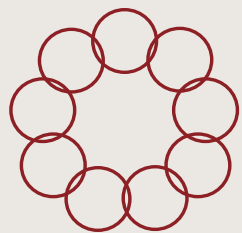




Adapting to Change in the Crown of the Continent

An Ecosystem Scale Approach to Collaborative Management

Reuling, Johnson, Higgins, Bixler, Williams, Tabor



Roundtable on
**the Crown
of the Continent**



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Foreword

The Crown of the Continent is a special place where people, nations, and ecology meet. Spanning the boundaries of the U.S. and Canada, the Salish Kootenai, Ktunaxa, and Blackfeet nations, and four distinct ecoregions, the 18 million acre Crown ecosystem is also the meeting point of three continental river systems—the Missouri, Saskatchewan and Columbia. Born from this crossroads of conservation is the seed of a now vibrant international peace park movement. The Crown is a symbol of hope. Its very existence serves as the global touchstone for bringing peace where there has been conflict, for connecting people where there has been division, and for conserving nature as a whole, intact landscape.

The Crown is also an ecosystem undergoing rapid change from both a human and ecological standpoint. Noted for the many glaciers that have existed in the region for over seven millennia, only 25 remain in Glacier National Park today. Scientific models predict there will be no glaciers left there by the year 2030. The Crown is a poster landscape for the impacts of climate change and land use change. Water is life and the Crown glaciers have been the water bank for people and nature. The bank is running low. On top of this, the Crown ecosystem is experiencing extremely high rates of human in-migration growth as people flock to enjoy the region’s natural and cultural amenities.

The Crown Roundtable was created to bring all stakeholders in the ecosystem together—the tribes, the working lands owners, business leaders, local officials, conservationists, universities and colleges, and the region’s young people. All these communities of actors were connected to the landscape, but not to each other. The Roundtable serves as the connective tissue to assist this diverse network in addressing the challenges of the change we are all experiencing. As part of the Roundtable’s work, we collectively designed an experiment to implement one of the first large scale climate adaptation efforts—known as the Adaptive Management Initiative (AMI). Our goal was to build a support network to help communities work together to adapt to change. This primer, *Adapting to Change in the Crown of the Continent: An Ecosystem Scale Approach to Collaborative Conservation* shares the Roundtable’s stories and lessons from our innovative work. We believe it gives hope for other diverse communities who seek a path forward in a world struggling with immense change.

Gary Tabor, MES VMD
Executive Director
Center for Large Landscape Conservation



Roundtable on the Crown of the Continent

Our Home, Our Legacy

The Roundtable on the Crown of the Continent is a unique group of folks from Montana, Alberta, British Columbia, and the tribal/First Nations within these areas. We live and work in one of North America's most iconic landscapes: the Crown of the Continent. We treasure our home, our work, our history, and our communities, but are facing many challenges. How do we keep the land healthy, our communities vibrant, and our economy stable? Not an easy task, and we don't have all the answers. We have, however, been getting together over the past eight years, sharing



experiences and trying to grasp what it takes to keep our homeland well. We come from local government, watershed groups, tribal/First Nations councils, National Parks, state agencies, agriculture, advocacy groups, and communities.

We gather together each year at an annual conference. This year, we're meeting in Missoula and inviting people from around the Crown, but particularly young people who are our future. In addition to our conference, we have been partners in projects, and one of the bigger projects has been the Adaptive Management Initiative (AMI) sponsored by the Kresge Foundation. In this report, you will learn about the innovative projects that have been supported through the AMI. From beaver rangers to tourism entrepreneurs and cultural users of native plants, we have assisted our partners around the Crown to share their successes and find ways large and small to help in the future well-being of our home.

Whether you are a logger, a scientist, a tribal member, or a college student, I hope you can learn more about our Crown of the Continent and the good work people are doing here. Please join us at the Roundtable and help us to keep the communities and landscapes of the Crown the gems that they are!

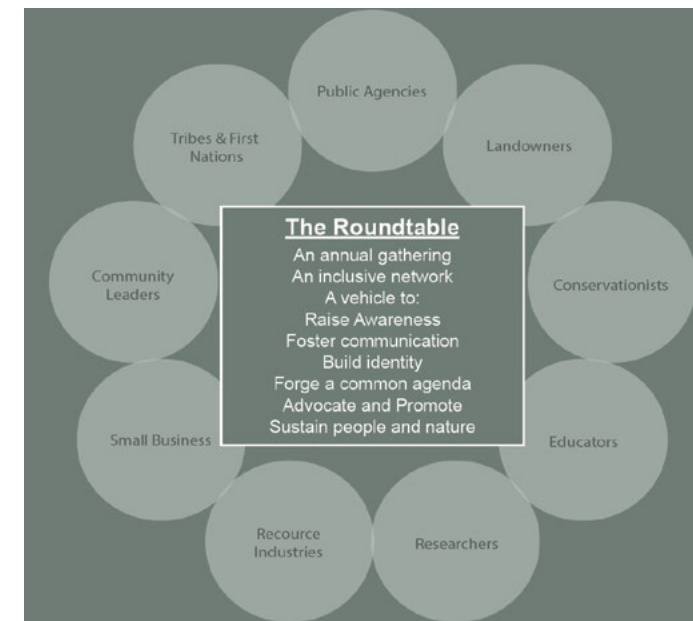
Mary Sexton
Crown Roundtable Coordinator
Choteau, MT



The Roundtable on the Crown of the Continent

The Roundtable on the Crown of the Continent emerged organically over the past ten years and now serves as an ongoing forum to promote and sustain culture, community, and conservation across the landscape.

The Roundtable functions as a “network of networks” by linking the many groups, agencies, and entities working around the Crown. Representatives of these local, sub-regional, and regional networks provide leadership and direction to the Roundtable as members of a Leadership Team. The work of these networks contributes to and informs the Roundtable, both in substance and implementation.



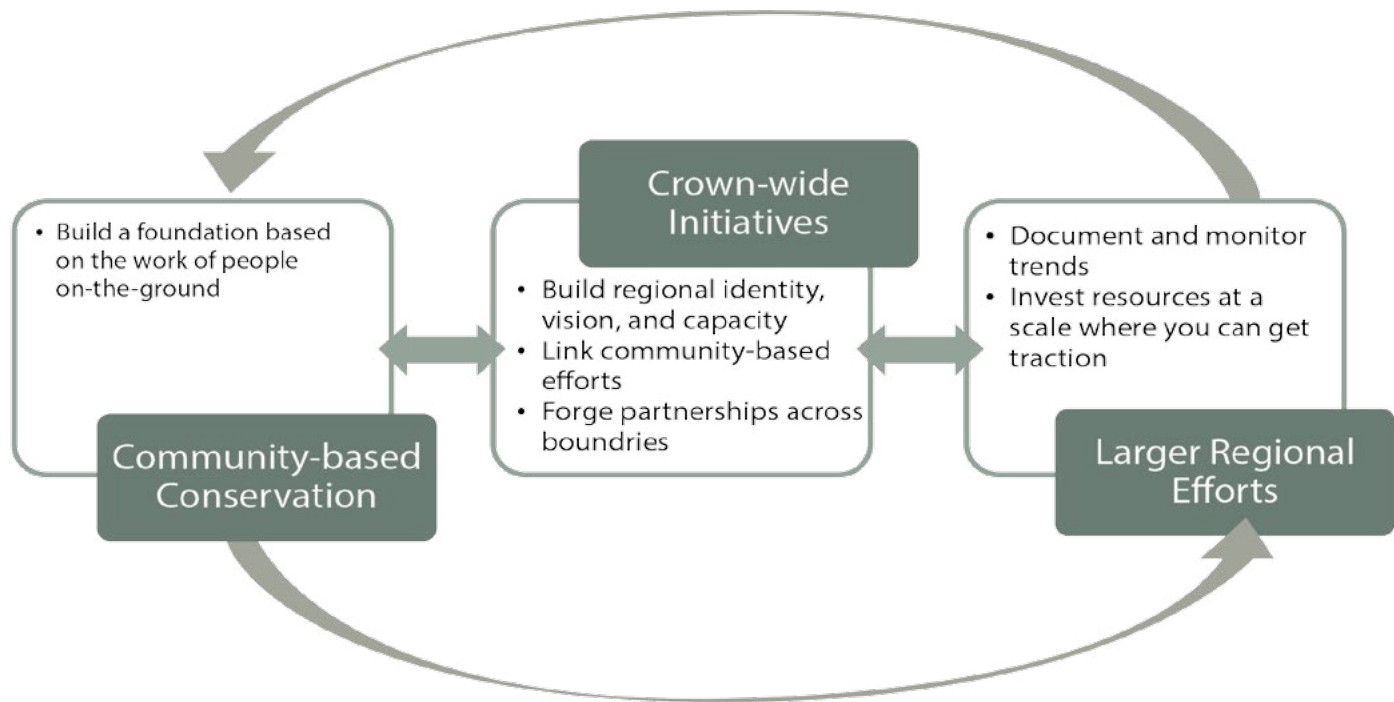
The Roundtable is a landscape-scale network of existing networks that:

- **Embraces** the 18-million-acre/7.3 million-hectare region
- **Is open** to all perspectives, interests, and communities
- **Focuses** on connecting people, facilitating, communicating, and catalyzing action
- **Links** community, culture and conservation across two countries
- **Supplements** other related activities and initiatives
- **Promotes** sustainable communities and landscapes

Working from this strategic vision and plan, the Leadership Team—with program, facilitation, and administrative support from the Center for Large Landscape Conservation and the University of Montana's Center for Natural Resources and Environmental Policy—coordinates the Adaptive Management Initiative, organizes an annual conference, invites people to become “Friends of the Crown” by endorsing a statement of shared values and principles, and provides communications support focused on connecting people and facilitating learning, including an active website and a monthly e-newsletter.



Philosophy of the Roundtable



As a regional forum, the Roundtable seeks to add value to existing efforts rather than creating new parallel efforts. In 2011, the Leadership Team developed a strategic plan and set of goals that reflect this unique position in the region, as depicted in the graphic above.

