

# Rural Resiliency: Sources of Sustainability in the Chinese Countryside

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Rural China, where approximately 800 million citizens live, is experiencing a set of challenges similar to rural areas in other countries. Worldwide, although rural regions are the main sources of natural resources and human capital that feed the economic growth of urban-industrial cores, these regions at the headwaters of globalization are comparatively overexploited, underdeveloped, undervalued, and underappreciated. China's rural-urban relationship deserves special attention, though, because of the uniqueness of some features of its current transformations, and the speed and volume with which they are occurring. In the following essay, I draw on environmental anthropology, human ecology, and resiliency theory to examine these transformations and challenges, and to propose a fundamental thesis: that China's rural regions are sites of critically important (1) *cultural and biological diversities* and (2) embedded and comparatively durable *knowledge and practices* that are critical to the resiliency of rural systems in particular and, by extension, Chinese society as a whole.

## Why Rural?

In ecological terms, China's rural areas are "sources" and its urban areas are "sinks": the countryside produces a net surplus of nutrients and energy that travel along a rural-urban continuum that supplies urban areas, whose nutrient and energy budgets operate at a perennial deficit. The vast majority of agricultural products, timber, water resources, and cheap labor originate in the countryside. As these resources travel along a transect from rural production to urban consumption, their natural

and human capital is converted into the market capital responsible for China's global economic surge. Yet along the way, another interesting transformation occurs. Ironically, as rural goods and services increase in economic value as they travel to urban cores, there is a countercurrent of ideological "backwash" that denigrates the countryside and its inhabitants.

The rural-urban continuum thus becomes what Xin Liu calls a "moral transect"<sup>1</sup> and what Arianne Gaetano, borrowing from Mikhail Bakhtin, labels a "chronotype," or literary device by which time is mapped onto space, "whereby residing in the countryside and being a peasant imply being left behind temporarily in the drive toward progress, and lacking the moral 'quality' (*suzhi*) required of citizens to advance socialist modernity."<sup>2</sup> The geographic line from rural to urban thus becomes a symbol of unilinear evolution, with rural residents "trapped" in a "backward" state, and with urban regions representing the finish-line of modernity, progress, and development. The ubiquity of this construct in China is exhibited in a wide variety of public discourses, from vernacular language to popular television shows to eating rituals to material symbols, and is undoubtedly familiar to those who study or have experienced contemporary Chinese society.<sup>3</sup>

If the ideological countercurrent that denigrates rurality is ecologically and economically unfair, it is nevertheless bedrocked on a real, significant, and measurable divide between rural and urban opportunities. A brief overview of some statistics provides evidence of this structural divide and of mounting challenges facing rural areas, economically, environmentally, and demographically.

Economically, China's rural-urban income divide is the highest in the world, with urbanites earning 3.2 times the income of those in the countryside.<sup>4</sup> Although millions have been raised out of poverty in the countryside since Deng's reforms began in 1979, the difference between rural and urban incomes has also continued to widen, from 400 yuan in 1980 to 4000 yuan in 2000.<sup>5</sup> Furthermore, approximately 400 million people in the countryside are also unemployed or underemployed and

considered “surplus agricultural labor.”<sup>6</sup> The countryside is also not immune to the environmental challenges so visible in cities. Rural industrial development; environmental degradation of soil, air, and water; deforestation; salinization; and desertification—all these, when combined with land seizures, displaced 20-30 million farmers in the 1990s and may displace 40 million more by 2025.<sup>7</sup> These economic and environmental “push” factors, in tandem with the “pull” factors of urban jobs, relaxed political enforcement of *hukou* residency permits, and the appeals of modernity, have induced an exodus of an estimated 140 million Chinese citizens from the countryside into the cities, constituting the single largest internal episode of human migration in history. The implications for China’s rural human ecology are significant, and will be considered in the next section.

Rural areas are the vital sources of natural and human resources that sustain the productive growth of China’s cities and national economy. An unsustainable countryside by definition renders China’s entire human ecological system unsustainable. In an era when the Chinese countryside is experiencing often convulsive changes economically, environmentally, demographically, politically, and ideologically, a set of key questions emerges: How much can rural China transform and still sustain its critical role as a source of natural and human capital? What features of rural life enhance its resilience, and should therefore be the foci of conservation efforts? How can scholars study and contribute to the long-term health of rural regions when these regions are often cast pejoratively in dominant discourses?

