

Rachel
Carson
Center

Perspectives

Why Do We Value Diversity?

Biocultural Diversity in a Global Context

Edited by

GARY MARTIN

DIANA MINCYTE

URSULA MÜNSTER



SPONSORED BY THE



Federal Ministry
of Education
and Research

RCC Perspectives

Why Do We Value Diversity?
Biocultural Diversity in a Global Context

Edited by
Gary Martin, Diana Mincyte,
and Ursula Münster

2012 / 9



Contents

05 **Introduction**

Gary Martin, Diana Mincyte, and Ursula Münster

Problematizing Biocultural Diversity

A. Economics, Markets, and Capitalism

11 **E.O. Wilson's *Biodiversity*, Commodity Culture, and Sentimental Globalism**

Cheryl Lousley

17 **Economic Diversity as a Performative Ontological Project**

Katherine Gibson

21 **The Work of Wildness: Diversity and Difference in a Southwest Alaskan Salmon Fishery**

Karen Hébert

25 **Pitfalls and Opportunities in the Use of the Biodiversity Concept as a Political Tool for Forest Conservation in Brazil**

José Augusto Pádua

B. Indigenous Communities and Classifications

31 **Contentious Diversities and Dangerous Species: Biocultural Diversity in the Context of Human-Animal Conflicts**

Ursula Münster

37 **The Politics of Making Biocultural Diversity**

Michael Hathaway

41 **Biocultural Diversity and the Problem of the Superabundant Individual**

Spencer Schaffner

47 **The Geopolitics of Difference: Geographical Indications and Biocultural Otherness in the New Europe**

Diana Mincyte

- 53 **Chernobyl Mono-Cropped**
Kate Brown
- 59 **Playing the Matrix: The Fate of Biocultural Diversity in Community Governance and Management of Protected Areas**
Gary Martin
- Rethinking Biocultural Diversity**
- 67 **Volatile Bodies, Volatile Earth: Towards an Ethic of Vulnerability**
Myra J. Hird
- 73 **Seeing the Trees from the Biocultural Diversity: Forestry Management, Smallholder Agriculture, and Environmental Politics in Ghana**
Kojo Amanor
- 79 **Biodiversity in Satoyama Conservation: Aesthetics, Science, and the Politics of Knowledge**
Shiho Satsuka
- 83 **Mapping Biocultural and Economic Diversity ... Everywhere**
Kevin St. Martin
- 89 **Thneeds Reseeds: Figures of Biocultural Hope in the Anthropocene**
S. Eben Kirksey
- 95 **Contaminated Diversity in "Slow Disturbance": Potential Collaborators for a Liveable Earth**
Anna Tsing

Gary Martin, Diana Mincyte, and Ursula Münster

Introduction

Diversity is generally seen as something we should seek to maintain. We often hear concerns in the media about the disappearance of species and languages, and the destruction of cultures and landscapes. The message is that monocultures and monotony are to be avoided. Why is this? Is diversity self-evidently a good thing? Why do we value it?

Before answering these questions, we need to consider our common understanding of diversity. In popular discourse, it is often proposed as a defining attribute of the natural world, especially the variety of life in rainforests, savannahs, coral reefs, or other distant environments. Equally widespread is the focus on diversity in our social world, evoking images of inclusiveness that embrace cultural differences in familiar places. This notion of distinct diversities—of environmental diversity as something separate from human difference—has been contested by the concept of “biocultural diversity.” Ethnobiologists introduced this concept to argue that the variation within ecological systems is inextricably linked to cultural and linguistic differences. The two kinds of diversity, advocates say, are interrelated and possibly coevolved.

This provocative idea has generated much interesting debate and research. Biocultural diversity has gained traction in a number of academic fields and advocacy practices. It has emerged as one of the key concepts in environmental conservation and as a rallying cry for national governments, international developmental agencies, non-governmental organizations, and local communities seeking to maintain or restore social and natural environments in which diversity flourishes. Biocultural diversity has come to occupy a central place in defining the health and well-being of socioecological systems.

However, the notion is not without its critics. To some, the current embrace of diversity in business, communications, and politics steals the limelight from inequality, poverty, and other social ills.

To reflect on the definition, impact, and possible vulnerabilities of the concept of biocultural diversity, the Rachel Carson Center for Environment and Society hosted a cross-disci-

plinary workshop in June 2011, entitled “Why do We Value Diversity? A Cross-Disciplinary Workshop on Biocultural Diversity in a Global Context.” We invited 17 scholars from fields including anthropology, ethnobotany, geography, history, gender studies, science and technology, literary criticism, sociology, and development studies. It was envisioned as a space for open dialogue—as an opportunity to interrogate the political, cultural, ecological, and conceptual limits and prospects of biocultural diversity.

We aimed to bring a fresh, transnational perspective to the field, challenge conventional definitions, and transgress disciplinary boundaries. None of the participants, with the exception of Gary Martin, identified themselves as experts in the field of biocultural diversity. This motivated us to have open-minded discussions about the concept and its multiple meanings. We became acutely aware of and reflected on our own intellectual orientations, leading us to articulate our positions and backgrounds from new perspectives. Throughout the process, we humbly acknowledged the limits of our approaches and analyses. We hope that this volume will serve as a constructive reflection, opening new horizons for the debate on biocultural diversity for scholars and practitioners who are dedicated to this field as well as for those who are just becoming aware of its allure.

Our workshop was guided by selected readings, as well as by 1,000 word position papers and responses written by participants, which were circulated prior to the meeting. In each of the workshop’s sessions, three participants commented on a set of two or three papers; this was followed by a general discussion, and summary responses from the authors of the papers. This innovative format allowed the interaction to be more open and productive, and the participants were enthusiastic about the outcome.

We have grouped the conference papers in this volume into two main sections. The first set of papers attempts, broadly speaking, to problematize diversity—to generate a critical assessment of the concept. Several authors consider the role of diversity in economics, markets, and capitalism, while others discuss the relationship of biodiversity to indigenous groups and classifications. In both cases, questions of value are highlighted. The second group of papers attempts to rethink biocultural diversity. These authors propose novel avenues for future investigation, including less explored spaces—from the microbial world to places in Europe and North America typically left aside in explorations of diversity. They also explore the relationship of art to biodiversity and activism.

We hope the critiques and insights contained in these papers will stimulate new conversations on the concept of biocultural diversity. While this workshop has focused to some extent on the limits of the concept, we are confident that other conferences will develop new perspectives and propositions that take the field in unexpected directions.

Note

We gratefully acknowledge the financial, administrative, intellectual, and moral support of the RCC. In particular, we thank them for creating the space in which such an open and interdisciplinary exchange of ideas could take place. We would also like to thank the participants for taking on the challenge of exploring a field that was new to many, and for traveling long distances to share their time and thoughts with us.

Problematizing Biocultural Diversity

A. Economics, Markets, and Capitalism

Cheryl Lousley

E. O. Wilson's *Biodiversity*, Commodity Culture, and Sentimental Globalism

"Biodiversity, the concept, has become the talisman of conservation, embracing every living creature." – E. O. Wilson

In this position paper, I return to *Biodiversity*, the 1988 landmark collection of papers edited by American biologist E. O. Wilson, which established biodiversity as a popular scientific concept. I propose that it be read as part of a sentimental culture that provided a fantasy space for global subjectivity. Sentimental cultures underpinned the main humanitarian movements of the last two centuries (abolition, temperance, animal welfare, child protection, refugee assistance) but have been less discussed in relation to environmentalism. Escobar (1998, 56) describes biodiversity as a "vast institutional apparatus," including United Nations conventions, research centers, pharmaceutical companies, and non-governmental organizations, which functions to make "biodiversity" appear as an object of study and investment, as well as a site of contestation and re-articulation by social movements. Children's literature, children's toys, theme parks, restaurants, nature films, popular television programs, school projects, ecotourism, groceries, and household products do not figure in Escobar's account, even though these are prominent pathways for the travel and institutionalization of biodiversity as a concept. Broadening the discursive formation to include these seemingly trivial, though astoundingly pervasive, cultural texts and practices points to how biodiversity functions at the intersection of material, political, and affective economies.

Biodiversity, the book, began as the National Forum on BioDiversity, held in 1986 in Washington, DC, sponsored by the United States National Research Council and the Smithsonian's Directorate of International Affairs. Just as the awkward neologism "Bio-Diversity" was consolidated into the seemingly self-evident "biodiversity," the national particularity of this effort was subsumed into the international Convention on Biological Diversity, signed at the 1992 Earth Summit at Rio de Janeiro. The globality and generality of the term—capable of "embracing every living creature" (Wilson 2006, 359)—relied,

however, on its metonymic articulation through the case of Amazonia and tropical deforestation. Wilson's (1988) introduction rests its argument for the importance of biological diversity on extrapolation from one tropical species, scale, and site to another, and from the tropics to the biosphere as a whole. One-quarter of the papers focus on tropical forests, and the metonymic relationship is built into the structure of the collection: Part 3 is labeled "Diversity at Risk: Tropical Forests," followed by Part 4, "Diversity at Risk: The Global Perspective." The collection includes papers by six of the eight US scientists that Wilson (2006, 358) only half-jokingly refers to as the "rainforest mafia."

As Slater (1996) has argued, the Amazon rainforest figured in the 1980s as an Edenic site, a microcosm and last refuge of the diversity of life itself. This tropical articulation and global extrapolation is evident in *Biodiversity's* cover image, based on a poster prepared for the forum, which features a colorful toucan magnified in a drop of water on a green leaf. Other, slightly less prominent plants and animals and less prominent habitats figure in the background and in other water droplets. That biodiversity values all forms of life is demonstrated by the re-scaling and re-sizing of these diverse examples: the beetle is the largest animal; the beluga and the chimpanzee are not even a quarter of the size of the toucan. Positioned together on the leafy green "web of life," each animal becomes both representative of its biological order and equivalent to the others on the universalizing grid of biodiversity. As miniatures enclosed like glass-globed souvenirs, these scenes of arrested vivacity eulogize life at the moment of its imminent loss (Olalquiaga 1998).

Despite arguments that biodiversity provided a scientific replacement for the sentimental attachment to charismatic megafauna that previously structured conservation priorities (see Erlich 1988), Wilson's (2006, 359) triumphant claim that biodiversity now acts as a "talisman"—an object with supernatural powers of protection—suggests the rapid institutionalization of the concept is related in some way to its affective allure. Signifying biodiversity as "exuberant abundance" (Slater 1996, 127), the imagery of lush greenery and multi-colored animals remains instantly recognizable, adopted for the commercial signage of the restaurant chain Rainforest Café along with countless other commercial and advocacy materials (Slater 2003, 2004). To appreciate its convergent appeal for scientific, advocacy, and commercial uses, it is crucial to recognize the shift Slater (1996, 2003) traces from the colonial-era term "jungle," with its impenetrable vegetation and dangerous inhabitants, to the fragile "rainforest" in the late

1970s. The first remains a barrier to capital and love; the latter is remarkably open to both. “Fragile” and “fragility” are the key words Wilson (1988, 9) uses to describe tropical forests, and by extrapolation, biological diversity.

Framed as an “embrace,” or act of love, Wilson’s biodiversity hovers between the innocuous and the colonizing; a sentimental parenting that protects by collecting and monitoring the vulnerable, now equated with all life (as space expedition blue-green planet imagery positioned the Earth a decade before). Feminist literary scholars increasingly note that vulnerability is staged in sentimental narratives as part of a social fantasy where powerlessness is valued and turned into a source of pleasure and disavowed power (Armstrong 1987; Noble 2000; Sánchez-Eppler 2005; Berlant 2008). A classic example is the orphan narrative. Because figured without economic or political power or duty-bound protectors, the orphan must rely on voluntary attachments, thereby demonstrating that compassionate love—love alone, not economic interest or social duty or blood ties—can undergird social relations (Armstrong 1987; Nelson 2003; Weinstein 2004). The orphan mobilizes a fantasy world of love, where one is *wanted* and ultimately recognized as loveable, often at the very moment it is too late (thereby deferring closure and intensifying the bittersweet pleasure of recognition). Tropical forests appear like orphans in *Biodiversity* (as do other biomes in the more recent conservation focus on “biodiversity hot spots”): isolated yet vivacious locales unable to protect or rehabilitate themselves from logging and deforestation. Just as the orphan can only appear as an orphan—and hence, open to new attachments—by removing the family, biodiversity appears vulnerable through the absence of a responsible nation-state or other form of paternalistic governance. Sentimental fantasies of vulnerability are mobilized for social reform by imagining that the political realm might be organized according to the affective structure of a loving family (Tompkins 1986; Sánchez-Eppler 2005; Berlant 2008); a voluntary family whose sympathies extend beyond naturalized borders (Weinstein 2004).

That the sentimental narrative of love relies on effacements of power helps to explain how a discourse of protection, which implies protection *from* development, can function to protect *for capitalization* (O’Connor 1993), facilitating and validating new attachments. Affective labor ascribes value, which can then be appropriated for capital accumulation under the alibi of environmental concern (Baudrillard 1981; O’Connor 1993; Foster 2008). The collection of flora and fauna on the cover of *Biodiversity*,

transparently rendered as if accessed solely through the botanist's magnifying glass, appears already in commodity form: disembedded from their sites of socio-biocultural production and meaning, and reassembled in a sentimental public display, a shop window where each object is equally available for love. Biodiversity's inscription of seemingly intrinsic value is a sentimental version of commodity fetishism; a moral abstraction that presumes a certain exchangeability of life forms. Choose the toucan, or the beluga, or even the beetle—each might be at risk; each deserves love (or a research grant, or a conservation campaign). To appear as irreducible and singular, they must be depicted as exchangeable for one another on the level of moral value.

Commodity culture also facilitates the extension of love, making widely available a mobile set of objects and meanings, which can be personalized and taken into the home or passed to others in an affective network of mutual recognition. Sentimentality and commodity culture are so closely intertwined because love of things is central to sustaining intimate relationships and memories (think of the meaning ascribed to wedding rings or a photograph of the dead).¹ But even in this mass-produced and fantasy form, there is no singular version of biodiversity but rather travelling clusters of meaning-laden objects, images, stories, personas, and events, around which form imagined communities of shared taste and affect. Shared taste in loving nature—demonstrated through social practices and choice of domestic objects—is one way in which class identities and social networks develop and are affirmed (Bourdieu 1984; Price 1999). Sentimental attachments thus facilitate market expansion by endowing commodities with personalized meanings and stories, and engendering “intimate publics” among consumers (Berlant 2008, 5), who feel they belong to a collective organized around shared affects rather than political mediation. Politically and ecologically decontextualized in order to be equally, singularly available for love, the global collection on the cover of *Biodiversity* prefigures the imagined collective as a flattened global biosphere organized around horizontal affections. The cultural imagining of this affective global community is an example of what Robbins (1999) terms “feeling global,” and what I call sentimental globalism.

1 See Sánchez-Eppler (2005) for an extended discussion of the complex place of commodities and objects in sentimental cultures, especially her discussion of postmortem daguerreotypes and photographs in Victorian mourning practices.

References

- Armstrong, Nancy. 1987. *Desire and Domestic Fiction: A Political History of the Novel*. New York: Oxford University Press.
- Baudrillard, Jean. 1981. *For a Critique of the Political Economy of the Sign*. St. Louis: Telos Press.
- Berlant, Lauren. 2008. *The Female Complaint: The Unfinished Business of Sentimentality in American Culture*. Durham: Duke University Press.
- Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgement of Taste*. Cambridge, MA: Harvard University Press.
- Erlich, Paul. 1988. "The Loss of Diversity: Causes and Consequences." In *Biodiversity*, edited by Edward O. Wilson, 21–27. Washington, DC: National Academy Press.
- Escobar, Arturo. 1998. "Whose Knowledge, Whose Nature? Biodiversity, Conservation, and the Political Ecology of Social Movements." *Journal of Political Ecology* 5: 53–82.
- Foster, Robert J. 2008. "Commodities, Brands, Love and Kula: Comparative Notes on Value Creation." *Anthropology Today* 8 (1): 9–25.
- Nelson, Claudia. 2003. *Little Strangers: Portrayals of Adoption and Foster Care in America, 1850–1929*. Bloomington: Indiana University Press.
- Noble, Marianne. 2000. *The Masochistic Pleasures of Sentimental Literature*. Princeton: Princeton University Press.
- O'Connor, Martin. 1993. "On the Misadventures of Capitalist Nature." *Capitalism, Nature, Socialism* 4 (3): 7–40.
- Olalquiaga, Celeste. 1998. *The Artificial Kingdom: A Treasury of the Kitsch Experience*. Minneapolis: University of Minnesota Press.
- Price, Jennifer. 1999. *Flight Maps: Adventures with Nature in Modern America*. New York: Basic Books.
- Robbins, Bruce. 1999. *Feeling Global: Internationalism in Distress*. New York: New York University Press.

- Sánchez-Eppler, Karen. 2005. *Dependent States: The Child's Part in Nineteenth-Century American Culture*. Chicago: University of Chicago Press.
- Slater, Candace. 1996. "Amazonia as Edenic Narrative." In *Uncommon Ground: Rethinking the Human Place in Nature*, edited by William Cronon, 114–31. New York: W. W. Norton.
- . 2003. "In Search of the Rain Forest." In *In Search of the Rain Forest*, edited by Candace Slater, 3–37. Durham: Duke University Press.
- . 2004. "Marketing the 'Rain Forest': Raw Vanilla Fragrance and the Ongoing Transformation of the Jungle." *Cultural Geographies* 11 (2): 165–80.
- Tompkins, Jane P. 1986. *Sensational Designs: The Cultural Work of American Fiction, 1790–1860*. New York: Oxford University Press.
- Weinstein, Cindy. 2004. *Family, Kinship, and Sympathy in Nineteenth-Century American Literature*. Cambridge: Cambridge University Press.
- Wilson, Edward O., ed. 1988. *Biodiversity*. Washington, DC: National Academy of Sciences.
- . 2006. *Naturalist*. Washington, DC: Island Press.

Katherine Gibson

Economic Diversity as a Performative Ontological Project

Making Economic Diversity Credible

In the fields of biology, ecology, and cultural studies, the concept of diversity is naturalized (even as this naturalization is contested). But in economic science, monocultural thinking has naturalized capitalist economic relations and their homogenizing dynamics and thus “interfered” with the “realities” of economic diversity (Law and Urry 2004, 404). When economic diversity is evoked it is associated merely with the mix of economic and industrial sectors (primary, secondary, tertiary, and quaternary), or the mix of public and private sectors, all within an economy of capitalist sameness. The interfering effects of monocultural thinking have been eloquently identified by Boaventura de Sousa Santos (2004, 238), who alerts us to how certain kinds of difference have largely been “disqualified and rendered invisible, unintelligible, or irreversibly discardable.” In the economic arena where lively conceptions of diversity have been rendered non-credible, we are able to see the reinstatement of economic diversity as a performative act of world-making.

| <i>ENTERPRISE</i> | <i>LABOR</i> | <i>PROPERTY</i> | <i>TRANSACTIONS</i> | <i>FINANCE</i> |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| CAPITALIST | WAGE | PRIVATE | MARKET | MAINSTREAM MARKET |
| ALTERNATIVE CAPITALIST State owned Environmentally responsible Socially responsible Non-profit | ALTERNATIVE PAID Self-employed Reciprocal labor In-kind Work for welfare | ALTERNATIVE PRIVATE State-managed assets Customary (clan) land Community land trusts Indigenous knowledge (Intellectual Property) | ALTERNATIVE MARKET Fair trade Alternative currencies Underground market Barter | ALTERNATIVE MARKET Cooperative Banks Credit unions Community-based financial institutions Micro-finance |
| NON-CAPITALIST Worker cooperatives Sole proprietorships Community enterprise Feudal Slave | UNPAID Housework Volunteer Self-provisioning Slave labor | OPEN ACCESS Atmosphere International Waters Open source IP Outer Space | NON-MARKET Household sharing Gift giving Hunting, fishing, gathering Theft, piracy, poaching | NON-MARKET Sweat equity Family lending Donations Interest-free loans |

Figure 1:
A Diverse
Economy
Framing.

