

BY James N. Levitt

# LARGE LANDSCAPES A NEW GENERATION OF CONSERVATION INITIATIVES IN FOCUS

*Large-landscape conservation initiatives are thriving in the early 21st century at a scale and scope that would have been out of the reach or imagination of most conservationists active in the post-World War II era. Given the exceptional budgetary limitations of our day and the pace of human development across the globe, how is it possible that such ambitious, complex and just plain big efforts come to fruition?*



LAKE WITHIN MONTANA LEGACY PROJECT ©KENTON ROWE

**T**heir success can be attributed to at least four factors: the persistent attention of some of our best talent, at grassroots as well as national levels; the use of our most advanced land-related technology; the invention and utilization of novel, significant and measurably effective conservation finance tools; and the creativity of social innovators with access to increasingly expansive communications networks. These four factors, all influential on several levels of society, have changed the playing field and vastly expanded the possibilities in land conservation initiatives.

### Talent

Deep in the heart of the Crown of the Continent, a mosaic of wild habitat spanning some 18 million acres across the U.S./Canada border in Montana, Alberta and British Columbia, lies Montana's Swan Valley, a place of spectacular vistas, crucial

wetlands and outstanding grizzly bear habitat. At the grassroots level, Melanie Parker, a persistent, creative and articulate resident of the valley, invested her time and passion in a community-based approach to the conservation of the Swan Valley that has elicited a national response. Alongside other local landowners, national land trust organizations, such as The Nature Conservancy and The Trust for Public Land; state agencies, such as Montana Fish, Wildlife & Parks; and federal agencies, including the U.S. Fish and Wildlife Service and the U.S. Forest Service, Parker helped devise a plan to protect the regions soaring forests and expansive marshes for the long term.

The plan became part of the Montana Legacy Project, which has resulted in the protection of some 310,000 acres in the Swan and adjacent valleys. These forests

and valleys encompass the intersection of pathways connecting vital habitat for wildlife throughout the Northern Rockies. This bold initiative is conservation at a scale that can make the difference between survival and extinction for some species, and would not have come about without the dedication of Parker and the many project partners.

"We are within reach of permanently protecting the Swan Valley, so that female grizzlies will still be able to raise their cubs in the valley bottom and a new generation of people will discover the lakes, streams, trails and back roads of this amazing place," says Parker.

Several of Parker's similarly persistent, creative and articulate colleagues in the effort are now at the top of national organizations—Jamie Williams, president of the Wilderness Society, and Tom Tidwell, currently serving as chief of the U.S. Forest Service.

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## Technology

For years, technology has been a crucial tool in the business of land conservation, but in recent years its capabilities have greatly increased. Land conservationists have long relied on geographic information system (GIS) tools to map parcel boundaries and catalog resources on a property-by-property basis. Comprehensive information, however, on where protected lands owned and managed by public, private and nonprofit sector organizations are located throughout the national landscape, and in relation to one another, has until quite recently been difficult to come by. The online publication of interactive GIS maps that leverage the increasingly rich Protected Areas Database of the U.S. (PADUS) is substantially improving the situation. The work of local land trusts to fill in the detail, thereby allowing parcel-level large landscape conservation planning to go forward, will continue to be essential.

Even more advanced technologies are being prepared for use in the field. Take, for example, the work being done by Chesapeake Conservancy. This relatively new organization is studying ways to use Light Detection and Ranging (LIDAR) technology and high-resolution satellite imagery to achieve large landscape conservation across the breadth of the Chesapeake watershed. Specifically, their goal is to identify the most important conservation opportunities along the almost 3,000 miles of the Captain John Smith Chesapeake National Historic Trail, which includes the Chesapeake Bay and its great rivers, the James, Rappahannock, Potomac, Nanticoke and Susquehanna. These areas, many of which are under considerable development pressure, include habitat for brook trout and play a key role in the flow of nutrients that threaten downstream fisheries.

Technology also comes in handy when protected properties are too large, too densely forested or too remote to monitor on the ground.

Every year, after the autumn colors of the northern forest fade, LightHawk volunteer pilots Bob Keller and Joris Naiman prepare their aircraft to fly for conservation. What started in 1979 with one man and a borrowed plane has grown to more than 200 volunteer pilots flying donated missions

for conservation groups across North and Central America.

