# The eco-social and the evolutionary

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In *Ecology, Soils, and the Left: An eco-social approach*, Salvatore Engel-Di Mauro illuminates how, for all good intentions, we fall short of bridging the divide between the physical and the human. By relating these shortcomings, however, Engel-Di Mauro ultimately conveys the more complicated ways in which these two antipodes might connect. His eco-social engagement with soils asks us to question the boundaries that guide how the biophysical and the political have been simultaneously pursued. Just as soils have horizons, thicknesses, and criteria for their classification, soil scholars likewise work within a world of boundaries that guide their work and daily practices.

Engel-Di Mauro conveys a refreshing anger towards our imagined physical–human border crossings. All sides draw his ire. He calls out social theorists for their scholarly fastidiousness on nuance (2014: 1) and belief that political change requires nothing more than the god trick of refashioning academic language. There's a healthy skepticism toward the storm-in-the-teacup epistemological and ontological one-upmanship that defines competitive publishing. Political ecologists are taken to task for their propensity to rely on technical perspectives while simultaneously tearing them down (2014: 134). Physical geographers and soil scientists are criticized for their lack of awareness about social identities and for how their soil classifications are inherently political despite claims otherwise (2014: 120).

As I would like to argue, Engel-Di Mauro appears to be calling for a more material, biological, non-reductionist integration of the biophysical and the political. It is clear that he holds the view that environmental forces do not remain passive. Yet he steers away from the emotional materialisms of "being with" and "encounters with" that can downplay the radical independence of the biological (2014: 133). Engel-Di Mauro encapsulates his point of view in this manner:

> If the privileging of the social is an outcome of fretting over environmental determinism, or essentialism, the solution would be much easier than the convoluted expressions and theoretical contortions on offer . . . For if we are [outsiders to life or physical forces], we might as well call ourselves supernatural or dead and do some impressive intellectual gymnastics to explain why we are made of the elements also found in things and other beings . . . or to explain how we came into being in the first place (2014: 167).

*Ecology, Soils, and the Left* relinquishes us of any preconceived notions about a happy critical physical geography (CPG) family or a political ecology lovefest. His frustration zeroes in on the switch made in our scholarship, the transition or flip between biophysical processes, and social relations of power. Engel-Di Mauro conveys how "[t]he switch between social relations of power and biophysical processes is as seamless as it is insidious" (2014: 76). We bound across

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this switch through effortless academic pole vaulting without full due paid to the complexity of this bridging. Engel-Di Mauro does not absolve us for failing in these liminal transgressions. Instead, he suggests ways this divide can be approached with more awareness of the conundrums of intellectual claims-making. In sum, the switch between the biophysical and the political can be more tenable, as he sees it, if there is greater recognition of the shared aspects of the nature of us, our work, and of life.

In surveying our attempts to bridge the biophysical–political divide, to dissolve these boundaries (and make new ones), Engel-Di Mauro invokes a fundamental idea in geography; namely, that if you draw boundaries, you invoke the modifiable areal unit problem. To this end, his review of human and physical-oriented soil scholarship illuminates how we have silently relied upon or just ignored grain and extent in the production of scholarly outcomes. The ways we categorize, aggregate, carve up, and gerrymander soils and the people who work and study them matter. Engel-Di Mauro discusses how the United Nations Food and Agriculture Organization category of arable land fails its political potential by excluding permanently cultivated and pasture areas (2014: 105). A single chapter is devoted to how soil degradation can be destabilized as a universal category because of the variety of ways and contexts in which it can originate. Degradation can become a form of disaster capitalism when soils are labeled as degraded according to soil factors relevant only to heavily capitalized and subsidized agriculture. More fundamentally, what defines a soil is a subjective boundary judgment (2014: 18).

Even though Engel-Di Mauro brings to light the extent of our failed bridge making and selective parsings of the world we observe and study so dutifully, I would like to posit that we cannot help it. We knowledge workers can only make bridges in the ways that play to our expertise and make us successful. We have to cling to boundaries. Physical geographers as well as radical social theorists engage in strategic translation. We interpret and communicate evidence to an intended audience in order to advance certain goals and interests. As I have argued elsewhere (Stallins, 2012), boundary work is a property of life. Life is a modifiable areal unit problem. From picket lines to cellular membranes and from labor outsourcing to niche construction, life involves boundary work. We and other organisms define and shape boundaries. We make and break them as a way of hedging predictability. There is no overarching judgment to make here on whether boundary making is necessarily good or bad. It is a fundamental evolutionary, ecological aspect of life. But in our role as workers in the knowledge factory, we too make boundaries. We construct and rework boundaries to give us solidity, an identity, a job, and tenure. For this reason, many of the social theorists, political ecologists, and physical geographers in Engel-Di Mauro's book can be let off the hook for not sealing the gap and making the switch between the biophysical and the political frictionless.

