

#### **IV. The Commons as a Model for Ecological Governance**

In this Section IV, we outline the potential of the Commons as a model or template for ecological governance favorable to the rights of both nature and human beings.<sup>326</sup> We do so, first, by describing the near-forgotten history of commons, its rediscovery by social scientists over the past thirty years, and the burgeoning global commons movement that is now emerging. We do so also by clarifying how the worldwide commons movement now emerging is demonstrating a range of innovative, effective models capable of assuring operational as well as theoretical shelter for diverse expressions of the right to environment.

Both the past and contemporary history of commons are important because they show the feasibility of commons governance in a wide variety of circumstances over centuries. Over the past thirty years, contemporary scholarship has rediscovered the Commons, illuminating its cooperative management principles as a counterpoint to conventional economics and particularly to its growth imperatives, artificially created scarcities, and consumerism. A key lesson we shall learn is that commons have a natural vitality conducive to environmental (and social) well-being.

But the overriding challenge for our time, as several times emphasized, is to devise an architecture of law and public policy that can legally recognize and support this vitality. Commoners (sometimes the general public, other times a distinct community) must be empowered to prevent Market enclosure of their shared natural resources and directly advance and defend their human and ecological rights—and the State must at least sanction such activity, if not affirmatively support it. Either way, it is clear that the State cannot play this role without first understanding the value-proposition of the Commons and then adopting suitable legal principles and policies to support it.

Let us be very clear. The challenge is not to establish separate and “pure” commons, untouched by either the State or the Market. This is arguably impossible in any case. Commons tend to be inscribed within larger systems of power, and the State, Market, and Commons are intertwined in complicated ways. But it is important that State Law and public policy empower the Commons sector so that it can preserve its essential integrity and value proposition. To advance this perspective is the goal of the following pages treating the history, scholarship, and contemporary emergence of the Commons paradigm.

##### **A. What Is the Commons?**

We have argued so far that the Commons may be understood less as an ideology than as an intellectual scaffolding that can be used to develop innovative legal and policy norms, institutions, and procedures. But these new structures do not evolve of themselves; nor are they State-directed.

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<sup>326</sup> Hereinafter, as here, we use the phrase “the Commons” as convenient shorthand for commons governance (as when commoners manage one or more ecosystems or natural resources directly themselves) or governance according to commons principles (as when commoners delegate their managerial authority conditionally). For more on our use of the term “commons” generally, see *supra* note 21.

Commons are animated by commoners who have the authority to act as stewards in the management of a given set of ecological resources. A commons constitutes a kind of social and moral economy. It is also a matrix of perception and discourse—a worldview—that can loosely unify diverse fields of action now largely isolated from one another. But, as some readers may still be asking: What exactly *is* the Commons?

In its broadest sense, a commons is a governance system for using and protecting “all the creations of nature and society that we inherit jointly and freely, and hold in trust for future generations.”<sup>327</sup> Typically, a commons consists of non-State resources controlled and managed by a defined community of commoners, directly or by delegation of authority. Where appropriate or needed, the State may act as a trustee for a commons or formally facilitate specific commons, much as the State chartering of corporations facilitates Market activity. But a commons generally operates independent of State control, and need not be State-sanctioned in order to be effective or functional.

Although the Commons is often associated with physical resources (land, air, water) or, more precisely, pools of physical resources, it is equally—indeed, most importantly—a socio-cultural phenomenon. The Commons is primarily about the self-determined norms, practices, and traditions that commoners themselves devise for nurturing and protecting their shared resources. In this acute sense, a *commons* is to be distinguished from a *common-pool resource* (CPR), a term often used to describe a good, often depletable, that is usually expensive to prevent others from using, though not impossible. Economists would say that a CPR is “subtractible”—it can be used up or become congested.

To distinguish a CPR from a commons is important because there are many possible socio-economic-political arrangements for protecting and maintaining a CPR. One can imagine *government* taking charge of a river irrigation system, for example, and deciding who may have what quantities of water, and under what terms. Or one can imagine a *private owner* managing a forest CPR, exercising exclusive control of the right to sell access and use rights. Or as so often happens, a CPR could be treated as an *open access regime* in which there are no preexisting property rights or rules for managing the resource; everyone would treat the water or fish or timber as “free for the taking.”

A *commons*, however, is a quite different thing. It is a regime for managing a CPR that eschews individual property rights and State control. It relies instead on common property arrangements that tend to be self-organized and enforced in complicated, idiosyncratic social ways, and generally is governed by what we call *Vernacular Law*, the “unofficial” norms, institutions, and procedures that a peer community devises to manage community resources on its own. State Law and action may set the parameters within which Vernacular Law operates, but it does not directly control how a given commons is organized and managed.<sup>328</sup> In this way, the Commons operates in a quasi-sovereign manner, largely escaping the centralized mandates of the State and the structures of Market exchange while mobilizing decentralized participation “on the ground.”

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<sup>327</sup> THE STATE OF THE COMMONS: A REPORT TO OWNERS FROM TOMALES BAY INSTITUTE 3 (2003).

<sup>328</sup> An analogy might be state chartering and oversight of corporations: general policy principles and accountability are required, but much leeway in granted to how basic responsibilities are implemented.

As we shall see below, commons governance and resource management can take many forms. Among the more salient: *subsistence commons* such as forests, fisheries, wild game, arable land, pastures, irrigation and drinking water, and wilderness; *social and civic commons* such as public schools and libraries, parks, community festivals and special-interest affinity groups; and *global commons* such as the planetary atmosphere, oceans, the polar regions, biodiversity and the human genome. In addition, there are *digital commons* on the Internet, such as free and open source software, wikis like Wikipedia,<sup>329</sup> open-access publishing, collaborative Web archives, and content pools tagged with Creative Commons licenses.

Studying commons requires that we transcend the limitations of conventional economics by taking into account the larger social, human, and ecological context of economic activity. We must scrutinize the actual costs and benefits of economic activity in its entirety and see them holistically, not just as they affect individuals. We must evaluate a community's values, norms, and social practices. The theater of relevant inquiry extends well beyond the financial factors that a for-profit business enterprise regards as germane. To study commons is to venture into anthropology, environmental science, political science, and social psychology, as well as culture, the empirical study of specific stewardship practices, and the law. There is no universal template of a commons for the simple reason that each is rooted in particular, historically rooted, local circumstances.

The study of economics remains essential, however, if only because commons are chronically vulnerable to "Market enclosures." Enclosures occur when private business enterprises, often with the overt or tacit support of government and the law, privatize and commodify ecological resources. Enclosure is about dispossession. It privatizes and commodifies resources that may be legally owned or used by a distinct community (a rainforest, a lake, an aquifer) or that morally belongs to everyone (the humane genome, the atmosphere, wilderness). Enclosure typically aims to reap private market gains from a common asset without taking account of its full, long-term market and non-market value. It also seeks to dismantle the commons-based culture (egalitarian co-production and co-governance) and supplant it with a market order (money-based producer/consumer relationships and hierarchies). Markets tend to have thin commitments to localities, cultures, and ways of life because such commitments may "interfere" with market exchange and thereby diminish (monetary) wealth-creation. For most commons, however, socially rooted commitments to a particular place, resource and community are essential.

Property theorist John Locke famously declared that one has a natural right to assert private property rights in things that one makes with one's own labor. Usually omitted from Locke's formulation, however, is his significant added qualification: "at least where there is *enough, and as good, left in common for others.*"<sup>330</sup> Locke does not develop this idea; he is, after all, intent on establishing the moral and legal justifications for private property. Still, he raises an issue that cannot be simply ignored: the exercise of private property rights may encroach upon and even destroy resources that belong to everyone.

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<sup>329</sup> Wikis are simple web pages that groups can edit together.

<sup>330</sup> JOHN LOCKE, TWO TREATISES OF GOVERNMENT 329 (1965) (emphasis added).

Enclosures usually describe intrusions upon recognized commons or public property, particularly when they rely upon coercion, disenfranchisement, under-payment, or simple trespass. But by Locke's own formulation, enclosure may also be fairly applied to open-access regimes where "no one" owns the resource. The question is, however, whether any element of nature is truly *res nullius*—an inert object that can be privately owned without regard for a given community or humanity as a whole. Indigenous peoples and peasants frequently rely upon open-access common pool resources for subsistence, yet rarely have formal legal title. Surely their subsistence-use constitutes some form of moral entitlement that should not be regarded as a nullity simply because a commercial enterprise exerted some labor to appropriate something that did not belong to it in the first place. Similarly, as inhabitants of the planet, every human being may not have formal legal ownership of the atmosphere or oceans, yet we do have at least a collective ethical entitlement to their preservation as healthy planetary ecosystems—some say even a *legal* entitlement, in fairness to future generations at least.<sup>331</sup>

Enclosures are justified as a necessary means to increase production of material wealth. The appropriated lands and other resources are usually regarded as vacant or belonging to no one (*res nullius*) and therefore without value in the first place. To victimized commoners who have used a resource in a collective fashion for non-market, subsistence purposes, however, enclosure is an experience of profound dispossession and violation. For them, naming a commons as a commons is the first step toward protecting and reclaiming collective resources. It is a way of reclaiming what they once enjoyed as a matter of right and in a larger sense, it is about reclaiming their identities.

Enclosure is now a pervasive dynamic. Multinational bottling companies are laying claim to groundwater supplies and freshwater basins that once sustained local ecosystems and communities.<sup>332</sup> Agriculture-biotech companies are actively supplanting conventional crops with proprietary, genetically modified crops whose seeds are sterile or may not be shared.<sup>333</sup> High-tech industrial trawlers are eclipsing coastal fishing fleets and over-exploiting ocean fisheries to the point of exhaustion.<sup>334</sup> Biotech companies and universities have now patented approximately one-fifth of the human genome.<sup>335</sup> Many companies enjoy free or cut-rate access to minerals, grazing areas, and timber on public lands.<sup>336</sup>

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<sup>331</sup> See, e.g., BROWN WEISS, *supra* note 97; see also, Weston (2008) and Weston 2012), *supra* note 99.

<sup>332</sup> See, e.g., MAUDE BARLOW, *BLUE COVENANT: THE GLOBAL WATER CRISIS AND THE COMING BATTLE FOR THE RIGHT TO WATER* (2009); ELIZABETH ROYTE, *BOTTLEMANIA: BIG BUSINESS, LOCAL SPRINGS AND THE BATTLE OVER AMERICA'S DRINKING WATER* (2009); ALAN SNITOW & DEBORAH KAUFMAN (WITH MICHAEL FOX), *THIRST: FIGHTING THE CORPORATE THEFT OF OUR WATER* (2007).

<sup>333</sup> See, e.g., KEITH AOKI, *SEED WARS: CONTROVERSIES AND CASES ON PLANT GENETIC RESOURCES AND INTELLECTUAL PROPERTY* (2008).

<sup>334</sup> See, e.g., CHARLES CLOVER, *THE END OF THE LINE: HOW OVERFISHING IS CHANGING THE WORLD AND WHAT WE EAT* (2006); DANIEL PAULY & JAY MACLEAN, *IN A PERFECT OCEAN: THE STATE OF FISHERIES AND ECOSYSTEMS IN THE NORTH ATLANTIC OCEAN* (2003).

<sup>335</sup> Kyle Jensen & Fiona Murray, *Intellectual Property Landscape of the Human Genome*, 310 *SCIENCE* 239, 239 (Oct. 14, 2005).

<sup>336</sup> See, e.g., David Bollier, *The Abuse of the Public's Natural Resources*, in BOLLIER, *supra* note 2, at 85-97.

One reason that enclosures are tolerated and even welcomed by some is because one person's enclosure is often another person's idea of freedom and progress. The private economic gains generated by converting natural resources into marketable products are enormous. They also tend to produce many secondary, spillover benefits for society, such as jobs, products, and economic growth. But these gains can be illusory or unsustainable. When the scope of property rights and Market activity compromises the integrity of ecosystems, "economic development" is but another name for cannibalizing nature's capital. In such circumstances, Market activity becomes ecologically destructive and anti-social, and not a net gain for society. As economist Herman Daly has pointed out in his 1996 book, *Beyond Growth*,<sup>337</sup> the core problem with modern-day economic theory is that it fails to differentiate between mere growth in the volume of Market activity (e.g., Gross Domestic Product) and healthy, socially beneficial development that can be ecologically sustained over time.

The Commons offers a vocabulary for talking about the proper limits of Market activity—and enforcing those limits. Commons discourse helps force a conversation about the "Market externalities" that often are shunted to the periphery of economic theory, politics, and policymaking. It asks questions such as: How can appropriate limits be set on the Market exploitation of nature? What legal principles, institutions, and procedures can help manage a shared resource fairly and sustainably over time, sensitive to the ecological rights of future as well as present generations?

There is a rich body of academic literature that explores many of these questions, much of it is focused on the use of natural resources in the so-called developing world. There has been far less examination of how modern, industrialized countries might balance Market activity and the environment more prudently. This is due in part to the intellectual premises and worldview of neoliberal economics, which, since the collapse of the Soviet Union in 1991 especially, has become the dominant framework for political culture and public policy in industrialized societies worldwide.

In this political and cultural context, the Commons as a system of management and culture has been largely marginalized and ignored over the past generation—doubtless a reason why the right to environment has surfaced in recent years as a serious if struggling claim against the dominant order. Mainstream economists presume that individual property rights and Market exchange are the most efficient, responsible means for allocating access to, and use of, natural resources and for generating material wealth and "progress." Historian Francis Fukayama famously proclaimed "the end of history" in 1991 to celebrate the triumph of neoliberal markets and liberal democracy.<sup>338</sup> It is no surprise that in respectable circles the commons is generally seen either as a failed management system or an inefficient vestige of pre-modern life, or both. Yet the history of the commons tells a very different story.

## **B. A Brief History of Commons Law and the Right to the Environment**

The Commons extends into the deep mists of pre-history as a set of social practices and, as societies became more organized, into formal law as well. It has flourished as if by spontaneous

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<sup>337</sup> HERMAN E. DALY, *BEYOND GROWTH: THE ECONOMICS OF SUSTAINABLE DEVELOPMENT* (1996).

<sup>338</sup> FRANCIS FUKAYAMA, *THE END OF HISTORY AND THE LAST MAN* (1992).

self-organization in human societies with and without the support of larger systems of power. Formal law is by no means essential to the functioning of a commons, though it can certainly help many types of commons function more effectively, if only by reducing the threat of enclosure. In any case, “commoning” (the social practices by which commoners manage their shared resources) has been a pervasive and durable governance system for assuring judicious and equitable access to and use of nature.<sup>339</sup>

The instinct to establish commons may be a deeply rooted aspect of humanity. A growing body of scientific evidence suggests that social trust and cooperation may be an evolutionary force “hard-wired” into the human species. If true, many 18th and 19th Century notions of human beings as autonomous, selfish, rational individuals, upon which entire political and economic philosophies and institutional structures are built, deserve to be re-visited and re-thought. The idea of *homo economicus*, which modern-day economists and political theorists presume to be a universal norm, may in fact have very little basis in fact or history.

The more relevant matrix of human behavior, according to many evolutionary scientists, may be *social exchange*. When geneticists, evolutionary biologists and mathematical game theorists evaluate the “fitness” of an evolutionary adaptation or mutation, they often look for traits that cannot be displaced by other mutations or phenotypes. These traits are called “evolutionary stable strategies” (ESS) and, as such, are regarded as deep and enduring aspects of human nature. In summarizing some of this literature, Clippinger and Bollier write:

Recent studies have argued that the notion of “reciprocal altruism” is an ESS. So are many innate “social contracting algorithms” of the human brain. What makes this evidence especially compelling is that the ESS approach can successfully predict what kinds of “strategies” and even special competences will emerge in different social exchange networks. For example, many different species—vampire bats, wolves, ravens, baboons, and chimpanzees—exhibit similar social behaviors and emotions such as sympathy, attachment, embarrassment, dominant pride, and humble submission. Both ravens and vampire bats can detect cheaters and punish them accordingly—a skill needed to thwart free-riders and maintain the integrity of the group.

