

PHD THESIS SUMMARY:

The world as a garden: a philosophical analysis of natural capital in economics

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This dissertation undertakes a philosophical analysis of “natural capital” and argues that this concept has prompted economists to view nature in a radically novel manner. Formerly, economists referred to nature and natural products as a collection of inert materials to be drawn upon in isolation and then rearranged by human agents to produce commodities. More recently, however, nature is depicted as a collection of active, modifiable, and economically valuable processes, often construed as ecosystems that produce marketable goods and services *gratis*. Nature consists of various unproduced mechanisms or “natural machines” that are first discovered and then channeled so as to serve human ends. In short, nature as an ideal is a kind of garden that is characterized by natural objects purposefully arranged by intentional human agents.

The first two chapters of this dissertation lays out working definitions of the key terms, such as capital and nature, and then argues that the spatio-temporal particulars denoted by the concept of natural capital, such as ecosystems, are objects (2) capable of producing, (3) depletable, (4) beneficial, (5) original, and (6) self-generative. Among these six characteristics, it is argued that the first four are shared with manufactured capital, while the last two—original and self-generative—drive a wedge between natural and manufactured capital.

Chapter three traces the historical roots of nature as a producer in the works of the Swedish botanist Carl Linnaeus’ (1749) *Oeconomia naturae* and the physiocrats of France during the mid-18th century. This chapter argues that if natural capital is taken to denote nature as an unassisted producer of readily consumable goods and services, then it can hardly be considered a novel concept. There is a nascent category of the concept of natural capital to be unearthed in the writings of classical political economists, such as Adam Smith, John Stuart Mill, and Karl

Marx. When such economic theorists referred to the “spontaneous productions of the Earth” and nature’s “natural products”, they had a distinctive class of production in mind, one that denotes nature’s independently generated products.

Chapter four, entitled, “Critical Natural Capital and Sustainable Development”, tackles a version of the most vexing question concerning natural capital: to what extent can manufactured capital serve as a substitute for natural capital? Economists influenced by the life sciences have long argued that there is a subset of natural capital, *critical* natural capital, for which there are no substitutes. This special category of natural capital is meant to denote the ecological conditions essential to the continued existence of economic agents and therefore, sustainable development. However, the problem is that no one has explained what these conditions might be and why they are essential for this purpose. To resolve this issue, this chapter introduces a new theory of what are termed “basic ecological goods” (BEGs). It is shown that BEGs are distinct from ordinary goods in consumer choice theory since the former are objective ecological conditions that must be met for the continued existence of economic agents. BEGs are required for the continued existence of a given agent because they possess objective causal properties essential for this purpose. The upshot of this theory is that the ecological conditions required for human economic activity and, therefore, sustainable development, are no longer shrouded in mystery as they were under the canopy of “critical natural capital”. The theory of BEGs explains what these minimal ecological conditions are and what conditions would have to be met for any good to *potentially* serve as a substitute for such goods.

Chapter five, “No One Can Preserve Nature”, begins by recognizing a corollary of the garden image of nature. At first glance, this image would seem to entail domesticating every last economically valuable ecosystem to serve human ends. As a result, the status of “wild ecosystems”, “wilderness”, and “untrammelled Nature” are called into question. While this chapter does not consider the desirability or goodness of such a domesticated world, it argues that the preservation paradox is warranted. This paradox, well-known among environmental ethicists, contains three premises: nature is that realm of phenomena that is independent of intentional human agency; preserving and restoring nature requires intentional human agency; therefore, no one can preserve (or restore) nature. While some scholars have argued that

the preservation paradox is misguided, this chapter argues that no one can restore or preserve nature without turning it into an artifact. To defend this claim, this chapter delineates three features that distinguish artifacts from natural objects: artifacts are designed or planned, they possess a function attributed to them by an intentional agent, and they must be modified by an intentional agent. Then, by relying on James Woodward's (2003) analysis of absence causation, it is argued that even those aspects of nature that are merely preserved (where human activity is intentionally omitted) qualify as artifacts.

Finally, Chapter six concludes by acknowledging the limitations of this dissertation and by considering a future direction of research: delineating the moral limits to buying and selling natural capital and ecosystem goods and services. Specifically, an argument is sketched for the moral limits to buying and selling water. Following the recent work of Michael Sandel and Debra Satz on the moral limits to markets, it is argued that, in desperate circumstances, when water is radically scarce, buying and selling water in the marketplace will almost certainly violate what Robert Nozick (1974) refers to as "Locke's Proviso"—a constraint on original acquisitions that requires such activities do not worsen the situation of others.

C. Tyler DesRoches is assistant professor at the School of Sustainability, Arizona State University. He obtained a PhD in philosophy from the University of British Columbia in May 2015, under the supervision of Margaret Schabas. Tyler is a founding editor of the *Erasmus Journal for Philosophy and Economics*, and has a M.A. in philosophy and economics from the Erasmus Institute for Philosophy and Economics, and a M.A. in economics from the University of Victoria. His articles have appeared in journals such as *History of Political Economy*, *Journal of the History of Economic Thought*, and the *Canadian Journal of Forest Research*.

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