Conservation Finance & The Monongahela National Forest

Recommendations from Conservation Finance Site Visit Workshop held July, 2018

The National Forest Foundation

USDA Forest Service

The Conservation Finance Network

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The Conservation Finance Network advances land and resource conservation by expanding the use of innovative and effective funding and financing strategies. By supporting a growing network of public, private, and nonprofit professionals, CFN helps to increase the financial resources deployed for conservation. For more information, please visit www.conservationfinancenetwork.org.

The National Forest Foundation, chartered by Congress, engages Americans in community-based and national programs that promote the health and public enjoyment of the 193-million-acre National Forest System, and administers private gifts of funds and land for the benefit of the National Forests. For more information, please visit https://www.nationalforests.org/.

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Acronyms

AFHA: Appalachian Forest Heritage Area
ARC: Appalachian Regional Commission
ARC POWER: Appalachian Regional Commission Partnerships for Opportunity and Workforce and Economic Revitalization
CE: Categorical Exclusion (under NEPA)
CFN: Conservation Finance Network
CLN: Conservation Leadership Network
CSR: Corporate Social Responsibility (see page 32 for description)
DOD: Department of Defense
EA: Environmental Assessment (under NEPA)
EPA: Environmental Protection Agency
ERFO: The Emergency Relief for Federally Owned Roads Program (see page 41 for description)
FEMA: Federal Emergency Management Agency
IMBA: International Mountain Bicycling Association
ILF: In lieu fee mitigation (see page 37 for description)
MNF: Monongahela National Forest
NCIFund: Natural Capital Investment Fund
NEPA: National Environmental Policy Act
NFF: National Forest Foundation
NRCS: Natural Resources Conservation Service
OSMRE: Office of Surface Mining Reclamation and Enforcement
PFS: Pay for success (see page 26 for description)
PRI: Program Related Investment (see page 37 for description)
PRM: Permittee Responsible Mitigation (see page 26 for description)
REDI: Downtown Appalachia Redevelopment Initiative
ROI: Return on investment
SWOT: Strengths, weaknesses, opportunities, and threats analysis
TIMO: Timber investment management organization
TNC: The Nature Conservancy
TU: Trout Unlimited
USFS: United States Forest Service
USDA: United States Department of Agriculture
WVU: West Virginia University
WV DEP: West Virginia Department of Environmental Protection
USFWS: United States Fish and Wildlife Service

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Summary of Workshop Recommendations

This report summarizes recommendations from a workshop that explored the potential for funding and financing strategies to help address management priorities on the Monongahela National Forest (MNF).

Vision for Sustainable Recreation and Tourism Economy: The MNF wishes to provide a spectrum of recreation opportunities on public lands with connectivity and benefits to adjacent communities.

Recommendation: Build the recreation economy and expand the base of beneficiaries, voluntary surcharge partners, and potential 'payors' by advancing and contributing to partnered efforts for the Mon Forest Towns gateway community initiative and entrepreneurship development activity. Leverage the new voluntary surcharge with Snowshoe Mountain Resort as well as the NCIFund and Woodland Community Lenders' partnered efforts on the Downtown Appalachia Redevelopment (REDI) Loan Fund and "Mon Forest Recreational Economies Initiative," respectively.

A. Contribute leadership and support to the Mon Forest Towns, including governance, plans, and products.
B. Align with and assist entrepreneurship and business development among Mon Forest Towns by contributing to and leveraging resources and technical assistance from the NCIFund's Downtown Appalachia Redevelopment (REDI) Loan Fund and Woodlands Community Lenders' "Mon Forest Recreational Economies Initiative."
C. Operationalize the voluntary surcharge program and expand beyond initial participants to drive community engagement, business partnerships, and new funding to support the recreation economy.
D. Establish the business case for investing in an International Mountain Biking Association (IMBA) Gold Status ride center partnership between Snowshoe Mountain Resort and the MNF as a driver of the recreation economy.
E. Increase MNF capacity for community engagement and management of this effort, build relationships, determine priorities, and find efficiency across recommendations for long term success.

Vision for Mineland Restoration: The MNF wishes to use conservation finance tools to support mineland restoration activities that enhance critical wildlife habitat and improve resilience of watersheds in and around the National Forest with an emphasis on the red spruce ecosystem.

Local Recommendation: Develop and implement a mineland restoration strategy for the MNF which demonstrates success locally by ramping up ongoing restoration of red spruce and former red spruce ecosystems on public and priority adjacent private lands while strategically growing funding and capacity.

Regional Recommendation: Create a collaborative, multi-forest implementation vision that addresses landscape-scale mineland restoration needs across the Monongahela, Wayne, Allegheny, George Washington and Jefferson, and Daniel Boone National Forests. Include priority adjacent federal, state, and private lands where possible.

Vision for Watershed Enhancement & Riparian Restoration: The MNF wishes to use conservation finance tools to support watershed management and restoration activities that enhance critical source watersheds, improve resilience, and restore soil quality, wetlands, streams, and habitat resources.

Recommendation A: Develop a watershed enhancement and riparian restoration strategy for public and private lands in a large multi-county portion of MNF for avoided costs related to hydrologic system regulation, including flood risk reduction, drought abatement, and potential revenue related to water quality and/or trout habitat enhancement. Explore opportunities for funding and upfront financing (e.g. public and private grants, water fund, pay for success, etc.) to accelerate restoration efforts and implement accordingly.

Recommendation B: Consider opportunities for conservation banking and third-party restoration through compensatory mitigation to accelerate on-forest restoration and land protection. Utilize special use permit negotiations to reinforce the mitigation hierarchy of avoid, minimize, restore, and compensate for impacts to regulated *and* non-regulated aquatic and habitat resources.

Recommendation C: Coordinate with the Natural Resources Conservation Service (NRCS) on watershed restoration planning projects to ensure that both agencies' efforts are maximized by addressing private land restoration and USFS land restoration in tandem.

Context and Methodology

Purpose and Objective

The scale of financial need for National Forest and adjacent private lands management has outpaced public funding, appropriations, and traditional philanthropic funding models. This gap has widened, especially as land values, deferred maintenance, and patterns of degradation have increased. Conservation finance offers vitally important ways to leverage financial resources to address management priorities, meet community engagement goals, and advance the USFS mission.

In this context, the U.S. Forest Service (USFS), National Forest Foundation (NFF), and the Conservation Finance Network (CFN) hosted the Monongahela National Forest (MNF) Conservation Finance Technical Assistance Workshop from July 10-12, 2018, to explore how alternative funding and financing strategies could address forest management goals, challenges, and opportunities. The objectives of this three-day workshop were to bring together USFS staff with external stakeholders and experts to evaluate how various conservation finance strategies could be applied on the National Forest, build a case for strategies that show potential, and brainstorm how these strategies could be implemented.

Why the MNF

This workshop was one of two solicited by USFS, conducted on the MNF and Santa Fe National Forest. The MNF was well-positioned to host one of these workshops because its leadership and staff recognized the need to accelerate restoration, enhance community resilience, and diversify funding sources for their work within their region. MNF leadership showed willingness to explore innovative opportunities and use an ecosystem service frame to support management decisions.

Management Opportunities

The MNF identified three major management priorities for which to brainstorm conservation finance strategies at the workshop:

1. Sustainable recreation infrastructure
2. Mineland restoration
3. Watershed enhancement and riparian restoration

The MNF outlined the specific management needs for each priority and the funding gaps for each management need (see Summary of Workshop Discussion in Days 1, 2, and 3). The MNF chose these three priorities in part because they determined the management needs for each were present across the Forest at a scale that may attract private investment. The MNF also determined that addressing these management needs has the potential to deliver multiple ecological, social, and financial benefits to both the MNF and communities in the surrounding region.

This information was provided to participants ahead of the workshop to inform discussions on the applicability of different conservation finance strategies that could potentially meet the MNF's financial and management needs.

Workshop Methodology

Upon designating these three management priorities as focus areas for each day of the workshop, the MNF formed an internal Landing Team to identify the capacity needs and implementation challenges for each topic that could inform the workshop discussions. The Landing Team also planned site visits for each day of the workshop to showcase USFS projects that demonstrated key successes, challenges, partnerships, or the potential for application of external funding (Appendix G).

An Advisory Group was formed to assist in identifying relevant conservation financing and funding strategies for these management needs (Appendix H). The chosen strategies are outlined in Appendices A, C, and E. Workshop attendees were recruited to include local partners and national experts working to implement similar strategies in and around the MNF or similar contexts.

Each day, experts presented conservation funding and financing strategies and enabling conditions relevant to that management priority. By doing so, workshop discussions could assess whether certain enabling conditions were present on the MNF. From these discussions, workshop participants identified which strategies seemed most applicable to the MNF's context and brainstormed potential next steps.

Discussions were conducted under Chatham House Rules, meaning participants were free to use information from the workshop without attribution unless permission was otherwise granted.

Report Methodology

Following the workshop, USFS, NFF, and CFN drafted recommendations for each management opportunity. CFN conducted a series of interviews to test these recommendations with USFS Landing Team members and select partners and experts (Appendix J). These interviews helped to refine the recommendations, hone in on next steps, and identify potential resources, partners, case studies, and further context to aid in implementation. USFS, NFF, and CFN then finalized recommendations, next steps, and additional resources, partners, and context for this report.

How to Use This Report

This report is divided into three sections, each of which focuses on one MNF management priority discussed at the workshop. The recommendations provide initial thinking for how conservation funding and financing strategies may be applied, and suggested next steps provide a roadmap for short, medium, and long-term actions that can be coordinated by the MNF and its partners. The report also contains guidance on resources, partners, and other considerations relevant to potential project implementations. This report is intended to help guide the MNF and partners through near-term planning and prioritization processes and the pursuit of conservation funding and financing strategies.

Day 1: Sustainable Recreation and Tourism Economy

Summary of Topic

Vision

The MNF wishes to provide a spectrum of recreation opportunities on public lands with connectivity and benefits to adjacent communities.

Goal Outcomes

The goal for this topic session was to explore how conservation finance mechanisms can support a thriving recreation-based tourism economy through sustainable infrastructure development on USFS and adjacent lands, including improvements to a network of mountain biking trails that will help secure an International Mountain Bicycling Association (IMBA) Gold Status Ride Center designation.

Summary of Workshop Discussion

Issue Profile

Over the past several years, the MNF federal allocation for the recreation budget has consistently fallen. Consequently, all but $40,000 in annual recreation fees are being diverted to cover basic necessities, creating a growing backlog of $2,500,000 in deferred maintenance. Recreation priorities in need of funding include $243,500 in trailhead improvements, $1 million to diversify trail offerings, $313,000 in construction for scenic overlooks, and $766,000 in maintenance and upgrades of existing facilities. In spite of these funding restrictions, the MNF is well positioned to support the growth of the sustainable recreation economy for the region.

Introduction to the Recommendations

During workshop discussions, participants highlighted that a voluntary surcharge program was a viable funding mechanism.[1] Engaging with entrepreneurship development efforts and leveraging Mon Forest Towns were also opportunities that dovetailed with the vision, goals, and management needs of the MNF.[2] Advancing these efforts can build capacity for potential financial approaches like Pay for Success (PFS).[3]

While the recommendations are targeted to the MNF, many of these efforts involve diverse, dynamic partnerships and should be considered in that context. For example, while the Mon Forest Towns steering committee includes MNF, it is assumed that all relevant actions would be done in coordination with Mon Forest Towns partners. These recommendations are meant to describe a role for MNF in supporting the development and growth of a regional recreation economy, including specific recreational assets on the MNF that are directly linked to community and business priorities for entrepreneurship development and recreational use.

Recommendation

Summary: Build the recreation economy and expand the base of beneficiaries, voluntary surcharge partners, and potential ‘payors’ by advancing and contributing to partnered efforts for the Mon Forest Towns gateway community initiative and entrepreneurship development activity. Leverage the new voluntary surcharge with Snowshoe Mountain Resort as well as the Natural Capital Investment Fund (NCIFund) and Woodland Community Lenders’ partnered efforts on the Downtown Appalachia Redevelopment (REDI) Loan Fund and Mon Forest Recreational Economies Initiative, respectively.

Recommendation A: MNF should contribute leadership and support to the Mon Forest Towns, including governance, plans, and products.

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[1] See “Voluntary Surcharge,” page 27.

[2] See “Operating Loans for Community Development,” page 27; and “Gateway Community Engagement,” page 27.

[3] See “Pay for Success,” page 26.

Suggested Next Steps & Indicators of Success	
Short Term	• Assist with the creation of the governance structure and shared vision or strategic plan. • Showcase progress and a vision of success at a proposed Mon Forest Towns summit in spring 2019.
Medium Term	• Create a shared marketing strategy and regional outreach materials that help connect communities to their recreation assets (e.g. A Mon Forest Towns brochure template for each town to customize with trail maps). • Develop and manage recreational assets that are determined to be a priority for community and businesses to support economic development opportunities. • Engage with local recreational businesses and related entities that rely on MNF resources to support priorities for business sustainability and expansion.
Long Term	• Participate regularly in the governance body. • Assist in implementing the shared vision or strategic plan.
Indicators of success	• The number of thriving businesses in the downtown of each Mon Forest Town. • The annual percentage increase in guided outdoor recreation tours. • Launch of shared 'Mon Forest Towns' website, signage, brochure, and advertisement. • The number of improved and/or stewarded recreational assets on the MNF. • Increase in median income and/or employment in Mon Forest Towns.