With many others, I am working on theorizing—and thus bringing to greater visibility—the diversity of markets, transactions, forms of labor, enterprise, property, and finance that make up our economic world. J. K. Gibson-Graham’s diverse economy framing (fig. 1) is one element of a performative ontological project designed to liberate

economic thinking from its capitalocentrism (2006, ch. 3). The deconstructive moves, thick description, and weak theorizing embodied in Figure 1 are but first steps towards mobilizing desires for building “other” economies. But there is work to be done to move beyond an inventory of economic diversity towards disclosing new worlds.

Diversity as Only One Dimension of “Pattern”

In various action research projects I have used a framing of economic diversity as an aid to imagining and enacting alternative futures. Attempts to increase just one aspect of economic diversity—that of enterprise forms—have been guided by the innovative work on local development by Jane Jacobs (2000). Jacobs’s interest in bio-mimicry leads her to suggest that economic development is connected to the expansion or decline of economic diversity and resilience. She writes: “In an ecosystem, the essential contributions made within the conduit are created by diverse biological activities. In the teeming economy, the essential contributions made within the conduit are created by diverse economic activities” (2000, 59). Using the framing of a diverse economy, Jacobs’s conception of economic diversity can be extended beyond sectoral differentiation to include, for example, diverse transactions with multiple rules of in/commensurability, diverse forms and remuneration of labor, and diverse ways of producing and distributing surplus within different enterprise organizations.

In exploring the hypothesis that diversity creates resilience, we need to go beyond the simple notion that economic diversity is an unquestioned good. This is pretty obvious in a community where child slavery, indentured labor, theft, and feudal tenancy are part of the diverse economy. Diversity is only one aspect of any workable or livable or healthy “pattern.” Here I am invoking the language of Wendell Berry in his 1981 essay “Solving for Pattern.” Diversity needs to be situated with respect to relations of independence and interdependence, development and co-development, balance and harmony. What resilience means in any socioeconomic-ecological context must be a subject for democratic deliberation.

We need a way of conducting ethical negotiations about what kinds of diversity are to be supported and what dynamics of development can be activated to do so. Gibson-Graham

offers the “community economy coordinates” as a focus for ethical deliberation about what is necessary for life, what is held in common, how we might consume, and what to do with surplus (2006, ch. 6; 2009). In each deliberation, the question of whether to cultivate or ignore diversity is an open question that invites analysis of potential effects.

Diversity as Strategy

It’s hard to ignore the destruction of all kinds of earthly diversity that has accompanied (at least) the Western development project. This does not mean that diversity is not still with us, or that it is not continually being reproduced. I would like to consider how we might attend to biological, cultural, and economic diversity. In a recent essay, Freya Mathews (2010) argues for re-animating the world, enlivening the object in the subject/object dualism by setting aside *theoria* (our theoretical spectatorship) and embracing *strategia* (coordinating collective or individual agency by cultivating greater sensitivity to our world). I suggest that we have a choice: we can pursue the traditional path as “theorists,” situating diversity as an independent object to be studied, a truth to be reflected or not, according to its worldly existence; or we can approach diversity as “strategists,” admitting that it is one of the influences at play in our immediate situation in which we are “agentially immersed” and negotiating ways of adapting to and accommodating it to attain certain goals (Mathews 2010, 8).

Can we abandon the interferences of monocultural thinking and begin to attend to our already diverse world, to the diverse relationships between biology, ecology, culture, and economy, to the diversity of dynamics that animate our world, and to the diverse developmental trajectories that might unfold if we let them? If we can, our discussion may be less about diversity as such and more about ethical negotiations around diversity and their effects.

References

- Berry, Wendell. 1981. "Solving for Pattern." In *The Gift of Good Land: Further Essays Cultural and Agricultural*. San Francisco: North Point Press.
- Gibson-Graham, J. K. 2006. *A Postcapitalist Politics*. Minneapolis: University of Minnesota Press.
- Gibson-Graham, J. K., and Gerda Roelvink. 2009. "An Economic Ethics for the Anthropocene." *Antipode: A Radical Journal of Geography* 41: 320–46.
- Jacobs, Jane. 2000. *The Nature of Economies*. New York: Vintage Books.
- Law, John, and John Urry. 2004. "Enacting the Social." *Economy and Society* 33 (3): 390–410.
- Mathews, Freya. 2010. "Was the Western Project of De-animation Necessary?" Unpublished manuscript, Department of Philosophy, Latrobe University, Melbourne.
- Santos, Boaventura de Sousa. 2004. "The WSF: Toward a Counter-Hegemonic Globalization." In *World Social Forum: Challenging Empires*, edited by Jai Sen, Anita Anand, Arturo Escobarm, and Peter Waterman, 235–45. New Delhi: The Viveka Foundation.

Karen Hébert

The Work of Wildness: Diversity and Difference in a Southwest Alaskan Salmon Fishery

What is the relationship of diversity to difference? That is, how do the elements that constitute conditions of diversity in its multiple manifestations relate to the social and material forms that stand as expressions of alterity, the kind of difference that might oppose, evade, or simply exceed dominant or normative frames? I approach this question through an examination of a wild salmon fishery in southwest Alaska and the industry dynamics through which salmon are reconfigured into changing commodities. Drawing on recent scholarship from the ecological sciences, this paper considers the link between biological population diversity and associated patterns of both variability and stability, whose interplay has been critical in the composition of the social forms of salmon fishing in the Bristol Bay region. The paper confirms the significance of these patterns for the highly heterogeneous relations and modes of work that are enmeshed in commercial fishing operations. However, it also questions easy equations among diversities and differences, pointing out that the diverse cultural traditions that are brought to bear in salmon production are not mere functions of biodiversity, even if they may flourish because of it. Further, the paper suggests that a narrow focus on diversity and its trappings may deflect attention from conditions and processes that may be of even greater consequence for the collective pursuit of uncommon livelihoods and lifeways.

Unlike many other stretches of the North Pacific, Bristol Bay is home to some of the strongest wild salmon populations in the world. The tens of millions of sockeye salmon that return to Bay waters each summer form the basis of one of Alaska's most important commercial fisheries, whose participants have long been drawn from far-flung locales: maritime hubs elsewhere in Alaska and the Pacific Northwest; sites of seasonal food processing across the United States; and zones in Asia and Latin America that have supplied migrant laborers to Alaskan shores for well over a century. The salmon runs also form the backbone of subsistence lifeways in the Alaska Native villages that are scattered across the rural area, as well as in more ethnically mixed regional centers. Across this varied geographical and social terrain, multifarious forms of provisioning are joined to salmon industry work, often in unexpected ways. From seasonal family

salmon camps where fish are “put up” according to particular household recipes, to the makeshift kitchens in cannery raingear storage lockers that sizzle with Filipino favorites not on offer at the mess hall, to the decks of commercial fishing boats where crew pluck particularly attractive salmon from the catch to bring home for fish head soup, industry participants bring an array of activities and sensibilities to the labor of commercial production. What they share is their common responsiveness to and animation by the massive salmon runs that converge upon Bristol Bay each summer.

Ecological research suggests that the strength and relative dependability of Bristol Bay’s heavily exploited salmon returns can be attributed to the biological diversity of its sockeye, a single species composed of hundreds of distinct populations, each adapted to a particular river, stream, or tributary, and to different climactic conditions (Schindler et al. 2010). A recent study by a team of scientists from the University of Washington actually attempts to quantify the effects of this population and life history diversity, calculating that the fishery experiences 2.2 times less interannual variability in the volume of total returns than it would if “the system consisted of a single homogenous population” (609). So, the variance among the Bay’s several hundred discrete salmon populations, the study suggests, leads to a “variance dampening” in the form of more “temporally stable ecosystem services,” a phenomenon that has been dubbed the “portfolio effect,” because it is imagined as “analogous to the effects of asset diversity on the stability of financial portfolios” (609). Leaving aside for now the assumptions underlying this conceptual and terminological appropriation, the study indicates that fine-grained salmonid differentiation is at least in part responsible for the ongoing robustness of what is, in fact, a somewhat unusual fishery in comparison to other wild salmon fisheries in Alaska: Bristol Bay is set apart by both its large volumes and an extremely compressed season. The majority of its fish return in a single surge that lasts only about two weeks. For this reason, it is what biologists refer to as a “pulse” fishery—and this period is marked by unpredictable spikes of salmon and a distinctive pattern of frenzied, round-the-clock production for which the Bay is renowned.

While the intricate social forms that are enlisted in commercial production are by no means the necessary consequence of salmon rhythms or materialities, Bristol Bay producers’ somewhat unconventional relationships to work, time, accumulation, environment, and belonging are nevertheless shaped in intimate connection with the capture of wild fish. These relationships, which range widely but express a common condition

of alterity, depend on a certain kind of wildness. This is not the wildness of untouched nature, even if that image is often harnessed for marketing purposes: the fish that become ensnared in Bristol Bay have been molded by harvest for millennia, as nets exert significant selective pressures on salmon populations. Rather, this wildness lies in the degree to which wild salmon pulse with properties that remain largely outside human control, especially when compared to the salmon reared in industrial fish farms.

In competitive global seafood markets awash with cheaper farmed salmon, Bristol Bay producers have struggled to maintain industry profitability even as the fishery itself remains biologically strong and resilient. They increasingly showcase wildness in their efforts to promote their salmon as sustainable to more lucrative markets. But these same promotional campaigns also call for the adoption of salmon quality standards that are emerging as new industry norms with the growth of the farmed salmon sector—even though these standards are much more difficult to achieve in wild fisheries precisely because of their relative unruliness and variability. As this suggests, the forms of difference valorized by new market paradigms are not necessarily the ones that matter most for producers in Bristol Bay. Still, the reliance of contemporary capitalism on elements of nature and culture whose energies it can never quite contain (cf. Tsing 2009; Gidwani 2008) leaves open the question of what a wild pulse at the heart of production might mean for the forms of diversity and difference it has enjoined in its service.

References

- Gidwani, Vinay. 2008. *Capital, Interrupted: Agrarian Development and the Politics of Work in India*. Minneapolis: University of Minnesota Press.
- Schindler, Daniel E., Ray Hilborn, Brandon Chasco, Christopher P. Boatright, Thomas P. Quinn, Lauren A. Rogers, and Michael S. Webster. 2010. "Population Diversity and the Portfolio Effect in an Exploited Species." *Nature* 465 (3): 609–12.
- Tsing, Anna. 2009. "Beyond Economic and Ecological Standardization." *The Australian Journal of Anthropology* 20: 347–68.

José Augusto Pádua

Pitfalls and Opportunities in the Use of the Biodiversity Concept as a Political Tool for Forest Conservation in Brazil

In the last two decades, Brazilian society has experienced a deep transformation in its long-established relation with the tropical forests. After centuries of dominant land occupation patterns based on heavy deforestation (Dean 1995; Pádua 2010), we can observe an environmental turn in the 1990s that became an almost frenetic swing towards forest conservation in the last decade, when Brazil was responsible for around 74 percent of the protected areas created worldwide after 2003 (Jenkins and Joppa 2009). As a consequence of this move—together with other strong federal policies—deforestation in the Amazon was reduced by more than 75 percent between 2004 and 2012. Deforestation is declining even in the current context of strong economic growth. The explanation for this historical change is quite complex and has multiple aspects. But the exogenous diffusion of the biodiversity concept in Brazil since the 1980s can be considered a central aspect of it.

Of course, the reception of the concept was far from homogeneous (as was the concept itself), moving from the expectation of future economic benefits based on biotechnology to the “deep ecological” appreciation of the intrinsic value of the Amazon forest’s diversity of life forms.

In any case, the uses of the concept by different social agents—including governments, scientific associations, and non-governmental organizations—helped to give a new meaning to the politics of forest conservation, with strong appeal reflected in national public opinion (Hecht and Cockburn 2010). The enduring tropical forests in the Brazilian territory, many times deprecated in the past as useless green areas that must be converted to economic production, received a new social value based on frontline concepts of science and “sustainable development.” The average perception is that the economic and use values of biodiversity, especially its potential for the future, justifies the reduction of deforestation as a political goal.

We must remember, however, that the relation between the concept and this particular country is not an ordinary one. With a huge land mass, almost entirely located

in the tropical zone, Brazil is frequently mentioned as the biggest concentration of biodiversity in a national territory. It is, furthermore, a territory with a new geopolitical significance, being abundant in the kind of natural resources that are increasingly valued in the context of the global environmental crisis: fresh water, solar rays, capacity for biomass reproduction, and so on (Pádua 1997). These elements, together with biodiversity, are seen by Brazilian political elites, including the military, as a crucial set of assets for the future. The same perception is quite strong in the public opinion surveys.

It makes sense to suppose that the high international ecological ranking of the Brazilian territory is relevant for understanding the significant internal cultural acceptance of the concept of biodiversity. But we must also understand that the concept is potentially well-grounded in standard Brazilian political culture, being functional to a national identity based on the amalgamation of diverse cultural and social flows, an identity that became almost canonical in Brazilian social thinking in the twentieth century (Burke and Pallares-Burke 2008). It is interesting to note in this regard that many Brazilian intellectuals and social movements have been using the concepts of “socio-biodiversity” or “socio-environmentalism” to emphasize the link between natural diversity and the diversity of local cultures inside the territory (Pádua 2012), including Amerindian and Afro-descendent communities (quilombos). Since the 1980s, explicit efforts have been made to reduce the gap between nature and culture in discussions about ecology, conservation, and development in different regions of the country (Padua 1992; Hochstetler and Keck 2007). Darrel Posey (1983), since the period he was living in the Amazon, made efforts to link ethnobiology and development. Other important discussions were led by researchers like Antonio Carlos Diégues (2000) around the idea of “ethnoconservation”.

However, we must also consider the many political and conceptual problems associated with social appropriations of the biodiversity idea in Brazil. In fact, its use as a political tool for forest conservation has created some important pitfalls for an integrated conservation policy for the territory as a whole. A crucial problem is the stratification of ecosystems according to the level of biodiversity, condemning some natural areas to be destroyed as sacrificial zones for the salvation of others. The reduction in Amazon deforestation in the last decade is directly linked to the massive conversion of the Cerrado—the 200 million hectares of wooded savannah in central-western Brazil—for

agricultural production. Indeed, this new economic frontier is quickly becoming one of the world's main agribusiness regions. In Brazilian political debates, it is very common to hear the opinion that the country does not need to destroy the Amazon forest—that it must be saved for subjective and objective, international and internal reasons—since it has such a big area of useless and “ugly” savannahs to be used in the near future. (The cultural construction of tropical forests as beautiful and savannahs as ugly would require a specific historical analysis.) Moreover, the defenders of the Cerrado are reasoning along the same lines, arguing that this ecosystem has a lot of biodiversity too, even if it is not comparable to the tropical forests, and is also important as an accumulator of fresh water. The important problem arises when biodiversity becomes a fetish and when native forms of vegetation with “weak biodiversity” are dismissed as suitable for destruction. From the perspective of biocultural diversity, of course, this kind of ranking of different ecological regions makes no sense at all. Every region is important as such, with a plentiful and complex variety of interactions between natural and social dynamics.

Another problem concerns the significance of biodiversity for local societies and communities in the Brazilian forest regions. I remember taking part in a debate at the University of Oxford in 2007, during which a participant proclaimed, as though it were a self-evident truth, that biodiversity is a concept that everyone in the planet would agree with and appreciate. In the field, though, we can see a quite different reality. The concept has its own specific history and came to Brazilian social life from the outside. Of course, it has been appropriated and re-appropriated by different local actors, including poor communities. In such a dynamic process, many different meanings were attached to it. But, in the practical world of social discussions and conflicts, it is common to observe both poor campesinos and big farmers saying something like this: “It is nice to have a lot of biodiversity. But so what?” The concept of “ecological services,” for example, that is being increasingly used, is very appealing over the short-term, since it is practical and concrete to argue that societies need the clean water and fertile soil that the maintenance of native ecosystems helps to secure. The concept is also an interesting counterpoint to the biodiversity one, since it is possible to make the point that biomes with weak biodiversity, like the Cerrado, are very important in the production of “ecological services.”

I am certainly not saying that poor communities cannot understand the long-term meaning of biodiversity. Social agents can understand and reinvent the concept and perceive the political or spiritual importance of it according to their social and cultural experiences. Subjective feelings about the value and beauty of the diversity of life-forms as such can always be present. But we must not imagine that the scientific and/or aesthetic meaning of the concept satisfies everyone. In fact, there is a political paradox here. The social and cultural acceptance of biodiversity, for many people, is based on its potential economic importance, even though the cultural expansion and reproduction of the idea per se is helping to give an habitual value to the concept. On the other hand, the present day economic utility of natural diversity is often unclear, especially for local actors in the forest regions. A lumber company owner in the southern Amazon once told me something that helps to summarize this complex problem: “When people said that we must preserve ‘forest bush’ [*mato*, a depreciative way of talking about forests], I could not understand. We have too much *mato* here. But when people started to say that in this ‘forest bush’ there is a lot of biodiversity, I started to pay attention. Maybe there is something important here, I thought. But it is now 10 years since I heard about biodiversity, and I haven’t made a fucking dollar from it!”

Certainly, this crude, narrow, and short-term vision does not dominate Brazilian political debate on biodiversity. Moreover, in many instances the local actors are economically exploring the regional biodiversity without being aware of it. However, such comments highlight a problem that deserves to be discussed and that, in a certain sense, is already at the core of the debate. The main point concerns the conceptual limitation of defending biodiversity with market-based arguments. The essential ecological and social importance of biodiversity cannot be measured by economic calculations. Yet this fact is not readily accepted by societies in which the economic mindset still dominates contemporary political debate and guides the actions of governments and private agents.

In any case, it must not be forgotten that biodiversity is not an ahistorical and universal concept. Its historicity and theoretical genealogy is very complex, going back, for example, to the so-called “dispute over the New World’s nature” in the colonial period (Gerbi 2010). We must analyze the history of the concept with an open and critical perspective, in order to produce a better understanding of the dilemmas and political outcomes present in its various uses and reinventions, and also to perceive its conceptual limitations in relation to the broader perspective of the “biocultural diversity” idea.

References

- Burke, Peter, and Maria Pallares-Burke. 2008. *Gilberto Freyre: Social Theory in the Tropics*. Oxford: Peter Lang.
- Dean, Warren. 1995. *With Broadax and Firebrand: The Destruction of the Brazilian Atlantic Forest*. Berkeley: University of California Press.
- Diégues, Antonio Carlos. 2000. *Etnoconservação: Novos Rumos para a Proteção da Natureza nos Trópicos*. São Paulo: Hucitec.
- Gerbi, Antonello. 2010. *The Dispute of the New World: The History of a Polemic, 1750–1900*. Pittsburgh: University of Pittsburgh Press.
- Hecht, Susanna B., and Alexander Cockburn. 2010. *The Fate of the Forest: Developers, Destroyers and Defenders of the Amazon*. Chicago: Chicago University Press.
- Hochstetler, Kathryn, and Margaret E. Keck. 2007. *Greening Brazil: Environmental Activism in State and Society*. Durham: Duke University Press.
- Jenkins, Clinton N., and Lucas Joppa. 2009. “Expansion of the Global Terrestrial Protected Area System.” *Biological Conservation* 142 (10): 2166–74.
- Pádua, José Augusto. 1992. “The Birth of Green Politics in Brazil: Exogenous and Endogenous Factors.” In *Green Politics II*, edited by Wolfgang Ruedig, 134–55. Edinburgh: Edinburgh University Press.
- . 1997. “Biosphere, History and Conjuncture in the Analysis of the Amazon Problem.” In *The International Handbook of Environmental Sociology*, edited by Michael Redclift, 403–17. London: Edward Elgar.
- . 2002. *Um Sopro de Destruição: Pensamento Político e Crítica Ambiental no Brasil Escravista (1786–1888)*. Rio de Janeiro: Jorge Zahar.
- . 2010. “European Colonialism and Tropical Forest Destruction in Brazil.” In *Environmental History: As If Nature Existed*, edited by José Augusto Pádua, John R. McNeill, and Mahesh Rangarajan, 130–50. New Delhi: Oxford University Press.
- . 2012. “Environmentalism in Brazil: A Historical Perspective.” In *A Companion to Global Environmental History*, edited by J. R. McNeill and Erin Stewart Mauldin. Oxford: Wiley-Blackwell.
- Posey, Darrell A. 1983. “Indigenous Knowledge and Development: An Ideological Bridge to the Future?” *Ciência e Cultura* 35 (7): 877–94.

