

# National Forest Management



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The future holds great challenges for the nation's water resources. Shifting weather patterns, more damaging floods, and rising water shortages will threaten communities, the economy, and the environment. This chapter is part of a larger report, ***Weathering Change: Policy Reforms That Save Money and Make Communities Safer***, which shows what the federal government must do to help the nation confront these looming challenges.

To see the entire report, visit [www.AmericanRivers.org](http://www.AmericanRivers.org)

## Introduction:

Forests in the U.S. cover 651 million acres and supply 180 million people with drinking water. Clean water is the most valuable resource that these lands provide. The value of water flowing from National Forest lands alone has been valued at \$7.2 billion annually.<sup>1</sup> Private forests contribute additional value. Healthy forests provide a range of water-related “services” essentially for free. They slow floodwaters, provide natural water storage in wetlands and in the ground, and filter pollutants. Increasingly, communities are improving forest management practices and protecting and restoring forests as a low cost way to preserve sustainable supplies of clean water. Unfortunately, harmful activities on forest lands and climate change are placing this reliable source of water at risk. To meet these growing challenges, the U.S. Forest Service (USFS) must recognize its valuable role as a water service provider and adopt policies and practices that manage forests to protect and enhance sustainable flows of clean water.



Forest lands in the U.S. suffer from continued degradation and fragmentation due to logging, mining, and development.

## I. Today's Policy

The failure to prioritize the water-related benefits of National Forest lands leaves communities and ecosystems more vulnerable to the impacts of climate change.

**Failure to fully value clean water:** Forests provide a wide range of essential goods and services including flood protection, clean water, timber, and fish and wildlife. The water and climate regulation benefits of forests alone are worth \$36 billion annually, nearly double the value derived from timber.<sup>2,3</sup> On numerous occasions, Congress has passed laws requiring the Forest Service to manage National Forests for multiple and sustained uses such as outdoor recreation, range, timber harvest, water supply, and fish and wildlife conservation.<sup>4</sup> Unfortunately, the Forest Service continues to focus on resource extraction to the detriment of other, more valuable services.

All decisions on National Forests are governed by the National Forest Management Act (NFMA) of 1982. Several revisions to the planning rule that guides implementation of the act were rejected by courts as a result of lawsuits over the past ten years. A new revision of the rule was released in

early 2011 and has the potential to update the way the Forest Service manages its lands.<sup>5</sup> The goal of this revision is to set priorities at a regional and local level for each National Forest. Currently, forest supervisors are encouraged to consider all relevant benefits when conducting economic evaluations,<sup>6</sup> but a 2006 court ruling determined that economic valuations of non-timber resources are not required during the planning process.<sup>7</sup> Additionally, individual forest supervisors have the authority to decide which economic costs and benefits need to be considered. This creates confusion as to what parameters must be incorporated into economic evaluations of management practices.

This approach to planning has significant impacts on forests and the water supplies they provide. For example, in the Payette and Boise National Forests, logging of 70 square miles led to the construction of 1,000 miles of road, which sent 1.5 million cubic yards of sediment into prime salmon streams, enough to fill 375,000 full-size pickup truck beds. Additionally, one of the world's largest open pit mines is now being proposed in Boise National Forest despite potential risks to drinking water for downstream communities.<sup>8</sup> The watershed in ques-

tion is the source of 1/5th of Boise's water supply. This is not an isolated problem. Development, logging, grazing, and mining pressures continue to destroy and fragment intact forests, undermining their water quality, wildlife habitat, and flood protection benefits. Failure to properly value these services in Forest Service planning efforts will continue to place our public waters at risk of degradation.

**Lack of national riparian management standards:**

Riparian zones are the lands located along the banks of rivers and streams. These areas serve an important role in maintaining water quality and providing wildlife habitat. They absorb floodwaters, filter and trap nutrients and sediment, and are home to many plant and animal species. Unfortunately, nearly 70 percent of riparian habitat in the United States has been lost. These areas should be the first to be restored and protected in any management plan for National Forests. However, current policy allows for disruptive activities within riparian zones. Grazing, logging, and mining activities may occur as close as 20 feet from streams on nearly 27 million acres within National Forests. The resulting loss of water quality, environmental flows, and habitat within and downstream of this zone far outweighs the benefits of these activities. The roads associated with extractive practices such as mining and logging also take a toll on riparian areas. The average road density in riparian areas is 2 miles of road per square mile,<sup>9</sup> nearly double the threshold needed to protect biodiversity and water quality.<sup>10</sup> Though the new Forest Planning Rule proposes standards for riparian protection, loopholes in the language allow forest supervisors to adjust these standards as they feel necessary.