### **Why Resiliency?**

Resiliency is a concept initially applied by systems ecologists to describe the ability of some biotic systems to maintain systemic coherence—in a word, to remain stable—in the face of disturbances.<sup>8</sup> Since approximately 2000, a rich literature on resiliency theory has mushroomed across scientific and social scientific disciplines.<sup>9</sup> Following an abandonment of homeostatic, equilibrial and neo-functionalist models in biological sciences

such as ecology and in social scientific disciplines such as anthropology,<sup>10</sup> resiliency theory recognizes that ecosystems—especially human ecosystems—are always in flux and sometimes pass thresholds and transform into significantly different systems. Resiliency theorists also explicitly recognize that all ecosystems are shaped simultaneously by a variety of interacting social and ecological variables. The major goal of resiliency theory is therefore to understand, model, and explain the resiliency potential of social-ecological systems (or “human ecosystems”) and also to apply these lessons to a wide variety of policy-driven issues.

Significantly, many of the variables generally agreed to enhance social and ecological resiliency are well-rooted in rural areas. The Chinese countryside, in other words, is not only a source of goods and services that sustains core production, but also the home-place of key features that contribute to human ecological resiliency. These include, but are not limited to, wild and agricultural biological diversity, social diversity, complex and flexible adaptive strategies, and a shared reservoir of cultural memory. Let us consider in turn the role each of these plays in the functioning of rural Chinese human ecologies, and how they enhance the resiliency of a countryside facing enormous challenges.

Wild and agricultural biological diversities tend to be richest at the “margins” of societies—that is, among the interpenetrating wild and agrarian landscapes of the countryside. The diversity and functional redundancy of these diversities (according to many but not all theorists) provides ecological insurance, or an ability to absorb and withstand perturbations. This biological reality is interwoven with human cultural activity as well, and authors such as Gary Nabhan and Virginia Nazarea have written eloquently about the human variables that correlate with such biological richness. Nabhan argues, for instance, that biotic conservation of endangered species is greatest among populations with the least mobility,<sup>11</sup> and Nazarea points out that biological and cultural diversities at rural margins not only tend to co-occur, but to reinforce each other.<sup>12</sup> Mutually

reinforcing diversities, in short, provide rural dwellers with a richer palate of alternatives by which they can negotiate with and adapt to intrusive changes wrought by economic, political and climatic forces.

These alternatives are both cognitive and behavioral—that is, they are internalized in systems of knowledge and enacted in patterns of social behavior. A rich literature on traditional ecological knowledge (TEK) and ethnoecology, for instance, investigates the comparatively durable systems of knowledge that smaller-scale and less mobile populations have regarding the panoply of resources and systems upon which they depend.<sup>13</sup> A similarly rich literature examines the social mechanisms by which rural peoples regulate production and exchange, including those such as kin-based modes of production and common-property resource management strategies less visible to (or respected by) state and/or development experts.<sup>14</sup> Discussions of community-based conservation efforts have likewise noted their adaptive advantages over non-local, “expert,” and introduced management schema: local strategies tend to retain functional complexity,<sup>15</sup> operate with greater energetic efficiency, avoid unforeseen problems, and ensure lower-cost and higher-quality transmission of training and knowledge to future practitioners.<sup>16</sup>

### *Importance of Land Use Rights*

Rural dwellers and rural economies also provide hedges against economic uncertainties through their flexibility (although this flexibility is dependent upon certain conditions, as will be discussed shortly). Farmers, herders, and gatherers in the countryside, as long as they have access rights to land, can flexibly choose between production for subsistence and production for sale. This simple feature—of having some choice between the use and exchange value of products—tremendously enhances rural resiliency (and indeed the resiliency of Chinese society as a whole) for at least two reasons.

