INTRODUCTION

Recently, I met with a man named Rennard Strickland, Dean of the University of Oregon Law School. Dean Strickland is a legal historian of Native American ancestry. He reminded me that there are "apple societies" and "orange societies." The "apple societies" naturally think about the integrated whole and the relationship between the parts, while the "orange societies" are highly segmented. They see economics, ecology, culture, and politics as separate. He said, "You know, the United States may be the most orange country of all." Isn't it interesting to think about the challenge of developing more integrated solutions to the overwhelming challenges of equitable economic development and environmental restoration in a society like ours?
Jane Jacobs, the author of *The Death and Life of Great American Cities*,² *Systems of Survival*,³ and *The Economy of Cities*⁴ has come out with a new book called *The Nature of Economies*.⁵ It will be an important book for those who think that apple thinking can generate new, integrative solutions to environmental problems.

In *The Nature of Economies*, Jacobs concludes that the fundamental process of economic development is the same as the process of ecological development. She says that the global economy is, in effect, a wholly-owned subsidiary of the global ecosystem. In addition, she describes a basic, organic fractal process that, when repeated, creates diversity and abundance in both ecological and economic systems. The fundamental process is "differentiation emerging from generality."⁶ Jacobs explains this concept by describing how both economic systems and ecological systems can be thought of in terms of a conduit of energy— the key question is how much use the system makes of the energy that comes into the conduit before it escapes as waste heat.⁷

Think of a desert ecosystem, say the Atacama Desert in Chile, not far from a rain forest on the east slopes of the Andes in the Tambopata area of Amazonian Peru. There is a limited amount of (solar) energy that can enter this system. In the desert ecosystem, where there is very little plant or animal life, the rocks and the sand heat up during the day. Not much else happens. That heat is dissipated at night, and the solar-turned-thermal energy is lost almost immediately. The same amount of energy enters the rain forest ecosystem and is captured in leaves of an extraordinary variety, which are eaten by bugs, which are eaten by birds, which defecate, which contributes nutrients to the soil, which are taken up by shrubs and trees. Ultimately, of course, the left over energy is also dissipated as waste heat into the night. But think of the difference in the number of species in one ecosystem versus the number of species in the other.

In an economy, types of jobs can be thought of as equivalent to the varieties of species in an ecosystem. Jacobs describes how

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² *JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES (1993).*
³ *JANE JACOBS, SYSTEMS OF SURVIVAL: A DIALOGUE ON THE MORAL FOUNDATIONS OF COMMERCE AND POLITICS (1994).*
⁴ *JANE JACOBS, THE ECONOMY OF CITIES (1970).*
⁵ *JANE JACOBS, THE NATURE OF ECONOMIES, MODERN LIBRARY (2000).*
⁶ *Id.* at 16.
⁷ *Id.* at 46-48.
economies that use imported energy and resources learn to stretch, re-use, expand, and recycle them. In the process, these economies tend to produce diverse and truly enriching economies for their residents.

I think our challenge is, quite simply, to teach people the interconnectedness of human and natural ecosystems. Jane Jacobs presents this basic challenge in her preface to *The Nature of Economies*:

> [H]uman beings exist wholly within nature as part of natural order in every respect. To accept this unity seems to be difficult for those ecologists who assume—as many do, in understandable anger and despair—that the human species is an interloper in the natural order of things. Neither is this unity easily accepted by economists, industrialists, politicians, and others who assume—as many do, taking understandable pride in human achievements—that reason, knowledge, and determination make it possible for human beings to circumvent and out-do the natural order. Readers unwilling or unable to breach a barrier that they imagine separates humankind and its works from the rest of nature will be unable to hear what this book is saying.  

Until and unless we breach the imagined barrier that Jane Jacobs describes, whatever institutions, incentives, or policies we invent will only create more problems.

**II**

**IMPLEMENTING INTERCONNECTEDNESS**

What I would like to do is share some stories about my experiences in the Pacific Northwest with Ecotrust, an organization I started in 1991. I would like to share with you how Ecotrust is working to build on the interconnectedness between human and natural systems.

Ecotrust is a non-governmental, non-profit organization. Like other non-profits, Ecotrust offers flexibility in the face of new challenges that the government and the private sector cannot provide. Ecotrust supports the emergence of a conservation economy—one where social and environmental capital, as well as financial capital, grow. A conservation economy is quite simply an area where, through mutually reinforcing interaction, social, environmental, and economic conditions improve rather than deteriorate. No one condition exists at the expense of another. In a conservation economy we

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8. Id. at lx-x.
look for "triple e" bottom line results improving: (1) economic opportunity, (2) environmental quality, and (3) social equity.

