REGIONAL NETWORKS SUPPORTING COMMUNITY-BASED FOREST STEWARDSHIP AND BENEFITS:

A Case Study of the Northern Arizona Partnerships

Katherine Mattor, Colorado State University, Fort Collins, CO
Sam Burns, Fort Lewis College, Durango, CO
Tony Cheng, Colorado State University, Fort Collins, CO

Approaches to community-based forestry differ by region across the U.S. The majority of community-based forestry approaches are focused on single geographic areas (e.g. towns or watersheds) or projects with a specific goal (e.g. to retain resource-based employment). These approaches are having profound success in many efforts across the country but are not as effective in others. Fostering the linkages between forest stewardship and community livelihoods in the Southern Rocky Mountain region relies primarily on loose networks of non-governmental organizations, small-scale businesses, and individual entrepreneurs. These networks incorporate a variety of actions across regions, often at the county or multi-county level, to address ecological, economic, and social goals resulting in long-term sustainable efforts.

The Northern Arizona Partnerships, located in the White Mountains of Northeast Arizona, is one example noteworthy for its highly adaptive and successful network. The Northern Arizona Partnerships was involved in the Four Corners Sustainable Forests Partnership (FCSFP), a federal pilot program which provided financial and technical support to a variety of forestry projects across Arizona, Colorado, New Mexico, and Utah from 1999 to 2004 (For a summary and evaluation of this partnership see Burns and Richard 2002 and 2004; Burns 2003). Although each of the four states received roughly the same amount of resources and had successful on-the-ground community based forestry projects, the ongoing progress of the network in Northeastern Arizona stands out. This regional network is distinguished from most individual community based forestry projects by its proven capability to utilize a feasible economic scale which incorporates the social context of the supportive communities to achieve forest restoration work at a landscape level.

Important elements of this story include:

1. Factors contributing to the development of regional networks; and
2. Attributes that underlie their successes.

Context

The White Mountains are located in Eastern Arizona adjacent to the Apache-Sitgreaves National Forest and Fort Apache Indian Reservation, approximately 60 miles east of Flagstaff and extending across Apache and Navajo Counties to the New Mexico border. Several natural resource dependent towns, ranging in populations from 2,000 to 8,000 residents, are located in this rural area dominated by ponderosa pine forests.

Settlers were attracted to the region by the plentiful grasslands and abundant timber during the latter half of the nineteenth century (Gomez 1994). From the time of settlement residents depended on the local natural resources. The economic mainstay of this rural area was timber and grazing from the late 1800s onward. According to Temple et. al. (1999), the region has historically been dominated by timber harvesting and production based on large diameter old-growth ponderosa pine trees, which resulted in an economic downturn when the availability of such trees declined. The peak timber era in this region was in the late 1980s with a prevalence of multi-generational businesses which imparted knowledge of the local forest, the silvicultural practices, and the processing of large ponderosa pine, in addition to providing the necessary infrastructure to accomplish these production processes.

In the late 1980s the timber industry across the Four Corners region and the White Mountains of Arizona experienced an acute downturn as increased international competition and environmental concern took its toll. The White Mountains region was primarily confronted with mill closures, legal gridlock from the Mexican Spotted Owl litigation, and forest health issues. Although income levels in the timber and wood products manufacturing industries in both Apache and Navajo Counties began to drop drastically in 1987 (U.S. Department of Commerce 2008), the region did not see extensive mill closures until the mid-90s (Burns and Richard 2004).

In August 1995 a federal injunction, brought about by a lawsuit filed by regional environmental groups, blocked logging in all national forests in the Southwest until Mexican spotted owl habitat was identified throughout the region. In addition to magnifying social unrest with the timber industry, this injunction restricted logging operations for nearly sixteen months and resulted in the loss of timber

harvesting and processing operations. Due to the sudden decrease in timber supply from the national forest, nearly a dozen mills in the White Mountains region closed within a ten year period (Burns and Richard 2004). Although some timber operations were able to continue operating on private and tribal forests the mill closures limited their ability to access the market and forced additional operations to leave the area.

The need for landscape scale forest restoration in the White Mountains region was also recognized at this time. Historically, frequent surface fires maintained an open understory and sparse canopy with 40 to 50 trees per acre. A century of extensive grazing, timber harvesting, and fire suppression efforts led to a lack of older fire-resistant trees and an overgrowth of understory small diameter timber resulting in densities of 300 to 500 trees per acre (Lenart 2006). This created unhealthy forest conditions and increased fire risk, as seen in the 2002 Rodeo-Chedeski fire which ravaged almost a half a million acres in the White Mountain region. Although landscape scale restoration needs were identified, markets for small diameter timber did not exist because local mills did not have the infrastructure necessary to process it. The lack of value-added products and the prohibitive costs of transporting the small diameter timber was a disincentive for the local timber industry firms to purchase the specialized equipment necessary to do the thinning (Hopper 2003).

