



FOREST NEWS

The Newsletter of Forest Service Employees For Environmental Ethics

Summer 2023

Mature and Old- Growth Forests

Inside

EASTERN FORESTS / RETURNING FIRE TO APALACHICOLA /
WOOD VAULTS? / FIRE RETARDANT VICTORY

Paying the Piper

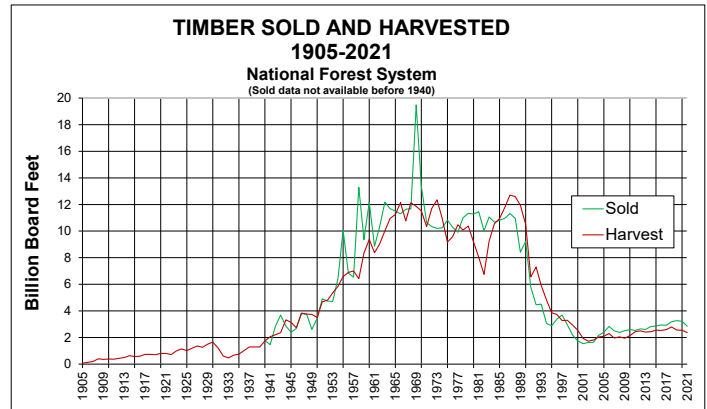
In the 20th century, the Forest Service promised to build post-war America with logs cut from national forests. Logging would be sustainable, it promised, with no more timber removed in any decade than could be cut forever thereafter. Logging doubled in the 1940s, from 2 billion to 4 billion board feet (bf), and doubled again by 1960, plateauing at about 12 billion bf from the 1960s to 1990. Throughout its timbering era, the Forest Service was cutting its best, biggest, and most valuable trees. By the 1980s, loggers were paying top dollar (about \$150/mbf) for the Forest Service's trees.

By the late 1980s, the accessible and available big trees became more scarce. The environmental trade-offs became too extreme for the public (and many within the Forest Service) to bear. Lawsuits accelerated the inevitable transition away from the Forest Service's timbering raison d'être. When the wheels came off, the crash was not pretty. By the turn of the century, national forest logging plummeted by 80% to a level at which it remains.

The broken promise of indefinite sustained yield was not the Forest Service's only lie. Gifford Pinchot, the first Forest Service Chief, promised that the Forest Service would be financially self-sustaining within five years. By the peak of old-growth forest logging, in 1990, Chief F. Dale Robertson reported \$629 million in "net revenues." These financial good times were not to last.

Today, Western national forests that had borne the brunt of the timber machine are like an abandoned mine removed of its valuable minerals. What's left is like a Superfund cleanup site with flammable, worthless kindling littering our mountainsides and eroding, unmaintained logging roads polluting our streams. Cleaning up this environmental wreckage is the Forest Service's new mission.

To sell its new mission to the American people and



Congress (and "sell" it must, for it's an unprecedentedly expensive undertaking), the Forest Service is playing its "fire card." With billions of Inflation Reduction (*sic*) Act dollars in its pocket, the Forest Service has embarked on the world's largest landscaping program. At a cost of thousands of dollars per acre, the Forest Service is paying loggers (the same loggers who used to pay the Forest Service) to remove worthless trees, chip limbs and brush, and mow our national forests to eliminate "hazardous fuels" created by its old-growth logging legacy.

We are now paying the piper for Gifford Pinchot's 100-year-old lies. Had our national forests been managed like national parks, we would all be better off today. It's not too late to make a down payment on the future and return national forests to the Interior Department from which they never should have been removed.

Sincerely,

Andy Stahl

Inside

3 | Victory

Retardant use Violates CWA.

4 | Featured Forest

Pisgah NF, North Carolina

5 | In Depth

Biden's Mature Forest Inventory

7 | Guest Column

Apalachicola Friends on Fire

11 | Eastern Forests

Part 1: Shifting Baseline Syndrome

14 | Briefly

Wildfires Burn California Insurance Market • Report: Landscape-scale Forest Treatments • Wood Vaults for 'Forest Resilience'?

15 | Film Review

Elemental: Reimagine Wildfire

Cover: This mature redwood forest is part of the first federal inventory of mature and old-growth forests.

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An air tanker dumps Phos-Chek fire retardant in a forest amid wildfire smoke.

Victory

Judge Rules Retardant use Violates CWA

Judge Dana Christensen, U.S. District of Montana, ruled in FSEEE's favor in our lawsuit challenging Forest Service use of aerial fire retardant. Judge Christensen agreed that dumping toxic retardant chemicals into water from aircraft violates the Clean Water Act (CWA). To legally continue polluting pristine waterways, the Forest Service must acquire a National Pollutant Discharge Elimination System (NPDES) permit.

"It's certainly a good first step," said FSEEE Executive Director Andy Stahl.

Under the CWA, the NPDES permit must assure that certain water-quality standards are met when retardant is dumped into water. Among those standards is a requirement for "fishable" waters. Previous retardant dumps have failed that standard, and the key to meeting it will be dilution —

preventing retardant concentrations high enough to kill fish. The NPDES permit must adhere to this standard.

Judge Christensen ordered Forest Service officials to report every six months on their progress in obtaining the permit and complying with requirements of the CWA, but his ruling allows the Forest Service to continue using retardant as it seeks the permit required to do so legally.

Dr. Timothy Ingalsbee, a former wildland firefighter, **offered an informed perspective** on our lawsuit: "Aerial retardant is effective over a narrow range of conditions, and the windows of opportunity for those conditions are narrowing each year due to climate change."

