

Toward a pragmatic program for critical urban ecology

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Abstract Our essay responds to the critique of Dooling et al. (Urban Ecosystems in press, 2007) of our previously published article “Goal attainment in urban ecology research: a bibliometric review 1975–2004 (Young and Wolf, Urban Ecosystems, 9:179–193, 2006). We identify our critics’ concerns as rooted in a project of deconstruction of scientific inquiry and a redefinition of the boundaries separating academic disciplines from each other and science from society. While we identify important differences with our critics, we largely support this critical project, as evidenced by our previously published empirical research. In exploring the relationship between critical and positivist approaches to urban ecology research and how we might work toward an integration of nature and society in thought and action, we defend pragmatic approaches to empirical research as well as disciplinary projects as legitimate and essential elements of urban ecology research. We argue in favor of theoretical and methodological pluralism. Rather than define urban ecology through exclusionary projects that would limit the scope and significance of urban ecology research, we reaffirm our call for diverse sets of actors inside and outside university settings to engage and support each other in order to develop and strengthen analysis and pursuit of sustainability.

Keywords Urban ecology · Empirical · Methods · Reflexive · Boundary work · Philosophy of science

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In writing the article “Goal attainment in urban ecology research: a bibliometric review 1975–2004 (Young and Wolf 2006),” we hoped to encourage fundamental discussion regarding the status and evolution of the field of urban ecology. We are glad to have prompted at least one such response in the critique offered by Dooling and co-authors

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(2007). Feedback offers individual contributors and the field as a whole an opportunity to consider issues from different perspectives, with the result being, we hope, increasingly robust means for addressing challenging analytic and material problems.

Critical urban ecology and conventional urban ecology

As researchers interested in advancing knowledge and social change, we motivated our reflexive analysis of urban ecological science by expressing an expectation that urban ecologists have diverse understandings of the problems and practices that define the field. The Dooling et al. (2007) paper indicates we were not wrong. While we largely conclude that there is not a great gulf between our perspective and that of Dooling and co-authors (2007), the fact that our article elicited a strong response - a response that sociologists of science would call 'boundary work' (i.e., discursive efforts to define an in-group and out-group with respect to legitimate claims to a body of knowledge) - points to the importance of support for an ongoing, open, critical dialogue as to the status and evolution of urban ecological science.¹

In this essay we will explore some of the specific criticisms made by Dooling et al. (2007), but much of what these contributors object to in our analysis stems from what we perceive to be their frustration with the relatively low social and academic status generally accorded to what we will call *critical urban ecology* relative to what we might identify as *conventional or positivist urban ecology*. They seek to use our article to advance a critique of a set of hierarchies that extend far beyond the particular faults they identify in our analysis.

Critical urban ecology can be thought of as a diversified project of deconstructing (i.e., making visible) traditional structures, including cognitive structures, that define problems, analytic approaches and the hierarchies that order the academy and our world. Critical analysis is implicated in a positive program, notably advancement of theory that supports meaningful incorporation of nature and culture (i.e., bridging the nature culture divide) and the related more concrete aim of advancing interdisciplinary education and research. Understandably, critical analysis has done a better job at deconstruction than it has at reconstruction.

Conventional urban ecology is prosaic in that it is structured by traditional academic disciplines, and it views the problems of urban ecology as amenable to reductionist interventions (e.g., engineering solutions, regulatory reform, provision of economic incentives). Within the conventional approach, analytic progress and practical solutions lie in doing what scientists have done traditionally; i.e., apply disciplinary tools to disciplinary problems. Increases in the amount of such work and incremental improvements in concepts, methods and data, it is assumed, will yield breakthroughs given enough time and creativity.

Support for critical urban ecology and analogous projects of deconstruction are not broad based, in our experience. Weak support is, in part, a function of historically constructed hierarchies in the university, i.e., the allocation of power. It must be said, however, the failure of these critical projects in presenting coherent alternatives to the status quo, communicating with diverse audiences about concerns of broad and immediate interest, and building alliances stand as stumbling blocks to their emergence as a successor paradigm.

¹ As referenced in our original paper, boundary work generally refers to contests between scientific fields. Here we note that what is contested are the contours of a single, albeit vaguely defined, field.

Against this backdrop, we take issue with many individual elements of Dooling et al.'s critique, specifically, inaccuracies in their representation of our arguments and their inability to distinguish between empirical research strategies and the larger intellectual and social project to which the research is connected. More interestingly, however, we share much with our critics. We are in solidarity with those interested in (selectively) deconstructing the nature-culture divide. More specifically and in a more grounded sense, we believe urban ecology must have a strong critical component and be an interdisciplinary and transdisciplinary project (i.e., span academic boundaries and link researchers to others in society). We explicitly agree with Dooling et al. (2007), that "As an emerging field... urban ecology resists a neat, clean definition." The important difference we want to stress with Dooling et al. (2007) is that precisely because of the currently limited ability to bound the field we do not rely on local conventional wisdom or on the tenets of a reformist program to define our object of interest or our progress toward our ambitions. Rather than assume or assert what urban ecology is, we set out to examine the extent to which scientific practice conforms to a set of programmatic ideals.