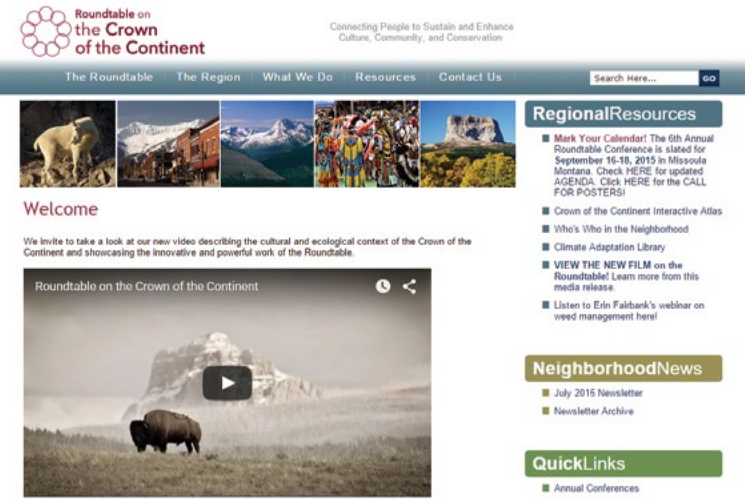
Communications: Sharing Stories And Learning Lessons

Good communications is the glue that holds the Roundtable together. The Roundtable staff spends a great deal of time ensuring that the Leadership Team is engaged and well informed and that partners are included and welcome to join the conversation. A particular effort has been made to ensure that tribes’ and First Nations’ perspectives are considered and supported. The Roundtable has also engaged a social scientist to look at the expanding network of connections between people working on the Adaptive Management Initiative to answer the question: “Is it making a difference?” The results of this study are shared in the final section of this document. Core communication efforts of the Roundtable include the following elements.

Crown Roundtable Website

In 2012, the Roundtable created its website—one of its most essential tools to assure timely communications among people in the Crown. The site, crownroundtable.org, is the go-to hub for information on:

- The Roundtable and its Leadership and Support Teams
- History, issues and partnerships in the Crown
- The work of the Roundtable, including its conferences and the Adaptive Management Initiative
- Useful resources including maps, photos, films, newsletter, publications and other regional collaboratives



Monthly E-Newsletter

In February 2013, the Roundtable initiated a monthly e-newsletter, delivered now to a database of nearly 1,000 subscribers in the Crown. It features “neighborhood news,” regional and “beyond the region” media updates, announcements of workshops and publications, and special monthly features on the inspirational activities of creative people from every corner of the landscape, including highlights from the Roundtable’s Adaptive Management Initiative.

Communications Lessons Learned

Over the course of these and other communications-related activities, three central lessons have emerged:

- Building trust among participants is key to the collaboration as a whole. The years of deep engagement through the Roundtable are the result of a trust that has been built, shared, and engendered since its inception. There has been attention to embracing differing styles (traditions, pace, timing, and comfort levels), and this has made a big difference.
- Supporting and developing leadership is key. There is great wisdom across the landscape and it is key to engage both the established leaders and elders, but also to support the development of new leaders.
- Delivery of information across this landscape requires going deeper, following-through, reevaluating our methods, diversifying content, and focusing on story. The Crown story can be told through science, technology, art, oral history, literature, and more. The opportunities to apply these lessons moving forward are boundless.

The Annual Conference

An annual conference emerged in 2010 to connect and inspire people from throughout the region. The conference is held in alternating quadrants of the landscape, and anyone interested in learning about and shaping the future of the Crown of the Continent is welcome to attend.

Annual Roundtable on the Crown of the Continent Conference	
Year	Theme and Location
2010	" <i>Remarkable Beyond Borders: Shaping the Future of the Crown of the Continent.</i> " Bayshore Inn, Waterton Lakes National Park, Alberta, Canada. Examined the past, present and future of the Crown, beginning with reflections on the history, culture, and heritage of the region.
2011	" <i>Integrating Culture, Community, and Conservation.</i> " KwaTaqNuk Resort, Polson, Montana. Focused on the cultural fabric of the region.
2012	" <i>Pathways to Prosperity: Caring for Communities in the Crown of the Continent.</i> " Fernie Mountain Lodge, Fernie, British Columbia. The theme was "caring for communities" and connection between economy and the environment.
2013	" <i>Building Partnerships: Linking Local Actions and Landscape Outcomes.</i> " Glacier Park Lodge, East Glacier Park, Montana. Fostered a sense of regional identity and built links for future action.
2014	" <i>A Balancing Act for Community, Culture and Conservation.</i> " Bayshore Inn, Waterton, Alberta. Explored how businesses, cultures, and communities are taking actions to balance values in the face of economic, demographic, political, and climatic changes.
2015	" <i>New Ideas and Enduring Values: The Next Generation of Leadership in the Crown.</i> " University Center, University of Montana. An engagement wit new leadership in the Crown with recognition of the vital cultural heritage that defines us.



Leadership Team Coordination

A vital aspect of the Roundtable is an engaged Leadership Team. Representing a diversity of interests from around the region, the various members provide insight and expertise, and shape the work of the Roundtable to provide maximum impact, and value, to stakeholders in the region.

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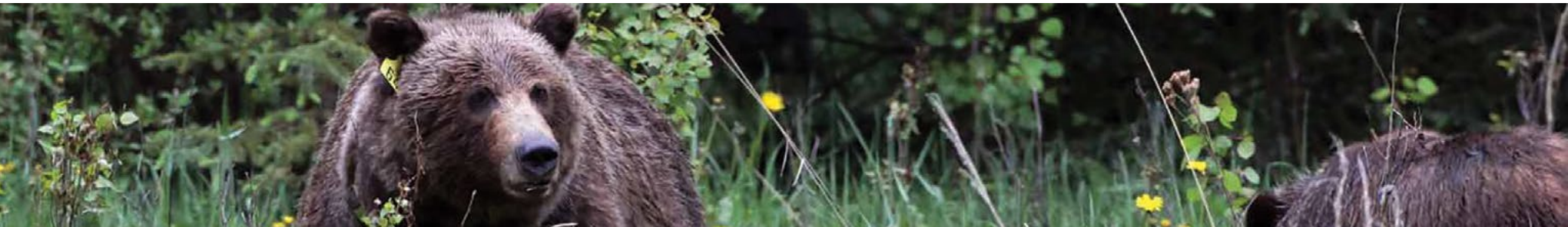
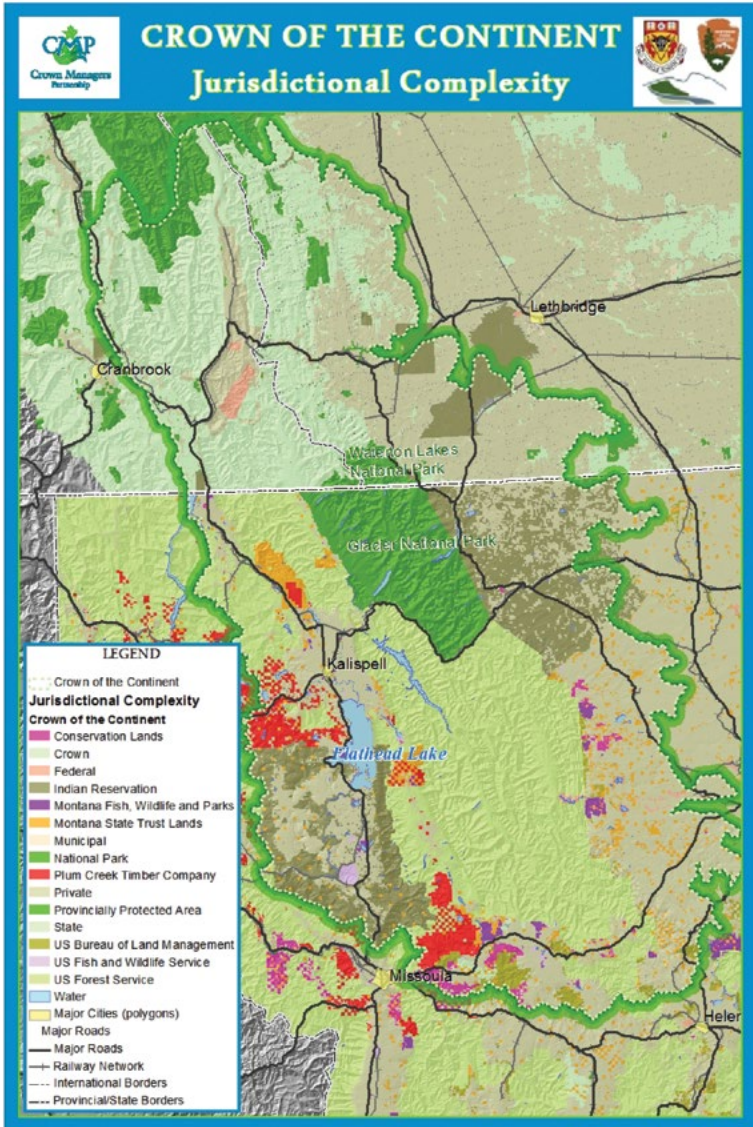


Many Jurisdictions, One Landscape

A central challenge of working at the many different scales of the Crown of the Continent is the number of boundaries that exist across the landscape. While these boundaries delineate ownership and management authority, they also divide disparate cultures, attitudes, goals, and values. Of course, the most significant borders are between Nations: Canada and the U.S. must work together along with the seven Tribal Nations in the region. But challenges within Nations are also significant. In the U.S., not only are there differing management priorities within the U.S. federal land management agencies, there are different state and local land management agencies to consider as well. Private landowners come in the form of huge industrial tracts that may be logging or mining, as well as working family ranches with agricultural production as the priority.

Even though they do not have jurisdictional authority, some of the loudest voices heard in land management decisions are those of the non-profit conservation groups. Among these organizations are strong differences in perspective about strategies and goals for conserving and managing the land.

Such divisions can challenge efforts that seek to find common ground and coordination among land managers. People who care about the Crown and its future are increasingly looking to bridge these jurisdictional and cultural barriers to advance collective problem solving and collective action across scales. The Roundtable should be viewed as a large-scale neighborhood association that promotes conversation and coordinated land stewardship. In an era when people and communities struggle for cohesion, the Roundtable provides the connective tissue for local and regional sustainability.



PRACTITIONERS' NETWORK Large Landscape Conservation

Across North America, people are increasingly addressing shared challenges and exploring collective opportunities at the large landscape scale. While the scale and goals of these efforts are wide-ranging, they share a networked, multi-sector, multi-jurisdictional, collaborative approach to problem solving. Together, leaders and supporters of these efforts have created the Practitioners' Network for Large Landscape Conservation, where practitioners—people making and influencing decisions—can connect with each other and with experts in the field to advance learning and share best practices.

