

Violent Entanglements: The Pittman-Robertson Act, Firearms, and the Financing of Conservation

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Abstract

Environmental politics in the United States have become inseparable from the politics of guns. The Pittman-Robertson Act of 1937 transformed conservation policy and funding in the United States, establishing the Federal Aid to Wildlife Restoration Account, which generates public revenue for conservation through a tax on firearms, ammunition, and archery equipment. As the manufacture and purchase of firearms and ammunition have increased rapidly in recent years, the funds flowing to conservation have also grown. Despite allotting more than USD750 million to states in 2020 alone, the Pittman-Robertson Act has been overlooked in discussions of the political economy of conservation. Here, we compare the four largest sources of revenue for state wildlife and conservation agencies and demonstrate the growing importance of Pittman-Robertson as gun sales increase. We argue that the position of firearms in conservation has shifted, disrupting widely held ideals of conservation and undermining the 'user pays' model that is argued to undergird conservation activities in the United States. We explore the ethical concerns produced by this emerging relationship and the ways Pittman-Robertson entangles conservation with guns and violence.

Keywords: The North American Model, wildlife conservation, hunting, conservation and violence, green militarisation, fiscal geography

INTRODUCTION

Gun sales have rapidly increased in the United States over the past 20 years. We estimate that Americans bought 22.6 million new guns in 2020,¹ roughly double the number in the previous year and three-and-a-half times the number in 2000. In 2021, the number of monthly firearms background checks set records in January and again in April. Federal excise taxes

levied on the production of these firearms and ammunition in 2020 totalled over USD750 million. These tax revenues are managed by the US Fish and Wildlife Service (USFWS), which distributes them to states to support conservation² and hunter safety programmes. Since the mid-2000s, as gun sales in the United States set new records, these funds have become increasingly important for state fish and wildlife agencies, creating unprecedented fiscal dependencies between conservation and wildlife management and the production and consumption of firearms.

Excise taxes from firearms and ammunition have long been entangled with conservation in the United States (Braverman 2015; Yarbrough 2015), but the rapidly expanding role of firearms in funding wildlife and land management activities reflects an important shift in the funding and related politics of conservation. We argue here that an attention to guns and conservation is essential to understanding the broader politics

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of public lands and wildlife management in the United States. A large body of research has explored public perceptions of hunters and hunting in conservation (Dizard 1999; Stedman and Heberlein 2001; Heberlein and Ericsson 2005) and a smaller set of critical scholars have interrogated the intersecting politics and ecology of hunting and wildlife management (e.g., Haggerty and Travis 2006; Robbins and Luginbuhl 2006), particularly the American West (McCarthy 2002; Martin et al. 2019). This research, however, has generally overlooked the role of firearms per se in American conservation. Given the outsized role of guns in American politics (e.g., Hofstadter 1970; Cottrol and Diamond 1994; Winkler 2011; Pew Research Center 2017) and the central role of firearms sales in funding US conservation and wildlife management, attention to the intersections of gun politics and environmental politics is essential to understanding the making of the North American landscape, the bureaucracy that manages it (Luke 1999), and relationships of power in environmental decision-making.

In the sections that follow, we highlight how the Pittman-Robertson Act, a long-standing law that redirects excise taxes on firearms to conservation activities, has created a complex relationship between conservation and firearms use in the United States. This critical inquiry into the relationship of firearms and conservation sheds light on the ways that current fiscal arrangements of conservation funding benefit from and contribute to the reproduction of gun use and users. More broadly, this work helps centre the role of taxation and the environmental state in producing the politics and economics of conservation and contributes to a growing body of scholarship addressing tax and fiscal policy in the making of social relations (Martin and Prasad 2014; Tapp and Kay 2019). In the case of Pittman-Robertson, we show that this particular fiscal mechanism is increasingly decoupled from hunting and outdoor recreation, but evermore bound up with the politics and production of guns, which is itself embedded in broader patterns of social violence.

THE NORTH AMERICAN MODEL OF CONSERVATION

Conservation in the United States has a long history of depending upon hunters and fishers for providing labour and financing for conservation activities. The legal and philosophical rationale for this arrangement is commonly referred to as the public trust doctrine, formally established by the 1842 Supreme Court ruling *Martin vs. Waddell* and affirmed in subsequent cases including *Geer vs. Connecticut* in 1896, which extended the public trust from fishing and navigation on waterways to hunting and wildlife management. In general, the doctrine positions fish and wildlife as the property of the general public, but held and managed in trust through state and federal governments (Wilkinson 1988). State-level fish and wildlife agencies are the primary stewards of this public wildlife trust, and generally adhere to a set of principles referred to as the North American Model of Wildlife Conservation (NAM). Geist (1995) introduced the term and

identified seven principles of NAM, which he argued were emblematic of the existing wildlife management practices in North America: 1) maintain wildlife as a public trust resource; 2) eliminate markets for game; 3) allocate wildlife democratically and by law; 4) ensure that wildlife use is for legitimate purposes; 5) preserve hunting opportunity for all; 6) recognise and manage wildlife as an international resource; and 7) ensure that science is the basis for conservation policy.

Despite the ideals presented in Geist's (1995) post hoc framing of NAM, the history of North American conservation is equally characterised by processes of exclusion in service of colonial and imperial control (Peterson and Nelson 2017). By the turn of the twentieth century, the expropriation and privatisation of land from indigenous peoples, a growing industrial base, and unregulated markets for wild game products had led to the near or total annihilation of numerous charismatic species, including the American bison and a wide range of waterfowl. These trends troubled elites, who saw hunting in 'wild' frontier settings as fashionable, important for cultivating masculinity, and critical to nation building (Taylor 2016). As a result, early wildlife management programmes regularly sought to maintain recreational opportunities for well-heeled 'sportsmen' at the expense of the well-being of rural and indigenous populations, who were often forcibly removed from lands and prohibited from accessing resources they had once used freely for subsistence (Jacoby 2001). As opposed to the noble democratic access to open space and wildlife imagined by NAM, the nineteenth and early twentieth century foundations of American conservation were largely focused on bringing the 'wild' North American continent and its people under the productive control of elites and the expanding US state (Cronon 1996; Jacoby 2001; Taylor 2016).

