "natural area". They read and critique a published paper on urban bird distributions from another city in our region, as well as a past student ISP which examined bird distribution patterns in Cairns neighbourhoods. They then submit a written report which combines their bird species distribution data with their habitat data to draw conclusions about their neighbourhoods as habitat for birds, along with wider inferences about the impacts of human development in a broader context of Cairns City.

This assignment gets students to begin to realize that nature starts at the back door (and in many Cairns homes inside the house!), and even in many urban areas, nature doesn't have to be someplace you drive to.

Flora and Fauna Expertise

During our rainforest field trip students are required to become the group "expert" on a particular species or group of flora and fauna, and they are expected to identify and give short (10-15 minute) presentations to the other students when we encounter their organisms in the field.

This assignment is often a favourite of students, as they realize how much they know about their organisms,

how much they enjoy finding them in the field, as well as seeing their peers become resident experts

Wet Tropics Bioregion- A Landscape Ecology Perspective

On our major field excursion for our rainforest ecology portion of our course, we take a 10 day field trip in which we examine our program's bioregion from a landscape ecology perspective. As we drive through the landscape we visit selected stops where we ask our students: "What observations can we make of the landforms, as well as the plants, animals and human impacts at a site to understand the influence of it's past on its present state, and ask what might be the site's potential future trajectory through time?" Our journey from site to site, represents a landscape "transect" and at each stop we pile out of the bus with maps, aerial photos, GPS, soil sampler and ask the students to identify where we are in the landscape and why we might be seeing what is around us at a particular place. We also ask students to explain what changes they noticed in the landscape from our last stop, and why they think we might have chosen to stop at this particular site. A main goal of the module is to illustrate to students how they can use their new found understanding of plants and animal identification and vegetation structural features in relation to biophysical factors, to appreciate the diversity in landscapes in our

region and understand how the biotic and human communities relate to and interact with those landscapes.

This assignment helps students to understand that if they pay close enough attention, they can learn to "read" into landscapes and site histories, and that this is a transferable skill they can use whenever they visit a new place.

Following fish on the reef

In an exercise undertaken on fringing reef during our marine field module, over the course of seven days students are asked to observe the distribution and behaviour of two closely related species of fish for about 15 hours in order to determine if their data indicates if the fishes seem to be competing. So, as you are getting ready to go to sleep tonight, take comfort in knowing, that somewhere out there in America, one of our program's alumni, is also drifting off to sleep, and quite possibly lying in bed thinking "I wonder what my of fish are doing out on the reef right now?"

In summary, our goal in completing each of these activities is to slowly build up our students' affinity with the plants, animals, people and landscape of the place in which our program operates. At some point in most semesters, whether when talking to locals, other

students, or just during a walk on their free time, some students inevitably have that "Eureka" moment where they come to understand that they feel they "know" and are comfortable in the place where they are at, and in that sense they have become "naturalized" to the place. Ultimately we strive for students to gain the skills, knowledge, and confidence in developing a sense of place at our site; so when they leave the program they know more about the plants, animals, people and landscapes of north Queensland then they do about the place where they grew up. When students come to know our places, it is ultimately hoped that they will carry that desire to know every place on which they tread, and develop the "feeling of kinship with life" which Orr argues is part of the basis for a sound education.