Discussion on Recommendation A

The MNF is already deeply engaged with Mon Forest Towns. According to West Virginia University (WVU) Extension Service, in 2017 the MNF partnered with WVU, USDA Rural Development, and local stakeholders to begin the process of bringing diverse stakeholders together to create a shared recreation vision for each county and the greater region surrounding the MNF. The vision of Mon Forest Towns, which grew out of these meetings, is to help community stakeholders invest in a shared recreation resource to generate positive and tangible outcomes for the social, ecological, and economic health and vitality of the region.[4]

A 2019 Mon Forest Towns summit can provide an opportunity to ground the momentum of this initiative with a shared vision and work plan for a regional marketing strategy and other outputs. MNF should use the summit to demonstrate initial success. This idea is an existing component of the Mon Forest Town initiative and can help communities connect to surrounding trails or other recreation assets, especially among communities that consider the trail system distant or disconnected. The MNF should leverage existing efforts to improve connections between communities and trail systems, such as recreation asset mapping being developed by WVU and information from community meetings that indicate the state of each Mon Forest Town's priority projects.[5]

Recommendation B: Align with and assist entrepreneurship and business development among Mon Forest Towns by contributing to and leveraging resources and technical assistance from the NCIFund's REDI Loan Fund and Woodlands Community Lenders' "Mon Forest Recreational Economies Initiative."

Suggested Next Steps and Indicators of Success

[4] For more information, see "Mon Forest Towns" at https://extension.wvu.edu.
[5] See "C&O Canal Towns" case study, page 28.

Short Term	• Meet with representatives from both organizations to build awareness of available capacity and technical assistance. • Collaborate on and help inform the groups' upcoming study and market demand analysis for recreation asset-based businesses.
Medium Term	• Explore the need for or interest in a Mon Forest Towns entrepreneurship working group to connect resources and technical assistance with businesses, outfitters, and guides focused on compatible recreation. • Provide guidance to streamline outfitter and guide business development, including information to help discover on-forest opportunities, to navigate the permitting process, and to determine growing needs.
Indicators of Success	• The annual number or percentage increase in: ○ The number of outfitters and guides permitted to operate on-forest ○ Guided tours and trips on-forest ○ Visitation to the forest from Mon Forest Towns ○ Overnight stays in Mon Forest Towns ○ Stewardship and/or improvement of recreational assets on the MNF and connections to surrounding towns

Discussion on Recommendation B

NCIFund and Woodlands Community Lenders are partnering on a new business development initiative with the goal of fully capitalizing on the MNF region's natural and cultural assets, providing technical assistance and access to capital for related business startups and expansion. Time and resources contributed to the market demand analysis for asset-based business development would provide strategic direction to the development of business opportunities that would most benefit MNF's recreation economy goals.

Additionally, guidance from MNF could support increased business development opportunities for outfitters and guides. By streamlining and sharing information on recreation opportunities on-Forest, MNF could assist prospective outfitters and guides with starting businesses and navigating the permitting process. Such actions could help outfitters and guides understand a more extensive range of on-forest recreation activities and ultimately introduce more visitors to the MNF. This could also provide a mechanism for expanding and diversifying the voluntary surcharge program (see Recommendation C) while increasing the base of forest beneficiaries or potential 'payors' for mechanisms like PFS.

> *"USFS has been steering the ship, but no one is fully in the driver's seat. Communities are still feeling out what their role will be. [They] need the spark for how to be an entrepreneur and think more broadly on what the occupational opportunities are." — USFS*

Recommendation C: Operationalize the voluntary surcharge program and expand beyond initial participants to drive community engagement, business partnerships, and new funding to support the recreation economy.

Suggested Next Steps and Indicators of Success	
Short Term	• Determine and communicate the priority use of funds and geographic allocation of funds (e.g. where collected vs. priority/need), and who will participate in the decision-making process. • Craft clear communication for the customer interface at the point of collection to communicate benefits, describe the use of funds, and bolster participation.

Medium Term	• Conduct prospect research and outreach to potential partners for the expansion of the voluntary surcharge program, including the following:
	  ○ Canaan Valley Resort
	  ○ Timberline Four Seasons Resort
	  ○ White Grass
	  ○ The Greenbrier
	  ○ Local Breweries throughout Mon Forest Towns
	  ○ Lodges in Tucker County state parks
	  ○ Railway tourism
	  ○ County Visitors Bureau
	• Encourage local entities to explore partnership opportunities and pool resources (e.g. County Visitors Bureaus and Planning Districts)

Long Term	• Collaborate with the Mon Forest Towns' County Visitor Bureaus to incorporate municipal tax revenue. • Collaborate with successful participants of the Mon Town entrepreneurship/business working group to expand the base of payors. • Consider opportunities to leverage the consistent funding stream from the voluntary surcharge for financing opportunities for recreation infrastructure improvements. • Consider development of a Mon Forest Town certification to designate businesses contributing to the recreation economy.
Indicators of Success	• Publish a list of proposed projects for FY19-20 based on the priority use and geographic allocation of funds. • The number of businesses enrolled in the voluntary surcharge program. • The diversity of businesses enrolled in the voluntary surcharge program. • The annual percentage increase in funds raised through the voluntary surcharge program.

Discussion on for Recommendation C

Currently, visitation across the 10-county region is low and widely dispersed, making it challenging to collect substantial project funding from a voluntary surcharge program. Expanding the program in a meaningful way will be dependent on the establishment of a more robust recreation economy. Growth of the program will also require transparency in the prioritization and geographic allocation of funds across multiple collection points. Determining and communicating this at the onset of the program will create a strong foundation from which to recruit additional partners. Failure to communicate effectively with customers at the point of collection will likely reduce participation.

Due to the modest size of funds expected from current visitation and in consideration of fundraising success associated with entrepreneurship and business development efforts, MNF recreation improvements such as trail maintenance and development should be strongly considered for the use and geographic allocation of funds. The MNF Recreation Vision completed in 2017 could serve as a useful guide when determining these priorities.[6]

Recommendation D: Establish the business case for investing in an IMBA Gold Status ride center partnership between Snowshoe Mountain Resort and the MNF as a driver of the recreation economy.

[6] See "National Forest Foundation Ski Conservation Fund" case study, page 27.

Suggested Next Steps and Indicators of Success	
Short Term	• Determine the potential social and economic return on investment of an IMBA Gold Status ride center across MNF and Snowshoe Mountain Resort. Involve IMBA or otherwise draw upon its existing resources and comparable analysis. • Consider grant funding to support Pocahontas County's exploration of an elevated IMBA ride center designation (e.g. an ARC POWER planning grant). • Send MNF representative(s) and community partner representatives to IMBA Trail Labs in Bentonville, AR (i.e. two-day intensive community trail system workshops that cover planning, design, promotion and measuring success). • Build and strengthen relationships with bike-related clubs, outfitters, and retailers.
Medium Term	• Connect adjacent communities to the trail system. Explore the potential for purpose-built trails to increase downtown visitation and spending (e.g. a bike trail connection in Marlinton). • Consider a site visit to Wayne National Forest to generate ideas and exchange lessons learned with PFS. • Invest in high-quality regional trail maps, both print and digital (e.g. through apps such as Trailforks, MTB Project, etc.) to showcase trails and recreation assets.
Long Term	• Explore the potential to finance trail improvements and elevate the IMBA designation from bronze to silver or gold using mechanisms like operating loans or PFS.
Indicators of Success	• The percentage increase in visitation associated with mountain biking. • The percentage increase in mountain bike rentals and lift tickets sold by Snowshoe Mountain Resort.

Discussion on for Recommendation D

The Pocahontas County Convention and Visitor's Bureau, Snowshoe Mountain Resort, the MNF, and others partnered to submit an application to IMBA, which the partners anticipate will result in a bronze designation. This would increase acclaim for the destination and significantly raise its profile among the international mountain biking community. Improving the IMBA rating to silver or gold will bring even larger opportunities for growth. It will also require greater diversity of trails, improved trail infrastructure, and enhanced amenities ranging from guide services to bike shops and breweries. Snowshoe Mountain Resort may already be planning capital expenditures in their gravity park and trail system, which will add leverage to any MNF or linked trail improvements.

Connecting communities to the trail system aligns closely with Mon Forest Town goals and is an important aspect of community economic development opportunities and business development. Purpose built trails like those in the Snowshoe Mountain Resort gravity park (i.e. trails designed to maximize and maintain flow) are the most popular among the mountain bike community and would contribute significantly to a higher category IMBA designation.

There was interest among participants in learning more about the Wayne National Forest pilot program,[7] especially considering the relevance to MNF goals. Though Snowshoe Mountain Resort might opt to fund improvements with capital expenditures, PFS financing could be an attractive option for the MNF. Once the Wayne National Forest project is further into its implementation, a site visit would help determine whether replication is possible.

Recommendation E: Increase MNF capacity for community engagement and management of this effort, build relationships, determine priorities, and find efficiency across recommendations for long term success.

[7] See "Wayne National Forest & Bailey's Trail System Pay for Success Project" case study, page 29.

Timeline of Next Steps and Indicators of Success	
Short Term	• Meet with Impact Appalachia and explore process for joining the community advisory group or otherwise influencing priority focus areas. • Send MNF representative(s) to a USFS Conservation Finance Workshop (tentatively planned for 2020). • Partner with Mon Forest Towns to build teams to attend the annual the Balancing Nature and Commerce Workshops or Appalachian Gateway Community Workshops held by the Conservation Leadership Network. • Summarize and disseminate information about relevant funding opportunities, needs or eligibility requirements, and how to apply.
Medium Term	• Increase capacity through volunteerism, such as coordinating with WVU on their effort to establish a formal volunteer program and exploring the potential for a “destination volunteerism” program. • Secure new positions that are either housed with the MNF or partner organizations to focus wholly on partnerships and collaborations related to conservation finance. • Inventory partner capacity and existing relationships to better understand the basis for efficient and effective community engagement.

Long Term	• Develop relationships with funders and investors, including the following:
	  o Department of Commerce, Economic Development Administration (e.g. Assistance to Coal Communities program)
	  o Tucker County Community Foundation
	  o Philanthropy WV
	  o Woodlands Community Lenders & NCIFund
	  o Benedum Foundation
	  o Impact Appalachia
	  o Appalachian Funders Network

Indicators of Success	• Total amount of philanthropic funding leveraged by USFS and partners for sustainable recreation over 5 years. • Number of funding partners engaged through strategic initiatives and/or formal partnership agreements. • Number of staff in MNF and key partners with formal conservation finance partnership training and related job titles. • Increased volunteers engaged in trail stewardship.

Discussion on for Recommendation E

Regarding USFS capacity, participants noted that the MNF is most experienced working with small volunteer groups. Scaling volunteerism across MNF efforts will represent a new undertaking for MNF staff. There was strong interest in hiring or dedicating USFS personnel to focus wholly on partnerships and community engagement. It was noted that without strategic capacity growth, the momentum of these initiatives will continue to overrun existing MNF capacity and slow down or otherwise hinder partners and progress.

Many of the same individuals, community organizations, and partners will be involved in multiple ongoing efforts. Better coordination with partners and organizations already engaged in surrounding communities could extend MNF’s limited capacity and enable more beneficial and efficient outcomes. This could include combining meetings and governance structures. More broadly, it is important to consider ways to help improve the external capacity of partners. Though not the responsibility of MNF, these individuals and organizations will play a critical role in garnering investment in the development and management of recreational assets and connections across communities.

Building relationships with funders and investors could also benefit multiple project outcomes across recommendations, though it is vital that it be done in tandem with community partners. For example, over the past two years, the Appalachia Funders Network and Central Appalachia Network have worked to develop a blended platform to help the region ready itself and increase capacity for impact investment. When launched, this blended fund will raise and deploy grant capital, loan loss reserves, and other credit enhancement tools to attract additional investment with concessionary returns. Though they are subject to change, the emerging impact fund's four focus areas include place-based development, clean energy, food and agriculture, and community health. By joining the community advisory group or otherwise engaging with this initiative, it is possible that the use of funds could be aligned with the funding and financing needs of the MNF.

Relationships could also be built or strengthened with organizations like the Tucker Community Foundation, which (despite the name) services the ten county Mon Forest Towns region and may be exploring how to use their assets more creatively.

> *"Demystifying these funding streams and technical assistance efforts would help the MNF effort. How do we unpack the funding and create talking points to explain what's going on and help people get excited?"*
>
> *— USFS*

Key Partners

Partners already engaged in aspects of these recommendations include NFF, The Conservation Fund's Conservation Leadership Network (e.g. Gateway Communities program) and the NCIFund. There are also numerous partners signed on to the Mon Forest Towns. In addition, Snowshoe Mountain Resort is partnered with MNF on mountain biking trail development and NFF on the voluntary surcharge program. The Pocahontas County Visitors Bureau is actively involved in advancing asset-based tourism in the county.

Potential partners that could advance elements of the recommendations include direct partners like Quantified Ventures, Appalachian Forest Heritage Area (AFHA), and the West Virginia State Tourism office. Others that are or could be engaged as partners or technical assistance providers include the West Virginia Community Development Hub, "The Hub," which is already working with gateway communities like Richwood, as well as WVU's Tourism Development Program, WVU extension, and West Virginia Hive.

Day 2: Mineland Restoration

Summary of Topic

Vision

The MNF wishes to use conservation finance tools to support mineland restoration activities that enhance critical wildlife habitat and improve resilience of watersheds in and around the National Forest with an emphasis on the red spruce ecosystem.

Session Goals

The goal for this topic session was to explore financial mechanisms to restore approximately 25,000 acres of degraded mine lands on and adjacent to the MNF and reestablish important ecosystems such as red spruce forests that will provide wildlife habitat and improve watershed function.

Summary of Workshop Discussion

Issue Profile

The long term ecological state of former minelands have significant negative impacts on the health and utility of forested landscapes in critical high elevation habitats. These impacts include the inability of the soil to retain water to the extent that the headwaters spruce forests there once did and limited growth of vegetation and ecological development. There are over one million acres of former minelands in Appalachia, 25,000 acres of which were red spruce habitat in WV, that require work to de-compact the soil following mining and post-mining activities to allow for natural succession through afforestation of native species including red spruce, aspen, and other high elevation species. There are an estimated 2,000 acres of mineland restoration needed on MNF lands with more acreage on adjacent private landscapes within the proclamation boundary of the MNF. At a cost of $2,000 an acre, the MNF would need approximately $4,000,000 in funds to treat the National Forest land alone. Restoring these legally reclaimed and abandon minelands helps to reconnect the high elevation corridor for the red spruce ecosystem and its associated wildlife species. This landscape level restoration addresses the health and resiliency of the headwaters for millions of citizens.