This indicates that “cooperative strategies” have evolved in different species and, because of the evolutionary advantages that they offer, become encoded in their genome. While much more needs to be learned in this area, evolutionary sciences appear to be identifying some of the basic principles animating the “social physics” of human behavior.<sup>340</sup>

If human beings are neurologically hard-wired to be empathic and cooperative, as many studies suggest, and if this occurs at the species level, and not at an individual level, then rational-actor

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<sup>339</sup> For a definition of “commoning” steeped in history, see *supra* note 286.

<sup>340</sup> John Clippinger & David Bollier, *A Renaissance of the Commons: How the New Sciences and Internet are Framing a New Global Identity and Order*, in RISHHAB AIYER GHOSH, CODE: COLLABORATIVE OWNERSHIP AND THE DIGITAL ECONOMY 266-67 (2005). A fuller treatment of these themes can be found in JOHN CLIPPINGER: A CROWD OF ONE: THE FUTURE OF INDIVIDUAL IDENTITY (2007).

models of human behavior—which are the basis for so many game theory and “prisoner’s dilemma” scenarios—may misrepresent how human beings actually behave “in the field.”

In many respects, it makes sense to see social exchange as the framework in which humans and societies develop. Personal identity cannot really exist, after all, without history and culture; people are not really de-contextualized, atomistic units. Language is thought to have arisen as a way to serve important social-bonding purposes, and evolutionary anthropologists and geneticists have documented the presence of reciprocal altruism in various species.<sup>341</sup> This suggests that principles of natural selection may be literally manifested in the genes and physiology of *homo sapiens*, and that by the lights of 21st Century science, cooperative behaviors may constitute a contemporary form of “natural law.”<sup>342</sup>

Social Darwinism is a cautionary history about presuming more about “human nature” than scientific evidence can support. Still, it is encouraging that many scientists believe that cooperation is an inborn human capacity that enhances our long-term struggle to survive. This is a more hopeful, socially constructive storyline for political theory and economics than that of the Hobbsean savage that has prevailed for centuries.

Abundant evidence of commoning can be found throughout human history. Hunter-gatherer and foraging societies were often nomadic, following seasonal and migratory changes for subsistence, which makes it unlikely that they allowed private-property rights in land.<sup>343</sup> Cooperation and collective action were certainly factors in the development of prehistoric agriculture. As one scholar argues, territoriality and storage were necessary for agricultural experimentation; neither could have evolved among individuals acting in purely selfish ways. “No family is strong enough to

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<sup>341</sup> See, e.g., LEDA COSMIDES & JOHN TOOBY, *EVOLUTIONARY PSYCHOLOGY: A PRIMER* (2002); ELLIOT SOBER & DAVID SLOAN WILSON, *UNTO OTHERS: THE EVOLUTION AND PSYCHOLOGY OF UNSELFISH BEHAVIOR* (1998).

<sup>342</sup> See, e.g., ROBERT AXELROD, *THE EVOLUTION OF COOPERATION, REVISED EDITION* (2006); AXELROD, *THE COMPLEXITY OF COOPERATION: AGENT-BASED MODELS OF COMPETITION AND COLLABORATION* (1997); Peter Kollock, *Social Dilemmas: The Anatomy of Cooperation*, 24 ANN. REV. SOC. 183-214 (1998).

<sup>343</sup> In instances where hunter-gatherers did attach themselves to a fixed piece of land (becoming so-called “central-place foragers”), they developed communal plots of land for shared use. In the Rio Asana valley of the Andean Highlands, for example, residential structures were grouped around a single public structure that was “used as a dance floor, public space or . . . as a probable focus of intensive, restricted worship.” Mark Aldenderfer, *Costly Signaling, the Sexual Division of Labor, and Animal Domestication in the Andean Highlands*, in *BEHAVIORAL ECOLOGY AND THE TRANSITION TO AGRICULTURE* 167, 180 (Douglas J. Kennet & Bruce Winterhalder eds., 2006) (hereinafter “BEHAVIORAL ECOLOGY”).

defend its fields or stores of food in settings where everyone is motivated wholly by self-interest,” writes Robert L. Bettinger.<sup>344</sup> Religion also played some role in prehistoric conceptions of land ownership.

Water provides the earliest clear examples of communal resource use and management, perhaps because water is indispensable to life. Most societies have developed systems for sharing water used for navigation, fishing, irrigation, and drinking. Collective management was made easier by the constant flow of water through the hydrological cycle, which made the private capture and enclosure of water difficult (a barrier that modern-day appropriators have overcome through innovative technologies and anti-social laws).

In eastern Africa, early nomadic Somalians who traveled great distances across deserts dug wells by hand at regularly spaced intervals to provide drinking groundwater for their caravans of people and cattle. These wells later served as the foundation for small desert communities and larger cities.<sup>345</sup> Since around 1000 B.C.E.,<sup>346</sup> civilizations in southwest Asia, North Africa, and the Middle East arose as people built *qanats*—water delivery systems consisting of a mother well and long, gently sloping underwater delivery tunnels—to secure reliable water supplies.<sup>347</sup>

In Mesopotamia, where the Euphrates was prone to flood and uncontrolled irrigation led to pollution of the soil, State ownership of riparian lands and irrigation works helped spread risks and prevent the degradation of common goods.<sup>348</sup> The Code of Hammurabi (*circa* 1750 B.C.E.), provided that “[i]f a man has opened up his channel for irrigation, and has been negligent and allowed the water to wash away a neighbors field, he shall pay grain equivalent to [the crops of] his neighbors,” demonstrating strict social justice regulation of the common irrigation works.<sup>349</sup>

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<sup>344</sup> Robert L. Bettinger, *Agriculture, Archaeology, and Human Behavioral Ecology*, in BEHAVIORAL ECOLOGY, *supra* note 343, at 310–11. Yet alongside cooperation in agriculture, the idea of exclusive private property also took root. As some scholars have argued, “It is inconceivable that, from the very beginning, the first farmers did not exclude outsiders from sharing the fruits of their labour.” D.C. North & R.P. Thomas, *The First Economic Revolution*, 30 ECON. HISTOR. REV. 229, 235 (1977). This does not imply a sense of individual ownership of the land, however. While some enclosure would have been necessary as a practical measure to demarcate fields and contain herds of livestock, “[e]arly societies probably did not conceive of land as an asset, and investment, or a factor of production,” according to JOHN P. POWELSON, *THE STORY OF LAND: A WORLD HISTORY OF LAND TENURE AND AGRARIAN REFORM* (1988). Particular tracts of land were often associated with people, such as clans or tribes, who lived upon it and could defend it: “Much land was group-owned if it was owned at all,” writes Powelson, at 3. In early Mesopotamia, collectively owned land belonged to a god or goddess, not individuals.

<sup>345</sup> THOMAS V. CECH, *PRINCIPLES OF WATER RESOURCES: HISTORY, DEVELOPMENT, MANAGEMENT, AND POLICY* 2 (2d ed., 2005).

<sup>346</sup> “Before the Common Era,” a secular alternative to B.C., “Before Christ.”

<sup>347</sup> *Id.*

<sup>348</sup> JOSHUA GETZLER, *A HISTORY OF WATER RIGHTS AT COMMON LAW* 10 (2004).

<sup>349</sup> Code of Hammurabi §§55-56, *as rendered in* J.N. POSTGATE, *EARLY MESOPOTAMIA: SOCIETY AND ECONOMY AT THE DAWN OF HISTORY* (1992).



The elaborate aqueducts and civil hydraulic systems of the Roman Empire were indispensable to the development of that civilization. Public rights of access to the water works were protected by the *Lex Quinctia* of 9 B.C.E., which declared: “It is not the intent of this law to revoke the right of persons to take or draw water from these springs, mains, conduits, or arches to whom the curators of the water supply have given or shall give such right, except that it is permitted with wheel, water regulator, or other mechanical contrivance, and provided that they dig no well and bore no aperture into it.”<sup>350</sup>

The Ancient Romans were the first society in recorded history to have made explicit laws regarding distinct categories of property, including common property. According to Gaius, writing in approximately 161 C.E., things (*res*) were classified according to whether they should or should not be privately owned. There were several categories of property that could *not* be privately owned.<sup>351</sup> The first of these was *res communes*, or things owned in common to all: “Public things are regarded as no one’s property; for they are thought of as belonging to the whole body of the people.”<sup>352</sup> Although such things could not be owned, the law recognized a right to enjoy them: “deliberate interference with enjoyment could result in a delictual remedy for insulting behavior.”<sup>353</sup>

*Res communes*—a category of law enshrined by Emperor Justinian in 535 A.D.—is of particular importance to us as the first legal recognition of the commons:

By the law of nature these things are common to mankind—the air, running water, the sea and consequently the shores of the sea. . . . Also all rivers and ports are public, so that the right of fishing in a port and in rivers is common to all. And by *the law of nations* the use of the shore is also public, and in the same manner, the sea itself. The right of fishing in the sea from the shore *belongs to all men*. . . .<sup>354</sup>

Through this codification, neither the State nor ordinary citizens could make proprietary claims upon resources that belong to everyone. This concept is arguably the earliest manifestation of what

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<sup>350</sup> LEX QUINCTIA DE AQUAEDUCTIBUS, Art. 9 (trans. P. Birks), *cited in* GETZLER, *supra* note 348, at 11.

<sup>351</sup> GAIUS, INSTITUTES OF GAIUS 2.1, *cited in* ANDREW BORKOWSKI & PAUL DU PLESSIS, TEXTBOOK ON ROMAN LAW 154 (2005).

<sup>352</sup> *Id.*

<sup>353</sup> BORKOWSKI & DU PLESSIS, *supra* note 351, at 154.

<sup>354</sup> INSTITUTES OF JUSTINIAN 156 (Thomas C. Sandars transl., 1876), <http://www.fordham.edu/halsall/basis/535institutes.html#I.%20Divisions%20of%20things> (follow link for Book Two, Title 1) (accessed Mar. 20, 2010) (hereinafter “INSTITUTES”).

in American law is known as the “public trust doctrine,” a concept that has analogues in most legal systems of the world and indeed in many of the world’s major religions.<sup>355</sup> We return to the public trust doctrine in Section V.

Another category of property that private individuals could not own was *res publicae*, or public things, which belong to the State.<sup>356</sup> This category included public roads, harbors, ports, certain rivers, bridges, and conquered enemy territory.<sup>357</sup> Provincial land was further subdivided into senatorial and imperial provinces—the former belonged to the Roman people, but the latter belonged to the Emperor.<sup>358</sup> There were other categories of property enumerated as well.<sup>359</sup>

It is worth pausing to note an early instance of a political tension that recurs throughout history: the State’s assertion of power to act as a trustee for the public interest versus the inherent rights of the people to manage *res communes* as self-organized commons. The State and commoners often have very different ideas about how best to manage *res communes* for the commons good.

For example, when the Roman Empire claimed rights to manage water through a centralized, formal body of water law, a unitary legal regime displaced the plural systems of customary water rights that had prevailed in conquered territories. While the centralization of Roman law in theory made water management more rational, uniform, and fair, it also gave political elites special opportunities to assert their own privileged access to water and to dispossess less favored parties in the provinces.<sup>360</sup> Petty and grand corruption of the formal legal system also opened the door for the legal privatization and over-exploitation of scarce water supplies—i.e., State-sanctioned enclosures.

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<sup>355</sup> As noted by Mary Christina Wood, “[l]eaders of the world’s major religions have declared a spiritual duty to protect nature.” See Carrie McGourty, *Prayer to End Climate Change* ABC World News, Sept. 7, 2007, <http://abcnews.go.com/WN/GlobalWarming/Story?id=3572327&page=1> (accessed Aug. 3, 2011), in *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part I): Ecological Realism and the Need for a Paradigm Shift*, 39 ENVTL L. 65 n. 112 (2009); see also Weston (2008), *supra* note 99, at notes 154-57 and accompanying text.

<sup>356</sup> BORKOWSKI & DU PLESSIS, *supra* note 351, at 154.

<sup>357</sup> *Id.*

<sup>358</sup> *Id.*

<sup>359</sup> Things that were intended for the use of a public corporate body—such as a municipality or colony—was termed *res universitatis*: public streets and buildings, theaters, parks, racecourses, and stadia. Finally, *res nullius* described things belonging to no one, including wild animals, abandoned property, and “divine” things; the last of which were further divided into *res sanctae*, or things considered to be protected by the gods such as city walls and gates; *res religiosae*, or tombs, sepulchers, mausoleums, cenotaphs, and some land used for burial; and *res sacrae*, or things formally consecrated and dedicated to the gods like temples or shrines *Id.* at 154–55.

<sup>360</sup> As skillfully documented and described in B. van Koppen, et al., *Roman Water Law in Rural Africa: Dispossession, Discrimination and Weakening State Regulation?* (paper presented at the International Association for the Study of the Commons conference, Hyderabad, India, January 2011, on file with the authors).

This pattern was replicated in the 16th to 19th Centuries when the European colonial powers imposed Roman water law on their new colonies.<sup>361</sup> . The State effectively dispossessed small-scale, traditional, local users of water—a process that returned in the late 20th Century when states instituted compulsory permit systems for water usage, and in our times, when international investors buy rights to land and water traditionally used by commoners. In each case, national governments claimed to act as public trustees, but their permit systems and investment policies served to displace and de-legitimize local, traditional commons management, which was likely more ecologically benign. State-based permitting of water use appears to be “finishing the unfinished business of colonial dispossession.”<sup>362</sup>

This tension between dominant systems of power and commons continued after the fall of the Roman Empire and the beginning of the Dark Ages. Kings and feudal lords throughout Europe started claiming the right of access to “public resources” previously protected as *res communes* under Roman law.<sup>363</sup> In 13th Century England, following the Norman Conquest, a series of monarchs claimed increasingly large swaths of forest for their own recreation and profit at the expense of barons and commoners. Rather than viewing the forests as a commonly owned asset of the people, the Normans proclaimed all such land to be the exclusive property of the king: “It was the supreme status symbol of the king, a place of sport.”<sup>364</sup> Kings “bypassed the customs of the forests that had prevailed since Anglo-Saxon times.”<sup>365</sup>

These royal encroachments on commons had a devastating impact on medieval English life. As historian Peter Linebaugh notes, whole towns were timber-framed, the tools and implements of the commoner were all wood-wrought, and wood was the primary source of light and heat.<sup>366</sup> The English naturalists Garrett Jones and Richard Mabey noted: “More than any other kind of landscape they [forests] are communal places, with generations of shared natural and human history inscribed in their structures.”<sup>367</sup> Thus, when the King expanded his claims over the forest, he drastically reduced commoners’ access to food, firewood, and building materials, while his sheriffs meted out brutal punishments to anyone trying to reclaim commons resources.<sup>368</sup> In everyday terms, this meant that commoners were denied access to common pastures for their cattle. Livestock were not allowed to roam the forests. Pigs, a major source of food, could not eat acorns from the forest. Commoners could not take wood, timber, bark and charcoal from the forest to fix their homes and build fires for meals. Private causeways and dams often made it impossible to navigate rivers.

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<sup>361</sup> *Id.*

<sup>362</sup> *Id.*

<sup>363</sup> See GEOFFREY HINDLEY, A BRIEF HISTORY OF THE MAGNA CARTA (2008).

<sup>364</sup> *Id.*

<sup>365</sup> LINEBAUGH, *supra* note 280, at 34.

<sup>366</sup> *Id.* at 33–34.

<sup>367</sup> GARETH LOVETT JONES & RICHARD MABEY, THE WILDWOOD: IN SEARCH OF BRITAIN’S ANCIENT FORESTS (1993).

<sup>368</sup> *Id.* (quoting J.R. Maddicott, *Magna Carta and the Local Community*, in, 102 PAST & PRESENT 37, 72 (1984)).