In line with this vision of rational management of the North American landscape, Aldo Leopold's *American Game Policy* (1930) provided a codified template for what Geist (1995) would later label NAM, calling for the creation of professional wildlife managers and university programmes to train them. Leopold and other conservationists of the time thus set the stage for the creation of a conservation and game management bureaucracy with wildlife implicitly positioned as a state-controlled commons and hunters as key actors in the management, decision-making, and financing of conservation. In particular, hunters were viewed as the primary agents for managing the density and distribution of wildlife populations (Heffelfinger et al. 2013). With the eradication of many predators, hunting was—and remains—the primary top-down pressure on several large game species, transforming ecological processes (Berger 2005).

Pittman-Robertson Act

The formal, federal-level codification of NAM began in earnest in 1934. That year marked the passage of the Fish and Wildlife Coordination Act to help manage game and fisheries, the passage of the Migratory Bird Hunting and Conservation Stamp Act (the Duck Stamp Act) to fund conservation via hunting, and

the establishment of the Division of Game Management within the already existing Bureau of Biological Survey, which was later absorbed into the Fish and Wildlife Service. Three years later, in 1937, the Federal Wildlife Restoration Act, commonly known as the Pittman-Robertson Act, formally institutionalised the relationship between hunters, firearms, and conservation. The law redirected funds from an existing 10% excise tax on sporting firearms and ammunition to conservation purposes.³ A 10% excise tax on pistols and revolvers was added in 1970, and taxes on archery equipment were added in 1972 (Kallman 1987). The revenue from these taxes is placed in the Wildlife Restoration Account (WRA) managed by USFWS and, in turn, distributed by USFWS to state-level fish and wildlife agencies.

In its current form, funds in the WRA are distributed across five areas: Programme Administration, Basic Hunter Education and Safety, Enhanced Hunter Education and Safety Grants, Multistate Conservation Grants, and Wildlife Restoration (see Figure 1). Funds for basic hunter education programmes derive from 50% of the taxes collected on pistols and revolvers (33% of total Pittman-Robertson funds in 2020) and archery

equipment (5% of total funds in 2020; USFWS 2021b). Apportionment of these funds is based on the population of the state where they are allocated. Enhanced Hunter Education funds are currently set at USD8 million total and are similarly dispersed based on the relative population size of each state. States may not receive less than 1% or more than 3% of the total allocation. Multistate Conservation Grants are currently set to a total of USD3 million annually and are administered through a selection process for qualifying projects. The remainder of Pittman-Robertson funds—the vast majority, or over 80% of funds available for apportionment to states in 2020—are placed in the Wildlife Restoration section. Wildlife Restoration funds are split in half; the first half is allocated to states based on the number of licensed hunters compared to the US total, while the second half is allocated based on the proportional land area of each state. States may not receive less than 0.5% of funds or more than 5% of funds. If states do not claim a portion of their allotment, then unused funds are redistributed to the Secretary of the Interior to support the Migratory Birds Conservation Act.

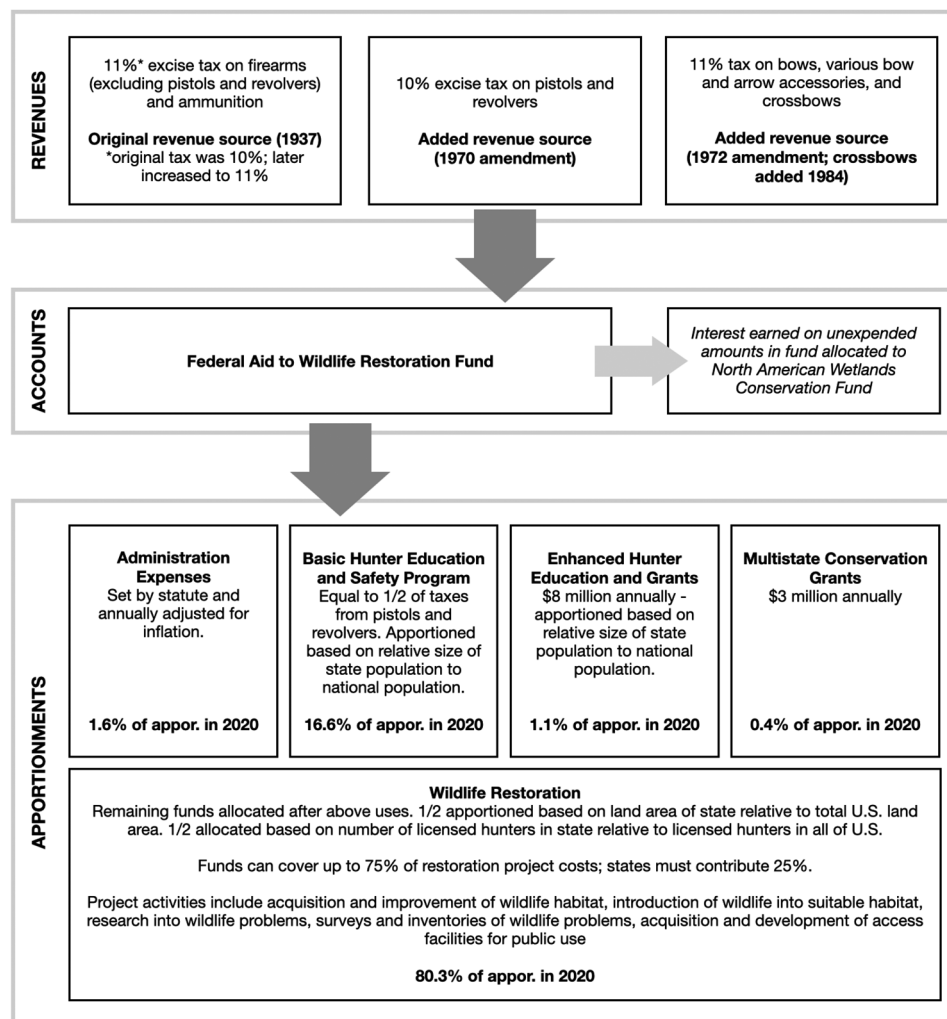


Figure 1

Structure of Pittman-Robertson Act revenue flows. Apportionment percentages are based on funds available in 2020, which are from Federal Aid to Wildlife Restoration Fund receipts in the prior year (2019). Based on Crafton (2019) and US Fish and Wildlife Service (2021b, 2021a)