Introduction to the Recommendations

The MNF has a strong interest in prioritizing the current slate of on-Forest mineland restoration projects for red spruce viable sites before expanding to non-red spruce viable sites and adjacent private lands with non-forested minelands. In tandem, it is strategic to begin shaping a shared assessment of needs, funding opportunities, and a capacity growth strategy across multiple National Forests in Appalachia. A regional vision to expand the current pace and scale of mineland restoration efforts could attract private investment capital.

Workshop participants agreed that next steps for mineland restoration would require public and philanthropic support.[8] Discussion suggested that financing strategies are not relevant or viable at the MNF level due to a variety of factors like the scale of acreage or the estimated lengthy payback period of revenue generating activities on restored land (e.g. timber harvesting).[9] For example, while the workshop explored operating loans and bridge financing,[10] this approach did not resonate with participants due to the extended time horizon of potential returns. Participants did acknowledge that markets for carbon credit offsets or other ecosystem services may have potential to generate returns earlier in the process.[11]

Local Recommendation

Develop and implement a mineland restoration strategy for the MNF which demonstrates success locally by ramping up ongoing restoration of red spruce and former red spruce ecosystems on public and priority adjacent private lands while strategically growing funding and capacity.

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[8] See "Scaling Philanthropy and Public Funding – Corporate Social Responsibility," page 33.

[9] See "Forest Resilience Bond," page 31; and "Revenue-generating Land Use," page 32.

[10] See "State Revolving Loan Funds for Clean Water," page 32.

[11] See "Voluntary Carbon" and "Regulatory Carbon," page 31.

Regional: Create a collaborative, multi-forest implementation vision that addresses landscape-scale mineland restoration needs across the Monongahela, Wayne, Allegheny, George Washington and Jefferson, and Daniel Boone National Forests. Include priority adjacent federal, state, and private lands where possible.

Local Recommendation:

Timeline of Next Steps and Indicators of Success	
Short Term	• Map all mineland restoration needs on MNF and priority adjacent private lands. Assess total acreage, potential costs, NEPA status, and key benefits. • Create a funding and implementation plan that prioritizes red spruce viable over non-red spruce viable projects and on-forest over private land projects. • Accelerate NEPA on priority project acreage. • Identify project areas on priority adjacent private land that are suitable for spruce restoration and determine landownership in other potential priority areas. • Assess and prioritize capacity limitations and bottlenecks (e.g. nursery capacity, consensus on spruce variety and geographic sourcing, private landowner identification, etc.) and potential solutions. • Develop education and outreach briefing materials (e.g. brochures and presentations) that highlight existing efforts, outcomes, and needs. • Explore where and how local volunteerism could be increased.
Medium Term	• Identify potential public and philanthropic funding sources. • Secure funding for the Mower Tract and Sharps Knob restoration projects. Consider inclusion of priority adjacent private lands in project implementation. • Work with a partner to conduct a market demand analysis for native tree seedlings and SWOT analysis for potential USFS, private, or community-based nursery solutions. • Explore the potential for operating loans from NCIFund, Woodlands Community Lenders, the Benedum Foundation, and USDA Rural Development Small Business Funding and Grant Program Financing Opportunities.
Long Term	• Complete the Mower Tract and Sharps Knob projects. • Conduct an analysis of revenue generating activities to explore the potential for generating a return from management activities and pursuing financing.
Indicators of Success	• The annual percentage increase in acres of mineland restored on the MNF, including planting and site preparation. • The number of annual volunteer hours contributed to mineland restoration activities. • The annual number contracts let, jobs created, and other relevant economic development metrics.

Discussion on the Local Recommendation

To attract and maintain sustained funding and partner engagement for multi-year projects on the MNF, having Environmental Assessments (EA) completed as early as possible is important.

Mapping mineland in need of restoration is a precondition to understanding the need for native tree seedlings and to identifying viable funders. Mapping can inform a proposed market demand analysis, which will help to determine the most financially viable strategy for sustaining or increasing seedling supply (e.g. USFS nurseries, private nurseries, or community-based efforts like backyard tree planting). It is important that the USFS and its partners have consensus on the species and genome (i.e. local vs. non-local, especially for red spruce), as these decisions will affect seed collection, seedling sourcing, and associated business development opportunities.[12]

The MNF and its partners will need to engage private landowners in restoration efforts (e.g. land-holding companies, timber investment management organizations, individuals, etc.) to achieve true landscape-level impact with mineland restoration. The MNF can draw from existing information like WV DEP and TNC maps to better understand private land restoration needs. The MNF and its partners face many challenges in working across mixed land ownership and identifying landownership on priority parcels. This is partly due to discrepancies in ownership rights, outdated landowner maps, outstanding tax obligations, and a lack of post-mining land surveys that clarify boundaries where mining activities shifted the natural features previously used for demarcating property lines. Expectations of private land restoration targets should account for the challenges of landowner outreach.

"This has to be an integrated effort amongst all these USFS units. There is already momentum with these projects, and we need more of a follow the leader effect." — Nonprofit Partner

Regional Recommendation:

Timeline of Next Steps and Indicators of Success	
Short Term	• Explore how a multi-forest implementation vision may dovetail with the OSMRE Appalachian Regional Reforestation Initiative. • Form a working group with representatives from the USFS Washington Office, each regional National Forest, and key partners, stakeholders, potential funders, and appropriate state and federal agencies to coordinate and collaborate on all aspects of the recommendation. • Aggregate available mapping and information on mineland in need of restoration across forests including watershed condition frameworks, WV DEP and TNC mapping, and other assessments where applicable. This would include each state's applicable mapping and corresponding agency data. • Assess the status of mineland restoration needs by identifying suitable land, current project implementation, limitations, the status and difficulty of getting a NEPA environmental assessment in each area, and funding gaps. • Review and share lessons learned from restoration efforts across National Forests.
Medium Term	• Develop a multi-forest implementation vision. • Determine and prioritize NEPA EA needs on key National Forest parcels and begin execution to prepare projects for funding and implementation.

Long Term	• Inventory, prioritize, and pursue potential funding and financing opportunities:
	  ○ Inventory and prioritize potential funding sources across geographies and interests (e.g. job creation) including corporate philanthropy, foundation support, and state and federal grants.
	  ○ Determine engagement strategies and partners or contacts who could help to pursue these funds.
	  ○ Contribute to the USFWS effort to revive the Mid Atlantic Highlands Program, a potential large source of federal funds.
	  ○ Explore the potential for financing by assessing which land management or restoration activities might generate a return.

[12] See "Additional Resources: Sourcing Native Seedlings," page 34.

Indicators of Success	• Consistent meetings with the working group and National Forests. • The number of NEPA-approved acres and project sites on National Forest together with the number of connected projects on private lands.

Discussion on the Regional Recommendation

Given that this will be an expansive multi-year effort involving many partners, agencies, and funders, it may be useful to structure this like a campaign, building support and commitment along the way. A steering team could lead the overall strategic direction, and a broader working group could advance the implementation vision and foster ongoing commitment and engagement across National Forests and adjacent private lands. To ensure continuity and sustain the effort over time, the leadership and management structure should include federal employees, foundation staff, or other persons not reliant on project-restricted funds to support their participation.

Interview respondents pointed to state funds as a potentially underutilized source of funding. They indicated the importance of engaging appropriate state officials with compelling stories and data to better access these funds, which would require building relationships and engagement strategies. Such efforts could be leveraged to direct state officials on how and where to prioritize restoration funding.

To aid with efficiency and funder engagement strategies, information on past funding successes and current priorities should be inventoried across agencies and entities with aligned objectives. For example, USFWS is working on a summary of DOI and USFWS funding sources for mineland restoration, and groups like TNC and The Conservation Fund regularly track the status of public and philanthropic funds (see breakout box below). It is also worth exploring how these efforts may dovetail with the Office of Surface Mining Reclamation and Enforcement (OSMRE) Appalachian Regional Reforestation Initiative.

Breakout Box: Public Funding for Privately Owned and Managed Lands

Agency	Source and Use of Funds	Project Application
NRCS	Regional Conservation Partnership Program	Restoration
EPA	Brownfields Program – Mine-Scarred Land Initiative	Restoration
OSMRE	Abandoned Mine Lands Program	Restoration; Acquisition
OSMRE	Abandoned Mine Land Reclamation Economic Development Pilot Program	Restoration; construction for economic development
USDA FSA	USDA Farm Service Agency loans or other potential sources of seed loans that could support planters and nurseries	Operations
DOI FWS	Section 6 endangered species land acquisition grants: northern flying squirrel and cheat mountain salamander (federally listed species) live in red spruce	Acquisition
	Neotropical Migratory Bird Conservation Act (NMBCA) Grants: Appalachian migratory bird flyway a priority.	Acquisition
	Land and Water Conservation Funding (LWCF)	Acquisition
DOD	Readiness and Environmental Protection Integration (REPI) program funds; if the land is within the priority area for a military installation	Acquisition; Restoration (to improve/provide habitat for

		a listed species that is being managed for on-installation)
Cross-Agency	Mid Atlantic Highlands Action Program (HAP)	

The consensus among participants was that more effort and strategy should be placed in communicating the regional importance of mineland restoration to private funders. Building awareness of the benefits of restoration among private funders will be critical for raising matching funds. NGOs will also need to leverage existing relationships with funders and potentially lead engagement efforts. Given the nuances of working with different private funders, a range of communication and engagement strategies should be considered. Specifically:

- Focusing on the potential of mineland restoration for long-term regional job creation is thought to resonate most strongly with local communities and funders. For example, the Benedum Foundation has an interest in the job creation and economic benefits related to mineland restoration.[13]
- Restoration projects can be attractive for corporations, especially as projects on public land provide both high visibility while also conveying the corporate's interest of promoting public benefit. While corporate partners can be a significant source of funding, these relationships can be challenging to build and maintain. This is due to their often one-off interest in funding restoration work, and their typical desire to focus on high-visibility geographies that are key to their customers' interests. Corporate philanthropy will likely be a short term source of support.[14]

"The fundraising component is completely missing right now. We've been lucky to stumble into money from interested people, but if we're going to scale up we need a concerted effort to go out and meet with people to talk about benefits of reforestation." — Nonprofit Partner

Key Partners:

To date, Green Forests Work has been a close partner to the MNF in mineland restoration efforts. Other partners already engaged in aspects of these recommendations include TNC, OSMRE, and NFF. Of note, American Rivers funded early phases of mineland restoration on the Mower Tract with EPA funds.

Key partners for the regional strategy will be best determined by the working group. Potential additional partners with an interest or ability to assist with these recommendations may include state and federal agencies like the USFWS and EPA, organizations like Appalachian Headwaters who have previously partnered with Green Forests Work, The Conservation Fund, and Downstream Strategies.

"The biggest challenge will be getting the right people on board and keeping them interested. It's good to have mix of people doing applied work on the ground, but those tend to be the people who drop to the wayside pretty quickly if it looks like [the effort] is wasting their time." — USFWS

[13] See "The Nature Conservancy – Developing demonstration for mineland restoration and reuse" case study, page 34; and "Additional Resources: Appalachian Voices," page 35.
[14] See "Carbon Capital Fund – Angeles National Forest Project" case study, page 32.

Day 3: Watershed Enhancement & Riparian Restoration

Summary of Topic

Vision

The MNF wishes to use conservation finance tools to support watershed management and restoration activities that enhance critical source watersheds, improve resilience, and restore soil quality, wetlands, streams, and habitat resources.

Session Goals

The goal for this topic session was to enhance critical source watersheds through landscape scale approaches to drought and flood resilience, stream and wetland restoration, and riparian improvement activities.

Summary of Workshop Discussion

Issue Profile

Because of its location and containing the headwaters of many important rivers, the MNF has an enormous potential impact on several watersheds. Watershed-scale projects are expensive and often include culvert replacement, road decommissioning, and streambank stabilization. In the Elk River watershed alone, it would take an estimated $12,405,500 to restore severely degraded conditions. Yet, these projects increase overall watershed health and resilience. Because the location is so strategic for several major watersheds, projects in the MNF can have an impact far beyond the National Forest boundaries.

Further, flood risk reduction is a serious concern due to the topography of the region. The associated impacts of West Virginia's catastrophic flood event in 2016 included 23 deaths, over $300,000,000 in property damage, and is understood to have been exacerbated by poor watershed conditions. Replacing culverts and road crossings at risk of failure or in need of betterment could significantly reduce flood risk, with replacement costs ranging from $10,000 to over $250,000 per structure. Prioritizing at-risk structures and focusing on restoration at the watershed-scale increases the likelihood of economic and ecological return. For example, the upper Elk River contains 62 stream crossings. Replacing these crossings would significantly reduce flood impacts, with an estimated cost of $6,200,000.

Introduction to the Recommendations

Workshop explorations zeroed in on the opportunity for funding or upfront financing to restore hydrologic system regulation based on the significant cost savings potential of flood risk reduction. This was based on the approximate number of culverts and road crossings at risk of failure or in need of betterment and the current policy that funds their replacement but not their improvement, perpetuating impaired waterways and ongoing infrastructure failures.

Apart from an immediate potential opportunity for wetland and stream mitigation banking,[15] much of the discussion centered on the need for avoided cost analysis as the basis for pursuing any public and private funding or financing mechanisms for restoring hydrologic regulation.