Retardant is most effective when used in the cool of the morning on relatively level terrain with sparse vegetation during the initial attack of small fires burning near communities, Ingalsbee said.

Ground crews must be nearby to take advantage of the reduced rate of spread by cutting containment lines; otherwise, the fire may slow only temporarily and then keep spreading.

Ingalsbee cites documentation showing that retardant is more often dropped in the heat of the afternoon during the extended attack of large fires burning in thick forests on rugged terrain. Under these conditions, ground crews — a necessity for capitalizing on any brief tactical advantage — can't engage, and aerial retardant is useless.

"The Forest Service feels pressure to do something, as much for public relations as any operational benefit," Ingalsbee said. "But it's just a big airshow."

After decades of refusing to seek an NPDES permit as required by the CWA, the Forest Service finally applied for a permit shortly after we filed our lawsuit.



Looking Glass Rock greets an Appalachian morning encircled by dawn-tinged fog in Pisgah National Forest, North Carolina.

Featured Forest

Pisgah National Forest

The **Pisgah National Forest** includes some of the highest mountains in the eastern United States. The high point in the Forest is Black Balsam Knob at 6,214 feet above sea level. The Forest enshrines over a half-million acres of predominantly hardwood forest on mountain slopes in western North Carolina. Cascading waterfalls, whitewater rivers, and hundreds of miles of trails make it a popular destination.

Besides its spectacular natural features, the Pisgah features plenty of history, including the first tract of land purchased under the 1911 Weeks Act, which led to the creation of the national forests in the eastern United States. **86,700 acres** of the national forest were part of the Biltmore

Estate before being sold to the federal government by Edith Vanderbilt in 1914. By 1916, the Pisgah National Forest had been established, making it one of the first national forests in the East.

The Pisgah is also home to the Biltmore Forestry School, the first of its kind in the United States and now memorialized at the **Cradle of Forestry in America** historic site. George Washington Vanderbilt II, builder of the Biltmore Estate in Asheville, North Carolina, founded the school. The forestry education offered at Biltmore was taught by Carl Schenk, a native of Germany. Vanderbilt hired Schenk when Gifford Pinchot, who became the first Forest Service chief, resigned to

operate the newly formed Division of Forestry. The Cradle of Forestry and the Biltmore Estate played major roles in the birth of the U.S. Forest Service.

46,600 acres of old-growth forests **have been identified** in the Pisgah with 10,000 of those acres located in the Linville Gorge Wilderness Area, one of the first wilderness areas designated in the East. The Wilson Creek Wild and Scenic River Area also lies within the Pisgah, which offer visitors a variety of opportunities for outdoor recreation and enjoying the natural beauty of the mountains — hiking, backpacking, road biking, mountain biking, fishing, and rock climbing for starters. The Forest is also used for hunting, wildlife management, and timber harvesting.

Mature and Old-Growth Forest Inventory

The first **national inventory of old-growth and mature forests** on federal lands was completed this spring in response to **Executive Order 14072**, issued by President Joseph Biden on Earth Day 2022. The forest inventory report estimates that public lands managed by the Forest Service and the BLM are home to more than 178 million acres of forest, including more than 32 million acres of old-growth forests (18%) and about 80 million acres of mature forests (45%). Forest Service lands account for 24.4 million acres of old-growth forest and 67.4 million acres of mature forest, according to the report. While the forest inventory represents a needed starting point, a close reading of the report provides little motivation for breaking out the champagne.

The forest inventory is based on information compiled by the Forest Service's Forest Inventory and Analysis (FIA) program, which began in 1930 and defines forest land as "currently or recently having at least 10 percent canopy cover and at least 1 acre in size." As the federal forest inventory was being prepared, two other studies of mature and old-growth forests were published, as noted by the federal report: "The Federal estimate is larger than

DellaSala et al. (2022) and Barnett et al. (2023) when compared at equivalent scale [excluding Alaska] ... more than 104 million acres as compared to 53 million acres and 59 million acres respectively." The federal report attributes these differences to "differing goals and methodologies."

How the methodologies differ is unclear as the methodology used to define mature forests for the federal inventory is not revealed in the report. To define old-growth forests, "the agencies decided in late fall to apply existing structural old-growth definitions as currently maintained by each Forest Service region. These definitions "were first developed in the early 1990s," a time when court decisions and endangered species listings made the agencies wary of classifying forests as old growth for fear that they would be prevented from selling the timber. Additionally, the federal inventory report states that the estimates of mature and old-growth forest acreage are subject to a "68 percent confidence interval" — i.e., the numbers have a 32% chance of being wrong.

In introducing the forest inventory findings, the report states, "The initial inventory and definitions for old-growth and mature forests are part of an overarching climate-



*Old-growth ponderosa pine forest
in Deschutes National Forest
(Forest Service photo).*

informed strategy to enhance carbon sequestration and address climate-related impacts, including insects, disease, wildfire risk, and drought.” The report concludes by reiterating these points — i.e., the “next steps” called for in Biden’s executive order. In a statement announcing the release of the inventory report, Department of Agriculture Undersecretary Homer Wilkes repeated these talking points: “Our forest ecosystems and communities are struggling to keep up with the stresses of climate change, whether it’s fire, drought, or insect infestations, it is clear that we must adapt quickly.”

While highlighting the risks from these natural forces, neither government officials nor the report itself mentions logging as a threat to mature and old-growth forests. In fact, the motif established by Biden’s executive order, woven into the inventory report, and reiterated by officials like Wilkes, sets the stage for accelerated logging activity greenwashed as “wildfire mitigation” to enhance “forest resilience.”