User pays and conservation funding

Pittman-Robertson and NAM are distinctively state-centric, bureaucratic, and non-market governance institutions. Rather than the efficiency and flexibility emphasised in many modern market-based policy instruments, NAM advocates science-based public administration of land and resources held in trust by the government and made widely accessible to the public at low cost. This institutional model is often argued to drive democratic engagement in conservation policy and to minimise the costs of operations. In particular, NAM is celebrated for its success in financing conservation through fees charged to those that directly benefit from extractive uses of land and waterways, i.e., hunters and fishers (Mahoney and Jackson 2013). This is commonly referred to as a ‘user pays’ model of conservation and land management, whereby fees and taxes levied on hunters and fishers—users—are collected for reinvestment into fish and game operations, programmes, and projects (Organ et al. 2012).

Pittman-Robertson is one such source of user fees, built upon the assumptions of Leopold and many others that hunters are the primary users of public lands and wildlife. Along with Pittman-Robertson, state fish and wildlife agencies depend upon three other major sources of user fees: 1) fees generated from the sale of hunting licenses and permits; 2) fees from the sale of fishing licenses; and 3) excise taxes imposed on fishing-related wares. The latter were authorised by the Federal Aid in Sport Fish Restoration Act, more commonly known as the Dingell-Johnson Act, passed in 1950, which allows the US federal government to distribute funds to the states for the management of fish populations and habitat as related to recreational fishing. Importantly, most state-level fish and wildlife agencies still get a very small portion—or none—of their budgets from other state-level funds, meaning that Pittman-Robertson funds and these other user fees remain the primary sources of public revenue for wildlife management in the United States.⁴

USER PAYS DISRUPTED

Although the Pittman-Robertson Act is commonly celebrated as a successful implementation of user pays, changes in the uses of public lands and wildlife and recent trends in gun sales challenge the assumed relationship between firearms, hunting, and conservation that undergird this policy. Below, we explore this shifting relationship by documenting changes in the amounts and relative importance of the four primary categories of user-generated funds for fish and game agencies and by situating these changes in the context of changing rates of participation in hunting and broader trends in firearms sales. Specifically, we assemble publicly available data on the revenue generated by Pittman-Robertson (i.e., taxes on firearms and ammunition), Dingell-Johnson (i.e., taxes on fishing-related wares), hunting license sales, and fishing license sales. We also present data on the number of hunting and fishing license holders across the United States to situate revenue generation in relation to participation in hunting and

fishing. Most of these data span around 55 years, from the 1960s (starting between 1962 and 1967) to 2020. Because of changes to the law in 1984, we only have data on revenue collected under Dingell-Johnson from 1986 to 2020.⁵ All data on hunting license holders, fishing license holders, and related data on revenue from hunting and fishing license sales comes from annual reports issued by the USFWS. All data on excise tax revenue derived from the sale of firearms and ammunition and recreational boating equipment comes from federal budget outlay tables published by the US Office of Management and Budget. All monetary amounts are presented in 2020 real (inflation-adjusted) dollars. Comparing the trends in these datasets to other existing survey results and reports from federal agencies, firearms industry organisations, and research organisations (i.e., Pew Research Center), we demonstrate that current funding mechanisms are increasingly detached from the ‘user pays’ ideals imagined by NAM.

Hunters, anglers, and the fiscal structure of conservation

For most of the last several decades, each of the four primary user fees held relatively stable positions with respect to the others, with hunting license fees as the dominant source of revenue (Figure 2A). Hunters pay these fees when they purchase a required license to hunt, often along with a duck stamp (a federal fee for hunting migratory birds) or a tag (a permit to kill one animal of a specific species). The number of licensed hunters has remained stable for 60 years, consistently around 15 million people, but inflation-adjusted revenue from hunting fees increased through the 1990s to approximately USD900 million annually. This growth was driven by changes in fee structures (e.g., higher fees for out-of-state hunters) and alternative pricing mechanisms (e.g., tag auctions). The sale of fishing licenses also continues to be a critical source of user fees. As with hunting licenses, the number of licensed anglers has remained stable since the 1980s with approximately 30 million licensees, generating a relatively consistent USD700 million annually. For decades, fishing license revenue was the second-largest source of user fees. From 1990 to 2010, fishing-related excise taxes generated by Dingell-Johnson provided the third-largest revenue stream for state fish and wildlife agencies. For most years (from at least 1965 to around 2010), excise taxes on guns and ammunition derived from Pittman-Robertson provided the smallest share of funding sources, ranging from about 10% to 15% of these user-generated funds.

Firearms and a new fiscal structure of conservation

Since the early 2000s, however, the relationship between hunting, guns, and wildlife management use have transformed. The structure of fiscal institutions like Pittman-Robertson mean that hunters and game management remain at the centre of state-level conservation policy in the United States, but conservation funding is increasingly decoupled from the practice of hunting. Instead, as recreational, security-related,

and fear-based firearms purchasing surges (Wallace 2015; Studdert et al. 2017; Porfiri et al. 2020), and as hunting declines in prominence as a social practice (USFWS and USCB 2016), the fiscal structure of conservation is being reshaped by a new politics and economics of guns. This decoupling of hunting from conservation funding works on two distinct levels: hunters are a shrinking share of wildlife commons users; and hunters are also an increasingly small share of firearms users.⁶ Thus, the founding legal-institutional assumptions of Pittman-Robertson, linking hunters to firearms to conservation, have ruptured. We address each of these mechanisms, then demonstrate how these patterns reveal the limits of the user pays model in a social context likely never imagined by Leopold nor the originators of the Pittman-Robertson Act.