**Conversion of forest lands:** One of the greatest threats to the nation's forests and the clean water they supply is the conversion of these lands for agricultural or development purposes. In many western states, this results in a patchwork of Forest Service and private land, while in eastern states, private development threatens high quality forests. By 2050, 23 million acres of forestland could be lost to development without intervention.<sup>11</sup> A recent Forest Service report warns that conversion and development is damaging the ability of ecosystems to provide vital services such as clean water, timber, wildlife habitat, and carbon sequestration.<sup>12</sup> Even piecemeal forest conversions of smaller forest parcels can generate larger, cumulative watershed ef-

fects.<sup>13</sup> An increasing abundance of smaller parcels creates a complex management scenario and limits conservation opportunities for private landowners through traditional Forest Service programs.

## II. Risks and Consequences

The combined effects of misguided forest management practices and climate change will put communities and the natural resources they depend on at risk in future years. The current approach to management of our National Forests increases their vulnerability to climate change and makes it more likely that the many benefits they provide will continue to erode. Fragmented forests have less capacity to recover from disturbances such as extreme storms and droughts — events that will become more common due to shifts in the climate. The conversion of forests and loss of stream buffers can increase runoff, degrade water quality, and destroy wildlife habitat. This will put additional stress on wildlife species that will already be under increasing pressure due to shifting climate conditions. The Forest Service protects and improves habitat for over 550 rare, threatened, or endangered aquatic species, making it a critical link in the process of helping wildlife adapt to climate change.<sup>14</sup>

These losses in forest function will in turn have far-reaching consequences for communities' ability to withstand the impacts of a changing climate. Healthy forests absorb rainfall, recharge groundwater, and help maintain flows in rivers and streams. During heavy storms, this prevents downstream floods and reduces runoff and water pollution. The ability of forests to regulate the timing of water



**Poor forest management makes it more difficult and expensive for downstream communities to secure clean water.**

availability will be increasingly important as rainfall becomes more intermittent and concentrated in heavy events and reduced snowpack lowers summer streamflows. Forest Service lands are the largest source of drinking water in the continental U.S., and they provide up to 80 percent of water supply in some Western states.<sup>15</sup> The degradation and loss of these natural landscapes will make downstream communities more vulnerable to rising levels of floods and droughts and increase the costs of responding to climate change.

### III. Preparing for the Future

The Forest Service must embrace a management approach that prioritizes clean water benefits to ensure safe and healthy communities and ecosystems as the climate changes.

#### **Protect water resources on Forest Service lands:**

The Forest Service Planning Rule is the road map for management of all National Forests under the National Forest Management Act. The ongoing effort to update this rule provides an opportunity to better balance management of these lands and enhance their ability to provide important water-related benefits to downstream communities. In the proposed revision of the rule released in early 2011, the Forest Service has begun to focus on improving the health of its watersheds to restore ecosystem function, increase forest resilience to climate change, and help create vibrant local economies downstream. Though a good first step, the Forest Service needs to do more to establish management guidelines and monitoring plans that will ensure that all National Forests meet these goals. All forest plans place a real dollar value on timber, grazing, and resource extraction but frequently fail to properly appreciate the more valuable ecological benefits of forests. Any new rule must set a baseline standard for assessing the net present value of the flood control, water supply, and other benefits that forests provide and managing to preserve these essential functions. Forest managers should have a degree of freedom to manage lands according to local circumstances and the needs of surrounding communities, but the national rule must also include specific requirements for preserving the water-related benefits of forests. History has shown that too much autonomy can lead to imbalanced management approaches that fail to prioritize the most valuable services forests provide.

Improving riparian protection is perhaps the single best strategy the USFS can adopt to protect watershed health and water quality for downstream communities. While the proposed rule requires the establishment of a national riparian buffer width standard, it creates a loophole by stating that the actual width may be more or less than the national standard based on local conditions, giving forest managers a great degree of flexibility in implementing these guidelines. While each river and stream is unique, scientific studies show that a buffer of at least 100 feet effectively traps many pollutants and provides sufficient habitat for aquatic and terrestrial species.<sup>16,17</sup> The USFS should adopt a national mandatory minimum stream buffer standard of 100 feet for all streams on National Forest lands and recommend the implementation of a 300 foot buffer for rivers and streams important to wildlife and downstream communities. It is essential that these guidelines protect healthy riparian areas and their ability to support groundwater infiltration, naturally remove pollutants, and reduce stormwater costs to downstream communities.

USFS must also ensure that management approaches adapt to changing conditions and preserve important water-related benefits even as the climate becomes more volatile and uncertain. While individual land management plans for forests have typically been revised every 15 years, more frequent review and revision may be necessary as climate change brings about more rapid ecological shifts. The new planning rule proposes that plan objectives be revised every 3-5 years or more frequently if necessary. If implemented, this will be a strong first step in the right direction. However, managers will also need better data on physical changes to the landscape in order to preserve healthy watersheds in a changing climate. An accounting system for water is needed to assess the impacts of climate change and management practices on the watershed, wildlife, and downstream water resources. Without a nationally standardized monitoring system, there will be little consistency across forests, and taxpayer money could be wasted on ill-informed management approaches that do not respond to on-the-ground changes. Setting scientifically based guidelines at the national level will help ensure that our ecosystems are resilient in the face of increasing temperatures and more intense storms and droughts.

