

**Public Political Ecology Field Course:
Report on a two-day Critical Theory and Mixed Methods Course**

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I. Course Background

In late spring 2013, we – five graduate students from the School of Geography and Development and the School of Anthropology at the University of Arizona – set out to design an experiential-learning based political ecology course for undergraduate students. Informed by a critical pedagogical orientation, drawing inspiration from scholar-activists Paulo Friere and bell hooks, we sought to meld critical pedagogy’s focus on social-justice, critical thinking, and continual reflection with an engaged, praxis-focused political ecology.

The *Public Political Ecology Field Course* project consisted of an intensive two-day course held on Saturday, June 2nd and Sunday, June 3rd, 2013 at the University of Arizona campus in Tucson, Arizona and on Mt. Bigelow in the Coronado National Forest. Our approach of combining critical pedagogy, field-based experience, and political ecology’s diverse theoretical and methodological toolkit attracted an interdisciplinary group of undergraduate students – with majors ranging from anthropology and geography, to geophysics and natural resource sciences. Grant support allowed us to provide the weekend learning experience at no cost to students; grant funds covered classroom and vehicle rental, breakfast, coffee and snacks, and a small stipend for the graduate students involved.



Figure 1: Graduate and undergraduate student participants of the Public Political Ecology Field Course

A primary aim of the course was to challenge all participants, both graduate student instructors and undergraduates, to think critically and holistically about the social, ecological, and political implications and contradictions of sustainable forest management in the local context of Mt. Bigelow in the Coronado National Forest, a highly biodiverse mountain range in Southern Arizona. We structured the course around the Mt. Bigelow case study, focusing specifically on improving understanding of existing interactions and ongoing conflicts between biomass and fuel management regimes, fire suppression, and recreation and tourism-based activities in the communities living in and visiting the Coronado National Forest. Included within the Sky Island designation, Mt. Bigelow is a

unique, high elevation forest within the larger Sonoran desert landscape, and has been (and continues to be) the site of numerous scientific investigations.



Figure 2: Mt. Bigelow field sites (Left image: Highly managed forest site; Right Image: 'Pristine' old growth forest site)

Catering to the interdisciplinary backgrounds of the graduate and undergraduate student participants, we explicitly designed the course to highlight political ecology's foundation in both the social and biophysical/ecological sciences. Including a field component in the course both allowed students the opportunity to engage more deeply with the complex, local political ecologies of the Coronado National Forest and furthered our pedagogical goal of establishing a truly interdisciplinary learning environment. As Clairborne et al. (2013, online resource) illustrate, "Learning experiences outside of the classroom are inherently interdisciplinary. When we go into the world, we encounter it as a whole and are forced to engage multiple modalities, no matter which pair of disciplinary 'lenses' we intended to wear."

II. Praxis as a Central Organizing Principle

In addition to our focus on developing an interdisciplinary perspective and taking seriously both the political and ecological dimensions of political ecology, we also designed the course to highlight the importance of praxis for building a new generation of engaged political ecologists. Radical scholar bell hooks, echoing Karl Marx's appeal to put philosophy to work to change the world, succinctly describes praxis as action and reflection upon the world in order to change it. Similarly, a praxis-based pedagogical approach directly relates "classroom to community, theory to action." (Freire 1970; Freire 1998; Jakubowski 2003: 557). For geographer and political ecologist Paul Walker (2007), praxis signifies engaging politics not solely as a research subject, but as a *practice*.

For the purpose of course design, we defined praxis as theoretically informed action, where students and scholars put into practice through hands-on experiences what they theorized and conceptualized in classrooms, books, and articles. In addition to being a central

organizing principle for this course, praxis is also a vital and overlapping component of both the critical pedagogy and political ecology traditions. For political ecologists, engaging praxis head on remains an ongoing focus. Political ecology has come under critique that, contradictory to its well-stated normative and activist goals (Robbins 2004), it has not succeeded as a radical, liberatory force in the world (Walker 2007). The goals of the *Public Political Ecology Lab* (PPEL; see the website: ppel.arizona.edu) are partially a response to Walker's (2007: 364) call for a "popular political ecology that ties research directly to activist efforts to improve human well-being and environmental sustainability through various forms of local, grassroots activism and organization." However, in their calls for ideas to be put into action, Walker and other critics, have generally remained silent on pedagogy and the role of teaching as a productive force in progressive social transformation.

