Informing the CFLRP: Lessons Learned from New Mexico’s Collaborative Forest Restoration Program

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Forest restoration in the southwest US and elsewhere has been receiving increased attention, due to climate change, changing land use practices, increasing populations in the wildland-urban interface and the historical mismanagement of some forests, as evidenced, in part, by the unusual number and severity of devastating fires in recent years. The Collaborative Forest Restoration Program (CFRP) was initiated in 2001 by the USDA Forest Service (USFS) as a new approach to building agreement among people and organizations that care about New Mexico’s forest land, by awarding grants that restore forests on public and tribal lands and improve the use of small diameter trees thinned from those lands. Important program objectives also include reducing the threat of catastrophic wildfire on the stand or forest level and creating local employment and training opportunities. CFRP-funded projects have typically assumed one of several project objectives:
• Hazardous fuels reduction that has a positive impact on water yield, supply and quality, as well as forest health.
• Riparian restoration, typically addressing challenges related to invasive plants, as well as the mitigation of severe wildfire in riparian ecosystems.
• Projects that focus on the socio-economic dimensions and outcomes of restoration, especially so-called utilization projects that focus on building restoration-based infrastructure that do not result in ecological changes.
• Planning projects aimed at subsequently implementing broad, strategic watershed-scale restoration.

The Collaborative Forest Landscape Restoration Program (CFLRP), a federally-funded, nationwide, landscape-scale program, was established in 2009 to encourage the collaborative, science-based ecosystem restoration of priority landscapes. While their purposes are articulated differently – with CFRP perhaps more explicit in its commitment to grass roots participation and equality of knowledge among all participants – ultimately, on the ground, the CFRP and CFLRP aim to accomplish similar objectives, albeit at different spatial scales. In addition, a recent meeting of forest ecologists on CFLRP in Colorado suggested that, when it comes to on-the-ground restoration treatment, large landscape-scale CFLRP projects will likely be broken down to the stand and forest levels – the levels at which CFRP project treatments are normally applied. Given the experiences of the CFRP over the past twelve years, there are lessons from that program that could inform CFLRP, especially in the following critical areas: collaboration and equity of knowledge; project consistency, connectivity and maintenance; and socio-economic monitoring.

The NMFWRI is uniquely positioned to provide insights about the CFRP that may help inform the CFLRP. The NMFWRI convened the group that ultimately resulted in the SW Jemez CFLRP, has been chairing its vegetation monitoring committee, and is a partner in the development and implementation of the Zuni CFLRP. In addition, the NMFWRI has been responsible, through its Federal work plans, for the long-term monitoring of CFRP-funded projects and the development and publication of widely used indicators and guidelines for socio-economic and riparian restoration project monitoring, both efforts funded by the CFRP. Importantly, the NMFWRI maintains a level of objectivity about both programs by not competing with its stakeholders for CFRP grants or CFLRP-related contracts.
Collaboration and equity of knowledge

The “C” in CFRP can be both its greatest strength and, at times, its biggest challenge. The idea of equality of knowledge among all CFRP participants, irrespective of background or experience, while perhaps laudable conceptually, can lead to the dilution of efforts to collect, analyze, and draw meaningful inferences from reliable data. Unfortunately, CFRP grantees, often more interested in completing a project and collecting grant funding than applying even the most fundamental rigor necessary to help the program answer questions related to, for example, treatment effectiveness and maintenance cycles, will sometimes take the easy way out when it comes to monitoring. In addition, the multi-party monitoring process is sometimes viewed by grantees as simply a checklist item to be signed off on and there is often little follow through by grantees in developing true multi-party monitoring plans. Moreover, for many projects, monitoring is more of a contractual arrangement between a grantee and individual entities contracted to conduct the monitoring, often without any meaningful input from the collaborative group.

One CFRP grantee, who was working on a range reclamation CFRP-funded project, told me, somewhat apologetically, that, although he understood and agreed with the NMFWRI’s position on, for example, improved methods for determining sample size and a representative distribution of plots across his project area, he was going to “take the easy way out” because he felt that it cost him less in planning and on-the-ground monitoring. “I understand that the monitoring protocols that the Institute is suggesting are better,” he said, “but we’ve been told (by project contractors) that we can get by using methods that are easier and less rigorous.” In addition, the vast majority of the multi-party monitoring team agreed (or, perhaps, didn’t care), this despite (or perhaps because of) a lack of background and training in field monitoring and inventory among any of the team members.

And there may be costs associated with inadequate monitoring planning and contracting with poorly trained “professionals.” A CFRP-funded project neglected to take into account the variability of the stands being monitored when determining sampling intensity (Egan in review). Because of the high variability and scattered distribution of trees, data showed that there were no trees in the residual post-treatment stand when there clearly were. The pre- and post-treatment inventories relied on a careless rule of thumb instead of the stand’s inherent variability to determine sampling intensity. As a result, the tract had to be re-visited and additional post-treatment sample plots were established in order to capture this variability – an inefficient way of conducting any inventory.
Consistent with assertions by Force and Machlis (1997), implementing a system of social indicators, for example, often requires specific skills and knowledge. Complicating the issue is the “paradox of public involvement” discussed by Walker and Daniels (2001) and referenced by Egan and Estrada as it relates to forest restoration (in press), which posits that, while citizens may want the best available science to inform management decisions, they also want to have input into decision-making processes. However, as resource management and landscape restoration decisions and processes become more complex, few citizens have the scientific background and expertise to contribute or provide relevant criticism (Walker and Daniels 2001).