> *"If I had to put a finger on one way to have substantial impact on flood risk in Appalachia, [properly sized culverts and road crossings] would be critical. It matters more in Appalachia because of our topography."*
>
> *— USFS*

Recommendation A

Strategy: Develop a watershed enhancement and riparian restoration strategy for public and private lands in a large multi-county portion of MNF for avoided costs related to hydrologic system regulation, including flood risk reduction, drought

[15] See "Wetland and Stream Restoration through Compensatory Mitigation," page 36.

abatement, and potential revenue related to water quality and/or trout habitat enhancement.[16] Explore opportunities for funding and upfront financing (e.g. public and private grants, water fund, PFS, etc.) to accelerate restoration efforts and implement accordingly**.**

Timeline of Next Steps and Indicators of Success	

Short Term	• Finalize NEPA Categorical Exclusion to prepare for watershed enhancement and riparian restoration strategy.
	• Create a working group comprised of select partners, funders, and key beneficiaries to provide input on the proposal outline and throughout the avoided cost analysis process.
	• Identify the priority watershed(s) or geographic area(s) and assess key activities, cost estimates, and beneficiaries for the avoided cost analysis and implementation plan.
	  ○ Establish role for municipalities, counties, and state and federal agencies in the prioritization process to create synergy with community development goals and funder interests.
	  ○ Consider the potential of a geospatial model or more precise watershed condition assessment, particularly for flood risks, road density, sub-storage capacity, and the hydrology and flow network across the landscape.
	  ○ Thoroughly identify beneficiaries and assess their willingness and/or ability to pay (e.g. utility rate payers, anglers, outfitters, polluters, bottlers, etc.).
	• Develop a proposal for an avoided cost analysis and outline a process through which to fund a contractor or partner to do the analysis.
	  ○ Review existing and relevant avoided cost studies.
	  ○ Outline the avoided cost analysis and solicit contractor proposals.
	  ○ Contract the work either through a flexible partnership agreement or through by non-federal partners with USFS advisory function.

Medium Term	• Work through a contractor or partner to complete the analysis in collaboration with the working group, inclusive of the following elements:
	  ○ Identify and prioritize key areas for restoration with the greatest potential for flood risk reduction.
	  ○ Identify willing landowners in priority project areas.
	  ○ Inventory and evaluate potential philanthropic and public funds, including ERFO Betterment Funds, West Virginia's In Lieu Fee Stream and Wetland Mitigation Program, and American Water.
	  ○ Develop communication and outreach strategy based on findings to build the business case among key constituencies by making avoided cost data compelling through quantified measures and stories.

Long Term	• Develop and initiate an implementation plan based on the avoided cost analysis, the most appropriate funding or financing approach, and recommendations from the communication and outreach strategy.
	  ○ Implement plan according to specified timeline and with support from expert partners.
	  ○ Increase USFS capacity where needed.
	  ○ Outreach to potential investors/ funders/payors in accelerating the watershed enhancement work.

Indicators of Success	• Approved NEPA Categorical Exclusion. • Stakeholder engagement in defining costs to include in analysis. • A completed avoided cost analysis.

[16] See "Mokelumne Watershed Avoided Cost Analysis" case study, page 40.

	• A polished communications and outreach strategy. • The number of improved culverts and road crossings. • Improvements in specific water quality measures (e.g. sediment, etc.).

Recommendation B

Compensatory Mitigation: Consider opportunities for conservation banking and third-party restoration through compensatory mitigation to accelerate on-forest restoration and land protection. Utilize special use permit negotiations to reinforce the mitigation hierarchy of avoid, minimize, restore, and compensate for impacts to regulated *and* non-regulated aquatic and habitat resources.[17]

Timeline of Next Steps and Indicators of Success	
Short Term	• Identify potential impacts to regulated and non-regulated aquatic and habitat resources in existing permit applications. • Collaborate with NGO and scientific partners to identify and quantify these potential impacts. • Coordinate with Ecosystem Investment Partners to identify high priority NEPA approved wetland and stream restoration and land protection projects in the Gauley River Watershed.

Medium Term	• Ensure within terms of special use permits that applicants uphold the mitigation hierarchy and ensure plans to compensate for impacts to aquatic and habitat resources are clear – avoid discussing money, simply focus on ecological values.
	  ○ Identify high priority wetland, stream, habitat restoration projects across the forest.
	  ○ Share these with the WV ILF program, and ask the state ILF program managers their key needs. Prioritize NEPA on the projects that could be funded through the ILF Program.
	  ○ For projects that cannot be funded through ILF, determine if there can be opportunities for permittees to compensate for residual habitat/aquatic resource impacts.
	  ○ For projects not funded through ILF or permittees, keep available for potential compensatory mitigation partnerships.

Long Term	• Coordinate with the state, permittees, and compensatory mitigation partners to implement any projects that can be funded through these approaches.

Discussion on Recommendation A & B

The potential benefits of upfront or accelerated improvements at a holistic, watershed scale are significant. Much of the land in the headwaters is under public management, but much of the downstream areas are comprised of private lands and towns. Isolated or small-scale implementation will leave project outcomes (including funds invested) vulnerable to or negated by upstream and downstream conditions.

Based on existing data, the MNF is in a good position to understand where projects will have the greatest payoff. Several existing USFS resources were identified that could assist with identifying target geographies and setting priorities. Specifically, the MNF's Watershed Condition Assessment includes data on land use, vegetation cover, and watershed conditions. The MNF will also have Lidar data shortly. Additional external resources include FEMA flood maps and the WV Department of Highways culvert washout surveys.

The recommendation to create a working group is born out of suggestions meant to engage experts, potential funders and financiers like Impact Appalachia (see above), and key beneficiaries early in the process. The purpose of this will be to generate additional resources, expertise, and support across all stages of the avoided cost analysis and implementation.

[17] See "Francis Marion and Sumter NF Conservation Land Use Agreement" case study, page 40.

Participants shared that it will be critical to work with external partners that have capacity to lead, move quickly, and demonstrate outcomes, especially given USFS and other state agency capacity constraints. Also, as with any community-based work, it is important to engage community representatives and stakeholders in the decision-making process in order to ensure broad understanding of the project's goals and encourage place-based social and economic outcomes.

For additional context on the communications and outreach strategy component, this recommendation is meant to translate the avoided costs analysis into compelling data and stories for advocacy among key constituencies and municipal, state, and federal governments. This will help recruit public and private funding and prevent shifts in funder interest.

Lastly, across workshop discussions and interviews, participants underscored that the ability to finance project work will rely on the ability to predict the investments that are needed, to understand the impact being achieved, and to identify willing payors.

"In order to attract an impact investor, it's important to ensure they're getting their return within a targeted landscape or community because as we make these improvements we're lifting up a region. Coalescing the investment strategy helps assure someone will get their money back while creating a rising tide for the community." — Nonprofit Partner

Recommendation C

Coordinate with the Natural Resources Conservation Service (NRCS) on watershed restoration planning projects to ensure that both agencies' efforts are maximized by addressing private land restoration and USFS land restoration in tandem.

Suggested Next Steps & Indicators of Success	
Short Term	• Share existing plans for USFS watershed restoration work in the MNF to see how they can be incorporated into NRCS plans. Prioritize sharing any current plans that exist in the Cherry River Watershed. • Coordinate with NRCS watershed economist to ensure that an active memorandum of understanding (MOU) is in place that will allow the two agencies to conduct watershed restoration planning under one comprehensive plan. • Coordinate with NRCS watershed economist to determine what, if any, adjustments are needed for one NEPA document to meet the requirements of both agencies.
Medium Term	• Engage with NRCS to design and implement a watershed plan that addresses restoration needs on both private and USFS land in the Cherry River Watershed.
Long Term	• Ensure that NRCS is engaged in watershed restoration projects initiated by the MNF to help identify and address private land restoration needs in the watershed being treated.
Indicators of success	• An active MOU that allows for the two agencies to conduct watershed restoration planning under one comprehensive plan for both private and public lands.

Discussion on Recommendation C

When treating watersheds in the MNF, it is important to consider the restoration needs of private lands that fall within watershed boundaries and to integrate a plan to address them. NRCS is an important ally in this process, as the agency can provide funding and technical assistance to work with private landowners on watershed restoration projects.

In the past, NRCS and the USFS have collaborated on watershed planning and worked together to design and implement comprehensive plans to address the private and public land restoration needs of watersheds in and around the MNF.

Before a recent funding announcement in 2017, NRCS had not received funding for a watershed planning project in West Virginia in several years. As a result, there is not a current procedure in place for how NRCS and the USFS can work together to create one watershed plan that covers restoration work on private land and USFS land. An MOU between the two agencies signed in 1992 allowed for watershed planning collaboration in the past, but it is unclear if work can still be done under this MOU or if a new MOU must be created. In order to move forward with future collaborations, MNF staff must work with NRCS counterparts to confirm if a new MOU is needed and to coordinate the NEPA requirements of both agencies to allow one NEPA document to cover work across agencies.

The potential for coordinated inter-agency collaboration is timely. In 2017, NRCS was awarded funding for a watershed planning effort to address areas where watershed protection and resiliency can be improved in the Cherry River Watershed. The project was kicked off in December 2018 with a scoping meeting at which USFS employees were in attendance. Pamela Yost, the NRCS watershed economist leading this watershed planning project, has expressed an eagerness to coordinate with NRCS on this and future watershed planning projects.

Key Partners:

Trout Unlimited remains a close partner to the MNF on watershed and riparian restoration projects, and NFF and NRCS will continue to be integral players in this effort. The Conservation Fund is also a key partner, bringing transactional and community engagement expertise to bear. In addition, the MNF is working to formalize a partnership agreement with the West Virginia Department of Highways for this type of project work, which will likely be a close project partner going forward.

Potential partners with an interest or ability to engage across these recommendations include TNC, the West Virginia Conservation Agency, West Virginia Department of Natural Resources, West Virginia Department of Environmental Protection, relevant counties and municipalities, FEMA, insurance providers, West Virginia Land Trust, and USFWS.[18] Technical assistance may be available from firms like Downstream Strategies, Civil and Environmental Consultants, and The Thrasher Group. Partnership with a mitigation provider such as Ecosystem Investment Partners will underpin the compensatory mitigation recommendation.

[18] See "Additional Resources: Joint Benefits or Joint Powers Authority," page 41; and "Additional Resources: Emergency Relief for Federally Owned Roads Program," page 41.

Appendices

Appendix A: Financial Mechanisms and Enabling Conditions for Sustainable Recreation Infrastructure

Below is a summary of the financial mechanisms and strategies discussed during the workshop that could be leveraged to meet the sustainable recreation infrastructure goals of the MNF.

Pay for Success (PFS)

- Presented by: Seth Brown, Quantified Ventures
- How it works: PFS engages beneficiaries of a project's outcomes to pay for the outcomes as they are delivered, measured and/or proven. Investors provide upfront capital to fund the activities and receive returns from the beneficiary payments (see Figure 1).
- Application to the MNF:
  - Projects to be funded include target trail improvements to support the IMBA ride center, wayfinding, paying for the expansion of trails on the MNF and adjacent lands, and trail infrastructure improvements (e.g. restroom facilities)
  - Outcomes: Improved public health from increased recreation, improved public safety, job creation, increased tourism (length and frequency of stay) and tourism spending
  - Beneficiaries: Ski resorts; local outfitters, guides, restaurants and hotels; County and State government
- The USFS responsibilities in a PFS project could include the following: planning and implementing the work that will take place on National Forest land, playing a connector role among partners, assisting with the monitoring of outcomes.
- Enabling conditions:
  - Upfront public or philanthropic funding is not readily available, accessible or appropriate to fund the project.
  - Baseline data on existing conditions is available.
  - Project activities are identified, priced out and expected to cost at least $3M.
  - There is a risk associated with funding the project in that the predicted outcomes are not guaranteed.
  - Implementation partners and contractors must be available.
  - Local partners and champions must be interested in making the project work.
  - Outcomes from activities can be measured and attributed to the project.
  - The project beneficiaries will receive financial flows from outcomes.
  - The project beneficiaries are willing to pay for the outcomes delivered.

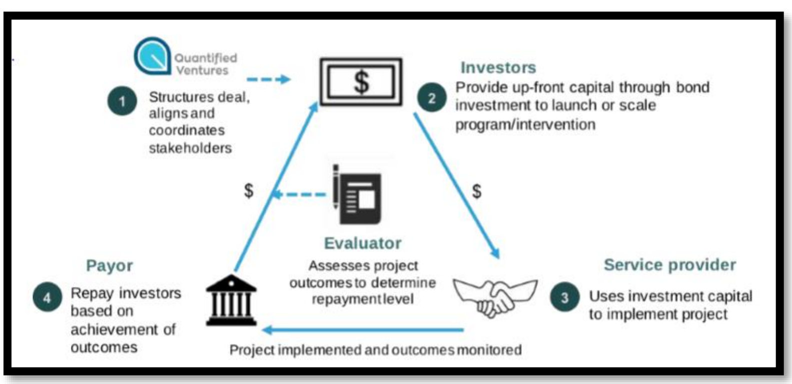

Figure 1: "Pay for Success" (Source: Quantified Ventures)

Voluntary Surcharge

- Presented by: Marcus Selig, NFF
- How it works: Micro-donations are paid by end users. These voluntary donations are added on to an existing purchase or expense to create or improve desired infrastructure.
- Application to the MNF: A $1 voluntary, opt-out surcharge could be added to lift tickets, scenic train tour tickets, beer tastings or other local purchases. The revenue collected could be applied to stewardship projects on the MNF, trail maintenance, or the creation of a business incubator for travel services and outfitters. The revenue could also be spent on capacity building activities for gateway community entrepreneurship. Multiple county visitor bureaus could run a regional economic development surcharge fund that could pool money from lodging revenues, surcharges at breweries and other tourism sites.
- USFS role: USFS responsibilities could include identifying who the beneficiaries of the donation will be, engaging the public, providing information on the donation and planning and implementing stewardship projects on FS land.
- Enabling conditions:
    - To be viable the surcharge needs to generate a minimum of $25,000 in annual revenue, ideally from a broad participant base.
    - There needs to be one or more businesses willing to host the surcharge.
    - The technology to intake the funds must be available.
    - There must be a willing and available fund administrator.
    - There must be a clearly identified projects to which the funding will be dedicated.

