



Reducing the U.S. Forest Service's Environmental Footprint

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A quiet revolution is underway at the U.S. Forest Service, the nation's oldest and largest forestry agency. Founded in 1905 by President Theodore Roosevelt, the Forest Service has roots going back to the first Division of Forestry in the U.S. Department of Agriculture, established in 1881. Best known for administering the national forests and grasslands, the Forest Service also works with the states to sustain America's vast private forest lands, and it provides land managers worldwide with cutting-edge conservation science. Each year, the Forest Service devotes an enormous amount of resources to the cause of conservation, giving the agency a sizable environmental footprint (see the sidebar).

U.S. Forest Service Environmental Footprint: Selected Measures

- Employees (as of January 2009): 28,616
- Budget (requested for fiscal year 2009 (FY09)): \$4.55 billion
- Annual purchases (in FY07): \$1.15 billion
- Annual waste-related utility costs (in FY07): \$10.8 million
- National Forest System (in FY09): 193 million acres in 43 states and territories (an area almost twice the size of California)
- Infrastructure (in FY09):
 - 375,000 miles of road
 - 140,000 miles of trail
 - 17,100 developed recreation sites (such as campgrounds)
 - 42,000 buildings (ranging from camp shelters, to research labs, to visitor centers)
- Water used (in FY07): 1 billion gallons
- Energy used (in FY07): 1.43 billion site-delivered British thermal units (the energy used by 15,500 typical American households)
- Fleet and transportation:
 - Vehicles operated (owned and leased): 18,562 (in FY08)
 - Miles driven: 163 million (in FY08)
 - Fuel used: 12.9 million gallons (in FY08)
 - Fuel efficiency: 12.6 miles per gallon (in FY08)
 - Carbon emissions: 105,502 metric tons (in FY07)
 - Airline round trips: 64,386 (in FY07)

Sources: For FY07—U.S. Forest Service (2008a); for FY08—Hutchins (2009); for FY09—U.S. Forest Service (2009a); for January 2009—U.S. Forest Service (2009b).

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An environmental footprint is a way of measuring the human impact on the Earth's resources. The Global Footprint Network (2008) measures the environmental footprint for entire nations in terms of their demand on biotic resources balanced against their contribution. Despite its rich resources, the United States has one of the biggest environmental footprints in the world—and one of the highest environmental deficits. Whereas 4.5 acres of productive land are available for each person worldwide, the United States needs 24 acres per person to support its patterns of consumption and waste (U.S. Forest Service 2008a).

Grounded in conservation and committed to sustainable resource management, the Forest Service has an obligation to help reduce the U.S. environmental deficit. The agency is taking a hard look at its own environmental footprint, working to make its operations more sustainable. The push for sustainable operations responds to an executive order in 2007 calling on federal agencies to reduce waste and use energy and transportation more efficiently (OFEE 2007). Its origins, however, are older. Their job, as they saw it, was to regulate the behavior of others, not to police their own (Pinchot 1905); moreover, their work was needed, and their impacts were local and limited.

However, environmental footprints tend to have broader, longer term, often unforeseen consequences (such as climate change). In 1949, for example, a winter storm blew down trees across much of northern Idaho, triggering a bark beetle epidemic on the Clearwater National Forest (Moore 1996). In response, the Forest Service built roads into the backcountry to take out much of the fallen timber. The program saved surviving stands of trees, but roadbuilding and logging disturbed soils, degrading hitherto unspoiled streams. The new roads also opened the backcountry to ongoing timber harvest and motorized recreational use, bringing more people, machines, waste, and greenhouse gas emissions—and forever changing the character of the land. “None of us had the wisdom to foresee the consequences of the program we had devised,” remembered District Ranger Bud Moore, one of the program's architects (Moore 1996).

In the 1990s, the Forest Service slashed its national timber program and rethought its land management role (Bosworth and Brown 2007; Ecosystem Management Task Force 1996; Sedjo 2000). Concepts such as sustainable development (World Commission on Environment and Development 1987) and intelligent consumption (Leopold 1928) gained currency, and the agency began calling for a consumption ethic as a logical corollary to its land ethic (MacCleery 2000; Strigel and Meine 2000). A land ethic implies an obligation to respect and protect the larger ecological community to which people belong—a community of sun, soils, waters, plants, and animals—keeping all parts of the whole (Leopold 1949). It implies a need to heed the impacts of human consumption on the larger ecological community and to take deliberate steps to control them.

Accordingly, the Forest Service worked to make its own operations more sustainable. In 1999, the agency integrated sustainability into its national strategy for facilities management, and a year later the first national sustainable development coordinator was named (Jones-Crabtree et al. 2008). In 2004, the Forest Service's Deputy Chief for State and Private Forestry, one of its highest leaders, became the agency's first corporate domestic lead for sustainability. In 2005, Chief Dale Bosworth, in a major speech, called on the Forest Service to support “our land ethic

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with a strong consumption ethic” (Bosworth 2005). Accepting the challenge, the Forest Service’s regional office for the central Rocky Mountains and adjacent Great Plains joined the national office in piloting a 3-year program for reducing the agency’s environmental footprint in its day-to-day operations (Jones-Crabtree et al. 2008; U.S. Forest Service 2005).

The shift toward sustainable operations had begun.