This is further confounded by a lack of standards, certification and licensure of natural resource professionals in New Mexico, allowing virtually anyone to call him-/herself a professional forester, for example. This has led to extremely sloppy field work and data analysis by those pretending to have the requisite training and experience, resulting in a free-for-all when it comes to really trying to understand and achieve progress on the challenges associated with forest restoration and the implementation of the CFRP.

Unfortunately, the assumption of equity of knowledge among stakeholders can have devastating outcomes. Among the lessons learned from the Track Fire near Raton, for example, was that pre-fire thinning likely was not aggressive enough, in part because there were those at the table who wanted to thin aggressively – generally consistent with the science – and those who didn’t want any trees cut. As a result, a process of compromise among diverse stakeholders led to fuel reduction practices that were outside of the range of residual stand stocking that is consistent with effective fuels reduction. Given an objective of hazardous fuels reduction to mitigate the occurrence of or cool down severe wildfire in order to protect the city’s water supply, this project failed – even before there was a fire. When the city of Raton engineer was later asked what, in retrospect, he might have done differently, he responded “cut more trees.”

Related to this is the notion of transparency in contracting. New Mexico’s CFRP, while dealing with its own challenges related to data quality, the paradox of public involvement in its collaborative processes, and a lack of consistency in monitoring protocols across projects, maintains clear and inclusive processes for the selection of its grantees. However, experience with CFLRP in New Mexico and elsewhere in the country suggests a lack of consistency in how services for project management and implementation are contracted. CFLRP-funded projects in New Mexico, for example, appear to be plagued by a system that awards some contracts, not based on open, competitive processes, but rather on what appears to be a
somewhat arbitrary approach to which some potential contractors often feel they have little or no access. According to one highly qualified restoration monitoring contractor in New Mexico, for example, she would like to have the opportunity to contract for monitoring services related to the two CFLRPs in her state, but “I don’t know how to access the work.” This frustration was later echoed by a tribal member in the southeast US seeking access to contracts related to a CFLRP-funded project there. An additional pitfall of a contracting process that isn’t open, equitable, and competitive is that the work may not be accomplished by those most qualified to conduct it.

Project consistency, connectivity and maintenance

In addition to a lack of data quality control, ecological monitoring processes are generally inconsistent from one CFRP-funded project to another. While this may appear to provide an opportunity for creativity among various CFRP projects, it also confounds efforts to (a) compare monitoring results among projects; and (b) conduct long-term monitoring five, ten, fifteen and twenty years after project completion, because long-term monitoring efforts would have to attempt to mimic year zero monitoring processes, often in the face of inadequate access to and/or documentation of field procedures and monitoring results.

CFRP and other restoration treatments impose changes to a target ecosystem, forest, watershed or landscape, and community. Treatment effectiveness and other outcomes are monitored over time, generally with baseline pre-treatment assessments providing a measure of reference conditions. For forest restoration, re-measurement is often conducted immediately before and immediately after treatment, then every five years thereafter. Recent examples of this approach may be found in the CFRP long-term monitoring reports posted at www.nmfwri.org/collaborative-forest-restoration-program/cfrp-long-term-monitoring. In addition, monitoring protocols may vary, depending on treatment objectives and the scope of the project. Examples of common protocols funded by the USFS/CFRP can be found at: http://www.nmfwri.org/collaborative-forest-restoration-program/cfrp-long-term-monitoring, for forest restoration projects; http://www.nmfwri.org/collaborative-forest-restoration-program/cfrp-long-term-monitoring, for riparian restoration projects; and http://www.nmfwri.org/collaborative-forest-restoration-program/cfrp-long-term-monitoring, for socio-economic monitoring.
Critical to the success of any monitoring effort are adequate field and data analysis training, as well as data archiving. Long-term monitoring will not succeed unless reference data are collected with the appropriate level of methodological rigor. This is one of the most challenging aspects of so-called multi-party or citizen monitoring, since not all citizen participants have an adequate level of training, expertise and commitment to the project. Among other benefits, monitoring informs the question of treatments’ maintenance cycles – the period of time between successive treatments in order to maintain their effectiveness. Effectiveness is defined by the objective of the restoration treatment, and can include water yield, mitigation of severe wildfire, or issues related to forest health and productivity – or some combination of these or other possible project outcomes. Developing a better understanding of maintenance cycles should be part of the long-term monitoring process.