Impetus for a New Direction

Although the region faced significant economic and ecological challenges, opportunities for addressing these situations supported the development of the Northern Arizona Partnerships. During the mid-1990's the Ecological Restoration Program (which became the Arizona Ecological Restoration Institute in 2000) housed at Northern Arizona University in Flagstaff conducted pioneering research on historical forest conditions and forest restoration needs across the Southwest. Working closely with forest managers throughout the region, methods for assessing, monitoring and conducting forest restoration became more widely utilized.

Public support for forest restoration began to grow at this time as people became more knowledgeable of forest conditions. The fires which swept across the Southwest in 1996 increased this support dramatically as people became aware of the amplified forest fire threat.

At a national scale, the National Association of State Foresters was discussing rural community development and its relationship to forestry, specifically, how to increase the role of the State and Private Forestry branch in the U.S. Forest Service's Rural Economic Action Program. At a regional scale, community leaders, industry members and forest managers initiated informal conversations about common concerns and aspirations for improving forest conditions and economic trends across the Four Corners. In 1999, Congress with the leadership of the State Foresters from Arizona, Colorado, New Mexico, and Utah established the Four Corners Sustainable Forests Partnership (FCSFP) to address these concerns and were able to secure funding for the FCSFP as a five-year demonstration project through the U.S. Forest Service Economic Assistance Program. Over five years, the FCSFP provided technical support and grants totaling $1 million per year to promote infrastructure development and risk mediation for community-based forestry projects in the Four Corners region.

The Network Emerges

A culmination of efforts across the White Mountain region led to the emergence of a regional strategy which aligned economic, social, and ecological goals to the opportunities outlined above with appreciable success. When mills began to close in the White Mountains in the mid-1990s, several community leaders became increasingly motivated to revive the local economic and forest health situation and reached out to the Little Colorado River Plateau Resource Conservation & Development Area (RC&D), an organization established in 1972 with a mission "to support partnerships providing leadership in natural resource conservation and development within east-central Arizona communities" (Little Colorado River RC&D 2008). The RC&D then contacted Northern Arizona University's Ecological Restoration Program in Flagstaff to research small diameter timber usage.

They also began to coordinate informal discussions among community members which led to the official formation of the Arizona Sustainable Forests Partnership (ASFP) in 1996 and established a hub of communication

among various businesses throughout the region. The focus of ASFP is to facilitate networking among community members to "unite the public in addressing issues facing Southwestern forests and communities for a common purpose — promoting ecological-based forest initiatives enhancing sustainable forests and employment opportunities" (Arizona Sustainable Forestry Partnership 2008). The ASFP accomplishes this by convening monthly community meetings, business and marketing assistance, and loan and grant opportunities. The RC&D created linkages between individuals and industry that allowed for the development of business clusters prior to, during, and following the FCSFP program. It also acted as a fiduciary agent for several of the FCSFP grants distributed in the White Mountains. One such grant established the Northern Arizona Wood Products Association (NAWPA), an initiative of the White Mountain Regional Development Corporation that supports and encourages the use of small diameter timber through networking and technical resources they provide to small diameter timber manufacturers (Northern Arizona Wood Products Association 2008). The Little Colorado River Plateau RC&D office continues to house both NAWPA and ASFP.

During the same period, a U.S. Forest Service district ranger initiated the White Mountains Natural Resources Working Group (NRWG) to establish informal communications between the Forest Service, environmental organizations, and local government to focus on building consensus around the ecological aspects of forest restoration within the constraints of existing policies (Abrams and Burns 2007). The initial group included representatives from Northern Arizona University's Ecological Restoration Program, the Southwest Center for Biological Diversity, and the Apache-Sitgreaves National Forest, and has since evolved into to a formal organization including a broader variety of interest groups. The collaborative ecological research conducted by the NRWG provides a sound basis for restoration activities across the White Mountain region. By incorporating input from the Ecological Restoration Institute, the Southwest Center for Biological Diversity, the State and Federal Forest Service agencies, and other local and national based organizations, the NRWG gained credibility among environmental organizations, local residents, and resource managers. In 1997, the NRWG established the Blue Ridge Demonstration Project in the Pinetop-Lakeside geographic area to demonstrate a range of forest restoration methods on 17,000 acres identified through the collaborative process (Zieroth 2004). While attempting to complete the restoration treatments the economic difficulty of utilizing the small diameter timber became apparent when the initial treatment contract offerings did not receive any bids (Abrams & Burns 2007).