Women, especially widows, depended upon the Commons to gather food and fuel, and disproportionately suffered as commons were enclosed, particularly as targets of witch hunts.<sup>369</sup>

As described in Section III, a long series of armed conflicts culminated with the signing of the Magna Carta in 1215 and the Charter of the Forest in 1217,<sup>370</sup> the latter formally recognizing and protecting certain rights of commoners, such as stipulated rights of pasturage (grazing for their cattle), piscary (fishing in streams), turbary (cutting of turf to burn for heat), estovers (forest wood for one's house), and gleaning (scavenging for what's left in the fields after harvest).<sup>371</sup> The Charter remained the law governing commons for more than 800 years, making it one of the longest-standing laws of England until it was superseded, as previously noted, by the Wild Creatures and Forest Laws Act in 1971.<sup>372</sup> As such, the Charter continues to have a special influence as the legal basis for managing commons in England.<sup>373</sup> In the years after its ratification, the Magna Carta was regularly invoked by commoners, barons and the king alike to affirm their mutual commitment to its principles.

What formal State Law officially guarantees, however, often requires enforcement by the commons itself, through complicated forms of community self-policing, as we find today, for example, in certain Amish communities in the United States. In 18th Century England, a community often staged an annual “beating of the bounds” perambulation around the perimeter of the commons to identify—and knock down—any enclosures of the commons, such as a fence or hedge.<sup>374</sup> This was a community's way of monitoring its shared resource and assuring collective access to it. Beating the bounds assured the long-term integrity of the commons. Similarly, to ensure that the common-pool resource would not be over-used and ruined, commoners insisted upon certain “stints,” both simple and elaborate, that set strict limits on commoners' use rights. As Lewis Hyde writes, “The commons were not open; they were stinted. If, for example, you were a seventeenth-century English common farmer, you might have the right to cut rushes on the common, but only between Christmas and Candlemas (February 2). Or you might have the right to cut branches of trees, but only up to a certain height and only after the tenth of November.”<sup>375</sup>

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<sup>369</sup> See especially, SILVIA FEDERICI, CALIBAN AND THE WITCH: WOMEN, THE BODY AND PRIMITIVE ACCUMULATION (2004). Peter Linebaugh, *supra* note 280, writes, at 40: “Wherever the subject is studied, a direct relationship is found between women and the commons. The feminization of poverty in our own day has become widespread precisely as the world's commons have been enclosed.”

<sup>370</sup> See *supra* text accompanying notes 279-285.

<sup>371</sup> A compelling account of this history may be found in WILLIAM F. SWINDLER, MAGNA CARTA: LEGEND AND LEGACY 44-103 (1965); see also LINEBAUGH, *supra* note 280, at 102, 223.

<sup>372</sup> *Supra* note 285.

<sup>373</sup> LORD EVERSLEY, COMMONS, FORESTS AND FOOTPATHS (1910) remains a standard, influential text on the law governing the 1.3 million acres of common land in England and Wales. The Open Spaces Society (U.K.), <http://www.oss.org.uk> (accessed Aug. 7, 2011) is the nation's leading citizens' advocate and defender of commons.

<sup>374</sup> LEWIS HYDE, COMMON AS AIR: REVOLUTION, ART AND OWNERSHIP 32-38 (2010).

<sup>375</sup> *Id.* at 34.

Here, then, is a general lesson to be drawn from the history of English commons: while State Law is vital, so is the vernacular practice of commoners. The two must be aligned and supportive of each other. That, arguably, is why the Magna Carta was necessary in the first place, to affirm in writing that traditional values and practice would be honored. The commons has been a critical governance system for assuring that “ordinary” people would have clear rights to access and use natural resources for their household and subsistence needs (as distinguished from commercial purposes).

The English battles to reclaim and preserve the commons of the 13th Century have cast a very long shadow. Their influence on American jurisprudence can be seen in the U.S. Declaration of Independence’s bold proclamation, “We the People,” which once again cast the interests of commoners against those of the monarch and State. The Commons as a source of inalienable rights also influenced various constitutional provisions, especially those of the Bill of Rights. When Congress debated the Thirteenth, Fourteenth and Fifteenth Amendments to the U.S. Constitution, it often invoked the Magna Carta as shorthand for “common rights” that are sufficiently fundamental to warrant constitutional protection.<sup>376</sup>

Legal recognition of the Commons, and thus the commoners’ right to the environment, has come in many other guises over the centuries as well. Following are several of the more significant commons-based legal regimes:

*Common Land.* Commoners around the world have relied upon shared lands for subsistence throughout history and today.<sup>377</sup> There has been a long history of prehistoric agriculture, as noted above, and today over 1.6 billion people actively use the world’s forests (which comprise about 30 percent of the global land mass), often as commons. Another one billion people rely upon drylands (which constitute some 40% of the global land mass) for their subsistence.<sup>378</sup> In the contemporary world, other commons-based subsistence uses of fisheries, irrigation systems, oceans and lakes, and other natural resources are widespread. However, because so many commons are based on traditional usage, and are unrecognized by formal property rights, these lands tend to be highly vulnerable to corporate and State enclosure.<sup>379</sup> At the same time, formal recognition of the Commons is growing, as suggested by a landmark ruling of the Supreme Court of India in 2011

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<sup>376</sup> See LINEBAUGH, *supra* note 280, at 251.

<sup>377</sup> An important repository of literature of this history can be found at the Digital Library of the Commons at <http://dlc.dlib.indiana.edu> (accessed July 26, 2011). Another is the Netherlands-based Institutions for Collective Action, <http://www.collective-action.info> (accessed July 26, 2011), a website with considerable literature about European commons prior to 1900.

<sup>378</sup> See Ruth Meinzen-Dick, et al., *Securing the Commons* (CAPRI Policy Brief No. 4, (May 2006, at 1; [http://www.capri.cgiar.org/pdf/polbrief\\_04.pdf](http://www.capri.cgiar.org/pdf/polbrief_04.pdf) (accessed July 26, 2011).

<sup>379</sup> See, e.g., Liz Alden Wily/International Land Coalition, *The Tragedy of Public Lands: the Fate of the Commons under Global Commercial Pressure*, (January 2011), <http://www.landcoalition.org/es/publications/tragedy-public-lands-fate-commons-under-global-commercial-pressure> (accessed July 26, 2011).

(requiring a real estate developer to vacate a village pond he had unlawfully enclosed)<sup>380</sup> and by growing advocacy on behalf of the Commons.<sup>381</sup> It is precisely the lack of clear legal protection for commons that makes them attractive targets for investor “land grabs,” often in collusion with governments.<sup>382</sup>

*Wildlife.* Like the oceans and atmosphere, wildlife has enjoyed a unique status outside of private property at least since the Roman Empire.<sup>383</sup> Under Roman law, wild animals could become the property of anyone who captured or killed them (subject to the restriction that private landowners enjoyed the exclusive right to possess wildlife on their land).<sup>384</sup> This restriction, however, was more “a recognition of the right of ownership in land than an exercise by the State of its undoubted authority to control the taking and use of that which belonged to no one in particular, but was common to all.”<sup>385</sup> This classification of wildlife as a commons carried into medieval Europe; in order to maintain a common supply of fish, the Veronese code in the eleventh and twelfth centuries provided that fishnets were to have meshes two fingers wide, multi-hooked lines were prohibited, and no one was permitted to fish during the month of February.<sup>386</sup>

*Endangered Species.* In enacting the Endangered Species Act of 1973, the U.S. Congress recognized that “various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation.”<sup>387</sup> The law formally recognized the “esthetic, ecological, educational, historical, recreational, and scientific value [of fish, wildlife, and plant species] to the Nation and its people.”<sup>388</sup>

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<sup>380</sup> Jagpal Singh & Others v. State of Punjab & Others, Civil Appeal No. 1132/2011 @ SLP(C) No.3109/2011 (arising out of Special Leave Petition (Civil) CC No. 19869 of 2010), [http://www.elaw.org/system/files/Jagpat+Singh+judgment\\_details.doc](http://www.elaw.org/system/files/Jagpat+Singh+judgment_details.doc) (accessed July 26, 2011).

<sup>381</sup> The Foundation for Ecological Security, a nonprofit organization in India, is a leading example. *See, e.g.*, its book, VOCABULARY OF THE COMMONS (2011) and report on its advocacy in Rajasthan, SPACES FOR THE POOR: WORKING WITH COMMUNITIES AND COMMONLANDS IN CENTRAL ARAVALIS, RAJASTHAN, [http://www.boell.de/downloads/20101029\\_Spaces\\_for\\_the\\_poor.pdf](http://www.boell.de/downloads/20101029_Spaces_for_the_poor.pdf) (accessed July 26, 2011).

<sup>382</sup> Hernando de Soto has famously cited this problem in THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS ELSEWHERE (2002), but his prescription is exclusively for more secure private property rights, not for more secure commons property rights. As result, powerful economic and political actors generally seek to enclose commonly held lands (for which formal property rights may not exist) and to buy up and consolidate the smaller units of disaggregated property rights.

<sup>383</sup> *See, e.g.*, Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), June 23, 1979, 1651 U.N.T.S. 333 reprinted in 19 I.L.M. 15 (1980) and 5 BASIC DOCUMENTS, *supra* note 13, at V.H.11; *see also* MICHAEL J. BEAN & MELANIE J. ROWLAND, THE EVOLUTION OF NATIONAL WILDLIFE LAW 8 (3d ed. 1997).

<sup>384</sup> BEAN & ROWLAND, *supra* note 383.

<sup>385</sup> Geer v. Connecticut, 161 U.S. 519, 523 (1896).

<sup>386</sup> RONALD E. ZUPKO & ROBERT A. LAURES, STRAWS IN THE WIND: MEDIEVAL URBAN ENVIRONMENTAL LAW—THE CASE OF NORTHERN ITALY 85 (1996).

<sup>387</sup> 16 U.S.C. § 1531 (a) (1).

<sup>388</sup> *Id.* at § 1531 (a) (3).

The United States government has pledged itself through various international agreements also to conserve endangered species.<sup>389</sup>

*Wilderness conservation.* Even in ancient Persia (now Iran), there were forestry conservation laws in effect as early as 1700 B.C.<sup>390</sup> Pharaoh Akhenaten established nature reserves in Egypt in 1370 B.C. In the United States, George Perkins Marsh, a diplomat from Vermont saw barren tracts of nature in the Mediterranean, and theorized that the environmental collapse was caused by reckless deforestation. In his 1864 book, *Man and Nature*, Marsh predicted a similar future for the United States if forests were not protected. The book became a best-seller and the “fountainhead of the conservation movement,” in the words of one historian.<sup>391</sup> Partly as a result, the State of New York steadily regulated the private use of the forests in the Adirondack Mountains, and in 1885 reorganized its holdings in the Adirondacks as a forest preserve under a forest commission.<sup>392</sup> While N.Y. State protection of the Adirondacks was not without faults,<sup>393</sup> it was the first of many steps towards the robust national and State park programs that the United States enjoys today.

*Oceans and Seas.* Hugo Grotius, often called the father of international law, argued in his famous treatise *Mare Liberum* (1609) that the seas must be free for navigation and fishing because the law of nature prohibits ownership of things that appear “to have been created by nature for commons things.”<sup>394</sup> Powerfully motivating Grotius, who at the time was legal counsel to the Dutch East India Company, was the concern of that company to break the hegemony of Portugal and Spain, which were bent upon establishing dominion over the seas and lands divided between them along a line close to that assigned to them by Pope Pius VI. Also, a formidable reply to Grotius’s theory of freedom of the seas came in John Seldon’s 1635 treatise, *The Closed Sea or Two Books Concerning the Rule Over the Sea*, which relied on historical data and State practice to argue that the seas were not common everywhere, and had in fact been appropriated in many cases, especially in waters immediately surrounding nations.<sup>395</sup> Even so, in the age of European colonialism marked by

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<sup>389</sup> *Id.* at § 1531 (a) (4): “[T]he United States has pledged itself as a sovereign state in the international community to conserve to the extent practicable the various species of fish or wildlife and plants facing extinction. . . .” See, e.g., Convention on International Trade in Endangered Species of Fauna and Flora (CITES), Mar. 3, 1973, 993 U.N.T.S. 243, reprinted in 12 I.L.M. 1085 (1973) and 5 **BASIC DOCUMENTS**, *supra* note 13, at V.H.10.

<sup>390</sup> See, e.g., J. LOUISE MASTRANTONIO & JOHN K. FRANCIS, A STUDENT GUIDE TO TROPICAL FOREST CONSERVATION (Oct. 1997), <http://www.fs.fed.us/global/lzone/student/tropical.htm> (accessed Sept. 1, 2011).

<sup>391</sup> KARL JACOBY, CRIMES AGAINST NATURE: SQUATTERS, POACHERS, THIEVES AND THE HIDDEN HISTORY OF AMERICAN CONSERVATION 15 (2001).

<sup>392</sup> *Id.* at 16.

<sup>393</sup> *Id.* at 17 (noting that state protection of the Adirondacks had dire consequences for the approximately 16,000 people already living there). Mark Dowie chronicles this recurring dynamic—the displacement of indigenous commoners to establish modern-day commons—in his book CONSERVATION REFUGEES: THE HUNDRED-YEAR CONFLICT BETWEEN GLOBAL CONSERVATION AND NATIVE PEOPLES (2009).

<sup>394</sup> KEMAL BASLAR, THE CONCEPT OF THE COMMON HERITAGE OF MANKIND IN INTERNATIONAL LAW 30 (1998); see also ARTHUR NUSSBAUM, A CONCISE HISTORY OF THE LAW OF NATIONS 103 (1954 rev. ed.).

<sup>395</sup> NUSSBAUM, *supra* note 394, at 111; RAM PRAKASH ANAND, ORIGIN AND DEVELOPMENT OF THE LAW OF THE SEA 105 (1982).

conquest and enclosure, common access to the high seas was protected by international law, and remains so in the modern United Nations Convention on the Law of the Sea,<sup>396</sup> which recognizes the freedom on the high seas as well as the exclusive rights enjoyed by coastal states in waters immediately offshore.

*Antarctica.* One of the most unusual and durable global commons involves Antarctica, managed as a cooperative regime of research scientists since the ratification of The Antarctic Treaty in 1959.<sup>397</sup> As many as seven nations had asserted plausible territorial claims to the Antarctica land mass. But two major research projects—the International Polar Years and International Geophysical Years—had demonstrated the feasibility of scientific cooperation. The advantages of continuing this cooperation were seen as a highly attractive alternative to potential political or military strife. Too, the potential economic gains to be had from making territorial claims on Antarctica were minimal, which made it easier to forge acceptable treaties. Antarctica is one of the rare global commons that has been highly stable because, we submit, it also has met many important principles of a successful commons: a well-defined user community, clearly delineated and well-recognized boundaries, and moral and political legitimacy for decisions that have constituted the Antarctica commons regime.<sup>398</sup>

*Space.* While the iconic photograph of Neil Armstrong and Buzz Aldrin planting an American flag in the lunar Sea of Tranquility in 1969 evokes an image of conquest, colonization, and manifest destiny, the United States never did stake a claim to lunar territory.<sup>399</sup> Indeed, such a claim would have violated the 1967 Outer Space Treaty<sup>400</sup>, which declares outer space, the moon, and other celestial bodies to be the “province of all mankind,”<sup>401</sup> and “not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”<sup>402</sup> However, both States and private actors are vested with the enjoyment and freedom to share the use

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<sup>396</sup> Dec. 1, 1982, 1833 U.N.T.S. 3, *reprinted in* 21 I.L.M. 1261 (1982)) and 5 **BASIC DOCUMENTS**, *supra* note 13, at V.F.22.

<sup>397</sup> Dec. 1, 1959, 402 U.N.T.S. 71, 12 U.S.T. 794, T.I.A.S. 4780, *reprinted in* 19 I.L.M. 860 (1980) and 5 **BASIC DOCUMENTS**, *supra* note 13, at V.D.1.

