



Policy Gaps in the 2018 Agricultural Improvement Act and their Effects on Forest Resources

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Abstract

Forests of the US consist primarily of naturally regenerated hardwood species in eastern states and softwood species in the West. Nonindustrial families in the South own one-third of the 475 million acres that are private. Of the 253 million acres that are public, 75 percent are overseen by the Forest Service. Biotic and abiotic stressors are adversely affecting forests nationwide. Title VIII sections targeted in this paper is unlikely to improve the situation because they do not accord with current knowledge or regional norms. Congress must work with state governments to formulate a new federal policy implementable across ownerships.

Keywords: Agricultural; Improvement; Forest; Resources

Introduction

The United States (US) is covered by 766 million acres of forest, land at least 120 feet wide and one-acre in size stocked in 10 percent or more of live trees. Forty-two percent of forests are east of the 100th meridian where private lands and hardwood tree species are dominant. The 58 percent of forests west of the meridian are primarily on public lands stocked in softwood species. The principal owner of private forests is nonindustrial families and public forests, the federal government.

Prior to the early 19th century, very little forest in the U.S. was privately owned. The Louisiana Purchase of 1803 opened millions of public acres to settlement. Forested lands perceived as arable were cleared at a rate of 14 square miles per day but much of the timber was wasted. Eastern white pine (*Pinus strobus* L.) and white oak (*Quercus alba* L.) in the upper-Mississippi river basin were heavily logged; a practice Browne noted was so universal that species could disappear. Once coveted northern species were exhausted, attention turned to shortleaf pine (*P. echinata* Mill.) and longleaf pine (*P. palustris* Mill.) of the Gulf coastal plain. By the early 20th century, liquidation of desirable pines was complete. Last came bountiful stands of ponderosa pine (*P. ponderosa* var. *ponderosa*) and Douglas-fir (*Pseudotsuga menziesii* Mirb. *Franco* var. *menziesii*) in the Pacific Northwest. Both

were significantly exploited by logging and construction of transportation networks. Policies for restoring private forests began in 1908 under the state and private forestry branch of the US Forest Service (hereafter, Forest Service) and ensued under the Clarke-McNary Act of 1924, Bankhead-Jones Farm Tenant act of 1937 and cooperative forestry assistance act of 1978, culminating in 2003 with the healthy forests reserve program.

Literature Review

Alarmed by timber removals on private land, the US Congress (hereafter, Congress) set aside a portion of public forests as reserves and, in 1907, renamed them national forests, 191 million acres constituting the majority of the National Forest System (NFS) managed by the forest service [1]. Conditions on many national forests in the early 1900 were dire. Yellow poplar (*Liriodendron tulipifera* L.) and American chestnut (*Castanea dentata*) on former private lands in the East had been ravaged by logging and disease, as western white pine (*P. monticola* Dougl.) and sugar pine (*P. lambertiana* Dougl.) had by massive wildfires and insects in the West [2]. Restoration of national forests originated under the organic act of 1897, followed by the “weeks act of 1911”, civilian conservation corps program of the new deal and “national forest management act of 1976”. The Healthy Forest Restoration Act (HFRA) of 2003 was instrumental regarding the rehabilitation and maintenance of national forest lands [3].

Forests were acknowledged in 2014 by the Agricultural Act (AA), an omnibus ‘farm bill’ on subjects related to food and agriculture. Besides updating the HFRA, the AA provided new strategies for restoring and sustaining forests. The AA was succeeded in 2018 by the Agricultural Improvement Act (AIA), itself a farm bill and the latest to address issues concerning forests [4]. Beneath Title VIII of the AIA are seven subtitles, six of which consist of sections relevant to forest restoration and sustainability, the focal points of this paper. Biotic and abiotic stressors are adversely affecting domestic forests on vast scales. Stand-alone federal policies confronting the problem are scarce. Title VIII was not meant to fill the void; however, it could suffice as frameworks were it not for policy gaps sections contain. Emphasizing family-owned private lands and the NFS, the objective herein was to analyze key sections under Title VIII for gaps and explain, in a practical context, the effects they could have on forest resources [5].