Comments from timber industry representatives go further, suggesting that the forest inventory was a waste of time as they push to hasten logging for fire mitigation, which received a massive infusion of cash through the Infrastructure Investment and Jobs Act and the Bipartisan Infrastructure Law. The Federal Forest Resource Coalition represents companies that harvest timber on federal land. The industry coalition’s executive director, **Bill Imbergamo**, commented on the report: “The Forest Service’s most recent science shows that fire, insects and other factors are leading to large-scale losses in mature forests, not timber harvest.... We hope the Forest Service can get back to implementing the billions of dollars Congress provided to protect our forests from fires, bugs, and disease using proven

Table 1.—National total area (acres) of mature and old-growth forest land^a on Forest Service and BLM lands, shown by Congressionally designated land use allocations. “Other” category includes all remaining land use allocations.

Agency & Land Use Allocation	Younger Forest acres	Younger Forest SE% ^b	Old Growth acres	Old Growth SE% ^b	Mature acres	Mature SE% ^b	Total Forest Land acres
Forest Service	52,505,613	1	24,400,019	1	67,413,361	1	144,318,993
Wilderness ^c	9,937,704	2	4,194,748	3	9,335,433	2	23,467,885
Inventoried Roadless Area	12,094,84	2	9,116,931	2	16,076,595	2	37,288,373
National Monument	243,552	15	88,470	26	212,917	15	544,938
Other	30,229,50	1	10,999,871	2	41,788,417	1	83,017,797
BLM	13,212,751	2	8,258,370	3	12,698,776	2	34,169,897
Wilderness	589,153	10	494,901	11	495,233	11	1,579,287
Wilderness Study Area	1,111,718	7	1,231,592	7	982,506	8	3,325,816
National Conservation Lands ^c	575,959	10	837,732	8	727,802	9	2,141,492
Other	10,935,92	2	5,694,145	4	10,493,235	3	27,123,302
Total BLM & Forest Service	65,718,364	1	32,658,390	1	80,112,137	1	178,488,890

^a Forest land includes areas meeting the FIA forest land definition, <https://www.fia.fs.usda.gov/>. Sample area excludes 3.4 million acres of forested land managed by the Forest Service and 27.5 million acres of potentially forested land managed by the BLM in Alaska; permanent field plot monumentation is prohibited in Alaska. Forest Service wilderness areas and Interior Alaska have not yet been inventoried by FIA but are in progress for inclusion in future inventories.

^b SE% is percent sampling error. Estimate plus and minus one sampling error gives a 68 percent confidence interval.

^c Forest Service Wilderness includes both Wilderness and Wilderness Study Areas. National Conservation Lands include National Monument, National Conservation Area, and other similar designations, collectively referred to as NM/NCAs.

Table from Mature and Old-Growth Forests, the federal forest inventory report, showing estimated acreage of mature and old-growth forest on federal lands.

management techniques, like forest thinning and the creation of fuel breaks.”

A growing body of scientific research refutes Imbergamo’s statement, and he goes on to make demonstrably false statements: “On many National Forests, particularly those east of the Mississippi River, we have millions of acres of older forest that are not producing quality wildlife habitat, sequestering carbon, or providing support for local forest-based economies.”

In conjunction with the forest inventory report, the **Forest Service issued an advance notice of the proposed rule** for managing mature and old-growth forests. Published in the *Federal Register*, the notice makes clear the timber industry’s vested interest in thinning forests and creating fuel breaks: “Harvests designed to improve stand health and resilience by reducing forest density or removing trees damaged by insect or disease make up 86 percent of

[commercially harvested] acres ... within the National Forest System.”

Andy Kerr has provided a **brief overview** of all three recent inventories of mature and old-growth forests in which he observes, “The Forest Service and the BLM have never wanted to know just how much mature and old-growth (MOG) forest they have. They have rightfully feared that to map the MOG will lead to protection of the MOG from logging.

“Back in the day, when old growth first hit the spotted owl fan, the agencies assured the public that there was no shortage of old growth. However, when pressed to define and count its old growth, the Forest Service steadfastly refused to count and narrowly defined old-growth Douglas-fir as only the most cathedral-like stands ... leaving out the vast majority of old-growth forests.”

Now, armed with Biden’s executive order and flush with billions in funding for wildfire-mitigation logging, the agency has changed its tune.



Fire spreads among longleaf pine trees in the sandhill ecosystem of Apalachicola National Forest. With Florida's high concentration of lightning strikes, the sandhill landscape evolved to burn every three years on average (photo by David Prentiss).

Guest Column

Apalachicola Friends on Fire

by Todd Engstrom, Ph.D.

Never doubt that a small group of thoughtful, committed citizens can change the world: indeed, it's the only thing that ever has.

— attributed to Margaret Mead

The well-known aphorism attributed to Dr. Mead serves as the motto for the Friends of the Apalachicola National Forest, which has fought for nearly 35 years to preserve the natural ecosystems in Florida's largest national forest. Sustained by a dedicated cadre of professional field biologists, ecologists, and outdoor enthusiasts, this north Florida advocacy group has actively engaged with the Forest Service to raise awareness about management issues that affect the forest and educate local communities about the plants, animals, geology, culture, and history of the place.

The Apalachicola covers approximately 572,000 acres in the panhandle of Florida. Its vegetation is a mosaic of upland-pine flatwoods and sandhills (303,000 acres) as well as wet prairies, marshes, and forested wetlands (269,000 acres). Elevation ranges from 25 to 110 feet in the forest, but 5-10 inches of elevation change can produce striking differences in vegetation in the transition from uplands to wetlands. Longleaf pine (*Pinus palustris*) dominates the uplands, where ground-cover vegetation — composed of robust perennial grasses and a

mixture of forbs — is one of the most biologically diverse grasslands in the world. As elevation decreases and the ground gets wetter, tree species composition changes to cypress (*Taxodium*), gum (*Nyssa*) and bays (*Magnolia*). Titi (*Cyrilla* and *Cliftonia*) are shrubs that typically occur in the transition zone between the wetlands and uplands.