<sup>398</sup> *See, e.g.*, Christopher C. JOYNER, GOVERNING THE FROZEN COMMONS: THE EFFECTIVENESS AND LEGITIMACY OF THE ANTARCTIC TREATY SYSTEM (1998); *see also* SUSAN J. BUCK, THE GLOBAL COMMONS: AN INTRODUCTION 45-74 (1998); Juan Barcelo, *The International Legal Regime for Antarctica*, 19 CORNELL INT’L L. J. (1986); Martin Holdgate, *Regulated Development and Conservation of Antarctic Resources*, in THE ANTARCTIC TREATY REGIME 128 (Gillian Triggs ed., 1987); Donald R. Rothwell, *The Antarctic Treaty: 1961–1991 and Beyond*, 14 SYDNEY L. REV. 62 (1992) Karen N. Scott, *Institutional Developments Within the Antarctic Treaty System*, 52 INT’L & COMP. L. Q. 473 (2003).

<sup>399</sup> HARLAN CLEVELAND, THE GLOBAL COMMONS: POLICY FOR THE PLANET 5 (1990).

<sup>400</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 610 U.N.T.S. 205, 18 U.S.T. 2410, T.I.A.S. No. 6347, *reprinted in* 6 I.L.M. 386 (1967) and 5 **BASIC DOCUMENTS**, *supra* note 13, at V.E.21.

<sup>401</sup> *Id.* art. I.

<sup>402</sup> *Id.* art. II.



of, and exploit, the available resources of space and celestial bodies without discrimination.<sup>403</sup> As a result, the commons of space is largely uncontrolled and unregulated, and runs the risk of inviting self-interested actors to irresponsibly degrade, exploit, and overuse the resources of the space environs—a “tragedy of the unmanaged commons.”<sup>404</sup> The accumulation of debris in heavily utilized orbital regions such as Low Earth Orbit and Geostationary Earth Orbit could cause these regions to become overcrowded. As astronaut Ed Mitchell once noted, “[i]f there were only one gram of debris per cubic kilometer, out to a thousand kilometers from Earth, the average useful life of a satellite orbiting in that space would be no more than seven hours.”<sup>405</sup> The answer, as space law scholar Professor Shane Chaddha argues, is to impose and enforce “appropriate mechanisms and disincentives controlling entry to, and the exploitation of, the resource.”<sup>406</sup> Such governance is currently lacking.

This brief overview of commons-based legal regimes shows that commons have been a durable transcultural institution for assuring that people can have direct access to, and use of, natural resources, or that government can act as a formal trustee on behalf of the public interest. The regimes have acted as a kind of counterpoint to the dominant systems of power because, though the structures of State power have varied over the centuries (tribes, monarchs, feudalism, republics), using a coastal region or forest or marshlands as legally recognized commons addresses certain ontological human wants and needs that endure: the need to meet one’s subsistence needs through cooperative uses of shared resources; the expectation of basic fairness and respectful treatment; and the right to a clean, healthy environment. In this sense, the various historical fragments of what may be called “commons law” constitute a legal tradition that can advance human environmental rights.

The history of commons law also reveals a constellation of tensions between power and the Commons. For example, in modern times the State/Market duopoly is threatened by the rise of new commons because the latter are capable of exposing the limited competencies of the State and Market, and “out-compete” one or both of them in meeting people’s needs. A commons may

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<sup>403</sup> Shane Chaddha, *Hardin Goes to Outer Space—“Space Enclosure,”* at 2 (Feb. 8, 2011), also available at <http://ssrn.com/abstract=1757903> (accessed July 26, 2011); see also GYULA GÁL, *SPACE LAW 200* (trans. I. Móra, 1969) (“It results from the *res omnium communis* character that such stuffs of cosmic origin can be appropriated by the exploiting state without acquiring sovereignty over the given celestial body. Exploitation of the fish of the high seas and the minerals of the sea-bottom rests on the same legal ground.”); GLENN H. REYNOLDS & ROBERT P. MERGES, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* 80 (2d ed., 1997) (“[T]he conclusion may be drawn that States and other natural and juridical persons have the right of free and equal access to space environment . . . Moreover, their rights are also extended to exploration, exploitation, and use.”).

<sup>404</sup> Shane Chaddha, *A Tragedy of the Space Commons?* (Apr. 8, 2010), <http://ssrn.com/abstract=1586643> (accessed July 26, 2011).

<sup>405</sup> CLEVELAND, *supra* note 399, at 3; see also H. A. BAKER, *SPACE DEBRIS: LEGAL AND POLICY IMPLICATIONS* 10 (1988).

<sup>406</sup> Chaddha, *supra* note 403, at 3; see also MANCUR OLSEN, *THE LOGIC OF COLLECTIVE ACTION* 2 (1971) (asserting that if members of a large community rationally seek to maximize their personal welfare, they will not act to achieve their common or group objectives unless there is either coercion to force them to do so, or some separate incentive distinct from the benefits of the group objective).

siphon consumer demand and moral allegiances away from the State/Market system by enabling new types of political self-determination and non-Market self-provisioning. People may be attracted to participate in commons because they may provide greater everyday flexibility, social satisfactions, and local responsiveness than existing, concentrated State or Market bureaucracies. The leaders of State and Market are likely to be displeased by citizens and consumers who “migrate” their energies and allegiances to the Commons lest they diminish industry revenues, economic growth, and taxes.

The rise of the Commons sector may also aggravate tensions between two visions of law: the State and its commitment to formal, court-administered law, and the commoners and their reliance on vernacular practices that are informal, situational, and custom-based. As formal law becomes subject to elaborate “gaming” by giant corporate players, who routinely use lawyers and lobbyists to shape law to serve their purposes, individual citizens are increasingly alienated or excluded from the legal system, making a mockery of the State’s nominal commitment to equality, due process, and the common good. The commons, by contrast, may deliver greater actual benefits to citizens in ways that are more accessible, participatory, transparent, and accountable than State-based governance.

Finally, the Commons and the modern State/Market system may clash because each embodies a different set of ontological and epistemological premises.<sup>407</sup> The State/Market alliance has its own implicit vision of people as rational, utility-maximizing citizen-consumers who believe in the benefits of technological progress and ever-rising Gross Domestic Product. Its system of formal law rests on a foundation of positivism, behavioralism and administrative regularity, and therefore tends to be perplexed by the very idea of the commons. On the other hand, the State/Market has important roles to play in serving as public trustee of many common assets, in stopping enclosures of the Commons, and in setting general protocols, boundary conditions, and legal rules for new commons to arise. We elaborate on this vision and its complications in Section V.

### C. Social Scientists Rediscover the Commons

Despite the long history of the Commons and its manifest significance, modern economics has largely dismissed the Commons as an historical curiosity. Perhaps it was inevitable that as post-World War II Market culture soared to new heights, the Commons would be seen as having little relevance—or, as one scholar put it, as “no more than the institutional debris of societal arrangements that somehow fall outside modernity.”<sup>408</sup> Two leading introductory economics textbooks—Samuelson & Nordhaus<sup>409</sup> and Stiglitz & Walsh<sup>410</sup>—entirely ignore the commons.

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<sup>407</sup> See, e.g., USKALI MÄKI, *THE ECONOMIC WORLD VIEW: STUDIES IN THE ONTOLOGY OF ECONOMICS* (2001); see also James Quilligan, *The Failed Metaphysics Behind Private Property: Sharing Our Commonhood, Kosmos*, May 4, 2011, <http://www.kosmosjournal.org/kjo2/library/kosmos-articles/failed-metaphysics.shtml> (accessed July 27, 2011); Maeckelbergh, *supra* note 249.

<sup>408</sup> Arun Agarwal, *Common Resources and Institutional Sustainability*, in NATIONAL RESEARCH COUNCIL, COMMITTEE ON THE HUMAN DIMENSIONS OF GLOBAL CHANGE, *THE DRAMA OF THE COMMONS* 42 (2002).

<sup>409</sup> PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, *ECONOMICS* (17th ed. 2001).

<sup>410</sup> JOSEPH E. STIGLITZ & CARL E. WALSH, *ECONOMICS* (3d ed. 2002).

Much of the dismissive neglect of the Commons can be traced to an influential 1968 essay that biologist Garrett Hardin published in the journal *Science*:<sup>411</sup> *The Tragedy of the Commons*, a parable about the inevitable collapse of any shared resource. If you have a shared pasture upon which many herders can graze their cattle, Hardin wrote, no single herder will have a rational incentive to hold back. And so he will put as many cattle on the physical commons as possible, take as much as he can for himself. The pasture will inevitably be over-exploited and ruined. A “tragedy.”

The tragedy narrative implied that only a regime of private property rights and markets could solve the tragedy of the Commons. If people had private ownership rights, they would be motivated to protect their grazing lands.

But Hardin was not describing a commons. He described a scenario in which there were no boundaries to the grazing land, no rules for managing it, and no community of users. That is not a commons; it is an open-access regime or free-for-all. A commons has boundaries, rules, social norms, and sanctions against free-riders. A commons requires that there be a community willing to act as a steward of a resource. Hardin’s misrepresentation of actual commons stuck in the public mind, however, and became an article of faith thanks to economists and conservative pundits who saw the story as a useful way to affirm their anthropocentric ethics and economic beliefs. So, for the past two generations the Commons has been widely regarded as a failed paradigm.

Happily, contemporary scholarship has done much to rescue the Commons from the memory hole to which it was consigned by mainstream economics. Nobel Laureate Elinor Ostrom of Indiana University is the most prominent academic to rebut Hardin and, over time, rescue the Commons as a governance paradigm of considerable merits. Sometimes working with political scientist Vincent Ostrom, her husband, Elinor Ostrom’s work has concentrated on the institutional systems for governing “common-pool resources” (CPRs)—collective resources over which no one has private property rights or exclusive control, such as fisheries, grazing lands, and groundwater, all of which are certainly vulnerable to a “tragedy of a commons” outcome.

Writing in her path-breaking book, *Governing the Commons*, published in 1990, Professor Ostrom stated the challenge she was addressing:

The central question in this study is how a group of principals who are in an interdependent situation can organize and govern themselves to obtain continuing joint benefits when all face temptations to free-ride, shirk, or otherwise act opportunistically. Parallel questions have to do with the combinations of variables that will (1) increase the initial likelihood of self-organization, (2) enhance the capabilities of individuals to continue self-organized efforts over time, or (3) exceed the capacity of self-organization to solve CPR problems without eternal assistance of some form.<sup>412</sup>

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<sup>411</sup> Garrett Hardin, *The Tragedy of the Commons*, 162 *SCIENCE* 1243 (Dec. 13, 1968).

<sup>412</sup> OSTROM, *supra* note 20, at 42.

Ostrom's achievement has been to describe how many communities of resource-users can and do develop shared understandings and social norms—and even formal legal rules—that enable them to use the CPRs sustainably over the long term. Some commons, for example—such as the Swiss villagers who manage high mountain meadows in the Alps, and the Spaniards who developed *huerta* irrigation institutions—have flourished for hundreds of years, even in periods of drought or crisis. The success of such commons can be traced to their social authority and administrative capacities to allocate access and use rights to finite resources, among other factors such as responsible rules for stewardship and effective punishments for rule-breakers. *Governing the Commons* has had a far-reaching impact on the American legal academy, particularly in general property theory, environmental and natural resource law, and, since the mid-1990s, intellectual property.<sup>413</sup>

Scholars of CPRs and common property (who now associate their work under the more general term “commons”<sup>414</sup>) have developed a formidable literature exploring how common-pool resources can be managed as commons: What property rights in land or water or forests work well in a particular circumstance? What participatory systems and sanctions are needed? What interactions with statutory law and with markets affect the performance of commons? Analyses of these questions have shown how pastoralists in semi-arid regions of Africa, lobstermen in the coastal coves of Maine, communal landholders in Ethiopia, rubber tappers in the Amazon, and fishers in the Philippines, have negotiated cooperative schemes to manage their shared resources in sustainable ways.

In *Governing the Commons*, Ostrom identified seven basic design principles of successful commons that are now regarded as a default framework for discussion, plus an eighth principle applicable to complex commons:

1. ***Clearly defined boundaries.***  
Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.
2. ***Congruence between appropriation and provision rules and local conditions.***  
Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.

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<sup>413</sup> Carol M. Rose, *Ostrom and the Lawyers: The Impact of Governing the Commons on the American Legal Academy* (Arizona Legal Studies Discussion Paper No. 10-37, October 31, 2010), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1701358](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1701358) (accessed July 27, 2011).

<sup>414</sup> The study of commons was initially characterized as a study of *common-pool resources*; but in 2003 the International Association for the Study of Common Property changed its name to the International Association for the Study of the Commons. See *Time to Change the IASCP Mission Statement?* (CPR DIGEST 67, Dec. 2003), <http://www.iasc-commons.org/sites/all/Digest/cpr67.pdf> (accessed July 27, 2011).

3. *Collective-choice arrangements.*  
Most individuals affected by the operational rules can participate in modifying the operational rules.
4. *Monitoring.*  
Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.
5. *Graduated sanctions.*  
Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or both.
6. *Conflict-resolution mechanisms.*  
Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.
7. *Minimal recognition of rights to organize.*  
The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.

*For CRPs that are parts of larger systems:*

8. *Nested enterprises.*  
Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Each commons has evolved its own particular rules tailored to the specific “physical systems, cultural views of the world, and economic and political relationships that exist in the setting,” Ostrom has noted.<sup>415</sup> Yet despite profound differences among commons, they tend to exhibit many similarities, she has concluded:

Extensive norms have evolved in all of these settings that narrowly define “proper” behavior. Many of these norms make it feasible for individuals to live in close interdependence on many fronts without excessive conflict. Further, a reputation for keeping promises, honest dealings, and reliability in one arena is a valuable asset. Prudent, long-term self-interest reinforces the acceptance of the norms of proper behavior. None of these situations [small-scale commons studied in *Governing the Commons*] involves participants who vary greatly in regard to ownership of assets, skills, knowledge, ethnicity, race or other variables that could strongly divide a group of individuals.<sup>416</sup>

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<sup>415</sup> OSTROM, *supra* note 20, at 89.

<sup>416</sup> *Id.* at 88-89.

“The most notable similarity of all, Ostrom adds, “is the sheer perseverance manifested in these resources systems and institutions.”<sup>417</sup> She writes: “The resource systems clearly meet the criterion of sustainability [and] of institutional robustness . . . They have endured while others have failed.”<sup>418</sup>

Ostrom has studied some CPRs in modern, industrialized settings, such as institutional collaboration in providing police and other municipal services in major American cities;<sup>419</sup> an inter-governmental collaboration to protect Los Angeles groundwater basins from overuse and ruin;<sup>420</sup> and “new commons” on the Internet.<sup>421</sup> Two critical fora for much of this work has been the Ostrom-founded Workshop on Political Theory and Policy Analysis at Indiana University and the International Association for the Study of the Commons (IASC). A large body of transdisciplinary fieldwork and theoretical studies of international scope are now housed at the Workshop-associated Digital Library on the Commons at Indiana University.<sup>422</sup> However, while a handful of commons scholars have addressed the challenges posed by global common-pool resources such as the atmosphere, most of the “Bloomington school” scholarship has focused on small, subsistence-based commons in rural areas.

Ostrom, it must be emphasized, does not regard her eight design principles as a strict blueprint for successful commons because many contingent, situational factors affect the performance of commons. Rather, she sees the principles as general guidelines. Other scholars have formulated their own lists for sustainable commons, but these factors tend to overlap with Ostrom’s design principles (implicitly affirming them) while organizing them in different ways. Arun Agarwal writes, “[I]t is reasonable to suppose that the total number of factors that affect successful management of commons is greater than 30, and may be closer to 40.”<sup>423</sup> With this

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<sup>417</sup> *Id.* at 89.

<sup>418</sup> *Id.*

<sup>419</sup> Elinor Ostrom & G.P. Whitaker, *Does Local Community Control of Police Make a Difference? Some Preliminary Findings*, 17 AM. J. POL. SCI. 48 (1973).