These large landscape conservation efforts aim to match the scale of the ecological and social challenges at hand with a response that is right-sized for the target landscape. Large landscape conservation efforts hold the potential of being more economically efficient, more inclusive in their decision-making and governance structures, and more likely to achieve lasting and meaningful conservation outcomes for the benefit of people and nature than current, piecemeal efforts. The Roundtable on the Crown of the Continent is one of over 100 organizations actively participating in the Practitioner's Network.





The Adaptive Management Initiative

In 2010, people involved in the Roundtable’s inception began to develop a shared strategy for connecting individuals and organizations in a more systematic and intentional way across the landscape. They wanted more than discussion, they wanted tangible on-the-ground impact. Sustaining the Crown’s social and ecological fabric will require the ability to adapt and be resilient to stressors such as climate and land use change. Based on this emerging strategy, a conversation began with the Kresge Foundation that led to the creation of the Adaptive Management Initiative (AMI).

The AMI is significant as an example of both accomplishing climate adaptation projects and demonstrating how an organization is able to catalyze and implement a landscape scale approach. The goal of the AMI is to promote a culture of stewardship by finding common values, supporting community leadership, promoting shared learning, and seeking place based solutions. This is accomplished by:

- Building a connected ecosystem-wide program that connects land managers from federal, state, nonprofit, and private entities
- Supporting on-the-ground projects that identify threats to the landscape and build resilience into natural and social processes
- Respecting and building culture, community, and conservation into the conversation

Facilitated by the Roundtable on the Crown of the Continent, the AMI supports a suite of projects that focus on: (1) assessing current and future conditions and vulnerabilities, (2) creating an inventory of assets and gaps,



(3) building a constituency for change, and (4) facilitating tangible action showcasing adaptation in the region.

Each of the projects supported by the AMI is joined by a single, unifying thread: building resilience into the Crown’s natural and human communities. Resilience is the capacity of a socio-ecological system to absorb shocks and maintain function in the face of external stressors. Such capacity is essential to the long-term health of the Crown, as climatic, economic, and demographic changes play out across the landscape.

By focusing on resilience and connecting with people who live in the Crown, the AMI supports efforts that are likely to improve the sustainability of the system and are

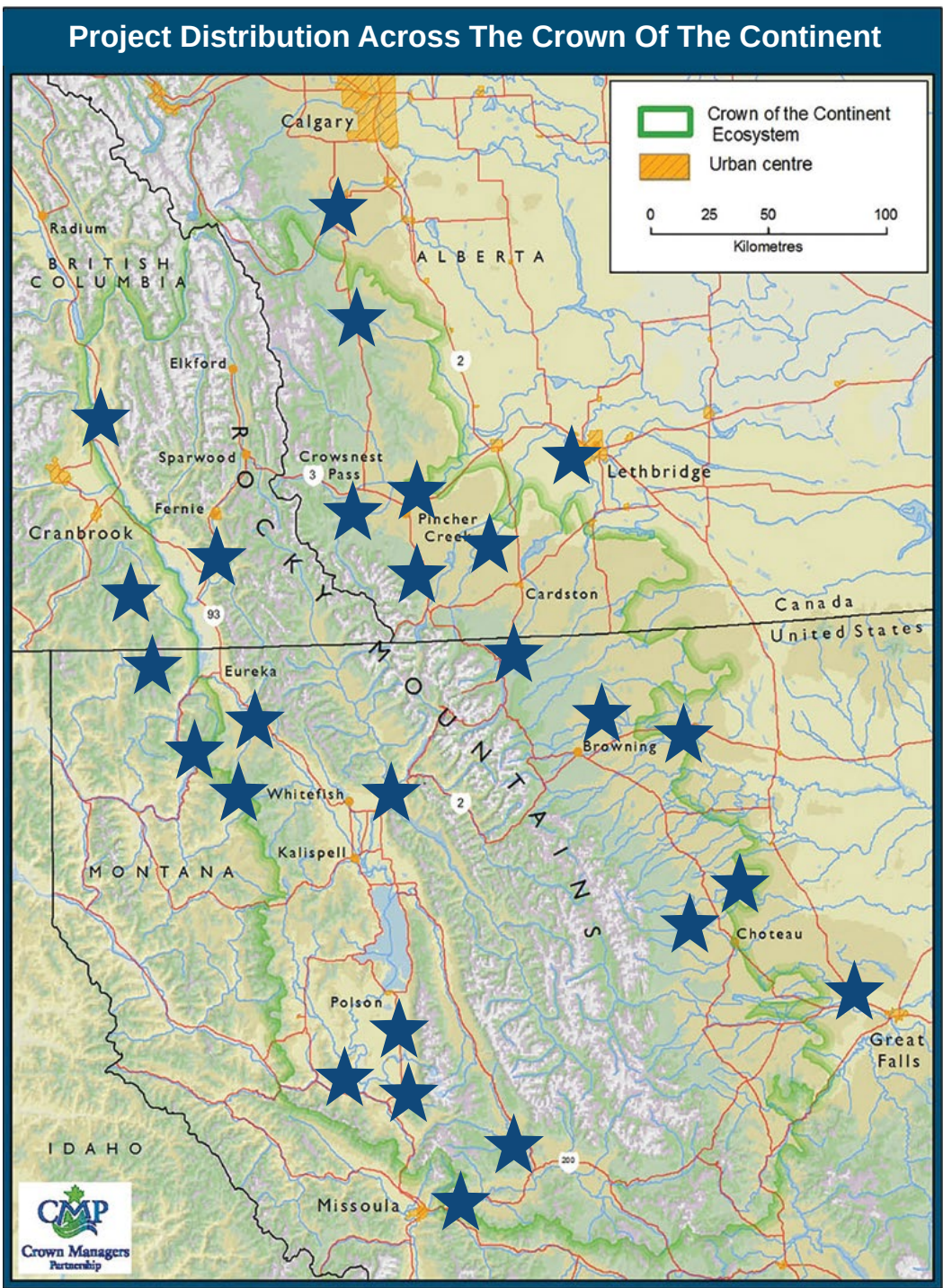
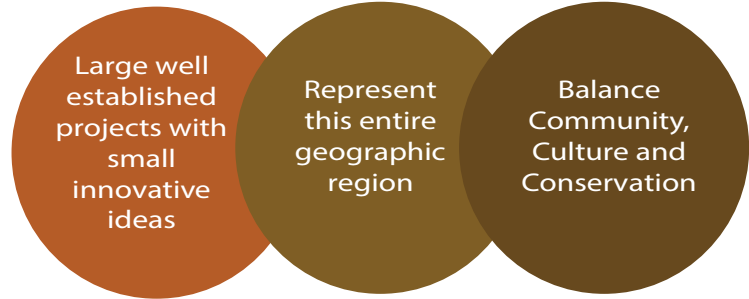
grounded in the values, experience, and expertise of the people who live and work in the region.

The AMI program posted a request for proposals and granted funds for climate adaptation to a wide range of projects in the region. Balancing the objectives of the initiative was a high priority and required careful consideration to 1) support large, well-established projects as well as small innovative ones, 2) represent the entire geographic region, and 3) support projects that address community, culture and conservation.

Over three years, the AMI funded 45 projects throughout the Crown’s 22 million acres, allocating \$800,000. These projects have leveraged up to five times the actual amount invested by attracting new donors and combining efforts where possible and appropriate.

Many important lessons emerged during the course of the AMI, including:

- Identifying and supporting leadership at all scales
- Building trust and identifying common goals
- Supporting existing work rather than replacing current initiatives.
- Meeting people “where they are” and encouraging them to work together toward common goals
- Creating a strong backbone organization that can keep communication open and friendly, and promote the sharing of ideas that include new players
- Never underestimating the value of meeting face-to-face, welcoming partners, and establishing relationship



AMI Communications: Webinars, Posters and Presentations

Sharing knowledge, strategies, and project work is key to creating an impactful network of practitioners and projects. The Roundtable’s Adaptive Management Initiative coordinator ensured that everyone shared their work with others around the region through a monthly webinar series. The webinars gave people an opportunity to present their work and field questions. AMI participants also attended the annual Crown Conference where they have presented and participated in poster sessions.

Climate and the Crown: Disappearing Glaciers

One of the most obvious changes in climate is the upward shift in temperature that has led to very hot days in the summer and fewer very cold days in the winter. This temperature rise has led to the loss of ice and snow in the glaciated mountains of the Crown. In 1850, there were more than 150 glaciers in Glacier National Park; today and we have already lost over half of these. The remaining glaciers are expected to be completely lost in the next 15 years. Clearly, this loss is more than aesthetic; it is also a harbinger of broader ecosystem changes.

Warmer ambient temperatures and less snowpack, combined with fewer glaciers, also mean less cold water in aquatic systems. Warmer water temperature negatively impacts native fish populations and a thriving recreational trout fishing industry. Fish, anglers, and the economy all rely on the cold, clear water of glacial streams and snowmelt. These climatic changes also affect wildlife that has evolved to live in cold, snowy places. Mountain goats have fewer alpine meadows to graze in and wolverines are losing the deep snow they require for winter dens. Lynx are uniquely adapted to hunt in the snow where it is difficult for many species to move; the loss of deep snowpack takes away their competitive advantage. While many species of wildlife will simply be able to move up in altitude to follow optimal ecological conditions, wildlife inhabiting the highest elevation have nowhere else to go.



Collaborations with Tribes and First Nations

The importance of successful partnerships with tribes and First Nations cannot be overstated. Over the years, non-profit and government groups have at times ignored the importance of tribal involvement, and their cultural foundations. Tribes and First Nations own and manage large tracts of important lands within the Crown, and their participation in natural resource management and conservation efforts is essential.

Tribal and First Nations involvement in collaborative efforts in the Crown of the Continent has increased substantially over the past three years, due in large part to participation in the Adaptive Management Initiative. By targeting funding to projects that incorporate traditional knowledge, assist with tribal management, and establish connections with tribes and First Nations, the AMI has helped to engage tribal interests and voices in larger regional conversations. As stewards of this land for millennia, the indigenous peoples of the Crown of the Continent have much to teach. Incorporating and integrating tribal knowledge and practices into federal, state, and provincial natural resource management significantly enhances the overall health of the Crown landscape and communities.

The Roundtable Leadership Team includes government and private representation from Confederated Salish and Kootenai Tribes and the tribes of the Blackfoot Confederacy. Tribal liaison for the Roundtable, Blackfeet tribal member and Montana state representative Lea Whitford, has planned and implemented two gatherings of tribal council and resource managers to discuss issues of mutual concern. These concerns include co-management of lands, forest management, climate change, invasive species, and preservation of traditional food sources.