Natural fire shaped the evolution of the longleaf-pine ecosystem and many of the embedded wetlands, and to maintain these ecosystems, fire is essential. Biological diversity in the Apalachicola, particularly plants and herpetofauna, is impressive. Approximately 1,400 plant species have been documented within the Forest, including one endangered, three threatened, and 84 sensitive species as designated by the U.S. Fish and Wildlife Service. Nearly 30 narrowly endemic plant species occur in the Apalachicola, which also supports excellent populations of many carnivorous plant species.

According to a recent assessment by the Florida Natural Areas Inventory, 85 species of animals in the Forest have some level of imperilment at the global, national or state level. Perhaps the most famous of these endangered species is the red-cockaded woodpecker. The Apalachicola has served as the largest and most consistent source of woodpeckers that are translocated to small or declining populations. Collectively, its biological diversity makes the Apalachicola a national treasure.



Pitcher plants, one of the many carnivorous plant species native to the Apalachicola, thrive in a wetland embedded in longleaf pine forest (photo by Pierson Hill).

Issues the Friends have addressed over the years will be familiar to many groups that monitor national forests: habitat restoration, stump removal, off-road vehicles, endangered species management, protection of old-growth forest, and lack of monitoring. During the 1950s to 1970s, Apalachicola National Forest management moved to convert the dominant native canopy tree, longleaf pine, to slash pine (*Pinus elliotii*) via intensive management techniques used in industrial forests (clear-cutting and bedding).

Slash pine occurs naturally in the Forest in wetter sites and in the transition zones from longleaf to forested wetlands, but its seedlings and saplings are less tolerant of fire than longleaf pine. Slash pine grows faster than longleaf during the first 20 years, but longleaf growth catches up and even exceeds slash-pine growth after that. Approximately 100,000 acres of the longleaf flatwoods and sandhills were converted to slash pine. Restoration of slash pine plantations to longleaf was identified as a goal in the Apalachicola National Forest 1999 management plan, but no systematic plan has been developed.

Other management challenges addressed by the Friends include degradation-by-a-thousand-cuts — widening a power line easement, establishing a bike trail, and locating gas transmission pipelines and new communications towers. Recently, a county commissioner even suggested that the national forest should be given to the county for urban expansion!

Rethinking the move to industrial forest management in national forests and on Department of Defense lands in the southeastern U.S. was precipitated by recognition that

intensive forest management was a significant factor in the decline of the woodpecker across its range. Thus, the red-cockaded woodpecker is both an ecological keystone species in that its cavities provide homes for many species of animals and a political keystone species because its proper management necessitates maintaining a more natural forest.

Alternatives to intensive forest management are being explored as a remedy, and the Apalachicola has an interesting model for ecological forest management on its doorstep: the Stoddard-Neel method created by Herbert Stoddard and refined by Leon Neel in the Red Hills region north of Tallahassee. The landscape of hunting estates in which this method was developed is home to the largest population of red-cockaded woodpeckers on private land. This method of single-tree or small-group (quarter-acre) selection maintains a continuous forest that provides foraging and nesting habitat for the red-cockaded woodpecker, and pine needles from the overstory act as a fine fuel essential for frequent fire.

Timber harvest involving reducing the overstory, ground-cover disturbance, and soil rutting is a management activity that requires attention by the Friends, but the issue that lies at the heart of ecological health of the Apalachicola National Forest is the lack of frequent application of prescribed fire. If drought is the word for insufficient rain, what is the word for insufficient fire?

A consistent theme in comments by the Friends over the decades concerning management of the Forest has been that the Forest Service has not burned frequently enough to maintain ecological health. Late May to



mid-July (the growing season) is the period when most lightning-caused fires occurred naturally. Emulating natural fires might be the logical template for prescribed fires, but given modern constraints on prescribed burning, many fires need to be set at other seasons.

Results of two long-term prescribed fire studies support the hypothesis that burning as frequently as fuels permit is optimal for maintaining the largest number of native ground-layer plant species. According to the 1999 management plan, upland pine habitat in the Apalachicola should be burned every three years. Fire-return intervals greater than three years tend to lead to woody plant dominance and reduced herbaceous diversity. Denser litter because of infrequent fire inhibits ground-cover plant species richness. Fire frequency along with canopy cover and basal area interact to govern species richness of ground cover. Both historical evidence from tree rings and inferential evidence from long-term experiments support a history of very frequent fire in longleaf-pine savannas and woodlands.

Forest Service records and measurements of the structure and composition of the vegetation indicate that the prescribed burning program in the Apalachicola National Forest is not achieving its targeted fire-return interval. There are many metrics of a fire regime, but to maintain a three-year interval, an average of 100,000 acres needs to burn each year. Effectively burning this many acres in the Apalachicola's upland fire-maintained pine forests has been too infrequent over the past decades to achieve the target three-year interval.

Keeping fire metrics over time is essential, and so is

measuring the effects of burning. Several years ago, Forest Service staff and the Florida Natural Areas Inventory established an ecological condition metric in a study of composition and structure of the vegetation and found that less than a quarter of the upland pine forest in the Apalachicola is in good or excellent condition. Well over half is in poor to very poor condition. Comparison of aerial photographs from 1952 to 2013 suggests that, when the fire-return interval is greater than three years or fire is only used in the dormant season, ephemeral wetlands and the transition areas between uplands and wetlands get overgrown by shrubs.