Decoupling hunting from wildlife use

Despite the centrality of hunting in NAM, the link between hunting and conservation policy has become increasingly tenuous as hunters have declined as a share of total population and as other forms of outdoor recreation, such as hiking, have grown in popularity (USFWS and USCB 2016). USFWS began tracking the number of hunting licenses in the United States during the 1941-1942 hunting season, shortly after the establishment of the Pittman-Robertson Act and the formation of the Fish and Wildlife Service itself. At that time, USFWS reported the sale of over 8.5 million hunting licenses, accounting for about 6% of the US population, though there was likely extensive unlicensed hunting at the time.⁷ By 1960, nearly 1 in 12 US residents (about 8%) purchased a hunting license (see Figure 2B).

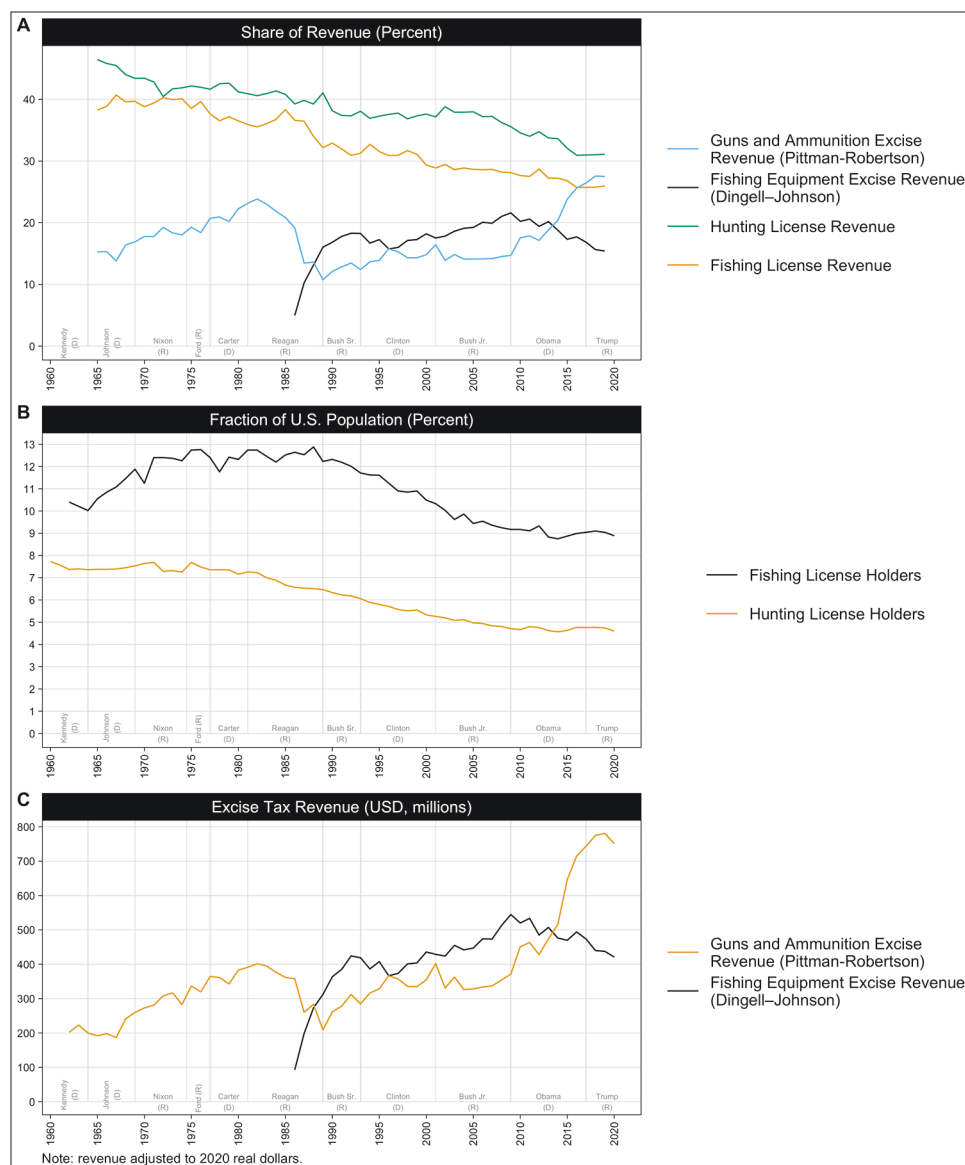


Figure 2

(A) Relative shares of revenue for state wildlife agencies from all four major funding streams: guns and ammunition excise taxes (Pittman-Robertson), fishing equipment excise taxes (Dingell-Johnson), hunting license sales, and fishing license sales. Revenue shares exclude any state-level appropriations to wildlife agencies. (B) Hunting license and fishing license holders as a fraction of US population. (C) total revenue generated for state wildlife agencies through excise taxes on fishing and boating equipment (Dingell-Johnson) and firearms and ammunition (Pittman-Robertson)

By 2010, however, the share of the US population that purchased a hunting license had eroded to less than 5% (Figure 2B). Public use of outdoor space and wildlife, meanwhile, has held steady or has grown. The National Park Service, for instance, reported just over 6 million recreation visits to park facilities in 1960. By 2019, that number had jumped to 327 million, a more than fifty-fold increase.⁸ US Forest Service saw similar increases, from an estimated 143 million visits to National Forests in 2005 to 150 million visits in 2018. More tellingly, nearly 25% of visitors reported hiking and walking as their primary activity while only 4.3% reported hunting (USFS 2018: 19). Indeed, hiking seems to have become the dominant form of outdoor recreation. In 2015, the Forest Service projected an estimated 8.5 billion activity-days dedicated to “walking for pleasure” in forests and found that walking was the most popular and among the fastest growing of forest activities. Hunting, by contrast, was expected to total 286 million activity-days, nearly 30 times less (USFS 2014: 51–52).⁹ In 2016, as a share of the population, only 4% of US residents 16 or older hunted, while 14% fished and 34% watched wildlife (USFWS and USCB 2016). At best, hunters represent a small and shrinking minority of the users imagined in NAM, even while statutes like Pittman-Robertson help retain hunters as a central source of funds for state fish and wildlife agencies.