B. Indigenous Communities and Classifications

Ursula Münster

Contentious Diversities and Dangerous Species: Biocultural Diversity in the Context of Human-Animal Conflicts

Ethnobiologists introduced the concept of biocultural diversity to focus attention on the interrelationship between biological, cultural, and linguistic diversity. Biocultural diversity links the extinction of biotic species with the disappearance of languages and indigenous livelihoods (Maffi 2001, 2005). The concept was originally formulated to dismantle the prevalent nature-culture dichotomy in conservation discourse and practice. But whose diversity should be valued in a situation where the coexistence of certain species is disharmonious and conflict-ridden? Who decides on the “hierarchy of values” (Sodikoff 2012, 9) ascribed to different species? Should cultural or biological endurance be secured in conservation contexts, where managing interspecies relationships depends on the policing of strict boundaries between humans and “wilderness”? Whom should we privilege when the survival of highly endangered (and dangerous) species seemingly depends on the creation of human-free spaces?

Scholars have criticized the biocultural model for laying exclusionary emphasis on the role of traditional ecological knowledge and practices for conserving biodiversity (Brosius and Hitchner 2010). In fact, in the Wayanad Wildlife Sanctuary of Kerala in southern India, biocultural diversity is interpreted by conservationists to have applicability only within highly circumscribed contexts, pertaining solely to “authentic” indigenous Adivasis¹—those people whose cultural forms might be meaningfully integrated into wildlife and nature protection. Attempts to allocate a place for Adivasis inside the wildlife space reinforce the prevalent castist/racist attitudes of the “mainstream” to dehumanize them and set them on the “wild” side of the forest frontier. Confining the idea of biocultural diversity to the “savage slot” runs the risk of essentializing, homogenizing, and traditionalizing local communities, leading to their “eco-incarceration” (Shah 2010). They are confined to a sustainable “eco-lifestyle” in the forest, whereas the rest of the society can consume and “develop.”

1 Adivasi is the Hindi word for “original inhabitants.”

Wildlife biologists praise the forests of Wayanad, located in the biodiversity hotspot of the Western Ghats, as one of the best habitats for some of the world's remaining charismatic megafauna. The Kerala forest department prioritizes saving large mammals from extinction, especially the Asian elephant (*Elephas maximus*), the tiger (*Panthera tigris*), the leopard (*Panthera pardus*), and the Indian gaur (*Bos gaurus*). However, the forests of the region are fragmented and enclosed by a highly populated area used intensively for chemical-laden cash-crop agriculture. To salvage the forest's iconic animals, Wayanad's conservationists regard the establishment of a firmly monitored area devoid of human influence as an ecological necessity. Local environmental activists and the forest department dismiss the local people's culturally diverse, forest-related livelihoods—in continuity with colonial rhetoric and practice—to justify authoritarian and coercive wildlife protection measures.

“There are no ‘real’ Adivasis left,” I was continuously told by wildlife conservationists and forest officials during my fieldwork in the region. Many of the communities living on forest land, like Paniya and Adiya, are not considered “genuine” by nature lovers—traditionally, they never depended on the forest for their livelihood. Rather, they worked as agricultural laborers and slaves on landowners' fields. Even the Kattunaika, who until recently lived mainly as hunters and gatherers on forest land, are perceived by Wayanad's environmentalists as “degenerated” by contact with the consumerism of modern mainstream society, and by the state's developmental programs. In consequence, environmental activists and forest officials argue that they should not be granted the entitlement to inhabit forest land, either. As a result of the activists' (and some farmers') continuous pressure, a relocation program was launched in March 2012, evicting hundreds of people from the wildlife sanctuary.

Simultaneously, however, the forest department has been obliged to implement a landmark piece of legislation in the history of forest laws in India, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA, Government of India 2006). The central Indian government passed the act to restore the rights of “scheduled tribes”² and other so-called “forest-dwelling communities” to land and other resources that had been denied to them for decades as a result of the continuance of colonial forest laws in India. The aim was to finally introduce more inclusive

2 Scheduled Tribes (ST) and Scheduled Castes (SC) are communities notified in India's constitution for purposes of positive discrimination, see <http://ncst.nic.in>.

and democratic forms of environmental governance in postcolonial India. Initially, all over the country, Adivasi and Human Rights' activists celebrated the FRA as a turn towards "biocultural diversity" in policy-making, recognizing the role of communities in conservation—as "custodians" of the land they have inhabited for generations. In Wayanad, paradoxically, this process has happened while approaches to conservation continue to forcibly separate "nature" and "culture," and thus to perpetuate the binary logic of "wildlife" versus "people" (see Adams 2004; Brockington et al. 2008; Duffy 2010). Hence, the forest department has prevented the full implementation of the FRA; in particular, community rights to resources and local participation in forest and wildlife protection have remained unrecognized until now in Wayanad.

At the edge of Wayanad's forest, there is no smooth ecological/human continuum that allows for an easy application of biocultural diversity discourses. So-called "human-animal conflicts"—manifested in invasions of fields and plantations, as well as in deadly attacks on humans, mainly by elephants—are part of daily life on the fringes of the forest. Likewise, diseases transgress the forest frontier. Cattle grazing in the forests transmit parasites, viruses, and bacteria, such as Anthrax to wildlife, and elephants have perished from tubercular infections spread by humans—further proof of their problematic, close vicinity. The contact zones between humans and non-humans in Wayanad are increasingly characterized by conflict and disruption rather than by harmonious "convivial modes of human-elephant companionships" (Laurimer 2010, 492) or, as recent explorations in multispecies ethnography (Kirksey and Helmreich 2010) have described it, by flourishing forms of new "interspecies collaborations" (Tsing, this volume; Tsing 2009) and "interspecies intimacies" (Haraway 2010).

In consequence, a fortified border, quite literally an "iron curtain," has been established by the forest department that divides wildlife and agricultural land. Fortification of the forest happens not only to keep humans out of "biodiversity," but equally to keep the "forest" out of the agricultural landscape. Currently, significant efforts are underway to dig deeper trenches and to build electric fences along the whole forest border to prevent invasions by "wild" animals on contiguous fields. Until now, these protection measures have been unsatisfactory. In recent years, rising elephant attacks have been reported; 36 people have been killed in encounters in Wayanad since 2004 (Wayanad Wildlife Warden 2011). The gravest "cultural" injustice for many Adivasis is thus the prohibition against owning weapons for self-defense and hunting inside the reserved forests.

Biocultural diversity in Wayanad represents a confluence of conflicts at the essentialized border between “nature” and “culture.” Even policy decisions are locally framed as “wildlife” versus “humans.” The communist-led government’s decision in 2011 to distribute one acre of forest land to landless Adivasis under the Forest Rights Act, for example, enraged local environmentalists and drove them to take legal action at the High Court to save Wayanad’s “pristine nature.” Likewise, the unpopular night traffic ban on the National Highway, which prohibits nocturnal flows of commodities and tourists through the forest sanctuary, has been described as “anti-human” in a popular discourse that rhetorically divides local society into forward-looking “pro-developmentalists” against “human-hostile” wildlife activists.

This paper argues that policymakers and national institutions remain reluctant to integrate or attend to participatory and inclusionary “biocultural” models (Sundar et al. 2001), especially in contexts where legacies of “colonial style legal and organizational structures” (Peluso 1992, 7) continue to characterize conservation projects. Reconceptualizing both “culture” and “nature” will be necessary in order to prevent the concept of biocultural diversity from appearing, as postcolonial critics have argued regarding various forms of transnational conservation, as just another form of “green neocolonization” or “eco-imperialism.”

References

- Adams, William M. 2004. *Against Extinction: The Story of Conservation*. London: Earthscan.
- Brockington, Dan, Rosaleen Duffy, and Jim Igoe. 2008. *Nature Unbound: Conservation, Capitalism and the Future of Protected Areas*. London: Earthscan.
- Brosius, Peter, and Sarah Hitchner. 2010. “Cultural Diversity and Conservation.” *International Social Science Journal* 61 (199): 141–68.
- Duffy, Rosaleen. 2010. *Nature Crime: How We’re getting Conservation Wrong*. New Haven: Yale University Press.
- Government of India. 2006. *Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act*. New Delhi: Ministry of Law and Justice.

- Haraway, D. 2010. "When Species Meet: Staying with the Trouble." *Environment and Planning D: Society and Space* 28 (1): 53–55.
- Kirksey, S. Eben, and Stefan Helmreich. 2010. "The Emergence of Multispecies Ethnography." *Cultural Anthropology* 25 (4): 545–76.
- Laurimer, Jamie. 2010. "Elephants as Companion Species: The Lively Biogeographies of Asian Elephant Conservation in Sri Lanka." *Transactions of the British Geographers* 35: 491–506.
- Maffi, Luisa. 2001. *On Biocultural Diversity: Linking Language, Knowledge, and the Environment*. Washington, DC: Smithsonian Institution Press.
- . 2005. Linguistic, Cultural, and Biological Diversity. *Annual Review of Anthropology* 34 (1): 599–617.
- Peluso, Nancy. 1992. *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley: University of California Press.
- Philip, Kavita. 2004. *Civilizing Natures: Race, Resources, and Modernity in Colonial South India*. New Brunswick: Rutgers University Press.
- Randeria, Shalini. 2007. "Global Designs and Local Lifeworlds: Colonial Legacies of Conservation, Disenfranchisement and Environmental Governance in Postcolonial India." *Interventions: Journal of Postcolonial Studies* 9 (1): 12–30.
- Shah, Alpa. 2010. *In the Shadows of the State: Indigenous Politics, Environmentalism, and Insurgency in Jharkhand, India*. Durham: Duke University Press.
- Sodikoff, Genese. 2012. "Accumulating Absence: Cultural Productions of the Sixth Extinction." In *The Anthropology of Extinction: Essays on Culture and Species Death*, edited by Genese Marie Sodikoff, 1–16. Bloomington: Indiana University Press.
- Sundar, Nandini, Roger Jeffery, and Neil Thin. 2001. *Branching Out: Joint Forest Management in India*. New Delhi: Oxford University Press.
- Tsing, Anna. 2009. "Beyond Economic and Ecological Standardisation." *The Australian Journal of Anthropology* 20 (3): 347–68.
- Wayanad Wildlife Warden. 2011. *Proposal for Mitigation of Man-Animal Conflict in Waynad District*. Wayanad Wildlife Division.

Michael Hathaway

The Politics of Making Biocultural Diversity

How is the concept of “biocultural diversity” created through transnational encounters? How does it move throughout the world and possibly gain traction, and yet transform itself, in a bewildering number of countries and contexts? My paper highlights the temporal and conceptual novelty of biocultural diversity. The term extends, in surprising ways, from W. G. Rosen and E. O. Wilson’s promotion of the neologism “biodiversity” in the mid-1980s. Since that time, biodiversity has attracted a wide and passionate audience. Much of this research and advocacy generally views biodiversity as arising on its own, with no connection to people’s actions, and sees local peoples as threats. The main innovation of biocultural diversity is to posit a link between particular kinds of peoples (often those seen as “indigenous”) and biodiverse environments, and to use the sentiments of valuing and protecting already created by “biodiversity” as a rallying point.

This paper explores the varied forms of work that go into making “biocultural diversity” a statement of fact, an object of desire, and more. As Pete Brosius and Sarah Hitchner (2010) point out, biocultural diversity is a concept typically used as part of a crisis narrative (one suggesting that biological and cultural diversity are under threat), but its aims and strategies are indeterminate. Thus there are a variety of positions around biocultural diversity. For some it is merely an assertion that there is a strong link between cultural and biological diversity (Nietschmann 1992). Others suggest that it offers a particular agenda. In this short paper, I consider how we can understand biocultural diversity in relation to power, history, and the role of governance. I show how these questions arise by looking at their emergence in China.

Since the mid-1990s, I have been an active participant and observer in transnational nature conservation efforts in Southwest China’s Yunnan Province. This region has attracted a great deal of domestic and international interest, with dozens of projects, conferences, and NGOs. Using archival data and extensive fieldwork in project villages, conversations with expatriate conservationists, Chinese natural and social scientists, and Chinese officials, I have been tracing some of the major transformations in the politics of nature since the 1970s. One of the major trends has been a serious

re-evaluation of the role of local people in managing the natural world. Early projects often aimed to evict local peoples from newly created nature reserves and teach them scientific methods of farming. Recently, however, a number of Chinese natural and social scientists are playing a major role in transforming how conservation is understood and practiced in Yunnan. They have done so through critiques of previous methods, and through their own studies and projects, which advocate for new ways of understanding links between ethnic minority groups, knowledge, stewardship, and rights.

At the same time, conservation work in China is carried out in the context of a strong state. China's central government is well known for enacting far-reaching laws. While a number of outsider observers celebrate China's newfound status as an "environmentalist state," others more concerned about social justice have labeled such moves "draconian" (Lang 2002). Such laws can work against the rise of experiments that aim to recognize and create space for biocultural diversity, such as offering increased rural land rights, in part based on advocates' arguments that rural groups are already creating successful examples of "community forestry," "indigenous agroforestry," and "sacred forests." Unlike other countries, there is little tradition in China of romanticizing an "ecologically noble savage" with moving essays about indigenous knowledge or wisdom (Redford 1991; Conklin and Graham 1995). Instead, Chinese advocates for indigenous knowledges and practices use scientific languages, creating authoritative accounts aimed at convincing skeptical audiences of government officials and conservationists, who largely view rural peoples as ignorant and scientifically illiterate (Hathaway forthcoming). Their persuasive reports are often framed in the numeric language of conservation biology, such as the Shannon-Weaver Index, which quantifies biological diversity levels. These advocates argue, unlike mainstream conservation biology but along the lines of spokespeople for biocultural diversity elsewhere, that particular ethnic minority groups foster zones of high biological diversity.

The advocates sometimes use the English term "indigenous peoples." This terminology has often been acceptable and even attractive to international organizations, who often need little convincing that indigenous peoples exist in China. On the other hand, trying to create space within China for the umbrella term "indigenous people" is a substantial challenge. In China, the concept of "indigenous people" is officially rejected: the state declares that all people in China are equally indigenous, and therefore the term has no relevance. This is not just about semantics, for indigeneity is now hitched

to legal rights; there is a vast global network of indigenous groups and their advocates. Interest in biocultural diversity is one way in which the politics of indigeneity itself are being worked out in China (Hathaway 2010).

Yet there is danger in reifying cultural diversity, in accepting it as a naturalistic fact. Some scholars have pointed out that ethnic identity is a social process, and hence that cultural diversity is not just found but is produced as a social category. Studies of ethnicity in China reveal the powerful role of the state. Whereas elsewhere, questions of indigenous identity are often assumed to arise autonomously from the groups themselves, through common residence, language, culture, and so on, official statements about ethnic diversity in China have varied radically over time. In the early 1900s, for example, leaders began to think of China as a place with a Han majority and four ethnic minority groups: Manchus, Mongols, Muslims, and Tibetans. The very term “ethnic minority” came from Japan at this time, part of a new set of loan words, such as “society” and various scientific and Marxist concepts. During the mid-1950s, the state sent hundreds of researchers throughout China to demarcate and delineate ethnic groups. Well over four hundred groups applied for status, from Yunnan alone. By 1979, Chinese authorities settled on 55 minority groups, a number suspiciously close to Vietnam’s count of 54 and Mexico’s count of 56 groups, which may have been influenced by Chinese methods. Linguists argue that China may have over a hundred languages, most of which lack official recognition.

Ethnic diversity plays multiple and ambiguous roles in China. On the one hand, scholars reveal the strong bias against many of the ethnic minority groups in daily life, who are often represented as perpetually backwards, or feminized as objects of sexual interest. On the other hand, ethnic minorities play a key part in national performances, whether aimed domestically or internationally, where diversity is presented as smiling people dressed in colorful costume, singing and dancing. Ethnic tourism is gaining ground, and certain groups have gained some local power, wealth, and influence, fostering their own elite. Other groups who have pressed for greater rights, such as Muslims in northwest China, or Tibetans, find state retaliation swift and often severe. Thus, ethnic diversity functions in various ways, including as a national resource and object of display, and as a threatening reminder of a non-unified state.

Advocates for biocultural diversity, whether Chinese scholars or members of international NGOs, always operate within politicized spheres, a fact easily forgotten in

celebratory frameworks. We should examine how this term—originally developed, like the initial frameworks of global indigenous politics, mainly in reference to dynamics in North and South America—might travel around the world, and how it functions and morphs in highly divergent social contexts. Where does the term not work, and why? How does it change over time, as a rallying cry for action? In this brief description of the politics of culture and nature in China, I hope I have begun to provoke questions of this kind.

References

- Brosius, Peter J., and Sarah L. Hitchner. 2010. "Cultural Diversity and Conservation." *International Social Science Journal* 61: 141–68.
- Conklin, Beth A., and Laura R. Graham. 1995. "The Shifting Middle Ground: Amazonian Indians and Eco-Politics." *American Anthropologist* 97 (4): 1–17.
- Hathaway, Michael. 2010. "The Emergence of Indigeneity: Public Intellectuals and an Indigenous Space in Southwest China." *Cultural Anthropology* 25: 301–33.
- . Forthcoming. *Environmental Winds: Making the Global in Southwest China*. Berkeley: University of California Press.
- Lang, Graeme. 2002. "Forests, Floods, and the Environmental State in China." *Organization and Environment* 15 (2): 109–30.
- Nietschmann, Bernard. 1992. "The Interdependence of Biological and Cultural Diversity." Unpublished manuscript, Center for World Indigenous Studies, Olympia, Washington.
- Redford, Kent H. 1991. "The Ecologically Noble Savage." *Cultural Survival* 15 (1): 46–8.

Spencer Schaffner

Biocultural Diversity and the Problem of the Superabundant Individual

The emergent biocultural perspective challenges longstanding separations between nature and culture, encouraging fields that typically separate categories such as “humans,” “animals,” and “the environment” to consider them together. As Luisa Maffi has written, “Historically, the biological sciences have tended [to see] nature as exclusively moulded by biological evolutionary processes, and as existing in a ‘pristine’ state, unless and until humans encroach upon it for purposes of development and natural resource exploitation” (2010, 13).

This paper deals with the subset of work on biocultural diversity that quantifies cultural and biological elements in order to map and compare them across regions (Stepp et al. 2004). These maps reveal that cultural and linguistic diversity are covariant with biological diversity, ultimately helping to link arguments for linguistic, cultural, and environmental conservation. Biocultural diversity conservation projects, as they are called, make the goal of conservation explicit (Maffi and Woodley 2010).

In this paper, I suggest that two forms of misalignment in the emergent biocultural frame need to be addressed. My first suggestion is a call for more sophisticated taxonomic calibrations so that categories such as “ethnicity” and “species” do not become wrongly equated. The second suggestion calls attention to the dangers of overly aligning the conservation of human diversity with environmental management strategies. My purpose, then, is to suggest two ways in which the biocultural frame can integrate more sophisticated forms of alignment in order to fulfill its promise of maintaining biocultural diversity worldwide.

