Cherokee National Forest Collaboration: LANDFIRE and Conservation Action Planning

Forest pests and pathogens. Historic over-harvesting and over-grazing. Invasives. Climate change. Fire suppression and altered fire regimes. The number of historic and current threats to the health of the Cherokee National Forest (CNF) in Tennessee sounds like the introduction to a horror story. But read further -- the rest of the story is a tale of challenges overcome, successful collaboration and a plan for restoration that brought a disparate group of stake-holders together in unprecedented – some would say miraculous – cooperation.

The problem

Located in eastern Tennessee near the southern terminus of the Appalachian Mountains, the 650,000-acre Cherokee National Forest spans seven counties and contains remarkable biodiversity, is an important recreation asset, and the source of abundant, clean water for the region's towns and cities. Management of the 340,000-acre North Zone has been contentious– the history of conflict reaches back to the development of the Forest Management Plan in 2005 and farther, and includes litigation, appeals, arbitration and, finally, a virtual stalemate regarding anything having to do with vegetation management.

"The Cherokee National Forest needs active management," says The Nature Conservancy's Katherine Medlock, the East Tennessee program director. "It needs prescribed fire, invasives treatments, tree planting–ecosystem restoration is important here. But contentious issues about where and how much had stalled planning and action for nearly a decade. It was gridlocked, no one was talking to anyone else, and all parties were desperately frustrated."

Action

Prompted by the Conservancy and the US Forest Service, Medlock joined with CNF Supervisor Tom Speaks and his staff to convene a 13-member *Cherokee National Forest Landscape Restoration Initiative*

(CNFLRI) Steering Committee comprised of dramatically diverse interests who would spend several months deliberating about a process that they hoped would break the stalemate.

The Steering Committee members were tasked with

- Defining a common vision for restoring and managing the CNF.
- Engaging or re-engaging a diverse group of stakeholders interested in ecological restoration and management, including local communities and others who wanted to participate.
- Providing a structured process designed to engage the diverse group of stakeholders.
- Recommending a plan for the implementation of ecological restoration that would include specific measurable objectives.
- Ensuring that prescribed management actions are consistent with the mission of the Forest Service.
- Establishing a system for monitoring and evaluating restoration activities to allow for adaptive management over time.

To achieve these goals, they chose a process called Enhanced Conservation Action Planning (or eCAP) now known as Landscape Conservation Forecasting™ (LCF)[1]. LCF was developed by then-Conservancy staffers Greg Low and Susan Abele, and the Chief Scientist of the Conservancy's Nevada Chapter Louis Provencher, and incorporates the LANDFIRE Program's models and data[2]. Using LANDFIRE data and the LCF process, the Steering Committee began to talk about and consider what a restored state would look like for the nine largest of the CNF's 12 ecological systems.

The Steering Committee took LANDFIRE's national datasets and customized them for local use on specific landscapes. The analysis software works in real time, enabling the group to ask questions and run scenarios – including return on investment – and then, in less than a minute, get results. Each management option was tested, allowing all stakeholders' ideas to be considered equally and openly. The Committee envisioned the future at the same time that the vagueness and mistrust that had built over many years was dispelled. The combination of the best available science and a dynamic evaluation/planning process created the foundation for developing common language and nomenclature, testing scenarios, reaching consensus and designing an action plan.

Says Medlock, "Real time querying and testing pushed the Steering Committee to discuss values across the landscape, test their ideas and have conversations that had previously been impossible. LANDFIRE and LCF were game-changers."

Outcome

Says Medlock, "The Steering Committee required two things in order to be successful. First, we needed a committed group that was willing to collaborate and do things differently. Second, we needed a process that used the best available science to guide the development of our recommendations. The dedicated stakeholders who love the CNF provided the first, LANDFIRE and local experts provided the second."

Working collaboratively with the Forest Service, the Committee identified and prioritized the needs for restoration[3], and designed and initiated a robust public participation component that included a variety of resources, e.g. national, regional, and local community expertise. The site-specific recommendations are included in the Initiative's report, "Recommendations to the Forest Service for the North Zone (Watauga and Unaka Districts) of the Cherokee National Forest," which was delivered in February of 2012.

The future

The successful collaboration has extended its reach. The CNFLRI Steering Committee determined that there was a need to take the recommendations that they produced for the CNF and scale them down to the watershed level. So, they created the Watershed Team, a subset of Committee members whose goals include developing watershed-scale restoration recommendations and providing a model process that the Forest Service may use for future restoration planning and implementation. In January 2013, the recommendations to the Forest Service for the Paint Creek Watershed were delivered. Most recently, the Committee agreed to provide recommendations on all the remaining watersheds for the North Zone of the CNF, and to assist with monitoring and adaptive management for restoration efforts.

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[1] **LANDSCAPE CONSERVATION FORECASTING** process

1. Identify target systems
2. Understand and model how the target systems work now and in the future
3. Define reference (desired) conditions
4. Describe the current landscape (maps)
5. Add "activities"(amounts, success rates, costs, budget limitations) that the systems model
6. Compare the managed landscape to the desired landscape and measure the difference
7. Repeat for different combinations of activities, and identify the one that moves the project closest to the goal per dollar.

[2] **LANDFIRE PROGRAM/MODELS AND DATA**

The Landscape Fire and Resource Management Planning Tools Project – **LANDFIRE** – is an innovative project designed to **create and periodically update comprehensive vegetation, fire and fuel characteristics data** using a consistent process for the United States, including Alaska and Hawai'i. LANDFIRE developed **quantitative vegetation models** and **comprehensive ecological descriptions** for all major vegetation systems in the US, and **a suite of GIS tools** that help landscape and resource managers make the most of these powerful products.

[3]CNF Steering Committee process, stakeholders

1. Localized LANDFIRE VDDT models for target systems and developed reference conditions for departure calculation.
2. Used Steve Simon's Ecozones as the landscape spatial framework and cross-walked to LANDFIRE BpS. (Simon, Steven A.; Collins, Thomas K.; Kauffman, Gary L.; McNab, W. Henry; Ulrey, Christopher J. 2005."Ecological Zones in the Southern Appalachians; First Approximation." *Res. Pap. SRS-41.* Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 41pp.)
3. Combined local data (vegetation type and size class) with LANDFIRE canopy cover to characterize current landscape condition.
4. Computed the current departure.
5. Added management options, costs, and success rates to the reference condition model.
6. Ran and reran the management models with various combinations of activities over the planning horizon, computing the departure and accumulating the costs.
7. For each run, computed the departure at the end of the planning horizon. Went again with another set of management activities/budgets.
8. Computed improvements and identified the activity suite(s) with the best results.

Project Contact:
Katherine Medlock
East Tennessee Program Director
(865) 546-5998
The Nature Conservancy
625 Market St., Suite 1201
Knoxville, TN 37902

LANDFIRE Contact:
Jeannie Patton
LANDFIRE Communications Lead
(303) 541-0378
The Nature Conservancy
2424 Spruce Street
Boulder, CO 80302