Operating Loans for Community Development

- Presented by: Hannah Vargason, Natural Capital Investment Fund (NCIFund)
- How it works: Low interest loans for distressed or underserved areas are granted to businesses that impact the community through job creation or ecological improvement.
- Application to the MNF: Improvements in the tourist infrastructure in and around the MNF will create the backdrop for economic growth. Businesses associated with Mon Towns/Gateway Communities initiatives can apply for loans to expand their operations and services delivered.
- USFS Role: USFS can co-fund forest-based recreation improvements to demonstrate buy-in, highlight zones of opportunity to incentivize investors to infuse capital into distressed areas, encourage multiple businesses to work together and build a backdrop for recreation economy and support workshops that educate businesses on how to apply for loans.
- Enabling conditions:
    - Loan recipients must have the following: good credit, collateral, diverse sources of income, access to digital business infrastructure, a strategic business plan and a clear path to growth.
    - Businesses might need seed funding to hire consultants to help develop business plans and create compelling applications.

Gateway Community Engagement

- Presented by: Katie Allen, Conservation Leadership Network, The Conservation Fund
- How it works: Communities on the border of publicly owned lands often struggle to balance the need for economic growth with the desire to protect their natural ecosystems, landscapes and cultural heritage. At the same time, these communities provide lodging, entertainment and other needed services for visitors. Engaging with these communities in support of shared social, economic, and environmental goals is a strategic component of building the recreation economy around the MNF. Outputs and outcomes from such efforts will generate resources and create the enabling conditions for the finance mechanisms outlined above.
- Application to the MNF: The Conservation Fund's Conservation Leadership Network operates an Appalachian Gateway Communities Initiative that can offer resources and technical assistance to the MNF, including the Mon Forest Towns effort. More broadly, the technical assistance provided through the Conservation Leadership Network program can be utilized at any time, as all services can be place-based, tailored and delivered locally.

- USFS Role: The MNF should utilize these resources and community engagement models to incubate, coordinate, and build town capacity for viable local businesses to support a sustainable regional recreation economy.
- Enabling conditions:
    - Compatible natural and cultural heritage tourism development goals

Appendix B: Case Studies for Sustainable Recreation Infrastructure

Wayne National Forest & Bailey's Trail System Pay for Success Project

- Funding mechanism modeled: Pay for success (PFS)
- Project overview: Project partners including the USFS, NFF and Quantified Ventures are collaborating with investors and beneficiaries to formalize a pay for success finance model to fund the construction of an 88-mile multiuse trail on the Wayne National Forest. The trail system, dubbed the Baileys Trail System, is expected to become a premier mountain biking destination that will enable Athens County to diversify the regional economy through outdoor recreation and tourism. Partners are exploring how private investment can provide $5.4 million in up-front capital to construct the trail and new public access points. Beneficiaries of increased visitation such as local cities and counties repay the investment based on the successful achievement of the economic outcomes produced from the influx of new visitors. Research partner Ohio University has been proposed to evaluate and validate the outcomes. The project is in the final stages of coordination before trail work can begin.
- Keys to success: The key reasons that this project was selected to pilot a pay for success model by the USFS, National Forest Foundation and Quantified Ventures are as follows:
  - The project was already planned and NEPA ready.
  - There was a clear need for funding.
  - There were a lot of willing partners for collaboration. PFS projects are easier and more likely to succeed when community partners and working groups have been formed.
  - There was high community support for the project. The project idea came from the community rather than the USFS. The Wayne was able to work with the community and enabling them to continue to progress and fundraise.
  - It was possible to measure outcomes from the new recreation.
  - There was innovative leadership on the Wayne National Forest.
  - There was a highly qualified staff member serving as a dedicated point of contact for the project.
  - There was a regional need for the opportunity to move beyond extractive-based economic development.
- Relevance to the MNF: Long term, the success of the Bailey's trail system could be replicated in planning a new trail system for the IMBA ride center. The MNF can focus in the short to medium term on creating the enabling conditions that allowed the PFS approach to be viable on the Wayne National Forest.
- Additional resources:
  - https://www.usda.gov/media/blog/2018/06/15/private-investment-will-jump-start-rural-economy
  - https://static1.squarespace.com/static/558071a0e4b00a2971965f06/t/5af9dfacf950b7ac65c3177b/1526325182213/The+Baileys+Trail+System+Pay-For-Success+Feasibility+Report+Final.compressed.pdf
  - https://www.youtube.com/watch?v=RRllp-m1VcA

National Forest Foundation Ski Conservation Fund

- Funding mechanism modeled: Voluntary surcharge
- Project overview: The National Forest Foundation created the Ski Conservation Fund to provide funding for conservation and restoration projects that improve forest health and outdoor experiences on National Forests and Grasslands. Ski-related businesses collect small, voluntary opt-out donations from their guests at ski areas and lodges operating on or adjacent to National Forest System lands. These donations are surcharges attached to lift tickets, hotel nights, restaurant visits, etc. Award funding is geographically restricted to the same National Forests from which guest contributions originated. Awards require a 50% nonfederal match of cash or in-kind contributions. Funds are awarded on a rolling basis as contributions accrue, via competitive and noncompetitive grant processes.
- Keys to success:
  - The donations are presented with an option to opt-out as opposed to opt-in.
  - The amount of the surcharge is kept small and doesn't exceed five dollars.
  - The surcharge is not tied to a time-sensitive point of sale transaction.
  - Employees have information ready to share with customers to address any questions.

- Relevance to the MNF: There are voluntary surcharge opportunities on the MNF, including Snowshoe Mountain, Timberline, White Grass and various railroads.
- Additional resources:
    - https://www.nationalforests.org/grant-programs/stewardship-funds

C&O Canal Towns

- Strategy modeled: Regional economic marketing strategy
- Project overview: The C&O Canal Trust works in partnership with the National Park Service and local communities to raise funds to preserve the Park and to broaden support through programs that highlight the Park's cultural heritage and recreational opportunities. The Trust helped launch and continues to serve as the fiscal agent for the Canal Towns Partnership, a group of eight communities surrounding the C&O Canal National Historical Park who generate mutually beneficial economic activity by providing amenities and services to visitors. The Canal Towns Partnership fosters community connections with the neighboring Park and assists the communities in reaping the multiple benefits of trail-based tourism and recreation. The partnership facilitates a monthly meeting to which each town sends two representatives. Members of the towns' councils as well as partners are invited to attend and present on issues of expertise and interest. The funding to set up the partnership initially came from a Department of Interior grant. The group has continued to fund their work through a payment of $500 from each of the eight towns every year in addition to private grants.
- Keys to success:
    - The Canal Towns Partnership considers the buy in from local government representatives to be a curtail element to their success. These government representatives work to keep the towns' residents informed and engaged in the partnership's efforts.
    - The Canal Towns Partnership worked directly with the National Park Service to find shared priorities.
- Relevance to the MNF: The MNF could consider a similar organizational and funding structure when coordinating with Mon Forest Towns. A central trust to act as the fiscal lead on the partnership and the coordination lead for shared objectives across communities is a potential next step.
- Additional resources:
    - https://www.canaltrust.org/programs/canal-towns/

Appendix C: Financial Mechanisms and Enabling Conditions for Mineland Restoration

Below is a summary of the financial mechanisms and strategies discussed during the workshop that could be leveraged to meet the mineland restoration goals of the MNF.

Voluntary Carbon: Registered or "Soft"

- Presented by: Marcus Selig, NFF
- How it works: Registered voluntary carbon offsets provide non-tradeable, non-compliance based, third-party verified, registered units of carbon that can be purchased by a buyer. "Soft" voluntary carbon offsets are measured carbon outcomes, but are not always third party verified or registered. For both registered and "soft" carbon offsets, purchasers or donors pay for projects and then claim the "carbon offset once the work is done and outcomes monitored. Different buyers/ donors need different levels of rigor to the outcomes they are purchasing.
- Application to the MNF: Voluntary carbon offsets can be generated on USFS land and adjacent land to finance reforestation and improved forest management.
- USFS Role: USFS responsibilities could include providing methodology to convert trees planted to carbon sequestered, identifying priority land, making land NEPA ready and monitoring onsite what kind of biomass is being converted into carbon sequestered.
- Enabling conditions:
    - A buyer must be identified before the project begins.
    - The project must provide additional carbon storage from the baseline conditions.
    - Activities to generate the carbon offset that take place on National Forest land must be consistent with the forest plan.
    - The project must be large enough to merit the carbon measurement work and project development costs.
    - The forest must be willing to provide management for long term carbon sequestration.

Regulatory Carbon

- Presented by: Marcus Selig, NFF
- How it works: Tradeable carbon credits are sold in the California market to companies that need offsets to meet regulatory requirements. Regulatory carbon offsets must be third party verified.
- Application to the MNF: Regulatory carbon can fund private land protection and restoration.
- USFS role: This mechanism is suited for partners to engage in to further their work that complements efforts on USFS land.
- Enabling conditions:
    - A carbon offset project will generate registered offsets under a carbon registry protocol
    - The project meets minimum viability requirements for forested acreage.
    - Forested acres considered for a project are appropriately mature.
    - Projects can take place on private lands only.

Forest Resilience Bond

- Presented by: Tommie Herbert, USFS
- How it works: A partner will coordinate multiple investors to provide up-front funding for a restoration project. That same partner will coordinate with multiple beneficiaries of the project to repay the initial investment at a set rate. The agreed upon rate of the repayment is based on the predicted value to the beneficiaries and is not triggered by third party measured outcomes, like PFS. This structure allows multiple beneficiaries to buy into the project because the repayment is not tied to a metric that only represents the project value to one beneficiary.
- Application to the MNF: This payment structure could be used to finance mineland restoration projects. The model works for public and private lands. It can integrate multiple beneficiaries.
- USFS role: The USFS would work with partners to structure the forest resilience bond-type structure, identify and plan projects, coordinate closely with implementation partners, and measure and communicate project outcomes.
- Enabling conditions:

    - The target project on USFS land must have a NEPA approved plan.
    - Private landowner must be willing and available to participate.
    - There must be a compelling business case for involving multiple beneficiaries.
    - Data on the baseline ecological and economic conditions must be available.
    - The anticipated ecological and economic outcomes are quantifiable.
    - The project partners have the capacity and experience to undertake the restoration project.

State Revolving Loan Funds for Clean Water

- Presented by: Peter Stein, The Lyme Timber Company
- How it works: States lend out money for water infrastructure projects. These low interest loans are provided through the EPA's Clean Water Act. In the past State Revolving Loan Funds (SRF) went to grey or built infrastructure. Increasingly states are deciding to set aside a percentage of the funds towards green infrastructure.
- Application to the MNF: Cross-boundary restoration or private land protection could be eligible for this source of funding for projects with clear water quality benefits.
- USFS role: The USFS would work with a partner to apply for a loan by identifying priority parcels for private protection/USFS acquisition or by identifying and conducting NEPA for NFS restoration.
- Enabling conditions
    - The project must present clear benefits for natural infrastructure and for drinking water quality and flow.
    - The project must present a clear revenue source or avoided costs.
    - Project activities must be planned, priced out and NEPA approved.
    - For partner-led private land protection, willing landowners and options for how to transition the land must be secured.
    - There must be a project applicant with a high credit rating to manage the loan.

Revenue-generating Land Use

- Presented by: Eriks Brolis, TNC; Joe Hankins, The Conservation Fund
- How it works: Forest land restoration can be paired with other activities that can generate revenue such as solar energy, cattle grazing, agroforestry, the production of hemp or the reintroduction of wildlife such as elk for a wildlife management easement.
- Application to the MNF: A combination of land restoration and revenue generating activities could be implemented on USFS land and adjacent private lands to increase the value proposition of restoring mine lands.
- USFS role: The USFS would facilitate the special use permitting process that partners would need to allow their business operations on USFS land.
- Enabling conditions
    - The appropriate market infrastructure must be in place to ensure products entering the supply chain are revenue generating.
    - Businesses must be qualified to enter into special use permits with forest service.

Scaling Philanthropy and Public Funding – Corporate Social Responsibility (CSR)

- Presented by: Marcus Selig, NFF (CSR); Chris Barton, Green Forests Work (Philanthropy)
- How it works: Corporations, foundations, and quasi-federal entities raise or manage philanthropic dollars and donate to projects that deliver outcomes they or donors care about. Philanthropic funding is ideal for discrete projects under $5 million.
- Application to the MNF: Projects can receive funding from philanthropic donors that want the social, ecological, and economic outcomes that mine land restoration delivers.
- USFS Role: The USFS can work with partners to package projects to receive philanthropic donations.
- Enabling conditions:
  - The project must be of interest to donors.
  - The project must be planned and ready to implement.
  - There must be willing partners to collaborate with.

- The outcomes that donors want must be measurable.

Conservation Banking through Compensatory Mitigation

Note: See similar mechanism listed as 'Wetland and Stream Restoration through Compensatory Mitigation" on page 37 for wetland and stream values.

- Presented by: Katie Allen, The Conservation Fund
- How it works: Compensatory mitigation allows for restoration projects to offset development impacts permitted by regulators. In the US, when an impact to habitat of a threatened, endangered, or otherwise listed species cannot be avoided, the permit holder must provide an offset equivalent in function and area to what they damage. The three types of compensatory mitigation mechanisms are as follows:
    - In lieu fee (ILF) mitigation – A permit applicant may make a payment to an in-lieu fee program based on impacts to habitat values. The ILF program conducts habitat restoration or preservation on one or more sites to offset permitted impacts.
    - Conservation/ Mitigation banking – A mitigation bank is a site or suite of sites that are protected and restored and are providing units of saleable and measured ecological uplift called credits. Credits that are available streamline permitting processes and reduce time lags in compensation.
    - Permittee responsible mitigation (PRM) – Permittees design and execute mitigation projects so that they achieve no net loss on their own, often working through consultants.
- Application to the MNF: The MNF can package and plan projects for the state ILF program for habitat restoration. MNF can also package and plan projects for partners to deliver using special use authorizations for habitat restoration – PRM or mitigation banking.
- USFS role: The USFS can be an applicant to ILF or host for PRM or mitigation banking.
- Enabling conditions
    - The project work must not be already funded.
    - The work must be in line with the forest plan.
    - USFS management must meet Fish and Wildlife Service and/or US Army Corps of Engineers perpetuity and durability requirements.
    - An MOU may be necessary to cover terms of reversal, given that a forest plan can be altered at any point.
    - There must be demand for ecological uplift in the service area for the type of restoration planned.