Suggestion 1: Taxonomic Calibration

Efforts to quantify and map biocultural diversity on a global scale (Stepp et al. 2004; Skutnabb-Kangas, Maffi, and Harmon 2003, 40–1) have been ambitious. These projects involve the collection of cultural, linguistic, and biological data from around the world in order to illustrate that human and biological diversities are imbricated and

covariant. The integration of human population data and biological data via maps, creating datagraphics, allows findings in biocultural diversity research to become intelligible to a non-academic audience (Maffi 2010) and to thwart traditions in geography wherein “human” variables (such as census data) have been typically mapped separately from biological data.

However, comparisons between human diversities (typically measured in terms of ethnicity and language) and biological diversities (typically measured at the level of species) are misaligned. It is indeed the case that “maps now show that areas of high biodiversity, especially in tropical regions, also abound in linguistic diversity” (Maffi 2010), but by comparing linguistic difference with species difference, language and other forms of cultural difference become equated with the much more fixed, biological category of species. Comparative projects of this kind need more subtle rhetorical approaches that highlight instead of hide this misalignment. A rhetoric that acknowledges such differences and enacts a taxonomic calibration is crucial given the long history of equating different species of plants and animals with different races of humans. Historically, such misalignments have been used to justify environmental management based on racist and anti-immigrant sentiments (Fine and Christoforides 1991; Heise 2008).

While it is certainly not the case that work in the area of biocultural diversity is in any way ill-intended, it is important for the vast differences between ethnicities and languages on the one hand and biological species on the other to be conceded and foregrounded in work of this kind. As I will describe in the following section, misalignments can lead not only to confusion, but to risky justifications for treating speakers of superabundant languages as members of superabundant species are treated within an environmental management framework.

Suggestion 2: Tending to the Alignment with Environmental Management

The emergent biocultural frame connects such otherwise disparate fields as geographic information systems, evolutionary science, sustainability studies, and ethnobotany. Biocultural diversity conservation projects (Maffi and Woodley 2010) constitute a particular interdisciplinary connection between work on the conservation of language

and culture and the field of environmental conservation. A predominant approach to environmental conservation is environmental management, and it is my concern that establishing this relationship between human diversity conservation and environmental management introduces the possibility of developing what Matsuda and Jablonski have characterized as a “problematic interdisciplinary relationship” (2000).

In interdisciplinarity, each discipline brings with it methodological, historical, and ideological differences (Stillings et al. 1995, 13). Strategies used to maintain linguistic and cultural diversities have, historically, been distinct from environmental management strategies aimed at maintaining biodiversity. Cultural and linguistic diversity has typically been maintained via programs and efforts that focus on endangered cultures and languages, whereas environmental management strategies involve attending to scarce, abundant, and superabundant species as elements in a larger system. Such efforts to maintain biodiversity are based largely on theories of population dynamics (Williams, Nichols, and Conroy 2002, 15–22). As a result, superabundant species of animals worldwide are routinely culled and sterilized based on an understanding that such management practices can alleviate pressure on beleaguered species while posing no threat to the fitness of the culled or sterilized species as a whole. Under the auspices of environmental management, superabundant individuals are deemed expendable when cullings and sterilizations are calculated to aid not only biodiversity, but also such human interests as agriculture, industry, and even air travel.

Large colonies of native and non-native gulls throughout the world have been routinely culled to protect airports or preserve nearby endangered species (Dolbeer and Bucknell 1994; Bosch 1996), and invasive species such as Burmese pythons are hunted to limit their numbers in the Florida Everglades (National Park Service 2008). Non-lethal population control measures have been used in cases where culling would generate public outcry: non-native wild horses have been sterilized in the American West (Layton and Eilperin 2009) and native elephants have been vasectomized in southern Africa (Majors 2006). Cullings and sterilizations are common.

My point here is that a potentially problematic interdisciplinary connection has been made in the biocultural frame by linking efforts to maintain human diversities with longstanding approaches to environmental management. Failing to address this interdisciplinary misalignment could give way to neo-eugenicist rationales for aggressively

limiting the pressures posed by speakers of superabundant languages, for instance, should they fail to enhance the overall linguistic diversity of a given region.

Conclusion

In highlighting these two instances of misalignment—the first taxonomic, the second interdisciplinary—my intention is to help foster even more persuasive, careful, and strategic arguments among scholars working within the biocultural diversity framework. This emergent scholarship erodes important nature/culture binaries, and mapping projects in particular are a powerful way to visualize the coincidental nature of diversities globally. However, in reifying cultural and linguistic differences by comparing them to species, and by implying that superabundant aspects of human diversity might be successfully managed in ways similar to the treatment of Burmese pythons in Florida or elephants in Swaziland, the biocultural frame is currently based on unstable alignments. These issues need to be addressed for this important work to move ahead as productively as possible.

References

- Bosch, Marc. 1996. "The Effects of Culling on Attacks by Yellow-Legged Gulls (*Larus cachinnans*) upon Three Species of Herons." *Colonial Waterbirds* 19 (2): 248–52.
- Dolbeer, Richard, and Janet L. Bucknell. 1994. "Shooting Gulls Reduces Strikes with Aircraft at John F. Kennedy International Airport, 1991-1993." Accessed 19 September 2012. http://www.int-birdstrike.org/Vienna_Papers/IBSC22%20WP60.pdf.
- Fine, Gary Alan, and Lazaros Christoforides. 1991. "Dirty Birds, Filthy Immigrants, and the English Sparrow War: Metaphorical Linkage in Constructing Social Problems." *Symbolic Interaction* 14 (4): 375–93.
- Heise, Ursula K. 2008. "Ecocriticism and the Transnational Turn in American Studies." *American Literary History* 20 (1–2): 381–404.
- Layton, Lyndsey, and Juliet Eilperin. 2009. "Salazar Presents Ambitious Plan to Manage Wild Horses." *The Washington Post*, 8 October.

- Maffi, Luisa. 2010. "Biocultural Diversity: The True Web of Life." *National Geographic Daily News*. Accessed 17 September 2012. http://newswatch.nationalgeographic.com/2010/06/29/biocultural_diversity_the_true_web_of_life.
- Maffi, Luisa, and Ellen Woodley. 2010. "Surveying Biocultural Diversity Projects Around the World." In *Biocultural Diversity Conservation: A Global Sourcebook*, edited by Luisa Maffi and Ellen Woodley, 23–27. London: Earthscan.
- Majors, Stephen. 2006. "Doctor Touts Vasectomies for Elephants." *The Washington Post*, 10 October. Accessed 14 October 2012. http://www.washingtonpost.com/wp-dyn/content/article/2006/10/10/AR2006101000855_pf.html.
- Matsuda, Paul, and Jeffrey Jablonski. 2000. "Beyond the L2 Metaphor: Towards a Mutually Transformative Model of ESL/WAC Collaboration." *Academic Writing* 1.
- National Park Service. 2008. "Natural Resources Management: Burmese Pythons." *National Park Service, U.S. Department of the Interior*. Accessed 20 October 2012. <http://www.nps.gov/ever/naturescience/upload/PythonFactSheetLoRes.pdf>.
- Skutnabb-Kangas, Tove, Luisa Maffi, and David Harmon. 2003. *Sharing a World of Difference: The Earth's Linguistic, Cultural, and Biological Diversity*. UNESCO, Terralingua, World Wide Fund for Nature. Paris: UNESCO.
- Stepp, John Richard, Sarah Cervone, Hector Castaneda, Ava Lasseter, Gabriela Stocks, and Yael Gichon. 2004. "Development of a GIS for Global Biocultural Diversity." *Policy Matters* 13: 267–70.
- Stillings, Neil A., Steven W. Weisler, Christopher H. Chase, Mark H. Feinstein, Jay L. Garfield, and Edwina L. Rissland. 1995. *Cognitive Science: An Introduction*. Cambridge, MA: MIT Press.
- Williams, Byron K., James D. Nichols, and Michael J. Conroy. 2002. *Analysis and Management of Animal Populations: Modeling, Estimation, and Decision Making*. New York: Academic Press.

Diana Mincyte

The Geopolitics of Difference: Geographical Indications and Biocultural Otherness in the New Europe

This essay focuses on the intersection between biocultural diversity and markets by examining the application of Geographical Indications (GIs) in East European contexts as methods for protection of local culinary diversity. Designed to protect regional cultural practices and environmental particularities through marketization, GIs operate as trademarks that add value to the commodities produced in geographically bounded regions. Classic examples of GIs include Parmigiano-Reggiano cheese from the Italian region of Emilia-Romagna, Bordeaux wine from France, or Vidalia onions from the US state of Georgia. Because GIs establish rent monopoly over scarce commodities, they are usually depicted as highly profitable economic devices for injecting capital into remote and economically depressed areas, supporting community livelihood, and bringing marginal skills, knowledge, and even species back to life.

Even though *in situ* conservation of biocultural diversity is not an explicit objective in the GI definitions, they have been increasingly lauded as successful ways to conserve rare breeds, disappearing cultural knowledge, traditional skills, and regional ecologies, protecting these assets from steamrolling globalization, race-to-the-bottom commercialism, and expanding monoculture economies. The fact that the potential use of intellectual property legislation (which also covers GIs) in biocultural diversity conservation became a hotly debated subject in the Doha negotiations is an indication that intellectual property laws are increasingly seen as potential tools for protecting diverse local economies, heritage, and the environments in which local food is procured.

There are at least two key features of GIs that are pertinent for understanding how markets work to protect certain aspects of biocultural diversity, particularly connoisseurship and geographic differentiation. Depending on the connoisseurship of the consumer, GIs function as knowledge-based economies where one's appreciation of taste, smell or texture, producers' skills, geographic specificities, traditional knowledge, and heritage serve as the basis for creating added economic value. By implication, the taste and knowledge of skills are usually local in nature and are embedded in particular geographic locales and social circles.

Second, as the name of “geographical indications” suggests, GIs depend on the process of geographic differentiation. This is achieved by mobilizing patrimonial values, collective memory sites, and locally embedded histories to produce distinct regional identities that figure prominently in the global markets. This means that GIs valorize a particular constellation of geographic boundedness and historical continuity of specific cultural practices and natural processes. As with other global knowledge economies, the value of GIs depends on the ability to translate a particular local taste and geographic location—to communicate reputation, quality, and value to distant consumers in global markets.

While the two qualities of GIs—connoisseurship and geographic differentiation—may seem to be easily transferable, it turns out that countries with centuries-long experience in global trade and food branding are finding themselves better situated to benefit from the protection and added values provided by GIs (Guthman 2007). Southern European countries—Italy, France, and Spain—are the winners in this approach, claiming the largest proportion of registered GIs (a total of 791 products) while numerous other countries have only found a few products that can claim GI protection. In fact, large swaths of Eastern European and Northern Eurasian territory have not produced a single GI (Estonia, Latvia, and Russia, among others, do not have any GIs registered or pending).

On the surface it may seem that this is due to the absence of a diverse food heritage in these places, an argument that echoes stereotypical images of gray-colored and drab-looking socialist consumer culture (Fehérváry 2009). To challenge such an argument, it is worth considering an example of Eastern European dumplings that reveals a different constellation of relationships between history, memory, geography, and tradition—one that does not yield to GI certification and that challenges the emphasis on connoisseurship and geographic differentiation as the location of value.

As in Italy, where many villages developed their own pastas, with different sizes, shapes, seasonal ingredients, preparation methods, and consumption rituals, Lithuania’s regions have their own distinct dumplings. Called by their generic name, the dumplings (*virtinis*) vary in size and shape, and may or may not have a filling or a special sauce. Examples include dumplings that resemble Italian ravioli, but are filled with blueberries or cherries and dressed with sour cream; dumplings that are made

by mixing cheese, flour, and egg into one piece of dough, which is divided into small squares and served in a butter sauce; or dumplings made of boiled potato and flour, resembling Italian gnocchi. The fact that there are no clear linguistic boundaries to show the differences between these dishes means that the skills, knowledge, and raw materials that go into making them do not form identifiable categories to be distinguished one from another. In other words, there are no ravioli or gnocchis, only *virtinis*. When asked, most of the cooks in Lithuania would say that *virtinis* is a “cheap” dish, served at home and under no circumstances for houseguests. These statements are remarkably different from the laudatory descriptions of the local pastas in Italy, where each household boasts of having developed a unique dish. The fact that there is no linguistic differentiation suggests that there is no basis for connoisseurship or gastronomic identity that would allow foods like Lithuanian dumplings to be certified as distinct, non-generic, local products. Not surprisingly, despite the fact that the dumpling diversity in Lithuania is now challenged by the fast-growing frozen food industry that sells only four types of dumplings at supermarkets, the existing GI certification is unable to protect locally existing food traditions and knowledge.

As well as posing challenges to the connoisseurship dimension of GIs, Eastern Europe and Northern Eurasia have undergone major political and economic shifts that have disrupted the historical continuity of traditions and their connections to particular places, making the processes of geographic differentiation and relative stability that colonial centers have historically enjoyed almost impossible. The history of population resettlement projects during Russian Imperial rule, massive displacement campaigns during Soviet times, World War II, and the fast-paced industrialization in the 1950s and 1960s mean that what could be defined as “food traditions” or “niche species” do not belong to particular places in Eurasia, but have been resettled across vast territories and reorganized around newly-found state institutions and kinship networks. This also means that many traditions have been continuously altered in their close interface with other practices, as well as by industrialization. In other words, while GIs valorize historical continuity and geographic boundedness, the history of mobility of people and species across Eurasian territories is marked by interruptions, transformations, and hybridity, making its products and hybrid species incompatible with the current GI definitions and their legislative framework.

What this suggests is not only that GIs are protecting only one kind of diversity, but also that such an approach to conservation derives value from geopolitical hierar-

chies where certain regions and their biocultures are marked as valuable and thus to be protected, while other landscapes are rendered irrelevant (Brockington and Duffy 2010; Castree 2008a, 2008b). As a result, the failure to apply GIs in many parts of the world is a material manifestation of the emergence of biocultural diversity's Other, the monotonous, non-diverse territories and gray zones in global diversity's maps. In this sense, looking through the lens of GIs, I argue that the project of biocultural diversity conservation not only marketizes tradition, history, and place, but also rests on the commodification of difference by placing it in geopolitical hierarchies (Bowker 2006).

More broadly, in considering the value of biocultural diversity, it may also be worth remembering that the notion of difference that underlies GIs and biocultural diversity projects is part of the longstanding European intellectual tradition that emphasizes biocultural pluralism, a notion that, as Isaiah Berlin has shown, is wrought with contradictions and disturbing omissions. In his reflection on Herder's work, Berlin (1976) argues that European pluralism is characterized not simply by its recognition of multiplicity, but also by its acknowledgment of and emphasis on the incommensurability of different values, cultures, and societies. Berlin suggests that such an embrace of difference and a preservation of biocultural distinctions in the context of increasing global pressures and cosmopolitanism means that pluralism may also have a negative side, which manifests itself in increasing intolerance, competition, and discrimination. What this means is that the explicit valorization of difference in GIs and biocultural diversity projects is a potentially troubling proposition that calls for new approaches to include and deal with the Other.

References

- Berlin, Isaiah. 1976. *Vico and Herder*. New York: Viking.
- Bowker, Geoffrey. 2006. "Time, Money, and Biodiversity." In *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*, edited by Aihwa Ong and Stephen Collier, 107–23. Oxford: Blackwell.
- Brockington, Dan, and Rosaleen Duffy. 2010. "Capitalism and Conservation: The Production and Reproduction of Biodiversity Conservation." *Antipode* 42 (3): 469–84.

- Castree, Noel. 2008a. "Neoliberalising Nature: The Logics of Deregulation and Reregulation." *Environment and Planning A* 40: 131–52.
- . 2008b. "Neoliberalising Nature: Processes, Effects, and Evaluations." *Environment and Planning A* 40: 153–73.
- Fehérvári, Krisztina. 2009. "Goods and States: The Political Logic of State-Socialist Material Culture." *Comparative Studies in History and Society* 51: 426–59.
- Guthman, Julie. 2007. "The Polanyian Way? Voluntary Food Labels as Neoliberal Governance." *Antipode* 39: 456–78.

Kate Brown

Chernobyl Mono-Cropped

In 2004, I spent a week in the Chernobyl Zone of Alienation. Strangely, I found that the post-nuclear landscape had the feel of an open-air ethnographic museum. In the largely abandoned villages I came across hand-carved tools, horse carts, timber-frame huts, bee hives, and canoes hacked out of logs with a blunt axe. I traveled with a naturalist who spotted 150 different species of birds. He pointed out the rough tearing of the earth by boars. I spotted a skittish wild horse and saw three-foot long catfish thriving in the warm water of the nuclear power plant's cooling ponds. Since the mid-nineties, Ukrainian archeologists have found evidence of a very old rural culture, which survived in the Zone until 1986. They argue this region is the cradle of Slavic civilization (Omeliashko 1996; pers. comm. with author 2004).

Indeed, much of contemporary media attention on the Chernobyl Zone sends a message that the aftermath of nuclear destruction has returned the territory to a state of natural order. Tour agencies and journalists promote the Zone as a preserve, alive with wildlife (Mycio 2005; PBS 2011). But the story is more complicated than that. In the twentieth century, modern technologies streamlined the cultural, demographic, and biological diversity of the region. In this paper, I will argue that these processes of simplification were related—that mono-cropped populations of the thirties and forties led to genetically and biologically depleted flora and fauna in the twenty-first century.

In my history, *A Biography of No Place*, I described the demographic transformation of Right Bank Ukraine from a multi-ethnic border zone to homogenous Ukrainian heartland from 1925 to 1955 (Brown 2004). In the twenties, observers in Right Bank Ukraine did not see diversity. They said that there was nothing to see: no civilization, no culture. Observers remarked with pity or derision on the illiteracy of the inhabitants of the region, on their poverty and political backwardness.¹ Soviet census-takers reported that no two villages were alike; each place contained a different mix of language

1 For memoirs of the territory, see Zofia Kossak, *Pozoga: wspomnienia z Wołynia, 1917–1919* (Warsaw: Pax, 1996) and Maria Dunin-Kozicka, *Burza Od Wschodu: Wspomnienia z Kijowszczyzny (1918–1920)* (Lodz: Wydawn, 1990). For remarks by a Soviet official in Polesia, see Tsentral'nyi Derzhavnyi Arkhiv Vykonnykh Orhaniv Ukrainy (Kiev) (TsDAVO Ukrainy), 413/1/49, l. 48 (1925) and 413/1/172, ll. 50–2 (1926).

and ethnicity (TsDAVO 1926). Languages, later to be separated into formal Ukrainian, Polish, Belorussian, Yiddish, and German, merged in a creative patois that, because languages were oral and non-standardized, were in constant play among those who spoke it. There was also a confusion over identity. When asked to state their nationality, many peasants replied simply “catholic,” “peasant,” or “local.” This self-ignorance provoked observers to call the locals “dark and deaf.”

Local architecture, too, appeared paltry because it was largely tensile, collapsible, and dynamic. Stores were small and unstorelike. Healing, teaching, advising, and local governance occurred at home or on the square. There were some churches and synagogues, but because of long distances and sectarian interests many people preferred to pray at home or in the woods. As daily life was not fixed by architecture, identities and histories too were rarely erected on the rigid structures of literary texts and documents. In a region where 90–95 percent of the population was illiterate, language and meanings were as dynamic and fluid as the seasonal country fairs.

This spatial anarchy facilitated social mingling, cultural autonomy, and linguistic diversity, which, because it was hard to pin down, was difficult to uproot or transform. From Moscow, in other words, the borderland was difficult to characterize. Security officials finally took over the conduct of the 1925 census because the arguments over disputed ethnic identities created so much acrimony and uncertainty. For Moscow officials, the borderlands’ lack of clarity constituted a security problem on the vulnerable border with Poland. In the thirties, NKVD agents reconfigured locals’ cultural persistence as rebellion. In *Biography*, I show how the multi-ethnic borderland was cleansed through mass arrests, deportations, and genocidal campaigns from 1935 until 1947. All parties who occupied the borderlands—Soviet reformers, German occupiers, Ukrainian and Polish nationalists—were confused by the ethnic and cultural complexity of the borderlands and sought to eradicate it.