A Cultural Shift

The Forest Service is focusing on sustainable operations in five key areas: (1) water use, (2) energy use, (3) fleet and transportation, (4) waste reduction, and (5) green purchasing. In each area, the agency is committed to meeting and even exceeding the goals set by Executive Order 13423, the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and various directives from the U.S. Department of Agriculture (U.S. Forest Service 2009c). Recognizing the need for strong leadership, the Forest Service also adopted a sixth focus area: sustainability leadership—creating a management climate that reduces barriers to sustainable operations and promotes a sustainability mindset in day-to-day operations.

The push for sustainable operations is not an initiative or a program; its overarching goal is to change the agency’s culture by instilling a consumption ethic in every employee (Jones-Crabtree et al. 2008). Instead of stovepiping efforts in the six focus areas, the Forest Service is stressing the synergies among them—for example, the need for green purchasing to help reduce toxic waste and trash from packaging that cannot be recycled. The idea is to change employee behavior in all six areas, from the bottom of the organization to the top. No single branch or administrative area is in charge; leadership for sustainable operations is shared across the agency. Everyone is equally responsible for sustainable operations in everything they do.

Accordingly, sustainable operations work through employee initiatives supported and facilitated by leaders throughout the agency. Since 2005, more than 50 Green Teams have emerged across the country in units ranging from local to national. A series of sustainable operations summits, both regional and national, have brought advocates together to discuss barriers, exchange ideas, and inspire action. Forest Service units have also made microgrants available to those with practical ideas for making a difference. In the Rocky Mountain Region, for example, a \$3,500 investment in devices to reduce energy use in 30 vending machines generated \$6,000 in savings.

Sustainable operations are not about checking off a list of activities, but about creating an environment that inspires employees to critically examine the Forest Service’s everyday work and find ways to make it more sustainable. One way is through footprint reporting; since 2005, the Forest Service has repeatedly documented the agency’s environmental footprint in each of the six focus areas. The reports reveal gaps, telling units and individual employees where action is needed. The reports also feature success stories. For example, the Inyo National Forest in California now landscapes its facilities with native vegetation, eliminating the need for mowing and watering. Such stories can inspire others to take similar action.

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Strategizing is also important. At various scales, from local to national, a strategy for sustainable operations can help connect a long-term vision (such as net zero energy use) to short-term goals and objectives. The Forest Service is strategizing at multiple levels; in 2008, for example, the Rocky Mountain regional office adopted a strategy for sustainable operations, and in early 2009 Forest Service regional units across much of the West formulated a joint workplan for achieving common goals in the six focus areas. At the national level, the Forest Service has incorporated sustainable operations into its Strategic Framework for Responding to Climate Change as one of seven central goals (U.S. Forest Service 2008b).

Another management tool for sustainable operations is an environmental management system (EMS). Based on an EMS, a unit can plan to make its operations more sustainable, then implement its plans, check for success, take corrective action, and begin the cycle anew. In 2008, the Forest Service created an agencywide EMS (U.S. Forest Service 2009d), focusing first on reducing fossil fuel use in vehicles. In the future, the EMS will expand as part of the continuous improvement cycle to address other sustainable operations goals as well, such as for water and energy use.

Sustainable operations are predicated on connections and collaboration, both within the Forest Service and with external partners. By working across units and disciplines through internal networks, the agency can help a consumption ethic take root, gradually integrating sustainable operations into natural resource management. However, many challenges facing the Forest Service—such as climate change, fire season severity, and water quantity and quality—are regional, national, or even global in nature. They are best addressed through collaborative efforts across borders and boundaries. By building coalitions, the Forest Service can influence others to reduce environmental footprints across the board, including those of the communities it serves and the vendors and organizations it works with.

Score Card

Will sustainable operations succeed within the Forest Service? It already is. The agency is leading by example, inspiring and convening local and regional dialogues about footprint issues in the larger community. The spread of Green Teams and sustainable operations summits have laid the foundations for place-based action, but cultural change within the agency—reflected in behavioral change based on a consumption ethic—has only just begun. Strategies and other management tools for sustainable operations are, for the most part, still under development. The Forest Service has a long way to go before sustainable operations are fully integrated into its mission of caring for the land and serving people. Many painful dichotomies persist; for example, the agency strains credulity when it advocates storing carbon in forests but drives vehicles averaging 12.6 miles per gallon.²

However, the Forest Service is well positioned to embrace sustainable operations. It only makes sense, given its mission, for the organization to integrate conservation not only into *what* it does,

² Of course, many Forest Service vehicles are pickups, SUVs, and trucks needed for backcountry travel and wildland firefighting. They are inherently less fuel efficient than cars, yet overall fuel efficiency has been slowly improving.



but also into *how* it works. And the agency is making progress: Its environmental footprint reports document dozens of successes around the country, from recycling graywater, to meeting green building standards, to powering visitor centers with renewable energy, to replacing old gas guzzlers with hybrids. In fact, the number of Forest Service vehicles fell by about 4 percent in fiscal years 2007–08, and overall fuel use declined by about 2.5 percent (Hutchins 2009, U.S. Forest Service 2009c), more than meeting the national goal set by executive order.

As an organization committed to conservation, the Forest Service has an obligation to reduce its environmental footprint. By setting an example, the Forest Service is raising public awareness of the human effects on the environment and what the alternatives might be. Ultimately, the activities that the Forest Service performs in caring for the land and serving people—activities that generate huge benefits for the American people—will become more sustainable over time.

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