Rare plants that occur in transitional habitat and some animals, particularly the federally threatened flatwoods salamander (*Ambystoma cingulatum*), decline with shrub encroachment. Additionally, the three-year fire-return interval may not be enough to maintain grass- and forb-dominated savannas. Additionally, warmer winter temperatures in a changing climate may be eliminating seasonal dormancy in favor of year-round shrub growth. The bottom line is that insufficient fire is the primary cause of deteriorating ecological conditions in the Forest.

Reasons given by the Forest Service for its inability to maintain the target fire-return interval are varied. Some are local, such as red-cockaded woodpecker cavity-tree management, difficulty in obtaining fire permits, smoke management, and requests for inefficient smaller burns for certain wildlife populations [northern bobwhite (*Colinus virginianus*) and frosted elfin butterfly (*Callophrys irus*)]. Some reasons are national, such as demands for local personnel to fight Western fires, the 2022 fire moratorium,



The absence of fire has allowed shrubs to dominate the ecosystem, choking out numerous sensitive plant species (photo by Pierson Hill).

prohibition on using critical equipment (e.g., ATVs), and the emphasis on risk reduction instead of ecological health. Some of the factors that impede our ability to burn frequently would seem to have relatively simple fixes (e.g., a better system of managing vegetation around active red-cockaded woodpecker cavity trees). None are fatal to an effective prescribed fire program. They just slow things down, which has the effect of increasing the fire-return interval.

Apalachicola National Forest has enjoyed a reputation for having an excellent fire management program. The Forest is near Tall Timbers Research Station, founded by Herbert Stoddard — one of the fathers of fire ecology — and the Joseph Jones Ecological Research Center. Both organizations and the Forest Service Southern Research Station have contributed greatly to our understanding of the longleaf-pine ecosystem and its relationship to fire. The National Interagency Prescribed Fire Training Center is based at Tall Timbers and does some of its training exercises in the Apalachicola.

The Forest is home to the largest population of red-cockaded woodpeckers anywhere, and good management for this high-profile

species requires frequent fire. The North Florida Prescribed Fire Council is active, and the Apalachicola National Forest prescribed fire team is part of the 11-member consortium of public and private organizations (Apalachicola Regional Stewardship Alliance) that occasionally pool resources to apply prescribed fire.

The Friends are concerned that the Apalachicola National Forest's fire-management reputation is at risk unless it can reverse the ecological deterioration caused by insufficient application of prescribed fire. There is no reason why the Forest Service can't maintain one of the preeminent prescribed fire programs in the country in the Apalachicola.

To be able to make that claim, it must improve ecological conditions in the Forest through a vigorous, nimble, and well-funded prescribed-fire program that is able to burn throughout the year. Concomitant with the burn program, the Forest Service should employ a robust and ongoing monitoring program to effectively evaluate ecological conditions based on work that has already been accomplished. The Friends of the Apalachicola National Forest will work with Forest Service staff toward that end.

According to Alexis de Tocqueville, the “art of association” is a critical factor in how American society functions to address complex social and economic problems. In its small way, the Friends organization addresses the challenges to management of a national ecological treasure, the Apalachicola National Forest. Our organization is not a perpetual motion machine. It requires constant attention and re-invention. We have decided to become a nonprofit organization (again) and seek out participation by a younger generation of naturalists, outdoor enthusiasts, and Friends. The Apalachicola does not have mountains, immense trees, or majestic views, but when burned frequently and managed with a “lighter touch,” it can be a model for maintaining biological diversity within a working forest.

Todd Engstrom is an ecologist and member of Friends of the Apalachicola National Forest.

During its 35-year history, Friends of the Apalachicola has advocated for beneficial management of the Forest's unique ecological qualities. The Friends have engaged with Forest Service staff through field trips, consultation, and data collection in the Forest and have reviewed and formally commented on many proposed Forest Service management actions. Additional advocacy by the Friends includes:

- Organizing public lectures by local, state, and national ecologists and environmental activists.
- Writing articles for multiple local media outlets.
- Testifying at congressional hearings.
- Providing expert assistance for development of the 1999 National Forests of Florida Management Plan, a document intended to be updated every 10 years that is now 15 years overdue for an update.



Massive poplar trees grow in the Joyce Kilmer Memorial Forest in North Carolina, a rare example of an Eastern “primary” forest — one that has never been logged.

Forests in the American East

Part 1: A Pandemic of Shifting Baseline Syndrome

by Andy Kerr

Old-growth forests in the American East have been so far gone for so long in the public consciousness that Big Timber (from private corporations to government foresters) has conned conservationists and buffaloed biologists into believing that massive and repeated logging is the only salvation of “wildlife.”

In Freeport, Maine — which bills itself as the birthplace of Maine but now looks more like the mall of Maine — lies the intersection of Main and Bow streets (adjacent to the L. L. Bean mothership store; open 24/7 but no dogs allowed). The building on the southeast corner of the intersection is markedly set back, more than the others. Back in the day, such allowed the wagons carrying the huge ship masts of eastern white pine cut from Maine’s woods to make the turn down to ships at Mast Landing on the Harraseeket River. The trees exceeded **6.6 feet in diameter**. Today, any log cut in Maine, which is either **8 or 16 feet in length**, could roll down Bow Street sideways at no risk to sidewalk shoppers. The name “Mast Landing” lives on as the name of a microbrewery and a bird sanctuary.