We strongly believe that through its focus on praxis, radical pedagogy (re)enforces the central activist goal of political ecology: to help people take *informed action* in the world, inside and outside of the classroom. In building action into pedagogy, a critical pedagogy approach serves multiple goals: to translate theory into practice; link learning to social action; cultivate socially just forms of action; and connect subject matter in courses to the complex socio-natures which we inhabit in our everyday lives. Furthermore, the integration of theory and practice has been found to enhance undergraduate teaching in a number of demonstrable ways. This includes the ability "to broaden and deepen the intellectual content of undergraduate instruction, to increase students' motivation to engage in academic work through the experience of applying knowledge, to encourage students to develop their skills as independent scholars and researchers, and to contribute to students' sense of civic and social responsibility" (Davis 2009: 234). In line with these objectives, hooks' concept of the classroom as 'a radical space of possibility' echoes deeply with our own goals of building an engaged, praxis-oriented *public political ecology*.

However, critical pedagogy scholars caution of common pitfalls to the radical approach; they warn that effectively linking ideas learned in the classroom with those learned outside of the classroom requires a dramatic shift in traditional pedagogical practice. For example, hooks (1994: 11) states, "to teach in varied communities not only our paradigms must shift but also the way we think, write, speak. The engaged voice must never be fixed and absolute but always changing, always evolving in dialogue with a world beyond itself."

III. Course Design & Planning

Motivations

In designing this brief but intensive learning experience, we were looking for concrete ways to *take learning beyond the text*, to gently lead, but not push or coerce, students to question the status quo and to realize that knowledge is never fixed, but instead, always changing. We believe that fusing radical pedagogy with political ecology: 1) offers students and teachers the tools to engage with lived experience in meaningful ways; 2) contains the transformative potential to challenge dominant cultural norms and change behaviors; and 3) promotes recognizing and critiquing positions of privilege and structures of power at work in the world. Consequently, during both the design stages of the course and in our

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engagements with students in the classroom and in the field, we strived to embody a thoughtful, reflective, and potentially transformative pedagogy.

We also designed the course with the hope of turning the traditional structure of knowledge transmission on its head, opting to recognize and celebrate – rather than marginalize – knowledge stemming from students’ personal life experience. In direct contrast to the traditional unidirectional knowledge transmission from teacher to student, our radical pedagogical approach aims for a horizontal dialogue, which positions each participant as teacher and student in the learning process (Freire 1970). Recognizing that constructing a radical pedagogical space that challenges dominant power structures takes more time than permitted in a two-day course, we view this undertaking as a small first step; laying the foundational work for a more robust month-long summer course or semester-long field seminar – such as a capstone course for majors in geography, anthropology, and/or environmental science.

Two additional motivations for planning and executing this course were: 1) to develop new spaces for collaboration, mutual learning, and exchange between graduate and undergraduate students with similar interests in environmental issues and sustainability, an ongoing challenge at a university where general undergraduate course attendance often exceeds 100 students; and 2) to build our own teaching skillset and develop professionally as educators and scholars of (public) political ecology.

Furthermore, as critical pedagogy challenges the power relations that structure classroom dynamics specifically, and traditional hierarchical educational experiences more broadly, it provides an entry point to interrogate uneven power relations in society. Thus critical pedagogy is well aligned with the normative goals of political ecology.

Pre-Course Preparation

Recognizing our limited face-to-face course instruction time, we wanted the students to familiarize themselves with the central themes and vocabulary of political ecology prior to the first day of the course. We assigned students two pre-course readings: 1) “The Hatchet and the Seed,” the first chapter of Paul Robbins’ (2004) seminal text *Political Ecology: A Critical Introduction*; and 2) Paul Walker’s (2005) still cogent critique of the field, “Political ecology: where is the ecology?” We chose these two texts for a number of reasons. First, these texts are highly-cited in the field and have been grappled with by most political ecology scholars. Second, they introduce students to the main concepts, normative goals, and disciplinary vocabulary of political ecology. Finally, they are relatively brief and easy to comprehend, making them appropriate for a diverse undergraduate audience. Based on a pre-course survey, we were aware that most of our students were unfamiliar with political ecology, and recognizing that students were coming from a variety of disciplines in the social and physical sciences, we wanted to be confident that a wide audience would easily understand, and would not be turned off by, the pre-course readings.

