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Book Review: The Law and Policy of Ecosystem Services, by J.B. Ruhl, Steven E. Kraft and Christopher L. Lant

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Book Review

THE LAW AND POLICY OF ECOSYSTEM SERVICES, by J.B. Ruhl, Steven E. Kraft & Christopher L. Lant[1]

"Goods, Services, and Systems"

BRUCE PARDY [2]

ECOSYSTEMS PROVIDE SERVICES on which human beings depend. However, those services do not have market value because the law does not recognize property interests in them, and consequently there is little incentive to produce or preserve them. Nor does environmental regulation effectively protect ecosystem services. The authors of *The Law and Policy of Ecosystem Services* examine the law's failure to address the progressive decline in ecosystem services and what might be done to fix it. The book provides a welcome diagnosis of present shortcomings but a less satisfying prescription for the evolution of environmental law.

I. MARKETS AND ECOSYSTEMS

In a market, one can purchase goods and services: apples, haircuts, houses, and furnace repairs. But a market is itself neither a good nor a service, nor merely a place where goods and services are found. Instead, a market is a system—an intricate, unplanned agglomeration of multiple buyers and sellers of diverse goods and services, in which choice, supply, demand, and price are determined by mechanisms within the system rather than by any particular market participant.[3] The market reflects the aggregate results of many decisions made by multiple producers and consumers. In this respect, markets self-regulate.

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1. (Washington: Island Press, 2007) 360 pages.
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3. Assuming that barriers to entry and transaction costs are relatively low, and the market is competitive.

They create incentives to produce goods and services for which there are buyers, which in turn create incentives to preserve the assets that produce those goods and services. If golden eggs are valuable, best not kill the goose. Conversely, if there is no market for golden eggs, may as well have goose for dinner.

Ecosystems, as the word suggests, are systems too. Instead of goods, services, buyers, and sellers, the elements of ecosystems are plants, animals, minerals, water, air, chemicals, nutrients, and so on. Just as a market is not merely goods and services, or the place where goods and services are exchanged, ecosystems are not merely plants and animals, or the place where plants and animals live. Rather, ecosystems are patterns of interactions between constituent elements and the mechanisms by which they relate. Like markets, ecosystems self-regulate. Through the interaction of various agents, they produce solutions to ecological problems. For example, predator overpopulation results in the over-consumption of prey, which in turn results in a lack of food, which causes death through starvation and leads to a decrease in the predator population, which allows the population of prey to increase, which in turn results in more food, which ultimately allows predator populations to increase. And so on, in an infinite variety of circumstances.

II. ECOSYSTEM SERVICES

Human beings depend on the goods and services provided by these two systems. Market transactions provide labour, food, shelter, consumer goods, and other needs and wants. Ecosystems provide "ecosystem services" (ES) like air and water purification, soil generation, climate stabilization, photosynthesis, pollination, and waste decomposition among other things. Human beings and their markets require ES, but those services in the main do not constitute goods and services within those markets. Markets cannot deal in ES because the law does not recognize that they exist.

Thus, ES are simultaneously priceless and valueless—priceless because human beings cannot survive without them; valueless because they cannot be bought and sold. Therefore, there is no economic incentive to produce or preserve these assets. Ruhl, Kraft, and Lant state in their introduction:

> Ecosystem services are easy to take for granted until they are gone. As in the famous paradox of value that long puzzled economists, they have been more like water—essential for life, but so widely available they are easily obtained for free—than like

diamonds, which are scarce and thus valuable despite having little practical use. But water in many parts of our nation is no longer so plentiful or so cheap.[4]

III. THE LAW AND POLICY OF ECOSYSTEM SERVICES

The failure of environmental law and policy to address this conundrum is the topic of *The Law and Policy of Ecosystem Services.* The book outlines the obstacles to the legal recognition and protection of ES and endeavours "to evaluate the prospects of crafting a legal infrastructure that will help us build an ecosystem service economy as robust as the nation's economies for natural resource commodities, commercially manufactured products, and human-supplied services."[5]

The Law and Policy of Ecosystem Services is an important book. Although it has a distinctly American focus, its diagnosis is highly relevant to Canadian environmental law as well. The authors, law professor J.B. Ruhl,[6] agribusiness economics professor Steven Kraft, and geography professor Christopher Lant, address the subject of ES first through the contours of three non-law disciplines—ecology, geography, and economics—that have already begun to map the importance of ES to society. As the book explains, "[t]remendous advancement has been made in the past decade toward improving our understanding of the ecological dynamics of ecosystem services, their geographical distribution across landscapes, and their economic value to human communities."[7]

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4. *Supra* note 1 at 11.