Most forests in the United States are severely “littled,” but none more so than in the American East. There may be more than twice as many trees in number, but they are small fractions of the girth of their predecessors and of the height of the original primary forest. Rather than reforestation after logging, the timber industry practices “weeforestation.”

AN INSIDIOUS PLAGUE: SHIFTING BASELINE SYNDROME

Usually, first identifying the problems leads to a diagnosis. In this case, first understanding the diagnosis helps one to understand the problems facing forests in the American East.

Consider this contention from Henry D. Thoreau in his essay “**Huckleberries**” (ca. 1860):

I find that the rising generation in this town do not know what an



A New England farm makes for a lovely pastoral setting; nonetheless, no sign remains of the old-growth forest that once stood here.

oak or a pine is, having seen only inferior specimens. Shall we hire a man to lecture on botany, on oaks for instance, our noblest plant — while we permit others to cut down the few best specimens of these trees that are left? It is like teaching children Latin and Greek while we burn the books printed in those languages.

Though Henry nailed the problem before the American Civil War had begun, it wasn't until more than a century later that science named and described shifting baseline syndrome (SBS). In a 1995 seminal essay, fisheries scientist Daniel Pauly noted "that fishers and marine scientists tend to perceive faunal composition and stock sizes at the beginning of their careers as the unaffected baseline condition against which catch size is subsequently judged, and that this is likely to result in a gradual acceptance of the loss of

fish species." Alas, most state wildlife biologists are similarly afflicted.

In 2018, two scientists, Masashi Soga and Kevin Gaston, **refined the diagnosis of SBS:**

With ongoing environmental degradation at local, regional, and global scales, people's accepted thresholds for environmental conditions are continually being lowered. In the absence of past information or experience with historical conditions, members of each new generation accept the situation in which they were raised as being normal. This psychological and sociological phenomenon is termed shifting baseline syndrome (SBS), which is increasingly recognized as one of the fundamental obstacles to addressing a wide range of today's global environmental issues.

Soga and Gaston went on to note: **Consequences of SBS include an increased tolerance for progressive**

environmental degradation, changes in people's expectations as to what is a desirable state of the natural environment (i.e. one that is worth protecting), and the establishment and use of inappropriate baselines for nature conservation, restoration, and management.

An example used in the scientific paper is the loss of most old-growth forest in Japan and its replacement with inferior planted or modified forests. An even more stark example is that of the American East.

Soga and Gaston found SBS to arise from three major causes:

1. **Lack of data on the natural environment.**
2. **Loss of interaction with the natural environment.**
3. **Lack of familiarity with the natural environment.**

A fundamental consequence is that SBS is also likely to alter people's

expectations as to what is a desirable (i.e. worth protecting) state of the natural environment. This is not surprising as most people's beliefs about what is a "good" or "healthy" condition for the natural environment will be shaped by their personal experience, particularly during childhood, and earlier states cannot be recalled.

WHAT CAN BE DONE ABOUT SBS?

The two scientists offer four recommendations to "prevent and ultimately reverse SBS":

1. *Restore the natural environment.*
2. *Monitor and collect data.*
3. *Reduce the extinction of experience.*
4. *Educate the public.*

Restore the Natural Environment

First, restore the natural environment. In a word, practice **rewilding**, a term coined by the late great Dave Foreman in 1992. (See "Remembering Ecowarrior Dave Foreman, **Part 1: The Kalmiopsis Connection**" and "**Part 2: Moving the Needle.**") The Rewilding Institute defines rewilding as the *comprehensive, often large-scale, conservation effort focused on restoring sustainable biodiversity and ecosystem health by protecting core wild/wilderness areas, providing connectivity between such areas, and protecting or reintroducing apex predators and highly interactive species (keystone species).*

Monitor and Collect Data

The North American breeding bird survey, a cooperative effort between the U.S. Geological Survey and the Canadian Wildlife Service, started in 1966, spurred in part by Rachel Carson's five-alarm book, *Silent Spring*. Better late than never, but had the NABBS started in 1666, perhaps we would have a different North American landscape

Every last mature old-growth stand and tree needs to be documented. If we don't know we have it, we will never know we've lost it. Besides monitoring what we have, scientists need to reconstruct historical conditions.

Reduce the Extinction of Experience

To cure SBS, people need both the opportunity and the orientation to interact with real nature. Opportunity means nature nearby, while orientation is convincing people to get their heads out of their smartphones and into nature.

Educate the Public

Traditional forms of education (outdoor education classes, museums, botanical gardens, ecotours, and zoos) should continue and expand to educate individuals about the joy and importance of nature. However, the education of the masses happens best, and often only, through conflict. Loudly and constantly demanding the conservation and restoration of mature and old-growth forests and blocking the logging of such through means both legal (lawsuits) and illegal (tree sits) is what will educate the masses and force political and societal change.

For More Information

Harvard Forest. *Conservation Issues in the History of New England Forests.*

Harvard University.

