Wildfire Resilience Workshop Series
Summary of Workshop 2: Innovative Financing of Wildfire Resilience

The Aspen Institute Energy & Environment Program and The Nature Conservancy (TNC) convened a virtual workshop on January 25-26, 2022 – the second in a series on U.S. wildfire resilience. As wildfires increase in scale and intensity across the West, various stakeholders now have new incentives to participate and address the wildfire crisis together. This convening brought together leading experts to discuss how innovative financing structures and private capital might be used to increase investments in resilience, and therefore reduce the negative wildfire impacts that are threatening more and more areas, especially in the West. This workshop highlighted effective models such as environmental impact bonds, partnerships with utilities, and new insurance products as solutions to build resilience. Summarized below are the lessons learned from these models, future policy changes at federal and state levels that could scale efforts and contribute to the paradigm shift necessary for the country to adapt to climate change driven wildfire increases, and other key points of conversation.

The workshop was designed to develop a shared understanding of the current state of play, foster innovative thinking, and to identify emerging policy needs. The key objectives included:

- Creating a shared understanding of the role private capital can play in increasing ecological restoration and wildfire risk reduction activities;
- Sharing lessons learned from experts that are leading new financing models and partnerships;
- Identifying possible policy changes needed to expand upon and replicate successful efforts in new landscapes;
- Exploring how innovative financing mechanisms can complement and leverage new infrastructure funding.

Opportunity for Conservation Financing

The number and frequency of wildfires increasingly impacts lives, communities, and local economies. While the risk and scale of wildfires can vary from year to year, the management challenge of mitigating risk is fairly well understood. TNC released a Wildfire Resilience Funding report in June 2021 that encouraged an all-society approach to wildfire management, including $5-6 billion dollars in investments across 50 million acres of the highest priority landscapes. The Forest Service recently released a Wildfire Crisis Strategy report in January 2022, which also identified 50 million acres of forests that need fuel reduction treatments. Both reports also state that public-private partnerships, and conservation financing, can help finance these needed treatments. The recently enacted Infrastructure Investment and Jobs Act (IIJA, P.L. 117-58) provided approximately $3.4 billion to the USDA and the Department of the Interior (DOI) for wildfire risk reduction over the next five years. Additional appropriations for core federal land management agency programs can complement this vital new IIJA funding.

The surge in federal funding from the IIJA can bolster the federal government's ability to implement conservation finance approaches by increasing agency capacity, planning approaches, research and development, and other support, including matching funds to private investments. Federal funding and conservation finance can work hand in hand to move the needle on getting forest restoration and fuel treatments to a much larger and more meaningful scale across multiple ownership landscapes throughout the U.S.

Nascent conservation finance and innovative partnership approaches have the potential to expand forest fuel treatments to a meaningful scale and signal a potentially significant shift that could change how forests are managed across ownerships. Private sector funding for forest restoration, to include wildfire resilience activities, is now emerging. Current efforts are modeled on approaches that have been used successfully to protect biodiversity and enhance water quality, such as green bonds. For these types of investments to be successful, four essential conditions must be addressed:

1. A clear value proposition that defines how fuel treatments in a particular place can deliver a set of real benefits and provide avoided losses/costs.
2. Potential beneficiaries need to be willing and able to pay investors for these treatment benefits.
3. Investors need to be willing to purchase those investments or bonds.
4. Institutions need to be able to develop and issue investments and investment instruments without excessive transaction costs.

Insurers, working with various stakeholders, are currently the foremost types of investors in conservation finance mechanisms, particularly property and casualty insurers. Other investment opportunities include impact investing by corporate or philanthropic foundations, which can allow projects to be offered at below market financing costs so more money stays within the project itself and more work can be done.

Examples of Innovative Forest Health Treatments

Presenters shared examples of innovative financing mechanisms for forest health and wildfire risk reduction treatments that utilized revolving loan funds and resilience bonds. In California, a new revolving loan fund, the Climate Catalyst Program, intended to be a multi-sector green bank of private capital, is designed to enhance forest resilience, biomass utilization, and market development, as well as support existing initiatives that sister state agencies are leading. The state's Office of Planning & Research is launching pilot projects to determine how to aggregate forest biomass with potential economic value in a business-rational way so entrepreneurs and capital providers can help drive economic development. Some pilots are attempting to implement novel organizational structures that can work at the local level to be part of business development efforts. California is aiming for business-rational incentives and partnerships with other agencies, such as CalFire, to cover the fractured nature of land ownership. There are challenges to bring this to federal, county, and community levels.

