

INTERDISCIPLINARY RESEARCH AND ENVIRONMENTAL LAW

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ABSTRACT

This article considers the involvement of environmental law professors in interdisciplinary research. Using a survey and a series of unstructured interviews, we explore environmental law professors' level of interest in such research; the extent of their engagement in it; and the inducements and barriers they perceive to such research. We conclude that levels of engagement in such research are probably lower than they ought to be, and we therefore recommend steps that individuals and institutions could take to facilitate more and better interdisciplinary work. More generally, we conclude that common critiques of interdisciplinary legal research rest on assumptions that are not accurate, at least for the sub-field of environmental law.

INTRODUCTION

In 2011, while speaking at a judicial conference, John Roberts, the Chief Justice of the United States Supreme Court, offered a scathing assessment of the current status of legal scholarship. “Pick up a copy of any law review that you see,” the Chief Justice claimed, “and the first article is likely to be, you know, the influence of Immanuel Kant on evidentiary approaches in 18th-century Bulgaria, or something, which I’m sure was of great interest to the academic that wrote it, but isn’t of much help to the bar.”¹

His statement—and, more particularly, its implied disdain for the integration of philosophy and history into legal research—reflects a broader debate. Since the 19th century, many prominent legal thinkers have called

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¹ Justice John C. Roberts, Remarks at the Annual Fourth Circuit Court of Appeals Conference, June 25, 2011, *available at* <http://www.c-span.org/Events/Annual-Fourth-Circuit-Court-of-Appeals-Conference/10737422476-1/>.

for the study of law to be more interdisciplinary.² Oliver Wendell Holmes, Jr., for example, famously opined that “for the rational study of law the black-letter man^[3] may be the man of the present, but the man of the future is the man of statistics and the master of economics.”⁴ In the decades since, many legal law professors have heeded his advice, and legal-academic research now draws upon economics, history, sociology, psychology, and many other non-legal fields.⁵ That evolution in legal research follows a broader trend toward interdisciplinary research in industry, government, and academia.⁶ But the trend has long had its detractors, and Justice Roberts’ remarks distill their primary objections.⁷ Critics have argued, sometimes rather forcefully, that interdisciplinary legal research is esoteric and impractical, and that its rise is harming traditional doctrinal scholarship and, perhaps, legal teaching.⁸ At an insecure time for the legal academy, such barbs carry a little extra sting.⁹

While these debates have been long-lasting¹⁰ and sometimes intense, the ample literature on interdisciplinary legal research contains little empirical exploration of what law professors are actually doing.¹¹ Most

² For an overview of the history of interdisciplinary legal work, see Jack M. Balkin & Sanford Levinson, *Law and the Humanities: An Uneasy Relationship*, 18 YALE J. L. & HUMANITIES 155 (2006).

³ Lawyers use the term “black-letter law” to refer to clear and settled legal rules.

⁴ Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 469 (1897). Holmes remains one of the most revered jurists in United States’ history.

⁵ See BRIAN Z. TAMANAHA, *FAILING LAW SCHOOLS* 57 (2012) (“Interdisciplinary and empirical studies of law are especially popular at the moment.”); Kathleen Sullivan, Foreword: *Interdisciplinarity*, 100 MICH. L. REV. 1217 (2002).

⁶ See generally COMMITTEE ON FACILITATING INTERDISCIPLINARY RESEARCH AND COMMITTEE ON SCIENCE, ENGINEERING, AND PUBLIC POLICY, NATIONAL ACADEMY OF SCIENCES, NATIONAL ACADEMY OF ENGINEERING, AND INSTITUTE OF MEDICINE, *FACILITATING INTERDISCIPLINARY RESEARCH* (2005) (hereinafter “FACILITATING INTERDISCIPLINARY RESEARCH”).

⁷ See, e.g., Brian Tamanaha, *Why the Interdisciplinary Movement in Legal Academia Might be a Bad Idea (For Most Law Schools)*, Balkinization, January 16, 2008, at <http://balkin.blogspot.com/2008/01/why-interdisciplinary-movement-in-legal.html>; For counterarguments, see, e.g., Brian Leiter, *More on Interdisciplinary Legal Scholarship and “Non-Elite” Law Schools*, Brian Leiter’s Law School Reports, January 19, 2008, at <http://leiterlawschool.typepad.com/leiter/2008/01/more-on-interdi.html>;

⁸ See, e.g., Brent E. Newton, *Preaching What they Don’t Practice: Why Law Faculties’ Preoccupation with Impractical Scholarship and Devaluation of Practical Competencies Obstruct Reform in the Legal Academy*, 62 S.C. L. REV. 105 (2010); Harry T. Edwards, *The Growing Disjunction Between Legal Education and the Legal Profession*, 91 MICH. L. REV. 34 (1992); Tamanaha, *supra* note 7 (questioning whether interdisciplinary research produces any benefits for legal teaching).

⁹ See generally TAMANAHA, *supra* note 5.

¹⁰ See, e.g., Robert Kramer, *Some Observations on Law and Interdisciplinary Research*, 1959 DUKE L.J. 563, 563.

¹¹ That is true of the popular press as well as the academic discussions. For example, in 2007, the New York Times ran a story about the “irrelevance” of legal scholarship. Adam

legal authors writing about interdisciplinary legal research assume—usually implicitly—that they know what their colleagues’ research practices are, and many articles move rather quickly from summarizing conventional wisdom or snippets of anecdotal evidence to making predictive or normative claims.¹² That is problematic. According to the American Association of Law Schools, there are over 10,000 law professors in the United States alone, and they are distributed across dozens of sub-fields.¹³ The legal-academic world therefore is much too large for any professor or judge to presume broad knowledge of its research practices. Yet that presumption seems prevalent, and the consequence is an important debate only partially moored to actual data.

The absence of data poses another problem: it hamstring researchers who hope to improve interdisciplinary research. As nearly every study of the subject acknowledges, interdisciplinary research is hard work, at least if it is to be done well.¹⁴ That literature identifies a variety of challenges, each of which suggests a range of possible responses.¹⁵ But without documentation of the research practices used and challenges confronted by specific academic fields, it will be harder for institutions and for individual researchers—both within and outside legal academia—to facilitate successful interdisciplinary collaborations. More broadly, if information can improve interdisciplinary research, that should ameliorate the concerns of critics who argue that interdisciplinary research is botched so often that it should be done rarely, if at all.

This Article supplies some of that missing empirical information and considers its implications. Our focus is environmental law, which is an interesting sub-field for several reasons. First, in practice, environmental law is highly interdisciplinary. Environmental lawyers often work closely

Liptak, *When Rendering Decisions, Judges Are Finding Law Reviews Irrelevant*, N.Y. TIMES, March 19, 2007. According to the article:

Articles in law reviews have certainly become more obscure in recent decades. Many law professors seem to think they are under no obligation to say anything useful or to say anything well. They take pride in the theoretical and in working in disciplines other than their own. They seem to think the analysis of actual statutes and court decisions—which is to say the practice of law—is beneath them.

Id. The Times cited no evidence in support of these claims.

¹² For an exception to this generalization, see Mark C. Suchman & Elizabeth Mertz, *A New Legal Empiricism? Assessing ELS and NLR*, 6 ANN. REV. L. & SOC. SCI. 555, 568-71 (2010) (providing empirical evidence on the extent of collaboration with several other academic fields).

¹³ The Association of American Law Schools, About AALS, at <http://www.aals.org/about.php> (last visited June 26, 2013).

¹⁴ See, e.g., Susan K. Gardner, *Paradigmatic Differences, Power, and Status: a Qualitative Investigation of Faculty in one Interdisciplinary Collaboration on Sustainability Science*, 8 SUSTAINABILITY SCI. 241, 243-45 (2013) (summarizing the literature on different perspectives).

¹⁵ See *infra* notes 40-58 and accompanying text.

with environmental scientists, and the field emerged in reaction to the insights—and warnings—of scientific researchers.¹⁶ One might hypothesize that a similar level of interdisciplinary engagement would be present, and useful, in academia. Second, and in spite of this potential relationship, the ample literature on interdisciplinary *legal* research says little about environmental law.¹⁷ Third, a similar gap emerges in the otherwise substantial non-legal literature on interdisciplinary *environmental* research. That literature contains many insights about the challenges inherent in collaborations between biophysical and social scientists,¹⁸ but it barely mentions the potential role of law.¹⁹ Those silences leave environmental law researchers who would like to collaborate with other disciplines, and non-legal environmental researchers who might benefit from working with lawyers, without information that might help them form such collaborations.

To help supply that information, we distributed a survey to current environmental law professors. We asked about their levels of involvement in interdisciplinary work, levels of interest in that work, and the degree to which training, institutional practices, and other factors create barriers to or incentives for interdisciplinary collaboration. We then supplemented the survey with a series of interviews with environmental law professors involved in interdisciplinary research.

Our findings lead to several key conclusions. Initially, they undercut arguments that the legal academy has abandoned its roots. At least within the environmental law subfield, interdisciplinary work remains an important but still relatively minor part of professors' work.²⁰ Moreover, those professors are working with researchers in complementary fields, and they are doing so not because they hope to distance themselves from traditional doctrinal work, but instead because they hope to make their work more practical and useful.²¹ This study therefore provides little support for the

¹⁶ See John McEldowney, *Science and Environmental Law: Collaboration across the Double Helix*, 13 ENVTL. L. REV. 169, __ (2011) (emphasizing science's often decisive role in environmental law).

¹⁷ See, e.g., Sullivan, *supra* note 5 (focusing on political theory, economics, and philosophy); Balkin & Levinson, *supra* note 2.

¹⁸ See, e.g., Dena P. Macmynowski, *Pausing at the Brink of Interdisciplinarity: Power and Knowledge at the Meeting of Social and Biophysical Science*, 12 ECOLOGY & SOC'Y 20 (2007); Eric D. Roy et al., *The Elusive Pursuit of Interdisciplinarity at the Human-Environment Interface*, 63 BIOSCIENCE 745 (2013).

¹⁹ See, e.g., FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 182. The National Academies' study repeatedly mentions environmental research projects but discusses legal research only once. *E.g. id.* at 53 (discussing a major research project on the impacts of climate change on regional water supplies. The summary mentions many fields that could contribute to the study, but law is not among them.).

²⁰ See *infra* notes 82-84 and accompanying text.

²¹ See *infra* note 84 and accompanying text.

often-stated view that esoteric interdisciplinary work has come to dominate the legal academy.²²

Consequently, we argue that the most important question is not how to return law professors to traditional work, but instead how to facilitate *more* and better interdisciplinary collaborations. We close by offering concrete suggestions to that end.²³ We hope this discussion will be useful for law professors contemplating a move toward interdisciplinary research, non-legal professors who hope to involve legal researchers in their projects, and law schools and universities hoping to adopt policies that promote successful interdisciplinary collaborations.

This article proceeds as follows. Part II summarizes existing literature, both legal and non-legal, on interdisciplinary research, and highlights several of the key benefits and challenges identified by that research. Part III discusses our methodology, and in Part IV we summarize our results. Part V considers the implications of those results for the broader debates about the role of interdisciplinarity in legal-academic research. Finally, Part VI turns to recommendations, and provides specific steps that environmental law researchers, law schools and universities, and non-legal environmental researchers can take to facilitate more effective interdisciplinary collaboration.

II. BACKGROUND: WHY (AND WHY NOT) INTERDISCIPLINARY LEGAL RESEARCH?

The literature on interdisciplinary research, both legal and non-legal, is large and growing. This section provides a relatively short overview of that literature, first explaining why calls for interdisciplinary research are so prevalent, and then discussing the common grounds for skepticism.

Before embarking on that analysis, however, we offer a few words to explain what we mean by interdisciplinary research. According to one relatively authoritative definition,

[i]nterdisciplinary research is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice....²⁴

That definition is expansive and somewhat fuzzy, but it still indicates that interdisciplinary *legal* research will draw substantially on the

²² See, e.g., Liptak, *supra* note 11. Our study does not purport to answer questions about whether legal research generally tends to be excessively esoteric.

²³ See *infra* notes ___ and accompanying text.

²⁴ FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 2.

methodologies and knowledge of other academic disciplines, rather than being grounded solely in textual research of primary and secondary legal sources. It also indicates, and for purposes of this study we assume, that while much interdisciplinary research involves teams of collaborators, some may be done by single researchers with expertise in multiple disciplines.

A. *Why Interdisciplinary Research*

“Interdisciplinary research... can be one of the most productive and inspiring of human pursuits—one that provides a format for conversations and directions that lead to new knowledge.”²⁵ So begins a major recent study from the National Academies. The authors back their claim with numerous examples, from the Manhattan Project to human genome sequencing, in which collaboration among research disciplines enabled discoveries that would have exceeded the reach of any single discipline acting alone.²⁶

There are several reasons why interdisciplinary research can offer such benefits. First, researchers within one discipline can gain valuable input data from researchers in other disciplines.²⁷ Lawyers, for example, often draw upon the work of historians when trying to understand the historical context for statutory or constitutional provisions.²⁸ Second, disciplines can go beyond providing specific input data and can also share broader perspectives and bodies of expertise, which then can help researchers define research questions or interpret results. An administrative lawyer’s understanding of government agencies, for example, may be quite helpful to a social scientist or public health specialist trying to understand the successes or failings of a government service program. Third, disciplines can share modes of inquiry. Again, legal research provides many examples. Quantitative empirical study of judicial decisions now is a standard mode of legal-academic analysis, but the recent rise of quantitative empirical

²⁵ *Id.* at 1.

²⁶ *See id.* at 17-18.