5. *Ibid.* at 8.

6. Professor Ruhl is a prominent contributor to the legal literature on ecosystem services, a subject that has received comparatively little attention. See J.B. Ruhl & R.J. Gregg, "Integrating Ecosystem Services into Environmental Law: A Case Study of Wetlands Mitigation Banking" (2001) 20 Stan. Envtl. L.J. 365; J.B. Ruhl, "Equitable Apportionment of Ecosystem Services: New Water Law for a New Water Age" (2003) 19 J. Land Use & Envtl. L. 47; J.B. Ruhl, "Ecosystem Services and the Common Law of 'the Fragile Land System'" (2005) 20 Nat. Resources & Env't 3; J.B. Ruhl, "Toward a Common Law of Ecosystem Services" (2005) 18 St. Thomas L. Rev. 1; J.B. Ruhl & James Salzman, "Ecosystem Services and the Public Trust Doctrine: Working Change from Within" (2006) 15 Southeastern Envtl. L.J. 223; J.B. Ruhl, "The 'Background Principles' of Natural Capital and Ecosystem Services—Did Lucas Open Pandora's box? (Proceedings from the Symposium on the Law and Policy of Ecosystem Services)" (2007) 22 J. Land Use & Envtl. L. 525; and J.B. Ruhl & James Salzman, "Thinking Inside the Box: Looking for Ecosystem Services within a Forested Watershed (Proceedings from the Symposium on the Law and Policy of Ecosystem Services)" (2007) 22 J. Land Use & Envtl. L. 173.

7. *Supra* note 1 at 9.

The book then takes on its main project: to lay out a legal framework for addressing ES. Chapters four, five, and six, the core of the book's diagnosis, explain the law's current failure to carry out this job. The authors effectively describe why no property rights attach to ES, an absence "which renders them in many applications as public good resources subject to under-provision and over-depletion in the absence of some moderating influence."[8] It is not a simple thing to create a property right to ES, for they are not concrete things like trees or sheep. They are not even usufructuary, like water flowing through a property. Their point of origin may be remote from their point of delivery, and often they do not originate from a single plot of land.

In the absence of effective common law rights, regulation is often seen as a feasible approach to environmental problems. But in the case of ES, the authors report that regulatory solutions have not been forthcoming. They conclude that "[a]lthough a consensus is building that ecosystem services hold tremendous values that we should seek to understand and incorporate into decision making about the environment, regulatory frameworks ... for efficiently managing ecosystem services have not materialized."[9]

IV. PRESCRIPTIONS AND CHALLENGES

A. SIMPLE RULES FOR A COMPLEX ECOLOGICAL WORLD[10]

The Law and Policy of Ecosystem Services provides an excellent diagnosis of present shortcomings in environmental law, but a less satisfying prescription for what ought to change. What particular combination of legal principles and instruments the authors propose is not entirely clear, but it appears to consist of numerous initiatives that could make the governance of ES a bureaucratic and administrative quagmire. They state that

> [s]olutions for improved accounting of [the values of ecosystem services] must be integrated with, and if necessary alter, an existing mosaic of instruments and institutions governing property rights, regulation, and social norms .... There is no silver bullet instrument—no elegant doctrine of property law or innovative regulation—that will solve the Tragedy of Ecosystem Services in one fell swoop ... .

8. *Ibid.* at 10.