Policy gaps

Policies are formal commitments made by government officials to a course of action, ideally to improve the status quo. Examples include but are not limited to the social security act of 1935 to decrease poverty, civil rights act of 1964 to increase enfranchisement and affordable care act of 2010 to expand health care [6]. All policies are not successful, in part because it is difficult to foresee how decisions made in the present will manifest in the future. Consider the homestead act of 1862. Policy makers could not have anticipated that public land sold to settlers for agriculture in the late 19th century would, decades later, be fraudulently acquired by timber companies and cutover. A similar outcome may result in Canada from officials allowing in 2020 the noncompliance of logging operations with basic provisions in the 1994 crown forest sustainability act. Other policies are easier to fathom due to inconsistencies or policy gaps. Gaps can

interfere with policies achieving what they were designed to do and are analyzable [7].

Take the Sustained-Yield forest management Act (SYA) of 1944, passed to stabilize communities, industries and employment by generating a continuous flow of wood products from the NFS. The Forest Service reasoned it could achieve sustained yield by granting exclusive timber concessions to preferred companies on a long-term basis. The strategy was allowed by the SYA but opposed by small businesses and state agencies on grounds it was monopolistic, an inconsistency that led to termination of the policy in 1957 [8]. The tongass timber act of 1947 intended to stimulate economic development in an impoverished area but policy gaps enabled below-cost timber sales and violations of Indian rights, hastening demise of the Act in 1989 [9]. Gaps in the AA mentioned previously include authorizing, but never disbursing, hundreds of millions to restore the NFS, and exempting from administrative review potentially dangerous fuels reduction projects done at landscape scales. Some claim species protected by the endangered species act of 1973 would be harder to delist prematurely if gaps in the act were repaired, and gaps in the national environmental policy act of 1969 keep federal agencies from doing their jobs. Policies to mitigate climate change in South America, loss of biodiversity in Europe and wetlands damage in Oceania have been affected by gaps which, ignored, can cause policies to fail [10].

Forest restoration on private lands

The largest concentration of private forest is in the southern region where 1.8 million families own 146 million acres on tracts of 10 acres or more. Section 8102 emphasizes its restoration [11]. A plurality of the southern forest is species of oak, hickory (*Carya*) and pine. In 2016, the most recent year in-depth information on U.S. forests was compiled, mortality of growing stock-live trees of commercial species \geq five inches in diameter at breast height on private nonindustrial land in the South was one billion cubic feet for hardwoods and 600 million cubic feet for softwoods, the highest total of any region in the country. Exotic trees, grasses and vines southerners have imported for centuries damage native forests and selective cutting, or high grading, is routine. Forest restoration is critically needed but gaps could obstruct it occurring under section 8102 [12].

Landowners must have a restoration plan and quantify its ecological benefits over time. Not only do family forest owners in the South rarely use written plans but a restoration plan requires knowing what, when and how to measure, tasks that ask too much of landowners not informed by comprehensive forest management guidelines southern states seldom have [13]. Forests landowners wish to restore must be accessible to wood product manufacturers. The economic recession of 2007 shuttered many southern mills, eliminating degraded forests constrained by distance. Hardwood forests are plentiful and diverse. However, species of hickory are vulnerable to decay causing fungi and regeneration of prominent oaks is erratic. Young yellow-poplar is often wounded by logging and black walnut (*Juglans nigra* L.) has been overharvested. Pine species are approximately 40 percent of growing stock and suffer frequent damage from bark beetles and disease. Forty four percent of forest mortality on private nonindustrial land in the U.S. was in the southern region, yet field proven methods for restoring leading tree species have not been developed. A final gap involves costs. Having worked with family forest owners in five southern states, those encountered by the author were averse to restoration unless financial assistance was

available. Landowners can obtain federal assistance under 8102 if they can match it with nonfederal funds [14].

Wood thrift

Section 8201 is on recycled wood. An objective of the forest and rangeland renewable resources research act of 197 was to avoid timber shortages by promoting recycled wood. Wood suitable for recycling is waste from constructing, remodeling and demolishing noncommercial and commercial buildings (C and D), and Municipal Solid Waste (MSW) such as furniture, pallets and crates. Of the 39 million tons of C and D wood waste generated in 2018, 30 percent was recycled and 70 percent landfilled. Waste from C and D includes wood impregnated with carcinogenic chemicals. Phased out of many uses, large volumes of treated wood are still in service. Excluding it would enable 100 percent of C and D wood waste to be recycled [15]. Wood waste from MSW in 2018 totaled 18 million tons. Sixteen percent was combusted for energy, 17 percent was recycled and 67 percent was landfilled. Many items other than wood are disposed of in MSW landfills. However, decomposition of wood aids in producing methane, a greenhouse gas much more powerful than carbon dioxide [16].