These organizations were not detached from one other; some members were a part of multiple efforts and were critical to establishing networks between them. Each organization played an important role in the development

of the Northern Arizona Partnerships. The success of the Northern Arizona Partnerships thus far is illustrated by the award of the White Mountain Stewardship Contract to a joint venture of local companies at the final meeting of the FCSFP in 2004. This stewardship contract, the largest in U.S. history, will remove small diameter timber from 5,000 to 25,000 acres (totaling 150,000 acres) within the wildland-urban interface of the Apache-Sitgreaves National Forest over a ten-year period (Lenart 2006). The timber, which is thinned from the forest by a local multi-generation company, supplies a series of local value-added wood product businesses, including a post and pole plant, a small sawmill a molding plant, and a wood pellet mill.

Conditions for Success

There are many attributes of the Northern Arizona Partnerships which have made it successful thus far and allow it to secure opportunities other forest restoration efforts have been unable to take full advantage of. It is critical to understand how such networks arise and what attributes underlie their successes. Four key conditions underlie the success of the Northern Arizona Partnerships.

First, the **composition of the White Mountain region** created an opportunity for the Northern Arizona Partnerships to become established. The close proximity of the towns to each other (~50 miles apart) and to the Apache-Sitgreaves National Forest provides an opportunity for individuals and businesses to reduce transportation, communication, and operating costs, and to work closely with the National Forest. Unlike many other timber dependent communities throughout the Four Corners region which saw their mills closing in the 1970s, the timber and mill industry downturn did not occur until the early 1990s in the White Mountains. Although many operations closed at this time, a fairly strong infrastructure and knowledgeable workforce remained scattered across the White Mountain region.

The knowledge within the Northern Arizona Partnerships communities, combined with their concern about the health of the forest and the economic stability

of the region, triggered **a strong entrepreneurial spirit** within the region. Concerned citizens identified methods to collaboratively monitor restoration efforts, which resulted in the development of the White Mountains Natural Resources Working Group, the Arizona Sustainable Forestry Partnership, the Northern Arizona Wood Products Association, and the White Mountain Stewardship Monitoring Group. Entrepreneurs bought retired mills and creatively re-tooled them to handle the new timber supply, while others found and utilized new applications for formerly discarded wood. Timber contractors researched and obtained new equipment through the FCSFP grants to effectively harvest small diameter timber. This allowed one contractor to secure the White Mountain Stewardship contract because they had previously obtained and field tested the mechanized harvesting equipment through the FCSFP.

The third key condition is the **external support** provided by the FCSFP. The FCSFP provided a focused opportunity for entrepreneurs to achieve small scale economic utilization goals paired with forest restoration activities. Funding from the FCSFP provided small businesses in the region with the infrastructure and technical resources that would otherwise be unavailable to them. This support mitigated the financial risks that may have otherwise prevented these entrepreneurs from actively pursuing the multitude of restoration activities in the region. It also provided organizations with the credibility necessary to leverage additional funding from external sources. For example, the grants provided to the NAWPA allowed the organization to leverage additional Economic Action Program and U.S. Forest Service Forest Products Lab funding and further develop the services they provide to their members.

The **intermediary** role played by the RC&D is the fourth condition for success in the Northern Arizona Partnerships. Through the establishment and hosting of the ASFP, the RC&D provided a collaborative forum for local entrepreneurs to access financial and technical resources, affect policy decisions, and establish business clusters to maximize the local value-streams for the efficient harvesting and use of the small diameter timber coming out of the forest. The later establishment of the NAWPA furthered this forum by focusing additional resources on capturing diverse value streams from restoration projects. The development of business clusters, where each business has a niche in the sourcing and production of the timber products and is linked to other businesses with unique niches, was a result of the RC&D's involvement and provided an element of risk-sharing among the involved businesses. Through these business clusters the entities involved were able to recognize the strength of their interdependence - the scraps from the post and pole operation could be passed on to the mom & pop landscaping company or processed by a local wood pellet mill - and this promoted the development of an appropriate scale of industries through shared learning. In short, the intermediary was critical for enabling local industries and communities to be able to take advantage of the opportunities provided by the FCSFP. This can be contrasted with the situation in Southwestern Colorado, where the lack of an intermediary prevented industries and communities from taking full advantage of the FCSFP opportunities.

Conclusion

The regional strategy of the Northern Arizona Partnerships illustrates how the ecological, social, and economic aspects of forest restoration efforts can be addressed by diverse entities working in concert with one another. The network approach does this by creating sufficient space for innovation, collaborative learning, and adaptation to occur between those involved. The conditions leading to the success of the Northern Arizona Partnerships provide three key lessons for the identification and development of community based forestry networks.