We vigorously defend our empirical approach and the particular strategies we employed in our analysis. In addition to recognizing the value of pragmatism in implementing research strategies, we encourage our critics to share our view that urban ecology is and must be a 'big tent,' metaphorically speaking. Their approach to both knowledge production and gatekeeping are self-limiting. Methodological pluralism and respect for differences among potential contributors must be a hallmark of urban ecology if it is to be part of a progressive program. That said, there is no substitute for clear thinking and expression.

Response to our critics

As researchers interested in applying data to questions of validation, we conducted empirical analysis to test whether public and highly visible pronouncements regarding the structure and orientation of the field of urban ecology were, in fact, accurately reflected in a sample of journal articles. Dooling et al. object to our having taken a slice of urban ecological science. They object to the particular slice we took and the way in which we analyzed it. Central to their challenge in this regard is the claim that we reinforce bifurcating notions separating society and nature. Although this criticism stems from their sense that we privileged ecological science in our analysis, their insistence on not recognizing society and nature as distinct material categories requires comment.

Our intention here is not to revisit the Science Wars of the 1990s (Fuller, available at <http://members.tripod.com/~ScienceWars/ullical.html>), but we believe it is useful to highlight an important implication of disavowal of elements of material reality. For example, in explaining their epistemological position as premised on inseparability of society and nature, Dooling et al. (2007) assert that "(u)rban ecology focuses on the capacity of [wetlands] to perform certain functions, as opposed to whether the wetland was created by humans or occurs naturally." Extensive research has demonstrated that engineered wetlands are compromised in their functionality compared to natural counterparts (NRC 2001). To argue that urban ecologists must make themselves blind to whether a wetland is natural or man-made and only assess them on the basis of the hydrological, ecological or socioeconomic performance would be to replace the interpretive capacities of effective science - ability to infer locally relevant information from non-local observations - with ideological commitment. By simply paying attention to the history of a wetland we can enhance our ability to evaluate its function and its significance.

While it is laudable to seek to blur boundaries such as the social-nature divide that have served us poorly, we must not deny ourselves the power that comes from ‘ordering’ (i.e., the production of categories, typologies and dualities) that can yield significant insights into the nature of this unity. Urban ecologists are neither shamans who simultaneously inhabit the world of humans and that of animal spirits, nor are they narrow thinkers adhering doggedly to simplistic models in which humans act on the environment. They are, rather, people seeking to develop and apply analytic tools to understand and address social and material problems.

As researchers that pay attention to the details, we object to Dooling et al.’s misleading criticisms. For example, they wrongly claim that we presented our methodology as a “replication” of the methodology from a recent bibliometric analysis (Fazey et al. 2005) and then criticize us for deviating from this earlier approach. What we wrote was, “In line with Fazey’s et al. (2005) empirical assessment of the field of conservation biology, we analyze correspondence between the scientific literature and programmatic statements regarding the objectives and practices of the field.” There is no claim of replication of methods. The parallel lies in the objectives of the two studies and in their shared reliance on an analytic comparison between intentions and deeds.

In another example of strawman tactics, Dooling et al. (2007) write that Young and Wolf “define the task of urban ecologists as improving the development of ecological theory and methods for application in an urban setting.” While Dooling et al. (2007) are very interested in enforcing what it is urban ecologists should be doing, what we did in our article was use development of ecological theory and methods for application in an urban setting as *a criterion* to assess scientific output of urban ecologists and how the interface between ecological science and urban ecology has evolved over time. While ecological science served as the pivot for this empirical component of our paper, our analysis treats all disciplines symmetrically. As we reported, in our sample, 30% of the articles we reviewed for the period 1975–1986 were grounded in Planning, 22% were grounded in Sociology, and 13% were grounded in additional disciplines other than Ecology. For the period 1997–2004 the figures were 36% Planning, 13% Sociology, and 12% disciplines other than Ecology.

To the extent that this element of our analysis is informed by a normative judgment and particular scrutiny of ecology, our position is that the historical bias in ecology against doing research in human dominated landscapes is a lost opportunity for both the prospects of enhancing the integrity of urban ecosystems and for strengthening the explanatory power and relevance of ecology. In response to their charge, we can only reply that intellectual criticism is welcome and healthy, but playing fast and loose with the data (in this case our text) is never a solid basis for dialogue.

As researchers that seek to participate in cumulative knowledge production, we find Dooling et al.’s additional criticisms, and more importantly their puzzlement, regarding our methods and analytic logic troubling. Our claim was that our sample “of 261 peer reviewed articles is unambiguously relevant to the field.” We did not refer to it as a random sample derived from a comprehensive sample frame. We explained in clear and simple terms how we did our research and we explicitly acknowledged the strengths and weaknesses of our empirical methods.