Wood recycling may appear unnecessary in view of forest growing stocks having increased for 60 years. Facts belie this opinion. Stocks come mainly from the southern region where state laws tend to permit the fragmentation and development of private forests and property taxes are relatively low [17]. Attracted are public employee retirement systems, timber investment management organizations and real estate investment trusts that control millions of forested acres on behalf of customers. Holdings that are not lucrative may be converted to nonforest purposes, removing growing stock from the land base. Apart from revising state laws, loss of stock can be reduced by reusing functional wood. Abolishing research that supports this alternative is the gist of 8201. Discounting the wisdom of wood thrift is a gap that could have unintended economic and environmental consequences [18].

Climate change, wood energy and forests

Nine of the 10 warmest years on record have transpired since 2005 (National Centers for Environmental Information (NCEI) 2020), a phenomenon of considerable concern for forests. Eighty percent of domestic energy is derived from fossil fuels (US Energy Information Administration (EIA) 2019) that, when consumed, release carbon dioxide into the atmosphere and increase temperature. The Global Climate Change Prevention Act (GCCA), focused on in section 8301 under Title VIII, was instituted in 1990 as an antidote. Section 2410 of the GCCA specified reducing dependence on fossil fuels by making renewable energy from wood biomass which, in a forest setting, is unutilized but salvageable coarse debris (e.g. tops, branches and precommercial stems). A popular outlet for wood biomass is pellets. International wood pellet production, two million tons in 2000, was 56 million tons in 2018. Most of the 26 percent supplied by the US accrues from dozens of facilities in eastern states and private forests are their main source of raw material. Landowners are likelier to care for their forests if they have access to markets for low-value wood [19].

In contrast are western states where 60 million acres of national forest require restoration but only 14 facilities, whose collective annual production is less than one million tons, make pellets from wood. Ponderosa pine is a prized, widely distributed species limited in

growth by soil moisture. Untold numbers of lodge pole pine (*P. contorta Dougl. ex. Loud.*) and douglas-fir, competitors of ponderosa pine, have been weakened or killed by bark beetles in recent years. Wood biomass from forest's is indispensable to ecosystem processes and not ideal as raw material for renewable energy. However, utilizing a sustainable fraction could have helped drought-challenged tree species withstand a warmer climate and decreased consumption of fossil fuels had section 2410 of the GCCA not been repealed under 8301.

Discussion

Hazardous wood fuels

Aligned with section 8301 is 8401 on reduction of hazardous wood fuels. Pursuant to the national environmental policy act, a federal agency cannot initiate a project on federal land until the project has been analyzed for its effects on the human environment. Three levels of analysis are available. A project likely to have significant effects must be analyzed under an Environmental Impact Statement (EIS), the most time-consuming and rigorous option. If it is unclear whether the effects of a project warrant an EIS, the project may be analyzed with an Environmental Assessment (EA). Only if a project will not have significant effects can it be analyzed using a Categorical Exclusion (CE), the fastest, simplest option. Section 104 of the HFRA compelled fuels reduction projects on the NFS to be analyzed using an EIS or EA, a mandate Congress revised in 2018 under the Consolidated Appropriations Act by allowing projects up to 3,000 acres to be analyzed with a CE. Reducing hazardous fuels is crucial, particularly in the wildland-urban interface where developed and undeveloped lands converge. However, projects analyzed under a CE implemented across landscapes have been ruled against by federal courts.

A tacit gap associated with 8401 is about trust. Prescribed fire is an effective way to reduce fuels often employed on the NFS. Burns escape each year, damaging adjacent property and goodwill. It stands to reason the public, to whom national forests technically belong, is likelier to condone reducing fuels with prescribed fire if it trusts the Forest Service. The hypothesis was tested in one-on-one interviews with 28 natural resource professionals from the Rocky mountain region. Informants representing federal and state agencies, Indian tribes and environmental organizations were asked 10 semi-structured questions on whether greater utilization of wood fuels would increase forest restoration on national forests in the region. Responses were audiotaped, coded and ranked on a five-point Likert Scale. Findings could not be generalized due to sample size. However, 75 percent of informants strongly agreed or agreed the strategy would not succeed without public trust in the Forest Service. Lowering environmental standards governing forest management activities can increase their pace and scale but leads the public to believe its lands are not being properly conserved and jeopardizes trust.