<sup>420</sup> Instead of allowing a race to over-pump scarce water supplies, government at multiple levels collaborated to establish a governance system that remained, in Ostrom’s words, “largely *in* the public sector without [government] being a central regulator. . . . No one ‘owns’ the basins themselves. The basins are managed by a *polycentric set* of limited-purpose governmental enterprises whose governance includes active participation by private water companies and voluntary producer associations. This system is neither centrally owned nor centrally regulated.” ELINOR Ostrom, *Public Entrepreneurship: A Case Study in Ground Water Basin Management* (dissertation, 1965), at 315-16; <http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/3581/eostr001.pdf?sequence=1> (accessed July 27, 2011).

<sup>421</sup> Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts and Facilities: Information as a Common-Pool Resource*, 66 L. & CONTEMP. PROBS. 111 (Winter/Spring 2003).

<sup>422</sup> *See* <http://dlc.dlib.indiana.edu> (accessed July 27, 2011).

<sup>423</sup> Agarwal, *supra* note 408, at 65. Agarwal was comparing Ostrom’s studies of the Commons with those by E.O. WADE, *VILLAGE REPUBLICS: ECONOMIC CONDITIONS FOR COLLECTIVE ACTION IN SOUTH INDIA* (1988) and J. BALAND AND J. PLATTEAU, *HALTING DEGRADATION OF NATURAL RESOURCES: IS THERE A ROLE FOR RURAL COMMUNITIES* (1996).

caveat, we note the following list of significant factors that condition the management of successful commons:<sup>424</sup>

*The character of the resource* determines whether it is finite and depletable, such as a forest or the atmosphere, for example; or whether it is self-replenishing to some degree, such as a fishery; or “limitless” in scale, such as language, knowledge traditions and Internet resources.

*The geographic location and scale* of a resource will dictate different types of management. A village well requires different sorts of management rules than a regional river or global resource like the oceans.

*The experience and participation of commoners* matters. Indigenous communities that have centuries-old cultural traditions and practices will know far more about their resource than outsiders. Long-time members of free software networks will be more expert at designing programs and fixing bugs than newcomers.

*Historical, cultural and natural conditions* can affect the workings of the commons. A nation that has a robust civic culture is more likely to have healthier commons institutions than those where civil society is barely functional.

*Reliable institutions* that are transparent and accessible to the commoners matter. Some may be State-sanctioned commons institutions that rely upon official law, such as trusts, while others may be informal, self-organized commons (such as subsistence forests or fisheries) that function below the threshold of conventional law.

*The state of technology.* New technology such as the Internet can facilitate the formation of new commons. But technology can also be a force for artificially restricting access to a shared resource, as it has done with software encryption and content-controls. Much depends upon whether a technology is accessible to commoners and under what terms.

Despite a profusion of important analyses of commons, we hasten to add, a great deal remains unknown or under-developed, both theoretically and empirically, and thus these factors cannot be considered authoritative and complete. As Agarwal explained when assessing the state of commons scholarship in Agarwal noted in 2003: “One significant reason for divergent conclusions of empirical studies of commons is that most of them are based on the case study method [which itself exhibits a] multiplicity of research designs, sampling techniques and data collection methods. . . . It is fair to suggest that existing work has not yet fully developed a theory of what makes for sustainable common-pool resource management.”<sup>425</sup> Not surprisingly, there are few generalized conclusions about how to foster what we call the “Commons sector.” Public policy, for its part, barely recognizes the Commons as a governance alternative.

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<sup>424</sup> This list is derived from SILKE HELFRICH ET AL., THE COMMONS: PROSPERITY BY SHARING (2011), <http://www.boell.de/economysocial/economy/economy-commons-report-10489.html> (accessed July 27, 2011).

<sup>425</sup> *Id.* at 45.

The dream of a unifying theory may indeed be a chimera, precisely because the success of commons seems to reside in their highly particularistic governance rules and circumstances. “The differences in the particular rules take into account specific attributes of the related physical systems, cultural views of the world, and economic and political relationships that exist in the setting,” Ostrom writes. “Without different rules, appropriators could not take advantage of the positive features of a local CPR or avoid potential pitfalls that might be encountered in one setting but not others.”<sup>426</sup> For mountain commons, the uncertainty may be the timing or location of rainfall. For forest commons, it may be the peculiar habits of wild pigs or the growth cycle of trees. Local commoners are more likely to know such things, and have a greater personal motivation in dealing with them, than remote politicians and bureaucrats.

Even apart from the particularity of commons or the case study method, commons scholarship faces some vexing methodological quandaries. For example, in studying the success of a given commons, it is not necessarily self-evident which factors (such as cultural values, geography, and social practices) are “contextual” and which are primary. Researchers may disagree about which methodologies are most appropriate for gathering and assessing data from the field, and therefore whether comparisons between commons are valid. These sorts of issues make it difficult to formulate broad generalities about commons as they now exist.

However, the empirical academic descriptions of commons as they now exist suggest an array of normative attributes that we believe can and should be incorporated into the governance of ecological commons, from local to global. Implicit in the academic literature on commons is a set of normative values such as inclusive participation, basic fairness, transparent decision-making, and respect for all members of a community. While social scientists may be understandably chary of advocating such principles as a normative template for commons, given the variations in the political economy that enframes most commons, we have no such inhibitions. If the Commons is to serve as a vehicle for improved ecological governance, we must balance the particularities and context of each commons with general principles of ecological sustainability and human rights. In Section V, we elaborate on those principles.

Ostrom, for her part, recognizes that studying commons can be difficult because they tend to be nested within larger systems of economic and political governance, and thus can be affected by many exogenous variables. Her theoretical solution to this problem is *polycentrism*, the idea that nested tiers of governance provide the best way to manage resources. “Each unit [of governance] may exercise considerable independence to make and enforce rules within a circumscribed scope of authority for a specified geographical area,” Ostrom notes<sup>427</sup> “In a polycentric system, some units are general-purpose governments, whereas others may be highly specialized. Self-organized resource

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<sup>426</sup> OSTROM, *supra* note 20, at 89.

<sup>427</sup> Interview by Paul Dragos Agilicia with Elinor Ostrom, *Rethinking Governance Systems and Challenging Disciplinary Boundaries*, at 12 (Nov. 7, 2003), *transcript available at* [http://mercatus.org/sites/default/files/publication/Rethinking\\_Institutional\\_Analysis\\_-\\_Interviews\\_with\\_Vincent\\_and\\_Elinor\\_Ostrom.pdf](http://mercatus.org/sites/default/files/publication/Rethinking_Institutional_Analysis_-_Interviews_with_Vincent_and_Elinor_Ostrom.pdf) (accessed July 27, 2011).



governance systems, in such a system, may be special districts, private associations, or parts of a local government.”<sup>428</sup>

Polycentric governance helps assure that decision-making can occur at the location closest to the resource and commoners themselves, which tends to enhance the quality of decision-making and its legitimacy. This principle is known as *subsidiarity*, which holds that governance should occur at the lowest, most decentralized level possible in order to be locally adaptive; one-size-fits-all governance structures tend to be less effective, less flexible, and more coercive.

While there are inefficiencies and redundancies in polycentric governance systems— chiefly through overlapping authority, resources, and information—there also is a greater robustness because sub-optimal performance at one level of governance can be compensated for by other tiers of governance. Also, polycentric systems tend to share information more easily and therefore have greater access to local knowledge and better feedback loops. This enhances the quality of decision-making, institutional learning, and system resilience.<sup>429</sup>

As a system that has evolved in response to resource-users themselves, a polycentric system is open to diverse sources of information and innovation, and thus is less dependent on any single, rigid policy approach or ideology. Polycentrism avoids the dysfunctionality of centralized, top-down administration by “rational experts” who impose overly broad solutions on everyone. Rather, trial-and-error experimentation from the “bottom up” allows the development of rule-sets tailored to the particular resource, community, and local circumstances, and that can evolve in the future.

The commons scholarship pioneered by Professor Ostrom and hundreds of academics has rescued the commons from the misleading “tragedy” myths while building invaluable analytic models for understanding how commons function. In so doing, scholars have helped validate the Commons as a viable, practical way to manage resources sustainably. Needless to say, the complexity embodied by polycentrism makes it extremely difficult to tease out general principles—a point to which we return in Section V. In any case, polycentrism and the academic commons literature have remained largely confined to the academy and a handful of policy professionals; they have not aspired to speak to the lay public or the press, let alone political activists.<sup>430</sup>

#### **D. The Rise of the Commons Movement Globally**

Commons scholars have historically shown little interest in political or economic ideology, or in instigating political change through activist campaigns. It therefore comes as something of a surprise that, in a separate universe beyond the perimeter of traditional commons scholarship, a

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<sup>428</sup> *Id.* at 12-13

<sup>429</sup> ELINOR OSTROM, UNDERSTANDING INSTITUTIONAL DIVERSITY 281-86 (2005).

<sup>430</sup> This disinclination to “get political” or to affiliate with the political struggles of commoners may be changing. The 2011 conference of the International Association for the Study of the Commons was co-hosted by an activist-minded group in India, the Foundation for Ecological Security; and Professor Ostrom, since winning her Nobel Prize, has lent her name to a number of efforts seeking political or policy change.

diverse global movement of commoners began to emerge in the late 1990s and early 2000s.<sup>431</sup> This commons-based advocacy—for indigenous culture, subsistence commoning, urban spaces, free software, open-access scholarly publishing, shareable videos and music, and much else—has been less interested in academic theories of the commons, however potentially apt, than on improvisational innovation in the *building* of practical new models of commoning outside the control of the State-Market.

Some commoners are interested mostly in cheap, non-Market self-provisioning, period, while others see themselves participating in a larger political and cultural struggle to save market capitalism from itself. In any case, the scope, energy, and creativity of the global commons movement suggest the appearance of something quite new and something that is likely to be a powerful force in the future, especially now that the commons-friendly Internet is globally pervasive. The power of this movement stems from the fact that its motivations are political, cultural, and economic all at the same time. And it got a fortuitous boost when, in 2009, Professor Ostrom won a Nobel Prize “for her analysis of economic governance, especially the commons.”

The global commons movement, comprised of direct practitioners engaged in political struggles, have developed some very different ways of understanding the commons than academics. In a sense, their commons projects speak more eloquently than any of their (infrequent) books and treatises. Despite manifest differences among commoners in their commons structures and practices, however, they tend to share a general set of ontological commitments—to participation, openness, social equity, ecological respect, and human rights.

Though not without political implications, commons projects tend to escape ideological capture perhaps because they have a kind of “pre-political” character. As German commons advocate Silke Helfrich notes, one of the great virtues of the commons is that it “draws from the best of all political ideologies.” *Conservatives* like how the commons promotes responsibility; *liberals* are pleased with the focus on equality and basic social entitlement; *libertarians* like the emphasis on individual initiative; and *leftists* like the idea of limiting the scope of the Market. As Helfrich points out, it is important to realize that “the commons is not a discussion about objects, but a discussion about *who we are and how we act*. What decisions are being made about *our* resources?”<sup>432</sup> This kind of discussion may not easily conform to established political categories, especially at the local level, but it is very much needed in the most practical sense.

Notwithstanding the trans-ideological appeal of the Commons, commoners tend to be skeptical of the State and the Market if only because commoning itself tends to run athwart the laws enacted by the State/Market regime—e.g., copyright law which makes many types of online sharing problematic, and property and trade law which makes collective management of land and other natural resources difficult. Thus it is not unusual for some commoners to become politicized as they seek to defend their traditional community practices (even if other commoners, such as free

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<sup>431</sup> David Bollier, *A New Politics of the Commons*, 15 RENEWAL No. 4, 10-16 (2007).

<sup>432</sup> Quoted in DAVID BOLLIER, THE INTERNATIONAL COMMONS CONFERENCE: AN INTERPRETIVE SUMMARY (Nov. 1-2, 2010), [http://www.boell.de/downloads/economysocial/ICC\\_report--Bollier.pdf](http://www.boell.de/downloads/economysocial/ICC_report--Bollier.pdf) (accessed July 28, 2011).

software programmers and other tech commoners, may feel quite “in sync” with Market culture and its values.) Most share a skepticism of the Market fantasies of unlimited growth, perfect control through technology, and faith in “bigger, better, faster” as a mode of transcendence. They generally reject claims that absolute private property rights should prevail and that commercial market outcomes should trump sustainability, equality, fairness, and humane values.

As a strange admixture of centrists, conservatives, hobbyists, libertarians, social democrats, socialists, subsistence peasants, and the apolitical, most commoners eschew the search for a “unified-field theory” of political philosophy. That smacks of ideology and, if nothing else, commoners are focused on “what works” in their unique circumstances. Some commoners function exclusively in local contexts; others are locally oriented but connected to transnational networks; and still others traverse a mix of local, national, regional, and global networks, and have a well-developed commitment to the commons *qua* commons. Theory is seen as seriously lagging behind social practice, goes the thinking, so useful knowledge is better gleaned from vernacular practice than from academics or other experts. While there are perhaps a handful of commons “stars”—free software advocate Richard Stallman, copyright scholar-activist Lawrence Lessig, Indian activist Vandana Shiva, and author Raj Patel come to mind—the movement’s leadership typically tends to be decentralized and diversified, not charismatic and coordinated.

To understand why the Commons is a compelling governance solution, therefore, one must first become familiar with some of the leading types of commons and noteworthy projects that currently exist. In part because commons can be evaluated from so many perspectives (e.g., the specific resource being managed, their scale and geographic location, their governance and legal structures, types of community norms, etc.), there is no canonical or comprehensive taxonomy of them.<sup>433</sup> That said, however, one needs to develop a rough “mental map” of the terrain and see how it differs from the world of “traditional commons” scholarship where it does.<sup>434</sup>

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<sup>433</sup> One of the earliest and most comprehensive attempts to make systematic sense of the proliferation of “new commons” is commons scholar Charlotte Hess, *Mapping the New Commons* (July 2008), [http://papers.ssrn.com/sol3/papers.cfm?Abstract\\_id=1356835](http://papers.ssrn.com/sol3/papers.cfm?Abstract_id=1356835) (accessed July 28, 2011).

<sup>434</sup> As Charlotte Hess has noted: “Much of the impetus of new commons today is considerably beyond the academic application of traditional commons analysis to new types of shared resources. The upsurge of new commons literature documents a new way of looking at what is shared or what *should be* shared in the world around us. It focuses on who shares them, how we share them, and how we sustain them for future generations.” *Id.* at 1.

In this spirit, we offer the following suggestive (i.e., not comprehensive) overview of the commons in six broad categories: subsistence commons, indigenous peoples' commons, Internet commons, social/civic commons, businesses embedded in commons, and State-based commons.<sup>435</sup>

### 1. *Subsistence Commons*

These commons, sometimes known as “traditional commons,” revolve around forests, fisheries, water, arable land, and wild game, among many other natural resources. In many cases, these commons have long histories rooted in specific communities and bioregions. Rights of access and other rules tend to be based on informal social customs rather than on formal law or regulatory supervision. So, for example, in the *Zanjera* irrigation communities in the Philippines, landowning farmers and their tenant farmers (who are enabled to acquire land and irrigation water if they are without money) join together to build common irrigation works for land that was previously dry.<sup>436</sup> In Mexico, a communal land system known as *ejidos* was the foundation for decentralized, locally controlled peasant and indigenous farming, forestry and other land use—until the NAFTA trade treaty forced its elimination.<sup>437</sup>

In New Mexico, native Hispanic-Americans continue to manage *acequias* (a community-operated waterway system) as a “bio-cultural” institution for water irrigation, a system begun by their forebears in the early 1600s under Spanish colonization.<sup>438</sup> Under the sanction of State Law, *acequias* in New Mexico blend community life, culture, and local politics with stewardship of the scarce waters of the arid region. Community members are expected to participate in the annual cleaning of the water ditches and other shared responsibilities, and allocations of the limited water are made without over-exploiting it, even in times of drought. The *acequias* have been vital to soil and water conservation, aquifer recharge, wildlife and plant habitat preservation, and energy conservation—and stand in stark counterpoint to the insatiable water demands of nearby towns and real estate developers.