“These are people of like spirit and like hearts and I personally love being here, it is invigorating and exciting. With so many varying views of living in the Crown and caring for the Crown I thought the organizers were very courageous in the panels they put together because some views were very, very different. I was intrigued and interested to hear them, some I absolutely agreed with and I know our people would. Some I absolutely disagreed with. But how healthy is that to be able to talk about our different perspectives of our collective homeland.”

Steve Lozar
Confederated Salish and Kootenai Tribes

Projects and Partners: Three Years of the Adaptive Management Initiative supported projects

Increasing Social Impact: Collaboration, Networking, and Education for Adaptation

- 2013**
- Designing a Long Term Finance Structure for Climate Adaptation, East Kootenay Conservation Partnership (Invermmere, BC)
 - Developing Young Leaders: Trans-boundary Education Initiative University of Montana & University of Calgary (Calgary, AB and Missoula, MT)
 - A broad-based, coordinated public communications effort that highlighted collective climate adaptation efforts, and climate adaption activities in the Crown of the Continent
 - A Scan of Ecological Goods and Services Programming in the Crown of the Continent, Miistakis Institute (Canmore, AB)
- 2014**
- Engaging Communities in Ecosystem Monitoring, Clearwater Resource Council (Seeley Lake, MT).
 - Linking Adaptive Management Collaboratives, Crown of the Continent Conservation Initiative (Canmore, AB)
 - Trans-boundary Adaptive Management Education, University of Montana (Missoula, MT)
 - Whitefish Range Partnership: Community Participation in Public Land Management, National Parks Conservation Association (Whitefish, MT)
 - Increasing Our Collective Impact: Leveraging AMI Project Collaboration and Learning Across the Roundtable Network Water Matters Society (Canmore, AB)
- 2015**
- Whitefish Range Partnership: Community Participation in Public Land Management, National Parks Conservation Association (Whitefish, MT)
 - Engaging Communities in Ecosystem Monitoring, Swan Ecosystem Center (Condon, MT)
 - Engaging and Educating Stakeholders on CSKT Water Compact as a Critical Tool for Climate Adaptation, Trout Unlimited (Missoula, MT)
 - Trans-boundary Adaptive Management Education, University of Montana (Missoula, MT)

Managing Change in Watersheds: Water and Forests

- 2013**
- Ecological Integrity Index: A Baseline Assessment with Transboundary Data, Crown Managers Partnership (MT)
 - Prototyping Climate Adaptation Forestry in the SW Crown, The Blackfoot Challenge, The Wilderness Society (MT)
 - A Scan of Ecological Goods and Services in the Crown, Miistakis Institute (Calgary, AB)
 - Supporting the Sun River Watershed Group: Building Knowledge among Stakeholders (Great Falls, MT)
 - Supporting Watershed Adaptation by Building Connections, Oldman Watershed Council (Lethbridge, AB)
- 2014**
- Building Capacity to for the Headwaters Action Plan Watershed, Oldman Watershed Council (Lethbridge, AB)
 - Reforming Forest Management in the Canadian Crown, Canadian Parks and Wilderness Society (Calgary, AB)
 - Climate Adaption through Collaborative Forest Planning, The Blackfoot Challenge, The Wilderness Society (MT)
 - Climate Change Be Dammed: Beavers as a Tool for Climate Change Adaptation, Miistakis Institute (Calgary, AB)
- 2015**
- Strengthening Drought Resiliency in the Sun River Watershed, Sun River Watershed Group (Great Falls, MT)
 - Dutch Creek Restoration Pilot Project, Oldman Watershed Council, (Lethbridge, AB)
 - Engaging Stakeholders on CSKT Water Compact as a Tool for Climate Adaptation, Trout Unlimited (Missoula, MT)
 - Leave it to Beavers, A Natural Solution to Floods and Droughts, Miistakis Institute, Cows and Fish (Canmore, AB)
 - Saving Native Salmonids in the Face of Climate Change, Crown of the Continent Conservation Initiative (Canmore, AB).

Tribes and First Nations: Supporting Adaptation and Collaboration

- 2013**
- Building Climate Adaptation Capacity with the Blackfeet: Using Traditional Ecological Knowledge for Climate Adaptation Planning, Blackfeet Community College (Browning MT)
 - Building Climate Adaptation Capacity with CSKT: Developing a Climate Change Strategic Plan, Confederated Salish Kootenai Tribes (Polson, MT)
- 2014**
- Cross Cultural Capacity Building: Landscape Conservation and Climate Change Adaptation with the Blackfeet Nation, Nature Link Institute (Browning and Missoula, MT)
 - CSKT: Identifying cultural and resource priorities in light of to climate change, Confederated Salish Kootenay Tribes (Polson MT)
 - A Survey of Blackfeet Traditional Practices, Lea Whitford (Browning, MT).
- 2015**
- Implementing Climate Adaptation from the CSKT Strategic Climate Plan, Confederated Salish Kootenay Tribes (Polson, MT)
 - Supporting Blackfeet Natural Resource Conservation District (Browning MT)
 - Cross Cultural Capacity Building: Climate Change Adaptation with the Blackfeet Nation, Nature Link Institute (Browning and Missoula, MT)

Controlling Invasive Species

- 2013**
- Prototyping Climate Adaptation through Large Scale Invasive Species Management, Rocky Mountain Weed Roundtable (Choteau, MT)
- 2014**
- Enhancing Resiliency of Native Plant Communities: Rocky Mountain Front Weed Management Rocky Mountain Weed Roundtable (Choteau, MT)
 - Controlling Invasive Species, Southeast BC Invasive Species Management (Cranbrook, BC)

- 2015**
- Enhancing Resilience of Native Plant Communities, Rocky Mountain Front Weed Roundtable (Choteau, MT)
 - Controlling Invasive Species, Blackfeet Natural Resource Conservation District (Browning MT)
 - Invasive Plant Management, Southeast BC Invasive Species Management (Cranbrook, BC)

Improving Connectivity: Identifying and Protecting Key Areas

- 2014**
- Moving with Change: Adaptive Management by Helping Wildlife Cross Highway 3, Yellowstone to Yukon conservation Initiative (Canmore, AB)
- 2015**
- Moving with Change: Advancing Adaptive Management by Helping Wildlife Cross Highway 3, Wildsight (Ferne BC).

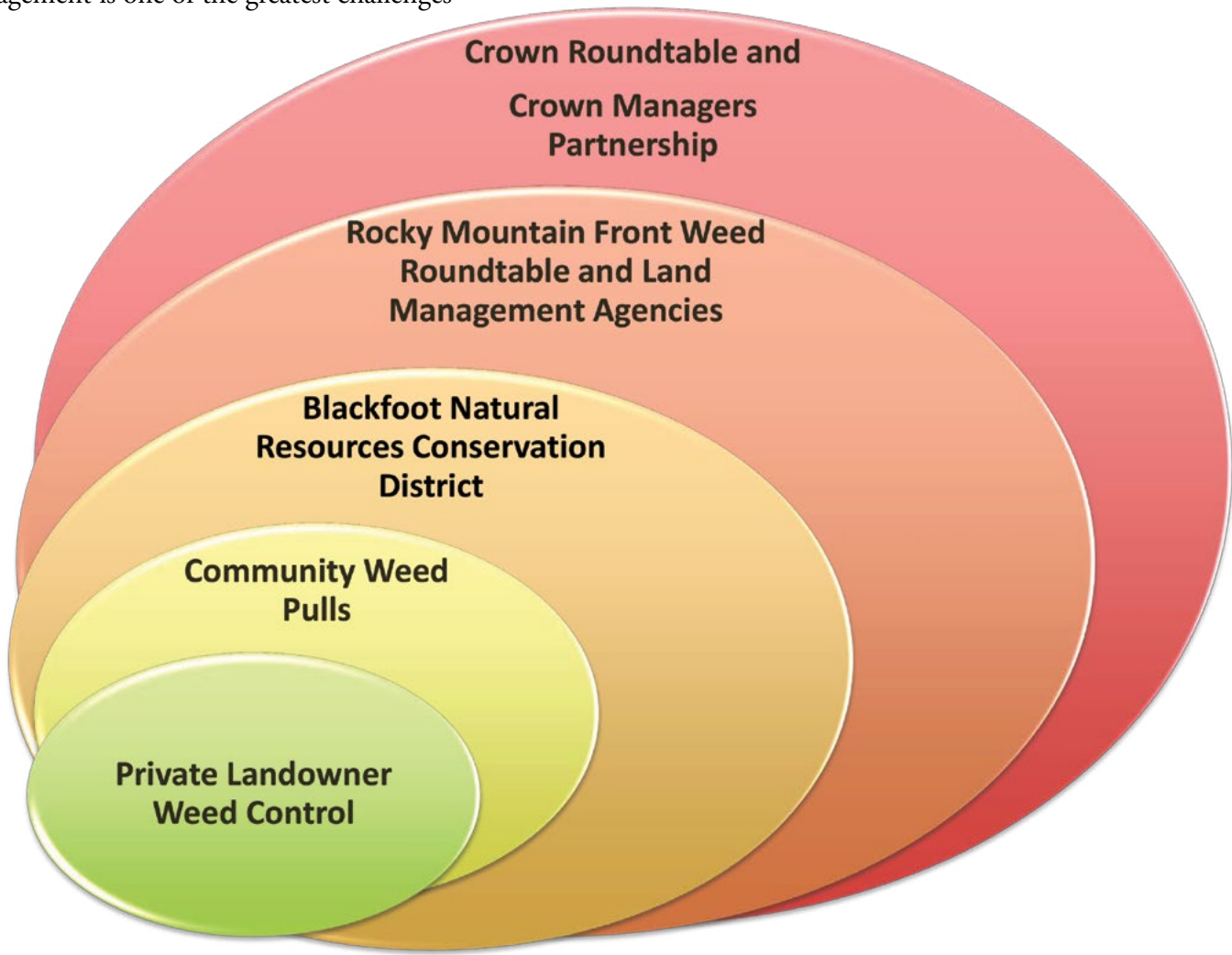
Promoting Sustainable Economies

- 2013**
- Strategic Outreach to Key Policy Makers and Elected Officials at the Local, State, Tribal, Provincial and Federal Levels, East Kootenay Conservation Partnership (Invermere, BC)
 - Supporting Sustainable Business in the Crown, Crown of the Continent Geotourism Council (Whitefish, MT).
- 2014**
- Supporting Sustainable Business in the Crown, Crown of the Continent Geotourism Council (Whitefish, MT)

Working at Scales: Weed Management in the Crown

Working at different scales is one of the greatest challenges of large landscape conservation. Management of landscapes at increasingly larger scales is proving critical as our understanding of large-scale stressors, such as climate change, increases. At the same time, coordinated individual and community scale efforts continue to be critical across the private lands that are key players in maintaining a healthy ecosystem in the Crown. Working to addressing the tension between different scales and influence more coordinated management is one of the greatest challenges of the Adaptive Management Initiative.