Collaboration and forests

Collaboration occurs when parties work together to attain mutual goals. A useful tool in terms of forests is Good Neighbor Authority (GNA), a permanent program featured in section 8624 of Title VIII. The primary client of GNA is states. Those that enter into GNA with the Forest Service can conduct timber sales on national forests within their borders and use profits to rehabilitate forests on state and national forest land. In return, the Forest Service accomplishes work and strengthens its bond with states. Only states deemed by the Forest

Service as having sufficient capacity can participate. Capacity is determined by budgets and budgets are a means of maintaining fiscal solvency. When the budget of a state is adequate, the state is said to be fiscal solvent. Around 35 states are enrolled in GNA. Many that were fiscally strong in 2020 have regressed because of COVID-19 (National Association of State Budget Officers (NASBO) 2020). States have imposed budget cuts but the longer the pandemic lasts, the likelier states are to be fiscally cautious. States that perceive GNA as inessential could stop participating in the program, an unforeseeable but plausible gap capable of having adverse effects on the NFS.

Section 8624 entitled Indian tribes to engage in GNA. Tribal forests total 16 million acres and often adjoin the NFS. An immense amount of tribal forest has been mismanaged but several factors impede its restoration under GNA. One is that forests are customarily treated under the National Indian Forest Resource Management Act of 1990, Tribal Forest Protection Act of 2004 and Reserved Treaty Lands Rights program of 2015 as they give tribes special consideration on projects that abut national forest lands. Secondly, tribes do not receive federal funding for forest management commensurate with federal agencies and cannot levy property taxes to cover shortfalls (National Congress of American Indians (NCAI) 2020). Nontaxable financing available to states is ordinarily unavailable to tribes, hampering their ability to meet capacity requirements of GNA. Another deterrent could be GNA timber sales. Profits realized from sales conducted by states are held by their governor and allocated at his or her discretion to new GNA projects. Federally recognized tribes are sovereign nations not subservient to states. What if such a tribe that executes a profitable timber sale wants the proceeds spent on a project beneficial to the tribe but the governor of the state in which the sale took place has different priorities? Over 100 tribes own commercial forests but very few use GNA for restoration, perhaps because it does not accommodate the unique socioeconomic and legal circumstances of tribes or offer opportunities comparable to other options.

The Collaborative Forest Landscape Restoration Program (CFLRP), founded under the public land management act of 2009, is the subject of section 8629. The CFLRP epitomizes federal efforts to advance forest restoration and sustainability. A CFLRP project must be greater than 50 thousand acres and occur primarily on the NFS. Twenty three CFLRP projects in 14 states have produced billions of board feet of timber, restored millions of acres and created thousands of jobs. In a survey of Forest Service staff (n=229), 75 percent said the CFLRP reduced social conflict, 80 percent that CFLRP projects mitigated wildfire threats and 90 percent that the program should become permanent. Congress has not guaranteed continuance of the CFLRP beyond 2023, a possibility inconsistent with the Forest Service mission to "meet the natural resource needs of present and future generations."

Equality

National forests are located in 44 states. By virtue of the forests being federal, states cannot tax them as they would private property. Congress passed the twenty-five percent Fund Act in "1908" to compensate states for taxes they could not collect from federal lands and funded it with revenues from national forest timber sales. Sales collapsed in the 1990's, prompting Congress in "2000" to replace the "1908 Act" with the Secure Rural Schools and Community Self-Determination Act (SRSA) stressed by section 8702 of title VIII. Any state with national forests could participate and use SRSA funds, \$226 million in 2019, to support public education and federal forest

stewardship. Every state in the SRSA was required to have a resource advisory committee appointed by the Secretary of Agriculture to liaise with the Forest Service on SRSA issues. Section 8702 modified the arrangement but only in two states. Here, 12 million acres of national forest require restoration, and public education in one state is especially poor thirty-three of the 42 states that received SRSA payments in 2019 have huge amounts of impaired forest, and the public school systems of many are subpar. If the resource advisory committee process was changed to benefit disadvantaged states, then all that qualify should be treated equally. That they are not is prejudicial and a policy gap.