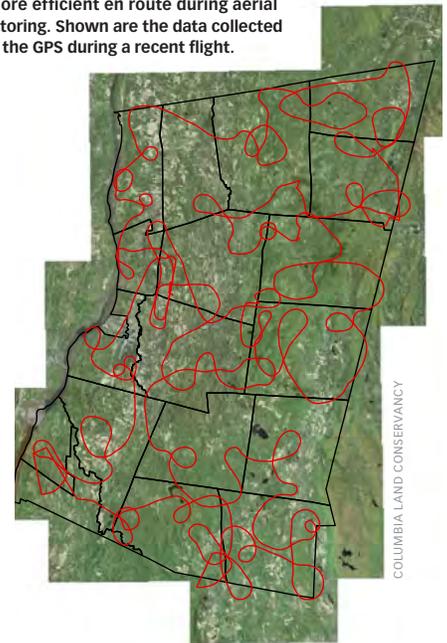
A LightHawk volunteer pilot for nine years, Keller is also a land trust leader in his own right as a board member of New York's Tug Hill Tomorrow Land Trust. He understands the enormous benefit gained through informed flight with dedicated pilots.

"Aerial monitoring allows us to see every 'corner' of a protected property, something we can't necessarily do on a ground site visit," notes Heidi Bock of the Columbia Land Conservancy in New York. "We are looking for larger scale changes in the property, like logging, new large structures, ponds or driveways."

Sometimes a combination of monitoring techniques is needed for very large properties. Take the Pingree conservation easement, for example. The 762,192-acre easement of privately owned forestland in Maine, completed in 2001 by the Pingree Forest Partnership, was spearheaded by the New England Forestry Foundation (NEFF). The vast size of the property, including 1,180 square miles of protected forestland, more than 2,000 miles of river frontage, 72,000 acres of wetlands, 110 remote ponds and lakes larger than 3 acres, 67 rare and endangered plant sites and 12,264 acres of fragile high mountain areas, posed a problem to those responsible for monitoring the easement.

In 2001, NEFF awarded a contract to Dr. Steven Sader, a professor in the School of Forest Resources at the University of Maine at Orono, to put together a monitoring protocol for the Pingree forest. His team came up with a three-tiered, multiscale scheme: it employs

Columbia Land Conservancy has upgraded its technology to use an iPad with the MotionX app and Bad Elf external GPS to be more efficient en route during aerial monitoring. Shown are the data collected from the GPS during a recent flight.



medium-resolution Landsat Thematic Mapper™ satellite-based remote sensing for the first, highest-level, pass at reviewing changes in forest conditions. Then, aerial photography (or high-resolution satellite-based imagery) provides closer-in, second-pass inspections of potential trouble spots identified by the Level 1 analysis. Finally, a forester makes on-the-ground inspections, generally only in those places identified in levels 1 and 2 analysis as meriting further inspection, and for those attributes, such as the quality of forest diversity or of wildlife habitat, that might not be effectively monitored from above.

## Conservation Finance Tools

Land trusts in the United States have been prominent leaders in the creation of novel conservation finance techniques now being used to achieve large landscape conservation objectives. The Pacific Forest Trust (PFT),

## Resources

Conservation Catalysts Network (Universities, Colleges & Research Institutions Catalyzing Large Landscape Conservation)  
[www.conservationcatalysts.net](http://www.conservationcatalysts.net)

Northeast Landscapes – Regional Plan Association  
[www.rpa.org/northeastlandscapes](http://www.rpa.org/northeastlandscapes)

Practitioners' Network for Large Landscape Conservation  
[www.largelandscapenetwork.org](http://www.largelandscapenetwork.org)

Matthew McKinney, Lynn Scarlett and Daniel Kemmis, "Large Landscape Conservation: A Strategic Framework for Policy and Action." Policy Focus Report, Lincoln Institute of Land Policy, 2010.  
[www.lincolninst.edu/pubs/1808\\_Large-Landscape-Conservation](http://www.lincolninst.edu/pubs/1808_Large-Landscape-Conservation)

Search "landscape-scale" on The Learning Center  
<http://learningcenter.lta.org>



Melanie Parker, one of the many talented individuals championing the Montana Legacy Project

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under the leadership of Laurie Wayburn, was instrumental in the establishment of rules under California Assembly Bill 32 that created an economywide carbon cap-and-trade system inclusive of forests. AB 32 includes two new conservation finance mechanisms: carbon emission reduction projects (offsets) and investment of emissions allowance auction revenue in forest conservation to achieve increased climate benefits. The first auction was held in December 2012. PFT's Van Eck forest project is an effective, on-the-ground demonstration that investment in forests for carbon is a manageable and practical idea. This offset project has now been replicated many times across the U.S. PFT is currently advancing this two-pronged approach nationally, opening the path for significant gains in forest conservation.