Weed control, is a significant challenge as climate conditions shift, and a prime example of a task that must occur in a coordinated fashion across multiple scales. Collaborative local action, along with coordination of state and federal land management agencies is essential. Working at scales is challenging and requires outreach, understanding



and trust. Anyone who fails to do their part to control weeds will contribute to a broad invasion of weeds across the landscape.

Although weed control is a never-ending battle for land managers, it is the coordinated efforts of private landowners, federal management agencies and all other land managers working together that will assure a healthy and resilient landscape for generations to come.



Working with Partners

At the scale of the Crown of the Continent, no single entity can or should do it all. The sheer size and diversity of the landscape demands broad involvement from a diversity of people and organizations. In the mid-2000s, the Crown Managers Partnership—a partnership of land management agencies in the US and Canada—saw a need to bring all interested parties together to consider the future of the region’s communities and landscapes. In time, and through a series of workshops and discussions, that idea of a regional forum led to the creation of the Roundtable.

Today, the Roundtable provides a platform for diverse perspectives to share information, build knowledge and capacity, celebrate success, and catalyze new efforts and partnerships.

Many people and organizations are helping shape a more vibrant and resilient future for the Crown of the Continent—from local and watershed-scale partnerships, to those functioning at the scale of the Crown of the Continent ecosystem, to even larger regional initiatives. Connecting these efforts to achieve a shared vision for people and nature in the region is what the Roundtable does.

A representative sample of these diverse efforts includes:
Crown-Wide Initiatives

Crown Managers Partnership
www.crownmanagers.org

Crown of the Continent Conservation Initiative
www.crownconservation.net

Crown of the Continent Ecosystem Education Consortium
www.crownofthecontinent.org

Crown of the Continent Geotourism Council
www.crownofthecontinent.net

Crown of the Continent Resource Learning Center
www.nps.gov/archive/glac/learningcenter/learningcenter.htm

Heart of the Rockies
www.heart-of-rockies.org

Roundtable on the Crown of the Continent
www.crownroundtable.org

The University of Montana/University of Calgary
Transboundary Program
www.cas.umt.edu/evst/graduate/transboundary-initiative.php

The University of Montana Crown of the Continent Initiative
crown-yellowstone.umt.edu

Broader Regional Initiatives

Great Northern Landscape Conservation Cooperative
www.greatnorthernlcc.org

Yellowstone to Yukon Conservation Initiative
www.y2y.net

Adaptive Management Initiative Case Studies

Managing Changes In Watersheds: Water And Forests

Research in climate trends tell us the Crown region is getting hotter, snowpack is reduced, runoff is occurring earlier in spring, and stream flows ebb earlier in the growing season. These hydrological changes could lead to significant water shortages and increased drought, leading to negative effects on land, agriculture, communities and recreation in the region.

Beavers, Climate Change and the Crown of the Continent

Principal Investigators: Rachelle Haddock, Miistakis Institute; Norine Ambrose and Lorne Fitch, Cow and Fish, AB; Jill Alban, Kascie Herron, Ellie Long, and Will McDowell, Clark Fork Coalition

This project explores how beavers are an important on-the-ground tool to capture spring runoff and store water flows for release during the drier summer months. This slow release of water also moderates stream temperatures among other valuable ecosystem services. Accommodating beavers in more sites to facilitate water capture, storage, and aquifer recharge is an effective climate adaptation strategy.

A healthy landscape relies largely on land managers’ and landowners’ management choices. Recovering beaver populations help increase and stabilize water storage, thereby offering greater resilience and adaptability to climate change. Landowners, biologists, non-profit organizations and agency personnel are interested in using beaver as a tool to improve watershed resilience and ecosystem function in the face of climate change. The Miistakis Report, *Beaver Restoration Across Boundaries*, shares the experiences and lessons learned regarding the role of beaver for restoration and climate change adaptation. In addition to the report, Miistakis offered a successful workshop in Missoula, Montana for

over 30 professionals from a variety of agencies and responsibilities, discussing these important climate adaptation strategies.



“We bring it to the level of common values and this is where people can come together and talk. Water is one of those aspects of the environment that pervades everybody’s life, an economic benefit, a social concern, an ascetic piece, and an ecological piece. Water itself is a convener of people.”

Carol Stark
Water Matters

Promoting Sustainable Economies

Healthy, functioning, and diverse ecosystems are more resilient to climate change and provide more opportunity for nearby human communities to adapt and thrive as well.

Whitefish Range Partnership: Public-land Projects Sustaining Landscapes, Lifestyles and Livelihoods

Principal Investigators: Michael Jamison and Sarah Lundstrum, National Parks Conservation Association

For many years, western Montana in general and the Flathead Valley in particular (Whitefish, Columbia Falls, Polebridge) represented the front lines in what has been dubbed the “timber wars.” Mills were closed, jobs were lost, conservationists were targeted, and communities were torn asunder. These “timber wars” had no clear winners: no logs to the mill, no new wilderness designations, no new hunting or fishing opportunities, no adaptive management on public lands. Community leaders and land managers agreed there was dire need for a strategic model of collaborative public-land management, aimed at ecosystem and community resiliency, which would include both private and industrial stakeholders.

When officials on the Flathead National Forest announced in 2012 that they were undertaking a “forest plan revision” – essentially a 20-year land-management document – many feared a return to the bunker mentality of the timber war years, with each stakeholder group individually fighting for its narrow interest. This fear created an opportunity. The Whitefish Range Partnership (WRP) was created with the goal of maximizing climate adaptation, recreational access, traditional uses, economic

sustainability, ecosystem integrity, and community resiliency across the entire transboundary landscape.

Leaders of the Partnership felt that the wiser approach was to partner with all stakeholders in advance, and deliver to the USFS a unanimous plan hammered out between those who live, work, and play on the landscape. After more than a year in intense negotiation, the team worked together to sustain communities (increasing the timber base), enhance conservation (establishing recommended wilderness), and protect culture (safeguarding hunting, fishing and outdoor recreation).

The WRP has maintained this momentum, birthing an offshoot called the Whitefish Face Working Group (WFWG). The WFWG has brought in new partners and in doing so has moved beyond forest planning to tackle specific, on-the-ground, NEPA-ready projects in the Whitefish Range addressing climate resiliency, wildfire mitigation, watershed protection, and wildlife habitat, to mention a few.

Controlling Invasive Species

Invasive species pose an enormous threat to natural ecosystems, and this threat is exacerbated by climate change. Changes in temperature and precipitation and the frequency of extreme weather alter habitats and increase vulnerability to weed invasion. These invasives displace or damage native fauna or flora and often pose threats to local biodiversity causing adverse environmental, economic and public health impacts.

Enhancing Resiliency of Native Plant Communities via Rocky Mountain Front Integrated Weed management

Principal Investigator: Erin Fairbank, Rocky Mountain Front Weed Roundtable

The Rocky Mountain Front is a biological stronghold for the eastern Crown in Montana, supporting the federally listed grizzly bear and vast herds of elk, deer, bighorn sheep, antelope, and several Species of Concern (e.g., declining grassland bird species such as long-billed curlew, Sprague’s pipit, and ferruginous hawk). In the face of climate change, management of noxious weeds maintains native plant diversity and resiliency to support a fully functioning natural system. Native plant communities in this portion of the Crown region are highly susceptible to invasive plant species, decreased snowpack, warming temperatures and more frequent and intense wildfires.

The Rocky Mountain Front Weed Roundtable began coordinating volunteer weed management in 2001. The Weed Roundtable’s project area encompasses approximately 3 million acres, 18 major watersheds and many communities along the Rocky Mountain Front from the Canadian border south to the Dearborn River. By gradually engaging landowners, tribal entities, National Park representatives, community organizations, schools, public land management agencies, and county weed districts,

the Weed Roundtable has expanded along the entire Rocky Mountain Front. Board members represent these many interests and find the best and broadest applications of the Weed Roundtable’s work.

For example, the Weed Roundtable brings together those responsible for weed management, facilitates the development of common management objectives and effective treatments, and coordinates activities and funding. It also educates landowners and the public about the threat of noxious weeds as well as demonstrates simple, effective prevention strategies that can easily be implemented to slow the spread of invasives.



Increasing Social Impact: Collaboration, Networking, and Education for Adaptation

Working with teachers and students to bring real world science to the classroom engages students and the broader community. Studies of citizen science show that participation leads to increased awareness, understanding, and interest. Citizen science can be a way for local residents to bring both values and knowledge to the decision-making process.

Engaging Schools and Communities in Ecosystem Monitoring and Discussions on Climate Change

Principal Investigators: Cory Davis, University of Montana; Bruce Rieman, Clearwater Resource Council; Elaine Caton, Blackfoot Challenge and Clearwater Resource Council

Crown of the Continent communities depend largely on forests, streams, and lakes for their economies and ways of life. Changing climate will continue to have an impact on these resources and the vitality of local communities. Resiliency and the capacity for adaptation in the face of climate change requires informed and engaged citizens. However, most communities lack information on basic parameters such as the amount and quality of water in their streams and lakes, trends in water supply, the conditions of the forests surrounding them, and their vulnerability to wildfire and other forest dynamics.

This project established stream and forest monitoring sites, methods, and classroom curriculum to help link schools to their watersheds and the ecological processes most responsive to climate change. In addition, the team worked with collaborators to complement existing biological sampling. The project established a foundation for long-term stream and forest monitoring, developed data collection protocols and classroom materials, and trained teachers, students, and volunteers.

A robust network of young citizens and community members are learning together about the impacts of

climate change in their own area. We see this project as a way to empower those living in rural communities to bring some of their own expertise to discussions of adaptation to climate change.



Tribes and First Nations: Supporting Adaptation and Collaboration

Tribes and First Nation lands comprise a considerable area within the Crown boundaries, including 1.5 million acres of the Blackfeet Nation, 1.3 million acres of the Flathead Reservation, as well as about 228,000 acres of Northern Pikuni, Kainai, Siksika and Ktunaxa lands in Canada. These lands are the traditional homelands of most of these tribes and hold important cultural values to native peoples.