Decoupling firearms use from hunting

Beyond imagining hunters as primary users of wildlife, Pittman-Robertson also envisioned excise taxes on firearms as a means to capture revenues from hunters. The loosely parallel trends between revenue derived from hunting license sales, on the one hand, and gun sales, on the other, have long-suggested that these work together—both the number of hunters and the revenue generated by Pittman-Robertson from the sale of firearms and ammunition remained stable for decades. Pittman-Robertson funds grew somewhat through the 1970s, but then ebbed and flowed around between USD300 and USD400 million annually until the early 2000s (Figure 2C).

Around 2004, however, Pittman-Robertson revenue, and therefore gun sales, began to decouple from hunting. Since, the number of hunters, measured by hunting license sales, has not appreciably changed, but Pittman-Robertson revenue, directly proportional to firearm sales, has more than doubled from USD325 million annually throughout the 1990s and the early 2000s to over USD750 million in 2020 (Figure 2C). As a share of revenue from the four user pays sources, Pittman-Robertson funds skyrocketed from the smallest to the second-largest, eclipsing Dingell-Johnson and fishing license sales revenue (Figure 2A). Although many privately owned firearms have always been purchased for non-hunting purposes, this rapid increase in firearms sales amidst stagnating numbers of hunting license holders points to an increase in firearms and ammunition sales for non-hunting purposes (see Duda et al. 2021 for discussion of shooting sports).

As with trends in outdoor recreation, recent survey data support these inferences. In 2017, only 34% of US gun owners

reported “often” or “sometimes” going hunting (Pew Research Center 2017).¹⁰ Correspondingly, 67% of gun owners said “protection” was a major reason for their gun ownership, but only 38% said hunting was a major reason that they own a gun. This, however, may be an overestimate of hunting-related gun use. A 2016 Gallup survey found that over 93 million US residents reported personally owning a firearm (29% of 323 million US residents; see Saad 2019), while the aforementioned USFWS survey in the same year estimated that only 11.5 million people hunted, in line with hunting license data. Even if all hunters are gun owners (some may only own archery equipment; others may borrow a gun to hunt), the USFWS data suggest that closer to 12% of gun owners, not 34% or 38%, actually hunted in 2016. Based on these numbers, it is reasonable to estimate that seven out of eight gun owners did not hunt in 2016.

The types of guns sold also suggest that hunting-related activities are a small fraction of contemporary gun use in the United States. An industry research firm recently estimated that in terms of revenue, only 20.2% of firearms sales in 2015 were related to hunting, while 79.8% were for non-hunting purposes. The largest fraction of retail gun sales revenue (50.4%) came from handguns; the second-largest (19.5%) came from the sale ‘modern sporting rifles’ or MSRs (Southwick Associates 2017).¹¹ MSRs, many of which are commonly referred to as assault weapons, have quickly become one of the most popular forms of rifles in the United States. In total, an estimated 48% of rifles produced or imported in 2018 were MSRs, and roughly 20 million MSRs have entered into circulation in the United States since 1990 (Yablon 2018). MSRs can be used legally for hunting in most states, but they are particularly popular for ‘security’ and sport shooting. Available data do not permit the easy separation of sales of MSRs from other rifles more commonly used for hunting, but their manufacture has increased precipitously in recent years from 100,000 in 2005 to 500,000 in 2008 to over 2 million in 2013 (including production for law enforcement; NSSF 2020). Meanwhile, nearly two thirds (65.5%) of Pittman-Robertson revenue in 2020 was derived from the sale of ammunition, pistols, and revolvers (USFWS 2021b); this is indicative of the prevalence of sport shooting, which often involves the discharge of dozens or hundreds of rounds of ammunition, and other non-hunting related firearms use in the United States (Crafton 2019). We note for clarity that MSRs, pistols, and revolvers are not typically used in hunting activities, and that hunting outings usually involve the discharge of only a few—or even zero—rounds (Duda et al. 2021).

Taken together, these data make clear that increasing firearms sales in the United States are not linked to an increase in hunting. Rather, increasing gun sales seem to be driven by the distinctive politics and political economy of guns themselves, connected to a rise in the popularity of sport shooting and, perhaps more fundamentally, the shifting position of guns in American culture and politics. An important event in shaping these politics was the federal assault weapons ban, signed into law by President Bill Clinton in 1994. This ban followed several mass shootings using semi-automatic pistols and rifles

and effectively halted the manufacture of assault weapons (as classified by the federal government) in the United States for 10 years. Several years later, the Columbine school shooting in 1999 heightened public concern over mass shootings and renewed calls for restrictive gun laws, but under the Bush Administration, Congress failed to renew the assault weapons ban when it expired in 2004.

Firearm sales have risen steadily since then, including a large and growing market in weapons previously prohibited under the assault weapons ban. In the subsequent years, AR-15s and similar MSRs have been repeatedly used in mass shootings (Chivers et al. 2018) and have become the regular focus of discussion with regard to firearms regulations. Fear of gun regulations, in turn, is linked to firearms sales, as evidenced by sales following highly publicised shootings and the election of Democratic politicians, both of which are popularly associated with threats to unfettered gun rights (Depetris-Chauvin 2015; Porfiri et al. 2020; Iwama and McDevitt 2021). Notably, gun sales increased nearly exponentially starting in 2008 and throughout the Obama presidency, causing Pittman-Robertson revenue to jump over 100% from USD340 million in 2008 to USD687 million in 2016 (Figure 2C). The change in gun sales during the Trump administration did not appear as pronounced, including in the wake of mass shootings. For example, gun sales jumped by 3 million after the Sandy Hook elementary shooting in 2012 and again by 1.6 million after the San Bernardino shooting in 2015, both during the Obama administration. By contrast, during the Trump administration, gun sales increased by 700,000 after the Parkland shooting in 2018. Gun and ammunition sales continued to set new records during 2020 (Tavernise 2021), largely attributed to a reaction to social movement activism, the coronavirus pandemic, and the election of Democrat Joe Biden. Overall, since the assault weapons ban expired in 2004, Pittman-Robertson revenue has increased by 140% (USFWS 2021b).