The Catalyst program has three pillars: private partnerships, capital, and government optimization. Private partnerships could help companies grow, help investors navigate business realities, and build skills around entrepreneurship, workforce, permitting, and business formation. The capital piece is a credit instrument that considers business realities and secures a return on investment. Repayment is expected to send signals to private markets that money will return and can be reinvested. The policy

priority is to commit public capital in innovative ways to support businesses in getting started and demonstrate a climate-positive future for forest communities by reducing wildfire risk.

Forest resilience bonds, as explained by this short US Forest Service (USFS), allow different types of investors and stakeholders to contribute to wildfire resilience work and have been successfully used to fund fairly large-scale forest restoration projects. One example is a Public-Private Partnership (P3) that was created to allow the USFS and partners to accelerate the pace and scale of treatments by attracting private capital. Entities that benefit from USFS projects, such as states, utilities, and corporations, can pay back investors based on the benefits received. Although there is growing interest in these approaches, a key challenge is creating a structure that can work within existing authorities and programs and learning how to frame these new approaches.

The P3 project on the Tahoe National Forest (California) was completed on a three to four-year timescale versus the likely ten or more-year duration had the project been implemented solely by the USFS. The project was initially launched with $4 million and scaled to cover $25-30 million of work in the same area. In California, the insurance industry is a significant potential partner in standing up projects (insurer assets amount to upwards of $4.5 trillion). Insurers can benefit from restored forests with reduced wildfire risk as it can reduce the liability that hopefully will allow them to write new policies in profitable ways in more areas to enhance community protection.

Challenges/Barriers to Scaling

The Nature Conservancy's June 2021 wildfire resilience funding report identified four key challenges to the increased use of conservation finance:

- Value proposition: Improved tools are needed to define the precise benefits of protecting private property, human health, and the avoided fire suppression costs from investing in fuel treatments and other wildfire risk reduction actions.
- Federal agency commitments: Federal land management agencies do not currently have the authority to make long-term fiscal commitments to outcome-based investments, which limits project viability.
- Agency capacity: The partnership office of the USFS provides innovative thinking and some project support, but the current funding for these efforts is limited. Additional funding for field staff and training is also needed.
- Substantial transaction costs: Developing investment instruments requires a labyrinth of contracts and institutional arrangements to pull together these types of investments.

Addressing these challenges will be key to scaling up the potential of innovative financing to support the greatly needed increase in wildfire risk reduction activities. Specific to the USFS, project planning was identified mostly as a cultural barrier, in part because staff are used to planning projects at a smaller scale than what private finance is seeking. Trained capacity is also a limiting factor when trying to staff larger projects and key roles. Existing legal cost-share requirements and relatively short-term contracts limit the effectiveness of partnerships and the full potential for conservation financing to support landscape-scale restoration projects that are needed. Finally, there is no dedicated, appropriated

funding for conservation financing, which means resources need to be pulled from various budget line items.

Wildfire Insurance – Lay of the Land

As wildfires increase in scope and scale, wildfire insurance rates have also increased, representing a significant issue for the state of California in particular. The projected climate impacts from the devastating wildfires over the past few years created challenges with insurance availability and affordability. The insurance sector plays multiple roles in encouraging risk reduction. How natural infrastructure is managed in forests and fire sheds, and how human infrastructure is built and rebuilt, influence the insurance industry. A California climate insurance report from July 2021 focused on wildfire risk and resilience and addressed questions of risk transfer approaches, including insurance incentives. The report highlighted a four-step approach to developing insurance solutions:

- Risk assessment: Strategies for improving risk assessment since many maps, models, and tools are incomplete or out of date.
- Risk Information: Having widely available risk information and sharing consistent information to decision-makers, homeowners, renters, insurers, and the public about wildfire risks.
- Risk Reduction: How to reduce risks, where and how to build, how the wildland-urban interface (WUI) is managed, and options to reduce risk in the layers out from a home.
- Risk Transfer: Innovative risk transfer mechanisms e.g., taking an insurance policy and applying it in a broader way to evaluate some potential future wildfire impact damage costs absent risk reduction work and bring them support funding risk reduction today.

In addition to homeowner insurance, liability insurance for prescribed burn operators is critical and has not been widely available. A key piece of the puzzle is prescribed burn insurance. Liability insurance for prescribed burn operators has been unavailable, so addressing that barrier would facilitate projects needed for risk reduction forest management in the future.