Ecotrust targets a single large bioregion—the coastal temperate rain forest of North America. Spanning 2,000 miles from California's redwoods to the spruce, cedar, and hemlock forests of Alaska, the region includes marine, coastal, estuarine, and terrestrial components, existing in both the urban and rural areas of the regions that include large cities such as San Francisco, Portland, Seattle, Vancouver, and Juneau. The bioregion covers some 100 million acres, an area somewhat larger than the entire state of California, and has a population of 14 million residents. The region has elements of both the "new economy," along the Interstate 5 corridor from the Silicon Valley to Vancouver, and the traditional resource-based industrial economy, in the fishing and timber towns along the Pacific coast.

To promote a conservation economy in the bioregion, Ecotrust, acting in the roles of broker and catalyst, attempts to do two things. First, we support a growing number of "conservation entrepreneurs," individuals who show tangible leadership in their neighborhoods and communities by improving at least two of the "triple e" conditions through their businesses, civic organizations, schools, tribal, or local governments. Second, Ecotrust does "social marketing"—promoting the idea of a conservation economy by telling the stories of successful conservation entrepreneurs, as well as by promoting public education and policy reform. Through these efforts, we have created a small web of community and bioregional organizations up and down the Pacific coast. These organizations include Ecotrust, Ecotrust Canada in British Columbia, ShoreBank Pacific, a state-chartered commercial bank, and a non-profit, business assistance organization, ShoreBank Enterprise Pacific. These organizations work together to bring financial, technical, informational, and scientific resources to individuals and groups who are striving to build an environmentally and socially responsible new economy.

A. The Kitlope Heritage Conservancy

My first story is about the Haisla First Nation people of the northwest coast of British Columbia ("B.C."). As Ecotrust mapped the characteristics, distribution, and status of coastal temperate rain forests worldwide, we found that the Kitlope River watershed was the only large unlogged coastal watershed existing between San Francisco and Kodiak Island, Alaska. The Kitlope is the traditional territory of the Haisla Nation, which now numbers some 1,500 native people, half of whom live in Kitamaat Village, which is about fifty miles from the Kitlope Valley. The Kitlope River watershed encompasses 800,000 acres—an area that is untouched by industrial development. It starts in the permanent glacial ice of the coast mountains at about 7,000 feet, continues into alpine forest, moves down through the lowland cedar, spruce, and hemlock along the valley floor, and terminates in a large estuary at the southern tip of a gorgeous, long fjord called the Gardner Canal.

The B.C. Ministry of Forests had given West Fraser Timber Company license to log in the Kitlope, and the company planned to start logging in the summer of 1990. While most of the Haisla people we met did not want to see the Kitlope logged, the greater challenge of finding a hopeful sense of their own future as a people and as a culture overwhelmed their concerns about logging in the Kitlope. When Ecotrust first visited with Haisla leaders, we asked them, "What are the problems and challenges of your people, the residents of this area?" We learned about teenage suicide, racism, unemployment, violated treaty rights, the lack of traditional language training, a polluted river near the village which had historically provided a vital fishery, and resentment for a huge powerline that runs through the village, bringing power to an aluminum smelter. Revenues from logging represented one way for the Haisla people to confront these problems.

As an ecologically sound alternative, Ecotrust helped the Haisla establish the Haisla Nation Women's Society for Rediscovery, a non-profit organization that takes Haisla youth and elders into the Kitlope for summer camp. Participants play games, do crafts, look for traditional herbal medicines and food, watch spawning salmon in the streams, dance, and tell stories around the campfire. Teenage suicide has all but disappeared since the establishment of this project.10

In 1994, as a result of the Haisla community's support for conservation of the Kitlope, Premier Mike Harcourt announced that the Kitlope would be preserved forever—all 800,000 acres. The West Fraser Timber Company generously announced their voluntary, unconditional, and uncompensated withdrawal from logging in this area. A new kind of protected area called the Kitlope Heritage Conservancy was created. Here, traditional subsistence practices can continue; the Haisla have a role in determining management, and commercial development is forbidden.

The Haisla people call the Kitlope Husduwachsdunu Nuyem Jees, "the land of milky blue waters and all the sacred stories that go with that place." In the Kitlope, we learned something about the power of cultural self-interest. At a cost of $600,000 dollars, 800,000 acres of a magnificent old growth rain forest were protected. At a time when environmentalists were fighting bitterly with loggers over spotted owls and saving a few, fragmented stands of old growth redwood or Douglas fir at a cost of hundreds of thousands of dollars per acre, the rain forest was saved at a cost of only seventy-five cents an acre. Subsequently, Ecotrust and Ecotrust Canada have published two reports about land use reform in British Columbia, informed in large part by the Kitlope experience. More Than the Sum of Our Parks describes the inadequacy of the legislation designed to protect natural areas in British Columbia and British Columbia's failure to address legitimate traditional interests of local people. Falldown describes the need for timberland tenure reform and the needs of local businesses and communities throughout British Columbia.