After the war, the region, gutted and depopulated, did not flourish. It was a poor agricultural zone where collective farms failed to prosper. Moscow leaders saw the region as economically backward and in need of investment, jobs, and development. In the late sixties, Soviet officials decided to build what they projected would be the country’s largest nuclear power complex, with ten nuclear reactors alongside the small

log cottages, homes to subsistence farmers who still left sacrifices to forest sprites.² The metaphor of advanced technology eradicating superstition and rural poverty must have been attractive.

A major feature of the projected “nuclear park” was the new modern city of Pripiat, founded on emptied land in 1970 to accommodate plant workers and their families. Pripiat grew out of dreams of the twenties, when utopian theorists imagined cities fashioned out of the promise of limitless energy and industrial abundance.³ The socialist city entailed bulldozing the disappointing facets of the dark and deaf countryside and the grimy, crime-ridden, bourgeois city (Kaganovich 1934, 82).⁴ Soviet cities would be planned rationally. Industrial production, populations, and green space could be logically distributed across the countryside so as to eventually erode the distinctions between town and country, and between the haves and the have-nots, in order to showcase society’s accomplishments and egalitarianism (Kudriavtsev 1971, 3).⁵ The Soviet *sotsgorod* was to be a place where a unified, classless population could have it all: the conveniences, education, and services of a city, and the greenery, peace, and quiet of the country.

Of course, things do not always go according to plan. By the mid-sixties, Soviet cities were suffering from the same kind of sprawl, over-taxed infrastructure, housing shortages, traffic congestion, and pollution as cities in the capitalist world. In 1966, Nikita Khrushchev reasserted the principles of the socialist green city (CPSU, 387–88). Pripiat was a product of this renewed resolve. It was built in a remote area where urban services and opportunities were scarce. A green “oxygen” zone surrounded the city in the form of miles of undisturbed pine forests, bogs, and lakes. Powered by abundant, cheap, and clean nuclear energy, the air and environment were pure and pristine, a naturalists and outdoorsmen’s paradise. The city population of 50,000 constituted what planners considered the optimal ratio of population to the supply of goods and services (DiMaio 1974, 60).

- 2 For an excellent description of the park, see Paul R. Josephson, *Red Atom: Russia’s Nuclear Power Program from Stalin to Today* (New York: W.H. Freeman, 2000).
- 3 See Konstantine Melnikov’s Green City proposal in Frederick S. Starr, *Melnikov: Solo Architect in a Mass Society* (Princeton: Princeton University Press, 1978), 176–77.
- 4 See also Steven Harris, “Moving to the Separate Apartment: Building, Distributing, Furnishing, and Living in Urban Housing in Soviet Russia, 1950s–1960s” (PhD diss., University of Chicago, 2003), 94.
- 5 As the Soviet architectural theorist, B. Svetlichny, put it, “The city is the most accomplished form of human establishment.” “Nashi goroda na puti v budushchii,” *V Pomoshch politicheskomu samoobrazovaniuu* (Moscow, 1959), 10.

Even better, Pripjat was wholly modern. There was no tiny cottage, garden shed, hunter's shack, no vernacular or ecclesiastical architecture, no small chapel or grotto to a forgotten God. Everything, absolutely everything, was built according to one streamlined plan.⁶ Until one entered private space, there was nothing made by hand; nothing created outside of factory assembly lines. In the twenties, Walter Benjamin wondered what life would be like surrounded by mass produced elements. Pripjat would be a fine place to answer that question. Except there is no one left to question.

After the explosion of reactor no. 4 in 1986, 130,000 residents were removed to create the Chernobyl Zone. This last demographic purge was accompanied by a biological cleansing, which has occurred largely beneath the radar of the popular media. The pine forests near Chernobyl have been devastated and with it many of the species that inhabited it. Recent studies have shown that species, especially birds, fly in from outside the contaminated zones, get food because of lack of competition, and thrive until the radioactive effects take them out. The lives of the birds and animals we saw in the Zone are shorter than those living outside the Zone, and they are less successful reproductively (Nesterenko 2009; Mousseau and Moller 2011).

In sum, the solution to cultural diversity was to streamline culture, demography, and architecture. Those processes were followed by a radical biological simplification. What remains in the irradiated terrain is a worrisome diversity of radioactive isotopes that will continue to regenerate in the future.

6 Of the almost eight hundred approved standard designs for apartment buildings, less than ten percent were in use by the mid-seventies. "And even these are as alike as peas in a pod," noted one Soviet commentator (DiMaio 1974, 72).

References

- Brown, Kate. 2004. *A Biography of No Place: From Ethnic Borderland to Soviet Heartland*. Cambridge, MA: Harvard University Press.
- CPSU (Communist Party of the Soviet Union). 1966. *Directives*, Twenty-third Congress of the CPSU, 387–88.
- DiMaio, Alfred John. 1974. *Soviet Urban Housing: Problems and Policies*. London: Praeger Publishers.
- Kaganovich, Lazar Moiseevich. 1934. *The Socialist Reconstruction of Moscow and Other Cities in the USSR*. Moscow: Co-operative Publishing Society of Foreign Workers in the USSR.
- Kudriavtsev, Aleksei Osipovich. 1971. *Ratsional'noe ispol'zovanie territorii pri planirovke i zastroike gorodov SSSR*. Moscow: Izd-vo lit-ry po stroitelstvu.
- Mousseau, Timothy A., and Anders P. Moller. 2011. "Landscape Portrait: A Look at the Impacts of Radioactive Contaminants on Chernobyl's Wildlife." *Bulletin of Atomic Scientists* 67 (2): 38–46.
- Mycio, Mary. 2005. *Wormwood Forest: A Natural History of Chernobyl*. Washington, DC: Joseph Henry Press.
- Nesterenko, Vassily B., ed. 2009. *Chernobyl: Consequences of the Catastrophe for People and the Environment*. New York City: New York Academy of Sciences.
- Omeliashko, Rostislav Andrievich, ed. 1996. *Pid polinovoiiu zoreiu*. Kiev.
- PBS (Public Broadcasting Service). 2011. "Radioactive Wolves," Nova.
- TsDAVO (Tsentral'nyi Derzhavnyi Arkhiv Vykonnykh Orhaniv) Ukrainy. 1926. 413/1/6, ll. 84–5.

Gary Martin

Playing the Matrix: The Fate of Biocultural Diversity in Community Governance and Management of Protected Areas

| Governance types Protected area categories | A. Governance by government | | | B. Shared governance | | | C. Private governance | | | D. Governance by indigenous peoples and local communities | |
|--------------------------------------------------------------|--------------------------------------------------|-------------------------------------------|---------------------------------------------------|--------------------------|-----------------------------------------------------------------|-----------------------------------------------|--------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| | Federal or national ministry or agency in charge | Sub-national ministry or agency in charge | Government-delegated management (e.g., to an NGO) | Transboundary management | Collaborative management (various forms of pluralist influence) | Joint management (pluralist management board) | Declared and run by individual land-owners | ... by non-profit organizations (e.g., NGOs, universities) | ... by for-profit organizations (e.g., corporate owners, cooperatives) | Indigenous peoples' protected areas and territories – established and run by indigenous peoples | Community conserved areas – declared and run by local communities |
| Ia. Strict Nature Reserve | | | | | | | | | | | |
| Ib. Wildemess Area | | | | | | | | | | | |
| II. National Park | | | | | | | | | | | |
| III. Natural Monument | | | | | | | | | | | |
| IV. Habitat/ Species Management | | | | | | | | | | | |
| V. Protected Landscape/ Seascape | | | | | | | | | | | |
| VI. Protected Area with Sustainable Use of Natural Resources | | | | | | | | | | | |

Figure 1: "The IUCN protected area matrix": a classification system for protected areas comprising both management category and governance type (modified from Dudley 2008).

Community conservation, currently touted as a possible solution to the evils and ills of conventional modes of nature preservation, is being formalized in ways that threaten biocultural diversity. This drama is playing out at multiple scales and at contested sites evoked in the IUCN (International Union for Conservation of Nature) Protected Areas Matrix (fig. 1), which has its roots in late twentieth-century efforts to standardize the recognition and categorization of conservation areas around the world (Dudley 2008). The matrix evolved

over the last 30 years as conservationists confronted the inconvenient presence of peoples and cultural landscapes within protected areas, considered a hindrance by believers in the purest forms of nature preservation. Debates on the role of local peoples in the quest for conservation and sustainability have intensified since parties to the Convention on Biological Diversity announced in October 2010 a new target to expand the protected area coverage to include 17 percent of the world's terrestrial surface within 10 years.

The official IUCN definition of “protected area” that emerged in 1994 bears witness to the tension between advocates of natural and of cultural diversity: “an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.” The inclusion of “other effective means”—with its oblique reference to customary law and civil society policies—hints at an emerging environmental and social justice agenda, whereas the mention of “cultural resources” makes explicit that local knowledge, practice, and belief are interwoven with natural features of land and seascapes.

Specific management categories show similar evidence of compromise and hybridity. Category V of the Matrix (protected landscapes/seascapes) proposes the safeguarding of areas where “the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural, and scenic value.” Its partner, Category VI (protected areas with sustainable use of natural resources), aims to “conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems.” In these protected area constructions, nature is no longer pristine and untouchable, but rather biocultural and exploitable. Despite recognition of the intrinsic interrelationship between biological and cultural diversity, conservationists continue to isolate “naturalness” as a measurable characteristic of protected and unprotected landscapes (fig. 2).

Proposals to add a governance dimension to the categories at the Durban Worlds Parks Congress (2003) and the Bangkok World Conservation Congress (2004) eventually resulted in the full matrix in use today. Familiar and new forms of governance, including by state governments, private entities, indigenous peoples, and local communities—or through collaborative management by partnerships among them—now dominate official conservation perspectives on who is empowered to make and implement decisions in protected areas.

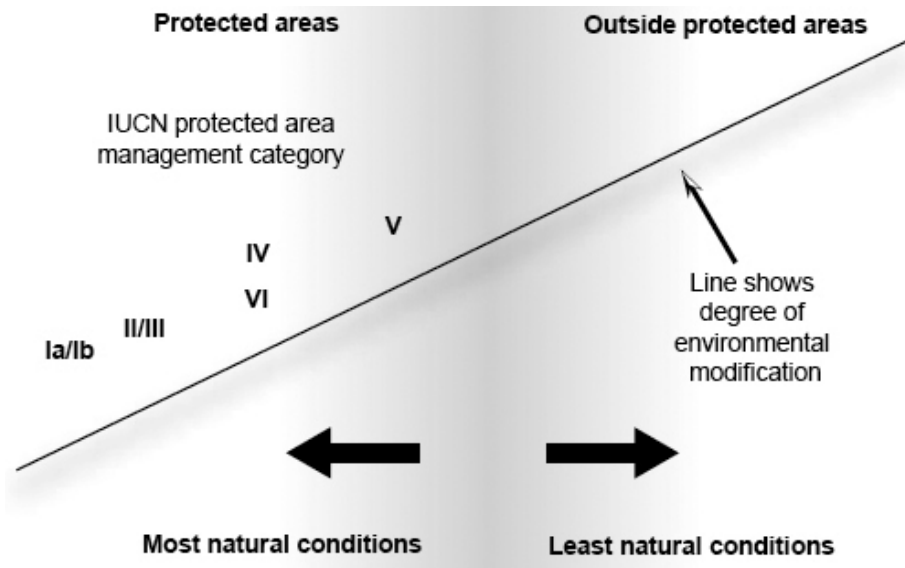


Figure 2: Naturalness and IUCN protected area categories: Many people assume that the categories imply a gradation in naturalness in order from I to VI but the reality is more complicated, as shown in Figure 2, which attempts to compare average naturalness of all the categories (modified from Dudley 2008).

Other actors play outside the margins of the matrix and around the boundaries of the IUCN and other international institutions. At meetings of the World Alliance of Mobile Indigenous Peoples (WAMIP), the logic of defining protected areas as clearly delimited geographical spaces is confronted by nomadic peoples and communities practicing various forms of mobility as a livelihood strategy. At the Parque de la Papa in Peru and other sites in South America, community members propose alternative designations such as Indigenous Biocultural Territories (IBCTs), which explicitly evoke not only the inextricable linkages between biological and cultural diversity but also politically-charged indigenous claims to land and resource tenure.

International organizations with diverse agendas collaborate and compete with the IUCN to achieve a common goal of conserving biocultural diversity in cultural landscapes. The Food and Agriculture Organization (FAO) of the United Nations created a new initiative to safeguard and support traditional agricultural systems and landscapes tended by farmers and shepherds under the designation Globally Important Agricultural Heritage Systems (GIAHS). Although the FAO counts the IUCN among its partners on the initiative, the position of GIAHS within the matrix of protected areas remains unspecified. The Christensen Fund is supporting nascent Ensete and Sor-

ghum Parks in Ethiopia, the result of transnational community-community exchanges. The matrix and its margins are riddled with hotspots where control over land and resources is disputed, and the legitimacy of lifestyles and livelihoods challenged. Areas strictly protected by governments or private entities continue to be a primary target for critiques because of the human rights violations perpetrated by fortress conservation, including displacement, deprivation of resources needed for basic health and nutrition, and loss of future subsistence and income options (Agrawal and Redford 2009; Lele et al. 2010). Collaborative management is attracting growing criticism, especially among those who characterize it as an anti-political tool to modify the relationship of local peoples with their environments and resources (Nadasdy 2005) in ways that covertly threaten biocultural diversity.

Indigenous Conserved Territories and Community Conserved Areas (ICCAs), a new IUCN governance category further validated at the Barcelona World Conservation Congress (2008), recognize the *de jure* or *de facto* authority of local communities to manage protected areas that have cultural, spiritual, and utilitarian significance for them. Official certification of ICCAs, which are expected to show conservation benefits according to conventional criteria, entangle communities in a web of international and national law and policy that threatens to impose exclusionary and preservationist measures under the guise of community conservation (Martin et al. 2010).

In a recent twist, the International Partnership for the Satoyama Initiative (IPSI) seeks to embrace and co-opt the renegade category of Indigenous Biocultural Territories that has emerged in indigenous South America, equating them with Japanese Satoyama landscapes within an overall framework policy that promotes new forms of collaborative management and evolving commons while putatively respecting traditional communal land tenure.

These multiple ways of playing the IUCN matrix raise a provocative question (Apgar, Ataria, and Allen forthcoming): Are we destroying endogenous processes that generate biocultural diversity in our quest to conserve it? Far from the academic and policy venues where this ideological struggle plays out, community ethnography reveals flashpoints of conflict that deepen our preoccupation.

In the Ashaninka Communal Reserve in the Peruvian Amazon, government agencies, NGOs, and indigenous federations are wrestling for control of a nascent collaborative management plan that may ironically open the path for exploitation of oil resources in primary forest with foreseeable impacts on culture and nature (Caruso 2011). Chinantec Voluntary Conserved Areas in southern Mexico, subsidized by Payments for Environmental Services, may undermine the *milpa* agroecosystem and hunting practices that sustain food sovereignty (Ibarra et al. forthcoming). Micropolitics have undermined government efforts to support financially sustainable use of timber resources in a community forest reserve in Quintana Roo, deepening divisions in a heterogeneous Maya community (Wilshusen 2009).

Beyond Latin America, similar scenarios play out in apparently unexpected ways with unintended consequences. When this ensemble of experiences is assessed through meta-analysis, the outcomes may reveal themselves as all too predictable, intended to make biocultural diversity a sacrificial lamb in an errant quest for conservation and sustainability.

References

- Agrawal, Arun, and Kent Redford. 2009. "Conservation and Displacement: An Overview." *Conservation and Society* 7 (1): 1–10.
- Apgar, Marina J., James M. Ataria, and Will J. Allen. 2011. "Managing Beyond Designations: Supporting Endogenous Processes for Nurturing Biocultural Development." *International Journal of Heritage Studies* 17 (6): 555–70.
- Caruso, Emily. 2011. "Co-Management Redux: Anti-Politics and Transformation in the Ashaninka Communal Reserve, Peru." *International Journal of Heritage Studies* 17 (6): 608–28.
- Dudley, Nigel, ed. 2008. *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN.
- Ibarra, Jose Tomas, Antonia Barreau, Carlos Del Campo, Claudia Isabel Camacho, Susannah R. McCandless, and Gary J. Martin. 2011. "When Formal and Market-Based Conservation Mechanisms Disrupt Food Sovereignty: Impacts of Community Conservation and Payments For Environmental Services on an Indigenous Community of Oaxaca, Mexico." Special Issue on Forests, Biodiversity and Food Security, *International Review of Forestry* 13 (3): 318–37.

- Lele, Sharachchandra, Peter R. Wilshusen, Dan Brockington, Reinmar Seidler, and Kamalijt Bawa. 2010. "Beyond Exclusion: Alternative Approaches to Biodiversity Conservation in the Developing Tropics." *Current Opinion in Environmental Sustainability* 2: 1–7.
- Martin, Gary J., Carlos Del Campo, Claudia Isabel Camacho, Guadalupe Espinoza Saucedo, and Xóchitl Zolueta Juan. 2010. "Negotiating the Web of Law and Policy: Community Designation of Indigenous and Community Conserved Areas in Mexico." *Policy Matters* 17: 195–204.
- Nadasdy, Paul. 2005. "The Anti-Politics of TEK: The Institutionalisation of Co-Management Discourse and Practice." *Anthropologica* 47 (2): 215–32.
- Wilshusen, Peter R. 2009. "Social Process as Everyday Practice: The Micropolitics of Community Based Conservation and Development in Southeastern Mexico." *Policy Sciences* 42: 137–62.

Rethinking Biocultural Diversity

Myra J. Hird

Volatile Bodies, Volatile Earth: Towards an Ethic of Vulnerability

For several decades, the social sciences and humanities have been engaged in an intensive exploration of the relationships between human and nonhuman, culture and nature. Of late these explorations have (re)turned to “materiality” and “the object,” in part because of a perceived over-indulgence in linguistic and cultural themes. A new generation of relational-material ontologies—developed by, for instance, feminist philosophers of science such as Vicki Kirby, Elizabeth Wilson, Karen Barad, and Donna Haraway, and speculative realists such as Graham Harman, Iain Hamilton Grant, and Quentin Meillassoux—are leading current critical reflections on the Western nature-culture bifurcation.

Research assembled within the “relational materialities” rubric begins from the now fully established premise that other-than-human entities have agencies of their own. This assertion is coupled with the oft-repeated claim that the natural and social mutually constitute, produce, and construct each other. As Bruno Latour writes, “Forces cannot be divided into the ‘human’ and ‘nonhuman’ [...] It is not a question of *nature* [...] *Natures* mingle with one another and ‘us’ so thoroughly we cannot hope to separate them and discover clear, unique origins to their powers” (1988, 205–6). In this way, relational-material analyses cleave to a notion of the social as composed of a heterogeneous multitude of entities, not all of them human or human-created. And because of this, scholars urge a cautious approach to the ways in which we assemble our world through techno-scientific developments (Clark 2011; Kriebel et al. 2001).

These relational-material analyses raise significant and timely questions about pressing global concerns such as ozone holes, global warming, pathogen outbreaks, waste management, biodiversity, and the like. They offer a cogent way to better understand the dynamic, reassembling relations within and between entities. At the same time, I want to press the relational-material ontology further in light of two convergent observations. Firstly, whereas analyses tend to focus on dynamic relations involving humans and other-than-human entities, the urgent contemporary issues listed above take us into regions where everything is not mixed with people (Clark 2011). That is, when we consider the dynamism and volatility of Earth’s billions-old epochs, we are soon

confronted by millennia of causal and contingent activity before humans' appearance (Meillassoux 2010). Moreover, there are a multitude of ongoing and dynamic relations that do not involve humans; relations that humans are not even aware of. That is, entities do not need human mediation in order to act: humans are not always and indelibly directing the (only) flow of communication, interpretation, and meaning (Hird 2009).