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<sup>435</sup> A single taxonomy of commons is unlikely given that a commons may arise whenever a self-styled community decides that it wishes to manage a resource in a collective manner, with a special regard for equitable access, use, and sustainability. For example, there is a motley clan of surfers at the Banzai Pipeline beach on the North Shore of Oahu, Hawaii, called “The Wolfpak,” the subject of a documentary film, *Bustin’ Down the Door*. The Wolfpak constitutes a commons because it is a social collective that manages usage of a scarce local resource—great surfing waves—that its members cherish and use themselves. Wolfpak members are protective of the waves and each other, and have evolved their own rules for the orderly, fair use of the resource and community stability. According to Matt Higgins, *On North Shore of Oahu, Enforcing Respect for Locals and the Waves*, N.Y. TIMES, Jan. 23, 2009, members of the Wolfpak “determine which waves go to whom, and punish those who breach their code of respect for local residents and the waves.” <http://www.nytimes.com/2009/01/23/sports/othersports/23surfing.html?scp=1&sq=wolfpack&st=cse> (accessed July 28, 2011).

<sup>436</sup> See OSTROM, *supra* note 20, at 82-88.

<sup>437</sup> See MARÍA TERESA VÁSQUEZ CASTILLO, LAND PRIVATIZATION IN MEXICO: URBANIZATION, FORMATION OF REGION AND GLOBALIZATION IN EJIDOS (2004); THE TRANSFORMATION OF RURAL MEXICO: REFORMING THE EJIDO SECTOR (Wayne A. Cornelius & David Myhre, eds., 1998).

<sup>438</sup> See, e.g., SYLVIA RODRIGUEZ, ACEQUIA: WATER SHARING, SANCTITY AND PLACE (2006); STANLEY G. CRAWFORD, MAYORDOMO: CHRONICLE OF AN ACEQUIA IN NORTHERN NEW MEXICO (1988).

In dozens of small villages in India's Andhra Pradesh region, *dalit* women have emancipated themselves from their jobs as bonded laborers on farms by establishing their own seed-sharing commons, rejuvenating poor farm lands near their villages.<sup>439</sup> Their march to food sovereignty began with the village sanghams, self-organized voluntary associations through which the women found and then replicated many "lost" millet-based grain seeds that generations of villages had grown before the Green Revolution displaced the seeds. The traditional millet crops are far more ecologically suited to the semi-arid landscape of the region; the biodiverse farming methods that the women have resurrected use dozens of nearly forgotten seeds that yield more reliable harvests and more nutritious food supplies than commercial seeds, often genetically modified and requiring expensive synthetic pesticides and fertilizers. The shift from Market-based monoculture crops to seed-sharing cooperatives and traditional farming has enabled families to become virtually self-sufficient in food.

Subsistence commons may appear small and inconsequential in the bigger scheme of things, but it is important to realize that an estimated two billion people in poor, rural parts of the world depend upon commons of forests, fisheries, and other natural resources for their daily food.<sup>440</sup> Conventional economists are prone to overlook the importance of subsistence commons because they lie outside the Market, and often do not entail formal property rights or Market exchange. Yet subsistence commons play a vital role in meeting people's basic human needs, and generally do so with a greater attentiveness to long-term ecological sustainability and social equity than conventional markets.

## 2. *Indigenous Peoples' Commons*

These commons, based on traditional ecological knowledge, vary immensely and cannot be easily categorized because of the enormous variations in landscapes, tribal cosmologies, cultural practices, and so forth. That said, ecologist Fikret Berkes has called traditional ecological knowledge "a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environments."<sup>441</sup> Indigenous commons are arguably some of the "purest" commons because they often have evolved in isolation from dominant, external systems of power over the course of centuries or longer. Thus indigenous peoples generally

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<sup>439</sup> See Jaideep Hardikar, *Crops of Truth*, THE NEW INTERNATIONALIST, Sept. 24, 2010, <http://www.newint.org/features/2010/09/01/seeds-rural-south-india> (accessed July 28, 2011); Posting of David Bollier, *The Seed-Sharing Solution*, to Bollier.org, <http://bollier.org/seed-sharing-solution> (Jan. 19, 2011); Deccan Development Society, <http://ddsindia.com/www/default.asp> (accessed July 28, 2011).

<sup>440</sup> Press release for International Association for the Study of Commons, Policy Forum, 12<sup>th</sup> Biennial conference, Gloucestershire, Cheltenham, England, July 14-18, 2008, <http://resources.glos.ac.uk/news/politicalvoice.cfm> (accessed July 28, 2011). See also Ruth Meinzen-Dick, et al., *Securing the Commons*, CAPRI (CGIAR Systemwide Program on Collective Action and Property Rights), Policy Brief No. 4, May 2006, at 1 ("Over 1.6 billion people live in and actively use the 30% of the global land mass that is forest and close to 1 billion people the 40% of the land mass that is drylands. These areas, although often classified by national law as public lands, are in many places actively managed by their inhabitants, very often through common property arrangements.")

<sup>441</sup> FIKRET BERKES, SACRED ECOLOGY: TRADITIONAL ECOLOGICAL KNOWLEDGE AND RESOURCE MANAGEMENT 8 (1999).

regard the earth as an animate being—“Mother Earth” or “Pachamama” in Latin America—and not as an inert object to be exploited as any individual or group may see fit. Indigenous peoples generally see themselves as having enduring relationships of reciprocity with their local ecosystems that they express and reinforce through rituals that affirm continuity between one’s ancestors, the present generation, and future generations.

“Tribal regulation and stewardship of resources are interwoven with religious teachings, interfamilial covenants, and family place within society,” write Mary Christina Wood and Zachary Welcker.<sup>442</sup> “Tribal leaders also speak of natural law, which designates them as stewards of plants, animals, water and air. Natural law is premised on the attainment of balance in nature, as practiced through ancient stewardship covenants with Mother Earth. This legal structure has maintained a remarkable rhythm of life for generations.”<sup>443</sup> Among indigenous cultures, ecological management is regarded as a *trust* that confers affirmative duties on the community to protect resources for future generations, both as a matter of religious conviction and tribal law.

As suggested by Bolivia’s embrace of “Nature’s rights,” discussed in Section II, indigenous commons implicitly challenge some of the philosophical premises of modernity itself and therefore posit a quite different set of human relationships with nature. As Professor N. Bruce Duthu writes:

The idea of “property” in the Western tradition . . . implies an orientation toward the Market use of resources without special regard for the long-term ecological consequences or the social meanings of nature to people; the price system presumes a basic equivalence among like-priced elements of nature. Societies that have a more direct, subsistence relationship to nature may therefore find property- and Market-based sensibilities alien and even offensive.<sup>444</sup>

This background helps explain why the modern, industrialized nations of the world dismiss out of hand Bolivia’s proposed United Nations declaration to recognize Nature’s rights; it presumes a set of relationships to Earth that secular, industrialized market societies cannot fathom.<sup>445</sup>

Multinational corporations often aspire to own the agro-ecological or ethno-botanical knowledge developed by indigenous peoples over centuries, which has provoked charges of “bio-piracy.”<sup>446</sup> This has prompted many indigenous peoples to take affirmative steps to develop legally

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<sup>442</sup> Mary Christina Wood & Zachary Welcker, *Tribes as Trustees Again (Part I): The Emerging Tribal Role in the Conservation Trust Movement*, 32 HARV. ENVTL L. REV. 2 (2008), 385.

<sup>443</sup> *Id.*

<sup>444</sup> N. Bruce Duthu, *The Recognition of Intergenerational Ecological Rights and Duties in Native American Law*, in WESTON & BACH, *supra* note 22, at Appendix A, Background Paper No. 3. *Also available at* [http://www.vermontlaw.edu/Documents/CLI%20Policy%20Paper/BP\\_03%20-%20\(Duthu\).pdf](http://www.vermontlaw.edu/Documents/CLI%20Policy%20Paper/BP_03%20-%20(Duthu).pdf) (accessed July 28, 2011)

<sup>445</sup> On Nature’s rights, *see supra* text accompanying notes 132-172.

<sup>446</sup> *See, e.g.*, VANDANA SHIVA, PROTECT OR PLUNDER? UNDERSTANDING INTELLECTUAL PROPERTY RIGHTS (2001).

defensible “traditional knowledge (TK) commons” to prevent outsider confiscation of an indigenous community’s traditional knowledge and attendant environmental rights.<sup>447</sup> Another commons-based strategy to prevent bio-piracy and inappropriate patents is the Traditional Knowledge Digital Library, an Indian database of public-domain medical knowledge of remedies and treatments that can be used to challenge patent applications which seek to privatize traditional knowledge.<sup>448</sup>

### 3. *Internet Commons*

As we explored briefly in Section III, the rise of the Internet over the past twenty years has propelled the commons paradigm forward as a functional alternative to Market-based forms of property and resource management in online spaces. In digital commons, enormous value is being created by large numbers of people freely interacting with each other without the hope or expectation of financial rewards. Money and markets do not necessarily drive creative activity and wealth-creation in online contexts. Life on the Internet is demonstrating, in the words of Harvard law professor Yochai Benkler, that “behaviors that were once on the periphery—social motivations, cooperation, friendship, decency—move to the very core of economic life.”<sup>449</sup> “What we are seeing now is the emergence of more effective collective action practices that are decentralized but do not rely on either the price system or a managerial structure for coordination.”<sup>450</sup>

Benkler’s term for this phenomenon is “commons-based peer production.” By that, he means systems that are collaborative and non-proprietary, and based on “sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other.”<sup>451</sup> There are countless examples of these phenomena,<sup>452</sup> from the 36,000 citizen-journalists who contribute articles to Ohmynews.org, a major news publication in South Korea; to the millions of socially minded travelers who use the Couchsurfing website to arrange free lodging and hospitality across the world; to the amateur-volunteers who help NASA classify the craters of Mars through online collaboration. The commons paradigm is being enacted by the tens of thousands of people

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<sup>447</sup> ELAN ABRELL ET AL., NATURAL JUSTICE, IMPLEMENTING A TRADITIONAL KNOWLEDGE COMMONS: OPPORTUNITIES AND CHALLENGES (2009), <http://www.naturaljustice.org/images/naturaljustice/implementing%20tkc.pdf> (accessed July 28, 2011).

<sup>448</sup> See <http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng> (accessed July 28, 2011).

<sup>449</sup> BENKLER REMARKS AT COMMONS SUMMIT, DUBROVNIK, CROATIA, JUNE 15, 2007.

<sup>450</sup> *Id.* at 63.

<sup>451</sup> *Id.* at 60.

<sup>452</sup> A dizzying array of such projects are described in Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy* (2008); Clay Shirky, *Here Comes Everybody: The Power of Organizing without Organizations* (2008); Jonathan Zittrain, *The Future of the Internet and How to Stop It* (2008); and Yochai Benkler, *The Wealth of Networks* (2006). More details on Couchsurfing can be found at <http://www.couchsurfing.org>; on NASA Clickworkers, in Benkler, at 69-70; on Wikipedia, in Zittrain, at 127-148; on Creative Commons licenses, at <http://www.creativecommons.org>; on GNU Linux at GNU General Public License at the Free Software Foundation website, <http://www.gnu.org/licenses/gpl.html> (accessed Aug. 31, 2011); and on open access journals, at Directory of Open Access Journals, at <http://www.doaj.org> and Open Access Tracking Project, at [http://oad.simmons.edu/oadwiki/OA\\_tracking\\_project](http://oad.simmons.edu/oadwiki/OA_tracking_project).

who have contributed more than 19 million entries to Wikipedia in 270 languages by 2011, and by the hundreds of thousands of programmers who produce free software and open source software such as GNU Linux, the highly respected computer operating system. It is part of the daily lives of the millions of Internet users, including scholars and governments, who use Creative Commons licenses to authorize the legal copying, sharing and/or modification of their copyrighted works. At this writing, scientists and other scholars have created 6,948 “open access” journals whose works are freely available in perpetuity, bypassing commercial publishers who charge exorbitant subscription fees and assert strict copyright controls.

It is too complicated to explore the implications of commons-based peer production for the economy and society here. But we do wish to note their importance for ecological governance.

It is important first to clear away the misconception that “natural resource commons” and “digital commons” are utterly separate and distinct. This confusion is understandable because natural resources tend to be depletable and rivalrous; by contrast, the content of digital commons can readily expand because the incremental cost of reproduction of digital files is virtually nil. Notwithstanding this important difference, digital and ecological commons are starting to bleed into each other as Internet platforms become a pervasive reality of modern life. It is now routine for people to use the Internet to self-organize themselves into commons to generate new types of shared ecological knowledge and manage natural resources in more open, participatory, and non-bureaucratic ways.

We call these new regimes *eco-digital commons*. They are exemplified by smart phones, cameras on mobile devices, motion sensors, and GPS systems that, when networked through telephone and Internet systems, enable new forms of participatory information-aggregation that take wiki-style mass-participation to new levels. As described in a 2009 report by the Woodrow Wilson International Center for Scholars on “Participatory Sensing,” citizen-scientists using electronic devices have helped collect environmental data for such events as the Audubon Society’s Christmas Bird Count, World Water Monitoring Day, and the University Corporation for Atmospheric Research’s Project BudBurst.<sup>453</sup> In one study, participants took cell-phone photos of plants at the fruiting stage of their life-cycle and then uploaded them to a central website. Large-scale bodies of such citizen-generated information can reveal important information about the state of climate change and other ecological trends.

“Using people’s everyday mobile phones to collect data in a coordinated manner could be applied to scientific studies of various sorts, such as accessing fishermen’s extensive knowledge to identify and locate fish pathologies in the field or documenting the spread of an invasive species.”<sup>454</sup> The report notes that GPS-equipped mobile phones might also be used to photograph diesel trucks as part of a campaign to understand community exposure to air pollution. The North American

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<sup>453</sup> See Jeffrey Goldman et al., *Participatory Sensing: A Citizen-Powered Approach to Illuminating the Patterns That Share Our World* (Woodrow Wilson International Center for Scholars, White Paper, May 2009), <http://www.wilsoncenter.org> (accessed Feb. 25, 2011).

<sup>454</sup> *Id.* at 11.



Butterfly Association invites people to submit counts of butterflies in their locality.<sup>455</sup> Rarebirds.com is a location-based database of bird sightings that draws upon volunteer submissions.<sup>456</sup> New types of self-organized digital commons make it possible to create new bodies community knowledge (such as the Traditional Knowledge database mentioned above), raise alerts about polluters,<sup>457</sup> and advance the standards of ecological stewardship. Types of data that once was too expensive or unreliable to collect may be gathered and applied in conventional policymaking and standards enforcement.

The “open source” ethos recently inspired the System of Rice Intensification (SRI) is a new form of “agroecological innovation.”<sup>458</sup> Farmers in some forty countries, from Sri Lanka to Cuba to India, are using the Internet to develop higher-yielding, ecologically benign rice farming methods. SRI emerged outside the scientific establishment as a kind of “open source” collaboration to escape the dependency on proprietary seeds and pesticides. A key goal is to achieve “knowledge *swaraj*” (“self-rule” in Hindi).<sup>459</sup> Over the past twenty years, some 205,000 Indian farmers have committed suicide as a result of intense market pressures and the loss of their traditional farming practices and identities.<sup>460</sup> In this context, SRI has been a powerful commons-based platform that bypasses regressive Market-based agricultural practices (GMO seeds, chemical fertilizers and pesticides). It has bridged the local and the global, enabling bottom-up, trans-national collaboration to improve rice yields on marginal plots of land around the world.

The power of the eco-digital commons can also be seen in the fledgling open source hardware movement, a diversified set of engineering projects that is applying open source principles to the development of eco-friendly farming machines and tools. One leading advocate for this idea is the Open Source Hardware and Design Alliance, a federation that promotes the user freedoms to copy, share and redistribute innovative ideas.<sup>461</sup> Another leading project, Open Source Ecology,

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<sup>455</sup> See [http://naba.org/butter\\_counts.html](http://naba.org/butter_counts.html) (accessed Feb. 25, 2011).

<sup>456</sup> See <http://www.rarebirds.com> (accessed Feb. 25, 2011).