In his opening chapter, “The Hatchet and the Seed,” Robbins clearly sets forth the normative goals of political ecology, laying bare the radical critique of what he deems an

'apolitical' ecology. He creatively draws on the metaphor of 'political ecology as a hatchet' to describe the ability of political ecology to act as a forceful critique of long-standing myths, such as the population bomb argument, and to deconstruct social and environmental policies that have led to inequitable outcomes. At the same time, he offers it is a seed, a kernel from which new ideas and transformational projects can grow.

In the process of introducing undergraduate students to the local political ecological issues of Southern Arizona's high elevation forests, a central goal of ours was to undermine and dispel widely held apolitical views about social-ecological relations. Instead, we sought to explicitly identify, reveal, and dissect systems of power and influence, including questions of expertise, knowledge production, and representations of nature as 'wild' and 'pristine.' Robbins (2004: 5) describes the difference between political and apolitical ecology as

"the difference between identifying broader systems rather than blaming proximate and local forces; between viewing ecological systems as power-laden rather than politically inert; and between taking an explicitly normative approach rather than one that claims the objectivity of disinterest."

A central goal for the course was to demonstrate to students – via working through a tangible case study of contested environmental management on Mt. Bigelow – that 'apolitical' ecologies are actually implicitly political as they have very real implications for the distribution and control of resources and the type of environmental management decisions that are made. Essential to this argument is "that environmental change and ecological conditions are the *product of political process*" (Robbins 2004: 11). For example, in our case study, implementing forest management techniques, such as the conflict-laden proposal to utilize fire, or the existing technique of managing fire fuels and forest growth through clear cutting timber, requires transformations of existing institutions; a highly political process.

Finally, as graduate students currently conducting political ecology-based masters and dissertation research projects, we live many of the ongoing debates in political ecology. One critique of the field that we find particularly relevant is Paul Walker's (2005; 2007) assessment that political ecology research too often falls prey to one of two tempting traps: 1) 'politics without ecology' or 2) ecology without sufficient engagement with politics. Drawing on Walker's critique, we aimed for the course to attain a somewhat precarious balance: to maintain political ecology's original emphasis on ecology, biophysical processes and environmental change, while also drawing students' attention to flows of power, knowledge production, lived experience, hegemony, and multi-scalar analyses.

IV. Course Execution

Day 1

On the first day of the course – the classroom portion – we began by introducing students to our pedagogical approach and by presenting the political ecology framework that would structure the course. We tackled the introduction to political ecology through a discussion co-led by the graduate instructors and undergraduate students. In addition to reviewing

the pre-course readings, participants were also encouraged to share relevant insights from their own previous life experiences. Crucial points of discussion and debate swirled among the themes of uneven power relations, experts and expertise, dominant discourses, exclusion and dispossession, and social justice. Drawing on the diverse backgrounds of the graduate students in forest ecology, hydrology, and fire science, and our stated commitment to maintain a balanced focus on ecology and politics, we consciously worked to tie insights from social theory to transformations in the biophysical environment. However, not unlike Walker's warning, we found maintaining a serious and ongoing engagement between social theory and ecological theory challenging.



Figure 3: Discussion of pre-course readings and student-led white boarding of political ecology concepts (Day 1)

To illustrate how questions stemming from political ecology can be applied to a specific case study, Jesse Minor, co-instructor of the course and doctoral candidate in the School of Geography and Development, presented research findings based on his forthcoming academic manuscript titled, "Ecological Novelties on a Dry River: The Effects of Water Management and Land Degradation on the Santa Cruz River, Arizona." The Santa Cruz River case-study provided students with a concrete example of how original emphases of political ecology research on constructing environmental histories and analyzing detailed biophysical data could be married with newer post-structuralist concerns. Drawing on an in-depth environmental history of river conditions, Jesse demonstrated how ecological data could actually help break open 'ecology' as a category (in a post-structuralist sense) in need of deeper contemplation and analysis.

In the presentation, Jesse captured the students' attention by arguing that ecological changes in the Santa Cruz River cannot be explained by biophysical factors alone. Instead, it must be recognized that human management and activities have strongly influenced hydrological conditions, biotic distributions, and ecological communities. Not only has the river changed over time, but the relation of humans to the river has also changed. Examples of the empirical evidence he presented to corroborate his theoretical argument included: 1) human influence on moving the river channel 2 km east through irrigation canals; 2) changing the hydrological characteristics of the river through groundwater decline and flood mitigation,

such that surface water flow is no longer perennial in the middle basin; and 3) changes to water quality, clarity, and sediment loads as a result of human modifications. Jesse's research reveals that human management of the river has produced what he terms, 'ecological novelties' – novel ecological assemblages that have never been seen in the river's prior history.