FIREARMS AND THE CONSERVATION OF DOMINATION

The flow of firearms-related tax revenue is an increasingly outsized feature of US conservation policy and finance. This relation was formalised by the Pittman-Robertson Act and born of a different era when the institutional relations between hunting, guns, and conservation were much more closely linked than they seem to be now. Wildlife managers frequently praise Pittman-Robertson for its success in generating revenue and position it as a hallmark of NAM, yet these revenue streams are increasingly decoupled from the use and enjoyment of wildlife and public lands. These changing relations between firearms and conservation raise at least three critical ethical questions: 1) Should conservation depend upon and benefit from the sale of a good that is closely associated with the loss of human life and intrapersonal violence? 2) Should conservation continue to facilitate the reproduction and legitimization of gun use for non-hunting purposes? And 3) should a small minority of beneficiaries, i.e., hunters, of public trusts (lands and wildlife)

continue to have disproportionate influence on conservation policy and practices? Rather than providing direct answers, which is beyond the scope of this essay, below we set each of these questions in deeper historical and theoretical context in order to set the stage for further inquiry.

Immoral alliances—guns, racism, and violence

The privileged position of firearms and their users in conservation is not new, nor is the ongoing state reliance on violence to advance wildlife management. Domination over nature and its ‘efficient’ management have long been a feature of modernism, statecraft, and Western culture (White 1967; Scott 1998; Horkheimer and Adorno 2007). Efforts to control nature, however, are often intimately entwined with the subjugation of humans. Despite positioning wildlife as a public trust, conservation activities and game management have a long history of dispossessing marginalised groups from their sources of sustenance, and, in fact, arose in relation to colonial efforts to remove indigenous peoples from their lands, which sometimes included indiscriminate destruction of wildlife (Cronon 1996; Jacoby 2001; Taylor 2016). In North America, conservation and wildlife policy privileged the interests of European colonists, particularly white ‘sportsmen’, over rural and poor populations that included large fractions of Black, indigenous, mixed-heritage people, and immigrants not yet assimilated into whiteness.

The deepening dependence of conservation funding on firearms sales only reaffirms this historic bond between violence, racism, and lands and wildlife management. In terms of violence alone, an increasing body of evidence links greater availability of guns per se—and especially handguns—to higher rates of gun-related deaths (Brent and Bridge 2003; Hurka and Knill 2020). The scale of this harm in the United States is tremendous: firearms played a role in 23,941 suicides and another 14,394 deaths in 2019 (Centers for Disease Control and Prevention 2020). The rise in mass shootings has also highlighted the capacity of modern weaponry to increase the scale of harm.

As with early conservation efforts, the politics and regulation of guns also cannot be understood outside the politics of race and racism in the United States. Early gun control laws were written to prevent recently freed slaves from owning firearms (Hofstadter 1970; Cottrol and Diamond 1994), gun control in the 1970s was largely a response to the Black Liberation movement (Winkler 2011), and gun legislation in the 1990s frequently utilised racialised language and responded to racist tropes about Black criminality (Thernstrom and Thernstrom 1999; Filindra and Kaplan 2016). Similarly, contemporary gun politics and sales appear to be closely tied to racism. For instance, racial resentment among whites is associated with increased likelihood of gun ownership and opposition to gun control policies (O’Brien et al. 2013; Filindra and Kaplan 2016). Likewise, Vidal et al. (2021) found that opposition to the Black Lives Matter movement is associated with opposition to assault weapons bans and gun control measures. Anecdotal

evidence further suggests that fear of anti-Black violence is linked to increasing Black gun ownership (Clayton 2021).

By way of Pittman-Robertson, conservation and wildlife management benefit from this creeping armament of the civilian population, including fringe groups and right-wing militias long-associated with violence, territorialisation, and racism in the United States (Kimmel and Ferber 2000; Berlet and Sunshine 2019). Others have highlighted the overt militarisation of conservation and anti-poaching efforts globally, particularly in sub-Saharan Africa (Lunstrum 2014; Duffy 2016; Mogomotsi and Madigele 2017), including the moral imperative to question this approach (Duffy et al. 2019). Pittman-Robertson may not explicitly encode violence or race into conservation policy in the same way, but in the context of accelerating mass consumption of firearms, Pittman-Robertson implicitly endorses a more subtle and perhaps more insidious militarisation of US residents.

In this context, the conservation funded by Pittman-Robertson becomes inextricably linked with both the violence of firearms and that of racism. Whether this is tolerable or appropriate is a pressing moral question for conservationists. Leopold (2001: 189) himself offered a guideline for the ethics of environmental management: “a thing is right when it preserves the integrity, stability and beauty of the biotic community.” The complexities above, however, reveal the limits of this logic. As with a glut of conservation funding generated by surging firearms sales and related patterns of violence, an action can simultaneously be used to benefit the biotic community while causing harm to people. More generally, environmental management is always embedded in social processes and so must be evaluated in terms of its role in the reproduction of human social relations and not only biotic communities. Even holding strictly to Leopold’s land ethic, however, Pittman-Robertson has drifted from preserving the biotic community and moved instead towards preserving firearms use, as discussed below.