My research develops a *microontology* of sociable life on Earth, which attends to the majority of relations on our planet: those amongst microbes (Hird 2009). Referring to the "unseen majority," William Whitman, David Coleman, and William Wiebe (1998) estimate there are about 5×10^{30} bacterial cells on Earth, and another estimated 10^{18} bacteria circulating in the atmosphere attached to dust. Making up the majority of organisms on Earth, bacteria evince the greatest organismal diversity and have dominated evolutionary history (Dexter Dyer 2003). Millennia before the appearance of animals, bacteria invented all major forms of metabolism, multicellularity, nanotechnology, metallurgy, sensory and locomotive apparatuses (such as the wheel), reproductive strategies and community organization, light detection, alcohol, gas and mineral conversion, hypersex, and death (Margulis 1981). As such, bacteria are von Helmholtz's "less glamorous backstage machinery that actually produces the show" (CBC 2008).

Indeed, some scientists have begun to move beyond characterizations of microbial activity as strictly passive or pathogenic. These studies describe bacteria as complex, adaptable, versatile, and communicative. From elaborated sensory systems, bacteria developed complex communication, including individual bacterial interpretation of information provided by other bacteria (micro-level), leading to complex patterns of (macro-level) behavior. Bacteria become multicellular by "forming communities of 10^9 to 10^{12} organisms capable of complex communication strategies in which differing environments are perceived, analyzed, and described to members of the community in order to formulate the best adaptive response" (Ben-Jacob 1994, 46). Through activities such as quorum sensing, biofilm formation, and sporulation, bacterial communities "perform collective sensing, distributed information processing, and gene-regulation of individual bacteria by the group" (Ben-Jacob 2003, 1300). What is more, bacteria communicate with different kinds of bacteria, and even with animals.

The microontology I am developing pushes relational-material approaches to consider the vast majority of relations within the biosphere as independent of, and largely indifferent to, human input. It also pushes us to observe that our symbiotic relationship with bacteria is obligate for humans (that is, essential to our survival) but not for bacteria. As Carl Woese observes, “if you wiped out all multicellular life forms off the face of the earth, microbial life might shift a tiny bit. . . . If microbial life were to disappear, that would be it—instant death for the planet” (quoted in Blakeslee 1996, 1). In other words, rather than the rather “flat ontology” (Clark 2011, 45) that relational-material analyses cleave to, whereby humans and other-than-human relations are *co-produced*, this microontology recognizes the relationship between humans and microbes as one of *radical asymmetry* (Hird 2010). That is, while bacteria are largely indifferent to our thriving, we are utterly dependent upon the teeming assemblages of dynamic microbes that make up and maintain both our corporeality and our biosphere. As Graham Harman puts it, “all reality is political, but not all politics is human” (2010, 118).

My current research project—at the early stage of formulation—is concerned with developing an *ethics of vulnerability* that begins with entangled relationality, radical asymmetry, and the inherent violence of indissoluble openness (Diprose 2002). I am developing this ethics through two phenomena: metabolism and recycling. Both are sites of particular human *vulnerability*. While all plants and animals on earth are metabolically defined as consumers (we must use already available organic and inorganic compounds), bacteria evolved earth’s metabolic production economy: phototrophs convert solar energy; chemotrophs convert chemical energy; lithotrophs gain electrons from elements (such as hydrogen and sulphur) or simple organic compounds (such as water and hydrogen sulphide); and organotrophs convert complex organic substances (such as proteins in dead biomass and carbohydrates in grasses and grains). Through the recycling of organic and inorganic matter—Tyler Volk (2004) refers to the biosphere’s incessant recycling as a “waste world”—bacteria provide a hospitable environment in which plants and animals may thrive. As such, waste management sites, and particularly landfills, are sites of concentrated anaerobic metabolizing, a process that produces methane, carbon dioxide, and so on—contaminants that are generating increasing concern and that connect the geo-, bio-, and lithospheres. Metabolism and bacterial recycling therefore provide excellent case studies in the uneven, or spiked,

nature and culture ontology (Haraway 2008). Human vulnerability to these phenomena suggests a cautious approach that enjoys some resonance with the emphasis of environmental science's "precautionary principle" on decision-making in the face of uncertain risks.

References

- Ben-Jacob, Eshel. 1994. "Generic Modeling of Cooperative Growth Patterns in Bacterial Colonies." *Nature* 368: 46–49.
- . 2003. "Bacterial Self-organization: Co-Enhancement of Complexification and Adaptability in a Dynamic Environment." *Philosophical Transactions—Royal Society: Mathematical, Physical and Engineering Sciences* 361: 1283–312.
- Blakeslee, Sandra. 1996. "Microbial Life's Steadfast Champion." *New York Times*, 15 October.
- CBC Radio. "How to Think About Science." Accessed March 2008. <http://www.cbc.ca/ideas/features/science/index.html>.
- Clark, Nigel. 2011. *Inhuman Nature: Sociable Life on a Dynamic Planet*. London: Sage.
- Dexter Dyer, Betsey. 2003. *A Field Guide to Bacteria*. Ithaca: Cornell University Press.
- Diprose, Rosalyn. 2002. *Corporeal Generosity: On Giving with Nietzsche, Merleau-Ponty, and Levinas*. New York: State University of New York Press.
- Haraway, Donna. 2008. *When Species Meet*. Minneapolis: University of Minnesota Press.
- Harman, Graham. 2010. *Prince of Networks: Bruno Latour and Metaphysics*. Melbourne: re.press.
- Hird, Myra J. 2009. *The Origins of Sociable Life: Evolution after Science Studies*. Houndsmills: Palgrave Press.
- . 2010. "Symbiosis, Microbes, Coevolution and Sociology." *Ecological Economics* 69 (4): 737–42.
- Kriebel, David, Joel Tickner, Paul Epstein, John Lemons, Richard Levins, Edward L. Loechler, Margaret Quinn, Ruthann Rudel, Ted Schettler, and Michael Stoto. 2001. "The Precautionary Principle in Environmental Science." *Environmental Health Perspectives* 109 (9): 871–76.

- Latour, Bruno. 2000. *We Have Never Been Modern*. Boston: Harvard University Press.
- Margulis, Lynn. 1981. *Symbiosis in Cell Evolution*. New York: W. H. Freeman and Co. Ltd.
- Meillassoux, Quentin. 2010. *After Finitude: An Essay on the Necessity of Contingency*. New York: Continuum.
- Volk, Tyler. 2004. "Gaia is Life in a Wasteland of By-Products." In *Scientists Debate Gaia: The Next Century*, edited by Stephen Schneider, James Miller, Eileen Crist, and Penelope Boston, 27–36. Cambridge, MA: MIT Press.
- Whitman, William, David Coleman, and William Wiebe. 1998. "Prokaryotes: The Unseen Majority." *Proceedings of the National Academy of Sciences* 95: 6578–83.

Kojo Amanor

Seeing the Trees from the Biocultural Diversity: Forestry Management, Smallholder Agriculture, and Environmental Politics in Ghana

During the 1990s, global environmentalism was constructed around the symbol of a highly interconnected but fragile world. The dominant solutions to this ecological crisis were techno-scientific interventions and social controls through bureaucratic management. With the implementation of neoliberal economic policies, social control over the environment was implemented within a decentralized framework of community participation and civil society-state-private sector partnerships. Perceptions of an impending global crisis that needed urgent action favored the mobilization of communities for environmental actions around authoritarian community structures that impose controls over natural resources, rather than focusing on popular democratic consensus building. The efficacy of community environmental management came to be assessed in terms of the ability to implement effective environmental management policies dictated at the national and international level (Potetee and Ostrom, 2004). At the same time, the act of establishing controls to ameliorate a perceived environmental crisis also empowered particular community groups to act locally, controlling natural resources in the interests of global environmental coalitions (Hajer 1995).

However, recent research questions notions of environmental calamities threatening pristine and fragile environments. The new framework is premised on the conception that environments do not have an underlying ecological design, and that throughout history they have been subject to considerable shifts in their composition as a result of external shocks brought on by erratic climatic and other factors. Instability and non-directional change were characteristics of environments long before the advent of the modern period. Humans have played an important role in the reproduction of forests, and the removal of humans from many wilderness conservation areas has sometimes led to the demise of the environment, which fails to reproduce itself until human agency is once more introduced or simulated by environmental management agencies. Fire plays a role in the life cycle of many environments, and it is often associated with human interventions. Increasingly, many environments that were formerly perceived as pristine forest areas are now recognized as anthropogenic (Pahl-Wost 1995).

In the Ghanaian forest region, recent paleo-ecological research around Lake Bosomtwi suggests that as late as the seventeenth and eighteenth centuries there were exceptionally dry periods, resulting in the drastic transformation of tropical high forest into grasslands (Shanahan et. al. 2009). This period coincides with the expansion of human settlement and agriculture into the forest, the cultivation of maize from the Americas, and the rise of new imperial state formations within the forest zone. This historical record of disturbance is also preserved within the contemporary structure of much of the forest, with forest ecologists regarding the semi-deciduous forests as being largely composed of “scar tissues” (Hawthorne 1996). The only forests considered pristine (and worthy of “hotspot” status for the conservation of rare indigenous species) are the evergreen forests of southwest Ghana.

While the semi-deciduous forests may contain fewer indigenous species and more “ecological transgressors,” they often contain a much higher degree of species diversity than the more pristine forests. Thus, the disruption of forests may actually result in an increase in diversity in the recovering forest, and forests reconstituted in this way are influenced by anthropogenic factors, showing a symbiosis of human and natural elements. The wet deciduous forests of Ghana are characterized by high densities of species that are valued by humans and agriculturalists and that are therefore actively preserved in the creation of farms and arable land. The deciduous forests also have richer soils, which may partially result from a history of farming practice, including burning, which modifies the underlining acidity of many tropical forest soils. Human activities also create much organic waste in and around settlements, and the rich soil at former settlement sites often results in the regeneration of more luxuriant vegetation than in surrounding areas. Environmental scientists and policy makers have often read these developments in reverse. Forest enclaves on abandoned settlement sites are regarded as relic patches of original forest, in contrast with other areas that are identified as examples of forests disrupted by human interventions (Fairhead and Leach 1998; Fairhead, Leach, and Amanor forthcoming). Several old settlement sites and other types of areas associated with human settlement are now classified as sacred groves. These sacred groves constitute areas associated with historical events—the founding of settlements and polities, famous battles (which can be commemorated as locations of triumph or of calamitous suffering)—and with spiritual landmarks and religious orders. They are areas of serene beauty, such as headstreams of rivers, waterfalls, and ancestral burial places (Chouin 2002). Far from being pristine envi-

ronments, these sacred groves are cultural landscapes: the significance of the areas lies in their rich cultural associations as landscapes of memory associated with political identities and the emergence of a political order. Space and society are mutually constituted. The organization of power relations involves the reorganization of both natural resources and of perceptions of the natural world in ways in which the political order and its control over people and resources are reaffirmed and legitimized. Sacred groves are about not only the conservation of nature, but also the conservation of culture and power relations, the emergence of a political order and human settlement, and claims on land, resources, and people. It is only in an age in which humans perceive the environment to be fragile and open to destruction that the environmental aspects of sacred groves assume significance. In earlier epochs concerned with movements into new frontiers and the colonization of the wilderness, sacred groves must have largely been perceived as cultural landmarks.

Biocultural diversity is constructed around mosaics of human interventions and natural responses, creating environments with multiple paths of regeneration: The composition of the “natural” environment bears a human imprint, while humans manage and steward this environment to maintain what they value in a world that carries a large natural imprint. In contrast, technocratic modernization results in the bureaucratic division of different aspects of human economy and activity into distinct and discrete branches of knowledge, management, and control. This results in the creation of monocultures and discrete zoning systems associated with particular types of expertise, such as specific zones for export crop production, food production, forest reservation, wilderness conservation, and forest plantations. Although the management of forest reserves ostensibly aims to prevent deforestation by humans, forest management policies have been influenced by desires to maximize timber production. In the colonial period, foresters were concerned by the low number of timber species available in forest reserves and the relatively higher numbers in farming areas. This discrepancy was due to human interventions that preserved particular trees and created favorable environments for their nurture. Foresters attempted to create favorable management practices to increase the densities of desirable timber species. In the 1940s the Tropical Shelterwood System introduced arsenic poisoning of less desirable forest trees to create spaces for more desirable timber species. By the 1960s an overt policy of planting monocultures of fast-regenerating timber trees (mainly teak and cedrela) in forest reserves was introduced. However, the plantations were frequently destroyed by fire in the dry 1970s and early 1980s.

Since the early 1980s the Ghanaian Forestry Commission has moved aggressively into farming areas, carving out for itself a new domain in the diversity of the farm environment. This has been strategically built on a platform of community participation. The Commission has sought to find allies within the farming community willing to participate in its vision of a new global forest economy. To meet new international demands for timber during the 1980s and 1990s, trees extracted from farmlands became the major source of timber. Over 80 percent of timber exports in Ghana originated from farms in this period. This involved the extension of the concession system into farming areas, the denial of farmers' rights to the forest trees that they nurtured and preserved, and the widening of the economic base of trees that could potentially be used for timber.

Participation should be about creating entitlements for rural people to benefit from the resources they steward, and building upon their capabilities and vision to manage and create environments that reflect their aspirations. However, in practice, participation in forestry has been characterized by political maneuvers to legitimize the grabbing of forestry assets by the private sector and the state, and to build up a support network constructed around rural chiefs, who have been given the incentives of access to payment of royalties for this timber. This new regime has sought to introduce a policy of salvage felling of timber on farmlands, which has been justified through recourse to narratives about the farmers' reckless shifting cultivation practices that destroy timber. However, it was these farmers' practices that created these resources in the first place, and in the context of changes brought about by erratic rainfall and drought.

Over the last 20 years, the farm landscape has rapidly been transformed as the tree resources associated with the creation of fertile farming environments have been plundered by the timber industry. Within the ravages of the forest economy engendered by the state and international timber trade, the Forestry Commission is now attempting to mobilize farmers to plant monocultures of fast-growing timber trees, to replace the plundered biocultural diversity of the fields. A more appropriate forest policy can only develop from recognition and appreciation of the dynamic relationship between people and nature in the creation of these resources, and the importance of retaining these relationships for posterity.

References

- Chouin, Gérard. 2002. "Sacred Groves in History: Pathways to the Social Shaping of Forest Landscapes in Coastal Ghana." *IDS Bulletin* 33 (1): 39–46.
- Fairhead, James, and Melissa Leach. 1998. *Reframing Deforestation: Global Analysis and Local Realities; Studies in West Africa*. Cambridge: Cambridge University Press.
- Fairhead, James, Melissa Leach, and Kojo Amanor. Forthcoming. "Anthropogenic Dark Earths and Africa: A Political Agronomy of Research Disjunctures." In *Contested Agronomy*, edited by James Sumberg and John Thompson. London: Earthscan.
- Hajer, Maarten A. 1995. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Oxford University Press.
- Hawthorne, William D. 1996. "Holes and Sums of Parts in Ghanaian Forests: Regeneration, Scale and Sustainable Use." *Proceedings of the Royal Society of Edinburgh, Biological Sciences* 104B: 75–176
- Pahl-Wostl, Claudia. 1995. *The Dynamic Nature of Ecosystems: Chaos and Order Entwined*. New York: John Wiley & Sons Ltd.
- Potete, Amy, and Elinor Ostrom. 2004. "Heterogeneity, Group Size and Collective Action: The Role of Institutions in Forest Management." *Development and Change* 35 (3): 435–61.
- Shanahan, Timothy M., Jonathan T. Overpeck, Kevin J. Anchukaitis, J. Warren Beck, Julia E. Cole, David L. Dettman, John A. Peck, Christopher A. Scholz, and John W. King. 2009. "Atlantic Forcing of Persistent Drought in West Africa." *Science* 324: 377–80.

Shiho Satsuka

Biodiversity in Satoyama Conservation: Aesthetics, Science, and the Politics of Knowledge

How do we know what kinds of biodiversity to conserve? What kind of knowledge gains legitimacy in biocultural diversity conservation? Current discussions of biocultural diversity focus on the significance of traditional knowledge cultivated in specific local environments. While the attention to traditional knowledge recognizes diverse knowledge systems, how can biocultural diversity projects move beyond reproducing the old dichotomy between “modern” scientific and “traditional” local knowledge? What are the politics of framing some knowledge as culturally specific “ethno” science and others as neutral, cosmopolitan science? How can we conceptualize biocultural diversity projects without reaffirming the asymmetrical power relations between science and traditional knowledge?

Anthropologists have pointed out that in the dominant biocultural diversity discourse culture is assumed to be static and bound to a specific geographic location (e.g., Brosius and Hitchner 2010, Cocks 2006). This perception of local culture contributes to maintaining the hierarchy between techno-science and traditional ecological knowledge, and, ironically, it tends to place a burden on non-Western people to be environmental stewards, even though the problem of declining diversity has been attributed to the pressure of industrialization from cosmopolitan centers.

Building on these critiques, we need to critically examine how people translate and appropriate the biocultural diversity perspective, and how they negotiate their positions by engaging in diversity conservation projects. It is important to explore the political process of cultural translation and to examine how biocultural diversity projects provide a point of articulation among variously situated actors. By tracing the translation process, we can see how the culturally specific discourse of biocultural diversity has gained authority with its assumed claim of universal applicability, and how the discourse has drawn a wide range of people in to participate, even though there are tensions and incompatibility with their own perceptions of nature. Doing so allows us to focus on the dynamic interactions among knowledge systems and helps us to develop analyses that go beyond romanticizing local knowledge as a remedy for the problems of modernization.

My current project on satoyama “village forest” restoration movements in Japan urges me to think about different strategies that the Japanese government, ecological scientists, and citizens employ in their attempt to translate the concepts and practices of biocultural diversity conservation.

Satoyama refers to secondary woodlands and grasslands near human settlements in Japanese rural areas, where people have coppiced and collected wood and grass for fuel, fertilizer, and fodder for centuries. Since the 1960s, due to industrialization, satoyama has been neglected and has deteriorated. Concerned by this situation, ecological scientists have expanded the original meaning of satoyama and developed the concept of “satoyama landscape,” an ecosystem consisting of a diverse mosaic of agricultural and nonagricultural lands, including farm fields, rice paddies, irrigation canals, ponds, and human settlements, as well as woodlands (Kadoya and Washitani 2010, Takeuchi 2010). By using this term, scientists argue that a long history of heterogeneous human land use has fostered a variety of habitats for wildlife and plants, creating greater biodiversity (e.g., Fukamachi, Oku, and Nakashizuka 2001, Kobori and Primack 2003).

Meanwhile, the Japanese government launched the “Satoyama Initiative” at the UNESCO Global Workshop in 2010. The unique characteristic of the Satoyama Initiative is its emphasis on the importance of “integrating traditional ecological knowledge and modern science,” enhancing the “harmony” between humans and nature. The advocates of this initiative promote satoyama as “a new model for a sustainable society” (Satoyama Initiative 2010).

By integrating traditional Japanese agrarian knowledge and modern science, the Satoyama Initiative can offer a possible challenge to the hierarchical international division of labor between traditional ecological knowledge and science. Yet, in the very process of this shift, another important tension emerges. How can satoyama, as a culturally specific set of practices and landscapes, be a model for a diversity of anthropogenic landscapes that vary dramatically in each location?

The government-led Satoyama Initiative can be analyzed as part of the long-standing Japanese struggle to bridge the gap between the universal claims of Western scientific knowledge and its incommensurability in non-Western contexts. It is also an effort on

the part of the Japanese to be recognized in the international community as a member with the same stature as its Western counterparts, rather than as a peripheral non-Western other. Yet, in the process, the government-led initiative—like dominant biodiversity projects—privileges a culturally specific perception of nature as if it can serve as a model for other knowledge traditions.

In contrast, the participants in grassroots satoyama conservation movements are more aware that satoyama may not be applicable as a model outside of Japan. Yet some satoyama conservation groups do foster translocal and transnational connections.