²⁷ Balkin & Levinson, *supra* note 2, at 164 (“[T]he most familiar modalities of legal reasoning often seem to call upon knowledge that other disciplines might easily provide.”). Whether this counts as interdisciplinary research is a subject of discussion. Some reports refer to this sort of process, where information passes between disciplines but the process of actually searching for that information does not involve collaboration, as “multi-disciplinary research.” *See* FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 27-28 (“Research is truly interdisciplinary when it is not just pasting two disciplines together to create one product but rather is an integration and synthesis of ideas and methods.”).

²⁸ *See generally* Laura Kalman, *Border Patrol: Reflections on the Turn to History in Legal Scholarship*, 66 *FORDHAM L. REV.* 87 (1997) (providing a cautionary analysis of these practices).

scholarship has been closely connected to the increasingly interdisciplinary nature of legal research and of law professors' training.²⁹

Interdisciplinary research also can help correct the blind spots of individual research disciplines. A discipline is, by definition, a group of people with a common body of knowledge and skills.³⁰ Consequently, disciplines coalesce around shared methodologies and common languages, and that commonality almost inevitably reinforces cultural similarities and shared assumptions.³¹ The resulting intra-disciplinary unity has many benefits; most importantly, it allows people within the discipline to communicate efficiently and to establish internal standards for quality work.³² But unity easily can become intellectual orthodoxy, and sometimes the incursion of ideas or methods from other disciplines provides an important disruptive effect.³³ Conversely, an understanding of other disciplines also can create needed caution about interdisciplinary arbitrage. If discipline A routinely draws upon the insights of discipline B, but does not understand the internal dynamics and limitations of discipline B, it may be credulous in its adoption of discipline B's conclusions.

Environmental law already exemplifies these dynamics. The field itself has interdisciplinary origins; it arose largely in response to the research and advocacy of environmental scientists like Rachel Carson and Aldo Leopold.³⁴ In practice, environmental lawyers routinely work with scientists, and the evidentiary materials for most environmental cases include documents written by scientists, engineers, and other technical experts.³⁵ Environmental law scholars draw on scientific and economic research when making arguments about whether environmental problems

²⁹ See Michael Heise, *The Past, Present, and Future of Empirical Legal Scholarship: Judicial Decision Making and the New Empiricism*, 2002 U. ILL. L. REV. 819, 823-27 (explaining the role of other disciplines in the rise of empirical legal scholarship).

³⁰ See Douglas W. Vick, *Interdisciplinarity and the Discipline of Law*, 31 J. L. & SOC'Y 163, 166-68 (2004).

³¹ See *id.* at 169.

³² See Jack M. Balkin, *Interdisciplinarity as Colonization*, 53 WASH. & LEE L. REV. 949, 955 (1996); Vick, *supra* note 30, at 167 ("The stunning advances in knowledge from the Reformation to the present day, particularly in the physical sciences, can be seen as vindication of this system of disciplinary specialization.").

³³ See Vick, *supra* note 30, at 171 (noting that disciplinary boundaries can become "claustrophobic"). For legal scholars, perhaps the most salient recent example of this dynamic involves behavioral economists crashing a law and economics party previously dominated by rational-actor theorists. See Russell S. Korobkin & Thomas Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051 (2000).

³⁴ See ZYGMUNT J.B. PLATER ET AL., *ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY* 9-13 (3rd ed. 2004); Mary Jane Angelo, *Harnessing the Power of Science in Environmental Law: Why We Should, Why We Don't, and How We Can*, 86 TEX. L. REV. 1527, 1527 (2008) ("Environmental law was born out of the new scientific understandings of ecology . . .").

³⁵ Every case one of the authors worked on as a practicing attorney met this description.

merit government intervention, and about the appropriate method and intensity of such intervention.³⁶ Indeed, both modes of argument are now so prevalent that one might say that they are distinguishing features of the environmental law field, rather than examples of interdisciplinarity.³⁷ Other disciplines also have provided environmental law with new conceptual approaches—the influx of complexity theory provides one of many possible examples—and with potential new research methodologies.³⁸ And environmental law researchers have much to offer other fields. Many environmental fields, from communications to planning to conservation biology, are concerned not just with understanding existing systems but also with developing effective policy interventions.³⁹ Law is not the only available mode of intervention, but it clearly is an extremely important—and frequently used—option. Consequently, environmental lawyers’ knowledge of legal systems and institutions can offer value across a broad swath of environmental research fields.

B. Why Not Interdisciplinary Research?

Because of all of these potential benefits, many academics share the National Academies’ enthusiasm for interdisciplinary research.⁴⁰ But such research clearly is no panacea, and there are good reasons why researchers might prefer to avoid it. Some are practical; even if someone is inclined to support interdisciplinary research, she might reasonably balk at the challenges associated with carrying out a successful project. Some of the objections are more philosophical, with critics alleging that interdisciplinary

³⁶ See, e.g., Daniel A. Farber, *Probabilities Behaving Badly: Complexity Theory and Environmental Uncertainty*, 37 U.C. DAVIS L. REV. 145 (2003) (exploring the implications of complexity theory for environmental regulation); Cass Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255 (2002) (discussing the use of cost-benefit analysis in regulatory decision-making).

³⁷ Typical environmental and natural resource law courses, for example, now address concepts like externalities, transaction costs, benefit-cost analysis, environmental trading systems, dose-response curves, ecosystem services, and island biogeography, among others. All of these concepts originated in other fields.

³⁸ See Farber, *supra* note 36; J.B. Ruhl, *Complexity Theory as a Paradigm for the Dynamical Law-and-Society System: Wake-Up Call for Legal Reductionism and the Modern Administrative State*, 45 DUKE L.J. 849 (1996). For a sample discussion of ways non-legal research methodologies could improve legal research, see Dave Owen, *Mapping, Modeling, and the Fragmentation of Environmental Law*, 2013 UTAH L. REV. 219.

³⁹ For example, the Society for Conservation Biology states that “it is dedicated to advancing the science and practice of conserving the Earth’s biological diversity,” and that “Collaboration among scientists, managers, and policy-makers is vital to incorporate high-quality science into policies and management decisions affecting biological diversity.” Society for Conservation Biology, What is SCB, at <http://www.conbio.org/about-scb/who-we-are> (last visited June 28, 2013).

⁴⁰ See Macynowski, *supra* note 18, at 20 (“Shared zeal for increasing interdisciplinarity, as well as widespread regard of difficulties, is evident throughout the discussions.”).

research, even if carried out successfully on its own terms, represents a threat to other, more important work.

1. *Practical Difficulties*

Almost every study of the subject notes that interdisciplinary collaboration is often quite difficult.⁴¹ The traditionally-identified obstacles are many.

First, the shared language and culture that facilitate within-disciplinary collaboration are, by definition, absent from interdisciplinary projects.⁴² That absence of commonality creates the possibility for intellectual breakthroughs, but usually only after sustained effort.⁴³ Initially, a common experience of many interdisciplinary researchers is misunderstanding and frustration.⁴⁴ Researchers—particularly those who look to other disciplines as sources of information—often want quick answers to plug into their own established methodologies.⁴⁵ They may not realize just how long it takes for another discipline to answer seemingly simple questions, or how nuanced and caveated the answers are likely to be.⁴⁶ And if the questions really are simple, that also can be problematic. Academics do not build their reputations by answering simple questions, and finding research questions with sufficient breadth and novelty to interest multiple participants, but sufficient focus to be workable, also can be difficult.⁴⁷

⁴¹ See, e.g., Jessica Leigh Thompson, *Building Collective Communication Competence in Interdisciplinary Research Teams*, 37 J. APPLIED. COMMUNICATION RES. 278, 278 (2009) (“IDR projects can be challenging for academic experts.”).

⁴² See FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at, at 65 (“One of the common themes that runs through any discussion of interdisciplinary interactions is the learning of new disciplinary languages and cultures.”).

⁴³ See *id.* at 77 (“For professors who have secured tenure and would like to pursue IDR, a critical step is to immerse themselves in the other field... That takes substantial time.”); Roy et al., *supra* note 18, at 751.

⁴⁴ See Art Dewulf et al., *A Framing Approach to Cross-Disciplinary Research Collaboration: Experiences from a Large-scale Research Project on Adaptive Water Management*, 12 ECOLOGY & SOC’Y __ (“Communication and coordination problems, misunderstandings, and mismatched expectations easily arise.”).

⁴⁵ See Thaddeus R. Miller et al., *Epistemological Pluralism: Reorganizing Interdisciplinary Research*, 13 ECOLOGY & SOC’Y 46, 48 (2008) (describing this form of research as “multidisciplinary”); David N. Wear, *Challenges to Interdisciplinary Discourse*, 2 ECOSYSTEMS 299, 301 (1999) (noting “[t]he tendency to minimize or compress the content of one discipline to amplify the analysis within one’s own”).

⁴⁶ For one of the authors, this dynamic recurred repeatedly during the first two years of an interdisciplinary collaboration.

⁴⁷ In interviews, several professors emphasized this challenge. Telephone Interview with David Adelman, Harry Reasoner Regents Chair in Law, University of Texas School of Law, July 1, 2013 (noting that “it takes a while to establish a rapport and... a common set of objectives for research with people in other disciplines”); Telephone Interview with Holly Doremus, James H. House and Hiram H. Hurd Professor of Environmental Regulation, University of California, Berkeley School of Law, July 9, 2013 (noting that

Sometimes just developing mutual respect, or even a common language for communication, takes time.⁴⁸

Second, the logistical challenges can be daunting. Most universities are divided into disciplinary units like schools and departments, each with separate budgets, governance structures, physical facilities, and institutional incentives.⁴⁹ Many of those divisions help maintain coherence and coordination within disciplines, but those same systems can prevent a researcher from working with someone from another field.⁵⁰ Sometimes the challenges are as mundane as physical separation.⁵¹ Sometimes they involve uncertain funding regimes for co-taught courses, cross-registered students, or jointly funded research endeavors.⁵² Tenure and promotion decisions may be dominated by disciplinary traditionalists, some of whom have trouble evaluating or place little value on interdisciplinary work.⁵³ Their skepticism can be compounded by academic publication systems.⁵⁴ While some journals emphasize, or even look exclusively for,

many researchers—particularly those who aspire to elite status within their discipline—are “more interested in their research interest dominating whatever they do, their individual interest, and I think it’s very hard to do collaborative interdisciplinary work without everybody giving up a little something.”)

⁴⁸ See Thompson, *supra* note 41, at 278 (“[W]hat is often lacking, is effective management of the communication and collaboration processes.”); Gardner, *supra* note 14, at 248-50 (describing uncertain and sometimes tense relationships between social and biophysical scientists in a large-scale interdisciplinary project).

⁴⁹ Chris M. Golde & Hannah Alix Gallagher, *The Challenges of Conducting Interdisciplinary Research in Traditional Doctoral Programs*, 2 ECOSYSTEMS 281, 282 (1999) (noting the importance of departmental divisions, and the resulting “bias toward disciplinary, rather than interdisciplinary, research”).

⁵⁰ See FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 72 (noting pressures to fulfill the traditional obligations of the home department and to do interdisciplinary research or teaching on the side). Joint appointments are a potential remedy for this problem, but they bring their own challenges. *Id.* at 69 (“[T]hese researchers may find themselves serving two masters and satisfying neither.”).

⁵¹ See *id.* at 77 (“Finding appropriate collaborators can be difficult... especially when they work at distant institutions.”), 94 (emphasizing the importance of physical spaces that promote interaction and of “breaking bread” together). Geography also can create opportunities. For example, Stephanie Tai noted that her school’s location at the center of its campus helps facilitate interdisciplinary interaction. Telephone Interview with Stephanie Tai, Associate Professor of Law, University of Wisconsin School of Law, June 21, 2013.

⁵² In the authors’ university system, for example, allowing sustainability science Ph.D. students to register in law school courses without paying law school tuition proved to be a bureaucratic nightmare, despite enthusiastic support from both the law school and the Ph.D. program.

⁵³ See FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 73.

⁵⁴ See *id.* at 54 (“If a department or institution rewards only work that produces publications for journals in a narrow disciplinary field, academic researchers will respond accordingly.”); Telephone Interview with Daniel Farber, Sho Sato Professor of Law, University of California, Berkeley, July 17, 2013 (“[I]t can be difficult to find research outlets that work for both of you, particularly on [the non-legal] side.”).

interdisciplinary work, the academic norm is a journal identified with a particular discipline, and placing an interdisciplinary article can be challenging.⁵⁵ Many of those challenges are likely to be particularly acute for legal-academic researchers; law schools, with their orientation toward professional training, are quite different from most other university research departments.

Of course, many of these disadvantages presume that the work will be done in teams. Even with interdisciplinary work, that need not be true; some scholars have training or self-taught expertise in multiple disciplines and can work across disciplinary boundaries without help. Indeed, much of the debate about interdisciplinary legal scholarship emphasizes this model, in which a professor with specialized non-legal training works in some law-and-(fill-in-the-blank) field.⁵⁶ The absence of research teammates can remove some of the problems associated with other forms of interdisciplinary research, for the challenges of schedule coordination and physical separation obviously disappear. And if the researcher really does have deep training in both fields, the ability to speak multiple languages and engage multiple bodies of knowledge already has been learned. But dangers nevertheless persist. One of the most valuable benefits of a team project is the ability of individual members to identify and check the disciplinary biases (or just shoddy thinking) of other members.⁵⁷ When one person works alone, by contrast, the potential for shallow inquiries grows.⁵⁸

2. *Philosophical Objections*

A more fundamental challenge comes from the backlashes against interdisciplinary work. Often traditional researchers view interdisciplinary research as a threat to established disciplines.⁵⁹ That threat may simply

⁵⁵ See Wear, *supra* note 45, at 299 (“However strong the logic behind the development of interdisciplinary journals, the challenges to their successful implementation...are substantial.”).