Soga, Masashi, and Kevin

J. Gaston 2018. "**Shifting**

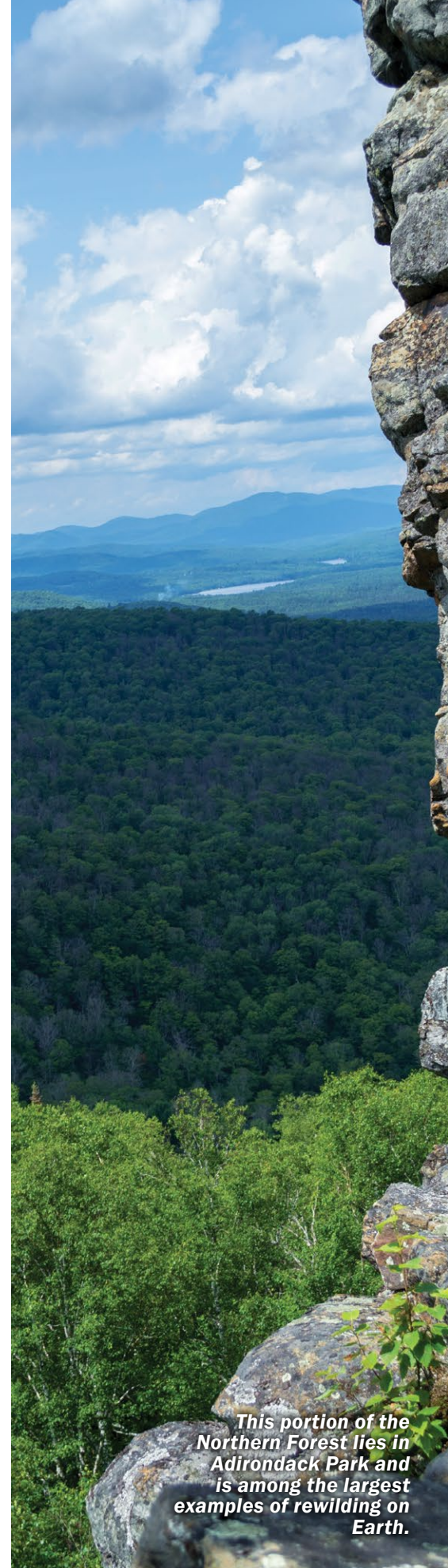
Baseline Syndrome:

Causes, Consequences, and

Implications." *Frontiers of Ecology and the Environment.*

This is the first of a three-part examination of forests in the American East. Part 2 will examine the loss of old-growth forests in the American East and a conspiracy to prevent their return.

Andy Kerr is the czar of The Larch Company (www.andykerr.net) and consults on environmental and conservation issues. The Larch Company is a for-profit non-membership conservation organization that represents the interests of humans yet born and species that cannot talk.



This portion of the Northern Forest lies in Adirondack Park and is among the largest examples of rewilding on Earth.

Fire a Factor as State Farm Stops Insuring California Homes

In a [statement issued May 26](#), State Farm General Insurance Company said it would stop selling new insurance policies to homeowners in California, citing “historic increases in construction costs outpacing inflation, rapidly growing catastrophe exposure, and a challenging reinsurance market.”

A [news report by CalMatters](#) reveals, “Wildfires and expensive rebuilding wiped out profits among California home insurers.... The retraction of California’s biggest home coverage provider is only the latest development in a wildfire-fueled crisis that has smoldered beneath the surface of the state’s insurance market for years.”

The insurance company’s statement indicates that it will continue to honor existing homeowner policies and write policies for new customers seeking other types of coverage like auto insurance.

According to [CalMatters](#), the number of Californians who were told by their insurers that their policies wouldn’t be renewed increased by 42% following the wildfires of 2017 and 2018.

Effectiveness of Landscape-Scale Fuel Treatments Questioned

A comprehensive [2021 Forest Service report](#) by Theresa B. Jain, et al., identifies significant shortcomings in research supporting “fuel treatments” that focus on thinning our forests.

Out of 2,240 research papers, the authors identified only 179 (8%) that evaluated landscape-scale fuel treatments, and “very few are empirical studies that looked at the effectiveness of fuel treatments outside of the treatment boundary.”

The report notes a lack of empirical data along with areas “for significant improvement in future research.” To resolve these issues, the report calls for “well-designed and controlled field experiments over large areas that can produce empirical data to confront the higher-level questions on effectiveness over large landscapes.”

These forest-thinning fuel treatments are receiving record funding through the Infrastructure Investment and Jobs Act, even though Jain, et al., conclude that it “may take years or decades to acquire” the information needed to justify these treatments.

Wood Vaults for ‘Forest Resilience’ and ‘Financial Returns’

The [Forest Service recently approved](#) a \$250,000 grant for Kodama Systems, Inc., in collaboration with Blue Forest and The Trust for Public Land, to fund the creation of “wood vaults” in California.

The pilot project will construct “engineered earthen wood vaults ... in arid environments.” Slash from forest-thinning projects will be buried in the wood vaults, “sequestering the carbon” contained in the slash “for centuries.”

Besides sequestering carbon, wood vaults will eliminate the “need” to burn the slash from forest-thinning projects. This combination provides the opportunity for “a new financial approach that leverages the carbon value of wood residue rather than burning it at a cost and emitting carbon.”

The resulting carbon-removal credits “generated from the avoided emissions” will be sold “to cover project costs, service debt and provide financial returns.”



A home burns in California during the 2021 Dixie Fire.



A remote 2019 fuel-treatment project used helicopters to thin 500 acres of Coconino National Forest, Arizona (photo by Brady Smith, Coconino National Forest).



Cutting trees for fire mitigation emits more CO₂ than wildfire, but transporting and burying the resulting slash in wood vaults may somehow generate financial returns through the sale of carbon credits (photo by Cecilio Ricardo, U.S. Forest Service).

Film Review

Elemental: *Reimagine Wildfire*

A new **documentary** about our relationship with wildfire is available for streaming. The film's director, Trip Jennings has worked with National Geographic for more than a decade, and he has captured multifaceted perspectives to create a compelling narrative that challenges the conventional wisdom about wildfire. From firefighters and physical scientists to Tribal leaders and forest ecologists, the film brings together **experts** whose diverse perspectives all point to the same conclusion: we need to redefine our relationship with wildfire, especially in the arid West.