In particular, the grassroots citizens' satoyama conservation movement that I have been working with offers a different example of knowledge translation and transnational network making. The group's activities center on the revitalization of forests that produce highly valued wild matsutake mushrooms in the suburb of Kyoto. While the group is led by a prominent scientist, the uncontrollability of the wild mushroom encourages the group to merge their scientific knowledge with animistic perceptions: matsutake is a blessing from the mountain deities, and reminds group members of the humble position of humans in the web of complex interspecies relations.

Unlike the government-sponsored Satoyama Initiative, the grassroots group does not attempt to present their knowledge and activities as a "model" that is applicable to other locations. While they share their knowledge with people in other locations, including China and Sweden, they insist on local specificity and difference. They offer their experience as an "example" for comparison, so that people elsewhere can reflect on their uniquely specific cultural traditions and environmental features.

These examples offer us materials to explore how biocultural diversity projects, as an imagined common language, work to standardize knowledge, yet simultaneously provide a tool for people to make sense of and to negotiate their positions.

Considering satoyama projects allows us to rethink histories and cultural frameworks of scientific assessments of biological diversity not only in Japan, but everywhere. It also requires us to think seriously about the political struggles for legitimacy among different knowledge systems.

References

- Brosius, Peter J., and Sarah H. Hitchner. 2010. "Cultural Diversity and Conservation." *International Social Science Journal* 61: 141–69.
- Cocks, Michelle. 2006. "Biocultural Diversity: Moving Beyond the Realm of 'Indigenous' and 'Local' People." *Human Ecology* 34 (2): 185–200.
- Fukamachi, Katsue, Hirokazu Oku, and Tohru Nakashizuka. 2001. "The Change of a Satoyama Landscape and Its Causality in Kamiseya, Kyoto Prefecture, Between 1790 and 1995." *Landscape Ecology* 16: 703–17.
- Kadoya, Taku, and Izumi Washitani. 2010. "The Satoyama Index: A Biodiversity Indicator for Agricultural Landscapes." *Agriculture, Ecosystems and Environment* 140: 20–26.
- Kobori, Hiromi, and Richard Primack. 2003. "Conservation for Satoyama, the Traditional Landscape of Japan." *Arnoldia* 62 (4): 2–10.
- Satoyama Initiative. 2010. *Paris Declaration on the "Satoyama Initiative."* http://satoyama-initiative.org/wp-content/uploads/2011/09/Paris_Declaration_EN_april2010_revised03_low1.pdf.
- Takeuchi, Kazuhiko. 2010. "Rebuilding the Relationship between People and Nature: The Satoyama Initiative." *Ecological Research* 25: 891–97.

Kevin St. Martin

Mapping Biocultural and Economic Diversity ... Everywhere

When geographers disavow their own role in crafting knowledges of culture—by claiming merely to report on ontological continuities or changes—they forget the responsibilities they have as representatives of others' lives (Castree 2004, 222).

Ontological Projects and Problems

The important relationship between biological and human cultural diversity appears most clearly in the world maps produced by Stepp et al. (2004) and Harmon and Loh (2004). These maps, and the ongoing research and advocacy of organizations like Teralingua, highlight the strong correlation between biological diversity (measured in terms of vertebrate and plant species density) and locations with high levels of human linguistic (as a proxy for cultural) density; this coincidence in space acts as the ontological foundation for an emergent recognition and politics of “biocultural diversity.” These persuasive maps depict, at a global scale, eco-cultural regions that, as empirical research has shown (Pretty 2011; Pretty et al. 2009), contain repositories of human experience and knowledge vital to understanding ecological diversity and, by extension, to maintaining it. Like biological diversity, such human knowledge is embedded in places threatened by social and economic processes of “globalization” (UNESCO 2007, 2010) and, like maps of biodiversity, maps of biocultural diversity function as a baseline and metric of where diversity hotspots might be found.

Critiques of biocultural diversity mapping point to the limitations and potential inaccuracies of such mapping—they “smooth over” the complex interrelations and knowledges that emerge from human/nature interactions (Brosius and Hitchner 2010). In addition, such maps appear aligned with emerging global powers and other eco-regional mapping projects that foreground conservation rather than self-determination, and preservation rather than cultural or ecological invention. Despite these critiques, the maps nevertheless convincingly and visually depict a global reality of biocultural diversity hotspots using increasing sophisticated tools (Stepp et al. 2004). In addition to hotspots in the tropics, however, such maps also convincingly produce the homogeneity of elsewhere, an absence of biocultural diversity in Northern zones, desert regions, and oceans (the latter omitted due to data limitations).

While such cartographic “silences” (Harley 2001) are inevitable, they problematically stifle projects that might seek to recover or foster or produce a politics centered on biocultural and other diversities in these seemingly bioculturally homogenous locations.

While maps of biocultural diversity clearly give value to that which has been historically devalued (e.g., diverse indigenous knowledges), they do so within a cartographic and historical frame that recapitulates a global spatialized teleology of economic modernization and homogenization. Placing diverse biocultures within a shrinking periphery does not threaten the hegemony of a particular economic, indeed capitalist, monoculture. In this sense, the map works to limit the ways in which local (i.e., Northern, temperate, etc.) biocultural milieus might be re-thought as sites of possible alternative ways of being and producing with nature; simply put, diversity (biological, cultural, and economic) is imagined and placed distant from Northern, temperate, and economically “advanced” locations (cf. Cocks 2006).

Beyond the growing recognition of what maps silence, there is also a growing understanding of maps as constitutive of the worlds they purport to reflect (Kitchen and Dodge 2007). In this case, biocultural maps are part of an ongoing *performance* of a global and globalizing space where diversity, to the degree it still exists, is on the periphery of a threatening and expanding capitalist order. While biocultural mapping, and its associated projects of visibility, conservation, and cultural survival, is certainly worthwhile, we must also take care to leave room for those diverse peoples and ecologies that are not mapped, imagined, or yet performed. What configurations of nature and society do we efface or preempt when we map diversity as always only “before and beyond” our modern economy (St. Martin 2005)?

The discussion above suggests that the performance of biocultural diversity has been relegated (via maps, narratives of crisis, etc.) to locations that are essentially beyond the frontiers of capitalism and modernity. While acknowledging biocultural diversity is vital, it is also vital that we avoid the placement of innovative and alternative forms of production, marketing, and exchange (i.e., those interventions designed to conserve biocultural diversity) only in such distant and peripheral sites. The local, participatory eco-cultural and economic projects emerging from the recognition, mapping, and enactment of biocultural diversity are desperately needed precisely within the monocultural world where their presence might work to disrupt the latter’s strength and inevitability.

Cultural and Other Diversities in Northern Norway

While marine socioecological systems are not mentioned on maps of biocultural diversity, it is safe to assume that they would appear in the tropics, around coral reefs, and in linguistically complex coastal regions (Stepp et al. 2004). Furthermore, they would likely not be in Northern Europe, more a heartland of the contemporary global order (and its homogenizing trajectories) than a bioculturally rich periphery. Indeed, marine systems throughout the North Atlantic have been understood via an ontology of competing industrial sectors (e.g., fisheries or offshore energy development) and social actors that reduce to economically or amenity driven “stakeholders,” rather than as the site of diverse peoples, knowledges, and human experiences. Bioculturalism, from the perspective of those discourses that dominant marine science, policy, and governance, is a distant concept.

Yet, if we did project and map biocultural diversity into the marine environment in the North, it might suggest a social “landscape” rich with histories and inhabitations, rather than an asocial space containing resources awaiting exploitation (cf. St. Martin 2009). Were the space of resources to be re-inscribed as a biocultural (or at least socioecological) space, it might become clear that this is a site open to a variety of configurations of production and distribution, a site of economic diversity. Indeed, the diversity so evident on the periphery might begin to emerge, perhaps even through maps, in Northern Europe.

The case of the Sami of northern Norway provides a compelling example of the enactment of biocultural diversity and its relationship to economic diversity. The Sami, like other indigenous peoples subject to decades of assimilation policies, are reclaiming their languages, dress, belief systems, and history. But this reclaiming is also a production, an invention, and a performance, rather than a simple reversion to the “traditional.” Culture, and indeed bioculture, in this case is a site of not only politics and history, but also a contemporary agency that entangles ethical decisions and choices with alternative practices (e.g., language, education, tourism, museums, family traditions, and religion). The result is a Sami identity and politics of empowerment that has been extremely successful. In addition to a Sami success, however, there is a more general success insofar as culture and biocultural diversity in northern Norway seems accessible, malleable, proximate, and a vital site of ethical decision-making by individuals,

communities, and nations, despite a host of practices across scales that threaten to homogenize the human experience.

For example, the Sami, referencing the rhetoric of socioecological systems and the recent recognition of the importance of local (and indigenous) environmental knowledge to fisheries and marine management, are (re)mapping fjord ecosystems as sites of Sami culture, history, language, knowledge, and material practice (Brattland and Nilsen 2011). Where the dominant fisheries science and management regime saw only “fishermen” and single species of fish distributed throughout Norway’s national waters, there is a growing ontological presence of Sami fishers, fishing villages, inshore and offshore practices and knowledges, complex ecosystems and fjord environments, and an ongoing inhabitation by diverse peoples. Indeed, there is a growing biocultural diversity in Northern Norwegian fjords that is, at least in part, the result of Sami mapping projects. Such projects, unlike global biocultural diversity mappings, emerge from homogeneity. Just as Sami culture itself (re-)emerged in the 1970s via a variety of key struggles aligned with a global indigenous rights movement, biocultural “realities” of complex ecologies and local knowledges emerge from a host of local places.

This re-inscription of the fjords as sites of Sami inhabitation provides not only a foundation for cultural survival, but also a biocultural logic that might inform future “ecosystem-based management” initiatives. While fisheries management has long promoted the monocultures of Norwegian fishing, the Sami and other forces of diversification are creating new openings and opportunities for more localized management systems based on local environmental knowledge (Brattland 2010). Such openings suggest not only the performance and production of cultural and biological diversity but economic diversity as well. That is, re-mapping fjords as sites of Sami experience is inseparable from an acknowledgement of their artisanal inshore economy, which has been ignored (even displaced) by a management regime that, to date, caters to largely corporate offshore enterprises.

The turn towards a biocultural logic in marine resource management has the potential to maintain and foster not only the material and working culture of the Sami but an alternative economy aligned with community and ecosystem sustainability. Such a project, however, relies upon an image and ontology of diversity as performative and always potentially emergent rather than pre-existent and ultimately distant. Indeed, we

are witnessing the beginnings of a new biocultural landscape in northern Norway, one that is biologically, culturally, and economically diverse despite its location within the North Atlantic, within the very heartland of modern industrial fishing. Such a development suggests that we might want to rethink biocultural mapping strategies such that all locations, despite their challenges, are capable of and open to emergent forms of biocultural survival.

References

- Brosius, J. Peter, and Sarah L. Hitchner. 2010. "Cultural Diversity and Conservation." *International Social Science Journal* 61 (199): 141–68.
- Brattland, Camilla. 2010. "Mapping Rights in Coastal Sami Seascapes." *Arctic Review on Law and Politics* 1 (1): 28–53.
- Brattland, Camilla, and Steinar Nilsen. 2011. "Reclaiming Indigenous Seascapes: Sami Place Names in Norwegian Sea Charts." *Polar Geography* 34 (4): 275–97.
- Castree, Noel. 2004. "Economy and Culture are Dead! Long Live Economy and Culture!" *Progress in Human Geography* 28 (2): 204–26.
- Cocks, Michelle. 2006. "Biocultural Diversity: Moving Beyond the Realm of 'Indigenous' and 'Local' People." *Human Ecology* 34 (2): 185–200.
- Kitchen, Rob, and Martin Dodge. 2007. "Rethinking Maps." *Progress in Human Geography* 31 (3): 331–44.
- Harmon, David, and Jonathan Loh. 2004. "A Global Index of Biocultural Diversity." Discussion Paper for the International Congress on Ethnobiology, University of Kent, England, June 2004.
- Pretty, Jules. 2011. "Interdisciplinary Progress in Approaches to Address Social-Ecological and Ecocultural Systems." *Environmental Conservation* 38 (2): 127–39.
- Pretty, Jules, Bill Adams, Fikret Berkes, Simone Ferreira de Athayde, Nigel Dudley, Eugene Hunn, Luisa Maffi, Kay Milton, David Rapport, Paul Robbins, Eleanor Sterling, Sue Stolton, Anna Tsing, Erin Vintinnerk, and Sarah Pilgrim. 2009. "The Intersections of Biological Diversity and Cultural Diversity: Towards Integration." *Conservation and Society* 7 (2): 100–12.

- St. Martin, Kevin. 2005. "Mapping Economic Diversity in the First World: The Case of Fisheries." *Environment and Planning A* 37 (6): 959–79.
- . 2009. "Toward a Cartography of the Commons: Constituting the Political and Economic Possibilities of Place." *Professional Geographer* 61 (4): 493–507.
- Stepp, John Richard, Sarah Cervone, Hector Castaneda, Ava Lasseter, Gabriela Stocks, and Yael Gichon. 2004. "Development of a GIS for Global Biocultural Diversity." *Policy Matters* 13: 267–70.
- UNESCO. 2007. *Links between Biological and Cultural Diversity*. Report of the International Workshop, September 2007, Paris.
- . 2010. "A Proposed Joint Programme of Work on Biological and Cultural Diversity Led by the Secretariat of the Convention on Biodiversity and UNESCO." Working document from the International Conference on Biological and Cultural Diversity, June 2010, Montreal, Canada.

S. Eben Kirksey

Thneeds Reseeds: Figures of Biocultural Hope in the Anthropocene

Thneeds Reseeds, a sculptural artwork by Deanna Pindell, is a biotactical intervention aimed at exposing and derailing dominant regimes for managing sylvan life (da Costa and Philip 2008, xviii). Imagining a way to reseed the clear-cut forested landscapes near her home on the Olympic Peninsula of Washington State, Deanna began collecting friends' multicolored wool sweaters—old and funky things that were no longer fashionable to wear. Refashioning the form of these commodities, products of the excess of late capitalism, she shrank the donated sweaters in her drier. Using a time-tested process called “felting,” she made fuzzy softball-sized sculptures, brightly colored habitats for forest plants and animals. Deanna created small openings so that forest mice, voles, and salamanders might live inside the Thneeds. She also hoped that these wool balls would become moth-eaten, that they would become food for the insect community.

The name for these sculptures was taken from *The Lorax*, a classic childhood tale by Dr. Seuss about environmental destruction. “A thneed’s a fine something that all people need,” proclaims the Old Onceler, a haunting specter of dead capital who is the nemesis of the Lorax: “It’s a shirt. It’s a sock. It’s a glove, it’s a hat. But it has other uses, yes, far beyond that!” Speaking for nature, the Lorax persistently tries to interrupt the Old Onceler’s plans to get mighty rich by knitting these multi-purposed sweaters: “I’m the Lorax, who speaks for the trees, which you seem to be chopping as fast as you please. But I’m also in charge of the brown barbaloots, who played in the shade in their barbaloot suits, and happily lived, eating truffula fruits” (Seuss 1971, 17–18).

Bruno Latour has rearticulated the refrain of the Lorax. Calling on scholars of science and society to give democratic rights to non-humans, Latour has suggested that we construct “speech prosthetics”: “millions of subtle mechanisms capable of adding new voices to the chorus” (2004, 64, 69). The Lorax attempted to speak for a multitude of creatures living among the truffula trees. But, ultimately, this tragic figure failed to save this forest from being clear-cut. Perhaps initiatives to build new speech prosthetics, to bring the voices of other species into play, also always generate constitutive outsiders who are unrepresented in realms of human discourse (Dumit 2008, xii; Kirksey 2012, 48).

Rather than simply repeat failed truth-telling strategies, or construct speech prosthetics for particular species, Deanna Pindell has worked to create livable futures in the aftermath of ecological disaster. Multispecies ethnographers have recently taken an “ontological turn,” departing from a foundational distinction between nature and culture, humans and nonhumans that is at the base of Euro-American epistemology (Candeia 2010; Kirksey and Helmreich 2010). Tracing the vector of a parallel turn, Deanna and other artists operating in biological and ecological domains have begun to explore novel modes of care for beings in multispecies worlds (Gablik 1991; Bureaud 2002, 39; Zurr 2004, 402; da Costa and Philip 2008).

When she first moved to the Olympic Peninsula of Washington, Deanna found that struggles by environmental advocates to save particular patches of forest were taking place alongside struggles by loggers who were trying desperately to keep their jobs, to heat their homes. As activists lost steam, timber companies cut the forest and then moved on—leaving devastated ecosystems and unemployed people in their wake.

“Every time I passed a clear-cut forest,” Deanna told me, “I felt a sense of loss, a sense of mourning.”

Seeing that the oppositional politics of activists were failing, Deanna began reworking the ideas of metamorphosis, remediation, and sanctuary. Rather than dwell on tragedy, she began to add a sense of comedy into the mix. Seeding these abandoned lands with multicolored wool balls, she began enlisting multiple species to enliven these devastated spaces. Overcoming incapacitating feelings of mourning, Deanna played with the tale of the Lorax to invent a novel technology of interspecies care and cultivation.

Deanna initially created her Thneeds Reseeds with one particular species in mind: silvery bryum (*Bryum argenteum*), one of the most resilient mosses in the world. This plant is found in all sorts of seemingly hostile environments—from the tarmacs of New York City airports to the tiled roofs of Quito. Deanna hoped that giving it a moist substrate would enable it to become a “first responder” in clear-cut forests. The spores of silvery bryum are abundant in aerial plankton, the cloud of spores, pollen, and insects that circulates the globe at altitudes up to 4,500 meters (see Raffles 2010, 10; Kimmerer 2003, 92).

Moss spores are raining down in the air all around us, looking for a suitable place to germinate—a solid substrate with enough light and water. Deanna designed the Thneeds to trap rain, to hold on to moisture that would otherwise evaporate in a landscape where the forest canopy had been removed. A book by bryologist Robin Wall Kimmerer, *Gathering Moss: A Natural and Cultural History*, initially gave Deanna the idea of using silvery bryum to help the forest regenerate. At an abandoned iron mine, Kimmerer found that tree seeds grew and survived best on huge mounds of tailings when living in partnership with moss (2003, 50).

Deanna sent 21 Thneeds to the Multispecies Salon, an art exhibit that blurred the distinction between ecoart and bioart (Kirksey and Helmreich 2010; Kirksey, Schuetz, and Shapiro 2011). Her installation was framed by instructions and a tragic joke: “Thneeds Reseeds. To restore your clear-cut forest: 1) Break the mosses into fragments; 2) Mix the moss with buttermilk; 3) Place Thneeds in clear-cut; 4) Keep the Thneeds moist with buttermilk until tree seedlings can take hold. Enough Thneeds for one square meter of forest.” If Deanna’s scale of intervention, one square meter, is a tragic joke, she hopes her piece will help inspire other people to develop their own ideas about enlivening abandoned spaces.

Do-it-yourself (DIY) bioculture is generating emergent forms of diversity that are enabling certain species to flourish in the Anthropocene, the era when the agency of humans has been scaled up to embrace and endanger the planet. Novel microbiopolitical interventions—local cycles of materials on a microscale, outside of dominant institutionalized practices and global commodity chains—are allowing for cross-species tactical coordination (cf. da Costa and Philip 2008, xi; Paxson 2008, 40; Kirksey and Helmreich 2010, 560; Berrigan, 2012). A multitude of bioartists and ecoartists are generating living figures of biocultural hope.

Certain notions of “hope” are vacuous. Jacques Derrida, for example, attempted to evacuate all content from his dreams as he faced the immense “abyssal desert” of future possibility. Derrida cultivated an empty notion of hope, devoid of any objects of desire (1994, 28; cf. Jameson 1999, 62). Trying to literally expect the unexpected, Derrida was waiting for mysterious possibilities that were utterly unfigurable, beyond our imaginative horizons (Derrida 1999, 253; cf. Crapanzano 2004, 103–4, 146; Kirksey 2012).