First, in times of economic downturns—often precipitated by global forces and beyond the predictive capacities of

anyone—millions of jobs can be lost in the cities. A 2009 *New York Times* article estimated, for instance, that the current global economic crisis has led to job losses for 20 million rural Chinese migrants who had initially found employment in the cities.<sup>17</sup> The most feasible option for newly unemployed migrants is to return to the family farm in the countryside. Indeed, the economy of most Chinese rural households is already a mixture of urban wages and subsistence farming. When jobs are lost, one merely emphasizes one strategy more than another.<sup>18</sup> Although one's wage labor prospects may have dampened, the family farm can usually absorb one more prodigal relative and produce enough food to sustain one more mouth.

Rural areas thus provide an important kind of “refugia” during economic downturns, with rural villages and homes functioning as kin- and subsistence-based alternatives to market-based livelihoods. This rural option is available, however, only as long as rural citizens still control use-rights to their land. This disclaimer is especially significant for China today, since current threats to rural land-use rights include land seizures, urban expansion, and (more subtly) the new policy (as of October, 2008) that allows villagers to lease, exchange, or sell their leases to others. I provide an ethnographic example of this latest development in the next section.

Second, flexibility of choice between subsistence and market production benefits rural households in another way: the same wild or domesticated product can be consumed or sold, depending upon a range of factors that include: seasonality; relative crop failure or success; relative wild abundance or scarcity; current market demand and value; and availability and cost of replacement products. For a particular product, the blurry, conditional line between subsistence and market provides dual options that, flexibly navigated, allow villagers to minimize threats and maximize opportunities.<sup>19</sup>

### *Importance of the Local*

Not all cultural features that enhance rural resiliency are directly correlated with resource use, however. Rural residents,

in fact, may draw on a suite of *localized* practices and perspectives to resist undesirable changes and impositions of unwanted power. Kinship ties, popular religious practices, village unity, and the desired security of the village family, for instance, all serve as important “institutional and symbolic resources” in the mobilization of grassroots resistance to unwelcome changes.<sup>20</sup> One particularly interesting feature—and one easily overlooked by studies focusing exclusively on ecological or economic factors—is *cultural memory*, or memories shaped, held, and shared by members of a social group that function to signify, express, and negotiate group identity and values.

Localized memories embed people in particular places in ways that enable them, in the words of anthropologist Virginia Nazarea, to maintain “marginal niches and sovereign spaces” that “constantly [replenish] what modernity drains.”<sup>21</sup> Cultural memories, then, are powerful forces of resistance and thus resiliency. Just as choosing to consume a plot of sweet potatoes instead of selling them provides an alternative that enhances the resiliency of a rural economy, so, too, do localized memories create a cognitive web of shared, localized reference points and meanings that provide villagers with social alternatives to the hegemonic tendencies of discourses of modernization and development.

These memories often are embedded in cultural objects and landscapes, are eternally refashioned in narratives (or the stories that people tell each other), and are embodied in the senses.<sup>22</sup> Local culinary traditions reenact belonging and identity at every meal, for instance, and the use of certain plants—the ceremonial use in southern China of wild herbs with antiseptic properties (*ai cao* and *cang pu*) to rinse newborns, for example—remind people of the particular ecologies they inhabit. Stories of changing species and landscapes, furthermore, enable people to consider the changing environmental contexts that gird their local practices, simultaneously allowing them to imagine the acceptable limits of environmental change. “Local knowledge and cultural memory are crucial for the conservation of biodiversity,” Nazarea asserts, “because both serve as

repositories of alternative choices that keep cultural and biological diversities flourishing.”<sup>23</sup>

The discussion of Chinese rural resiliency so far has been largely theoretical. I now turn to an ethnographic case-study, based on preliminary research in Fujian Province in 2008. The localized details that follow point to a critical transformation currently occurring in the countryside: the new state policy that allow citizens to lease or sell their land-use rights

### **Preliminary Research in Fujian Province**

While taking a group of American students to a small city in interior Fujian Province in 2008, I was able to conduct some preliminary research about changes in the countryside. After mentioning to our college liaison that I was interested in how people used forests and wild resources, he generously arranged an interview for me with a new kind of social actor in China: the forest investor.