B. MillPond Village, Astoria, Oregon

Second story: In Astoria, Oregon, at the mouth of the Columbia River, lies an eighteen acre brownfield site, the remnant of one hundred and fifty years of saw mill operation and the 1992 bankruptcy of the Astoria Plywood Cooperative. The

13. Id.
15. For a definition of "brownfields," see the U.S. Environmental Protection Agency website at http://www.epa.gov/swerosps/bf/glossary.htm#brow (last visited Nov. 25, 2000).
brownfield was slowly leaching accumulated hydrocarbons into a small tidal pond and then into the Columbia River. The site was an eyesore full of old, industrial waste, located on prime, waterfront land in this town of just 10,000 residents. The Oregon Department of Environmental Quality (DEQ) wanted to clean it up, putting it at the top of the list of cleanup sites in Oregon. DEQ offered the City of Astoria matching funds towards the $1.5 million it would cost to clean up the site. The City of Astoria shopped local banks for a $750,000 loan, but the commercial banks would have nothing to do with a toxic waste dump.

Then city officials found Shorebank Enterprise Pacific, the small, new, non-profit business assistance organization that Ecotrust and Chicago's ShoreBank Corporation started in 1994 with a $2.5 million revolving loan fund. Shorebank Enterprise Pacific looked at the site and said, "Sure, why not? We're in the business to take risks that others won't. Let's see what happens." DEQ not only put up half the money, but it also hired the contractor and regulated the cleanup. The site was cleaned up in three months, on time and on budget. The City of Astoria took ownership of the cleaned up site, putting it up for bid to developers who would follow the city's Waterfront Redevelopment plan. A Portland firm purchased the site, Astoria paid off the loan, and the developer is now in the process of doing a "green" mixed use redevelopment for housing and commercial uses called MillPond Village. There are fish jumping in the pond, and ducks, which have not been there for a long, long time have returned.

Shorebank Enterprise is an institution that looks at old problems in new, integrative ways. It seeks to identify and support local leaders who are forging synergistic, mutually reinforcing relationships between environmental restoration, community development, and economic opportunity.

C. Salmon Nation

Story number three. In December 1999, Ecotrust published Salmon Nation. In short, story-telling chapters, Salmon Nation describes relationships between people and salmon in the eastern Pacific region. It tells of the need to restore watersheds and to address the very complex interactions of water, land use, fish, and local communities. Once, 200 gram salmon smolts

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16. Salmon Nation: People and Fish at the Edge (Edward C. Wolf & Seth Zuckerman eds., 1999) [hereinafter Salmon Nation].
went out in the ocean, grew big, and brought enormous amounts of biomass and nutrients from the ocean back to the rivers, sustaining a huge cultural and economic system for 9,000 to 10,000 years. One of the authors compared the salmon runs to a scenario in which a rancher in Alberta turns calves loose in the summertime to graze free from Alaska to Texas, and the cows return after two to three years weighing 50,000 pounds.

The salmon ecosystem was once a huge, free import system. Today, the weight of hatchery salmon fry that we put into Pacific Northwest rivers is more than the weight of the salmon that return. With human technology, capital, and arrogance, we have turned a huge, free import system into a huge export (loss) of money, biomass, and nutrients. On the coast of Oregon, through the hatchery system, taxpayers spend over sixty dollars for one Coho salmon that is worth less than half that amount if and when the fishermen catch it. Today, less than one-year later, commercial fishing on the Fraser River in British Columbia returns less than ten percent of what Native Americans caught annually for thousands of years. The story of salmon in the Pacific Northwest shows how social, economic, and ecological systems interact. This analysis—and action based upon the analysis—is what really counts.

D. Sea Resources

This fourth story is also related to salmon. A small non-profit called Sea Resources is located on the Chinook River in Chinook, Washington, home of the Chinook salmon and the Chinook Indians. Chinook is the site of the oldest hatchery in the state of Washington. The hatchery was started in the 1880s shortly after the earliest decline in commercial catches of Chinook salmon on the Columbia River. For the last thirty years, Sea Resources has been educating remedial high school students on the nearby Long Beach Peninsula, in Willapa Bay, Washington. Kids who were struggling with math and English were given opportunities to work at the Sea Resources hatchery. Many of the students hoped to become commercial fishermen or hatchery technicians.

One of the board members of Sea Resources came to Ecotrust about three years ago and said, "You know, we used to have twenty, thirty kids each year, and now we only have eight or ten. And the community used to contribute thirty or forty

17. See Richard Manning, Ghost Town, in SALMON NATION, supra note 16, at 34.
18. Id. at 35.
19. Id. at 37.
thousand dollars a year, and now it contributes little. We don't understand what is going on. Can you help us?" Since jobs had been declining for many years in commercial fishing and the limitations of hatcheries were becoming increasingly apparent, we suggested teaching watershed restoration rather than hatchery management. We helped find new staff for Sea Resources, and we supported their organizational development and fundraising. Ecotrust contracted with Charley Dewberry, a salmon restoration biologist, to spend a year working with students to develop a long-term watershed restoration plan.