On the other end of the continent, path-breaking organizations, such as the Mount Grace Land Conservation Trust in Massachusetts, are busy inventing new ways to aggregate smaller land parcels into larger packages that are eligible for key state and federal funding sources. Leigh Youngblood, executive director at Mount Grace, has been busy for nearly two decades showing how such aggregation projects can help achieve landscape-scale impacts in the North Quabbin and adjacent regions. Working with federal and state partners, as well as nearby land trusts in the North Quabbin Regional Landscape Partnership (NQRLP), Mount Grace led efforts to protect 9,100 acres across 104 different properties in the Tully Initiative, principally funded by the Commonwealth of Massachusetts, and about 6,000 acres across 60 properties in North Central Massachusetts in a series of four federally funded Forest Legacy projects. Several additional Forest Legacy projects assembled by the NQRLP are also in the pipeline.

The progress being made by the NQRLP and a dozen other regional conservation partnerships across New England is at the heart of the strategy being advanced by the Wildlands and Woodlands Initiative for protecting some 70% of the forestland in New England. Inspired by a pair of visionary papers authored by David Foster and his colleagues at the Harvard Forest, this broad-based initiative demonstrates how local conservationists, working across organizational and state boundaries, can create green corridors that will preserve wildlife habitat, protect water supplies, enhance sustainable forestry and steward recreational and scenic resources for generations to come.

### Social Innovation

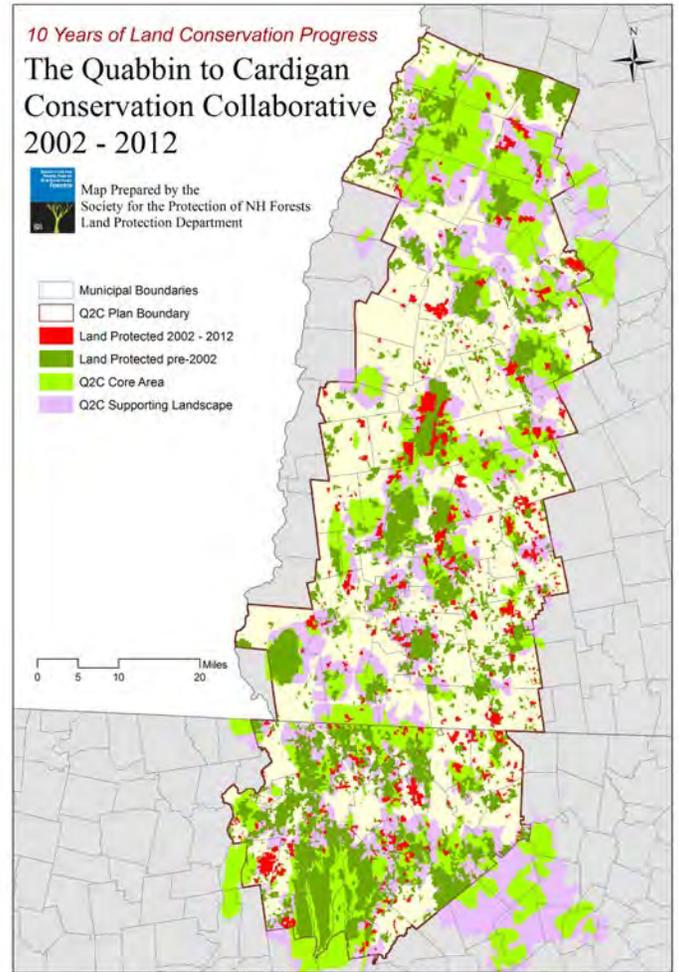
Large landscape efforts are, often from their first conception, initiatives that draw talent, technology and financial tools together across sectors, political jurisdictions, national boundaries and even continents. This could only be possible in the age of the Internet, when new forms of conservation-relevant networking and social governance are springing up in myriad locations and institutions, from the National Science Foundation (NSF) to the World Bank. It was an NSF research network that helped launch the binational interest in the revival of the Colorado River Delta, a region slowly coming back to life that will benefit from a 2012 water treaty amendment signed by the United States and Mexico. And Conservation International's Pacific Oceanscape Initiative, covering an exceptionally large part of the Earth's surface,

has recently gained support from the World Bank for its work across the terrestrial and marine zones of some 15 nations.

Increasingly, efforts in the U.S. and internationally to share knowledge among large landscape conservation initiatives are being made through online channels. While diverse in origin and content, these efforts, including the Practitioners' Network for Large Landscape Conservation, the Conservation Catalysts Network and the Regional Plan Association's Northeast Landscapes project, all share the conviction that the role of land trusts and private land conservation will be essential in large landscape conservation policy and practice.

The dramatic changes that the world is in the midst of undergoing in the early part of this new century—grassroots initiatives, technological innovation, new financial tools and limitless networking capabilities—will undoubtedly continue to shape large-scale conservation efforts and outcomes in the years to come. 🌿

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