Rather than harbor empty dreams devoid of all figures, Deanna Pindell has worked to congeal her imaginings of post-industrial futures in actual material objects. The Thneeds Reeseeds are intended to be agential things in the world, tools for enlisting multiple species in the healing of damaged ecosystems or even generating new kinds of flourishing (cf. Haraway 2007). These sculptures prefigure coming changes and contain a radical openness to possible multispecies becomings. Deanna has knit particular species into the fabric of one imagined future for Pacific Northwest forests. Her project also offers an opening for a multitude of other life forms, and creative human agents, to explore new ways of being-with-others in the world (Hardt and Negri 2004; Despret 2004, 122; Kirksey, Schuetze, and Shapiro 2011).

References

- Berrigan, Caitlin. 2012. "Life Cycle of a Common Weed: Reciprocity, Anxiety, and the Aesthetics of Noncatharsis." *Women's Studies Quarterly* 40 (1-2): 97-116.
- Bureau, Annick. 2002. "The Ethics and Aesthetics of Biological Art." *Art Press* 276: 38-39.
- Candea, Matei. 2010. "I Fell in Love with Carlos the Meerkat: Engagement and Detachment in Human-Animal Relations." *American Ethnologist* 37 (2): 241-58.
- Crapanzano, Vincent. 2004. *Imaginative Horizons: An Essay in Literary-Philosophical Anthropology*. Chicago: University of Chicago Press.
- da Costa, Beatriz, and Kavita Philip. 2008. Introduction to *Tactical Biopolitics: Art, Activism, and Technoscience*, edited by Beatriz da Costa and Kavita Philip, xvii-xxii. Cambridge: MIT Press.
- Derrida, Jacques. 1994. *Specters of Marx: The State of the Debt, the Work of Mourning, and the New International*. New York: Routledge.
- . "Marx & Sons." 1999. In *Ghostly Demarcations: A Symposium on Jacques Derrida's Specters of Marx*, edited by M. Sprinker, 213-69. New York: Verso.
- Despret, Vinciane. 2004. "The Body We Care For: Figures of Anthro-zoo-genesis." *Body & Society* 10 (2-3): 111-34.

- Dumit, Joseph. 2008. Foreword to *Tactical Biopolitics: Art, Activism, and Technoscience*, edited by Beatriz da Costa and Kavitha Philip, xi–xiv. Cambridge: MIT Press.
- Gablik, Suzi. 1991. *The Reenchantment of Art*. New York: Thames and Hudson.
- Haraway, Donna. 2007. “Speculative Fabulations for Technoculture’s Generations: Taking Care of Unexpected Country.” In *(Tiernas)Criaturas/(Tender)Creatures*, edited by P. Piccinini, 100–107. Vitoria: Egileak.
- Hardt, Michael, and Antonio Negri. 2004. *Multitude: War and Democracy in the Age of Empire*. New York: The Penguin Press.
- Jameson, Fredric. 1999. “Marx’s Purloined Letter.” In *Ghostly Demarcations: A Symposium on Jacques Derrida’s Specters of Marx*, edited by M. Sprinker, 26–67. New York: Verso.
- Kimmerer, Robin Wall. 2003. *Gathering Moss: A Natural and Cultural History of Mosses*. Corvallis, Oregon: Oregon State University Press.
- Kirksey, S. Eben. 2012a. “Living With Parasites in Palo Verde,” *Environmental Humanities* 1: 23–55.
- . 2012b. *Freedom in Entangled Worlds*. Durham: Duke University Press.
- Kirksey, S. Eben, and Stefan Helmreich. 2010. “The Emergence of Multispecies Ethnography,” *Cultural Anthropology* 25 (4): 545–687.
- Kirksey, S. Eben, Craig Schuetze, and Nick Shapiro. 2011. “Poaching at the Multispecies Salon.” *Kroeber Anthropological Society Papers* 99/100: 129–53.
- Latour, Bruno. 2004. *Politics of Nature*. Cambridge, MA: Harvard University Press.
- Paxson, Heather. 2008. “Post-Pasteurian Cultures: The Microbiopolitics of Raw-Milk Cheese in the United States.” *Cultural Anthropology* 23 (1): 15–47.
- Raffles, Hugh. 2010. *The Illustrated Insectopedia: Insect Love From A–Z*. New York: Pantheon/Vintage.
- Seuss, Dr. 1971. *The Lorax*. New York: Random House.
- Zurr, Ionat. 2004. “Complicating Notions of Life: Semi Living Entities.” In *Biomediale: Contemporary Society and Genomic Culture*, edited by D. Bulatov, 402–11. Kaliningrad, Russia: The National Center for Contemporary Arts.

Anna Tsing

Contaminated Diversity in “Slow Disturbance”: Potential Collaborators for a Liveable Earth

Our time is the “anthropocene,” the age of human disturbance. The anthropocene is an era of mass extinction; we must not forget that. Yet the anthropocene is also an era of emergence. What has emerged? I use the term “contaminated diversity” to refer to cultural and biological ways of life that have developed in relation to the last few hundred years of widespread human disturbance. Contaminated diversity is collaborative adaptation to human-disturbed ecosystems. It emerges as the detritus of environmental destruction, imperial conquest, profit making, racism, and authoritarian rule—as well as creative becoming. It is not always pretty. But it is who we are and what we have as available working partners for a liveable earth.

“Slow disturbance” refers to anthropogenic ecosystems in which many other species can live. Slow disturbance landscapes are those that nurture interspecies collaborations. They are not untouched by the presence of humans, the ultimate weedy invader. Still, their biodiversity is comparatively high. I use the adjective “slow” in conversation with slow foods and slow cities; slowness is a dream to encourage, rather than a trait to objectify. In my current collaborative research on the world connected by matsutake mushrooms (a slow disturbance fungus much valued in Japan and foraged around the northern hemisphere), I have explored landscapes of interspecies collaboration involving humans and pine forests (see Satsuka and Hathaway, this volume). Matsutake landscapes are disturbed forests; they are also sites of multispecies life.

How might we work toward an earth of slow disturbance? Instead of merely cataloging diversity, we need to tell the histories in which diversity emerges—that is, acknowledge its lively and, thus, contaminated forms. Diversity is created in collaborative synergies; it is always becoming. Both indigenous people and migrants can participate in making slow disturbance patches. One useful direction in which to move “biocultural diversity” is to open it up to the contaminated diversity and slow disturbance regimes of people in many circumstances.

Biocultural diversity has usually been used as a term to recognize traditional ecological practices. Tradition is just one example, I argue, of the contaminated diversity that allows slow disturbance. There is a kinship here with other contaminated forms. But let me begin with a classic case.

Among Meratus Dayaks of the rainforests of Kalimantan, with whom I conducted fieldwork, biodiversity is nurtured through livelihood practices (Tsing 1994, 2005). It is not just that Meratus are blessed with a diverse environment, they encourage biodiversity through landscape management. First, Meratus diversify cultivated plants, developing many varieties for each crop. Second, they diversify landscape through long-rotation fire farming, creating patches of successional forest within old forest. Patches encourage biodiversity. Third, they encourage other species through semi-domestication, bringing plants and animals into their disturbance ecologies without the rigors of domestication. For example, they clean and prepare forest trees for migrating bees. They spread the seeds of wild fruits and encourage useful plants.

The diversity that thrives is that which adapts to Meratus disturbance practices. Things are confused when conservationists identify this suite of species as the “untouched” rainforest; they should not banish the people from the story. The gift of the term biocultural diversity is to make that evident. Yet it is not necessary to deny history (in search for tradition) to hold that gift. The plants and animals are part of a human disturbance regime; they have a contaminated history. While Meratus have had a long time to develop this set of practices, it would also be a mistake to imagine them holding a blueprint of timeless wisdom. Meratus were refugees from the Islamicization of South Kalimantan, itself a defensive reaction to European invasions starting five hundred years ago. They developed an alternative to capitalist modernity by working to stay out of its way. It is not that they never heard of colonialism or national development; they have tried, in their own way, to survive on the periphery of such formations. Their cultural integrity is as contaminated as their biological landscape, and this puts them into cosmopolitan kinship with the rest of us.

This kinship can lead us into sharply contrasting examples of contaminated diversity and slow disturbance. Bettina Stoetzer’s recent dissertation (2011) explores contaminated diversity in the city of Berlin. The rubble of collapsing buildings after World War II created “rubble ecologies” in the heart of the city; new weeds sprung up from the ruins of war. These weeds lead her into the metaphorical rubble ecologies of im-

migrant gardens and barbeque areas, as well as refugee camps in the forest. Contaminated cultural diversity becomes tied to contaminated biological diversity in these practices. Some of the time, slow disturbance is possible.

Between these two examples are the disturbed pine forests that produce matsutake mushrooms. One of my fieldwork sites is the ruins of industrial forests in Oregon. The big timber trees are gone. Small, crowded, diseased pines grow slowly on this pumice soil. This is surely contaminated diversity. Those who know it best are the pickers who come every autumn for matsutake. Most of the pickers are also survivors—of war. White veterans of the US-Indochina War share the woods, begrudgingly, with Southeast Asian refugees of the same war and the civil wars that followed. Other pickers were displaced by the end of industrial logging, by the decline in standard employment, and by the possibility of crossing borders to seek new lives. Many languages are spoken, including Hmong, Mien, Lao, Khmer, Cham, Akha, Mayan, Spanish, Cantonese, Mandarin, Tagalog, Japanese, Korean, and English. This small area of ruined forest must be one of the most culturally and linguistically diverse areas of the world—during matsutake season. But this is all contaminated diversity. The refugees reconstitute themselves as cultural groups in memory of war. Cultural identity here *is* the memory of war. So too, ecology here is the memory of logging. Contaminated diversity is everywhere; for better or worse, it is what we have. In accepting these limitations, this matsutake picking constitutes slow disturbance, allowing forest life to continue.

If we are looking for collaborative partners for a liveable earth, we must consider contaminated diversity and slow disturbance. This means telling histories of the cultural and biological synergies through which diversity continues to emerge, even in ruins.

References

- Stoetzer, Bettina. 2011. *At the Forest Edges of the City: An Ethnography of Racial Geographies and National Belonging in Berlin*. PhD diss., University of California, Santa Cruz.
- Tsing, Anna. 1994. *In the Realm of the Diamond Queen: Marginality in an Out-of-the-Way Place*. Princeton: Princeton University Press.
- . 2005. *Friction: An Ethnography of Global Connection*. Princeton: Princeton University Press.

About the Authors

Kojo Amanor is an associate professor at the Institute of African Studies, University of Ghana, Legon. He joined the Institute in 1993. From 1988 to 1990 he was a research associate at the Overseas Development Institute (ODI) in London (Pastoral Development Network and Research and Extension Network). In 1989 Kojo was awarded a PhD from the Department of Anthropology, University College London, and he gained a BA Hons at the School of Oriental & African Studies in 1979 in African History and Social Anthropology. An anthropologist, Dr. Amanor has written extensively on land and land-use issues in West Africa. His publications include *Land, Labour and the Family in Southern Ghana: A Critique of Land Policy Under Neo-Liberalisation*.

Kate Brown is an associate professor of history at UMBC. She is the author of *A Biography of No Place: From Ethnic Borderland to Soviet Heartland* (Harvard, 2004), which won the American Historical Association's George Louis Beer Prize for the Best Book in International European History, the Heldt Prize from the Association of Women in Slavic Studies, and an Honorary Mention for the American Association for the Advancement of Slavic Studies' Wayne C. Vucinich Prize for 2005. She has published in the *American Historical Review*, *Chronicle of Higher Education*, *Harper's* on-line edition, and *Kritika*, and she contributes to the *Times Literary Supplement*. Brown is spending 2009–2011 on a Guggenheim Fellowship, working on a cultural history of the world's first two plutonium cities.

Katherine Gibson is professor of human geography at the Centre for Citizenship and Public Policy at the University of Western Sydney. Under the pen-name J. K. Gibson-Graham she is co-author with Julie Graham of *The End of Capitalism (as We Knew It): A Feminist Critique of Political Economy* (Blackwell, 1996, University of Minnesota Press, 2006) and *A Postcapitalist Capitalist Politics* (University of Minnesota Press, 2006). Her current research focuses upon theorizing diverse economies and action-oriented alternative community economic development projects in the Asia-Pacific region.

Michael Hathaway is an assistant professor of cultural anthropology at Simon Fraser University in British Columbia, Canada. He primarily conducts research in China, where he examines transnational encounters, the politics and economy of nature, and critical studies of race and ethnicity. His first project explores the ways that questions of indig-

enous rights are now being raised in China, in part due to a set of connections between international conservationists and Chinese scholar-activists. His second project examines the global commodity chain of the matsutake mushroom, where he is investigating how its commercialization in China is influencing ethnic hierarchies. Overall, his theoretical concerns are motivated by an interest in fostering new forms of environmentalism rooted in social justice, and new forms of indigeneity that are less restricted by the weight of Western expectations.

Karen Hébert is an assistant professor jointly appointed in the Yale Department of Anthropology and School of Forestry & Environmental Studies. She received a PhD in cultural anthropology from the University of Michigan in 2008. Her research examines the development and implications of changing forms of natural resource production and consumption, with a focus on the subarctic North. She has conducted long-term ethnographic fieldwork on a commercial salmon industry in southwest Alaska.

Myra J. Hird is a professor of sociology (cross-listed with obstetrics and gynecology) at Queen's University. She earned her D.Phil at Oxford University, and has taught in New Zealand, the United States, the United Kingdom, Northern Ireland, Norway, and Canada. She is the director of the genera Research Group (gRG), Graduate Studies Coordinator in the Sociology Department, and Arts Council Associate Chair. Dr. Hird has published eight books, as well as numerous journal articles and book chapters. She currently holds a two-year Distinguished Senior Scholar position in the School of Geography and the Environment, and a Visiting Fellow Award at Oxford University.

S. Eben Kirksey is a cultural anthropologist at the CUNY Graduate Center who studies the political dimensions of imagination as well as the interplay of natural and cultural history. His first book, *Freedom in Entangled Worlds*, is about an indigenous political movement in West Papua, the half of New Guinea under Indonesian control. This book will be published in the Spring 2012 catalog of Duke University Press. As a guest co-editor of *Cultural Anthropology*, Eben assembled a collection of original research articles from the emerging field of multispecies ethnography.

Cheryl Lousley is an assistant professor in English and Interdisciplinary Studies at Lakehead University, Orillia (Canada), where she teaches and researches in contempo-

rary environmental literary and cultural studies. She was a Carson Fellow at the Rachel Carson Center in 2010.

Gary Martin is director of the Global Diversity Foundation, an international non-governmental organization that supports research, training, and social action on biocultural diversity. A botanist and anthropologist, he earned his PhD at the University of California at Berkeley, and has taught in Austria, Spain, Sweden, and the United States. He has been a lecturer in the School of Anthropology and Conservation at the University of Kent since 1998 and is a Carson Fellow at the Rachel Carson Center from 2010–2012.

Diana Mincyte is a fellow in the Program in Agrarian Studies at Yale University. Her research explores topics at the interface of poverty, consumption, biopolitics, and the environment, particularly in the contexts of post-socialist East Europe. Mincyte's work has been published in the *Sociologia Ruralis*, *Agriculture and Human Values*, and *Slavic Review* among others, as well as in a number of edited volumes. Her current book project is an ethnography of raw milk economies in Lithuania, considering political subjectivities, subsistence practices, and sustainable development politics in European peripheries. She was a Carson fellow at the Rachel Carson Center in 2009–2010.

Ursula Münster studied social and cultural anthropology at LMU Munich and the National School of Anthropology and History in México City. Besides her interest in political ecology and the anthropology of nature and conservation, she specializes in issues concerning gender, social and environmental movements, indigenous land rights, post-colonialism, globalization, and human-animal interfaces. She is a research fellow at the RCC.

José Augusto Pádua is professor of environmental history at the History Department and PhD Program on Social History, Federal University of Rio de Janeiro, where he also coordinates the Laboratory of History and Ecology. Since 2011, he is president of the Brazilian Association of Research and Graduate Studies on Environment and Society (ANPPAS). As a specialist on environmental history and politics, he gave talks and courses, and participated in field work, in more than 35 countries. His most recent book, in association with John McNeill and Mahesh Rangarajan, is *Environmental History: As If Nature Existed* (Oxford University Press, 2010).

Shiho Satsuka is an assistant professor of anthropology at the University of Toronto. Her research concerns the politics of knowledge production, discourses of nature and science, and cultural practices of capitalism. She is interested in how diverse understandings of nature are produced, circulated, and transformed in trans-local interactions. She is currently completing a book about Japanese nature tourism in Canada. She is also conducting research on the role of scientists in the emerging global scientific and commercial network of matsutake, a highly valued wild mushroom. This research is also a part of “Matsutake Worlds,” a multi-sited, collaborative ethnographic project.

Spencer Schaffner is assistant professor of English at the University of Illinois, Urbana-Champaign, where he teaches in the Center for Writing Studies. Spencer has published about rhetoric and the environment in such journals as *Ethos*, *American Literary History*, and the *Journal of Sport and Social Issues*. He is also the author of *Binocular Vision: the Politics of Representation in Birdwatching Field Guides* (University of Massachusetts Press, 2011). Currently, Spencer is working on a project about media representations of environmental management decisions following the BP Gulf oil spill of 2010.

Kevin St. Martin is an associate professor of geography at Rutgers, The State University of New Jersey. His research concerns the development and institutionalization of economic and environmental discourse. His current work examines the case of the regulation and remapping of the marine environment and its relationship to the sustainability of community economies and local environments. His work has been published in *Antipode*, *Environment and Planning A*, *The Annals of the Association of American Geographers*, as well as other journals and edited volumes. Author preprints of his articles can be found at <http://geography.rutgers.edu>.

Anna Tsing’s current collaborative research studies emergent forms of cultural and biological diversity through the science and commerce of matsutake mushrooms. A professor of anthropology at the University of California, Santa Cruz, she is the author of *In the Realm of the Diamond Queen: Marginality in an Out-of-the-way Place* and *Friction: an Ethnography of Global Connection*. Her most recent co-edited collection (with Carol Gluck) is *Words in Motion: Towards a Global Lexicon*.

RCC Perspectives

RCC Perspectives is an interdisciplinary series of papers and essays in environmental history, environmental studies, and related fields. The papers have their roots in the scholarly activities of the Rachel Carson Center for Environment and Society and in current debates in society. They combine thought pieces and fresh empirical research, and they are designed both to further international dialogue and to inspire new perspectives on the complex relationship between nature and culture.

perspectives@carsoncenter.lmu.de

Series editors:

Christof Mauch

Katie Ritson

Helmuth Trischler

Editors:

Brenda Black

Dominic Kotas

Jenny Seifert

All issues of *RCC Perspectives* are available online. To view past issues, and to learn more about the Rachel Carson Center for Environment and Society, please visit www.rachelcarsoncenter.de.

Rachel Carson Center for Environment and Society
LMU Munich
Leopoldstrasse 11a
80802 Munich
GERMANY

Design by Stefan Zinsbacher

Cover photo: © Alexandre Dulaunoy via Flickr

Printed on recycled ENVIROTOP paper by PAPER UNION GmbH

© Copyright is held by the contributing authors.

ISSN 2190-5088

Munich, 2012

The concept of biocultural diversity was introduced by ethnobiologists to argue that the variation within ecological systems is inextricably linked to cultural and linguistic differences. It has generated much interesting research and has influenced the politics of conservation. However, it is not without its critics. In this volume of *RCC Perspectives*, scholars from a wide range of fields reflect on the definition, impact, and possible vulnerabilities of the concept. Understandings of biocultural diversity have had and will have a significant impact on resource use and conservation, and on the transformation of landscapes. While the concept may help preserve what we value, we must ensure that it does not lead to forms of cultural or ecological imperialism.