⁵⁶ See, e.g., Hanoch Dagan, *Law as an Academic Discipline* (unpublished manuscript; available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2228433) at 8 (describing the work of practitioners in “law and...” disciplines). By contrast, the literature on non-legal interdisciplinary research typically focuses on work done by teams.

⁵⁷ See Vick, *supra* note 30, at 185 (noting some of the common pitfalls that arise when legal researchers attempt to draw upon the work of other fields without receiving some assistance).

⁵⁸ See Brian Leiter, *Intellectual Voyeurism in Legal Scholarship*, 4 YALE J. L. & HUMAN. 79, 79-80 (1992).

⁵⁹ See Vick, *supra* note 30, at 173 (“[T]he threat interdisciplinarity poses reinforces the tendency of members of a discipline to jealously guard disciplinary boundaries and marginalize those whose work strays from those boundaries.”). FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 22 (referring to “the many knowledgeable observers who continue to advise ‘staying in one’s long-cultivated disciplinary garden’ as ‘the best way to produce the fruits of scientific discovery’”) (quoting I. Feller, Whither

arise from the opportunity costs of performing interdisciplinary work, for academics have limited time, and working on an interdisciplinary project often means not working on a more traditional within-discipline research effort—or, potentially, on teaching a class. But interdisciplinarity also can threaten the traditional values and skills of a discipline, for the other discipline may seek to displace traditions rather than supplement them. The new discipline may arrive, in other words, not as a collaborator but as a conqueror.⁶⁰

The discourse about legal scholarship includes frequent expressions of these fears. Perhaps their most prominent articulation comes from a law review article by Harry Edwards, a highly respected judge on the United States Court of Appeals for the D.C. Circuit.⁶¹ “For some time now,” Judge Edwards wrote in 1992, “I have been deeply concerned about the growing disjunction between legal education and the legal profession.”⁶² Interdisciplinary research, in his view, was a key culprit for this disjunction. “Our law reviews,” he wrote, “are now full of mediocre interdisciplinary articles,” which Judge Edwards ascribed to “ivory tower dilettantes.”⁶³ That dilettantism was coming at a direct cost to traditional doctrinal scholarship, for, according to Judge Edwards “[t]he proponents of the various ‘law and’ movements generally disdain doctrinal analysis.”⁶⁴ Judge Edwards repeatedly acknowledged that interdisciplinary work did have a place in the legal academy, at least if done well.⁶⁵ But he also repeatedly warned that interdisciplinary research, as then practiced, was harming traditional legal research and education.⁶⁶

Two decades later, echoes of Judge Edwards’ argument continue to reverberate through the legal world. Chief Justice Roberts’ quote is just one

Interdisciplinarity (In an Era of Strategic Planning)?, Presentation at the American Academy of Sciences Annual Meeting, Seattle, Wash. Feb. 15, 2004).

⁶⁰ See Balkin, *supra* note 32, at 954.

⁶¹ Edwards, *supra* note 8.

⁶² *Id.* at 34.

⁶³ *Id.* at 35-36.

⁶⁴ *Id.* at 36.

⁶⁵ *Id.* (“It is difficult to dispute, I think, that these various nontraditional movements have the potential to be valuable additions to the law school.”).

⁶⁶ See *id.* at 37 (“The ‘impractical’ scholars, too, often scorn each other, with the adherents of the various interdisciplinary approaches taking the view that all other approaches are deluded. This view, combined with ideological bias, makes for aggressive intolerance.... The atmosphere is profoundly inhospitable for *law students*.”) (emphasis in original); 39 (referring to the “arrogant, antidoctrinal bias of interdisciplinarians”), 46 (arguing that the rise of “law and” scholarship allowed “impractical” scholars to find “a comfortable home in the law school”), 54 (quoting one of his former clerks, who was then in private practice: “Clearly multi-disciplinary work is in vogue... It may make for more interesting conversation in the faculty lounge, but I’m hard pressed to see that the profession is benefiting.”).

example.⁶⁷ Recent law review articles offer similar statements, and the discussion on legal blogs has often been even more emphatic.⁶⁸ To some extent, these arguments simply repackage age-old critiques of academia; the notion that scholars tend to pursue impractical and esoteric inquiries is not exactly new, and traditional disciplinary work is by no means immune to those charges. But the arguments against interdisciplinary legal work nevertheless reflect a conviction—perhaps widely shared—that interdisciplinary research is particularly likely to lead legal academics astray. Many of the critiques seem equally concerned with law professors’ attitude toward law itself. Critics contend that the focus on interdisciplinarity reflects boredom with or disdain toward traditional legal thinking—and, perhaps, an uneasy sense of inferiority about the status of law schools within university systems.⁶⁹

In some ways, this critique—particularly its equation of *interdisciplinary* research with *impractical* research—is puzzling. Introducing additional evidence, alternative and (sometimes) more rigorous methodologies, and new bodies of knowledge into legal research seem like very practical things to do. And a common alternative approach—to search only within prior legal doctrine for answers that doctrinal analysis cannot supply—is intellectually sloppy.⁷⁰ Additionally, as some commentators have pointed out, an academic discipline so established, large, and closely tied to a field of professional practice is likely to resist colonization.⁷¹ But the potential for at least some problems with interdisciplinary research does seem obvious, and that potential, along with persistence of debate about interdisciplinary scholarship, suggests that several empirical questions are worth exploring.

First, how much interdisciplinary work are law professors actually doing? Justice Roberts’ and Judge Edwards’ critiques, for example, suggest

⁶⁷ See Roberts, *supra* note 1 (arguing that legal scholarship is excessively interdisciplinary and esoteric)

⁶⁸ E.g. Newton, *supra* note 8; Tamanaha, *supra* note 7.

⁶⁹ See Vick, *supra* note 30, at 186-87 (summarizing critiques).

⁷⁰ See, e.g., *Parents Involved in Community Schools v. Seattle School Dist. No. 1*, 551 U.S. 701, 745-46 (2007). On those pages, the Court emphatically asserted that racial classifications have a demeaning effect, even when those classifications are designed to favor a group that suffered from past discrimination. That is a sociological and psychological claim—in other words, it is not a legal pronouncement, which becomes true by virtue of the Court’s authority to proclaim the law—but the Court cited only prior Supreme Court decisions as support. It did not cite—and the prior Court decisions it cited also did not cite—studies from any of the disciplines that might empirically verify or falsify this assertion.

⁷¹ See Dagan, *supra* note 56, at 2 (asserting that “legal theory compensates” for the limitations of other modes of inquiry “by focusing on the work of society’s coercive normative institutions and through its synthetic character”); Balkin & Levinson, *supra* note 2, at 173-77 (offering reasons, including the need to prepare lawyers for practice, why the legal academy will resist colonization).

that interdisciplinary research has become the norm, to the extent that it has largely displaced traditional modes of legal inquiry. Sometimes scholars supportive of interdisciplinary work have said similar things; one recent article, for example, claimed that “[c]ontemporary U.S. law school culture seems to offer two alternatives: adopt an external academic discipline (such as economics, philosophy, history, sociology, or psychology) or relinquish academic or scientific pretensions and delve more deeply into practice professionalism.”⁷² But claims about the prevalence of interdisciplinary scholarship are rarely coupled with actual data. Second, who are law professors working with? The standard negative stereotype of an interdisciplinary legal researcher invokes a law-and-political-theory professor, for whom reading Foucault in a law school office is just a second-best (but better compensated) alternative to working in the more intellectually pure political science or philosophy department.⁷³ But are legal researchers really acting as “ivory tower dilettantes,” as Judge Edwards described them, pursuing whims with little regard to their societal value or their relationship to those researchers’ core competencies, or are they forming collaborations designed to match expertise to problems? Third, what have the experiences of law professors who engaged in interdisciplinary research been like? Did they find significant barriers to such work? Did they find it rewarding? Did it help them solve problems, or become better teachers? Do they want to do more? Answering these questions would contribute to a more informed dialogue about the role of the legal academy in disciplinary and interdisciplinary research—and, perhaps, to better interdisciplinary work.

II. METHODOLOGY

To shed light on those questions, we pursued two modes of inquiry. First, we distributed a survey to current environmental law professors at law schools in the United States.⁷⁴ The survey asked questions about professors’ educational backgrounds, their interest and involvement in

⁷² See Dagan, *supra* note 56, at 8.

⁷³ See Vick, *supra* note 30, at 186-87 (noting that citations to Foucault seem to be a pet peeve of the critics of legal interdisciplinarity, and describing law’s “disciplinary inferiority complex”).

⁷⁴ To select the group of professors to be surveyed, we began with list of environmental law professors in the AMERICAN ASSOCIATION OF LAW SCHOOLS’ DIRECTORY OF LAW SCHOOL TEACHERS (2012). Because that list is overinclusive, we culled it by removing any professors whose website profiles clearly indicated that they had not engaged in environmental law research in the last five years. If ambiguity remained about whether professors were still engaged in environmental law research, we included them in the survey. In total, 372 professors received the survey, and 112 responded.

An interesting question, which this study does not purport to answer, is whether a similar study of law professors in another country would produce different results.

interdisciplinary work, and the barriers they perceive to pursuing such work.⁷⁵

Second, we conducted interviews. The interview subjects all were law professors, each of whom we thought would have interest in and a distinct perspective upon interdisciplinary research.⁷⁶ Most but not all of the subjects had post-graduate multi-disciplinary training. All are involved to at least some extent in interdisciplinary work. While we did repeat some questions, the interviews generally were unstructured, and we tailored the questions to the interests and background of each interview subject.

Our methodology introduces the potential for biases or errors, two of which we think are particularly important. First, it seems quite likely that law professors who are actively engaged in research (not all law professors meet that description) would be more likely than non-researching professors to respond to a survey about research. Similarly, law professors who are engaged—or at least interested—in interdisciplinary work are probably more likely to respond to a survey than colleagues who are not interested. We therefore suspect our pool of survey responses may be somewhat biased toward professors with an above-average level of interest and engagement in interdisciplinary research. The same potential bias flows from our selection of interview subjects. We made a choice to focus on people with obvious interdisciplinary experience, and those people are generally likely to have a more positive view of such research than those who have stayed away.

Second, some imprecision unavoidably flows from our use of the phrase “interdisciplinary research.”⁷⁷ The boundaries between academic disciplines, though real, are neither crisp nor static, and determining when research crosses those boundaries is not always a simple matter.⁷⁸ Similar complexities arise when one tries to determine how much cross-boundary engagement is necessary for work to qualify as interdisciplinary. Is an environmental law paper interdisciplinary because the author read and cited ecological studies? Or must the author also draw upon research methodologies employed by the other discipline, and if so, to what extent? To put the questions more generally, where on the continuum between traditional doctrinal scholarship and highly integrated interdisciplinary work

⁷⁵ Appendix A contains the full set of interview questions.

⁷⁶ The interview subjects were David Adelman (Texas), William Boyd (Colorado), Alejandro Camacho (Irvine), Holly Doremus (Berkeley), Dan Farber (Berkeley), Stephanie Tai (Wisconsin), Dan Tarlock (Chicago-Kent), and Michael Wara (Stanford).

⁷⁷ See Vick, *supra* note 30, at 164 (“In practice, the term has been used very loosely by scholars to describe—and justify—a very wide range of academic inquiry, and interdisciplinarity has a tendency to be all things to all people.”).

⁷⁸ For example, drawing clear boundaries between law and political science, or between law and history, would not be easy.

does one draw the line?⁷⁹ The National Academies' definition of interdisciplinary research, which we used in our survey because it is the closest thing to an industry standard, is so inclusive that it does not really answer those questions.⁸⁰ On some questions, we partially avoided this conundrum by asking about time spent collaborating with researchers from other disciplines rather than by asking about time spent on interdisciplinary research.⁸¹ Nevertheless, some questions did use the phrase "interdisciplinary research," and different survey respondents almost certainly construed that phrase in somewhat different ways.

Finally, our methodology cannot fully answer what is probably the most important question about interdisciplinary research. Such research is valuable if it produces more insightful and more useful results than the researchers otherwise would achieve, or if it brings insights to new audiences. But evaluating the quality and effects of academic outputs is difficult, particularly if one wishes to focus on recent works whose influence may not yet be apparent. For purposes of our survey, we did not try to directly answer that question. Our interviews did touch on that issue, as discussed in more detail below, but we do not claim that a small set of interviews can offer definitive answers.

III. RESULTS

A. *Levels of Involvement and Interest*

Our most important finding is straightforward: environmental law professors are interested in interdisciplinary research. Sixty percent of respondents told us they want to devote more of their time to interdisciplinary work, and not one respondent said that he or she would like to do less.⁸² That same enthusiasm emerged from interviews.⁸³

⁷⁹ Some studies describe "multidisciplinary" research, which draws upon multiple disciplines without really integrating their methodologies, as an intermediate category on this continuum. See Roy et al., *supra* note 18, at 745.

⁸⁰ See *supra* text accompanying note 24 (quoting that definition).

⁸¹ In some legal-academic fields, where much of the interdisciplinary work is done by single authors, this question would lead to understatement of the amount of interdisciplinary work taking place. In environmental law, however, the amount of understatement is likely to be small. Environmental law professors often write articles that draw upon the literature from other disciplines, and therefore might qualify as interdisciplinary under the most generous meaning of the term. However, single-author environmental law articles that draw upon the *methodologies* of multiple disciplines rarely appear in legal-academic journals, and environmental law professors typically reach those higher levels of integration by working in teams.