Innovative Insurance Models

The Nature Conservancy has recently invested in developing and piloting new insurance approaches. Two key examples of models that could help reduce risk: community-based insurance and wildfire risk reduction buffers, were shared.

Community-based insurance allows a city, town, or homeowners' association to take out a group policy on behalf of residents or homeowners. This approach could provide cheaper insurance and the potential to capture savings that can be directed to homeowners or into forest restoration that reduces community risk. A study by TNC and Willis Towers Watson on wildfire resilience insurance looked at how insurance benefits might appear in the commercial sector by creating three scenarios: two utility case studies and one hypothetical timber company. The results were promising, and the major difference was the level of coverage and payout. Annual losses due to wildfires were reduced by 40-60%, which translates to a potential reduction in insurance premiums by 10-35%. Each entity saw $40,000-350,000 of annual insurance savings. TNC will release a white paper with more details at the end of June 2022.

The second example shared was wildfire risk reduction buffers. A study from TNC and Marsh McLennan demonstrated how managed open space vegetation (buffers) could contribute to risk reduction in

residential communities and be accounted for in insurance modeling and pricing. During the devastating Camp Fire in 2018 in Paradise, California, a nearby park with managed vegetation became a refuge for some residents who could not evacuate the town. The Paradise Park Department, TNC, and others modeled whether acquiring parcels in and around Paradise in the wake of the fire could create wildfire risk reduction buffers that contribute to risk reduction for other structures and be accounted for in insurance pricing. They mapped wildland fire probability for the region in different buffer scenarios and found that different buffers vary in degree of ignition risk reduction. Buffers can be more beneficial than building code upgrades and home hardening, but a multi-faceted approach using several strategies will increase benefits overall.

Applying community or regional buffers could increase the capacity of insurers to continue to write insurance for homes in certain areas and reduce insurers financial risk and premiums. The modeling could also allow insurance products to account for the benefits of risk reduction. This modeling provides a path for companies to offer insurance products that account for risk reduction benefits and incentivize actions by the insured community. Community-based catastrophe insurance could be used to aggregate and capture risk reduction benefits of buffers developed at the community level and benefit individuals within the community through reduced insurance costs.

Policy Lay of the Land

State and federal policy experts explained that certain policies can support or inhibit innovative market approaches, such as conservation finance, to improve wildfire resilience. There was also much discussion on the current challenges and opportunities with the new surge in funding from the IIJA. The enactment of the IIJA, the potential for federal legislation like the Build Back Better approach, increased annual appropriations, and the USFS's new 10-year Wildfire Crisis Strategy all signal a unique surge in national investment in wildfire resilience and a movement from a period of relative scarcity to one of abundance. For nearly 20 years, federal investment in wildfire resilience remained relatively stagnant at about $500-750 million, even as there were substantial increases in wildfire suppression costs and increasingly negative impacts to life, property, watersheds, and nature from wildfires. The passage of IIJA serves as an important down-payment toward the larger scale need and complementary investments in other strategies, like post-fire recovery.

The IIJA investment creates an opportunity to change the status quo by staffing up and rethinking how work is contracted and delivered, success and performance are measured, and resources are allocated based on risk and outcomes. The USFS is moving to a model where it focuses on the highest costs in the highest risk areas. The way that "cost" is determined in these scenarios is vital: this needs to include more than just financial costs because, in the long run, much more to society is involved and at risk. Success will require institutional entrepreneurship and new ways of doing business in organizations not known for being innovative.

Challenges to innovative approaches include cultural barriers, hierarchies, and legal constraints, although navigating constraints to deliver work across boundaries and investments across sectors could be helpful to elevate as USFS plans how to deploy IIJA resources. Importantly, there is not a strong level of coordination on wildfire resilience work, with no centralized, collective understanding of the multiple

investments being made, shared set of measures to track progress, nor integrated teams across levels. A clear definition and understanding of the various components of wildfire resilience is needed.

Despite the challenges, there are also opportunities to grow the innovative financing sector. The complex barriers to efficiently getting resources on the ground also present an opportunity to create more repeatable, scalable deal structures and build those new authorities and changes into conservation. Wildfire resilience strategies should start integrating investments across the built environment and natural landscapes, and across state, tribal and federal agencies and programs. Bringing sectors together through financial instruments and changes in policy can pioneer some of that integration and attract private capital. Increased collaboration across levels of government, and in conjunction with the private sector, will help to support the innovative financing necessary for wildfire risk reduction activities.

