Conservation in the Internet Age

THREATS AND OPPORTUNITIES

Edited by James N. Levitt

Foreword by Tom Vilsack, Governor of Iowa

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ISLAND PRESS

Washington • Covelo • London

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Library of Congress Cataloging-in-Publication Data Conservation in the Internet age: threats and opportunities / edited by James N. Levitt.

p. cm.

Includes bibliographical references (p.).

ISBN 1-55963-913-X (pbk. : alk. paper)

1. Nature conservation. 2. Internet. I. Levitt, James N.

QH75 .C677 2002 333.7'2—dc21

2002005947

British Cataloguing-in-Publication Data available.

Printed on recycled, acid-free paper 3

Manufactured in the United States of America
09 08 07 06 05 04 03 02 8 7 6 5 4 3 2 1

CONSERVATION IN THE INTERNET AGE

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FOREWORD

Thomas J. Vilsack, Governor of Iowa

Teddy Roosevelt once said that "nine-tenths of wisdom is being wise in time." As we begin a new century, we have a unique opportunity to create a dialogue on conservation that encompasses the realities of the Internet. This global network, dazzling in its ability to reach sparsely populated and unspoiled lands as easily as it reaches urban centers, is a double-edged sword. The Internet connects far-flung populations, yet it has the potential to alter our country's physical landscape profoundly as it enables people to live and work wherever they desire. The Net is one of several substantial and growing threats to our open spaces and natural resources that demand our timely concern and action.

It is fitting that I quote Teddy Roosevelt, because in 1908 he called the nation's governors together for the first time in history. His urgent mission for this meeting was to conserve public land and natural resources. Out of that gathering, and his myriad other conservation initiatives, came the creation of many of the state and national forests, parks, and wildlife reserves that we enjoy today. Another result of that historic meeting was

the birth of the National Governors' Association. Recently, as governor of Iowa, I chaired the association's Natural Resources Committee. As chair, I emphasized that, nearly 100 years after Teddy Roosevelt sounded the call for conserving public land, it is time to look at the untapped potential of conserving private land. Most of the land in our nation is privately owned. If significant improvements in land conservation across our country are to occur, government will have to provide the incentives and resources that encourage people to do the right thing for the land. Coincidentally, one of the vehicles for encouraging good private land stewardship will be the Internet.

It is encouraging that public discourse on the intersection of technology and conservation has begun in earnest. In June 2000, a group of government policy makers, nonprofit leaders, private entrepreneurs, and researchers met at Harvard University's John F. Kennedy School of Government to consider the challenges of conservation in the Internet Age. That meeting, at which I was the keynote speaker, became the genesis for this book. The thoughtful essays contained here give perspective on the far-reaching impacts of communication and transportation networks throughout history and explain how digital networks bring both positive and negative effects to our natural and built environments.

The time for a prescient dialogue on conserving open spaces is now. As governor of a largely rural state, I am keenly aware of the possibilities and pitfalls that rural development brings. The trend for companies to locate outside heavily congested areas to provide the goods and services our burgeoning world population demands is beginning to affect prime Iowa farmland. Consider that in 1846 the state of Iowa contained 95,000 people. Within the first decade of our existence, we grew to 195,000 people, and within the first twenty years, we had reached our first 1 million people. By 1900, we had 2.2 million people living in our state—more than in California or Florida. Iowa was the tenth most populated state in the Union. We had thirteen members of Congress. We were a significant force in the nation.

Today Iowa has yet to reach its third million—the 2000 census put our population at 2,926,000. But Iowa Farm Bureau statistics show that we are converting about 20,000 acres of prime farmland to urban use each year. Why is this happening? It is partly because government policies encourage the development of open spaces. Tax abatements exempt developers from paying levies on the growing value of their land for a specific period

of time. State and local governments also provide new sewers and roads, further encouraging expansion into open spaces.

The small town of Manning, Iowa, with a population of some 1,000 people, illustrates the dilemma that advanced telecommunications presents. Manning is struggling for economic opportunity, as are many of Iowa's 950 communities—800 of which have 1,000 or fewer residents. These towns are always looking for ways to encourage business development. Manning has one of the 100-plus locally owned telephone companies in Iowa, and the town's leaders decided to install a telecommunications system that would give Manning residents high-speed Internet access. The goal was to create a "smart park"—a building connected to the Internet that allows technical workers, particularly engineers, to work in small-town Iowa while communicating with employers all over the world.