Taking advantage of the enthusiasm fostered in the introductory morning discussion and presentation, we transitioned into applying political ecology theory to the specific case of Mt. Bigelow and the ecologically unique forests of Southern Arizona's Santa Catalina Mountains. Two themes, fire management and imaginaries of pristine wilderness, became central topics of discussion and were used to illustrate the complex ways that social, political, economic, and ecological components come to mediate human-environment interactions. Drawing on the influence of post-structuralism on political ecology, we engaged explicitly with concerns of knowledge production, expertise, power, and discourse (Watts 2000). Students were interested in how popular imagery of a region comes to be constructed, produced, and distributed. They were also curious about the roles that different actors, including scientists and the media, play in these processes.



Figure 4: Rebecca Minor (front, center), research scientist with the Biosphere 2, provides the group with background information about forest ecology and management on Mt. Bigelow (Day 1)

During the afternoon of the first day, the focus of the course shifted to methods training. Similar to the emphasis placed on giving balanced attention to the theoretical insights from both social theory and ecological theory, the methods training was structured to highlight a range of data collection methods and instruments from the social and physical sciences. We divided the methods instruction between the graduate student co-leaders based on previous

experience and expertise conducting research with different methods: 1) Sarah Kelly-Richards and Jesse Quinn led a multi-media methods session, focusing on the use of photo, video, and voice recordings in research; 2) Sarah Kelly-Richards and Lucero Radonic instructed students on semi-structured interview question design, participant observation, methods for approaching and attracting research subjects and conducting interviews; and 3) Lily House-Peters and Jesse Minor presented methods and instruments for conducting rapid ecological assessments for measuring forest species health and biomass, fire management techniques, and cartographic methods for recording and analyzing spatially-explicit biophysical data.

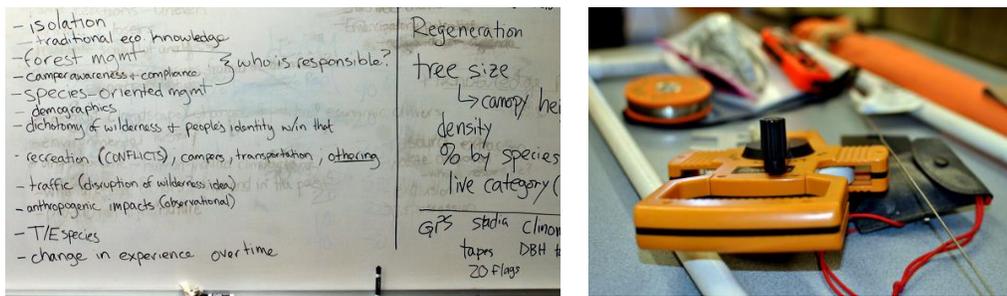


Figure 5: Forest ecology and management discussion followed by an introduction of tools used for ecological assessments (methods training, Day 1)

Day 2

The second day of the course consisted of a day-long field trip to Mt. Bigelow. Upon arriving at the field site, students spent time touring a heavily managed forest site that had recently experienced dramatic thinning, the artifacts of which were visually apparent in freshly cut tree stumps and piles of decomposing biomass. During the initial site tour, students learned of one of the political-economic contradictions of fire management on Mt. Bigelow – that much of the labor involved in cutting down trees and clearing the resulting piles of biomass is carried out by prison labor at extremely low costs.

In addition to the visibility of fuels management in this portion of the forest, the site was also interesting because the forest was being used by multiple communities, simultaneously. Being a weekend, groups of recreationists, escaping the triple-digit summer temperatures in Tucson, had gathered to set up tents for camping and to go on short hikes through the forest. Also highly visible on the landscape was instrumentation and infrastructure put in place for long-term scientific recording of air, water, and heat fluxes in and above the forest canopy.