The American Pragmatists long ago realized the individualistic character of boundary-making associated with causal reasoning. Knowledge production invokes the modifiable areal unit problem because we make ex post facto decisions. We create boundaries for our explanations out of the sea of causal influences from our own particular social and individual context. In this correspondence theory of truth, explanations are just one of many equally valid rationalizations. The dividing up of the critical and the biophysical is not done in a mental and intellectual vacuum. Where this becomes problematic is in the propensity humans and others organisms can have for the love of the same. We tend to seek out people who share our own rationalizations. We are homophilic (McPherson et al., 2001), whether we are pedologists or labor

geographers. This is where our boundary-making becomes awkward and limiting.

Engel-Di Mauro sheds light on the depth of our homophily through his distillation of how soil research organizes around certain ultimately anti-egalitarian intellectual arguments, methodological performances, and reproductions of institutional norms. Indeed, a strategy of academics is to surround ourselves with others whose rationalizations correspond to ours. We cultivate our research network around similarly-minded researchers vested in promoting a particular view. Insulating yourself into the center of this network requires being a player as much as, if not more than, being a worker (Barney, 2006; Keizer, 2006). While we do not clone ourselves to mirror these other academics around us, there is an acquiescence or negotiation we make to become a member of a group, often under a discourse of professionalism and collegiality. But when we cluster and form such social networks, these discourses of agreement can become as imprisoning as they are facultative. They make it difficult to forge new ties, to challenge the popular modes of critique. And while only a few degrees away from everyone else in the broader network, it is not strategic to be too interdisciplinary or transdisciplinary and commit the intellectual trespass. Such is the state of CPG and political ecology that Engel-Di Mauro describes: honest in outlook and intent, but needing a break from old habits of self-definition and social reproduction.

Engel-Di Mauro urges us to take into account our situatedness as scholars. He would like for us to be more self-aware of how we traverse the switch between the biophysical and the critical political. Through his review of soil–society scholarship, Engel-Di Mauro draws out the seldom-reached topography of the uncanny valley, that middle domain where there is a fifty–fifty balance between the biophysical and the critical political. This balance is uncomforting in that it is two things at once. But it is here that Engel-Di Mauro positions the eco-social. The eco-social is the set of unfavorably combined ideas that have the potential to unsettle the prevailing academic culture more potently than any idea-stitching that defines highly fashionable, but not necessarily deep or radical, forms of interdisciplinarity. Synthesizing requires bringing two ends together that may not necessarily cohere or persist. There are feedbacks that tend to pull syntheses apart and put their component ideas back into the stable domain of the daily rituals of research, publishing, and being "professional." Synthesis is where Engel-Di Mauro is heading in his conception of the eco-social. But what makes his synthesis different is that any comfort in ideas from one's immediate academic social network is something to be avoided, a sign of failure. Do not do what is easiest. Assemble what is hard, improbable, and risky instead of what is required by prevailing academic decorum. If seeking a greater understanding, stay away from the security of a familiar coast.

That this middle ground of the eco-social requires of us a different kind of labor is not only a reflection of behavioral economics and our reluctance to be a generalist and synthesizer in a marketplace that favors quick sound bites (Sheppard, 2004), it also involves our biologicalness. The anthropic principle is the philosophical consideration that observations of our world must be compatible with the conscious and sapient life that observes it. We are *here*, looking out on the world that is for us now a mirror. We are the lens for organizing the world, of making sense of it. Explanations are going to be inherently human-centric. Can we think across through the biophysical–political switch to see more in the mirror than ourselves? Is it possible to grasp the biophysical from within the cultural worlds that have been instrumental to our evolution? And really, is there anything more interesting than us? This might be considered, for academics, what I term the home field disadvantage. As much as we wish to study and bring the biophysical into the political, the task remains

anchored in our evolution and how our senses, sociality, and culture are reflexively the most immediate core of our thinking. We find it very pleasurable to talk about ourselves, to study the human. This home field disadvantage makes it harder to direct our attention to the complexity of the soils, the atmosphere, and the other organisms on Earth, phenomena that have had billions of years of evolution and from which we originated. How can we see them with a fullness through the filter of ourselves?

Engel-Di Mauro recognizes that the complexity of soils defies our species-bound cultural practices to work with them. As he states, "the more soils are expected to be the same, the more diverse they are, the more they are deemed exhausted, the move lively and fecund they become" (2014: 149). Soils can converge toward seemingly similar states given radically different origins. They diverge in ways that defy our measurement (Phillips, 2001). They will do this with or without humans to observe, measure, classify, and communicate ideas about them. However, even with this agency of soils, of their capacity to defy the boundaries we impose upon them, Engel-Di Mauro has faith that there is enough causal stability (see Mitchell, 2009) to promote just soil–society relationships from one context to another. Nonetheless, Engel-Di Mauro spends considerable energy documenting how the complexity of soils and humans is too contextual and contingent to make any a priori bridging feasible. Thus, along with the possibility of stable causality in the eco-social, there is unstable causality. There is no predetermined type of soil for a given set of conditions (2014: 24). There are also no neutral soil classifications (2014: 32). Much of what we know and understand about soils, and their relationships to the social and the economic, is in flux. Engel-Di Mauro's eco-social perspective thus argues for fewer universal rules and more particularity. For soil quality to ever be a useful concept, it is necessary for it to be placed in historical and geographical context (2014: 46). Thus in the eco-social we have the possibility of generalization and stability, but we have to contend with the instability arising from the finiteness of our scholarship and from the evolvability of what (and who) we are studying.