Over a few cups of strong and generously proffered coffee in a teahouse, I talked to a man in his early thirties—the owner of the establishment—about the new “forest investment groups” springing up in this hilly and forested region. He and two investment partners had formed such a group, following the new government policy that allowed citizens to lease or sell land-use rights.<sup>24</sup> They had been actively mobilizing capital and purchasing the leases to tracts of forest in Fujian. They already have purchased the rights to 14,000 mu of forest and plan to purchase 7,000 more in the near future (one mu is approximately one-sixth of an acre). Their current plots range in size from 2,000 to 10,000 mu. According to one of his investment partners, whom I interviewed a few days later, they had the advantage of learning about the new policies before peasants because one partner had been a government official; in another interview I conducted, a professional forester, while saying that the new forest policy was an improvement over past policies, also quietly mentioned that corruption was nevertheless an issue.

The teahouse owner-forest investor described how his group worked. After deciding to purchase the lease of a particular

patch of forest, they hired a local retired forestry professor to conduct an inventory of all economically useful plants, focusing on the herbal plants used in traditional Chinese medicine and timber species. (He gave me a copy of the inventory for their 2,000 mu plot: it is 44 pages long, contains 60 photographs, and inventories 160 plants, providing for each the Chinese and Latin names, a physical description of the plant, and a brief summary of its economic/medicinal uses.)

He emphasized that they were “patient,” and would not cut the timber for perhaps 20 years. First they would explore other economic benefits, focusing especially on the extractive potential of medicinal herbs. In fact, he mentioned that he had spent the earlier part of the day touring one forest plot with the head of a regional pharmaceutical company. The visit was merely social, he said, and they would “talk business” later. In this way, he said, his group planned to use the forest in multiple ways. Because of China’s New Village Construction policy (*xin nongcun jianshe*) and new Forest Reform Policy (*linye gaige*), he emphasized, their mode of development would be “harmonious” and a vast improvement on the destructive approaches of the past. For instance, he pointed out, after harvesting the timber, they would be responsible for either replanting or somehow developing the plot before its 30-year lease expires.

As another cup of strong coffee was placed before me, my host continued: even though they have mostly invested in forests, they also are purchasing leases for agricultural land that is “being abandoned by farmers.” Sometimes the plots are next to the forest and sometimes they are in the forest. They recently had bought a 500-mu plot and were considering various experimental plantings. Another one of their goals, he added, was to sell shares of these development initiatives to the villagers.

The ethnographic snapshot provided by this small set of interviews raises interesting questions about the resiliency of both social and ecological dimensions of rural forest use in Fujian. There are positives: China’s new more market-oriented land-rights policy enhances rural development, increases income for

some segments of the population, and reduces producer uncertainty by commodifying and thus clarifying access-rights, a condition which ample literature correlates with greater investment and productivity.

But a number of concerns are also raised by the privatization of land-use rights. As discussed earlier, rural areas and the resources they hold provide critical subsistence alternatives to market (and other) vagaries beyond the control of villagers. As tracts of forested and agricultural rural land are privatized, villagers will become increasingly cut off from sources of both subsistence and income.

Resiliency correlates with social and ecological diversity, and one concern is that privatization diminishes both.<sup>25</sup> Although traditional ecological knowledge (e.g., of medicinal plants) will not necessarily be lost, with privatization it will become increasingly centralized, specialized and standardized. A subset of business investors, pharmaceutical interests, and professionally trained botanists and foresters will become the empowered gatekeepers of gathering activities that procure, distribute and benefit from useful wild plants. Decreased access and restricted gathering also threaten social reproduction of forest-related knowledge and practices: if commoners lose access to areas in which they are accustomed to gathering, older experts will likely be less able to transmit localized botanical knowledge to younger generations, decreasing one form of social diversity. At the same time, China has no clear intellectual property rights with which the productive knowledge of commoners can be protected; the privatization of knowledge accompanies the privatization of lands. Privatization, then, despite arguable benefits, threatens to reduce rural income, subsistence possibilities, occupational diversity, affordable health care options,<sup>26</sup> and the trans-generational durability of wild resource knowledge.