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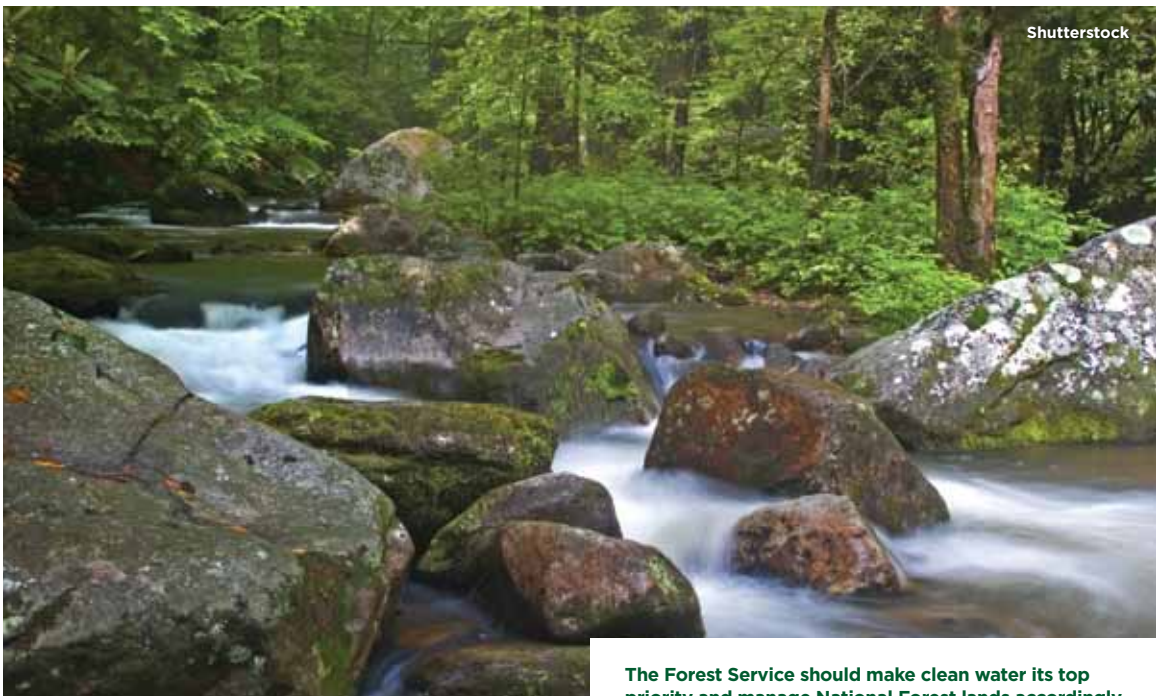
**Reduce forest conversion:** The Forest Legacy Program preserves private forest lands by purchasing conservation easements and acquiring properties threatened by development. Since it was established in the 1990 Farm Bill, this program has protected more than 2 million acres of land. However, even with this program's success, it is fighting a losing battle against a rapid rate of forest conversion at current funding levels. In order to improve its effectiveness, USFS should support funding for this program at \$100 million annually. This level of funding will protect an additional 300,000 acres of forest, and although it will likely not offset all the water quality impacts of ongoing forest conversion, it can have important benefits for a number of communities.

The USFS should also update guidelines for project funding to ensure that we are maximizing benefits for every dollar invested. Funding criteria should ensure that projects will protect and/or restore the capacity of forests to maintain clean water and flood control services to benefit both the land owners and the local community. The guidelines for Forest Legacy projects already include selection factors based on watershed health in 37 of the states involved in the program. Given the important role that forests play in water supply,

however, these guidelines should be strengthened. The program should prioritize rankings to focus its funds on source water protection projects that will help secure clean drinking water supplies in a given watershed. The USFS should also update its project criteria to incentivize collaborative projects consisting of multiple adjacent landowners in sourcewater protection areas. This should be focused on smaller land owners (< 250 acres) in these critical areas, since these are the lands that are at the greatest risk of conversion.

#### IV. Benefits of Being Prepared

Better managing Forest Service lands and increasing efforts to reduce the loss of private forests are essential strategies for securing the nation's water supply system and preparing for a changing climate. Forests have always been a critical part of our water infrastructure, but these lands will be even more valuable in the future. Failure to manage these vital landscapes sustainably will only increase the consequences of rising levels of floods and droughts and lead to the loss of lives and property and reduced economic activity. Protecting and restoring forests will help people and wildlife weather a more volatile and uncertain climate and reduce the costs of securing clean water and managing floods. ■



**The Forest Service should make clean water its top priority and manage National Forest lands accordingly.**



**Maintaining healthy forests will help ensure a clean water supply for downstream communities even as droughts become more frequent.**

#### FOOTNOTES

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