Far from “non-transparent and ambiguous,” a pair of journals whose titles identify them as outlets for urban ecology research seems to us to be a solid basis for investigating work of urban ecologists. Identifying these publishing outlets as biased toward ecological science strikes us as unreasonable given the range of disciplinary contributions to the journals we studied. For example, as we showed, during the period 1975–1987, only 38% of the articles in our sample were identified as grounded strictly in the discipline of ecological science.

Similarly, in terms of the specific questions we put to the articles in our sample, we clearly stated the source of the normative statement that structured our analysis (we drew on a programmatic statement of the Institute for Ecosystem Studies (IES)). We then clearly stated how we used “pronouncements of professional societies, themes of scientific conferences, and funded research and education programs” to reflect on the commitments articulated by IES in order to derive researchable questions to put to our data. With this as background, it is not at all clear how to respond to Dooling et al.’s question: “How did Young and Wolf identify concepts and “core” literature in urban ecology?” Just because the band does not play your favorite song does not mean the band needs lessons.

The empirical work we conducted is a complement to the more qualitative and more contextualized analyses Dooling et al. (2007) propose (e.g., “What theories and conceptual frameworks are being used in the diverse realm of urban ecological research, and how are the theories being tested and modified? What mixed methodologies are being developed to collect data to address complex urban issues?”). We are fully supportive of the work our critics identify as needed. As the very last sentence of our previously published article makes clear, we see a need to go beyond arms-length analysis of texts to understand scientific practice and the evolution of urban ecology as a field of action. We wrote, “Future research should seek to contextualize these bibliometric results through application of historical and ethnographic techniques and other methods that bring us closer to the actors and the practice of science.” Our research is a point of departure, not a definitive summary.

Dooling et al. seem to distrust the notion of cumulative science and the production of what are admittedly and always partial or situated truths.² We see our arms-length, pragmatic treatment of data as contributing to a larger project of critical inquiry. The idea that a commitment to “thick description” translates into more powerful insight is the type of assumption rightly warned against by Longino (1992) in her development of the epistemological program of contextual empiricism. She proposes “critical interactions among scientists of different points of view” as the best means to arrest ideological excesses in the framing of research questions. For her, “those interactions must not simply preserve and distribute one subjectivity over all others, but must contribute genuine and mutual checks” (Longino 1990, p. 40). In this spirit - a spirit of healthy tensions, not one of homogenizing adherence to a single conceptual framework - we identify complementarities between our position and that of our critics.

Conclusion: Toward a pragmatic program of critical urban ecology

As researchers looking to build connections between varied points of view, we are largely in solidarity with the reformist intellectual and political project with which Dooling et al. (2007) are aligned. Dooling et al. (2007) invoke language and concepts from anthropology and related fields to reference their enthusiasm for reimagining social structure and social practice as part of nature; what Dryzek (2005) has analyzed in terms of a discourse of *green consciousness*: a “route to changing the world” by changing “the way people experience the world, and the inculcation of new kinds of ecological sensibility” (1997: 183). We adopt a different vocabulary to reference a related project. We seek better “understanding (of) the relevant feedbacks between social and natural systems.” (p. 182) through a program of

² Please do not let the irony of invoking the validity of situated truths as a response to a post-modern critique of our work be overlooked.

research that integrates socioeconomic and biophysical data and concepts. More important in terms of commonality, both Dooling et al. (2007) and Young and Wolf (2006) employ these related programmatic ideals to justify our vision of urban ecology as an interdisciplinary and transdisciplinary enterprise. We share both the critique and the positive program of reform. While we are clearly not as radical as our critics with respect to some aspects of our epistemological stance, we share far more than the substance and tone of their essay suggest.

The challenges that face the built environment and the world's ecosystems are severe and cannot be dismissed as social constructs. Urban ecology is emerging as an important field of study to address these material challenges. In terms of societal capabilities to adapt and respond, at the center of what urban ecology has to offer - a core competence if you will - is the potential to realize synergies through combination and integration of various disciplines and perspectives. In seeking to deliver on this promise, urban ecology must advance novel critical theory *and* maintain a pragmatic and grounded stance with respect to empirical work. Equally important, urban ecology must not fall victim to an 'us versus them' mentality. The project of critical theory must be open to diverse views and approaches as represented by Young and Wolf (2006) and Dooling and co-authors (2007). Those that seek to advance conventional, discipline-based science are also likely to make important contributions. The project of reconstructing relationships between society and nature - both material and cognitive relationships - must take the form of an open dialogue that transcends traditional boundaries.

Theoretical and methodological pluralism will be vital to the vibrancy and success of urban ecology as a scientific field and as a social and political project. Critical thinkers and researchers and practitioners of many stripes have a great deal to teach and learn from each other. Their diverse efforts, if done in a collegial spirit, will strengthen and enrich urban ecology.

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