⁸² One survey respondent did write the following comment, however:

When I began my teaching career, I was far more enthusiastic about interdisciplinary work than I am now. Identifying research questions that will stimulate and satisfy both my own interests and those of an

Indeed, several of the professors we interviewed noted that they had left the sciences and entered the legal field precisely because they thought combining their non-legal background with legal skills was their best option for effecting social and environmental change.⁸⁴

Consistent with that interest (and with perceived trends described in the general legal-academic literature on interdisciplinary work), environmental law professors appear to be doing more interdisciplinary work.⁸⁵ Fifty percent of professors reported doing increasing amounts of interdisciplinary work over the course of their careers, and thirty-seven percent reported that they were doing about the same amount of interdisciplinary work. Only 10% reported doing less.

We also asked who environmental law professors were working with. The answers revealed a wide variety of collaborators spanning thirty-one different fields.⁸⁶

interdisciplinary research group driven by the need for funding has become more difficult, and I've become less interested in compromising my own interests and values for the sake of a funder's priorities.

⁸³ Telephone Interview with Alejandro Camacho, Professor of Law, University of California, Irvine School of Law, June 27, 2013 (“getting to know other fields can be intellectually satisfying”); Farber Interview, *supra* note 54 (““today's problems—environmental and energy problems in particular—...require... input from multiple disciplines...”); Interview with A. Dan Tarlock, Distinguished Professor of Law and Director of the Program in Environmental and Energy Law, IIT Chicago-Kent School of Law, July 17, 2013 (“For me, it’s been fantastic.”).

⁸⁴ *E.g.* Adelman Interview, *supra* note 47 (“I wanted to do work that had more immediate consequences.... I had become increasingly interested in environmental issues... I didn't necessarily feel like I could do what I wanted to... just being a scientist.”). Similarly, Michael Wara described how, while finishing his Ph.D., he began talking to people he thought were playing interesting roles in climate policy, and “a lot of them were lawyers.” Telephone Interview with Michael Wara, Associate Professor of Law and Justin M. Roach, Jr. Faculty Scholar, Stanford Law School, June 21, 2013.

⁸⁵ We say “appear to be” because it is possible that these answers indicate that the normal career trajectory of environmental law professors involves increasing amounts of interdisciplinary work, not that the field as a whole is becoming more interdisciplinary. However, we think the latter explanation is more likely. As Dan Tarlock pointed out, collaborative interdisciplinary work was not a major part of environmental research in the early years of the field. “You tried to understand the science,” he said, “but as a consumer and synthesizer of it... There’s a tradition, at least going back to the thirties, at Yale and Columbia, and other places, of doing empirical research. In environmental law, it didn’t quite fit.... I think we were not... particularly interested in what was going on in the field, so to speak, as trying to understand what the scientists were telling us about the various problems.” Tarlock Interview, *supra* note 83.

⁸⁶ While this point may seem obvious, the answers underscore the importance of subfield-specific data to any discussion of interdisciplinary legal research. Some prior articles contain broad proclamations about which other fields law professors tend to work with. *See, e.g.,* Balkin & Levinson, *supra* note 2, at 181 (asserting that economics and history have proved most useful to legal scholars). Those claims may be true, and economics clearly has been quite important to the subfield of environmental law. But history has not been so centrally important to environmental law researchers, while

Table 1. Reported disciplines of collaborators.

Responses	Response Percent (n=93)
Ecology	45.5%
Economics	39.0%
Political Science	35.1%
Biology	33.8%
Geography	28.6%
Planning	28.6%
Climatology	20.8%
Public Health	16.9%
History	14.3%
Philosophy	11.7%
Geology	7.8%
Engineering	5.2%
Toxicology	5.2%
Hydrology	3.9%
Psychology	3.9%
Sociology	3.9%

The evidence of high levels of interest, growing involvement, and connections with many fields might suggest that interdisciplinary research is now a major component of environmental law professors' research activity. Our results show, however, that environmental law professors still spend a relatively small percentage of their research time collaborating with researchers from other disciplines.⁸⁷ Almost three quarters of the respondents reported devoting less than twenty-five percent of their research activity to such collaborations, and twenty-nine percent of respondents reported doing no collaborative work at all in the last five years. If, as we suspect, our sample of respondents is somewhat biased toward higher levels of interest in interdisciplinary work, these numbers may actually overstate the extent of collaborative interdisciplinary work done by the environmental law field as a whole.

B. Training

We also asked about environmental law professors' prior degrees and research training. These questions served several purposes. First, we hoped

ecology—which is probably of little use to corporate lawyers or legal theorists—is the leading focus of collaborative efforts. Interestingly, survey recipients reported little collaboration with disciplines traditionally identified as humanities.

⁸⁷ We did not ask about the amount of time professors spent on non-collaborative interdisciplinary projects—that is, projects that bridge disciplines but are pursued as solo efforts. Consequently, these numbers will somewhat understate the amount or interdisciplinary work taking place.

to provide information about environmental law professors’ qualifications to work in other fields. A common stereotype holds that lawyers are “smart people who do not like math,” and one purpose of these questions was to assess the extent to which that stereotype is accurate.⁸⁸ Second, we sought to explore whether law professors’ background and training helps predict their level of involvement in interdisciplinary work.

The responses reveal a more complex picture, and a much greater diversity of backgrounds, than the prevailing stereotype would suggest. A lack of mathematical training clearly is a limitation for some legal researchers. Forty-seven percent of respondents lacked formal training in quantitative research methods, and one survey respondent’s comment—“I kick myself for not taking stats”—is entirely consistent with that conventional view. But fifty-two percent of the respondents did report formal training in quantitative research methods. Interestingly, a much lower percentage of respondents reported having received formal training in *qualitative* research methods like surveys or focus groups, and an even lower percentage were trained to use geographic information systems (GISs).⁸⁹

Table 2. Respondent training in research methods

Answer Options; Have you received formal training in-	Received No Training	Received Formal Training
quantitative research methods?	47%	52%
qualitative research methods?	67%	33%
geographic information systems?	84%	15%

n=92

Table C. Participants’ responses to percent of research time devoted to interdisciplinary research

Percent of Research Time Devoted to Interdisciplinary Research	Percent of respondents
0%	45
1 - 10%	28
11 - 25%	16

⁸⁸ Michael J. Saks, *Legal Policy Analysis and Evaluation*, 44 AM. PSYCHOL. 1110, 1115 (1989). Of course, one might also conclude that researchers in those fields can offer skills that complement those of legal researchers, at least if they and the legal researchers are able to work around the lack of shared mathematical competency.

⁸⁹ For this survey, we defined qualitative research methods to exclude traditional legal research based on searching for and analyzing textual sources.

26 - 50%	9
51 - 100%	2

n=96

The survey also revealed a relationship between prior training and present research practices. Not surprisingly, professors with prior degrees in the humanities were more likely, when compared with professors with social or biophysical science backgrounds, to report that they made no use of quantitative methods.⁹⁰ Professors with quantitative training also were more likely to engage in collaborative research.⁹¹ And in interviews, professors with science backgrounds consistently identified ways in which they thought their background opened research pathways they might not otherwise have chosen—or been able—to follow. For some, a key benefit lay in recognizing research questions they otherwise would not have perceived.⁹² For almost all, the specialized training gave them the ability, and credibility, to connect more easily with people outside their field.⁹³

Table 4. Use of quantitative research methods, by undergraduate major

Background (undergraduate major)	Percent of Respondents	Percent indicating zero use of quantitative methods
Social Science	14	31
Bio-Physical	26	28
Humanities	45	51

Nevertheless, prior training was by no means a perfect predictor of present research practices. Fifty-three percent of professors who lacked formal training in quantitative research methods still used those methods, and 78% of professors who lacked formal training in qualitative research methods still used those research methods. We did not ask how professors managed to use research methods in which they lacked prior training, and one hypothesis, consistent with some of the critiques of interdisciplinary legal research, is that many law professors are exceeding the limits of their

⁹⁰ Test statistics: $F=5$, $P=.003$.

⁹¹ Test statistics: $\chi^2=12.64$, $P=.005$.

⁹² See also Adelman Interview, *supra* note 47 (“Do I think my background allows me to see problems in different ways, and maybe bring new knowledge and information to bear on important legal questions and or policy issues/questions? Yeah, I think so. I certainly hope so. I’d be depressed if that weren’t the case.”); Doremus Interview, *supra* note 47 (“That background has shaped my research agenda in significant ways. It’s made questions more appealing to me that I don’t think I would have thought about otherwise.”).

⁹³ Telephone Interview with William Boyd, Associate Professor of Law, University of Colorado School of Law, July 16, 2013 (stating that his interdisciplinary background has given him “a broader platform... for engaging with people across the university and with partner institutions...”).

own competence.⁹⁴ But an alternative, and perhaps more plausible, hypothesis is that many environmental law professors are working with research partners who can compensate for the law professors' lack of training.⁹⁵

C. Impediments and Inducements to Involvement

Several of our survey questions, and many of our interview questions, were designed to explore what factors encourage or limit legal researchers' involvement in interdisciplinary work.

Table E below summarizes the results of our survey questions about barriers. At first blush, the results seem to suggest that the barriers are relatively modest. That would be a surprising finding, for perhaps the most consistent claim in the ample literature on interdisciplinary collaboration is that it is often very difficult.⁹⁶ Yet for each of the potential barriers we identified—all based on barriers commonly identified in the existing literature—a *minority* of respondents agreed or strongly agreed with the survey's statement.⁹⁷ One additional statistic should qualify these results, however: eighty percent of respondents agreed with at least one of the statements below. But even as most respondents agreed that some barriers exist, they did not agree that any one barrier is particularly important. And only twenty percent of respondents *strongly* agreed with at least one of the statements about barriers.

Table E. Respondent Perceptions of Barriers to Interdisciplinary Work

Answer Options	Percent of Respondents Agreeing or Strongly Agreeing with Statement
The difficulty of identifying collaborators in other disciplines limits my ability to conduct interdisciplinary research.	27
The pressure to publish within my discipline limits my ability to conduct interdisciplinary research.	41
The pressure to produce highly-placed articles within my discipline limits my ability to conduct interdisciplinary research.	43
The difficulty of scheduling time with	40

⁹⁴ See Leiter, *supra* note 58, at 79-80 (warning of the challenges that confront a researcher attempting to work across disciplines).

⁹⁵ Our collaboration exemplifies that latter approach.

⁹⁶ See *supra* notes 41-58 and accompanying text.

⁹⁷ For a non-legal study identifying similar barriers, see Roy et al., *supra* note 18.

potential collaborators from other disciplines limits my ability to conduct interdisciplinary research.	
My ability to conduct interdisciplinary research is limited by the challenges I face in understanding the language, content, or culture of other academic disciplines (for example, you might want to work with economists but feel your understanding of economics is not sufficient to allow useful collaboration).	26
My ability to conduct interdisciplinary research is limited by the challenges other researchers face in trying to understand the language, content, or culture of legal research.	34
The challenge of identifying research questions that will interest an interdisciplinary research group limits my ability to conduct interdisciplinary research.	25

The results of this portion of the survey therefore are mixed. They show that most environmental law professors do perceive barriers to interdisciplinary engagement. Those perceptions may help explain why collaborative interdisciplinary work occupies a relatively small percentage of environmental law professors' research time even as stated interest is high. But neither survey answers nor interviews allowed us to identify one specific impediment whose importance eclipses all others. Many different barriers and incentives exist, though none are insurmountable, and we discuss the key ones below.

1. Time, Culture, and Learning

Perhaps the most important challenge—and one that intertwines with many others—is the time involved in interdisciplinary collaboration. All interview subjects readily acknowledged that interdisciplinary research “take[s] a long time, and it still is an ongoing challenge.”⁹⁸ A variety of factors explained the need for time investment, but perhaps the most often-cited was the need to understand the culture and goals of other disciplines. A typical example is Dan Farber’s experience with social scientists:

⁹⁸ Camacho Interview, *supra* note 83.

We're talking about a grant proposal and they want to look into things, and I understand what they're saying... it's not that the issue or the methodology is esoteric, but I don't understand why anyone would *want* to do that. It takes a while to figure out what makes that an interesting question to them.⁹⁹

Similarly, several interview subjects stressed that people outside the legal academy often misunderstand the kinds of questions that interest law professors.¹⁰⁰ Ironically, the most commonly-cited problem was that non-lawyers tend to ask for help with narrow legal issues—in other words, for the kind of focused legal analyses that critics sometimes allege is the antithesis of interdisciplinary work—rather than on the more systemic questions that tend to interest legal academics.¹⁰¹ Dan Tarlock relayed one example that, while somewhat extreme, illustrates the problem. He heard that several scientists at his university were interested in a collaborative project, but then discovered that the scientists really just wanted advice about whether they would risk liability with a research project involving the tagging and releasing of rabid bats.¹⁰² Needless to say, the answer to that question would not be publishable. Indeed, for a lawyer with any common sense, it would not require any research at all.

2. *The Importance of Contact*

If investing time in learning about other disciplines is an important prerequisite to success, one might expect that spending time interacting with researchers in other disciplines—even in a non-research context—would lead to more research collaboration. Our results are consistent that expectation. We found correlations between other forms of interdisciplinary contact and involvement in collaborative interdisciplinary research. Professors who present more often to non-legal audiences, who hold joint appointments, or who co-teach courses with non-legal professors all are more likely to engage in collaborative interdisciplinary research.¹⁰³ On its own, none of these findings indicates a causal relationship; it is possible that people seek out interdisciplinary training, contact, and research

⁹⁹ Farber Interview, *supra* note 54.

¹⁰⁰ See Adelman Interview, *supra* note 47; Camacho Interview, *supra* note 83, Doremus Interview, *supra* note 47; Farber Interview, *supra* note 54; Tarlock Interview, *supra* note 83.