Cross Cultural Capacity Building: Landscape Conservation and Climate Change Adaptation with The Blackfeet Nation

Principal Investigators: Kim Paul, Blackfeet Community College Instructor and Pikuni Community Member, and Laura Caplins MS, Nature-Link Institute

This project increased the cross-cultural capacity of indigenous and non-indigenous groups to collaborate on climate adaptation in The Backbone of the World, now also known as the Crown of the Continent. To achieve this, a pilot study identified: 1) the priorities of the Blackfeet Nation in climate change adaptation, and 2) the necessary protocols for collaboration between the Blackfeet Nation, and government and non-government agencies active in the Crown.

Building cross-cultural capacity is especially important when working with Native American/First Nations people. One of the most import aspects is to build trust and communication. It is hard to imagine a relationship that could be more damaged than the one between the U.S. and Canadian governments and Native American/First Nations people. Large landscape conservation, if it is to be effective, will need to include Native American/First Nations priorities both on and off reservation. Without complete understanding of priorities, protocol, and communication style, there can never be full understanding of what Native American/First Nations priorities truly are, nor can there be healthy large landscape conservation collaboration.

Project outcomes include both written and presented material on the priorities of, and protocols for working with the Blackfeet Nation and the Amskapi Pikuni on climate change issues and large landscape conservation.



Confederated Salish and Kootenai Tribes: Climate Change Strategic Plan

Principal Investigator: Mike Durglo, Confederated Salish and Kootenai Tribes

In response to growing concerns about the impacts of climate change on tribal members and their homelands, the CSKT developed a Climate Change Strategic Plan that seeks to protect the cultural resources and land upon which the tribes depend to maintain their cultural practices, identity, and sovereignty as a people. To assure stewardship of tribal lands and continued vitality of culture and identity, the tribes are addressing climate change as a major planning priority.

The plan draws heavily on the knowledge of tribal elders to ensure that Traditional Ecological Knowledge (TEK) is integrated into adaptation planning and cultural priorities inform all aspects of the plan. Tribal Chairman Joe Durglo states, “As is our practice, we look ahead to prepare for coming challenges and apply the values taught by our ancestors.” Using this philosophy, the CSKT created a Climate Change Strategic Plan that addresses impacts to their community by drawing on their peoples’ knowledge and ability to overcome challenges.

Confederated Salish and Kootenai Tribes Climate Change Strategic Plan:
<http://www.cskt.org/CSKTClimatePlan.pdf> .



All the people I surveyed said they have changed when and where they collect. A lot of these individuals have been collecting the majority of their lives... the patterns of collecting have changed, some make adjustments to going out earlier and the season is shorter so they have to adapt for the changes... this is a concern to me ... because we have these things in our ceremonies ...

Lea Whitford
Blackfeet Tribal Member

Improving Connectivity: Identifying and Protecting Key Areas

Maintaining the ability for wildlife to move across the landscape – to access higher elevations, cooler aspects, or colder latitudes—is a critical response to climate change.

Moving with Change: Advancing Adaptive Management by Helping Wildlife to Cross Highway 3

Principal Investigators: Ryland Nelson, Wildsight; Tracy Lee, Miistakis Institute; Tony Clevenger, Western Transportation Institute; and Wendy Francis, Yellowstone to Yukon Conservation Initiative

A connected landscape provides safe passage across transportation corridors and ensures resiliency for wildlife facing the impacts of climate change and competing land uses. Highway mitigation, including underpasses and fencing, greatly benefits wildlife connectivity while improving human safety.

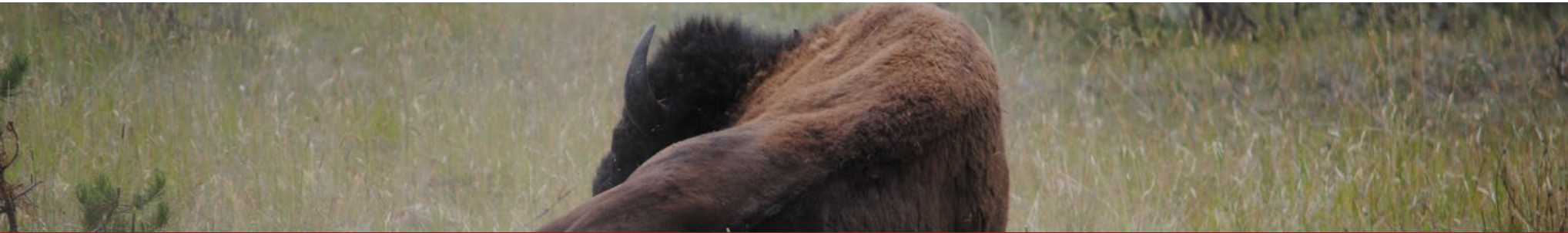
Unfortunately, the Canadian Crown is largely fragmented and devoid of substantial mitigation infrastructure. Road networks, coal mines, energy development, and human settlement have fractured natural habitats and threaten the ability of wild species to move and respond to climate change. In the northern third of the Crown, Canada’s Highway 3 has become a significant barrier to connectivity for north-south wildlife movements in Alberta and British Columbia. Along 44 kilometers of the Alberta portion of the highway, there were more than 1,300 wildlife vehicle collisions over a ten-year period. Collisions with large mammals induce population-scale impacts on wildlife (such as genetic isolation) and can affect the quality of life of generations in the Crowsnest Pass region. Work has been done to improve connectivity along the well-studied Alberta portion, but little has been done in B.C.

This project’s mission is to ensure the safe passage of wildlife across Highway 3 in SE British Columbia by

bringing together the science, policy, resources, and government agencies to promote highway mitigation in the B.C. sector of the Crown. To accomplish this, investigators are using a citizen-science framework, modeled after the Road Watch program on the Alberta portion of Highway 3. A new smart-phone application is being created to complement the online mapping tool, also developed for Road Watch, that enables volunteer data collection and improved data accuracy.

Mitigation of highway impacts to improve ability of animals to move in response to changing conditions is now more recognized in the scientific literature. If the ability of wildlife to find safe passage across Highway 3 is not secured in the near future, increasing traffic volume and highway expansion could constitute a permanent barrier that isolates the U.S. Crown’s wildlife populations from Canadian source populations, compromising their adaptive capacity.





Evaluating Social and Ecological Change in a Network

Introduction

The Roundtable’s Adaptive Management Initiative created a complex network of people working across a large area toward common vision and goals. The AMI offered tremendous opportunities for coordinated action, but also extensive challenges for those working to maintain the network and capture an understanding of progress being made. One of the most important questions to ask is, “is it making a difference?” This question is not easily answered, but some key questions can guide the evaluation process:

- What is most important to measure?
- Who decides what to measure?
- Who monitors what is measured?
- How does the information measured get collected, analyzed, and assessed?

Traditional approaches to evaluation don’t work well in cases such as the Roundtable because they are based on a

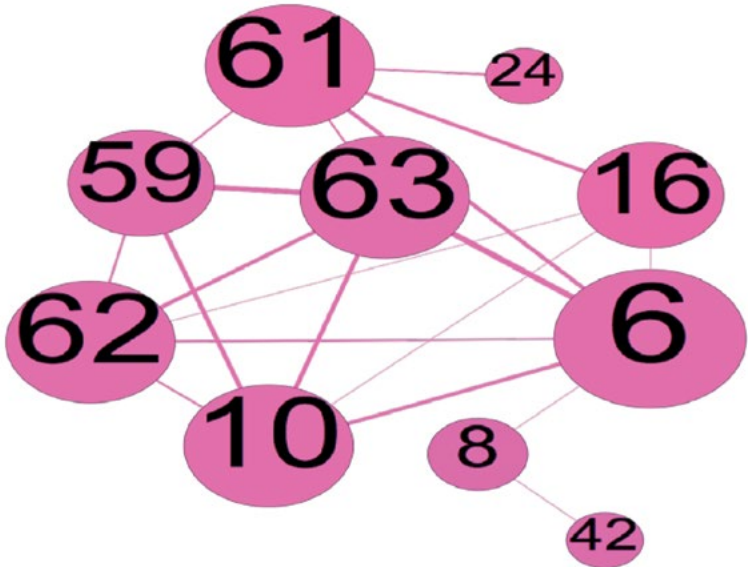
very linear evaluation system that measures whether inputs produce (or fail to produce) outcomes. A different paradigm is needed in the Crown, one that focuses on integration, and acknowledgement of the “whole” as well as the “parts,” and authentic engagement in relationship building (see Jedd and Bixler 2015 for a discussion on authentic engagement in the Roundtable).

Seeing the Network – Social Network Analysis

The question we have been working to answer is, “how do we measure the success or failure of a network in ways that account for progress along both social and ecological indicators?” Effectively answering this question is critical to the future of the Roundtable – a future that depends on conservation investors, foundations, and practitioners realizing “that a difference is being made.” Two key tools help answer this question: (1) social network analysis and (2) a goal setting and performance evaluation tool.

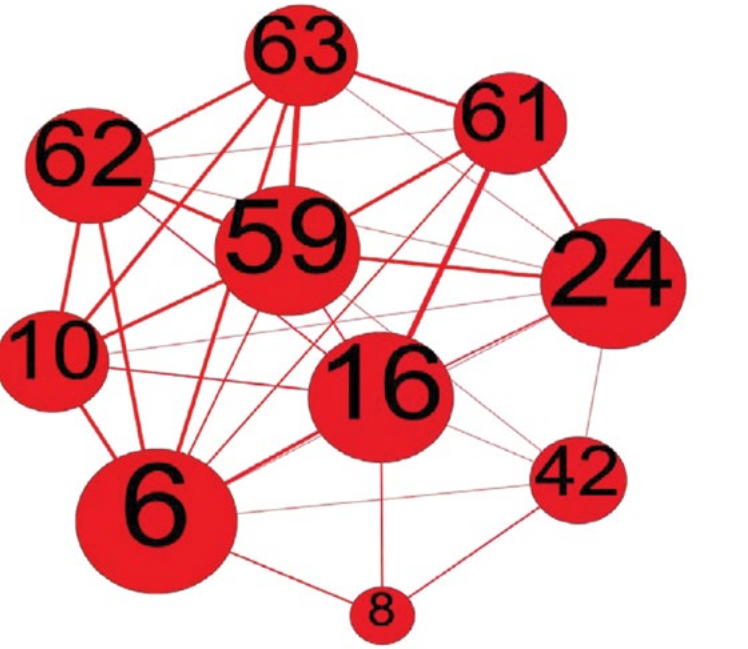
The Roundtable began using social network analysis in 2013 to track the social connections among leaders of the Adaptive Management Initiative projects. That year, participant organizations were asked about their relationships prior to the start of the AMI to get a sense of how they were connected. Since 2013, a standardized survey has been used to collect information about the network from the AMI project leads. For example, the relationships in the time prior to the start of the AMI looked something approximately like Figure 1, page 21. As the social network map diagram illustrates in Figure 2, page 21, the network relationships grew stronger in the first year of the AMI.