Reproducing gun use

Beyond benefiting from revenues associated with social harms, Pittman-Robertson is also directly involved in the reproduction of gun owners and users as a social—and influential—group. The model put forward by NAM depends on a sustained pool of labour and funding from hunters, whom fish and wildlife agencies rely upon to support the management of wildlife populations. As such, Pittman-Robertson supports a self-reproducing eco-managerial regime (Luke 1999), designed to support the reproduction of hunters through the creation and maintenance of hunting opportunities, training, and the management and protection of habitat for game species

Through its support of hunting and hunters, however, Pittman-Robertson also supports the reproduction of non-hunting gun uses in two ways. First, by framing gun use in positive, pro-environmental terms, gun users and the firearms industry benefit from the perceived virtuousness of their tax-

driven support for conservation and wildlife management. As clearly evidenced above, only a small portion of this gun use is directly linked to hunting and outdoor recreation, but all gun manufacturers can assert a benevolent relationship to conservation vis-à-vis their contributions to the WRA. As one industry group states: “healthy wildlife populations and habitat ARE NOT a product of nature... . The abundant wild game populations and productive habitats we enjoy today would be a historical footnote if not for the financial intervention of hunters and shooters like you” (NSSF 2016). Recognising the benefits of association with Pittman-Robertson, some industry groups that market controversial accessories for firearms, like firearm sound suppressors (i.e., ‘silencers’), have also pushed for the incorporation of their products into the set of gun-related wares taxed by Pittman-Robertson, in exchange for relaxed federal regulations on these products (Duda et al. 2021).

Second, Pittman-Robertson has begun to provide direct support for firearms use in general. In recent years, sport shooting organisations and firearms manufacturers have successfully lobbied for ‘modernising’ Pittman-Robertson to enhance recruitment efforts for both hunting and shooting sports and to further centre gun users as Pittman-Robertson beneficiaries. In May 2019, for instance, Congress modified Pittman-Robertson to make it easier to use funds to build and maintain shooting ranges on public lands, thereby supporting the creation of spaces for general recreational gun use and the reproduction of broader gun culture.¹² Similarly, the Modernising Pittman-Robertson Fund for Tomorrow’s Needs Act was introduced to Congress in 2019, and facing obstacles as a stand-alone legislation, was later incorporated into the 716-page appropriations bill approved in December of 2019.¹³ This legislation explicitly declares an interest in “providing education to the public about the role of hunting and recreational shooting in funding wildlife conservation” and modifies the text of Pittman-Robertson to include the term “recreational shooter” and “*recreational shooting*” in several places, thereby broadening the set of gun users eligible to benefit from Pittman-Robertson funds.

This symbolic value of Pittman-Robertson and these changes to the acceptable uses of tax revenue push Pittman-Robertson away from its historic focus on conservation and further centre non-hunting firearm use. As with the implications of resting conservation finance on an edifice of gun violence and its historic and ongoing links to racism, these changes force contemporary conservationists to consider the position of general gun users, hunters, and other publics in conservation policy.

Use, Pay, and Representation

Discourse surrounding NAM and Pittman-Robertson often advances an ideal of ‘user pays’ that presents hunters—but not gun users more broadly—as the primary users and funders of conservation efforts. This discourse, however, is doubly misleading. First, this framing obfuscates the decreasing

relative contribution of hunters and the rapidly growing contribution of non-hunting firearms users to funding state-level conservation, as discussed above. Second, this framing also obscures non-hunting stakeholders that make up the large and growing majority users of the wildlife commons itself (Feldpausch-Parker et al. 2017; Peterson and Nelson 2017). Although neither these non-hunting gun users nor these non-hunting outdoor recreationists were initially considered in the fiscal politics of Pittman-Robertson, the legislative changes outlined above have given non-hunting gun users a growing stake in how WRA funds are used.

Specifically, it appears that the shifting profile of the de facto funders of Pittman-Robertson (gun buyers) is also motivating changes to the law itself to support this emerging constituency. This illustrates the historical pliability of a user pays conservation model, as the largest contemporary group of payers are not the originally defined user group, i.e., hunters who utilise the wildlife commons. Rather, changes in who contributes to Pittman-Robertson have shifted the very definition of the user in this case, such that use is increasingly understood as gun use, but not necessarily use of the wildlife commons. The source of funding is thus redefining the user and reshaping the policy, as opposed to maintaining a fixed definition of what is used and enlisting other users of the trust (e.g., hikers) as payers.

At the same time, given the increasing popularity of an array of outdoor recreation activities, some have called for revamping the principles of NAM and even expanding beyond conventional understandings of the public trust doctrine to be more inclusive of these other land and wildlife uses (Jacobson et al. 2010; Hare et al. 2017). Whereas NAM has primarily envisaged game species as a common pool resource held in a public trust for a hunting population, a broader public trust thinking would expand the species and ecological processes thought to be overseen by the state and protected from markets (Hare et al. 2017). Drawing on these ideas, past proposals have sought to establish taxes on outdoor recreation equipment beyond guns to capture revenue from other users of public lands and to recentre conservation funding on activities directly related to the use and enjoyment of conservation lands and wildlife. These so-called ‘backpack taxes’, however, have failed and receive considerable opposition from the outdoor equipment industry (Outdoor Industry Association 2017).

At the core, these are debates about power and representation in democracy, and, in particular, who holds sway over the public funding, use, and governance of non-human nature held in public trust. In the context of shifting social practices related to hunting, outdoor recreation, and gun use, the primary institutions for wildlife management in the United States continue to centre a very small minority of conservation beneficiaries as primary constituents. Alternative approaches to ‘modernising’ Pittman-Robertson—whether by re-centring the majority of users of publicly managed lands or by centring non-hunting gun users—are essentially efforts to redefine the constituencies that benefit from and provide support to Pittman-Robertson. Ultimately, those that fund conservation efforts are

likely to garner political influence and legitimise control over how the environment will be managed. The mechanisms used to fund conservation, and even the specific means by which the state collects and provides these funds, alters whose interests are considered in defining the appropriate use of funds for the management and production of contemporary ecologies.

CONCLUSION: GUNS, CONSERVATION, AND THE STATE

Our analysis of the institutional origins of and changes in the Pittman-Robertson Act illustrates how an old fiscal institution can work in new ways as the social world transforms around it, in this case leading to strengthening fiscal ties between conservation and the manufacture and use of firearms. By tracing the history of this transformation—or pattern of institutional “drift” (Mahoney and Thelen 2010)—we reveal the ways that US conservation continues to be entangled in processes of social violence and domination, especially in ways that extend beyond the sites of conservation itself and emerge through the myriad ways that guns enter into American lives.