Finally, since knowledge, practices, and cultural memories relating to wild resources are embedded in everyday objects and experiences, privatization and restricted access to wild areas literally disconnects villagers from some of the information- and symbol-rich sites through which they continually construct

local human and natural relationships. Anna Tsing, for instance, has brilliantly evoked this indivisibility of natural and social space in her ethnographic research on human-forest interactions in the Meratus Mountains of the South Kalimantan region of Indonesia. “When Meratus discuss their location in the forest,” she observes, “they talk not only of the history of vegetation in that place but also of the social connections that tie those plants to particular people. The forest, whether young or old, is never a homogeneous ‘wild’ place; it is a finely differentiated set of simultaneously social and natural locations.”<sup>27</sup> Wild products, in other words, are converted into cultural meanings and social relationships when people gather wild products, eat local food dishes containing wild ingredients, treat illnesses with herbal plants, remember geographic shifts in housing sites and rural trails, correlate historical landscape changes with human events, and recall the shifting distribution (and perhaps regional extinction) of plant and animal species. Restricted access to private areas may thus also lead to an attenuation of localized and shared meanings that *differentiate* locals from outsiders and that provide alternatives to the “homogenizing forces that erode identity, agency, and diversity.”<sup>28</sup> One cannot enact what one cannot remember.

### **Areas for Future Inquiry**

The wave of privatization that followed the “market triumphalism” of neoliberal capitalism in the 1990s has sharpened resource-access issues in rural communities around the world. Simultaneously, China’s unparalleled rate of economic growth, modernization, rural infrastructural development, and rural-to-urban migration has shifted the social and ecological landscape of rural life in that country. This paper has argued that the adaptive strategies and mutualistic diversities that exist at rural margins are vital to the resiliency of rural life—and by extension, the whole of Chinese society. I now would like to suggest a few topical areas ripe for academic and applied research. The following list of three potential research topics is shaped by my own particular interests and is not meant to be exhaustive. I

hope, however, that they identify relevant questions for rural research in China.

(1) How are resource-access regimes being negotiated by various actors “on the ground” and “below the radar” of official discourses in rural China? How do villagers, local and state officials, NGOs, outside investors, and professional foresters and botanists each represent the agenda and consequences of privatized access to formerly common areas? In their article “Anthropology and the Conservation of Biodiversity,” Benjamin Orlove and Stephen Brush<sup>29</sup> identify poaching and intellectual property rights as two areas worth ethnographic investigation in regulated park areas; the same topics would also be relevant to ethnographic case-studies of new, access-restricted landscapes in rural China. Finally, what are some of the ecological consequences of these shifting relationships and practices?

(2) What might a commodity chain analysis of particular rural products reveal?

Commodity chain analysis is the study of the cultural and environmental relationships that form at each nexus of exchange as a product travels from its site of extraction or production toward its site of consumption.<sup>30</sup> This multi-local ethnographic approach to traveling commodities asks a fundamental set of questions: What are the different stages a commodity goes through from point(s) of origin to point(s) of consumption? What actors are involved? What are the environmental impacts at various points in the commodity chain? How do differences in cultural background and power shape the meanings associated with the commodity as it “travels”? How do consumer tastes shape the chain? How do people at different stages of the chain conceptualize the whole chain?

A commodity chain analysis of traditional Chinese medicinal herbs (gathered in rural areas) would raise a number of interesting questions.<sup>31</sup> Traditionally, Chinese herbal medicine practices are pluralistic. Would the desire for standardization and predictability by pharmaceutical companies and global markets exert a pressure for standardization upon these formerly

pluralistic practices? How might world demands and perceptions shape the practices of rural herb-gathering and the landscape ecologies in which they are embedded? What representational discourses (i.e., of “traditionalism” and “authenticity”) might be employed by distributors and consumers, and how will producers at sites of origin negotiate these representations?