¹⁰¹ See Adelman Interview, *supra* note 47; Camacho Interview, *supra* note 83.

¹⁰² Tarlock Interview, *supra* note 83. This episode occurred years ago, before Tarlock was employed at his present institution.

¹⁰³ Our statistical results are equivocal on whether attendance at talks by other disciplines correlates with increased engagement in interdisciplinary research; see also FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 94 (discussing the importance of “breaking bread together”).

because of an interest in the work of other disciplines, and that the training and other forms of contact did not actually play any causal role in the research. But our interviews—and the existing non-legal literature on interdisciplinary collaboration—suggest that causal relationships do exist.¹⁰⁴

The interviews and survey comments also highlighted several ways institutional policies can hinder or promote such non-research contact. Stanford Law School, for example, recently switched to a quarter system in order to align its schedule with the rest of the university system, and thus to allow more cross-registration of students. According to Michael Wara, the change has produced positive results for both pedagogy and research.¹⁰⁵ Cluster hires, which are designed to create interdisciplinary centers within a university, and interdisciplinary graduate programs also can facilitate the same sort of repeated contact. Less ambitiously, interviewees suggested that universities should emphasize interdisciplinary classroom collaboration, reading groups, or social events as mechanisms to help researchers from different fields get to know each other.¹⁰⁶

While we heard examples of universities successfully facilitating interdisciplinary contact, professors also reported circumstances consistent with Dan Farber’s observation “that universities do a lot better job talking about interdisciplinary work than actually making it happen.”¹⁰⁷ A particularly common challenge is that interdisciplinary engagement, either in the classroom or in research projects, is viewed as a bonus, not as something that can substitute for doing traditional legal research or teaching. In Holly Doremus’s words: “Yes, there was support; people were glad of it. But... there wasn’t a formalized support, there wasn’t any expectation that... it would substitute for other things.”¹⁰⁸ That attitude isn’t unique to law schools.¹⁰⁹ In an interview, Alex Camacho reported that his non-legal collaborators were hearing similar things: “You’re doing this work, and that’s okay, but... it’s icing on the cake for the work that you’re really doing.”¹¹⁰

3. *Publication and Credit*

¹⁰⁴ See, e.g., Doremus Interview, *supra* note 47 (“Social capital is really important to making interdisciplinary stuff work.”).

¹⁰⁵ Wara Interview, *supra* note 84 (“That meant that our students could take classes outside of the law school very easily... It also means that non-law students are in law school classes with a high rate of frequency... I get a third of my students coming from other parts of the university.”). See also Doremus Interview, *supra* note 47 (“The other big challenge at Davis was just scheduling, because most of the campus there is on the quarter system and the law school is on the semester system.”).

¹⁰⁶ E.g. Doremus Interview, *supra* note 47.

¹⁰⁷ Farber Interview, *supra* note 54.

¹⁰⁸ Doremus Interview, *supra* note 47. See also Camacho Interview, *supra* note 83.

¹⁰⁹ See Roy et al., *supra* note 18, at 751.

¹¹⁰ Camacho Interview, *supra* note 83.

As the preceding comments suggest, issues of publication and credit are intertwined with all of these challenges. The academy often accords lesser status to interdisciplinary research, and that attitude can emerge in several different ways.

One is the challenge of finding a place to publish interdisciplinary work. Most academic journals are oriented toward a particular field, and finding an outlet for work that straddles disciplinary boundaries can be difficult. The peculiarities of the legal-academic publication system exacerbate that challenge.¹¹¹ Almost all legal-academic publications, including the most-highly respected journals in the field, are staffed by second and third-year law students. Article selection decisions therefore are made by students who are just developing expertise in their own field and may lack competence to evaluate interdisciplinary work. With rare exceptions, the students also make their decisions without peer review.¹¹² That system encourages all sorts of strategic behavior, not all of it consistent with producing good scholarship.¹¹³ As William Boyd put it, “my view is, if you try to get into topics outside of traditional legal fields and seek to make a contribution beyond ... legal scholarship, you’re likely getting beyond the capabilities and interests of law review editors to really evaluate that work.”¹¹⁴ The problem is not unique to legal journals. A complex legal analysis can easily fall outside the competence or interest of editors and peer reviewers at a non-legal journal.

Even if the article does place, challenges of credit remain. While some law schools clearly value articles published outside the law review system,¹¹⁵ others do not,¹¹⁶ and at many, the status of such publications is

¹¹¹ For a detailed discussion of that system and its peculiarities, see Richard A. Wise et al., *Do Law Reviews Need Reform? A Survey of Law Professors, Student Editors, Attorneys, and Judges*, 59 LOYOLA L. REV. 1 (2013).

¹¹² A few law reviews have introduced limited peer review processes, but the schedule generally is more accelerated than traditional academic peer review. See, e.g., Matt Bodie, *Stanford Law Review’s Peer Review Process*, PrawfsBlawg, August 16, 2011, <http://prawfsblawg.blogs.com/prawfsblawg/2011/08/stanford-law-reviews-peer-review-process.html>. Law professors also routinely compensate for the absence of peer review by seeking extensive peer feedback on drafts.

¹¹³ The system also creates positive incentives, including an incentive to write in clear, jargon-free prose that a broad audience can read.

¹¹⁴ Boyd Interview, *supra* note 93. The degree to which this challenge exists may be changing, however. Michael Wara, for example, argued that “law reviews are getting more flexible about what they publish.” Wara Interview, *supra* note 84.

¹¹⁵ See, e.g., Doremus Interview, *supra* note 47 (“One of the things we do quite well, I think, is evaluate scholarship that appears in other venues than traditional law reviews in a supportive and context-appropriate way. At least, we try very hard to do that, to give people credit for things that they do that appear in other places and to tell them that’s a good thing.”); Wara Interview, *supra* note 84 (“I would also say that my colleagues are perfectly comfortable supporting scholarship that is published in other venues so long as it is perceived as of a very high quality.”).

ambiguous.¹¹⁷ A common legal-academic bias against co-authored works—which are routine in the sciences and an intrinsic part of collaborative research—compounds that problem.¹¹⁸ Many of the professors we interviewed thought bias against publications outside a researcher’s home discipline is even stronger outside the legal academy. The absence of peer review in most legal-academic publishing is baffling to many non-lawyers,¹¹⁹ and one result is a circumstance summarized by Alex Camacho:

“When you tell people that you were publishing a piece in a science journal, there would be some people who would... treat it like it was a magazine article. And of course the converse would be true... on an appointments committee for a university-wide interdisciplinary institute with scientists ... a candidate would have listed on their CV a law review article, and a committee member would say, ‘well, that’s just a student-edited journal, and you can ignore it.’... They were treating it like it was a school newspaper article.”¹²⁰

But these incentives did not all run one way. In interviews and survey comments, many professors emphasized steps their schools or universities

¹¹⁶ See, e.g., Survey Comment (“The key issue is that interdisciplinary scholarship is not valued for purposes for promotion and tenure, nor is it particularly well-regarded in the hiring process. Senior faculty are driven by the US News Ranking of the law school sponsoring the journal in which your article appears. Peer-reviewed journals and co-authored work are looked down on.”); Survey Comment (“I lateraled to another school 2 years ago. At my first school, the pressure to publish highly-placed single-authored articles severely limited my research. At my new school, that constraint is gone.”).

¹¹⁷ See Tai Interview, *supra* note 51 (describing her experiences in interviews while on the job market: “when you ask them... if you publish in other journals, will that get counted... many of them said, no, probably not”).

¹¹⁸ In an interview, Michael Wara summarized this issue:

In law, you don’t tend to make your mentors coauthors, even if someone has really contributed in terms of your thinking and... read through drafts and given you really detailed comments. You wouldn’t make that person a coauthor in a law context. In a science context, I think it would be pretty common to do that.

That creates challenges for legal scholars:

You probably can’t always be the first author, if you’re going to do more than one thing... and yet, even when you are the first author, sometimes there are questions about... was this really your idea, particularly if the second author is senior. And that can be tough to manage.

Id.

¹¹⁹ Some law professors also find it baffling. But the law review system does have significant virtues, including shorter time lags from submission to publication, an extraordinary level of source-checking (law review editors check the form and accuracy of every footnote in every law review article), and the guarantee that many non-academic lawyers have some prior exposure to legal scholarship.

¹²⁰ Camacho Interview, *supra* note 83.

had taken to bolster interdisciplinary work. Some of the steps were as simple as talking repeatedly about the value of non-traditional research. Others were more concrete. For example, many universities have successfully used cluster hiring, where hiring lines share a focus upon an interdisciplinary problem rather than a shared orientation, to build collaboration.¹²¹ Similarly, several professors mentioned that their universities have treated interdisciplinary engagement as a key positive factor in internal grant competitions, thus putting real money behind their rhetorical support. Those competitions were powerful mechanisms for breaking the ice and bringing law faculty—particularly junior faculty—into collaborative projects.¹²² And perhaps the most important incentive, which has little to do with any university policy, is the natural intellectual curiosity of academics. As many professors noted, many people outside the legal field are fascinated with law, and many legal academics entered the environmental field in large part because of its interdisciplinary nature.¹²³ That mutual curiosity can help overcome a variety of cultural differences and institutional challenges.

4. Difference Pre- and Post-Tenure

All of the survey results summarized above are for the entire pool of respondents. But we also asked respondents to tell us their tenure status. When we compare the answers of tenured and non-tenured faculty, some differences emerge, though there also were significant variations within each pool of respondents. Similarly, in interviews, professors often suggested that the pre-tenure period involves different incentives and constraints.

First, pre-tenured professors are more interested in devoting increased time to interdisciplinary research, but are devoting a smaller percentage of their time to that research. Using an adjusted mean, the mean percent of collaborative interdisciplinary research for non-tenured professors was 11% while tenured faculty indicated 21% of their research involved interdisciplinary work. Whether that difference results from tenure status is hard to say; when we ran regression analyses that controlled for other

¹²¹ See Adelman Interview, *supra* note 47 (describing this approach at the University of Arizona, but also noting that it does not always succeed); Farber Interview, *supra* note 54 (describing Berkeley’s Energy and Resources Group, which essentially is an interdisciplinary department; “There’s just lots of interactions between... the guy who does ecology and economists and the person who models power systems on a day to day basis and that allows them to really kind of build a common vocabulary and a common sort of set of interests.”); Tai Interview, *supra* note 51 (describing this approach as Wisconsin).

¹²² Camacho Interview, *supra* note 83 (“I think I was on eight proposals the first year.”); Tai Interview, *supra* note 51 (“It’s actually listed as a factor for internal grant competitions. That’s how I got involved in a lot of projects here.”).

¹²³ See *supra* note 84 and accompanying text.

variables, that particular result did not remain statistically significant, and we suspect that tenure status is just part of a set of related factors.¹²⁴

Table 6: Engagement and interest in interdisciplinary work, divided by tenure status

Answer options	Tenure-Track	Tenured
Percent indicating that zero percent of their research is interdisciplinary ^a	53%	25%
Percent indicating they would like to devote more time to interdisciplinary research ^a	88%	51%
Percent <i>disagreeing</i> with the statement that “When making tenure and promotion decisions, my law school values involvement with interdisciplinary research.” ^a	50%	20%

^aResponses are significantly different at p<.10 level

Second, pre-tenure professors perceive greater and different barriers to interdisciplinary work. Among our survey respondents, tenure-track faculty members generally tend to perceive their institutions as less supportive of interdisciplinary work. They also differ from tenured faculty in their perceptions of publication pressure. Pre-tenure faculty members are much more likely to identify the pressure to publish within their discipline, and the pressure to publish highly-placed articles, as impediments to interdisciplinary research.¹²⁵ Our interviews corroborated these findings.¹²⁶

¹²⁴ We employed multiple regression analyses to examine factors that may positively or negatively impact the amount of time our respondents devoted to interdisciplinary research. We consistently found that use of quantitative research methods, presentation to non-legal audiences, teaching with professors from other disciplines, and years of overall environmental law teaching increased the likelihood that respondents devoted more time to interdisciplinary research. No other variable was consistently significant through our multiple analyses.

¹²⁵ Some written comments emphasized this point. *E.g.* Survey Comment (“Having been pre-tenure my entire career to date, I can say that the pressure to produce individually-authored, ‘legal’ articles in order to succeed in the tenure process definitely inhibited co-authored interdisciplinary work.”).

¹²⁶ *E.g.* Farber Interview, *supra* note 54 (“I think one of the things that holds... junior faculty back are concerns about where it’s okay to publish. You know, will work that’s not published in law reviews count?”).

While the professors we interviewed consistently stated that they would encourage a junior law professor to try interdisciplinary work, that encouragement was usually tempered with cautionary notes. Most emphasized the importance of complementing interdisciplinary projects with a more traditional disciplinary research agenda,¹²⁷ and one professor suggested pursuing other projects before embarking on interdisciplinary work at all.¹²⁸

Table 7: Responses to questions about barriers, divided by tenure status (percent agreeing/strongly agreeing with statement)

Potential Barriers	Tenure-Track	Tenured
The difficulty of identifying collaborators in other disciplines limits my ability to conduct interdisciplinary research.	33	28
The pressure to publish within my discipline limits my ability to conduct interdisciplinary research. ^a	67	38
The pressure to produce highly-placed articles within my discipline limits my ability to conduct interdisciplinary research. ^a	73	39
The difficulty of scheduling time with potential collaborators from other disciplines limits my ability to conduct interdisciplinary research.	34	41
My ability to conduct interdisciplinary research is limited by the challenges I face in understanding the language, content, or culture of other academic disciplines (for example, you might want to work with economists but feel your understanding of economics is not sufficient to allow useful collaboration).	23	30
My ability to conduct interdisciplinary research is limited by the challenges other researchers face in trying to understand the language, content, or culture of legal	28	36

¹²⁷ E.g. Boyd Interview, *supra* note 93 (“Make sure you are comfortable writing law review articles.”); Camacho Interview, *supra* note 83 (“the conservative route would just be to be very discipline-focused”).