The use of fire is a contested management practice in southern Arizona, as it is in many places. A variety of actors, including tourists, local residents, ecologists, biologists, and government management agency personnel (i.e. Bureau of Land Management, Forest Service, and Fish and Wildlife Service) are involved in conflicts over where, when, and how to utilize fire as a forest management practice. In the language of political ecology, these concerns with pluralism and competing truth claims are understood as the 'politics of knowledge production.' Importantly, how multiple and conflicting knowledge claims are produced,

distributed, and accepted (or denied) influences the types of environmental management that are possible in certain places at certain times. Thus, the politics of knowledge production are concretely tied to biophysical outcomes on the land.

Tropes and imaginaries of 'wildness' and 'wilderness' have long been concerns within political ecology. In the case of Mt. Bigelow, the contradictions between the widely held imaginary of the 'pristine' forest and the reality of the human-managed forest greatly interested students in the course. These imaginaries can become powerful weapons wielded by different groups as struggles continue over what a forest is and how it should be managed. These cultural and historical representations of nature intersect with networks of power and differentiated access to and control over political-economic resources, further fueling forest management conflicts.

The first two hours of the morning were divided between a tour of the site (focused on its social, political, and ecological characteristics) and hands-on methods training. Students had the opportunity to practice using multiple data collection instruments, including GPS units, measuring tapes for tree diameter and height measurement, quadrats, Go-NoGo tools for fuel biomass measurement, visual methods for conifer species identification and condition assessment, and surveying techniques for delineating research plots. Additionally, Sarah Kelly-Richards and Lucero Radonic led a field session for designing interview questions to be piloted at different sub-sites on Mt. Bigelow with forest managers, residents, campers, hikers, and other visitors present.

At midday, the group split into two. One group, led by Jesse Minor and Lily House-Peters, conducted a rapid ecological assessment of two neighboring forest sites: a recently thinned and heavily managed site and a neighboring old-growth dominated forest site with little visible active management. The students, utilizing the methods they had been introduced to on the first day and had practiced in the field during the morning session, collected data that could be used to measure and compare the ecological condition of each forest site. The second group, led by Sarah Kelly-Richards and Lucero Radonic, collectively developed a set of semi-structured interview questions and then divided up in pairs to interview campers, hikers, bikers, and other visitors of the area. Student researchers in this group gathered data via video and photographic cameras, voice recorders, and field notebooks. At the end of the second day, all of the participants reunited to discuss findings and the potential for analysis and future applications of the research. Specifically, we explored possibilities for data analysis that incorporated data gathered from the mixed qualitative and quantitative method approaches.



Figure 6: The foreground of this image shows debris from forest management practices, while in the background a blue tent of a recreational camper is visible (Day 2)



Figure 7: Long-term science monitoring infrastructure and instrumentation on Mt. Bigelow (Day 2)

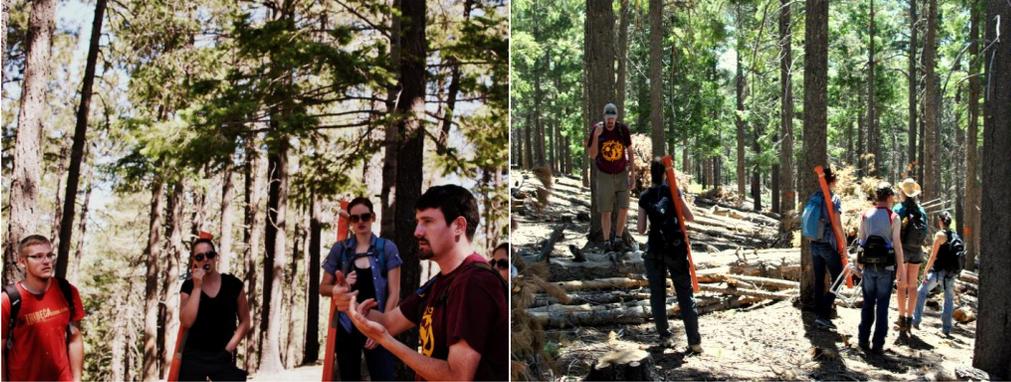


Figure 8: Left: Jesse Minor (Geography), describes the forest management regime on the recently thinned portion of forest on Mt. Bigelow; Right: Students explore the more heavily managed site (Day 2)





Figure 9: (6 photos above) Students learn conifer identification techniques and practice Rapid Ecological Assessment methods to study and compare the ecological conditions of the two forest sites – thinned and unthinned (Day 2)