Appendix D: Case Studies for Mineland Restoration

Carbon Capital Fund – Angeles National Forest Project

- Funding mechanism modeled: Corporate donations and voluntary carbon markets
- How it works: The Carbon Capital Fund (CFF) was established by NFF in 2007 to pilot reforestation and afforestation voluntary carbon offset projects on National Forest System lands in partnership with the USFS. The CCF is managed by the National Forest Foundation. It directs donations from corporations and other partners to support reforestation projects on USFS lands. Donors to CCF can make corporate responsibility claims that their philanthropy generated carbon sequestration outcomes and other co-benefits from reforestation actions. The CCF has funded non-registered and registered carbon projects. In 2011, the National Forest Foundation established a partnership with The Walt Disney Company through the CCF to support a carbon demonstration project on the Angeles National Forest. This project reforested 964 acres in an area that burned during the Station Fire. By planting approximately 164,000 trees, the project is expected to yield an estimated carbon benefit of 137,022 metric tons CO2. This project is registered with the American Carbon Registry and has recently been successfully validated by Scientific Certification Systems.
- Relevance to the MNF: The mineland restoration needs on the MNF include significant acres of reforestation which could generate measurable carbon benefits for corporate donors or verified/ registered offsets for voluntary buyers. This financial flow could be a viable revenue stream for an upfront investment in accelerated mineland recovery.
- Additional resources:
    - https://www.nationalforests.org/get-involved/carbon-capital-fund

The Lyme Timber Company – State Revolving Loan Fund

- Funding mechanism modeled: State Revolving Loan Funds for Clean Water
- How it works: In 2018 the Lyme Timber Company received $50 million in funding from a State Revolving Loan Fund (SRF) to protect working forestlands with mineland restoration needs. The SRF loan was granted through the Pennsylvania Infrastructure Investment Authority for land purchases that would protect an important watershed in northern Pennsylvania. The land purchased with the loan was a high priority conservation area for the PA Department of Conservation and Natural Resources (DCNR). The loan agreement created an important path for the PA DCNR to be able purchase this land in the future, allowing time for them to secure the necessary funds. To ensure this land purchase provides watershed benefits for the public, the Lyme Timber Company committed to taking the following actions on the land:
    - Donate a conservation easement of approximately 9,500 acres of timberland to the PA DCNR
    - Perform $750,000 of remediation work to cleanup streams impacted by acid mine drainage contamination
    - Manage 51,000 acres of lands as if they were subject to working forest conservation easements
    - Guarantee a seven-year period during which the Commonwealth of Pennsylvania will have the right to purchase conservation easements to permanently protect the lands

  The revenue stream to pay back the loan will come from timber harvested off the land purchased.
- Keys to success: The Lyme Timber Company is a company with the financial acumen to apply to for a large loan. The land protection, mine land remediation and sustainable forest management activities are generating financial flows and clean water benefits. Pennsylvania's SRF program is open to considering investments in natural and built infrastructure for clean water.
- Relevance to the MNF: It is possible mineland recovery on and adjacent to the MNF can generate financial flows and clean water benefits which could make for an interesting natural infrastructure proposal for a WV SRF loan.
- Additional resources:
    - http://www.conservationfinancenetwork.org/2018/05/21/using-state-revolving-funds-for-land-conservation
    - https://lymetimber.com/2018/07/31/lyme-closes-on-50-million-in-financing-from-pennvest-providing-clean-water-benefits-to-local-communities/

The Nature Conservancy – Developing Demonstration for Mineland Restoration and Reuse

- Funding mechanism modeled: Revenue-generating land use
- How it works: The Nature Conservancy (TNC) is developing a business plan for a demonstration site to showcase revenue-generating activities on and around former minelands in central Appalachia. Their vision is to use a suite of “nature friendly” restoration and reuse strategies that encourage the diversification of economic opportunities in the region. TNC is in the process of identifying and evaluating a portfolio of different sites that they could potentially acquire as soon as this year to begin project implementation in 2020. TNC anticipates purchasing roughly 20,000 acres of land and deploying the strategies using a blend of philanthropic and impact investment. Of this land, they estimate that around 18,000 acres would be timberland that can yield forest carbon credits and the remaining 2000 acres would be former surface coal mines. Approximately 750 of the mineland acres would be leased for solar power generation, and the remainder would be leased for agroforestry, and other workforce development projects. Once the demonstration site is developed, TNC plans to use the recurring revenues from solar and forest carbon credits to help advance replication of these nature friendly restoration and reuse strategies. Solar power projects have potential to be revenue generating in West Virginia, and TNC is developing the solar portion of this project with the hope that it will help advance supportive solar policies in the region and create the enabling conditions for a vibrant solar power marketplace.
- Relevance to the MNF: Special use permits can be made available to conduct revenue generating business on the MNF in cases where legacy mineland is not viable for reforestation. Small scale entrepreneurs can use these permits to make use of the land in a way that is valuable for the public. This is also a viable strategy for community farming on private lands adjacent to the MNF.

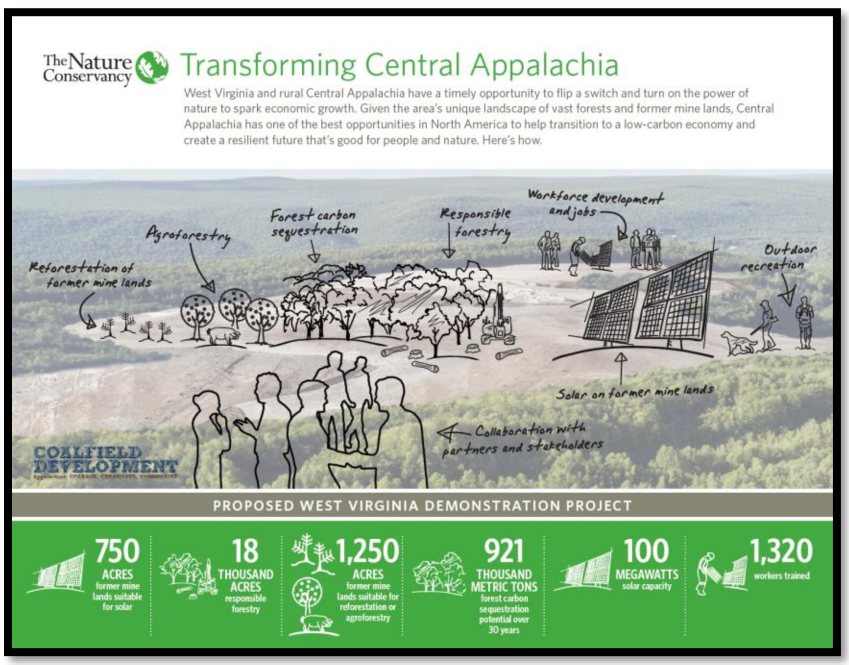

Figure 2: "Transforming Central Appalachia" (Source: TNC)

Additional Resources: Sourcing Native Seedlings

- Strategy modeled: Options to expand sourcing for native seedlings
- How it works: A key to accelerating the pace and scale of mineland restoration is having access to a sufficient amount of affordable native seedlings for reforestation. FS employees Nicole Balloffet, who specializes in National nurseries, and Carolyn Pike, who specializes in State and private nurseries, offered the following considerations and recommendations for sourcing native seedlings.

- Explore sourcing options from multiple vendors with the goal of diversifying your sourcing options. The recommended sources to explore are as follows:
    - Federal nurseries – The closest Federal nursery is the James W. Toumey Nursery in Michigan. For more information on seedling availability contact Nursery Manager Lindsay Colegrove at lindsayscolegrove@fs.fed.us.
    - State nurseries -The State nursery in WV is the Clements State Tree Nursery. http://www.wvforestry.com/nursery.cfm?menucall=nurse
    - Established private nurseries in the region – Often established private nurseries have capacity to grow native seedlings on contract if they are given the seed source.
    - NRCS plant materials center - The closest NRCS plant materials center is the Appalachian Plant Materials Center in Alderson, WV. https://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/pmc/northeast/wvpmc/
- The bottle neck for sourcing native seedlings comes in finding and procuring the appropriate seed source. The FS can offer support through the following the process:
    1. The first step is to exploring sourcing options for native seedlings is to identify and find the native seeds. Review a map of the ecoregions to identify the seed zone options for scouting seeds. https://arcg.is/0C8bzi
    2. Contact Victor Vankus, FS Botanist at the FS national seed lab, at victor.vankus@usda.gov to request assistance in finding a seed scout for the region identified.
    3. Once a seed source has been identified, Contact Carolyn Pike, FS Area Regeneration Specialist, at cpike@fs.fed.us for a list of public and private nurseries near the MNF that can be contracted to grow the seeds into seedlings.
    4. Reach out to the nurseries on the list provided. Find out what they grow, where they get their seeds, and if they have the capacity to add additional species to their offerings with seeds provided by the FS. Provide information about the type and number of seedlings needed to see if they can accommodate your needs.

- Additional resources:
    - http://easternseedzones.com/

Additional Resources: Appalachian Voices

- How it works: Appalachian Voices is a nonprofit organization that promotes diverse local economies and defends the land, air and water of the Appalachian region from environmental threats. As part of their "Investing in Appalachia" campaign, they are focused on securing investments to clean up old mine sites, helping establish a solar industry in the region, building wealth that stays in the communities and attracting new business to the region. They released a report in the fall of 2018 titled *Many Voices, Many Solutions: Innovative Mine Reclamation in Central Appalachia*. This report looks at innovative approaches to economic development in communities where the landscape has been impacted by coal mining and in some cases by reclaiming abandoned mine features.
- Additional resources:
    - http://appvoices.org/new-economy/healing-our-land/ (report)
    - http://appvoices.org/new-economy/investing-in-appalachia/

Appendix E: Financial Mechanisms and Enabling Conditions for Watershed Enhancement and Riparian Restoration

Below is a summary of the financial mechanisms and strategies discussed during the workshop that could be leveraged to meet the watershed enhancement and riparian restoration goals of the MNF.

State Revolving Loan Funds for Clean Water

Please find mechanism background information and enabling condition listed in the mineland restoration section.

Wetland and Stream Restoration through Compensatory Mitigation

- Presented by: Katherine Birnie, Ecosystem Investment Partners
- How it works: Compensatory mitigation allows for restoration projects to offset development impacts permitted by regulators. In the US, when an impact to a designated wetland or stream cannot be avoided, the permit holder must provide an offset equivalent in function and area to what they damage. The three types of compensatory mitigation mechanisms are as follows:
  - In lieu fee (ILF) mitigation – A permit applicant may make a payment to an in-lieu fee program based on impacts to wetlands and stream. The ILF program conducts wetland and stream restoration or preservation on one or more sites to offset permitted impacts.
  - Mitigation banking – A mitigation bank is a site or suite of sites that are protected and restored and are providing units of saleable and measured ecological uplift called credits. Credits that are available streamline permitting processes and reduce time lags in compensation.
  - Permittee responsible mitigation (PRM) – Permittees design and execute mitigation projects so that they achieve no net loss on their own, often working through consultants.
- Application to the MNF: The MNF can package and plan projects for the state ILF program for wetland and stream restoration. MNF can also package and plan projects for partners to deliver using special use authorizations for wetland and stream restoration – PRM or mitigation banking.
- USFS role: The USFS can be an applicant to ILF or host for PRM or mitigation banking.
- Enabling conditions
  - The project work must not be already funded.
  - The work must be in line with the forest plan.
  - FS management must meet US Army Corps of Engineers perpetuity and durability requirements.
  - An MOU would be necessary to cover terms of reversal, given that a forest plan can be altered at any point.
  - There must be demand for ecological uplift in the service area for the type of restoration planned.

Loans for Land Protection

- Presented by: Leigh Whelpton, CFN
- How it works: USFS partners can more easily get a loan to buy land for protection. This land can be held by partners until the USFS has the money to buy it from them. Loans can be obtained from conservation lenders like The Conservation Fund's Conservation Loan Program, foundations using Program Related Investments (PRIs), banks, and individuals.
- Application to the MNF: Lands adjacent to the MNF that have been identified as a target for land protection and restoration can be purchased by partners with the assistance of a loan.
- USFS role: The USFS can identify private land targeted for protection in a land protection priority list. It is the FS's role to be transparent with their partners when setting priorities for which areas they want to acquire.
- Enabling conditions
  - Partners must have a good credit history and be eligible for loans.
  - Partners will need assurance from USFS of the priority of the project and when USFS expects to close on the acquisition.

Forest Resilience Bond

Please find mechanism background information and enabling conditions on page 31 in the mineland restoration section. This model can be applicable for enhanced water storage and reduced flood risk.