Manning's success in this venture has prompted a number of small businesses in our state to find the niche within the global economy that allows them to locate and thrive in rural communities. But as we improve our communications systems and attract more people to small communities, we create demand for more housing units and service-related businesses. There is only so much land available, and development pressures are beginning to degrade our environment.

Meanwhile, managerial and technological efficiencies allow farmers to raise yields so quickly that we have not been able to find ways to use all the corn and soybeans farmers grow. The results are escalating crop surpluses, lower farm prices, and a vicious cycle in which producers grow more to sell more. Compaction from heavy equipment threatens the long-term viability and productivity of our soil. Heavy reliance on farm chemicals places soil and water quality at risk. The U.S. Environmental Protection Agency recently identified 157 impaired waterways in our relatively small state—a finding that has jolted us to seriously consider initiatives to clean our water.

So how does a state go about addressing these conservation issues? States have had two principal responses. One is the start of smart growth policies, which encourage governments to establish parameters and incentives to ensure that public monies are used only in areas that need to be developed—so we can preserve our open spaces as best we can.

Maryland is probably the leader in this effort. Governor Parris Glendening has mounted a remarkable smart growth program that encourages development and economic expansion, but only in places that

have appropriate infrastructure and environmental attributes. A Maryland video presentation on smart growth strikingly illustrates the evolving population in the state since the 1600s and the ever-diminishing open space in that state—as well as in the rest of the United States.

The other way states have approached conservation is by encouraging good stewardship of private land. That's the way we have done it in Iowa. Iowa has the highest percentage of privately owned land of any state in the country, which is another way of saying we have the least amount of publicly owned land. About 95 percent of our land is privately owned, and the 5 percent that is publicly owned includes roads and streets. We have no national parks, and we have a few state parks. An effort is under way to gain some kind of federal protection for the Loess Hills area in western Iowa, but for the most part we are private landowners. That is the ethic of our state.

Because private land rights are so dominant in Iowa, we are responding with conservation initiatives designed for private land. We have invested \$11 million from the state budget in a comprehensive water quality improvement program, focused in part on encouraging volunteers and nonprofit groups to communicate person to person with farmers about the need to install buffer strips. Located between farm fields and nearby rivers and streams, these grassy strips provide a natural filter for pesticides and chemicals. With 72,000 miles of rivers and streams in our state, there are plenty of opportunities to plant buffer strips.

To protect fragile working lands and guard against sudden flooding, we are also encouraging farmers to preserve and re-create wetlands. Some waterways have recorded a 58 percent drop in suspended nutrients from this relatively simple practice. Part of this initiative includes compensating farmers for creating these wetlands, because we are asking them to take land out of production. The federal government assists us with a program that provides a relatively fair rental rate for farmers who preserve wetlands. Many farmers are reluctant to join these programs because they believe that government restrictions, government involvement, and government direction will translate into orders on how to use the land. That's why it is important to create a network of people who will talk to farmers one-on-one.

However, these two very good programs—buffer strips and wetland preservation—have not reached their full potential because we do not have a national environmental program that highlights their importance. Although many people care passionately about the environment, the average person on the street does not share this passion. I thought most Iowans

would be very concerned about their natural resources. During my campaign in 1998, I fully expected the environment to be a key issue, because the state was debating the location and size of large-scale livestock confinements, whose waste creates serious pollution. This was a fairly hot topic as well as a significant one to the future of agriculture and the quality of life in communities across the state. But I was shocked to see that the environment was not one of the priority issues on Iowa voters' minds.

I believe we have not done as good a job as we need to in educating people at an early age about the connection between the environment and their quality of life. One way to remedy this is to use the power of the Internet to its full capacity. The Internet can help us create an educational system and an environmental ethic that will make farmers, business owners, and landowners ask: What is in the best interest of the land? What is in the best interest of the air?

The Internet is an extraordinarily effective tool for disseminating information at relatively low cost to thousands, even millions, of people. It also is a tool for distance learning. For example, in Iowa, small rural schools cannot afford the cost of an environmental studies program. Through the Internet and the Iowa Communications Network (ICN), a teacher can reach ten, fifteen, and sometimes as many as ninety schools at a time. Our system is interactive, so young people in a school 100 or 200 miles away from the central site can ask questions. In fact, our students talked directly to scientists on the Galapagos Islands via the Internet and the ICN and had an active exchange regarding the scientists' results.