Many state governments are also seeing an increase in funding for this issue, particularly in California. An increase in state funding could provide enough investment for local collaboratives to achieve an all lands, landscape-scale approach, although it could take years to implement. The increased funding also comes with an expectation of accountability. Quantifying results from project activities, such as acres treated, carbon stored, water quality improved, and biodiversity protected will be critical, especially as the private sector seeks measurable returns on investment. An additional challenge will be aligning priorities across landscapes, and how decision support tools like the USFS fireshed model can contribute to those priorities. The private sector, however, could provide tools, expertise, support, and mechanisms to align slow-moving agencies on a regional scale.

The surge in funding also necessitates serious attention to workforce development and capacity constraints. There may be enough of a backlog of shovel-ready projects for the initial infrastructure implementation phase, but workforce and capacity needs, like limited crews and contractors, will be a major challenge for the next generation of projects, especially as future projects are expected to cover larger landscapes.

Deeper Dives into Enabling Policy, Integrating Work Across the Built and Natural Environments, and Private Capital

Smaller group conversations focused on enabling policy, integrating work across the built and natural environment, and the role of private capital in the wake of a surge in federal funding, the key points of which are summarized below.

<u>Policy</u>

Throughout the plenary sessions, speakers identified a variety of policy barriers and enabling conditions that could allow for an increase in innovative conservation financing approaches to enhance wildfire resilience. Smaller groups discussed which federal and state policies support and potentially enhance the use of conservation finance for these purposes, and which do not. Specifically, conversations focused on policy changes that would make it easier and more desirable for private capital to complement federal funding, especially given the recent surge in infrastructure funding. Challenges to aligning funding across jurisdictional boundaries and for various governmental and business levels were

identified. The key items of the discussion: barriers, opportunities, and new approaches, are summarized below.

Barriers

One of the core challenges to scaling conservation financing for wildfire risk reduction work is the limited number of "shovel-ready" or National Environmental Policy Act (NEPA) cleared federal projects. Some partners have found that getting investors to commit larger sums of funding is not a limiting factor, but rather there isn't a large enough supply of projects ready to be implemented to match that investment potential. In addition, the USFS doesn't typically enter into partnership agreements with for-profit entities, though it is permitted to do so. Organizations that have tried to bring conservation finance approaches to the agency have found staff to be unsure about their authority, and that it can take significant time and effort to set up new transactions. These challenges are also exacerbated by limited staff capacity. More government support across stages of development, from innovation through proof of concept, could be helpful, such as the Innovative Finance for National Forests grant that incubates innovative partner work. Most critically, the Federal Antideficiency Act does not allow the USFS to commit funding beyond current appropriations levels[1] (to limit overspending), which makes entering into long-term agreements difficult at best.

Opportunities

It was generally agreed that monitoring and evaluation of project success is both a potential barrier to securing additional investments and an opportunity for improvement. Many suggested that monitoring is often an afterthought. Limited investment in monitoring project outcomes makes it difficult to explain what has been accomplished both to Congress and to investors. This limits the ability to improve additional project development going forward. Having a baseline understanding of historic conditions, as compared to potential future conditions with climate change, also complicates project evaluation. Overall project implementation tracking - where treatments have been placed - is challenging given the lack of a central database and the use of different data systems by different entities. Understanding and predicting how those treatments have reduced wildfire risk is another even more challenging step. There was concern that while a single map or database could be helpful, it could also lead to a prioritization process that would not consider all co-benefits.

Aligning Funding

In addition to considering policy barriers to scaling up conservation finance investments, the necessity of aligning and leveraging funding across jurisdictional boundaries, and across the built and natural environment, was also emphasized. Significant public funding is available to local governments through competitive grants, but governmental entities all have different abilities to access funds. Communities that have fewer staffing and budgetary resources often have trouble competing for grant dollars to initiate projects on any scale, whether home hardening, fuels treatment, or related activities. Programs, including education and facilitation, need to be developed to help communities become part of the solution. In addition, a lack of communication across agencies and ownership boundaries makes aligning

funding challenging, especially for different stakeholders in different jurisdictions. Efficient and systematic ways to share the prioritization of geographies for investment would be helpful.

New Approaches

While considering policy challenges, a variety of new approaches were also considered. As wildfire risk continues to grow, insurers outside of California may stop insuring prescribed burners in other states. There may be a need for a federal prescribed fire claims fund, like what is being piloted in California, to cover claims against burners in lieu of insurance for burners, which is becoming less available. Another suggestion was that the USFS establish a dedicated fund, tied to fire liabilities, that could be used to fund long-term partnerships.