Water Utility Financing

- Presented by: Catherine Herbert, USFS
- How it works: Water and electric utilities are increasingly seeing forests as a water infrastructure solution that are critical for their bottom line. There are multiple innovative finance tools that municipalities and utilities can leverage to support accelerate natural infrastructure for water. Examples include:
    - *Tax revenue or water user fees:* Water users or municipal residents can dedicate taxes or fees from water usage to forest-based activities that improve water quality or quantity. This can be voluntarily through ballot referenda or rate payer voting.
    - *Joint powers/joint benefits authorities:* This are authorities that allow multiple water utilities or multiple state or local government agencies to collectively issue debt/ bonds for infrastructure, green or grey, that delivers shared outcomes.
    - *Green bonds and climate bonds:* There are new standards for bonds on the market that are specific to activities that support sustainable land management and climate resilience.
    - *PFS, environmental impact bonds:* The first PFS transaction in the environmental industry was to support DC Water. The utility avoided costs of tunnel construction by investing in green infrastructure. They returned upfront investor dollars for green infrastructure from those avoided construction costs. Because of certain regulations and long-term financial planning, these tools are suited for utilities.
- Application on the MNF: The watershed enhancement activities identified and planned on the MNF and adjacent landscapes will deliver water quality and flow improvements that help water utilities and municipalities with drinking water. It is possible one of the mechanisms mentioned above could allow multiple major water providers to collaborate to dedicate avoided costs or enhanced revenues to forest-based water infrastructure.
- USFS role: The USFS role would identify, plan and implement activities on FS lands. The USFS could also collaborate with adjacent private landowners on priority land protection and restoration. Additionally, they may coordinate an avoided costs analysis to demonstrate potential cash flows from watershed enhancement outcomes.
- Enabling conditions:
    - A minimum of $5 million in funding is needed with a target amount of $20 million; this amount can include funding for green and gray infrastructure projects.
    - Water issues must exist that can be addressed through forest management.
    - A clear source for the repayment must be identified and this entity must be credit worthy.
    - There must be a clear understanding of who will implement the project, an openness to additional outside capacity and a readiness to implement the project on an accelerated timeline.
    - Project benefits must be measurable and must generate revenues or result in avoided costs for beneficiaries.
- Additional Resources:
    - https://conservationfinancenetwork.org/2018/04/24/conservation-partnerships-with-water-utilities

Water Fund

- Presented by: Spencer Meyer, Highstead Foundation
- How it works: A water fund is a form of pooled philanthropy in which a variety of beneficiaries and donors put money into a collectively shared fund. The fund can be used to support land protection and restoration projects on public or private land. A water fund is not a form of outcome-based investing.
- Application to the MNF: A partner could create and manage a water fund to support protection and restoration projects in and around the MNF.
- USFS role: identify, plan and implement restoration projects; build the case for the water fund with donors and beneficiaries; be an advisory board member for the fund; and measure outcomes from fund activities.
- Enabling Conditions

- There must be a business case that lays out the value of the anticipated work that the water fund would target.
- There must be a clearly defined purpose and need for the fund.
- A watershed scale protection or restoration plan must be shared among beneficiaries or fund participants.
- There must be a partner capable of pooling, managing and distributing resources and facilitating the shared decision-making process.
- There must be shared desired outcomes among fund participants.
- There must be clear governance among fund participants.

- Additional Resources:
    - Water Funds Toolbox (TNC): https://waterfundstoolbox.org/

Appendix F: Case Studies for Watershed Enhancement and Riparian Restoration

Mokelumne Watershed Avoided Cost Analysis

- Strategies modeled: Avoided cost analysis
- How it works: The Sierra Nevada Conservancy, the USFS, and TNC funded and led the effort to conduct an avoided cost analysis on implementing forest treatment to reduce wildfire in the Mokelumne watershed. The analysis modeled a series of fires before and after fuel treatments. Using on the model results, the partners conducted an analysis on the costs and benefits of fuel treatment including a variety of factors such as avoided sediment for utilities, avoided fire suppression, carbon sequestration and timber saved. The key findings of the analysis were that there were many beneficiaries from the forest treatment, and that the economic benefit of the treatment is valued at three or four times the cost. The analysis was used to establish the Mokelumne Watershed Fund to identify forest treatment investors and establish a mechanism for them to pay for the treatment.
- Keys to success: The report integrates management costs with baseline scenarios and ecosystem service benefit projections/valuations.
- Relevance to the MNF: The MNF could take a similar approach in conducting an avoided cost analysis for flooding to identify and educate potential investors on the benefits of riparian restoration.
- Additional resources:
    - http://www.sierranevada.ca.gov/our-work/mokelumne-watershed-analysis

Francis Marion and Sumter NF Conservation Land Use Agreement

- Funding mechanism modeled: Compensatory mitigation
- How it works: The US Army Corps of Engineers for the Charleston District and the Francis Marion and Sumter National Forests entered into a Conservation Land Use Agreement in 2013 to establish a framework to allow compensatory mitigation requirements associated with the Corps' permitting requirements to be used to restore or enhance aquatic resources on Forest lands or to contribute suitable resources to the NFS. The agreement leveraged the mitigation authority of Section 404 of the Clean Water Act in which the Corps requires compensation for unavoidable impacts to United States waters, including wetlands. The framework that was developed enabled mitigation measures to be carried out on USFS lands when industry partners had Section 404 mitigation requirements to fulfill.
- Key to success:
    - Public partners included NGOs (TNC and the Open Space Institute) as well as private permittees (Boeing, Duke Energy, and the City of Charleston).
    - Partnering with both the NGO sector and private industry allowed for the achievement of achieve significant conservation goals.
    - Coordination with regulators helped to establish operational norms and clarify legal frameworks for siting on or incorporating mitigation projects into NFS lands.
- Additional resources:
    - https://www.fs.usda.gov/detail/scnfs/workingtogether/partnerships/?cid=stelprd3848719

Additional Resources: Joint Benefits or Joint Powers Authority

- Funding mechanism modeled: A Joint Powers or Joint Benefits Authority is a government-regulated financial entity formed by two or more public agencies for the mutual benefit of the agencies. This could apply to multiple public agencies within the same jurisdiction (a wastewater, stormwater, and drinking water utility), or to multiple public agencies of different jurisdictions (drinking water utilities in multiple municipalities).
- How it works: Once the authority is created and approved (typically at the state level) it can be a streamlined vehicle for issuing debt or engaging in other innovative financial approaches on behalf of all the agencies involved.

- Keys to success: The agencies have a shared vision of activities, anticipate shared benefits from activities, and establish a clear division of fund spending and repayment responsibilities.
- Relevance to the MNF: The population downstream from the MNF is small and diffuse in distribution. There is not one public agency or one large municipality that is the dominant beneficiary of clean water and reduced flooding risks from more resilient forests. There is not one clear player in the landscape with the financial wherewithal to initiate an innovative finance approach or repay a public or private financial mechanism. A Joint Powers or Joint Benefits Authority approach could allow multiple communities or agencies to work together on forest restoration activities that span jurisdictions.
- Additional resources:
    - https://sgf.senate.ca.gov/sites/sgf.senate.ca.gov/files/GWTFinalversion2.pdf
    - https://en.wikipedia.org/wiki/Joint_powers_authority

Additional Resources: Emergency Relief for Federally Owned Roads Funding

- Summary of funding source: The Emergency Relief for Federally Owned Roads (ERFO) Program was established by the Department of Transportation to assist federal agencies with the repair or reconstruction of transportation facilities and federally owned roads that are open to public travel, which are found to have suffered serious damage by a natural disaster or by a catastrophic failure. The ERFO program pays the unusually heavy expenses for the repair and reconstruction of eligible facilities when the total costs of expenses are over $750,000. The ERFO program does not cover all repair costs but rather supplements Federal Land Management Agency (FLMA) repair programs. The MNF has applied for ERFO funding for recent flooding events.
- Relevance to the MNF: Once the forest applies for ERFO funding and is accepted, that funding is guaranteed. However, sometimes the funding does not arrive for 1-5 years after the funding is awarded. The funding does not always cover improvements to infrastructure, but rather a like-for-like replacement of impacted bridges, culverts, etc. It is possible that there are creative ways of leveraging this guaranteed source of funding to accomplish more work up front and invest in high quality fish passage infrastructure.
- Additional resources:
    - https://flh.fhwa.dot.gov/programs/erfo/

Appendix G: Workshop Agenda

Conservation Finance Technical Assistance Site Visits

Monongahela National Forest

July 2, 2018

Introduction

The U.S. Forest Service (FS), National Forest Foundation (NFF), Conservation Finance Network (CFN), and Monongahela National Forest (MNF) are hosting a workshop with expert practitioners to explore how non-traditional funding approaches can address site-specific forest management challenges. The workshop will identify strategies for local and regional Forest staff and stakeholders to use public-private investments to accelerate restoration, enhance community resilience, and diversify funding.

Date & Location

The workshop will take place July 10th, 11th and 12th at Snowshoe Mountain Resort at 10 Snowshoe Drive, Snowshoe, West Virginia 26209-0010. Unless otherwise noted, all workshop proceedings (including field visit departures) will take place in the Mountain Lodge Black Bear Room.

Workshop Overview

Purpose: Increase the long-term financial sustainability of high priority management activities on cross-boundary landscapes of the MNF

Goals:

1. Explore if and how conservation finance can help address barriers and unlock potential for scaling implementation of top MNF management priorities:
    a. Sustainable recreation infrastructure
    b. Mine land reclamation
    c. Watershed enhancement and riparian restoration
2. Apply concepts to a specific project opportunity in each management priority
3. Clarify pathways for MNF and partners to build 'readiness' for conservation finance tools
4. Grow network of implementation partners to advance MNF cross-boundary objectives

Outcome: Articulate and recommend next steps for FS staff and collaborators in West Virginia to create the enabling conditions for leveraging conservation finance as a strategy to expand capacity and diversify funding sources and models for social, ecological, financial outcomes.

Participants:

- Monongahela National Forest leadership and resource managers
- Conservation finance technical experts and industry thought leaders

- Local leaders, implementation partners, and key stakeholders

Day 1, July 10th - Sustainable Recreation: Support a thriving tourism economy through sustainable recreation infrastructure development, including improvements to a network of mountain biking trails that will help secure an International Mountain Bike Association "Ride Center" designation.

7:30-8:00	**Arrivals**
8:00-8:30	**Welcome and Introductions**
8:30-9:15	**Morning Session** Local USFS Landing Team along with invited partners presents the day's management opportunity • <u>Overview:</u> Recreation in WV, MNF role, economic impact, current infrastructure context on MNF and adjacent landscapes • <u>Activities:</u> Current forest-wide needs and scope of potential • <u>Specific Project:</u> Snowshoe and IMBA partners share project objectives/ scale • <u>Focus Questions:</u> The tawdry side of recreation – how do you make deferred maintenance and toilets sale? COR/contracting issues – how can we increase our capacity in this area?
9:15-9:45	**Known Models Related to Recreation Infrastructure** Short overviews of known funding sources and financial models
9:45-10:15	**Field Visit Prep, Transition into Vehicles, Depart Snowshoe** Orient the field visit: Sequence of sites, purpose/ discussion and FS + partner lead at each site Safety briefing + sign waivers + assign vehicle passengers and drivers
10:15 Depart	**Field Visit** USFS colleagues and partners will design a visit to highlight key opportunities and hit on these talking points: **Stop 1: Snowshoe Bike Park – Ball Hooter lift** <u>Partner:</u> Ken Gaitor (confirmed) <u>On-site project overview</u>: IMBA Ride Center application + Importance of receiving IMBA Ride Center designation **Stop 2: Gauley Base Trails Trailhead** <u>Partner:</u> IMBA/Pocahontas Trails (confirmed) <u>On-site project overview</u>: This trailhead is a popular access point. It lacks a restroom, efficient signage, kiosks to make it more attractive to visitors. This is a consistent problem across the ride center. Recreation is critical to local business. **Stop 3: Little Laurel Overlook on the Highland Scenic Highway** <u>Partner:</u> Logan Smith from Appalachian Forest Heritage Association

	<u>On-site project overview</u>: HSH interpretive markers/kiosk project. AFHA involvement; see end product at markers on overlooks. The restroom is on its last legs (like all 4 overlook locations). Successful collaborations. **Stop 4: Cranberry Glades** <u>Partner:</u> Cara Rose, Pocahontas County Convention and Visitors Bureau <u>On-site project overview</u>: Importance of recreation tourism/IMBA Ride Center
12:30-1:00	**Box Field Lunch**
1:00-1:30	**Stop 5: Cranberry Mountain Nature Center** <u>Speaker:</u> Diana Stull, Center Director <u>On-site project overview</u>: This an example of a more remote trail access point. It lacks the basics to make it an attractive access point. It efficient signage, kiosks, defined parking to make it more attractive to visitors
1:30-1:45	Buffer (*in case field stops run over)*
1:45-2:15 CMNC	**Discussion Part 1 – Taking Stock** Brainstorm discussion on any potential ideas to explore in addition to the known funding sources and financial models discussed earlier.
2:15-2:35	**Travel to Town of Marlinton**
2:35-2:50	**Stop 6: Marlinton Fishing Pier** <u>Speaker:</u> Lauren Bennet, County Parks and Recreation <u>On-site project overview</u>: Recent collaboration between the town, the county, and the forest using the Wyden Authority – opportunities for rural development projects
2:50 – 3:15	Break/Walk to Wellness Center
3:15 – 4:45 Marlinton Wellness Center	**Discussion Part 2: Exploring Potential Models** Talk through the list of potential funding sources and financial models that emerged from the earlier discussion. For each topic, discuss the following: • What has made it viable if/where it has been applied • Whether similar enabling conditions are present on the Monongahela National Forest • What would need to happen to explore this further ("readiness")
4:45-5:15	**Discussion Part 3: Takeaways** Breakout discussions on what resonates most from the day's exploration followed by brief report-outs.
5:15-5:45	**Transition drive from CMNC to Elk River Touring Center for Dinner – meet with owner Gil Willis (confirmed)**
5:45-7:00	*Dinner at ERTC

Day 2, July 11th - Mine Land Reclamation: Restore approximately 25,000 acres of degraded mine lands on and adjacent to the Monongahela National Forest by reestablishing important ecosystems, such red spruce forests and wetland habitats that will provide wildlife habitat and improve watershed function.