- These networks must identify an **appropriate scale of industries**, specific to the region, for the long-term success of community based forestry networks. This scale is defined by (1) the composition of the communities – including the geography, forest conditions, knowledge base, and existing infrastructure; (2) the extent to which local entrepreneurs are able to align the needs and opportunities presented for forest restoration projects; and (3) a recognition of the interdependence of local industry and their willingness to share risk.
- A recurring **collaborative dialogue** establishes processes and practices for the network to continuously identify and adapt the appropriate scale of forest restoration efforts and associated product industries in order to maximize diverse value streams. This channel of communication is essential to the development of community based forestry networks because it allows for the identification of local issues and opportunities and is conducive to risk sharing between entities. Recurring communication is an essential component of collaborative learning and allows the network to be more responsive to changing conditions.

• **Visionary leadership** from the U.S. Forest Service, industry, and an intermediary organization is essential to the development of community based forestry networks. The intermediary organization ensures collaborative dialogue between the ecological, economic, and social aspects of the network, facilitates linkages between otherwise disconnected entities in the region, and connects the network with external funding and technical resources at the state, regional, and federal levels.

The Northern Arizona Partnerships exemplifies how a regional community based forestry network can achieve landscape level forest restoration by incorporating a feasible economic scale with the social and ecological context of the communities involved. The network approach creates a new level of integration, dynamism, and resource sharing considerably greater than the sum of the individual projects involved. The resulting synergy allows the economic integration of wood products and markets well beyond the capacity of a single producer. This mutually shared economic capacity is grounded in a social framework of social learning which encourages the network to adapt to changing needs and opportunities, and promotes enduring and sustainable forest restoration efforts.

Acknowledgements

Special thanks to the following people for their assistance, patience, and generosity: Herb Hopper, Executive Director, Little Colorado River Plateau Resource Conservation & Development; Bill Greenwood, City Manager, Eager, AZ; Collins, District Ranger, Lakeside Ranger District, Apache-Sitgreaves National Forests; Molly Pitts, Executive Director, Northern Arizona Wood Products Association; Dwayne Walker, Co-owner, Walker Brothers Contracting, Inc. and Principal, Future Forests, LLC; and Rob Davis, Owner, Forest Energy and Principal, Future Forests, LLC. All photos taken by Dennis Becker.

References

Abrams, Jesse and Sam Burns. 2007. Case Study of a Community Stewardship Success: The White Mountain Stewardship Contract. Flagstaff, AZ: Ecological Restoration Institute, Northern Arizona University. Available online at: http://hdl.handle.net/2019/348.

Arizona Sustainable Forestry Partnership. 2008. http://www.littlecolorado.org/sustain.htm. Last accessed on June 25, 2008.

Burns, Sam and Tim Richard. 2002. The Four Corners Sustainable Forests Partnership Demonstration Projects Evaluation Report, 2001-2002. Durango, CO: Office of Community Services, Fort Lewis College.

Burns, Sam. 2003. The Four Corners Sustainable Forests Partnership: A Summary of Lessons Learned and Recommendations for Strengthening Partnerships and Building Capacity in Communities, 1999-2003. Durango, CO: Office of Community Services, Fort Lewis College.

Burns, Sam and Tim Richard. 2004. The Four Corners Sustainable Forests Partnership: Lessons & Strategies for Community Forestry Capacity Building, 1999 – 2004. Durango, CO: Office of Community Services, Fort Lewis College.

Gomez, Arthur R. 1994. Quest for the Golden Circle: The Four Corners and the Metropolitan West, 1945-1970. Lawrence: University Press of Kansas.

Hopper, Herb. 2003. Arizona Industries of the Future Forestry Action Plan. Arizona Department of Commerce, unpublished.

Lenart, Melanie. 2006. Collaborative Stewardship to Prevent Wildfires. Environment. 48(7); 8-21.

Little Colorado River RC&D. 2008. http://www.littlecolorado.net/. Last accessed on June 25, 2008.

Northern Arizona Wood Products Association. 2008. http://www.nawpa.org/Extra/about.php?SID&. Last accessed on June 25, 2008.

Temple, Ryan, P. Gagnon, S. Harrington, J. Bailey, Y. S. Kim, D. Larson and W. Zipse. 1999. Assessment of Forest Resources and Communities in the Four Corners Region: Synthesis Report. The Forest Trust. Research Synthesis Report 11, 194 pages.

U.S. Department of Commerce, Bureau of Economic Analysis. 2008. Regional Economic Information System. Available online at: http://www.bea.gov/regional/reis/CA05Nfn.cfm. Last accessed May 27, 2008.

United States Fish and Wildlife Service. 2008. Mexican Spotted Owl: General Information, Website. http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=B074. Last accessed on May 26, 2008.

Zeieroth, Elaine. 2004. Collaborative efforts leading to Stewardship contracting on the Apache-Sitgreaves National Forests. USDA Forest Service Briefing Paper, July 13, 2004.