Our analysis also addresses the ways that fiscal institutions are key to understanding the state’s priorities and the interest groups that shape those areas of focus. Scholars in both geography and sociology have argued for the need to address the role of tax in producing space and patterns of inequality (Martin and Prasad 2014; Tapp and Kay 2019). We echo this call with respect to conservation, restoration, and wildlife and lands management: while conservation practices are increasingly characterised by the expansion of market-based institutions and private intervention (Büscher et al. 2014), these neoliberal approaches articulate with the fiscal power of the state, which remains central to the economics and logics of where conservation activities take place (e.g., Kay and Tapp 2021). Our analysis highlights this ongoing role of tax in the production of nature, by way of the restoration and management activities funded by Pittman-Robertson. Here, the taxation of a specific ware, firearms, initially presumed to be for hunting, rather than general funding or fees for participation in an activity, makes gun sales pivotal to the success of conservation activities. It also provides entry and political power in conservation policy for groups with an interest in maintaining, or accelerating, the circulation of guns. In this manner, the mechanisms of taxation themselves, not just the allocation of tax revenues, are constitutive of the politics of environmental management.

Understanding how Pittman-Robertson operates is essential in any full analysis of conservation in the United States. This fiscal institution shapes the types of conservation activities that take place across the country, while supporting the reproduction of specific social practices and human-environment relationships, particularly hunting and gun use. The Pittman-Robertson Act is central to codifying the relationship between conservation and firearms, even as firearms are increasingly dissociated from hunting, and as hunters slowly become an increasingly marginal group of

wildlife ‘users.’ As a matter of ethics and democracy, this shifting relationship between conservation and firearms demands that conservationists consider how this model benefits from social violence, reproduces gun users, and prioritises a narrow set of wildlife users. As a practical matter, addressing the entanglement of conservation and guns requires identifying new sources of revenue for conservation, but also a re-evaluation of NAM and the public trust doctrine. Until such a shift is made, any efforts to address gun safety in the United States may have unintended consequences for conservation activities and may create perverse incentives for conservation organisations to act in the interest of gun manufacturing. Although the hunter has long been enshrined as a steward of conservation, re-imagining models of conservation funding also provides an opportunity to reassess who else bears responsibility for conservation and who benefits.

Author Contributions Statements

JPCC conceived and designed the work. CR collected the data. CR and JPCC analysed the data. JPCC led the drafting of the manuscript. All authors contributed critical, intellectual content to the drafts and gave final approval of the version to be published.

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Declaration of competing/conflicting interests

The authors declare no competing interests in the conduct of this research.

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Data Availability

All data used for this study are public and available as discussed in the main text. Annual excise tax revenue collected by the US Fish and Wildlife Service under Pittman-Robertson and Dingell-Johnson is published by the Office and Management and Budget in the Public Budget Database “Outlays” file, available here: <https://www.whitehouse.gov/omb/supplemental-materials/>. Annual revenue collected through the sale of hunting and fishing licenses, along with the total number of hunting and fishing license holders, is

published by the US Fish and Wildlife Service, available here: <https://www.fws.gov/wsfrprograms/subpages/licenseinfo/hunting.htm> and <https://www.fws.gov/wsfrprograms/subpages/licenseinfo/fishing.htm>. All data was last accessed December 9, 2021.

NOTES

- 1 The FBI does not directly track the number of gun sales but does keep a record of background checks for gun sales. Separately, the Bureau of Alcohol, Tobacco, Firearms, and Explosives tracks the annual number of firearms domestically manufactured, exported, and imported. We build upon Nemerov (2018) to estimate the number of new guns purchased by US civilians each year.
- 2 We refer to both wildlife management and conservation. We acknowledge the distinction between the terms, but recognize that wildlife management as a component of conservation endeavours. While state agencies that receive Pittman-Robertson funds focus on species targeted by fishers and hunters, their activities are generally situated within broader conservation objectives and Pittman-Robertson funds often support land acquisition, restoration, and management.
- 3 The rate on sporting firearms and ammunition was later raised to 11%.
- 4 The use of fees collected for hunting licenses and permits is also restricted by the Pittman-Robertson Act. To receive WRA funds distributed by USFWS, states must reserve all the revenue generated from hunting license sales for their state wildlife agencies.
- 5 We report revenues collected by USFWS, which may differ from apportionments to states in a given year, as funds are allocated one year after collection and states have two years to claim these funds. We focus on revenues because of the direct ties to gun manufacturing levels and because unclaimed funds are still apportioned to other conservation activities. Data on apportionments under Dingell-Johnson are available since 1952, but not data on excise tax revenue. For consistency with our analysis of Pittman-Robertson we retain the truncated excise tax data for Dingell-Johnson. Prior to the 1984 changes that expanded the number of items subject to excise tax, Dingell-Johnson generated far less revenue: closer to USD50 to USD100 million annually (inflation-adjusted) compared to the USD350 to USD400 million from the late-1980s onwards.
- 6 We acknowledge the insightful contributions of an anonymous reviewer, who clearly articulated this dual decoupling.
- 7 Hunting also declined as a social practice during World War II.
- 8 See <https://www.nps.gov/aboutus/visitation-numbers.htm>. Accessed October 10, 2021.
- 9 Even if we assume that hunting is only possible two months out of the year, because of limited hunting seasons, it remains five times less popular, by activity-days, than hiking.
- 10 $n=1,269$ gun owners in nationally representative sample of 3,930 US adults.
- 11 The MSR classification generally refers to AR-15-like weapons that are distinguished from traditional rifles because they have a pistol-style grip, have a detachable magazine that does not load in the grip, accommodate higher capacity magazines, break down into modular components, and allow customisable configurations.
- 12 See Public Law 116-17.
- 13 See Public Law 116-94.

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