7:30-8:00	**Arrivals**

8:00-8:30	**Welcome and Introductions**
8:30-8:45	**Morning Session** MNF and invited partners share the day's management opportunity Context Overview/ vision Specific project introduction Focus questions
8:45-9:15	**Known Models Related to Mine Land** Short overviews of known funding sources and financial models
9:15-9:45	**Field Visit Prep & Transition into Vehicles**
9:45-2:00	**Field Tour: Snowshoe Mountain and Sharps Knob** **Site 1: Unrestored mine bench in arrested succession** Snowshoe Mountain Resort Key points: Arrested succession, pavement, nonnatives **Site 2: Soil pit and traveling spodosol** Sharps Knob Key points: Above and below ground carbon, headwater sponge **Site 3: Untreated mine bench at Sharps Knob** Sharps Knob Key points: Headwater sponge, reforestation and system restoration, native species and game habitat, spruce influenced ecosystem **Site 4: 2017 planting area** Sharps Knob Key points: Heavy handed restoration, partners, native species
12:00-12:30	**Boxed Field Lunch**
2:00-2:30	**Discussion Part 1 – Taking Stock** Brainstorm discussion on any potential ideas to explore in addition to the known funding sources and financial models discussed earlier.
3:00-3:30	**Break**
3:30-4:30	**Discussion Part 2: Exploring Potential Models** Talk through the list of potential funding sources and financial models that emerged from the earlier discussion. For each topic, discuss the following: • What has made it viable if/where it has been applied • Whether similar enabling conditions are present on the Monongahela National Forest • What would need to happen to explore this further ("readiness")
4:30-5:00	**Discussion Part 3: Takeaways** Breakout discussions on what resonates most from the day's exploration followed by brief report-outs.
5:00-5:30	**Transition**
5:30-7:00	**Dinner at Elk Springs Resort & Fly Shop**

Day 3, July 12th - Watershed Enhancement and Riparian Restoration: Enhance critical source watersheds through landscape scale approaches to drought/ flood resilience, stream and wetland restoration, and riparian improvement activities.

<table>
<tr><td>7:30-8:00</td><td>Arrivals</td></tr>
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MNF and invited partners share the day’s management opportunity
Context
Overview/ vision
Specific project
Focus questions</td></tr>
<tr><td>9:00-9:30</td><td>Known Models Related to Watershed Enhancement & Riparian Restoration
Short overviews of known funding sources and financial models</td></tr>
<tr><td>9:30-9:45</td><td>Field Visit Prep & Transition into Vehicles</td></tr>
<tr><td>9:45-2:15</td><td>Field Tour

MNF and invited partners will take the workshop participants through a series of site visits and hit on the below talking points:
Priority activities
Potential and proven outcomes
Existing partners
Barriers to scale
Tour details
9:45-10:00. Travel via Snowshoe Drive to Cup Run.
10:00-10:15. Cup Run stream crossings as context for discussion on aquatic organism passage (AOP), sustainable infrastructure, and flood risk (partners: Trout Unlimited, Canaan Valley Institute, WV Division of Highways, WV Division of Natural Resources, NRCS)
10:15-10:20. Travel south on WV-66 to Locust Glen Drive.
10:20-10:50. Big Spring Fork valley as context for discussion on riparian health, stream restoration, and flood risk (partners: NRCS, Trout Unlimited, US Fish and Wildlife Service, WV Conservation Agency)
10:50-11:50. Travel east on WV-66 to Abes Run/East Fork Greenbrier.
11:50-1:20. Abes Run/East Fork as context for discussion on watershed-scale restoration of aquatic organism passage, flood resiliency, restored hillslope hydrology, riparian health, stream restoration, fish habitat, carbon storage, and resilient infrastructure (partners: Trout Unlimited, Canaan Valley Institute, WV Division of Highways, NRCS, US Fish and Wildlife Service, WV Division of Natural Resources)
1:20-2:15. Return to Snowshoe</td></tr>
<tr><td></td><td>Boxed Field Lunch - Picnic-style included in Abes Run stop</td></tr>
<tr><td>2:15-2:45</td><td>Discussion Part 1 – Taking Stock</td></tr>
</table>

	Brainstorm discussion on any potential ideas to explore in addition to the known funding sources and financial models discussed earlier.
2:45-3:15	**Break**
3:15-4:45	**Discussion Part 2: Exploring Potential Models** Talk through the list of potential funding sources and financial models that emerged from the earlier discussion. For each topic, discuss the following: • What has made it viable if/where it has been applied • Whether similar enabling conditions are present on the Monongahela National Forest • What would need to happen to explore this further (“readiness”)
4:45-5:15	**Discussion Part 3: Takeaways** Breakout discussions on what resonates most from the day’s exploration followed by brief report-outs.
5:15-5:30	**Transition**
5:30-7:00	**Dinner at Appalachia Kitchen**

Appendix H: USFS Conservation Finance Technical Assistance Advisory Group

Ricardo Bayon – Partner, Encourage Capital

Ricardo leads the water team and new business and innovation at Encourage Capital and works across several other investment sectors. Ricardo is a member of the Investment Committee of the EKO Green Carbon Fund. Prior to co-founding EKO in 2007, Ricardo helped found and served as the Managing Director of the Ecosystem Marketplace, a web site and information/analysis service covering the emerging environmental markets. In that capacity he co-authored a number of publications on voluntary carbon markets, mitigation banking, and ecosystem services. For nearly two decades he has specialized on issues related to finance, banking, and the environment. He has done work for a number of organizations, including Insight Investments, the International Finance Corporation (IFC) of the World Bank, IUCN, The Nature Conservancy, Domini Social Investment, among others. Ricardo graduated with a B.A. from Brown University.

Clark Binkley – GreenWood Resources

From 2012-2017 Clark was the Chief Investment Officer for GreenWood Resources, Inc., which manages about $2 billion of assets in North America, Latin America, Europe and Asia. In 2005 Binkley founded International Forestry Investment Advisors (IFIA) to develop and implement innovative, socially responsible high-return timberland investment strategies. In 2012, IFIA merged with GreenWood, and TIAA-CREF (now Nuveen Asset Management) acquired a majority interest in the merged entity. Prior to founding IFIA, Binkley was Managing Director and Chief Investment Officer of the Hancock Timber Resource Group, the world's largest timberland investment advisory firm serving private-equity clients. During the six full years of his tenure at Hancock, he was responsible for the investment strategies that produced 300 bps/yr of annual out performance versus the industry benchmark, and lead efforts to raise over $2 billion in equity capital. Before joining Hancock, Binkley was Dean of the Faculty of Forestry at the University of British Columbia. He holds degrees in Applied Mathematics and in Engineering from Harvard University and in Forestry and Environmental Studies from Yale University.

Katherine Birnie – Managing Director, Ecosystem Investment Partners

Katherine Birnie leads sales and marketing and market research for Ecosystem Investment Partners' (EIP) national portfolio of mitigation banks and restoration projects. Katherine has cross-disciplinary experience in real estate acquisition, conservation finance and ecosystem service market analysis and research. Prior to joining EIP, Katherine was Conservation Innovation Program Manager at the Maine Coast Heritage Trust where she launched an initiative to develop and implement new project finance approaches to land conservation. She has also served as Project Manager at the Peninsula Open Space Trust in California. She has a BA in Biology from Williams College and an MBA from the Tuck School of Business at Dartmouth.

Beth Conover – Director, Salazar Center for North American Conservation

Beth Conover is the director of the Salazar Center for North American Conservation at Colorado State University. Conover most recently served as senior vice president at the Gates Family Foundation in Denver, where she worked since 2011. Prior to that role, Conover was special advisor to Denver Mayor John W. Hickenlooper and founding Director of Greenprint Denver and the city's Climate Action Plan. She has worked for over 25 years on issues of natural resource conservation and economic development. From 1994-1997, she was co-author of the Stapleton Development Plan for the redevelopment of the former airport, and Director of Parks and Environment for the Stapleton Development Corporation. From 1998-2003, and from 2007-2011 she was the sole proprietor and managing principal of a private consulting practice, working across sectors on strategic planning, policy and program development both locally and nationally, with clients including The Nature Conservancy, Great Outdoors Colorado Trust Fund (GOCO), Green Industries of Colorado and the Rockefeller Family Foundation. She has a B.A. from Brown University (1987) and dual master's degrees in environmental studies and public/private management from Yale University (1994).

Dr. Alex Finkral – Chief Forester, The Forestland Group

Dr. Finkral is responsible for advising the The Forestland Group (TFG) regional forestry staff and TFG's forest management consultants on silvicultural and forest management planning issues. In addition, he manages research efforts aimed at improving forest management practices on TFG-owned properties. Prior to his employment with TFG, Dr. Finkral was an Assistant Professor of Forest Management at Northern Arizona University's School of Forestry where he taught courses in Forest Stand Dynamics, Forest Ecosystem Assessment, Forest Operations, Silviculture and Fire Applications. Prior to his faculty position at Northern Arizona University, Dr. Finkral was the manager of Yale University's School Forests. Dr. Finkral holds a B.S. in Natural Resource Management from Colorado State University and M.F. and Ph.D. degrees from Yale University's School of Forestry and Environmental Studies. He is a Certified Forester in the State of Connecticut, a member of the Forest Stewards Guild and the Society of American Foresters, and a member of the USDA Forestry Research Advisory Council.

Peter Stangel – Chief Operating Officer, US Endowment for Forestry & Communities

Peter is responsible for a number of programs at the Endowment associated with forest retention, forest health, and watersheds. He manages a number of partnerships with federal agencies, including the Department of Defense, Environmental Protection Agency, and Natural Resources Conservation Service. Peter has a B.S. in Biology from Furman University in South Carolina and a Ph.D. in Ecology from the University of Georgia. Prior to joining the Endowment he held a number of positions with the National Fish and Wildlife Foundation.

Peter Stein – Managing Director, Lyme Timber

Peter joined Lyme in 1990 and leads the Company's conservation strategies. Prior to joining Lyme, Peter was Senior Vice President of the Trust for Public Land (TPL) where he directed TPL's conservation real estate acquisitions in the Northeast and Midwest. Peter lectures extensively at graduate schools and professional conferences on conservation investment schemes and strategies. He is a member of the Board of Advisors of the Appalachian Mountain Club and serves as a Board member of the National Alliance of Forestland Owners, Forest History Society and the Hubbard Brook Research Foundation.

Appendix I: Workshop Participants

			Day		
Last	**First**	**Affiliation**	**1**	**2**	**3**
Allen	Katie	The Conservation Fund	x	x	x
Barton	Chris	Green Forests Work		x	x
Berti	Gary	Trout Unlimited			x
Beverage	Kristen	USFS	x		x
Birnie	Katherine	Ecosystem Investment Partners			x
Brolis	Eriks	The Nature Conservancy		x	
Brown	Seth	Quantified Ventures	x	x	x
Connolly	Stephanie	USFS	x	x	x
Dunkle	Joshua	American Water			x
Edwards	Matt	USFS	x		
Eggerud	Scott	Office of Surface Mining		x	
Gaiter	Ken	Snowshoe	x		
Godschalk	Catherine	Calvert Impact Capital	x	x	
Hankins	Joe	The Conservation Fund	x	x	x
Herbert	Tommie	USFS	x	x	x
Jones	Shane	USFS		x	
Landress	Chad	USFS			x
Lawhorn	Julie	Appalachian Regional Commission	x	x	
McCarthy	Dawn	USFS	x		
Meyer	Spencer	Highstead Foundation	x	x	x
Minney	Thomas	The Nature Conservancy WV	x	x	x
Murphy	Dan	USFWS	x	x	
Randolph	Stephanie	Cassiopeia Foundation	x	x	
Rodrigue	Kristy	Resource Environmental Solutions		x	x
Sandeno	Cyndi	USFS	x	x	x
Scholty	Lynne	USFS	x	x	x
Selig	Marcus	National Forest Foundation	x	x	x
Stein	Peter	Lyme Timber Company		x	
Thompson	Clyde	USFS	x	x	x
Vargason	Hannah	Natural Capital Investment Fund	x		
Wheeler	Michael	USFS	x	x	x
Whelpton	Leigh	The Conservation Finance Network	x	x	x
White	Lindsay	NRCS	x	x	
Wichterman	Dustin	Trout Unlimited			x
Wrocklage	Allegra	The Conservation Finance Network	x	x	x

Appendix J: Interview Guide

1. *Recommendation.*
    - Concerning the relevant recommendation below, is this the opportunity that you heard or what resonated with you? Why or why not?
    - Concerning the potential elements of the recommendation below, did these also resonate? Why or why not?
    - Are we missing any potential elements of this recommendation?

2. *Suggested Next Steps*
    - Are these the appropriate next steps? Are we missing any? Which do you feel most strongly about? Are there any that you might upvote or downvote?
    - If you had to forecast how implementation of this recommendation might play-out, what are your predictions?

3. *Key Current Partners*.
    - Have we identified the appropriate current partners?

4. *Potential Partners*.
    - Have we identified the appropriate core partners?
    - Beyond core partners, who else should be kept informed of this work?

5. *Resources and Information*.
    - What resources (staff or volunteer capacity, walking around money, etc.) does MNF have to pursue this?
    - What information does MNF have to pursue this?
    - What resources (staff or volunteer capacity, walking around money, etc.) does MNF need to pursue this?
    - What information does MNF need to pursue this?

6. *Potential Challenges or Gaps.*
    - Are there any potential pinch points or Achilles Heels should we be aware of as this recommendation is implemented?

7. *Opportunity for Financing.*
    - During the workshop, we heard that several near-term next steps would involve some form of public or philanthropic support to get started. Longer term, how do you understand the potential role for private capital in relation to the recommendations and next steps? (e.g. operating loans for Mon Forest Town businesses, habitat or stream mitigation credits, etc.)
8. *Your Role.*
    - What role might your or your organization play?

9. Is there anything else we should be aware of? Other thoughts relevant to this report?