¹²⁸ Adelman Interview, *supra* note 47 (“It is not something I would personally propose to do right up front.”). Adelman did propose, however, that junior faculty members interested in interdisciplinary work should immediately begin building the professional networks that would support later interdisciplinary collaborations. *Id.*

research.		
The challenge of identifying research questions that will interest an interdisciplinary research group limits my ability to conduct interdisciplinary research.	11	29

^aResponses are significantly different at $p < .10$ level

Again, readers should be wary of generalizing from these results. In interviews, several professors described ways in which their institutions had been highly supportive of interdisciplinary work during their pre-tenure period.¹²⁹ There are also reasons, apart from institutional pressure, why one might expect junior faculty to be less engaged in interdisciplinary research. Particularly in a field like law, where most faculty members lack Ph.Ds, junior faculty may still be figuring out the research norms of their own discipline and therefore may not feel quite ready to engage with others. They also may not yet have built a reputation or a professional network, and their relatively lower profile may decrease the likelihood that other academics will contact them about pursuing projects. Nevertheless, these survey results do suggest that junior faculty tend to feel more institutional pressure to conform to traditional disciplinary norms.¹³⁰

IV. THE PLACE OF INTERDISCIPLINARY ENVIRONMENTAL LAW RESEARCH

This article began by summarizing a view—perhaps widespread, at least among practicing lawyers and judges—that esoteric interdisciplinary research has taken the legal academy by storm, leading to a degeneration of standards for both legal research and teaching. That is a harsh critique, particularly at a time when a stagnant economy, declining applicant pool, and complaints about the practice-readiness of graduates all have combined to create a sense of crisis at many law schools.¹³¹

But this study strongly suggests that a key factual premise of that critique is mistaken, at least for the sub-field of environmental law. The

¹²⁹ See Adelman Interview, *supra* note 47 (describing the University of Arizona as “hugely supportive”); Boyd Interview, *supra* note 93 (describing strong support from fellow environmental law faculty at Colorado and from his dean); Camacho Interview, *supra* note 83 (describing support at Notre Dame); Tai Interview, *supra* note 51 (describing concrete measures Wisconsin uses to encourage interdisciplinary engagement and to reward it in the tenure process); Wara Interview, *supra* note 84 (describing strong institutional support at Stanford).

¹³⁰ That issue does not appear to be unique to law. The National Academies study, for example, noted that it is important to “[p]rovide encouragement and rewards to move bright, early-career staff out of too-narrow disciplinary pursuits.” FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 55.

¹³¹ See Lincoln Caplan, *An Existential Crisis for Law Schools*, N.Y. TIMES, July 15, 2012, at SR10.

vast majority of the work done by environmental law professors does *not* involve multi-disciplinary collaborations.¹³² Nor do many environmental law professors pursue single-researcher interdisciplinary studies. While such scholarship may be prevalent in other legal-academic fields, like law and economics, environmental law articles that fit that description are relatively rare. That does not mean that environmental law scholars are pursuing purely doctrinal scholarship, without even a nod to the insights of other disciplines. Drawing upon, and citing to, studies from other fields is now a normal and routine part of environmental law articles.¹³³ But most of environmental law professors' research falls within the traditional mainstream of legal scholarship.

The culture of the discipline also continues to promote that traditional work. While environmental law professors clearly are enthusiastic about interdisciplinary work, we found little evidence corroborating the view that they are pushed in that direction. Some schools do have mechanisms designed to promote interdisciplinary collaboration, but even the most effective nudges still are rather gentle.¹³⁴ And those gentle nudges are amply balanced by countervailing institutional pressures.¹³⁵ Publication systems, tenure and promotion criteria, and in-school teaching responsibilities all contributed to a widespread sense that the legal academy continues to push participants toward more traditional activities.¹³⁶

Our research also provides evidence—albeit indirect—against claims that interdisciplinary research tends to be more esoteric than traditional legal research. Most importantly, the professors we interviewed consistently told us they pursued interdisciplinary work because they thought such work would help them solve important real-world problems.¹³⁷ Indeed, not one interview subject or survey respondent expressed disdain for traditional legal scholarship, and multiple professors emphasized some version of the claim that “there is a distinctive discourse in law and it’s an important one.”¹³⁸ While our interview sample is small, the fields that

¹³² See *supra* note 87 and accompanying text.

¹³³ In this vein, one survey respondent stated: “I take some issue with the overall premise of the survey, i.e. that legal research and research in economics, biology, etc., can be conducted separately. All strong research is interdisciplinary.”

¹³⁴ See *supra* notes 105-110 and accompanying text.

¹³⁵ See *supra* notes 105-130 and accompanying text.

¹³⁶ See *id*; but see Dagan, *supra* note 56, at 8 (arguing that legal-academic culture now pushes researchers away from traditional legal research).

¹³⁷ See *supra* note 84 and accompanying text.

¹³⁸ Adelman Interview, *supra* note 47; see Boyd Interview, *supra* note 93 (noting the importance of “[t]he critical/analytical skills that [law professors] bring to any type of text”); Farber Interview, *supra* note 54 (“I also think it's important to make sure you're bringing something to the table as a law professor, right, not just working in some other field that you're not fully trained in, really leveraging your legal training as well.”); Tarlock Interview, *supra* note 83 (“[J]ust be sure there's an important legal component to whatever you take on.”); Wara Interview, *supra* note 84 (“I personally value the other kinds of

environmental law professors are collaborating with are consistent with the hypothesis that environmental law professors are doing interdisciplinary work to try to solve problems. Working with ecologists—a field with its own well-documented inferiority complex—makes little sense as a step toward academic ego-building, but quite a lot of sense if the goal is to solve environmental problems.¹³⁹ And environmental law and economics are so thoroughly intertwined that partnering with economists makes perfect sense.

These results will not, and should not, end the debate about the merits of interdisciplinary engagement, even in the field of environmental law. The repeated statements about the challenges of interdisciplinary work, both in the literature as a whole and from the people we interviewed, should be reason for pause. People would not say those things if every interdisciplinary project went well, and researchers ought to carefully consider whether and to what extent they will engage in an enterprise that often ends in disappointment. But even with those caveats, our results provide a partial answer to those who argue that esoteric interdisciplinary research has taken the legal academy by storm. If environmental law is at all typical, no such transformation has taken place.

V. FACILITATING INTERDISCIPLINARY LEGAL RESEARCH

To some traditionalists, who believe that law professors should devote their research time primarily to analyzing legal texts, our findings should be reassuring. But while we do not question the importance of such work, we also do not think it should be law professors' exclusive or even predominant output. Instead, law schools and universities should be asking how to promote interdisciplinary environmental law research, not how to restrain it. There are several reasons why.

The first, which articles on interdisciplinary research have emphasized for decades, is the potential for interdisciplinary work to produce better studies.¹⁴⁰ While environmental law contains no shortage of unanswered questions about legal doctrine, researchers have been poring over similar statutes and regulations for decades, and the potential to produce important new insights using the same old research tools is almost certainly

scholarship tremendously, and I get a lot out of it.”). Holly Doremus noted that many environmental law professors may feel a little bit out of place in the social culture of a law school. Doremus Interview, *supra* note 47 (“[S]ince I started teaching law school, I have never felt completely comfortable in a law school. Again, my anecdotal impression is that a lot of environmental people feel like that. When you go to our meetings we aren't all dressed up in suits and ties.”). But that statement is quite different from asserting that traditional legal analysis is somehow inferior to alternative modes of inquiry.

¹³⁹ See, e.g., Charles A.S. Hall, *Making Ecology More Relevant and Powerful for Millennia III* (unpublished manuscript), available at http://www.esf.edu/efb/hall/CharlieHall_essay.pdf (last visited September 27, 2013).

¹⁴⁰ See *supra* notes 25-33 and accompanying text.

diminished. Engaging with other disciplines offers the possibility of supplementing traditional legal research with new information, methodologies, insights, and perspectives.¹⁴¹

The second is the potential for interdisciplinary research to reach new audiences. Implicit in many of the critiques of legal scholarship—particularly those from the bench—is an assumption that utility for judges is the key measure of a legal publication’s value.¹⁴² But the project of shaping environmental law is by no means limited to judges, or even to lawyers. From regulatory economists to corporate compliance officers to agency staff biologists, the world of environmental policymaking is filled with non-lawyers who collectively play enormous roles in implementing—and, often, creating—environmental law.¹⁴³ If these people have access to interdisciplinary environmental law scholarship—even indirectly, through education at universities where interdisciplinary collaboration is a norm—their understanding of environmental law’s institutions and practices ought to be improved.

The third, and admittedly less important, reason is that interdisciplinary research can also be more rewarding. While every interviewee we spoke with emphasized the difficulties inherent in pursuing interdisciplinary research projects, they also emphasized the benefits, and one of the most important benefits was the exciting possibility of learning to see the world in a new and different way.¹⁴⁴

So how, then, should law schools, universities, and individual researchers promote interdisciplinary environmental work? And, relatedly, how should they promote *good* interdisciplinary work, which will realize more of the potential benefits of collaboration while reducing the fodder for critiques? We suggest several concrete steps.

A. *Steps for Law Schools and Universities*

A consistent theme emerging from both the survey and our interviews is that institutional actions and policies matter. While, as Stephanie Tai put it, “[i]t’s really popular for schools to say that they’re interdisciplinary,” their success in backing that claim varies, and concrete actions make a

¹⁴¹ See, e.g., Survey Comment (“I find that my own work gains enormously from the exchange of ideas and perspectives across disciplines.”).

¹⁴² See, e.g., Adam Liptak, *The Lackluster Reviews that Lawyers Love to Hate*, N.Y. TIMES, October 21, 2013, at A15.

¹⁴³ For example, much of the work of translating the Endangered Species Act into constraints upon specific projects is done by federal agency biologists. See Dave Owen, *Critical Habitat and the Challenge of Regulating Small Harms*, 64 FLA. L. REV. 141, 151-52, 170-72 (2012).

¹⁴⁴ See, e.g., Doremus Interview, *supra* note 47 (“For me, one of the biggest advantages is just that it’s fun.”).

difference.¹⁴⁵ For that reason, we offer several suggestions—some original to this study, and others widely endorsed in the existing literature—that law schools and universities should consider.

1. Facilitating Contact

Perhaps the most important way universities can facilitate interdisciplinary collaboration is by facilitating contact between members of different disciplines.¹⁴⁶ That may seem like a rather obvious point, but it isn't something universities always do well.

There are several affirmative steps universities can take to achieve this goal. The most significant, at least in terms of financial commitments, involve creating interdisciplinary centers and hiring people for joint appointments. Clearly those actions can make a substantial difference, at least if the appointments go to people who are respected researchers with a talent for facilitating collaboration, and if the university sustains a long-term commitment to supporting those interdisciplinary institutions.¹⁴⁷ Similarly, grant funding for interdisciplinary projects provides a powerful incentive for coordination, and seems to be a particularly effective way of bringing junior faculty into interdisciplinary work.¹⁴⁸ But we heard many suggestions for more modest activities that still could produce meaningful payoffs. Requiring faculty to document their work with other departments on their annual report form sends a subtle but still meaningful message that such work is valued.¹⁴⁹ Inviting non-legal faculty to lunchtime research presentations, encouraging reading groups, and coordinating interdisciplinary social events can help create a culture where people from different disciplines routinely talk to each other.¹⁵⁰ Our interviews, our survey results, and the existing non-legal literature on interdisciplinary collaboration all suggest that such routine contact is an important first step.¹⁵¹

¹⁴⁵ Tai Interview, *supra* note 51.

¹⁴⁶ See Doremus Interview, *supra* note 47 (emphasizing this point).

¹⁴⁷ See Adelman Interview, *supra* note 47 (describing the success of this approach at the University of Arizona, but also emphasizing the sustained investment it requires); Tai Interview, *supra* note 51 (“I think [cluster hiring] helps a lot too.”).

¹⁴⁸ Camacho Interview, *supra* note 83; Tai Interview, *supra* note 51. Both Camacho and Tai credited these incentives with jump-starting their engagement in interdisciplinary work.

¹⁴⁹ Tai Interview, *supra* note 51 (noting that this practice is standard at Wisconsin Law School).

¹⁵⁰ See Doremus Interview, *supra* note 47 (suggesting several of these steps); see *infra* notes 103-104 and accompanying text (discussing survey results indicating a relationship between non-research contacts and research engagement).

¹⁵¹ See *supra* notes 103-110 and accompanying text; FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 94 (noting that interdisciplinary research functions best as a “contact sport”).

Another interesting variation on this theme emerged from our interviews: law schools should think about non-legal graduate students as vectors for interdisciplinary collaboration.¹⁵² That obviously creates a challenge for law schools, where almost all enrolled students are pursuing professional rather than research degrees. But there are important steps law schools could take to integrate non-legal graduate students. Encouraging cross-registration—even if that means adjusting the law school schedule—is an obvious first step (and a step with significant pedagogical benefits).¹⁵³ Similarly, law schools should consider how they will give credit to professors who teach outside the boundaries of the law school, or who serve on Ph.D. committees, rather than viewing such work as a bonus.¹⁵⁴

2. Crediting Non-Disciplinary Publications and Co-Authored Works

In a survey comment, one professor remarked that “[a]s a junior faculty member, I would feel more secure pursuing interdisciplinary research if my law school explicitly recognized (e.g., in the tenure and promotion standards) that interdisciplinary work is often published in specialized or peer-reviewed journals and that publication in these journals is as valuable as publication in general law reviews.”¹⁵⁵ That comment highlights the importance of one of the simplest steps law schools could take to facilitate interdisciplinary work: recognize the value of publications that do not appear in law reviews, and make that recognition explicit.¹⁵⁶ Similarly—and perhaps even more importantly—other departments ought to explicitly

¹⁵² See Farber Interview, *supra* note 54 (“Graduate students turn out to be really important.”); FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 62.