<sup>457</sup> Citizen-compiled bodies of pollution data have been made by the Right to Know Network, <http://www.rtknet.org> (accessed July 28, 2011); the Sunlight Foundation, <http://www.sunlightfoundation.com> (accessed July 28, 2011); and the UMass Political Economic Research Institute’s report, “Toxic 100: Top Corporate Polluters in the United States.” <http://www.peri.umass.edu/Toxic-100-Table.265.0.html> (accessed July 28, 2011).

<sup>458</sup> See, e.g., System Rice Intensification, [http://en.wikipedia.org/wiki/System\\_of\\_Rice\\_Intensification](http://en.wikipedia.org/wiki/System_of_Rice_Intensification) (accessed Aug. 29, 2011).

<sup>459</sup> C. Shambu Prasad, *Knowledge Swaraj, Agriculture and the New Commons: Insights from SRI in India* (paper for panel on “Knowledge Swaraj and Knowledge Commons,” 13th Biennial Conference, International Association for the Study of the Commons, Hyderabad, India, Jan. 11, 2010).

<sup>460</sup> The Center for Human Rights and Global Justice, NYU Law School estimated in a 2011 report that more than 250,000 Indian farmers had committed suicide over the past 16 years. In 2009, official figures counted 17,368 farmer suicides. CENTER FOR HUMAN RIGHTS AND GLOBAL JUSTICE, EVERY THIRTY MINUTES: FARMER SUICIDES, HUMAN RIGHTS AND THE AGRARIAN CRISIS IN INDIA, [www.chrgj.org/publications/docs/every30min.pdf](http://www.chrgj.org/publications/docs/every30min.pdf) (accessed July 28, 2011).

<sup>461</sup> See <http://www.ohanda.org> (accessed Feb. 25, 2011).

explains the movement's thinking: "By using permaculture and digital fabrication together to provide for basic needs and open source methodology to allow low cost replication of the entire operation, we hope to empower anyone who desires to move beyond the struggle for survival and 'evolve to freedom'."<sup>462</sup>

By helping people inexpensively copy and manufacture useful equipment, Open Source Ecology aims "to define a new form of social organization where it is possible to create advanced culture, thriving in abundance and largely autonomous, on the scale of a village, not nation or state."<sup>463</sup> A signature project is the "Global Village Construction Set"—a set of machines that include a sawmill, pyrolysis oil, solar hearing units, an agricultural micro-combine, a manual well-drilling rig, and many other machines—all of which would be open-source, inexpensive, and locally replicable by design.<sup>464</sup> One of the projects, the LifeTrac, is a low cost, multipurpose, open source tractor that has modular components, hydraulic quick-couplers, lifetime design, and design-for-disassembly.<sup>465</sup>

Yet another example of digital technologies improving ecological management is the Global Innovation Commons, a massive database archive of energy-saving technologies whose patents have expired, been abandoned or simply have no protection.<sup>466</sup> The idea behind the project is to let entrepreneurs and national governments query the database on a country-by-country basis to identify useful technologies that are in the public domain. Once identified, these technologies for

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<sup>462</sup> See <http://openfarmtech.org/wiki> (accessed Feb. 25, 2011).

<sup>463</sup> As Open Source Ecology explains: "Economy creates culture and culture creates politics. Politics sought are ones of freedom, voluntary contract, and human evolution in harmony with life support systems. Note that resource conflicts and overpopulation are eliminated by design. We are after the creation of new society, one which has learned from the past and moves forward with ancient wisdom and modern technology." [http://opensourceecology.org/wiki/Global\\_Village\\_Construction\\_Set](http://opensourceecology.org/wiki/Global_Village_Construction_Set) (accessed Aug. 3, 2011).

<sup>464</sup> See Global Village Construction Set on the Open Source Ecology website, [http://openfarmtech.org/wiki/Global\\_Village\\_Construction\\_Set](http://openfarmtech.org/wiki/Global_Village_Construction_Set) (accessed Feb. 25, 2011).

<sup>465</sup> See LifeTrac website at <http://opensourceecology.org/wiki/LifeTrac> (accessed Aug. 29, 2011)

<sup>466</sup> David C. Martin, founder of the Global Innovation Commons, points out that a great many patents are simply duplicates of innovations made decades ago. See <http://www.globalinnovationcommons.org/content/> about (accessed Feb. 28, 2011). Patent applications often disguise this fact by using colorful and complicated language, however, and overworked government patent examiners, struggling with limited resources and seeking to avoid legal hassles, often grant new patents that are not truly warranted. The Global Innovation Commons challenges a key rationale for patents—that they are essential in promoting innovation. Patents in fact often serve to *impede* innovative technologies and make them unaffordable—at precisely the time when all countries of the world, rich and poor, need to adopt cutting-edge energy technologies to cut carbon emissions. The World Bank, a partner on this project, has estimated that the technologies in the GIC database could save more than \$2 trillion in potential license fees by enabling countries to choose open, shareable technologies and eschew more expensive proprietary systems. The Global Innovation Commons states: "In the Global Innovation Commons, we have assembled hundreds of thousands of innovations—most in the form of patents—which are either expired, no-longer maintained (meaning that the fees to keep the patents in force have lapsed), disallowed, or unprotected in most, if not all, relevant markets. This means that, as of right now, you can take a step into a world full of possibilities, not roadblocks. You want clean water for China or Sudan—it's in here. You want carbon-free energy—it's in here. You want food production for Asia or South America—it's in here." *Id.*

energy, water and agriculture are prime candidates for being developed at lower costs than patented technologies.

Some may dismiss these eco-digital commons as fringe novelties of marginal significance. We see them as beacons of governance innovation that will increasingly challenge conventional State and Market mechanisms. Despite inevitable resistance, eco-digital commons will surge ahead because, consistent with human rights values, they empower people to take responsibility into their own hands and achieve better, more responsive and flexible solutions.

#### *4. Social & Civic Commons*

There are a wide variety of commons that are ingeniously leveraging our social inclinations to cooperate in order to develop new types of self-provisioning. To the extent that conventional markets are less mindful of their ecological impact and more intent on maximizing consumption, social and civic commons provide new means of humane ecological governance. Some are utterly familiar, such as public libraries, parks, and land trusts. However, there is a wave of innovation going on right now, seen in such as examples as community “tool sheds” that let participants share garden tools, and websites that enable the sharing of books (BookMooch) and household items (Freecycle.org).<sup>467</sup>

The international Time Banking movement lets volunteers earn “time credits” for providing services to people, such as lawn mowing or legal advice, which they can then “spend” for other services.<sup>468</sup> Time Banking has been highly successful in helping elderly and poor people with little money but lots of time, meet basic needs. The systems help people escape from their dependency on markets while building social relationships in a community.

The same applies to blood and organ donation systems, which help people obtain needed blood and organs without the inequities, expense and indignities of treating body parts and plasma as market commodities. A similar ethic animates the Slow Food and Slow Money movements, which are attempting to re-imagine the food supply system and financial markets so that they might become more respectful of personal and community needs, above and beyond the Market. Another growing field of experimentation is trying to establish alternative currencies that can substitute for or complement the “fiat” national or multinational currencies.<sup>469</sup>

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<sup>467</sup> Other examples include collective bicycle programs in such cities as Montreal and London (*see Bicycle Sharing System*, WIKIPEDIA.ORG, [http://en.wikipedia.org/wiki/Bicycle\\_sharing\\_system](http://en.wikipedia.org/wiki/Bicycle_sharing_system) (accessed Aug 7, 2011); Car-sharing Businesses Such as Zipcar, <http://www.zipcar.com> (accessed Aug. 7, 2011); the website <http://www.Share Stuff.com> (accessed Aug. 7, 2011); and the chronicler of the sharing social ethic, <http://www.Shareable.net> (accessed Aug. 7, 2011). For more examples of community-based sharing, see RACHEL BOTSMAN & ROO ROGERS, *WHAT'S MINE IS YOURS: THE RISE OF COLLABORATIVE CONSUMPTION* (2010).

<sup>468</sup> Jonathan Rowe & Ralph Nader, *Time Dollars: The New Currency That Enables Americans to Turn Their Hidden Resource—Time—into Personal Security and Community Renewal* (1992), <http://www.timebanks.org> (accessed July 28, 2011).

<sup>469</sup> Leading examples include Bitcoin, <http://www.bitcoin.org> (accessed July 28, 2011); Flattr, <http://www.flattr.org> (accessed July 28, 2011); Ithaca Hours, <http://www.ithacadhours.info> (accessed July 28, 2011); Metacurrency, <http://www.metacurrency.org> (accessed July 28, 2011); Open Bank Project, <http://www.openbank project.com> (accessed July 28, 2011); and WIR Bank, <http://www.wir.ch> (accessed July 28, 2011)

Social and civic commons do not necessarily have direct ecological implications. But they do foster an ethic of community engagement as well as relationships and styles of practice, that help incubate new models of commons- and rights-based ecological governance. A good example is the Solar Commons, a Phoenix-based project that will use municipal rights-of-way for solar panels to generate and sell electricity. The revenues will be collected by the Solar Commons, a nonprofit trust, and used to support affordable housing.<sup>470</sup>

### 5. *Businesses Embedded in Commons*

It is tempting to try to segregate commons and markets into two entirely different realms. In reality, they often interpenetrate and have mutual dependencies. No market can function without some measure of community stability, culture, and trust; and most commons operate within a larger market and private-property context. In his book, *The Great Transformation*, economist Karl Polanyi showed that, historically, markets were embedded in communities and therefore were subservient to social norms, religious beliefs, and cultural values.<sup>471</sup> It was only in the “Great Transformation” of the 19th Century that markets began to “disembed” themselves from social control and assert their autonomy as the default ordering principle for nature, labor, communities, and culture.

What is happening today (in part because of the Internet) is that communities are reasserting greater sovereignty over the structure and behaviors of conventional markets. They are also creating entirely new types of Market structures that are embedded in communities.<sup>472</sup> Commons of shared values and practices are becoming “hosting environments” for “socially-embedded” businesses. This trend perhaps best exemplified by local agricultural systems (farmers, distributors, retailers, safety compliance coops) that are bypassing national and global vendors.<sup>473</sup> Farmers’ markets, community-supported agriculture (CSAs), the Slow Food movement and local cooperatives are examples of “businesses embedded in commons” (as distinct from national and global businesses whose first loyalties are to capital markets and public investors). Another class of examples are open-source software companies, which depend upon communities of volunteer programmers to produce their software and pioneer new ideas. Hundreds of software vendors such as Red Hat are keenly aware that their business success depends upon respectfully interacting with open-source programming communities (most notably, by respecting the community ethic that code must be legally shareable and modifiable without permission or payment).<sup>474</sup>

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<sup>470</sup> See Solar Commons website at <http://solarcommons.org> (accessed July 28, 2011).

<sup>471</sup> KARL POLANYI, *THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME* (1944).

<sup>472</sup> BOLLIER, *supra* note 229, at ch. 10 (“The New Open Business Models”), at 229-52.

<sup>473</sup> See generally STEVE MARTINEZ, *ET AL.*, LOCAL FOOD SYSTEMS: CONCEPTS, IMPACTS, AND ISSUES (USDA Economic Research Report No. 97, May, 2010), <http://books.google.com/books?id=wVTjIY75WW8C&lpg=PP1&dq=local%20food&pg=PP1#v=onepage&q&f=true> (accessed Aug. 9, 2011).

<sup>474</sup> See STEVEN WEBER, *THE SUCCESS OF OPEN SOURCE* (2004); AND CHRISTOPHER M. KELTY, *TWO BITS: THE CULTURAL SIGNIFICANCE OF FREE SOFTWARE* (2008).

The growing power of commoners as drivers of Market activity can be seen in the new websites that enable ordinary people to band together to finance new products. The popular Kickstarter website lets people invest funds in new projects. Spot.us is a vehicle for user-commissioned journalism. Sellaband hosts fan-financed music. “Crowdsourcing” has become a major way for serious research intermediaries like InnoCentive to service corporate research needs, especially in pharmaceuticals, through decentralized, self-selected participation.<sup>475</sup>

M.I.T. Professor Eric von Hippel has written extensively about how communities of users—e.g., cyclists, windsurfers, amateurs of all sorts—are neglected but powerful sources of R&D innovation for businesses.<sup>476</sup> The idea of center-pivot irrigation sprinklers, Gatorade, the mountain bike, desktop publishing, email and the sports bra were all dreamed up by ordinary people immersed in affinity groups, not by corporate R&D departments. The counter intuitive point is that the Commons is a serious engine of innovation in its own right, often with important Market impact.<sup>477</sup>

With the right enabling structures, commons and markets can be constructively synergistic rather than adversarial. Commoners can readily become co-producers and co-innovators with the Market. But first, markets must decline to enclose the Commons—and commoners must devise the legal frameworks and other systems that give them a shared, protected space for collaboration and generativity.

### 6. *State Trustee Commons*

Even though the Commons is generally seen as a self-organized governance regime that is separate from both the State and Market, it makes sense to recognize the *State trustee commons* as a hybrid category of commons. Pursuant to its many constitutional, statutory, and common law commitments, the State often acts as a formal trustee or steward of common-pool resources, from the airwaves and public lands to federally funded research and national parks. Purists may demur, but we prefer to recognize these trustee or steward initiatives as a distinct class of commons while acknowledging their mixed status—part-State, part-Commons. Where the common-pool resource is of large scale or spans major political boundaries—the atmosphere or the oceans, for example—they would seem especially necessary.

It is important to make this distinction to underscore the political stake of commoners in resources under government control. The State has its own sovereign powers, to be sure, but its many alliances with Market-based constituencies have made it an unreliable steward of ecological

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<sup>475</sup> See InnoCentive website at <http://www.innocentive.com> (accessed July 28, 2011).

<sup>476</sup> See ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* (2005), <http://web.mit.edu/evhippel/www/democ1.htm> (accessed July 28, 2011); see also C.Y. Baldwin and E.A. von Hippel, *Modeling a Paradigm Shift: From Producer Innovation to User and Collaborative Innovation*, (Working Paper, MIT Sloan School of Management 2009), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1502864](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1502864) (accessed July 28, 2011) (“We conclude that innovation by individual users and also open collaborative innovation increasingly compete with—and may displace—producer innovation in many parts of the economy. We argue that a transition from producer innovation to open single user and open collaborative innovation is desirable in terms of social welfare, and so worthy of support by policymakers.”).

<sup>477</sup> David Bollier, *The Commons as a Different Engine of Innovation*, The Illahee Lecture, Portland, Oregon, May 11, 2011, <http://www.bollier.org/commons-different-engine-innovation> (accessed July 28, 2011).

and cultural commons alike, as borne out by the historical record. In Section V, we explore how the State can serve as a more responsible trustee for certain collective resources, and how it can use its powers to sanction new types of commons-based governance approaches. Prominent, for example, could be the *State-sanctioned common assets trust*, a delegation of stewardship authority to better manage water, oil revenues, public lands, and Social Security funds for the public benefit. Another could be *State-supervised rentals* in which government agencies oversee auctions or rentals of common assets, such as the right to harvest fish from fisheries, use the airwaves for broadcasting and telephony, use public lands for mining, grazing and timber, and pollute the atmosphere in specified amounts.

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Irrespective of category, the strength of the Commons as a governance paradigm receptive to human rights values stems from its commitments to a broader array of operative variables—social, economic, ecological—and to its more complex sense of human capacities. Unlike the neoclassical, liberal economic worldview that sees a universe of “individuals” pursuing “rational self-interest” for material gain as an engine of inexorable “progress,”<sup>478</sup> the Commons worldview puts forward a much broader, richer ontology of value. Instead of insisting upon narrowly contrived metrics of value (namely price), the Commons matrix enables us to see more subtle and diverse forms of value—value that is ecologically complex; that cannot necessarily be monetized; that is embedded in human relationships and community; and that embraces collective and long term needs. The ontological frame of the Commons is not an arid theoretical issue, but its primary, practical virtue.