In addition, forest restoration activities are often prescribed and implemented at the ownership or forest level and need to be implemented correctly based upon research, socio-economic and socio-cultural realities, landowner objectives, and a solid understanding of how a successful restoration project will be assessed. However, there is often a lack of connectivity among treated forests or a cohesive plan for restoration across a landscape, highlighting the need for a more connected, multijurisdictional approach to watershed restoration.

However, virtually all efforts to restore forests and reduce hazardous fuels will require a long-term plan of successive interventions that accounts for treatment maintenance cycles, evolving science, and changing public values and land uses, including an expanding wildland-urban interface. This is likely to occur sustainably only with the development of a health forestry sector that will enable these treatments to occur in the long-term and in the face of contracting public subsidies for forest restoration and hazardous fuel reduction (Egan 2012). Mechanical fuel reduction treatments, conducted on a rhythm consistent with a treatment’s maintenance cycle, can also result in certain desired conditions, with the added benefit of providing a more sustainable supply of wood products to local forest products businesses. But all of this requires a plan, and funding, that looks beyond the duration of the initial treatments – not necessarily strengths of programs such as CFRP and CFLRP that rely on a relatively high level of year to year funding uncertainty.
Socio-economic monitoring

Given the diverse goals and objectives of forest restoration programs and projects, the socio-economic outcomes of these efforts can be complex to understand and measure. Past work has been conducted to develop socio-economic indicators for forest restoration efforts. The process of indicator development will continue to evolve as the forest restoration community develops keener interest and expertise in this important dimension of restoration. However, among the challenges associated with understanding the socio-economic outcomes of forest restoration have been a lack of consistency in identifying core socio-economic indicators across projects and how they may be measured; a paucity of systematic and objective approaches to indicator development; the challenge of achieving consensus among diverse stakeholders; and uneven efforts to solicit the opinions of forest restoration stakeholders on the most appropriate indicators and protocols.

As with ecological monitoring, if projects’ socio-economic short- or long-term effectiveness is important to CFRP, for example, baseline data collected during the grant period must be collected, analyzed, and reported in such a way that reliable estimates of socio-economic outcomes can be assessed.

In order to avoid tensions that may arise over the degree of scientific rigor required to achieve monitoring objectives, it’s important for program administrators and grantees to understand that an effective evaluation of socio-economic project outcomes often requires specific expertise in social science methods, while also recognizing that there may be some indicators that demand less sophistication and rigor than others. This has been generally lacking for CFRP projects. Surveys, focus groups and key informant interviews, are specific social science methods that require background, training, and preparation to be implemented well. Unfortunately, it is too often assumed that social science is easy science and that interest in the socio-economic dimensions of forest restoration necessarily equates to expertise. A lack of expertise in social science methods and associated questions about the quality of data deriving from community-based socio-economic multi-party monitoring have been key criticisms of some restoration programs, calling into question not only the value of the original data, but also the rationale for long-term monitoring that references these data as baseline. Perhaps the important question to resolve is whether the methods and the level of expertise of the monitoring team match the objectives.

Monitoring practitioners are encouraged to consider important regional, cultural and other project-specific characteristics before deciding on which socio-economic indicators to measure for a given forest
restoration project, irrespective of the rating/weight derived for those indicators or the levels to which they've been assigned. As with any attempt to understand something as potentially complex as socio-economic indicators for the vast array of forest restoration projects and project objectives, this should be a continuing and inclusive process.

Finally, given the potential sensitivity of information that could be derived from some socio-economic assessments – including that related to restoration business costs, revenues, and markets, for example – it’s critical that the information and those who provide it are afforded adequate protections, another challenge plaguing community-based multi-party monitoring associated with some programs (Egan and Estrada, in press) that could compromise restoration businesses and raise potential program liability issues. It is critically important to provide adequate protection for human subjects and the information derived therefrom. For example, information related to aspects of restoration-based businesses should be treated with appropriate respect and business owners should be informed about how the data will be used and their rights to comply/not comply with the inquiry. Mistreatment of these data could compromise the businesses involved. Based on an inspection of CFRP project proposals, virtually no CFRP-funded project accounts for this, setting up the CFRP and its grantees for potential acrimony, even lawsuits, when information that, for example, may compromise the competitiveness of a restoration business, is treated without sufficient care.

**Conclusion**

Much funding – and hope – is being invested in the CFLRP. It is not just about restoring healthy forested landscapes, but also about reinvigorating local, rural economies and reducing the threat of catastrophic wildfire and its ecological, economic, and social consequences. Experiences with New Mexico’s CFRP have shown us that, for the ultimate success of the program, it is critical that CFLRP account for issues such as the paradox of public involvement and equity of knowledge; consistency in some methodologies; and exercising care with socio-economic monitoring. Ignoring the lessons learned from New Mexico’s CFRP, and perhaps other restoration programs, would appear to be a missed opportunity for CFLRP, with one likely result being a repeat of the challenges faced by these programs – but, given the significant increases in CFLRP projects’ spatial scales, funding, and public expectations, likely on a much grander scale and with potentially more far reaching consequences.
Literature cited


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