Today, there are sixty to seventy students in the Sea Resources program. If you go there on a rainy, wet November day, you may see them coming out of the woods in their hip boots—muddy, cold, wet, laughing, and having a wonderful time. They have a native plant nursery. They worked with a local quarry operator and logging company to rebuild a bridge that had all but stopped salmon passage. They just published a book of oral history based on the students' interviews with some of Chinook's long-term residents. School curriculum is integrated with Chinook watershed restoration planning and implementation. There is a new sense of hopefulness and optimism among kids who once struggled in a community that believed that it had few choices.

E. Portland Urban Restoration

Fifth and final story: Recently, Ecotrust has begun to apply ecosystem restoration principles to an urban environment. In 1998, we purchased a block of northwest Portland, an 80,000 square foot, century-old industrial warehouse. We are exploring the creation of high performance workscapes by designing diversity and connectedness—key features of healthy ecosystems—into retail and office space. Patagonia is the anchor retail tenant. A restaurant featuring sustainably produced foods of the Northwest, and an environmental travel and roadside assistance company are other tenants. Clusters of for-profit and non-profit tenant organizations and businesses are emerging around fishing, farming, forestry, socially responsible financial services, and outdoor travel. There are some shared services and meeting spaces. The idea is to create not just "green" building technology but also a workplace where a diversity of tenants

might learn and explore new ideas and possibilities together in one dynamic, urban building ecosystem.

III
FUTURE TRENDS

In addition to these stories of small local successes, there are two large-scale trends that I find hopeful. The first is the Internet and the prospect of wealth built on increasing knowledge rather than on increasing exploitation of labor and natural resources. Traditional barriers to scale, distance, and social and economic status are crumbling. This presents an enormous opportunity for all of us who seek integrative solutions. I do not think Jane Jacobs would be surprised to find that the emerging global economy—the network economy—is looking a lot more like the global ecosystem than we ever imagined it might. Globalization presents recognizable problems, but it also presents important opportunities.

The second emerging pattern was described by Dan Kemmis last summer in a brilliant article called "Learning to Think Like a Region."21 He describes globalism, continentalism, bioregionalism, and the emergence of city-states, or metro areas, as part of an organic pattern that is emerging quite naturally. Continentalism—whether it be the European Union or the North American Free Trade Agreement—is a response to new competitive challenges that are forcing people to re-aggregate into more sensible units of decisionmaking in order to compete in a new world.22 Bioregionalism is developing. Cascadia23 in the Northwest is a good example of this. The Great Lakes region, in both the United States and Canada, is also self-organizing around watersheds to solve environmental and economic problems. There is a new kind of naturally occurring regionalism developing that nobody can stop. Ecological interdependency requires local government entities within a region to form partnerships. Because of regional interdependence, there are a lot more reasons for people in Coeur d'Alene, Idaho to worry about what's going on in Spokane than there are for them to worry about the people in Boise, the capital of their state. And Boise has a lot more reasons to worry about what is happening in the Upper Snake River Plain, in Ontario, Oregon and even in

22. See id. at 30-31.
23. See id. at 31.
Salt Lake City, than they do about Coeur d'Alene. Bioregionalism is emerging as a very powerful form of self-organization around more natural units of decisionmaking that better integrate economic, environmental, and social concerns.

For example, at the city level, Portland owes its enormous success in growth management and public transportation over the last ten or twenty years to decisions to address the interconnectedness of Portland and Vancouver, Washington, as well as surrounding towns to the west, east, and south. Portland also addresses the interconnectedness of transportation, regional communication infrastructure, environmental, and economic issues effectively. Such metro areas are another evolving unit. Self-organizing levels of continents, bioregions, and metro city-states have little to do with the straight political lines of counties, states, and nations. As Kemmis suggests, there are no more national solutions because there are no more "national" problems. 24

CONCLUSION

As we search for more integrative solutions, it is worth taking into account some of the very big and powerful forces that are already at work. Both the bioregional reorganization that Dan Kemmis describes and the reorganization that is arising out of the information economy have advantages that could be used to breach the barrier to understanding humans as part of natural systems that Jane Jacobs describes.

In the end, we have to work very hard at honoring and supporting those processes that increase economic, ecological, and social diversity. There are wonderful emerging opportunities in which the non-governmental and non-profit sector can participate. Entirely new kinds of institutional arrangements are not only possible but also necessary.

24. See id. at 28-29.