Figure 10: Graduate students, Lucero Radonic (Anthropology) and Sarah Kelly-Richards (Geography), lead students in a field session to design interview questions (Day 2)

On the afternoon of the second day of the course we held a synthesis discussion, during which students from the two groups reassembled to share and describe their preliminary findings. As a group we discussed the connections, contradictions, surprises, and continuing questions resulting from the pilot research exercise. Participants discussed how their understanding of the Mt. Bigelow field site, specifically, and the Coronado National Forest, more generally, had broadened to include social, political, economic, and ecological dimensions of forest and fire management in the region. Students also commented that they planned to integrate the skills they learned in the course into ongoing and/or upcoming research projects, including summer research, internships, and undergraduate thesis and honors projects.

V. Post-Course Reflection and Evaluation

A common tenet to both political ecology and critical pedagogy is a dedication to reflection. Paul Walker (2007) argues that there is a need for vigilant self-awareness in political ecology, recognizing that if research itself is a political act, then researchers must recognize the need for critical reflection and responsibility to research subjects and communities. In the pedagogy literature, scholars argue that for engaged pedagogy to be effective, students must reflect continually and critically on what they learn (Davis 2009). For Jakubowski (2003), reflection is as central to cultivating a pedagogy of experience as the more recognized tenets of critical thinking and action. She argues that when combined with critical thinking – the practice of regularly questioning and exploring the most commonsensical details of everyday life – the process of reflection can have transformative potential to change behaviors and challenge dominant cultural norms.

Consequently, in the classroom-based instruction and discussions, we sought to encourage students' natural habits of inquiry and to inspire a "critical curiosity about society, power, inequality, and change," (Schor 1992: 15) – a pedagogical viewpoint complementary to the radical critique at the heart of political ecology. During the field visit and pilot fieldwork on the second day of the course, following Clairborne et al. (2013), we highlighted meaningful field experience as an effective method of engaging students in praxis.

In their course evaluations, the students shared that the political ecology framework for understanding complex environmental issues will inform their future studies. They also highlighted the course experience as unique, in that it created a meaningful space to exchange ideas with graduate students in a small setting. Students noted that in this setting they felt more comfortable to engage with graduate students and with difficult theoretical concepts and to express themselves in new ways. As mentioned earlier in this essay, the results of this pilot course and the lessons we learned through the experience are informing the development of a capstone course for the School of Geography's new Bachelor of Arts in Environmental Science.

Shortcomings & Lessons Learned

Although overall the course was successful and students enjoyed the experience, we believe it is important in reflecting on the course to acknowledge our shortcomings and to recognize the pitfalls that we fell prey to. Although we strived to embody the tenets of a critical pedagogical approach to teaching and learning, we found the process of challenging the traditional teacher/student hierarchy to be more difficult than anticipated. Adding to this difficulty were the constraints of operating within a university system and setting where traditional pedagogical norms are powerful and deeply engrained within both students and teachers. Although students did have an opportunity to engage with the community and to conduct fieldwork, the experience was highly limited. To effectively integrate praxis into the course, students would need far more direct experience working with a community and learning the needs and goals of the specific community.

In a future iteration of this course, we would 'lead' students less and instead give them more time to develop their own understandings of political ecology through experiential learning activities. During the course, we observed the pedagogical power of experiential

learning firsthand. Students, who on the first day of the course did not seem to fully grasp the concepts and vocabulary of political ecology, once in the applied field setting began to fluently use political ecology terminology, such as 'politics of scale', 'knowledge production', and 'construction of the nature-society binary'. A positive, yet unexpected outcome of the course was unstructured 'down time' spent between the graduate and undergraduate students during the driving time to and from the field site. In their evaluations of the course, the undergraduate students noted that this time, which allowed for uncensored dialogue about academic life and graduate school experience, was an enjoyable and rewarding aspect of participating in the course.

Finally, in relation to our stated goal of balancing the dual foundations of political ecology – social and ecological theory and methods – although all students were introduced to social science and physical science data collection methods, not all students took part in both for lack of time. During the field site visit the students were split into two groups, with some students focusing on conducting social science methods while others carried out the ecological assessment. Thus, not all students were able to deeply practice data collection methods common to both the social and physical sciences. Finally, a crucial omission of the course was our lack of time to teach students methods of data analysis. In a longer course, focused sessions on data analysis techniques that allowed students to practice analyzing data collected in the field would represent an important overall course improvement.

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