¹⁵³ See Wara Interview, *supra* note 84 (describing the benefits of schedule coordination at Stanford). Wara also described some of the pedagogical benefits:

I was working on big land use and development projects and... to some degree on energy-related issues, and... you work in teams. It's not just lawyers. And I think there's a real educational value in developing those kinds or relationships as a professor because then you understand how to bring that kind of approach into the classroom.... I think it improved my approach to education to have those kinds of relationships in my work life, and my research life because I bring that approach to the classroom and incorporate some more multidisciplinary approaches in my teaching and I think that helps our students to go out and live in a multidisciplinary world.

Id.

¹⁵⁴ See *supra* note 111-122 and accompanying text (noting that the absence of credit can be a disincentive to such work). Obviously there are potential issues with allowing law professors to replace law school teaching with teaching outside the law school; most importantly, law school teaching typically is compensated at a higher rate, and the resulting cost differential would need to be absorbed somehow.

¹⁵⁵ Survey Comment (parentheses in original).

¹⁵⁶ See *supra* notes 111-114 and accompanying text (discussing the importance of this barrier).

recognize the potential value of publications in legal-academic journals, even if those journals are not peer-reviewed. The absence of such recognition creates a real and meaningful deterrent to interdisciplinary collaboration.¹⁵⁷

The functional justification for that step—that it would encourage more collaboration—is backed by some basic common sense. As anyone who reads in multiple disciplines knows, both peer-reviewed journals and non-peer-reviewed law reviews contain work that ranges from mediocre to excellent. While one system may be better than the other, each has its merits,¹⁵⁸ and the differences between individual articles within each system are far greater than the differences between systems. Judging articles on their individual merits therefore makes much more sense than using the author’s choice of publication system as a proxy for quality.¹⁵⁹

The same general principle should apply to co-authorship: law schools should explicitly acknowledge that co-authored works are potentially as valuable as, or even more valuable than, single-authored works. The absence of such recognition creates a perverse incentive for law professors to avoid interdisciplinary work or, if they are determined to pursue it, to do so on their own, which means squandering many of the benefits of collaboration. That does not mean schools should not ask authors about their relative contribution. Sometimes a coauthor’s contribution will be substantial and sometimes it will not, and reviewers for tenure or promotion are entitled to know the difference. But it does mean there should be no presumption against coauthorship, and perhaps even a preference that law professors include some collaborative, coauthored work in their portfolios.

3. *Encouraging Junior Faculty*

Providing express guidance on non-disciplinary publications and on co-authorship would alleviate one of the primary challenges identified by

¹⁵⁷ See Camacho Interview, *supra* note 83; Farber Interview, *supra* note 54 (noting how bias against law reviews limits non-legal researchers’ engagement with interdisciplinary projects).

¹⁵⁸ See Richard A. Posner, *Against the Law Reviews*, LEGAL AFF., Nov./Dec. 2004, at 57; Natalie C. Cotton, Comment: *The Competence of Students as Editors of Law Reviews: A Response to Judge Posner*, 154 U. PA. L. REV. 951 (2006).

¹⁵⁹ There are two other potential arguments for favoring home-discipline journals. One is that such journals are more likely to reach the relevant audience, and the other is that everyone else in the discipline favors such publications, so, like it or not, they define the institution’s reputation and prestige. The answer to the former argument essentially echoes the broader justifications for interdisciplinary work: all the arguments that justify interdisciplinary collaboration in the research process also justify interdisciplinary sharing of results. The latter argument, at least as it applies to law school professors, ought to be answered by the practices of elite law schools. If Stanford and Berkeley emphasize giving credit for publications outside law reviews, then such recognition may be a marker of, not a limitation upon, high academic status. See *supra* note 115 and accompanying text.

junior faculty. But schools ought to go further. In interviews, we often heard suggestions that junior faculty should approach interdisciplinary work with care, particularly in the first few years of their career.¹⁶⁰ In part, that advice reflected professors' conviction that developing a strong disciplinary core is a crucial start to an academic career, and an important prerequisite to successful interdisciplinary collaboration.¹⁶¹ That conviction makes sense. But the advice also reflected a perception that the legal academy as a whole has rather mixed feelings about interdisciplinary work, and that junior scholars will be safer if their initial efforts are more traditional.¹⁶²

At many schools, that may be very good advice. But we think that the legal academy will be better off if that advice becomes obsolete. The reason is fairly straightforward: doing interdisciplinary work in the formative stages of one's academic career can be a very valuable experience.¹⁶³ A basic goal of academic research—including research by pre-tenure faculty—is to break ground and find new insights, and engaging the perspective of other disciplines can be a valuable step toward achieving that goal.¹⁶⁴ Similarly, if a tenure decision in theory is based on a scholar's likely *future* achievements, then a scholar who has begun building the foundations for interdisciplinary engagement ought to be a stronger prospect than one who has opted for a more limited and safer course. Indeed, an emphasis on disciplinary traditionalism can wind up defining a career—in negative ways. As Holly Doremus put it:

I do think it's a mistake, and I have seen this at various institutions... to tell people pre-tenure: "don't do that stuff yet. There will be time for that." Because I think that the people who are really motivated by doing interdisciplinary work, they won't be doing the best work that they could if you're telling them to avoid it, and they'll get set in the patterns that they establish, and I don't think it's as easy to

¹⁶⁰ E.g. Adelman Interview, *supra* note 47 ("It is not something I would personally propose to do right up front.").

¹⁶¹ E.g. Farber Interview, *supra* note 54 ("I also think it's important to make sure you're bringing something to the table as a law professor, right, not just working in some other field that you're not fully trained in, really leveraging your legal training as well.").

¹⁶² E.g. Camacho Interview, *supra* note 83 ("the conservative route would just be to be very discipline-focused."). None of the professors we interviewed seemed to share those mixed feelings. They simply thought that a responsible mentor would warn junior faculty that these attitudes remain present in the legal academy and should be accounted for.

¹⁶³ Both authors are relatively junior (Owen received tenure in 2013) and both have had extensive involvement in interdisciplinary research. For Owen, that experience was frustrating at times and extremely valuable on the whole, but that value would not have been realized if Maine Law School had not given him room to risk—and initially find—failure.

¹⁶⁴ See *supra* notes 25-39 and accompanying text.

change what you're doing post-tenure as sometimes is assumed.¹⁶⁵

That does not mean institutions ought to encourage their junior faculty to engage in interdisciplinary collaborations immediately, without any warnings about the attendant challenges. Doing interdisciplinary work is usually harder than doing traditional disciplinary work, and junior faculty ought to know that. Instead, institutions ought to tell their junior faculty to embrace those challenges, even if that embrace means going through a start-up period with fewer publications, and even if it means risking failure. If the point of the pre-tenure period is to build a demonstrable foundation for years of academic success, taking those chances should be more valuable, not less, than churning out one additional law review article.

4. Training

Finally, law schools could provide researchers with better training. Our study demonstrates that law professors with training in non-legal research methods are more likely to be involved in collaborative research projects.¹⁶⁶ That is unsurprising; those skills are helpful in such collaborations, and even if the law professors themselves aren't actually running the statistical analyses or writing the surveys, their training can at least help them understand what their colleagues are saying and doing. But our survey also revealed that almost half of environmental law professors lack training in quantitative research methods, and two thirds lack training in qualitative research methods. Those results are consistent with one interviewee's assessment of law professors generally: "Many law professors never receive any formal training in methodology or research design."¹⁶⁷

There are several ways in which law schools could address that problem. Emphasizing the hiring of JD/Ph.D.s, as some law schools increasingly are doing, is one option.¹⁶⁸ But there are downsides to that approach. Most importantly, the time investment necessary to obtain a JD and Ph.D. could narrow the pool of candidates for legal-academic positions and discourage aspiring law professors from gaining practice experience.¹⁶⁹ It also does little to help professors already in the academy.¹⁷⁰

¹⁶⁵ Doremus Interview, *supra* note 47.

¹⁶⁶ See *supra* notes 90-93 and accompanying text.

¹⁶⁷ Boyd Interview, *supra* note 93.

¹⁶⁸ Of course, not all Ph.D.s have relevant research training. Someone with a Ph.D. in English literature may be no more qualified to understand a regression analysis than an average J.D.

¹⁶⁹ See TAMANAHA, *supra* note 5, at 57-58 (describing this tradeoff). Some JD/Ph.Ds avoid the tradeoff by delaying their entry into the academy, and thus finding time to pursue a research degree and practice.

¹⁷⁰ Benefits for current professors do exist, however; those researchers may serve as resources for colleagues and may help create a culture appreciative of a range of scholarly

Consequently, more modest reforms are worth considering. One is to draw upon, and expand, existing training programs for non-traditional legal research methods.¹⁷¹ While most of these programs focus on quantitative empirical studies, law schools could create similar programs for other research techniques, and even a research methods speaker series could provide a valuable supplement to traditional legal training. Another possibility would involve the many aspiring professors who use two-year fellowships or visiting professorships as springboards to the entry-level teaching market. Nearly all of those programs are designed to provide aspiring academics with time to research and write, and many also involve some teaching responsibilities.¹⁷² But to our knowledge, none includes an instructional component focused on research methods.¹⁷³ That is a missed opportunity, for even a limited and introductory survey of research methodologies and designs could be a valuable addition to those programs.

B. Steps for Individual Legal Researchers

Even if institutions take all of the above-described steps to facilitate interdisciplinary collaboration, the primary responsibility for initiating such collaborations, and for ensuring their success, will still lie primarily with individual legal researchers. For that reason, we also include some suggestions for law professors—particularly junior ones—who are thinking about including interdisciplinary work in their research portfolios.¹⁷⁴

approaches. See Doremus Interview, *supra* note 47 (stating that at Berkeley Law, “there is actually remarkable support for interdisciplinary work...part of that is because we have the jurisprudence and social policy program.”).

¹⁷¹ See, e.g., 13th Annual Conducting Empirical Legal Scholarship Workshop, June 9-11, 2014, at <http://lawweb.usc.edu/who/faculty/workshops/legalWorkshop.cfm>; Northwestern Law, 2013 Main Causal Inference Workshop, at <https://www.law.northwestern.edu/faculty/conferences/causalinference/frequentist/> (last visited September 27, 2013).

¹⁷² See, e.g., Robin I. Mordfin, The Evolution of the Bigelow Program, at <http://www.law.uchicago.edu/alumni/magazine/spring11/bigelow>.

¹⁷³ I contacted supervisors or faculty advisors for Harvard Law School’s Climenko Program, the University of Chicago’s Bigelow Fellowships, and New York University’s lawyering program and fellowships. None of these programs includes instruction in research methods. There are reasons for that omission; most importantly, fellows already carry heavy workloads, particularly because many are teaching for the first time. Nevertheless, even a short course in research methods could be a valuable addition as fellows attempt to develop and articulate their future research agenda. And tenured and tenure-track professors might want to sit in as well.

¹⁷⁴ These suggestions also have implications law students pursuing research projects. Most importantly, we would caution students who have a few months to pursue a research project against pursuing an interdisciplinary project, unless those students have substantial prior training in the research methods of another field. The timetable for many law students’ research projects already is quite compressed, and the additional startup time necessary to make an interdisciplinary project work could make timely completion impossible. On the other hand, if students do have more time, or do have relevant

The most important suggestion, which emerges from nearly every interview, every article on the subject, and from our own experience, is to expect to invest a lot of time.¹⁷⁵ Every step of the research process, from identifying collaborators and questions to editing articles, is likely to take longer when researchers work in multi-disciplinary teams. Additionally, even prior to embarking on a specific research project, legal researchers may need to invest time getting to know potential collaborators, understanding what researchers from other disciplines are interested in and how they do their work, and exploring possible research directions.¹⁷⁶ In other words, a lot of reading and talking—and, potentially, a lot of food, walks, or beers—may precede even the initiation of concrete steps toward researching and writing an article.¹⁷⁷

A closely related suggestion is to invest much of that time in learning about the cultures of other disciplines—and to expect that other researchers will need time and help to understand the culture of legal-academic research. Often researchers approach interdisciplinary projects with an initial excess of optimism; they expect that other disciplines will be able to provide data that can be plugged into traditional disciplinary analyses, and that the communication about methods and goals will come quickly and easily. But almost every discipline’s methods are more complex and its insights more nuanced than they initially appear. As a practical matter, that necessitates a fair amount of learning before projects can even get off the ground.

Finally, law professors should consider making short-term sacrifices to facilitate long-term gains. Obviously devoting more time is one potential sacrifice, but it is not the only one. A willingness to work on research issues that fall outside the legal academy’s traditional conception of an “interesting” research question is another potentially important step. As several interviewees explained, non-legal researchers often approach law professors for help with questions that are much narrower than the subjects legal researchers traditionally like to write about.¹⁷⁸ Sometimes declining the request will make sense, but an alternative response—to take on the project, even if the research question will not generate an important legal publication—may be an important first step toward building a relationship that becomes a collaborative partnership.¹⁷⁹ And that partnership may pay dividends in the future.

background, an interdisciplinary project could be a distinctive and valuable educational experience.