Integrating Investments Across the Built and Natural Environment

Investments in wildfire resilience need to be integrated across both the natural and built environments – an issue which was underscored in its importance. Coordination was identified as particularly important in the WUI where there has been increased development, sprawl, and density. Wildfire conversations tend to be siloed into the natural and built landscape and there are many challenges with that approach and strategies to create a more holistic approach, including new policies, investments, and actions to develop a more integrated approach.

Challenges with Silos

One potential explanation for why investments and policies for wildfire resilience are bifurcated is because they're very separate systems politically, organizationally, and geographically. Wildfire in the natural environment includes large land managers (i.e., USFS, Bureau of Land Management, National Park Service, and state agencies), whereas there are many individual, smaller property owners in the built landscape. The built environment is more disaggregated and lends itself to different kinds of investments actions at different scales. It was suggested that discussions aren't necessarily siloed, but actions are. Federal, and even state legislation, needs to respect local and county land ownership and legal authorities. It was also noted that it is hard enough to bring together key players in either the natural or built environment, let alone bring them together across sectors, and that there aren't good institutional arrangements to do so.

It was agreed that a holistic approach across both fields is critical – that it is detrimental to focus on one without the other. In the built environment homes can actually increase the damage and strength of a wildfire – which is very different than hurricanes, tornadoes, earthquakes, and floods.

Models at Scale

There are glimmers of hope, where there has been success at the regional or community level. For example, the North Star Community Services District, north of Lake Tahoe, serves residential Homeowner Associations (HOAs) and has taken up the task of ecological forest management within its service area to reduce wildfire risk to homeowners. Regional or community-based frameworks were mentioned as examples where the silos have been bridged. Increased implementation will require leadership at the local level, coordination at the state and regional level, and willingness of land managers to engage with governments.

Actions to Support Integration

Several approaches could support better wildfire coordination across the built and natural environment. Broadening definitions of "infrastructure" in statutes could allow federal programs that finance infrastructure to be leveraged for fuels work. Aligning prioritization and investments across state and federal agencies as well as the federal family (transportation, land management, disaster recovery, etc.) could also support better coordination. It was noted that insurance is a potential mechanism to tie wildfire resilience in the natural environment to benefits in the built environment. Specifically, the price of an average insurance policy might not be increased if the forest is more resilient due to fuels reduction work, or if the structure is more resilient. Communications and messaging will be critical to this effort, and the coordinated approaches will require a significant shift in thinking.

Role for Private Capital considering Surge in Federal Funding

Private capital and innovative financing can support wildfire resilience activities, though the surge in public funding may change the role for innovative financing, and key policy changes could better enable private capital to complement the new federal funding.

Role for Innovative Financing

Reducing fuel loads in forests, and therefore reducing wildfire risk, often requires removing small diameter wood that has little to no market value. Low-value wood is a perpetual problem that stymies the ability to thin forests at a larger scale. Private funding could support getting these fuels out of forests by covering the upfront costs of building infrastructure to handle the wood, with complementary public funding to reduce the costs of treatments. Private funding is also well suited for activities in the Home Ignition Zone (HIZ) including home hardening, noncombustible zones, and ignition reduction, which could draw insurance companies into new partnerships. Reducing the risk of wildfires in communities often requires private money and insurance.

Complementing Surge in Public Funding

One of the challenges with bringing private funding to forest restoration projects has been the lack of consistent outyear supply from federal projects. The surge in federal funding could lower the risk profile of forest restoration projects, increasing confidence in investors. Private funding could also help overcome the bottleneck of planning and NEPA compliance. Investors want confidence that if they support the construction of a facility, for example, that there's a reasonable pipeline of projects in the works. Private sector resources, in particular philanthropic funding, could provide more flexible sources of funding and be used to meet match requirements of federal funding.

Potential Policy Changes

A key barrier with the surge in federal funding is the expectation of a non-federal match with federal funds. Rethinking match requirements could be an important policy strategy, perhaps waiving requirements if the project or partners met certain criteria. Another barrier is the federal government funding cycle. The Forest Service's inability to obligate funding beyond short (1-2 year) time horizons disincentivizes private capital. Piloting an approach that allows for more multi-year commitments was suggested. Another strategy to overcome this hurdle could be to use non-governmental organizations as regranting organizations.