Although Engel-Di Mauro does not label it as such, the eco-social resembles a critical evolutionary approach. It is an investigation into the different permutations of how soils and society have played out. Mentioning critical and evolutionary studies together may at first seem a stretch, but ideas about evolution have changed dramatically in the last few decades. The old Darwinism is gone. The new evolution "eschew[s] notions of necessity and root causes, and instead accents complexity, unpredictability and circumstance in its explanations of living things" (Castree, 2009). What is now known as the Extended Synthesis of evolution is vastly different from what many geographers are likely to have in mind when they think of Darwin and his legacies. Co-evolutionary perspectives—from resilience theory, niche construction, biogeomorphology, and information-theoretic approaches to ecosystems, spatiotemporal game theory, and postgenomics—all herald a far richer and more relevant evolutionary framework for the social sciences. Evolutionary and developmental systems thought is not epistemologically monolithic. Instead, it makes room for a plurality of epistemologies (Van Dyke, forthcoming) and how they might emerge. However, outside of biogeography and geomorphology, geographers have largely disavowed any connection to evolution. They have done so even when evolution is considered foundational to the ecological understanding that can at times guide political ecology. Evolutionary perspectives inform economics, sociology, linguistics, literature, medicine, and psychology—not as a monolithic meta-narrative, but as several accepted points of view worthy of consideration. In this post-natural era, where the social and the natural have hybridized, and knowledge of the

world out there is always co-produced, why does the idea of an evolutionary approach frighten so many geographers? Space and time are produced, evolving. Such constructivist ideas are central to human geography. Is the eco-social difficult because it is evolutionary, and, hence, a disorienting combination of ideas that leaves us unsettled even though it might hold the possibility of new or different insights?

*Ecology, Soils, and the Left* indirectly prompts us to consider what a critical evolutionary perspective might look like. The ultimate concern in Engel-Di Mauro's book may not necessarily be the unmasking of how the human-bound knowledge of soils and the environment is produced and put into practice. Instead, the concern is how to go about shifting our knowledge production into a mode that recognizes more of the co-evolutionary nature of soil properties and social relationships in time and space. Then political work might be more usefully imagined. The evolutionary and the political are not so distant as they seem. Evolution plays into any possibility of a "charming" Anthropocene (Buck, 2015) if one looks beyond the gee whiz novelty of it all. Rewilding, biophilic cities, planetary gardening, and smart landscapes require cultural and political circumspection, but also (and this is a hope) a deep and ongoing questioning of who we are as organisms and how we relate to other life on the planet. The richness of human life and experience should not be divorced from our comprehension of our capacity to influence the evolutionary trajectories of the biosphere (Castree et al., 2014).

No doubt Engel-Di Mauro makes some complaints about the state of our scholarship. Yet, his critiques of physical and human geography are very fair ones that many of us are too fearful to bring up in polite company. Engel-Di Mauro wants to move away from idealist or professed objective or neutral political formulations that seem to our colleagues and students as pure and radical, but remain duly bound to the short-term demands of career and discourses of collegiality. Perhaps the evolutionary is radical in that other forms of human-centered intellectual framing in geography have become status quo?

In closing, Engel-Di Mauro communicates that we can facilitate the eco-social by recognizing our boundary propensities, by a de-disciplinarization of academic structures, and by working with the fallacies (and opportunities) imposed by being human in a very spatially and historically humanized world. We should move toward a more evolutionary perspective not just within the biophysical "out there," but also in relation to ourselves as knowledge workers. We will be better able to accrue insights about what is stable about soil–society interactions. We will be better prepared to comprehend what has an unstable causality and thus more likely to be filtered through our ambitions to present a narrative that will gain the favor of a particular audience. It is easy to understand how Engel-Di Mauro comes across as angry given the seemingly almost daily calls for what makes it readily feasible to bridge the human and the physical. However, anger can be power. What Engel-Di Mauro sets in motion through his crankiness is the much needed recognition of how much more complex and challenging the world is to make sense of when you are not beholden to a narrow social network. Such an intellectual echo chamber is an effective means of social reproduction, but it delays the work that needs to be done. And part of that will be reading and working well outside of one's comfort zones.

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