We do not wish to leave the impression, however, that commons are self-actualizing or free from the usual problems of administration, politics, technical challenges, and so forth. Our point is that, as a general paradigm for ecological governance, the Commons offers several critical capacities that are sorely missing from the neoliberal State and Market system:

- the ability to *set and enforce sustainable limits* to resource consumption;
- the capacity to uphold the *inalienability of certain resources and values*, so that markets will not over-exploit or abuse them;
- a *quasi-sovereignty of social control* over shared resources so that the community can assert sustainable, equitable terms of access and use of resources; and
- a *receptivity to the right to a clean and healthy environment*, which commoners are inclined to embrace as a way to fulfill the foregoing ecological and related values.

Together these special capacities suggest a practical way to escape the growth imperative of the contemporary economy, an imperative that lies at the core of so many ecological crises. The Commons can help us escape the growth compulsion, writes commons advocate Silke Helfrich,

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<sup>478</sup> Posting of Jonathan Rowe, *The Tragedy of Economics: Market Theory vs. Human Nature*, to Onthecommons.org, Feb. 8, 2009, <http://jonathanrowe.org/the-tragedy-of-economics-market-theory-vs-human-nature> (accessed July 29, 2011); MÄKI, *supra* note 407.

“because all those things that are produced in commons do not have to be made artificially scarce [as the private property system and markets require]. There is no incentive to create artificial scarcity because commons do not produce goods to be exchanged, but rather to foster and maintain social relationships, satisfy needs, and solve problems. Directly.”<sup>479</sup>

In sum, when commons-based alternatives are available, it is easier for individuals to insulate themselves from unregulated markets and their logic of maximal production, consumption, debt, and capital accumulation. They can bypass the Market or establish a more orderly, co-equal transactional relationship with it. They can more readily meet their needs directly while maintaining control over their cultural norms. Access to the commons reduces the social exclusion and material deprivation that characterizes most Market societies. It enhances participation in more open, deliberative settings. It fosters self-determination in meeting one’s needs. All of these are fundamental to the effectuation of human rights.

### **E. Tensions between Modern State Law and the Commons**

While the different logic of the Commons gives it many inherent advantages over existing modes of governance, it also brings with it some deep philosophical tensions with the liberal polity. Many commons embody some very different notions of human existence and relationships (ontology), systems of knowledge (epistemology), and cultural assumptions (worldview) than are assumed by modern liberal society.

For example, Western legal systems tend to give juridical recognition to individuals only (juridical persons as well as natural persons), and chiefly to vouchsafe their private property rights, personal liberties, and commercial interests. The idea of recognizing collective rights for nonmarket interests is alien to the very premises of Western liberal polity and law, which, for the most part, favors the worldview and interests of unregulated markets. One could say, truly, that this is one of the purposes of Western law—the consequence of which, as in any legal system, is to constitute the categories of legitimate thought and adjudication. Not surprisingly, the idea of the Commons is invisible and virtually unthinkable in Western law in the modern era.

An emblematic example in the United States is the Dawes Act of 1887, which made it illegal—or extralegal—for Native Americans to presume to be commoners.<sup>480</sup> The Act’s prime sponsor, Republican Senator Henry L. Dawes of Massachusetts, believed that life on the reservations made the “Indians” indolent, uninterested in their own advancement, and unfit for citizenship. “To solve the ‘Indian problem,’” writes Lewis Hyde, a commons scholar, “the Dawes Act began the process of breaking up tribal holdings and giving individual Indians deeds to private plots of land. Land would no longer be owned ‘in the entirety’ by a tribe but ‘in severalty’ by

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<sup>479</sup> Posting of Silke Helrich, *The Commons Beyond Growth*, to Commonsblog.wordpress.com, May 23, 2011, available in German at <http://commonsblog.wordpress.com/2011/05/23/commons-jenseits-des-wachstums>, and in English at <http://www.bollier.org/commons-antidote-relentless-growth> (each accessed July 29, 2011). For more on this theme, see WOLFGANG HOESCHELE, *THE ECONOMICS OF ABUNDANCE: A POLITICAL ECONOMY OF FREEDOM, EQUITY AND SUSTAINABILITY* (2009).

<sup>480</sup> General Allotment Act of 1887, 25 U.S.C. §§ 331–34, 339, 341, 342, 348, 349, 354, 381 (2009). The General Allotment Act is commonly referred to as the Dawes Act.

individuals. Thus [were tribal lands made inalienable and converted into salable commodities, and thus also] did Jefferson’s vision of a nation of small farms and yeomen farmers settle, a century later, over the Indian lands, a civilizing enclosure for a once native commons.”<sup>481</sup>

As a condition of becoming American citizens, the Dawes Act required that Native Americans give up their commons-based way of life and become property-owning individuals. Hyde writes:

A few years before the act was passed, the Supreme Court had ruled that Native Americans could be denied the right to vote because they were not U.S. citizens, a decision which those in favor of assimilation sought to remedy by adding a citizenship provision to the [Dawes] bill. After the process of [land] allotment had been completed, the Act said, ”every Indian. . . who has voluntarily taken up...his residence separate and apart from any tribe. . ., and has adopted the habits of civilized life, is hereby declared to be a citizen of the United States. . .”

The law would seem to have embodied a hidden syllogism: all U.S. citizens have private, alienable holdings; Indians accepting allotment will have such holdings; therefore such Indians, living ”separate and apart,” will be citizens. In this way does one kind of self become a citizen, enfranchised and visible to the law, while others drop out of sight. As if to underscore that point the Dawes Act actually says that when it comes to hiring “Indian police,” those who have accepted allotment ”shall be preferred.” Those who accept allotment are not just recognized by the law, they embody the law.<sup>482</sup>

As this history shows, modern law itself can be a formidable barrier to those who wish to maintain their commons or establish new ones. Behaving as a commoner is in many respects an affront to “citizenship”—if that citizenship is essentially synonymous with individualism, private ownership, and a commitment to the Market alienability of everything. It is why the State/Market resists demands for indigenous people’s rights and recognition of the “rights of nature”; they run counter to the deep logic of liberal political theory and thereby challenge existing configurations of political power and culture.

As a practical matter, the lexical prejudices of modern law can be skirted, and often are. We might add, such evasions are not entirely to be scorned. They are responsible for important forms of collective governance such as public libraries, national parks, and land trusts, all of which exist within a legal system with different constitutive priorities. Indigenous peoples have often won *sui generis* legal regimes for themselves; Native Americans have a qualified sovereignty over tribal territories. Yet attempts to win legal recognition for commoning within the Western legal tradition are irregular and difficult.<sup>483</sup> They tend to require ingenious “legal hacks” or anomalous innovations in order to transcend the epistemological premises of the law. The challenge frequently comes

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<sup>481</sup> Posting of Lewis Hyde, *Invisible Commoners*, to Onthecommons.org, <http://www.onthecommons.org/invisible-commoners>(July 5, 2007).

<sup>482</sup> *Id.*

<sup>483</sup> *Accord*, Mattei, *supra* note 206.



down to devising serviceable “work-arounds” or exceptions that can protect collective, non-State and non-Market interests without structurally altering the core premises of liberal legal discourse.<sup>484</sup>

In this sense, notwithstanding the venerable historical precedents of commons law detailed earlier in this section, the movement to devise legal protections for the commons can border on being an extra-legal enterprise. The historical legal doctrines recognizing the commons may exist, but they have largely been forgotten (Charter of the Forest),<sup>485</sup> reinterpreted or ignored (Magna Carta),<sup>486</sup> deliberately flouted (habeas corpus, torture prohibitions),<sup>487</sup> limited or overturned (Native American land commons)<sup>488</sup> or kept in check to suit the economic and cultural priorities of modern, liberal societies (public trust doctrine).<sup>489</sup>

Western legal categories are tenaciously resistant to the idea of the Commons, in part because they are embedded in centuries-old ontological premises that we rarely think about. Descartes, as previously noted, famously separated body from mind and subject from object, formalizing the individual’s separation from nature and community.<sup>490</sup> In Western law, a person’s desires and motivations—and therefore rights and liberties—are formally assigned to the individual, whose “rationality” and “self-interest” are seen as the animating forces of economic and social

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<sup>484</sup> Exemplary legal work-arounds include the General Public License for software, based on copyright ownership; the Creative Commons licenses for creative works, also based on copyright ownership; and land trusts that create “property on the outside, commons on the inside,” in Professor Carol Rose’s phrase. See Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 144 (1998).

<sup>485</sup> Historian Peter Linebaugh writes: “Over the great arch of English history some parts of Magna Carta, namely chapter 39, evolved in creative response to events while other parts, such as chapter 7 providing the widow with her reasonable estovers of common, and the entire Charter of the Forest, collected dust among the muniments.” LINEBAUGH, *supra* note 280, at 72.

<sup>486</sup> “Contemplating the history of Magna Carta seemed to give the [U.S. Supreme] Court courage to make changes of its own: ‘the words of Magana Carta stood for very different things at the time of the separation of the American colonies from what they represented originally....What Magna Carta has become is very different indeed from the immediate objects of the barons of Runnymede’ (*Green v. United States*, 31 March 1958).” LINEBAUGH, *supra* note 280, at 191. Linebaugh also writes: “Following the Palmer raids in 1919]...the liberties of Magna Carta—no torture, habeas corpus, due process of law, trial by jury—and the principles of the Forest Charter—subsistence, no enclosure, neighborhood, travel and reparations—began to disappear.” *Id.*, at 230.

<sup>487</sup> See, e.g., DAVID COLE, *THE TORTURE MEMOS: RATIONALIZING THE UNTHINKABLE* (2009).

<sup>488</sup> See, e.g., Wood & Welcker, *supra* note 442; see also S. James Anaya, *In the Supreme Court of the American Indian Nations Lone Wolf, Principal Chief of the Kiowas, Et Al.*, 7 KAN. J. L. & PUB. POL’Y 117, 142 (1997) and N. Bruce Duthu, *Incorporative Discourse in Federal Indian Law: Negotiating Tribal Sovereignty Through the Lens of Native American Literature*, 13 HARV. HUM. RTS. J. 141, 171 (2000).

<sup>489</sup> See, e.g., Mary Christina Wood, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part 1): Ecological Realism and the Need for A Paradigm Shift*, 39 ENVTL L. 43 (2009); \_\_\_\_\_, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part 2): Instilling A Fiduciary Obligation in Governance*, 39 ENVTL L. 91 (2009). See also MARY CHRISTINA WOOD, *NATURE’S TRUST: ENVIRONMENTAL LAW FOR A NEW ECOLOGICAL AGE* (forthcoming from Cambridge University Press in 2012).

<sup>490</sup> See *supra* text preceding note 95.

order.<sup>491</sup> It should come as no surprise that Garrett Hardin's tragedy parable sees individual selfishness as limitless, and cooperation as illogical and unsustainable. In the episteme of modern law, the idea that there might be an integrated, organic community that pre-exists the individual, and that might actually influence individual predilections and desires, makes little sense.<sup>492</sup> It lies outside the logic of the legal system, which is framed around the sovereign individual. Identity is seen as self-made, not relational and community-based. Context and culture are seen as incidental, not controlling. No wonder modern legal systems have trouble comprehending commons! And no wonder it is difficult to inscribe the enabling legal principles for cooperation within an individualist legal framework. As Professor Ugo Mattei explicates:

Commons, unlike private goods and public goods, are not commodities and cannot be reduced to the language of ownership. They express a qualitative relation. It would be reductive to say that we have a common good: we should rather see to what extent we are the commons, in as much as we are part of an environment, an urban or rural ecosystem. Here, the subject is part of the object. For this reason commons are inseparably related and link individuals, communities and the ecosystem itself.<sup>493</sup>

The commons poses a challenge to Western law also because, as described in Section II, it is not a creature of State law (except by way of benign tolerance). The inner gyroscope of the Commons has traditionally been its self-generated community values and procedures (which may sometimes be supported by exogenous structures of authority and power). For the most part, the Commons tends to govern itself through what we have called "Vernacular Law" or, in Michael Reisman's term, "microlaw."

These "meta-issues" complicate the regeneration of commons law that can manage ecological resources in the 21st Century. Yet, though these issues counsel for humility in moving

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<sup>491</sup> Philosopher Richard Tarnas writes: "It has been said that Descartes and Kant were both inevitable in the development of the modern mind, and I believe this is correct. For it was Descartes who first fully grasped and articulated the experience of the emerging autonomous modern self as being fundamentally distinct and separate from an objective external world that it seeks to understand and master. Descartes 'woke up in a Copernican universe' after Copernicus, humankind was on its own in the universe, its cosmic place irrevocably relativized. Descartes then drew out and expressed in philosophical terms the experiential consequence of that new cosmological context.... For if the human mind was in some sense fundamentally distinct and different from the external world, and if the only reality that the human mind had direct access to was its own experience, then the world apprehended by the mind was ultimately only the mind's interpretation of the world....Everything that this mind could perceive and judge would be to some undefined extent determined by its own character, its own subjective structures. The mind could experience only phenomena, not things-in-themselves; appearances, not an independent reality. In the modern universe, the human mind was on its own." RICHARD TARNAS, *THE PASSION OF THE WESTERN MIND: UNDERSTANDING THE IDEAS THAT HAVE SHAPED OUR WORLD* VIEW 416 (1993).

<sup>492</sup> This point is well made by Professor Ugo Mattei: "The commons can be described only from a phenomenological and holistic perspective and their understanding is therefore incompatible with the above mentioned reductionism [of the Anglo-American empiricist tradition in economics, political science, sociology, analytical philosophy and the law]. . . . In this respect, commons are an ecological-qualitative category based on inclusion and access, whereas property and State sovereignty are rather economical-qualitative categories based on exclusion (produced scarcity) and violent concentration of power into a few hands." Mattei, *supra* note 206.

<sup>493</sup> *Id.*

forward and wariness of theoretical purity or political correctness, they do not prevent commons renewal. When it comes to the Commons, *praxis* trumps State law theory, and human agency and presence must be given its due in the formation of commons-based institutions. Vernacular experimentation yields all sorts of knowledge about commons and commoning that may forever be inscrutable to official or formal law.<sup>494</sup>

Our point with this excursus into the tensions between modern State Law and Vernacular Commons Law is to make the reader self-conscious of the State/Market's principled aversion to the Commons. This aversion cuts deeply, implicating ontology, epistemology, and worldview. Anyone who seeks to forge a new, regenerated body of commons law must grapple with the shortcomings of contemporary language in expressing the dynamics and logic of the Commons and with the power of Market-oriented State Law to render the commons invisible and less able to constitute themselves as recognized legal institutions. The deeply engrained habits of language, perception, culture, and worldview are not easily overcome, but if our natural environment—from local to global—is ever to be fundamentally and enduringly clean, healthy, balanced, and sustainable, it is essential that we confront the general inability of the State/Market to “see” the Commons and Commons Sector and therefore to protect them.

Given this daunting array of challenges, the befuddled skeptic may wonder how we might realistically go about the task of regenerating a commons- and rights-based ecological law system within the framework of modern, liberal society. The short answer is: the Commons always plays the hand that it is dealt. It must find ways of working within “legacy systems” of law designed for different purposes while simultaneously advancing paradigm-shifting social practices that may gestate into a different sort of legal process. Theoretical purity and abstract ideals are ultimately less important than creating practical and protectible platforms upon which commoners can be commoners.<sup>495</sup>

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<sup>494</sup> A good example is the General Public License for software, which made possible the flowering of free software and open source software. The GPL was the product of vernacular experimentation. So, too, with countless small-scale resource commons whose governance systems have evolved through *in situ* innovation over time, not through scholarly theory.

<sup>495</sup> A good example is the free culture movement's acceptance of copyright law as the philosophical basis for building its Creative Commons licenses that enable sharing in myriad content commons. Some left-wing critics have denounced the acceptance of copyright law, but this alleged sell-out has achieved something that a frontal attack on copyright law never would have achieved—the amassing of a diversified constituency whose everyday practices are grounded in working commons, which represents a significant political/cultural base.