(3) State forestry departments in China conduct regular botanical inventories of forests, according to Fujian informants during my 2008 visit. Indeed, in a number of different forests I visited, it was common to see small signs tacked to trees that identified their Chinese names and Latin binomials. As mentioned earlier, the emerging investment teams that are purchasing lease-rights to tracts of forests are also conducting their own botanical surveys with hired professionals. It is important to remember that these systematic, textual inventories of forest species are produced from specific points of view—bureaucrat, investor, forester, conservationist—and thus from particular positions of social power. Another interesting research project, then, could examine the social contexts and ecological consequences of the textual production of botanical knowledge in rural China. How are these texts used to justify certain actions? What is the relationship between stakeholders who are generating different texts? Are certain assumptions or intentions implicit in the narrative style of these catalogues? To what degree does the production of scientific inventories legitimate access and centralize control over resources? And importantly, what is the relationship between those producing text-based inventories and those dependant “only” on oral transmission of botanical knowledge?

If the hypothesis is correct that increasing privatization of (and restricted access to) wild resources will contribute to an erosion of localized knowledge, an opportunity also opens for applied work in rural China. Perhaps researchers and local people can collaboratively document local knowledge and practices relating to wild and agricultural botanical diversity for posterity. Ideally, local botanical knowledge would be

documented *in situ*, in local cultural context. Virginia Nazarea's work on "memory banking" offers one such working model that conserves the linkages between environmental information and cultural memories, meanings and practices.<sup>32</sup>

### **Conclusion**

Henry David Thoreau has famously proclaimed that "In Wildness is the preservation of the World."<sup>33</sup> With a syntactical twist and nod to Thoreau, I propose the thesis that "in the countryside is the conservation of the social and ecological whole of society."

Rural regions everywhere are sources of the human and natural capital that feed the consumptive urban-industrial sinks in which the majority of economic growth occurs. This paper argues that inherent features of rurality—including higher social and ecological diversity at the margins; enduring pockets of subsistence production; and the embedded knowledge, practices and memories linked to local adaptive strategies—provide rural regions the ability to endure occasional and even severe disturbances. In a word, the countryside is critical to the resiliency of entire social-ecological systems.

In China in particular, the countryside is currently experiencing significant transformations: 140 million migrants have temporarily left the countryside, agriculture faces numerous threats, and 690,000 km of new rural roads in two years<sup>34</sup> are paving a more frictionless rural-urban continuum. Perhaps most significantly access to rural land and its resources is being privatized, creating future uncertainties for rural livelihoods and ecologies. It is therefore more important now than ever before to conserve, dynamically and creatively, the social and ecological diversities inherent in rural areas. Biologists, ecologists, anthropologists, sociologists, political scientists, economists, environmentalists, NGOs, and legal and policy experts all have a role to play. Perhaps collaboratively we can reverse the ideological tides that denigrate the countryside and the economic undertows that seek to deplete its enduring wealth.

**Endnotes**

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- <sup>2</sup>Arianne M. Gaetona and Tamara Jacka, eds., *On the Move: Women in Rural-to-urban Migration in Contemporary China* (New York: Columbia University Press, 2004), 41.
- <sup>3</sup>The tendency to denigrate rural regions and their inhabitants is of course not specific to China. It approaches universality, particularly among societies and regions undergoing industrialization (i.e., 19<sup>th</sup> century England and 20<sup>th</sup> century U. S. Appalachia).
- <sup>4</sup>Liu Peng, "China's Urban-Rural Income Gap Record High," *Economic Observer* (January 13, 2009). <[www.eeo.com.cn/ens/biz\\_commentary/2009/01/13/127232.shtml](http://www.eeo.com.cn/ens/biz_commentary/2009/01/13/127232.shtml)>
- <sup>5</sup>Doug Guthrie, *China and Globalization: The Social, Economic and Political Transformation of Chinese Society* (London: Routledge, 2006), 1-2.
- <sup>6</sup>Elizabeth C. Economy, *The River Runs Black: The Environmental Challenge to China's Future* (Ithaca and London: Cornell University Press, 2004), 77.
- <sup>7</sup>Vacliv Smil, *China's Environmental Crisis: An Inquiry into the Limits of National Development* (Armonk, NY: M.E.Sharpe, 1991), quoted in: 1994, quoted in Economy (2004), 82.
- <sup>8</sup>C. S. Holling, "Resilience and Stability of Ecological Systems," *Annual Review of Ecology and Systematics* 4 (1973), 11-23 1973; Eugene P. Odum, *Ecology and our Endangered Life-support Systems* (Sunderland, MA: Sinauer, 1989).
- <sup>9</sup>For example: W. N. Adger, "Social and Ecological Resilience: Are They Related?" *Progress in Human Geography* 24,3(2000), 347-364; F. Berkes, C. Folke, and J. Colding, eds., *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change* (Cambridge: Cambridge University Press, 2003); Ben G. Blount, "Culture and Resilience among Shrimpers on the Georgia Coast (USA): Responses to Globalization," *MAST (Maritime*