Figure 1: Pre-2013 Adaptive Management Initiative Organizations. The map below illustrates how different organizations were connected, and how strongly they were connected, prior to the start of the Adaptive Management Initiative. The size of the “nodes” represents cumulative incoming and outgoing ties.



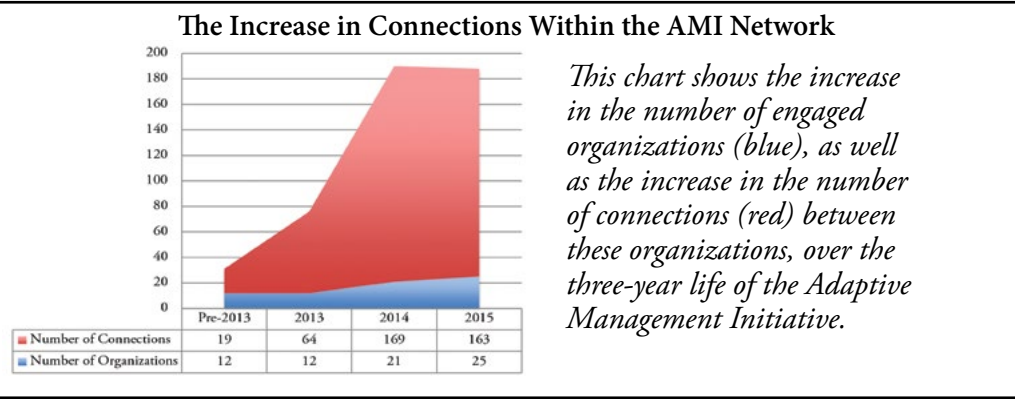
Node ID	Organization
6	Crown Managers Partnership
8	Confederated Salish and Kootenai
10	Miistakis Institute
16	Southwestern Crown Collaborative
24	Sun River Watershed Group
42	Blackfeet Nation
59	Water Matters
61	Working Lands Council
62	East Kootenay Conservation Partnership
63	University Transboundary Partnership

Figure 2: 2013 Adaptive Management Initiative Organizations. The map below illustrates how different organizations were connected, and how strongly they were connected, after one year of the Adaptive Management Initiative. The size of the “nodes” represents cumulative incoming and outgoing ties.



Network Statistics	
# of orgs	12
# of connections	64
Avg connection per org	5.3

Node ID	Organization
6	Crown Managers Partnership
8	Confederated Salish and Kootenai
10	Miistakis Institute
16	Southwestern Crown Collaborative
24	Sun River Watershed Group
42	Blackfeet Nation
59	Water Matters
61	Working Lands Council
62	East Kootenay Conservation Partnership
63	University Transboundary Partnership



The first social network analysis illustrated that the AMI made important strides in establishing new relationships where no previous relationship existed (the total number of connections has increased from 19 to 33). It also strengthened many acquaintance relationships to working relationships by providing participants another venue to connect on a frequent basis, and significantly increased the potential for information to circulate through the network.

The monthly AMI calls were very important in facilitating the new connections and really helped the initiatives “get to know one another.” Moreover, these calls were used

to catalyze a number of different collaborative spin-offs where participants could exchange substantive program information with each other outside of the AMI forum. The network mapping also indicates that some organizations were quite actively using the AMI forum to build relationships, for example, the Water Matters organization in 2013. However, it was apparent that others had much less actively used the AMI to engage in network building. Some organizations did not leverage the network and build relationships in the early years, but are much more connected in 2015 (as is illustrated by node #42, Figures 3 and 4).

Figure 3: 2014 Adaptive Management Initiative Organizations. The map below illustrates how different organizations were connected, and how strongly they were connected, after two years of the AMI. Color indicates the year that the organization joined the AMI initiative (red=2013, green = 2014).

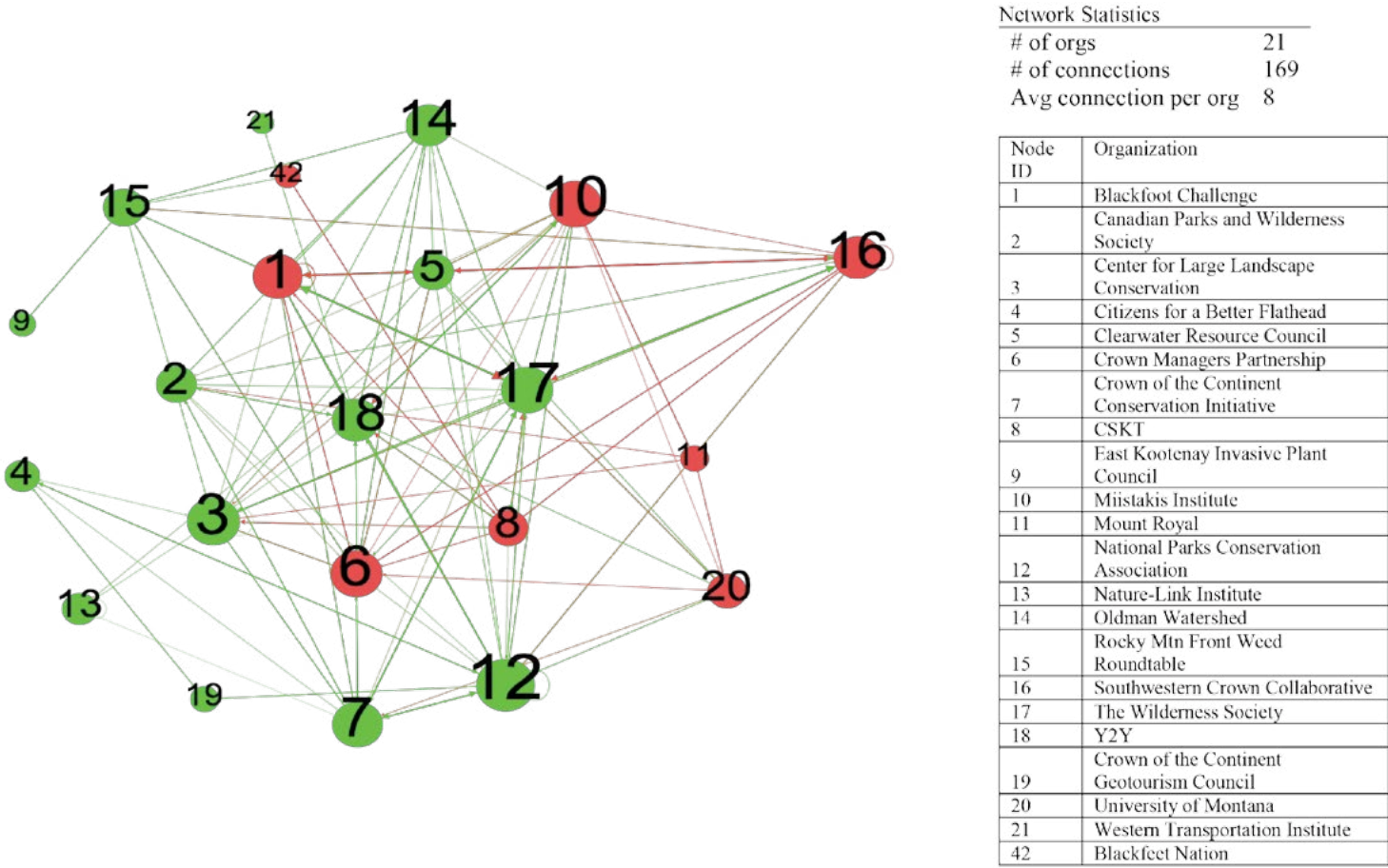
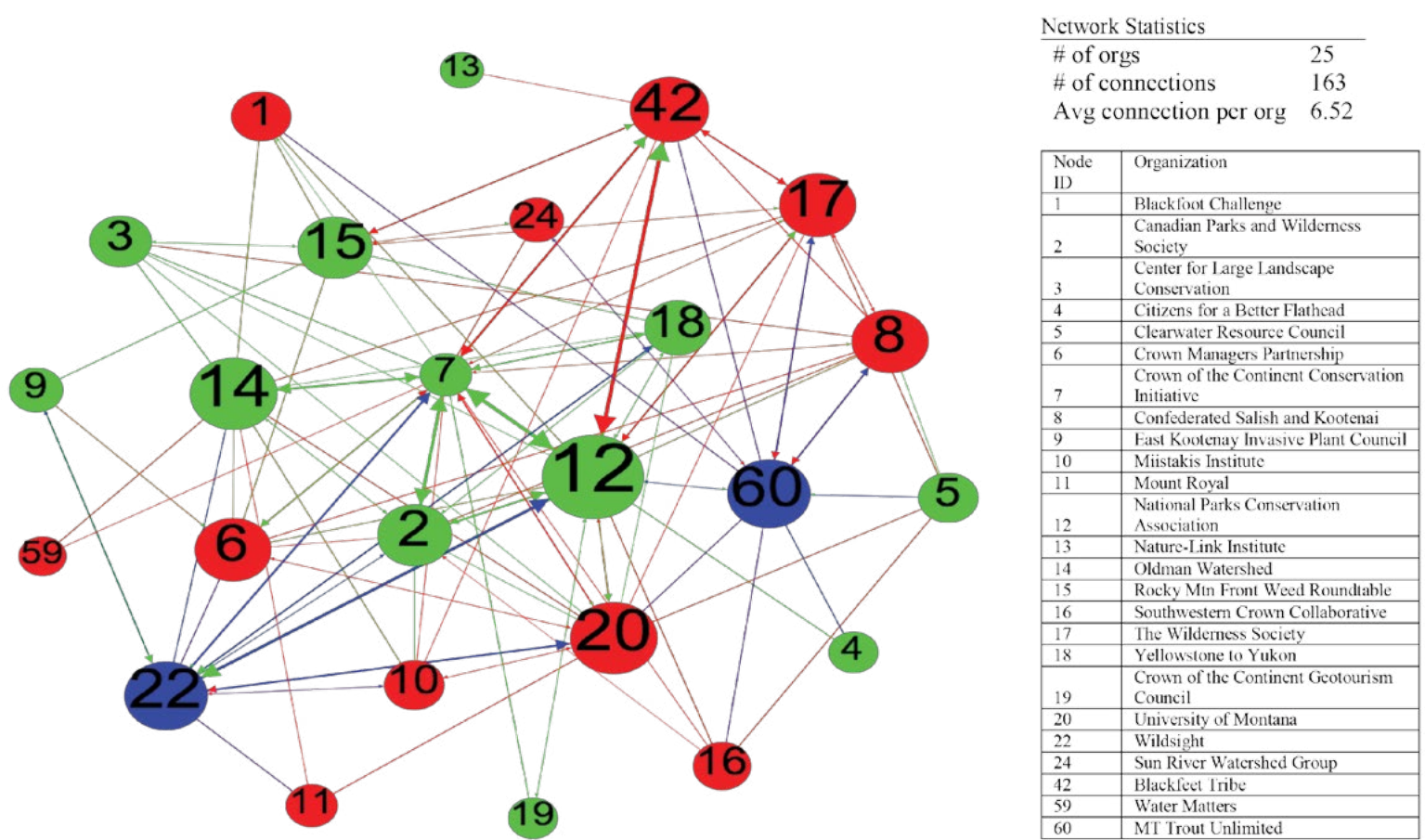