The Internet also is extraordinarily powerful in persuading people. We are just beginning to learn how to employ it effectively in political campaigns, and I think its use as a persuasive tool will be perfected over time. In Iowa, a political radio talk show posts on the Internet. The Internet also is where the younger generation reads its newspapers and does its research. We need to utilize that power. The election of Vicente Fox as Mexico's president was influenced by thousands of e-mails. I believe we will eventually vote and conduct much of the political process on the Internet. This growing use will allow more people to participate in the political process.

Over time, the Internet will become a powerful survey tool as well. The ability to gather and post information about what the public thinks on an Internet site is very powerful. If we are to create an environmental ethic, we must have the resources to do it, which means we must engage public policy experts by suggesting that ordinary folks are interested. There will

be a time in the not-so-distant future when Iowans won't need to go door-to-door to convince farmers to participate in our state's clean water initiative. The Internet will provide exciting opportunities for engaging all of us in creating an environmental ethic and preserving our open spaces.

As with most powerful forces, the Internet can be used for good or for bad. I'm convinced that we will use the Internet for good. As the world's population continues to expand, we will become more concerned not just about our own little area but about the environment as a whole, because we will understand that we are interconnected. What happens in India is going to have an impact on me in Mt. Pleasant, Iowa. I believe the Internet will empower us to respond.

This book also should help us respond, by stimulating discussion and providing a blueprint for the interface between information technology and the environment. If we use the Internet to jump-start private and public land conservation as well as public education, we will be able to chart a more ecologically sound course for the planet we share.

ACKNOWLEDGMENTS

This book is the outgrowth of a remarkable meeting held at Harvard's John F. Kennedy School of Government in June 2000. At that meeting, an invited group of distinguished nonprofit leaders, private entrepreneurs, government officials, and academic researchers convened to consider the challenges of conservation in the Internet age. The meeting was distinctive because of both its interdisciplinary nature and the high level of energy that participants brought to the gathering. Demographers who typically spend long hours poring over county-by-county growth trends discussed supercomputer networks with ornithologists. Local government officials had a chance to carefully consider—and challenge—specialists in the development of information technology. Native Americans from the rural West had the opportunity to test their ideas on urban colleagues from the East Coast. And policy makers accustomed to considering the national interest dined with natural historians who have written about the interpretation of dinosaur bones.

It is to all the people who attended that meeting—especially to the authors who contributed chapters to this book—and to many more who

continue to correspond face-to-face, by telephone, by e-mail, and through their writing that I owe my gratitude for making this book possible. I would also like to mention a number of individuals who have, in many ways large and small, contributed to the successful completion of this book and to the work of the Internet and Conservation Project, an effort based at the A. Alfred Taubman Center for State and Local Government at Harvard's John F. Kennedy School of Government.

First, thank you to my three loyal research assistants—Jennifer Reese, Noella Gray, and Dana Serovy—who have, in serial order over the course of the past three years, been the heart and soul of this effort. Thanks also to all of my colleagues at the Taubman Center who have shared their best ideas and good humor with me, including David Luberoff, Arnold Howitt, Charles Euchner, Gail Christopher, Dani Shefer, Mary Graham, David Weil, Kate Foster, Antonio Wendland, Archon Fung, Bob Behn, Brian Ellis, Cathleen Sarkis, Christina Marchand, David Fox, Deborah Voutselas, Guy Stuart, Jean Capizzi, Jennifer Johnson, Jonathan Richmond, Jose Gomez-Ibanez, Juliette Kayyem, Kara O'Sullivan, Karena Cronin, Kim Williams, Linda Kaboolian, Louise Kennedy, Martin West, Megan Sampson, Mingus Mapps, Rebecca Storro, Robert Putnam, Robyn Pangi, Sandra Garron, Shelley Kilday, Siobhan McLaughlin, Sophie Delano, Steve Goldsmith, Tom Polseno, Tom Sander, and Zoe Clarkwest.

My deep appreciation also goes to the faculty and staff of the other centers in the Kennedy School and throughout Harvard who have repeatedly allowed me, in my capacity as a fellow at the Taubman Center, to join in their classes and discussions. In particular, thanks to Henry Lee, John Holdren, Bill Clark, Lewis Branscomb, Deborah Hurley, Spiro Pollalis, Jeffrey Huang, David Foster, John O'Keefe, Bob Cook, Alice Ingerson, Calestous Juma, Douglas Causey, Clayton Christensen, Jaime Hoyte, Richard Forman, E. O. Wilson, and Philip Lovejov.