9. *Ibid.*

10. See Richard A. Epstein, *Simple Rules for a Complex World* (Cambridge: Harvard University Press, 1995).

> [A]ccounting for natural capital and ecosystem services will happen, if at all, only incrementally, through a combination of instruments, and with the concerted effort of a wide variety of institutions.[11]

The authors muse about whether the law of property can adapt to better account for natural capital and ES, but their main emphasis is regulation, including the creation of a plethora of state and regional agencies and local councils to develop policies and plans.[12]

In taking this approach, the authors appear to be in danger of reproducing the worst aspects of urban planning laws and processes.[13] The last thing ES require is a morass of procedures and politics.[14] Ecosystems may be complex, but their governance need not be uncertain and complicated. It may well be that the scope of individual rights needs to be redefined in light of ecosystem knowledge, but Ruhl, Kraft, and Lant do not emphasize this approach; instead, they imagine a vast and complicated array of processes that will result in discretionary decision making,[15] uncertainty, and variation from location to location. Their strategy reflects a distinctly instrumentalist flavour—an

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11. *Supra* note 1 at 265.
12. *Ibid.*, c. 18 at 272-92.
13. As does the Ontario *Clean Water Act, 2006*, S.O. 2006, c. 22, Parts II and III. The Act requires the preparation, amendment, and review of "source protection plans," with the participation of conservation authorities acting as source protection authorities, source protection committees, municipal councils, and the Ministry of the Environment.
14. See *e.g.* Z. Plater, "Environmental Law in the Political Ecosystem - Coping with the Reality of Politics" (2003) 19 Pace Envtl. L. Rev. 423.
15. Excessive discretion plagues modern environmental law: David R. Boyd, *Unnatural Law: Rethinking Canadian Environmental Law and Policy* (Vancouver: U.B.C. Press, 2003) at 231. Professor Ruhl, one of the authors of *The Law and Policy of Ecosystem Services*, is one of the leading advocates of ecosystem management in the United States. He and I have been debating the role of discretionary decision making in the context of ecosystem management in a series of pieces in the Pace Environmental Law Review: B. Pardy, "Changing Nature: The Myth of the Inevitability of Ecosystem Management" (2003) 20 Pace Envtl. L. Rev. 675; J.B. Ruhl, "The Myth of What is Inevitable Under Ecosystem Management: A Response to Pardy" (2004) 21 Pace Envtl. L. Rev. 315; B. Pardy, "Ecosystem Management in Question: A Reply to Ruhl" (2005-2006) 23 Pace Envtl. L. Rev. 209; J.B. Ruhl, "The Pardy-Ruhl Dialogue on Ecosystem Management, Part IV: Narrowing and Sharpening the Questions" (2007) 24 Pace Envtl. L. Rev. 25; and B. Pardy, "The Pardy-Ruhl Dialogue on Ecosystem Management Part V: Discretion, Complex-Adaptive Problem Solving and the Rule of Law" (2008) 25 Pace Envtl. L. Rev. [forthcoming].

inclination to use law as a tool to manipulate people, rather than to define boundaries between interests. They write that, "in the domain of law, any question of relationship between people is ripe for developing a set of rules and liabilities designed to lead to desired behavioral outcomes."[16] Environmental law already suffers from too much instrumentalism and not enough principle about the nature of the space between individuals, and between individuals and the state. What does liberty mean in ecological terms? Where is the zone of environmental autonomy? Does it include rights to an ecological support system? If Mary clears an area of her land and thus diminishes the viability of a population of bees that pollinates her neighbour's plants, does she encroach upon that neighbour?[17] Or does her neighbour, by insisting that the bees be left alone, encroach upon her? The book does not offer the principled answers that these kinds of questions deserve.

B. SERVICES VERSUS SYSTEMS

Modern environmental laws are extensive and wide-ranging, but they are aimed at the wrong targets. They govern a plethora of subjects—water takings, forestry, endangered species, air pollution, fish stocks, pesticides, toxic substances, waste management, and more—but they do not protect ecosystems as systems. They are based on the erroneous premise that it is possible to protect an element of an ecosystem without protecting the system that produces and supports it. For example, as the name suggests, endangered species legislation typically focuses on the endangerment of species rather than on the decline of habitats. While under some legislative regimes listing a species as endangered triggers some degree of protection for that species' habitat,[18] the focus is on the population of the animal rather than on the state of the ecosystem within which it lives. This approach is of questionable value. There is little prospect of protecting particular species of plants or animals in isolation from their native ecosystems, since within those systems are the means by which the species survives. Conversely, effective protection of those systems would also protect the species, since the species is an integral part of the system.