Figure 4: 2015 Adaptive Management Initiative Organizations. The map below illustrates how different organizations were connected, and how strongly they were connected, after three years of the Adaptive Management Initiative. Color indicates the year that the organization joined the AMI initiative (red=2013, green = 2014, blue = 2015).



From 2013 to 2014, the core organizations in the AMI network expanded from 12 to 21 organizations and the number of ties expanded from 64 to 169. In 2014, some of the most central organizations in the network included: the National Parks Conservation Association, the Center for Large Landscape Conservation, the Crown Managers Partnership, the Miistakis Institute, the Wilderness Society, and the Crown of the Continent Conservation Initiative. Many of these organizations were new to the AMI network that year.

This highlights a very important point on evaluating network progress and network change: the network will go through cycles and different phases. In many cases, it wasn't that the organizations were necessarily “new” to the network, but that the role they played had changed (for example, from being an organization offering project support to being a lead organization on a proposal.)

In 2014, each organization has on average 8.4 ties to other organizations. This is up from an average of 5.3 with the Year 1 organizations. See the table below.

AMI Network Analysis Results				
	Pre-2013*	2013	2014	2015
# of Organizations	12	12	21	25
# of Connections	19	64	169	163
Average Ties per Org	3.08	5.33	8.04	6.52
Density	--	.53	.401	.272
# of Network Subgroups	--	2	2	3
*Pre-AMI data was collected using interviews and network relationships were coded through qualitative analysis. AMI data for 2013, 2014, and 2015 was collected using standardized survey protocol.				

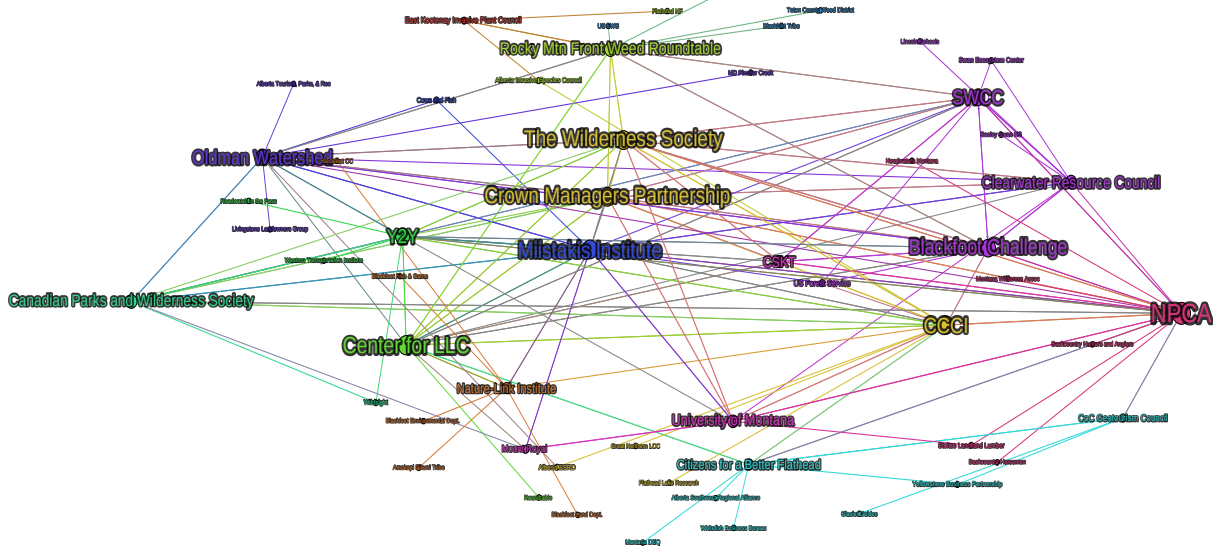
The network maintained some consistency (relative to the changes from 2013-2014) in 2015. The number of core AMI organizations went from 21 to 25, and the number of reported ties actually decreased slightly from 169 to 163. With more organizations and less ties, the number of average ties per organization decreased to 6.52.

A very important and interesting change in the network from 2014 to 2015 is the network density. Density is a

key measure of how information and coordination may or may not occur in the network. Technically, density is the number of connections between actors as a percentage of all possible connections; a density score of 1 would mean all organizations have ties to each other. Higher densities will generally indicate a more cohesive network; however, high-density networks may have their own drawbacks. A density score of 50% or more is very high (in 2014 it was .401 for the AMI). High-density social networks tend to become more homogeneous, which facilitates trust and the formation of a common set of goals. Too much density, however, can lead to rigidity and an overload of activity and information exchange. The reported density of .272 in 2015 is probably an important indicator of a less rigid, and more resilient, network. In many ways, it may indicate a network that has agreed upon a vision and goals (that required the higher density of the previous years) and has settled in toward more local-level implementation of projects.

In 2014, we asked about other organizations that AMI grantees were collaborating with on projects. We found that the AMI had an effect much greater than its funded projects would indicate; it also connected many non-AMI organizations throughout the region. In total, there were 56 organizations involved in AMI related work, and 214 new ties made among non-AMI organizations as a result, as seen in Figure 5.

Figure 5: Collaboration between AMI grantees and non-AMI grantees.



Setting Social and Ecological Goals

While the social network analysis and the tracking of network change over the years has proven to be very valuable in demonstrating, “is it making a difference?” with regard to building social capital, this is really only a part of the larger puzzle that should be tracked, monitored, and evaluated. We also want to know if progress is being made toward our goals along ecological indicators (what is actually getting done on the ground?) This requires setting goals that explicitly address the intersection of the social and ecological.

Working with a group of researchers, a 3x3 matrix was developed that includes nine dimensions in which to consider social-ecological evaluation (see Bixler et al. 2015; Emerson and Nabatchi 2015). The below matrix design suggests that networks produce actions that have particular outcomes that in turn lead to specific adaptations.

Framework for setting and evaluating goals			
	Actions	Outcomes	Adaptation
Ecological			
Social			
Combined Social and Ecological			

Being explicit about what actions are desired, the outcomes those actions produce, and the ways that this contributes to adaptation is critical to answering the question: Is it making a difference? As this matrix continues to be developed, one important lesson is that instituting a systematic way to set goals and evaluate performance early on in the process is critical.

The matrix also suggests that setting social and ecological goals, and thinking about how and where they overlap, is an important value-added dimension of network evaluation. For example, the following questions can be useful to consider:

Social

- Are opportunities for shared learning being created? (Actions)
- Are new groups being reached out to? (Actions)
- Who is not at the table? (Actions)
- Are network subgroups becoming more cohesive? (Outcomes)
- Is social capital being built? (Outcomes)
- Is the network resilient to fluctuations in funding and politics? (Adaptation)

Ecological

- What conservation action is the network taking? (actions)
- What organizations are in the network? (actions)
- Is monitoring being done? At what scale? What to monitor? (actions)
- Are goals being achieved? (outcomes)
- Are actions being correlated with outcomes? (outcomes)
- Is resilience being built into the landscape? (adaptation)
- Ability for resource to resist? Respond? Adapt? (adaptation)



Combining Social and Ecological

- Is there cross-pollinating between projects/organizations that work on different resources? (actions)
- Where does social capacity overlap with ecological need? (actions)
- Achieving both social and ecological goals? (outcomes)
- Is the network working through a systems framework to understand impacts and outcomes? (adaptation)

By asking these and similar questions, progress can be made toward goals across multiple dimensions. This provides a more robust evaluation process and begins to answer the question, “is it making a difference?” Many social scientists feel that a clear correlation between networking and collaboration is proof enough of progress toward change; however, striving to include real on-the-ground actions will bolster the value of networking across large landscapes even more.

Although measuring outcomes is important and helps participants gauge progress, networks are complex systems that are difficult to fully understand. It will not always be clear and rarely will progress be made in a linear fashion. Being tolerant of this and continuing to move forward when things seem complex and confusing is critical. Networks help us understand complex interactions, look at the consequences of change at a community level, and find generalities among seemingly different systems that may have similar processes. As we continue to evaluate both the social and ecological impacts of networked action, we will be able to foster even greater success in networked large landscape efforts.

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The Roundtable Leadership Team has provided strategic guidance and inspired leadership. Founding Leadership Team members articulated a compelling vision for the future. Current Leadership Team members are ensuring that the Roundtable’s work is connecting to more and more people and places in ways that add value and to current and future generations.

Roundtable Staff are the glue that has held the Roundtable together:

- Gary Tabor and Matt McKinney, Founders and former Co-Directors
Mary Sexton, Roundtable Coordinator
Shawn Johnson, Facilitator
Melly Reuling, AMI Coordinator
Sue Higgins, Communications Coordinator
Lea Whitford, Tribal Coordinator
Sam Williams, Operational Support

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This work is the legacy of the inspiration of Ted Smith, who lived a life committed to the Crown of the Continent.

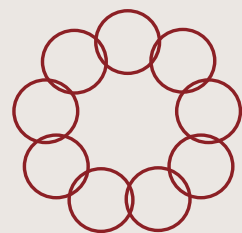
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Roundtable on
the Crown
of the Continent