¹⁷⁵ *E.g.* FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 77

¹⁷⁶ *See supra* notes ___ and accompanying text.

¹⁷⁷ *See* FACILITATING INTERDISCIPLINARY RESEARCH, *supra* note 6, at 94-95 (discussing the importance of “breaking bread”).

¹⁷⁸ *See supra* notes 100-102 and accompanying text.

¹⁷⁹ *See* Doremus Interview, *supra* note 47 (“I think a good way to introduce yourself to people is to make yourself useful to them.”).

C. Steps for Individual non-Legal Researchers

So far, our suggestions have focused primarily on the legal academy. But many of the interviewees we spoke with thought that the challenges to interdisciplinary legal research came as much from the non-legal researchers as from the lawyers.¹⁸⁰ For that reason, we also include a few suggestions for non-legal researchers.

1. Environmental Law Professors' Interest in Interdisciplinary Work

Perhaps our most important finding—particularly for other academics who are interested in environmental law—is that environmental law professors are generally interested in interdisciplinary work. We found a high level of enthusiasm for such work, as well as widespread interest in doing more of it.¹⁸¹ For non-legal academics who might be interested in working with environmental lawyers, that should be an encouraging finding.

Similarly, non-lawyers should be aware that in some ways, environmental lawyers are likely to be predisposed to interdisciplinary work. Both the practice and teaching of environmental law already are inherently interdisciplinary; for both practicing environmental lawyers and teachers, an ability to draw upon the discoveries of other disciplines is often a professional necessity.¹⁸² Indeed, many environmental law professors are drawn to the field precisely because it demands this sort of interdisciplinary engagement.¹⁸³ Consequently, any environmental law professor is likely to have at least some background familiarity with, and interest in, interdisciplinary dialogue. Environmental law professors also are generally trained to *write* about that dialogue. Written communication about a variety of subjects, many of them non-legal, is one of the core competencies that law schools attempt to teach, and one of the key bases for law schools' hiring decisions. When the time comes to turn an interdisciplinary

¹⁸⁰ *E.g.* Farber Interview, *supra* note 54 (“I think law now is much more open to interdisciplinary work than (other) parts of the university.... We can act as catalysts.”). Other researchers, however, noted the enthusiasm of non-legal researchers for working with lawyers. *See* Wara Interview, *supra* note 84 (“I think the hard scientists who work on these questions are so excited to work with lawyers and more generally, academics that are familiar, really expert in the policy process.... (they) want to do things that are policy relevant, want to do things that connect what they're doing with kind of the real world and have no idea how to do that.”).

¹⁸¹ *See supra* notes 8284 and accompanying text.

¹⁸² Doremus Interview, *supra* note 47 (“My anecdotal impression is that environmental law has been more open to interdisciplinary work than... other areas of law for a while, in part because it, s so obvious that our questions ... have the need for what other disciplines can bring.”); Wara Interview, *supra* note 84 (emphasizing the interdisciplinary nature of environmental law practice).

¹⁸³ *See supra* note 84 and accompanying text.

collaboration into publications, that skill ought to prove particularly valuable.

Nevertheless, one of the central conclusions of the general literature on interdisciplinary engagement—specifically, that knowing the culture and institutional norms of other disciplines is an important first step—certainly applies to researchers interested in collaborating with environmental lawyers. As Holly Doremus put it, “as in any academic collaboration, you need to think about what the reward system and incentive structure is, so you need a project that’s going to interest your legal academic.” Particularly with law professors, the culture, reward system, and incentive structure are distinctive in several ways, and we summarize some of the most important ones below.

This discussion comes with an important caveat. As Dan Farber put it, academics “are all different, and law professors are probably a more different group than most people on campus.”¹⁸⁴ One statistic in particular captures those differences: our survey recipients reported thirty-one different undergraduate majors. Even on basic philosophical matters—for example, the extent to which they believe in objective, discoverable truth versus the extent to which they view truth as a narrative construct—law school professors tend to hold widely divergent views, and at times the resulting divisions within the legal academy have been bitter and deep.¹⁸⁵ Anecdotally, environmental law professors seem to be a somewhat more relaxed and collegial group than legal academics as a whole,¹⁸⁶ but the intellectual diversity within the legal academy means that any generalization about culture is subject to many exceptions.

2. *Understanding Legal Research Questions*

When we asked law professors what advice they would give to a non-legal researcher interested in collaborating with environmental law researchers, the answers revolved around a few themes. First, and most consistently, law professors cautioned that non-lawyers should try to understand the kind of research questions that are of interest to law professors. Too often, they agreed, non-lawyers ask for narrow additions to basically non-legal research projects, and those inquiries are unlikely to appeal to a larger legal audience.¹⁸⁷ That response raises the question, however: what sort of question *is* of interest to a larger legal audience? To

¹⁸⁴ Farber Interview, *supra* note 54.

¹⁸⁵ See generally JAMES R. HACKNEY, JR., *LEGAL INTELLECTUALS IN CONVERSATION: REFLECTIONS ON THE CONSTRUCTION OF CONTEMPORARY AMERICAN LEGAL THEORY* (2012) (chronicling some of the legal academy’s intellectual divisions and rivalries).

¹⁸⁶ See Doremus Interview, *supra* note 47 (“When you go to our meetings, we aren’t all dressed up in suits and ties.”).

¹⁸⁷ See *supra* notes 100-102 and accompanying text.

answer that question requires some understanding of both the institutional context and disciplinary culture of legal research.

The most important contextual influence is the publication system for legal-academic work. Law professors publish most of their work in student-edited law reviews, and the most prestigious law reviews are “general interest” journals—that is, journals that publish work across a broad range of legal subjects.¹⁸⁸ That system creates an incentive for law professors to write on subjects that are likely to interest, or at least be accessible to, second-year law students without specialized training in environmental law. Law reviews’ submission systems also create incentives toward writing on broad, generalizable subjects. Law professors use a simultaneous submission system, in which articles are submitted to dozens of law reviews, and in which the odds of an article landing in any particular journal are low, even if the article is quite good. That creates a powerful disincentive toward writing articles that are likely to be of interest primarily within a narrow geographic region, and instead pushes authors to write on subjects that are likely to be of general interest across the country. A final key factor is the traditional length of law review articles. Most legal-academic journals prefer submissions that are between 15,000 and 25,000 words long, which is much longer than a typical article in a science or economics journal. That length allows for more breadth, and sometimes also more background, than is typical in articles published in other academic journals. The upshot of these systems is that environmental law professors are likely to favor more sweeping questions and to be reluctant to tackle questions of narrow, localized interest.¹⁸⁹

Several other cultural factors bolster the pressures created by the publication system. Like many academic disciplines, law professors tend to be interested in systems. An ecologist might be more interested in questions about how nitrogen or carbon moves through aquatic ecosystems than in discovering the extent to which fish A eats insect B. Similarly, law professors tend to be particularly interested in systemic questions about the allocation of power within our environmental system and about the legal instruments we use to put environmental regulation into effect.¹⁹⁰

¹⁸⁸ Whether these journals should be the most prestigious is a subject of occasional debate.

¹⁸⁹ That observation comes with an important exception: if law professor intends to publish outside of the law review system, the publication pressures change. Nevertheless, the law review system still shapes professors’ (and their peers’) assumptions about what constitutes quality scholarship.

¹⁹⁰ Farber Interview, *supra* note 54. Farber summarized legal-academic culture as follows:

the things that tend to really interest us most are not just things about the nature of the rules, but things that go beyond that into issues of process, institutional design, allocation of authority between different kinds of institutions...for example, what are problems that are better dealt with through an administrative agency or through litigation, or at the

Questions about the appropriate balance of federal and state environmental authority or the judicial role in environmental governance, for example, are therefore likely to be of more interest to an environmental law professor than a question about whether a particular state law will provide adequate protection to some species of fish.¹⁹¹ That does not mean that narrow questions are not of interest; many iconic legal publications begin with analysis of a specific case or seemingly narrow controversy.¹⁹² But generally what makes the analysis iconic is its ability to connect that narrow fact pattern with broader, more generalizable themes.

One last cultural feature distinguishes legal academics, and particularly law professors. They tend to be problem-oriented.¹⁹³ While some law review articles are largely descriptive, a normative claim is an element of most legal scholarship. Often that normative claim takes the form of an argument that legal decision-makers—legislators, agency officials, or, particularly often, judges—ought to do something differently. For non-legal academics who view interdisciplinary engagement as an opportunity to engage the policy world, that feature of legal-academic culture ought to be particularly enticing. But for non-legal researchers whose projects are likely to be primarily descriptive, it may be a challenge (though not an insurmountable one); most law professors, though certainly not all, are interested in using research to address some practical problem.

3. *Understanding Legal Research Institutions*

In addition to understanding the ways law professors frame research questions, non-lawyers interested in collaborating with law professors ought to know something about the distinctive ways that law professors conduct their research. A few features are particularly relevant.

state level or the federal level, or in legal issues that have, you know, really kind of broad policy implications.

Id. See also Martha Minow, *Archetypal Legal Scholarship*, 63 J. LEG. EDUC. 65 (2013) (identifying and providing examples of classic approaches to legal scholarship).

¹⁹¹ See Farber Interview, *supra* note 54; E-mail from David Adelman to authors, August 26, 2013 (“Often I find that technical people simply want to know what the relevant law is and how it operates... Ideally, what you are looking for is a project that raises interesting technical questions, which in turn shed an interesting light on legal doctrines, statutes, or theories.”).

¹⁹² See, e.g., ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* (1994) (using cattle management in Shasta County, California to explore the extent to which non-legal norms can be more influential than law); Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433 (1993) (using one Supreme Court decision to explore a clash of worldviews with fundamental implications for environmental policy and law).

¹⁹³ See Doremus Interview, *supra* note 47 (“legal academics are... especially in environmental law.... are more likely to conceptualize themselves as problem solvers”).

The first is the role of research assistants in legal research. Many law professors use RAs to help conduct research, and some assign their RAs significant roles. But the relationship between a law professor and her RAs is generally quite different from the relationship between a science or economics professor and her Ph.D. students or post-docs. For the non-legal professor, graduate students and post-docs are often true research partners. They are likely to play major roles not just in executing the research, but also in designing the project and writing it up. Indeed, a key responsibility of the supervising professor is to help the Ph.D. student or post-doc grow into the role of a lead researcher. The role of a law school RA is typically more limited.¹⁹⁴ The RA is much less likely to have sophisticated research training,¹⁹⁵ particularly outside the standard techniques of legal research, and the professor's role, though it usually does include mentorship, generally is not to provide detailed instruction on research methods. Instead, the relationship is typically more transactional, with the professor responsible for the overall project concept, design, and writeup, and the RA handling discrete tasks for a relatively low rate of pay.

The second distinctive feature of legal research is the role of money. Unlike most academics, law professors do not subsist on external research grants. Many receive their research money primarily through internal law school summer funding and therefore rarely go through competitive external grant processes.¹⁹⁶ The amount of money available to law professors, and those professors' need for that money, also tends to be much smaller than the sums to which non-legal researchers are accustomed. From an institutional perspective, the most expensive part of legal research is access to searchable databases of legal documents. But for a law professor, that access is free; it comes as a collateral benefit of employment and to law students with their enrollment. That funding system has two significant implications for non-legal professors who are considering collaborating with law professors. The first is that adding a legal component to the research may cost very little. But the second is that if involving a law professor will require additional funding, the law professor (and her school) may not have much experience with external research grant applications and therefore may not have any idea how to go about seeking that money.¹⁹⁷

¹⁹⁴ See Camacho Interview, *supra* note 83 (stressing these differences).

¹⁹⁵ There are exceptions. Some law students have prior advanced degrees or are pursuing second careers, or both, and therefore come to law school with sophisticated research skills.

¹⁹⁶ One survey response captures this culture: "Money is the biggest barrier. We also do not have a culture in my law school that facilitates grant seeking."

¹⁹⁷ See Camacho Interview, *supra* note 83 (noting that Notre Dame School of Law, where he began his career and found a generally supportive environment for interdisciplinary work, "'was very unfamiliar with structuring of those sorts of thing... (and) didn't have any of the infrastructure").

CONCLUSION

To some critics of the legal academy, the subject matter of this article might seem ironic. If interdisciplinary legal scholarship offers little as research and even less to the process of teaching—if, as one prominent skeptic charges, “no convincing evidence has been provided to demonstrate that ‘interdisciplinary studies’ will help one whit in the training or performance of lawyers”—then a research project focused on interdisciplinary research practices would seem to be esotericism squared.¹⁹⁸

But that characterization misses much. The potential research benefits of interdisciplinary work have been thoroughly documented, and there are pedagogical payoffs as well. Environmental lawyers, like lawyers in many other subfields, do not work alone. Instead, their daily business requires interaction with scientists, economists, engineers, and policy specialists, or at least with the written output of those and other disciplines. In most practice areas, an environmental lawyer cannot successfully function without first learning something about those other fields. The law school classroom is a good place to begin that learning, and professors will be much better situated to help if interaction with other disciplines is part of their professional lives.

As this article documents, succeeding in those interactions is not easy, and the risk of failure with an interdisciplinary project will generally be higher than with a traditional legal research project. Similarly, if legal researchers do not invest enough time in understanding the disciplines upon which they would draw, or with which they would collaborate, the results are likely to be superficial. But if interdisciplinary research is done well, it can generate important new insights, and those insights can affect law, policy, and even teaching, sometimes in ways that directly improve lawyers’ performance. We hope this Article will help facilitate those improvements.

¹⁹⁸ See Tamanaha, *supra* note 7.