Perhaps my best opportunity for learning from colleagues at Harvard came when Dr. Charles H. W. Foster, also known as Hank, gave me the wonderful opportunity to coteach a course module—Innovation and Entrepreneurship for Conservation and the Environment—with him at the Kennedy School in the fall 2000 semester. To Hank Foster, and to all the students and class participants who gave me detailed insight into the process of innovation, I offer my genuine appreciation and deepest respect.

I was lucky enough to have the professional support, encouragement, and friendship of many, many individuals outside of Harvard on this proj-

ect as well. Bob Bryan, Larry Morris, Ken Hoffman, Kathy Blanchard, Sally Milliken, Tom Horn, Jessica Brown, Brent Mitchell, Anne-Seymour St. John, and the rest of the staff, as well as the board of directors, at the Ouebec-Labrador Foundation have offered critical support and encouragement along the way. Thanks also to my many colleagues on the board and staff of the Massachusetts Audubon Society, including but certainly not limited to Laura Johnson, Jerry Bertrand, Gary Clayton, Andy Kendall, Banks Poor, John Mitchell, Laurie Bennett, Adrian Ayson, Lee Spelke, Franz Colloredo-Mansfeld, Merloyd Luddington, Appy Chandler, Tom Litwin, Teri Henderson, and John Fuller. Special mention also to the board and staff of the University of Kansas Natural History Museum and Biodiversity Research Center—particularly to my friend Leonard Krishtalka-and to my colleagues at the Lincoln Institute for Land Policy—most notably Armando Carbonell—who have challenged me to expand my ideas. I am further inspired by the board and staff of the New England Forestry Foundation, who have clearly demonstrated to me that old records in conservation are meant to be broken. Thanks also to colleagues on the National Science Foundation's Long Term Ecological Research 20-year review committee.

Many kinds of assistance contributed to the preparation of the June 2000 conference and of this book. The editors who have guided the preparation of the book, including Sandra Hackman in Massachusetts and Heather Boyer at Island Press, have done a wonderful job and have shown enormous goodwill and patience. Further critical support was offered by Island Press staffers James Nuzum, Chace Caven, Cecilia González, and Alphonse MacDonald. The enterprise has been kept affoat with support from many corners, including key financial and in-kind support from a number of donors. I am most grateful to the Virginia Wellington Cabot Foundation, the Ronald and Gladys Harriman Foundation, William Haney, Susan Whitehead, Bert and Joan Berkley, Linda Mason and Roger Brown, Blackboard.com, the Bullock Family Fund of the Boston Foundation, Centra Software, the Forest History Society, Forrester Research, and I-Group/Hotbank NE for their faith in and support for this project. The effort also benefited from the expert advice of an outstanding advisory board, including several individuals mentioned above, as well as Paul Judge, Chip Collins, and Andrew McLeod, whose experience in journalism, business, and public finance, respectively, was invaluable. Thanks also to Neil Karbank, Scott Brown,

John McAlpin, Ned Sullivan, Massimo Loda, Charles Hirschhorn, Tim Kaine, David Miles, Cindy Link, Peter Stein, Brian Bosworth, Deanna Douglas, Spencer Phillips, Larry Anderson, Wes Ward, Char Miller, Ian Bowles, Jay Espy, Peter Howell, Nora Mitchell, Jean Hocker, Hillary Pennington, Jim Price, and their families for all of their contributions of thought-provoking artwork, ideas, and encouragement.

The most heartfelt thanks I have saved for last. My love to my brother, Tom, my sister, Jean, and the entire Levitt family; to Bert, Joan, and all of the Berkley family; and most especially to my love, my conscience, and my closest advisor, Jane, and our three beautiful children, Will, Daniel, and Laura.

Let me close by dedicating this book to Alan Altshuler, director of the Taubman Center and senior member of the Harvard faculty, who was gracious enough to invite me to bring my unconventional ideas to this remarkable place. Thank you, Alan, for serving as a mentor, a friend, an intellectual resource, and a source of invaluable perspective.

James N. Levitt Cambridge, Massachusetts April 2002

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