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<sup>10</sup>The following present overviews of this shift: Michael Dove and Carol Carpenter, "Introduction," *Environmental Anthropology: A Historical Reader* (Oxford: Wiley-Blackwell, 2007), 1-62; Conrad P. Kottak, "The New Ecological Anthropology," *American Anthropologist* 101, 1 (1999), 23-35; Benjamin S. Orlove, "Ecological Anthropology," *Annual Review of Anthropology* 9 (1980), 235-273; Patricia K. Townsend, *Environmental Anthropology: From Pigs to Policies* (Prospect Heights, IL: Waveland Press, 2000).

<sup>11</sup>Gary Nabhan, *Cultures of Habitat: On Nature, Culture, and Story* (Washington, D.C.: Counterpoint Press, 1997).

<sup>12</sup>Virginia Nazarea, "Local Knowledge and Memory in Biodiversity Conservation," *Annual Review of Anthropology* 35 (2006), 317-335.

<sup>13</sup>Julian Inglis, *Traditional Ecological Knowledge: Concepts and Cases* (Ottawa: International Program on Traditional Ecological Knowledge and International Development Research Centre, 1993); Stephen Lansing, *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali* (Princeton: Princeton University Press, 1991); Virginia D. Nazarea, ed., *Ethnoecology: Situated*

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- <sup>16</sup>Robert McC. Netting, *Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture* (Stanford: Stanford University Press, 1993).
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- <sup>19</sup>For a useful discussion of this categorical fuzziness, see Anna Tsing, *Friction: An Ethnography of Global Connection* (Princeton: Princeton University Press, 2005), 182-189.
- <sup>20</sup>Jun Jing, "Environmental Protests in Rural China," In: Elizabeth J. Perry and Mark Selden, eds., *Chinese Society: Change, Conflict and Resistance* (2<sup>nd</sup> ed.) (New York and London: RoutledgeCurzon, 2005), 204-222.
- <sup>21</sup>Nazarea, 2006, 320.
- <sup>22</sup>One particularly compelling ethnographic case-study is: Keith Basso, *Wisdom Sits in Places: Landscape and Language Among the Western Apache* (Sante Fe: University of New Mexico Press, 1996).
- <sup>23</sup>Nazarea, 2006, 318.
- <sup>24</sup>Edward Wong, "China Announces Land Policy Aimed at

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- <sup>27</sup>Tsing, 193.
- <sup>28</sup>Nazarea, 2006, 320.
- <sup>29</sup>Benjamin S. Orlove and Stephen B. Brush, “Anthropology and the Conservation of Biodiversity,” *Annual Review of Anthropology* 25 (1996), 329-52.
- <sup>30</sup>A. Haugerud, M. P. Stone, and P. D. Little, eds., *Commodities and Globalization: Anthropological Perspectives* (Oxford: Rowman & Littlefield, 2000); in that volume, particularly useful is Jane L. Collins, “Tracing social relations in commodity chains: The case of grapes in Brazil,” 97-109; also see Tsing, 51-54.
- <sup>31</sup>For a fascinating examination of the consequences of a local herb (sweet wormwood) suddenly transforming into a valuable global commodity, see Howard W. French, “This Wormwood is Sweet to Farmers and the Malarial,” *New York Times* (August 12, 2005).
- <sup>32</sup>Virginia D. Nazarea, *Cultural Memory and Biodiversity* (Tucson: The University of Arizona Press, 1998).
- <sup>33</sup>Henry David Thoreau, “Walking,” *Atlantic Monthly* 9, 56 (1862), 657-574.
- <sup>34</sup>“More Rural Roads Planned This Year,” *People’s Daily Online* (January 16, 2009). <<http://english.people.com.cn/90001/6575281.html>>