Wildfire

Wildfire suppression costs on the NFS, 16 percent of the Forest Service budget in 1995, exceeded 50% in 2017, forcing the agency to borrow from other programs to pay overages. A temporary fix highlighted in section 8704 is the Wildfire Suppression Funding and Forest Management Activities Act (WSFA) of 2018. Before the WSFA, annual fire suppression costs were based on a rolling average for the preceding 10 years, a method rendered obsolete by warming temperatures, lower humidity and longer fire seasons. Congress intervened in 2020 by adjusting the average to \$2.2 billion and adding \$100 million per year through 2027. Mitigating wildfire is imperative but the WSFA, and by extension 8704, is flawed.

The WSFA is arguably an outcome of forest service fire policy, a scheme whose effects on forest ecosystems have been well-documented. Aggressive fire suppression, cornerstone of the policy, protected human communities and natural resources. It also denied a fundamental ecological process to fire-dependent ecosystems, favoring tree species less tolerant of fire and more forgiving of shade. As canopies closed forests became overly dense and fuels-laden, threatening with severe fire the very communities and resources the policy meant to defend. From 2011 to 2020, acres burned and fire suppression costs on national forests in western states averaged 1.5 million and \$1.5 billion per year (National Interagency Fire Center (NIFC) 2021). Calendar year 2020, unprecedented with over 4.8 million acres burned, could become the new normal where forest mortality and fuel loads are high. The WSFA is not a fire policy but could do more to alleviate fire concerns were proactive forest restoration its topmost priority instead of spending reactively on fire suppression.

Congress

Framers of the US constitution instructed congress to “make all needful rules and regulations respecting property belonging to the United States.” Officials could not have foreseen modern day conditions on federal lands, a situation inapplicable to policy makers of recent decades. Had these individuals fulfilled their constitutional duty, numerous Title VIII sections might have been moot.

Insects and disease have devastated millions of acres on the NFS. Renewable energy projects referred to in section 8301 could have utilized hazardous fuels removed under section 8401 if they had been supported by Congress. Reluctance of congress to regulate even-aged forest management damaged significantly forest and aquatic ecosystems and is partially responsible for 8624. Livestock grazing, permitted by the Multiple-Use Sustained-Yield Act (MUSYA) of 1960’s under which the NFS is governed, is widespread in western states. Grazing abuse Congress did not moderate facilitated the most

expensive forest restoration project undertaken by section 8629. Moreover, despite the MUSYA obligating the Forest Service to manage for noncommodity products, Congress allowed the agency to prioritize timber sales into the 1980’s. The public education and natural resource needs of many states in the SRSA are as pressing as those singled out in section 8702. Failure of Congress to correct the inequity is unjust. In 1974 Congress pledged, under the Forest and Rangeland Renewable Resources Planning Act, to “reduce, by the year 2000, the backlog of forests on the National Forest System requiring restoration to an environmentally-sound basis.” Seventy-five percent of the 80 million acres in arrears are in danger of catastrophic wildfire, a risk that could be reduced if Congress dedicated more section 8704 funds to improving forest resilience and health. Nearly 40 percent of the NFS is in decline. While disturbance regimes have contributed, Congress is statutorily accountable for federal lands and complicit as well.

Conclusion

Forest acreage in the U.S. has been stable since the early 20th century but dynamics have dramatically changed. Developmentally and structurally complex forests that were centuries-old have been replaced by others that are economically and ecologically valuable but deficient in characteristics common to their forebears. Biotic and abiotic stressors are debilitating extant forests on large scales, a dilemma Title VIII sections are unlikely to allay owing to policy gaps. Family owned forests are 38 percent of the U.S. total and prolific in southern states. It is doubtful they will be broadly restored unless landowner requirements are tailored to regional norms. Dying and dead trees are increasingly worrisome on the NFS. Innovative wood utilization technologies and multistakeholder agreements can improve matters if they are sanctioned and funded by Congress. Goods and services furnished by forests are currently ample but should not be taken for granted. The prospect of having to look elsewhere for substitutes can be minimized by developing a new policy to restore and sustain forests across ownerships.

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