16. *Supra* note 1 at 89.

17. *Ibid.* at 268.

18. See *e.g.* the Ontario *Endangered Species Act 2007*, S.O. 2007, c. 6, ss. 9-15.

The same could be said of any attempt to protect ES rather than ecosystems themselves. The authors correctly point out that ecosystem *services* are not the same thing as ecosystem *functions*. "The critical difference between the two, and which makes the development of ecosystem services policy both complicated and controversial," they explain, "is that ecosystem services have relevance only to the extent *human* populations benefit from them. They are purely anthropocentric."[19] Unfortunately, the authors apply this distinction to refine their aim rather than to broaden their target. They imply that it is possible to regulate, govern, or manage ES in isolation from the broader objective of protecting ecosystem functions, regardless of whether they be directly advantageous to humans or not.

Ruhl, Kraft, and Lant do not advocate business as usual. Indeed, the objective of their project is the reverse: to find new ways to organize environmental law so as to regulate and manage ES. In framing the issue in this way, however, they reproduce old patterns. ES are products of ecosystems; if ecosystem function is preserved and protected, then ES will also be sustained. While the rationale for protecting ecosystems could well be the utilitarian or anthropocentric purpose of maintaining ES for human benefit, the way to maintain ES is not to target those services themselves, but to protect the system that produces them. The solution to dwindling ES is to protect ecosystem functions.

C. PROPERTY RIGHTS

In considering whether it is possible to configure private legal rights that might protect and preserve ES, the authors focus on property rights.[20] "[W]here natural capital and the ecosystem services flowing from it are well defined ecologically, geographically, and economically," they argue, "it makes sense to think about how to configure private property rights in them in order to facilitate their optimum allocation through the market pricing mechanism."[21] Property rights are indeed a logical place to start. Many ES arise on land that is itself the subject of property rights, and many land-based activities, such as agriculture, depend intensely on ES. But property rights are only one kind of legal right, and suffer from particular restrictions. If rights to ES are tied to

19. *Supra* note 1 at 15 [emphasis in original].

20. *Ibid.* at 266.

21. *Ibid.* at 95.

rights in land, for instance, does this mean that only land rights holders have rights to ES? The need for ES is not always directly tied to the use of particular parcels of land, and individuals without land rely on ES too. Other kinds of legal rights protect a wide variety of important interests: the cause of action in battery protects encroachment upon one's person; the law of defamation protects reputation. What kind of legal right could effectively protect an individual's interest in ecosystem support? There are many possibilities.[22]

V. CONCLUSION

Incorporating ES into markets is not a simple proposition, and moreover may treat them as things—like apples, haircuts, houses, and furnace repairs—instead of as processes that have central roles in ecosystems. Environmental regulation has not proven able to stem the tide of ecosystem decline. Planning processes are poor ways to govern natural systems and fail to provide citizens with enforceable legal rights. Environmental law is already too discretionary, too political, and too variable from place to place and case to case. Like many aspects of environmental law, the protection of ES needs to be reconsidered in a principled way that does not reproduce present shortcomings.

The Law and Policy of Ecosystem Services is a welcome book and a valuable addition to the sparse legal literature on ES. The book may help to place the protection of ES on the agenda in environmental law. ES provide the livable, breathable world within which traditional economic activity takes place, but are taken for granted until they start to fail. Without legal status, they can be expected to continue to diminish. This problem challenges traditional and current approaches to environmental law and policy, and cannot be dealt with by mere tweaking. As this book demonstrates, the legal governance of ecosystem services is easier said than done.

22. For just one example, see B. Pardy, "In Search of the Holy Grail of Environmental Law: A Rule to Solve the Problem" (2005) 1 Int'l J.S.D.L. & Pol'y 29.