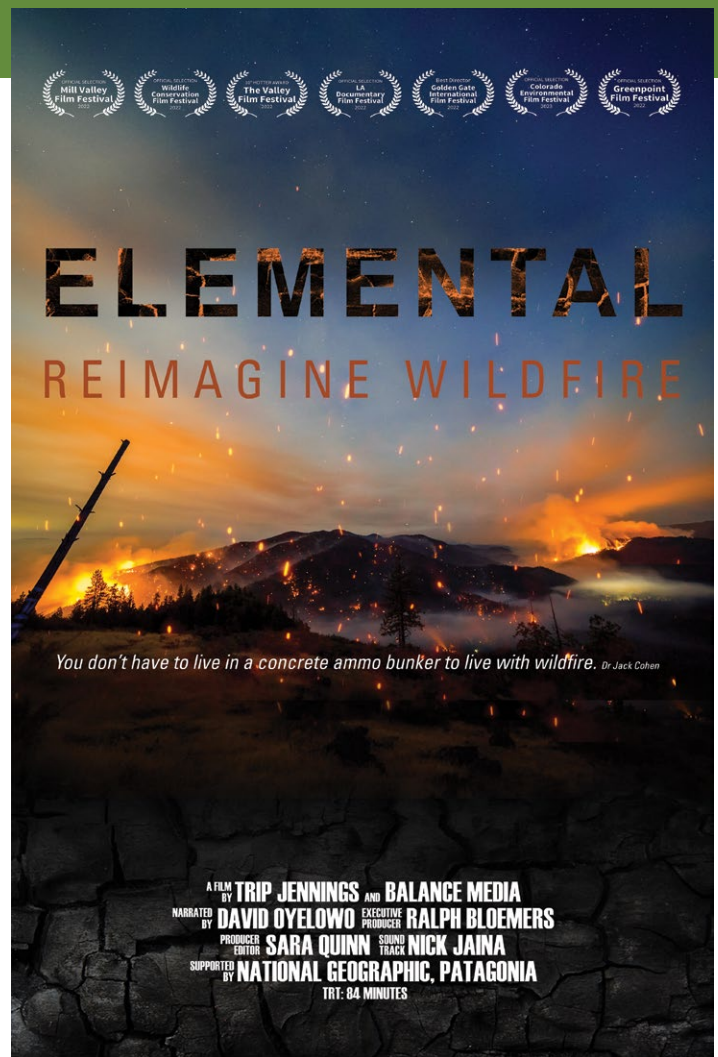
The film opens with clips of destruction caused by recent fire disasters: the Marshall Fire that burned entire subdivisions near Boulder, Colorado; the Camp Fire that decimated Paradise, California; the Almeda Fire that ravaged Talent, Oregon; the Dixie Fire that destroyed Greenville, California.... *Elemental* raises the question, "Is there anything that can be done to keep communities safe from future fires?"

Jack Cohen answers yes: "We have opportunities to prevent the big community fire disasters.... Paradise didn't have to happen." Recently retired, Cohen worked for decades as a research scientist at the Forest Service Missoula Fire Sciences Research Lab. Based on his extensive research and firsthand observations, he has demonstrated that catastrophic wildfire is not a forest management problem but a home ignition problem. The implications are significant.

Elemental includes firsthand accounts and apocalyptic cell phone videos from survivors who escaped Paradise as it burned in 2018. Driven by windblown embers, the Camp Fire burned through clearcut and thinned forest so rapidly that it trapped and killed 86 people.

For over 30 years, Derek Alkonis excelled in his roles with the Los Angeles County Fire Department — "among the most elite fire suppression organizations in the world." His statements align with other firefighters' observations: "You've got flames 50 feet high and embers spreading at 50 miles an hour about a mile in front of you, and to think that you're gonna stop it ... it's not going to happen."

Margo Robbins, Cultural Fire Management Council and member of the Yurok Tribe, believes, "Fire is essential for restoring our lands and our ways of being. Fire



replenishes our food, medicine, and other resources that we depend on. It is our responsibility, and our right, to be able to use fire to support our communities."

Wildlife Biologist Maya Khosla agrees: "Fire in the American West is like this grand reset button, everything starts from that point onward. It's just an amazing, thriving intensity of life coming up from the ground, responding to the light that's available, the resources that are available and animals coming in to feast on all this."

Having been in the path of unstoppable fire, some of us understand the emotional power of wildfire, yet *Elemental* skillfully avoids the melodrama trap, opting instead to present multidisciplinary research and traditional wisdom that speaks convincingly for itself. Each perspective — from firefighter experience to Tribal knowledge to fire ecology — complements the others. Perhaps most importantly, *Elemental* provides practical information that people at risk can use to protect themselves and their property from wildfire.

The film is available for streaming through Apple TV, Google Play, Prime Video and **Vimeo**.



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Call Your Senators

Members of Congress have introduced legislation to exempt retardant pollution from the Clean Water Act. If enacted, this legislation would allow the Forest Service to continue to dump its cadmium-contaminated retardant into pristine waterways with no oversight. Cadmium is a heavy metal like lead. Since our bodies can't eliminate heavy metals, they accumulate in our organs, becoming increasingly toxic.

We need your help to ensure that the Clean Water Act doesn't get watered down.

Our legal victory requiring the Forest Service to seek a CWA permit would be undermined if this misinformed legislation passes in the Senate. **PLEASE CALL.**

The Congressional switchboard phone number is 202-224-3121, and it can connect you to your senators' offices. Thank you for helping to preserve our vital resources!