

Illegal Marijuana Cultivation on Public Lands: Our Federalism on a Very Bad Trip¹

The morality and legality of marijuana is becoming secondary to the environmental damage.²

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Fueled by increasing demand for marijuana, illegal cultivation of the drug on public lands is causing massive environmental harm. The federal government lacks the resources to wage what would be a difficult and costly campaign to eradicate these illegal grow sites and instead focuses its limited resources on enforcing the federal marijuana ban. Marijuana decriminalization might allow legally grown marijuana to squeeze out its illegal counterpart, but the political likelihood of decriminalization is low. The key is reducing demand for the illegal drug by changing public buying preferences. However, doing this depends on an available legal alternative. This Article discusses several behavioral modification approaches as a way of changing consumer preferences and possible ways to resolve the current conflict between state marijuana legalization and its federal criminalization.

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1. Jonathan H. Adler, *Marijuana, Federal Power and the States*, 65 CASE W. RES. L. REV. 505, 512 (2015) (commenting on “the inevitable interjurisdictional conflicts and legal quandaries that will arise” from the federalism conflicts engendered by state efforts to decriminalize and regulate marijuana use for medical and even recreational purposes and federal law criminalizing these activities, Professor Jonathan Adler quips “This is our federalism on drugs, and it’s going to be an interesting trip.”).

2. Sharon Levy, *Pot Poisons Public Lands*, 64 BIOSCIENCE 265, 269 (2014), <http://bioscience.oxfordjournals.org/content/64/4/265.full.pdf>.

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INTRODUCTION

The production of marijuana is fast becoming a booming business.³ As more states and local jurisdictions legalize the use of cannabis for medical or recreational purposes, demand for the plant is growing.⁴ However, the market for marijuana is largely supplied by plants grown illegally. There are serious environmental impacts from these activities, whether they occur in private homes or on public lands. Both types of cultivation require high energy use and water consumption while causing unrestricted use of pesticides and herbicides. Outdoor cultivation can also result in soil erosion from tree clearing and the killing of wildlife, including endangered species. The vast majority of marijuana production occurs out-of-doors on remote public and tribal lands, with the result that the activities are largely unseen and, therefore, unregulated.⁵

3. Katherine Curl Reitz, *An Environmental Argument for a Consistent Federal Policy on Marijuana*, 57 ARIZ. L. REV. 1085, 1094 n.59 (2015) (“One study estimates that retail expenditures on illicit marijuana in 2010 were around \$41 billion per year in the United States, although the authors state that a ‘plausible’ range is anything between \$30 and \$60 billion per year.”).

4. Robert A. Mikos, *Marijuana Localism*, 65 CASE W. RES. L. REV. 719, 736 (2015) (over 80 percent of the American public supports legalization of marijuana for medical purposes).

5. See, e.g., Hunter E. Starr, Comment, *The Carrot and the Stick: Tailoring California’s Unlawful Marijuana Cultivation Statute to Address California’s Problems*, 44 MCGEORGE L. REV.

Even though these outdoor operations are trespassing on public lands, their remoteness, the impenetrable nature of the terrain in which they occur, and the vastness of the area in which they take place make it close to impossible for underfunded federal land managers to close them down. They threaten to undo hard-won environmental victories protecting old-growth trees, watersheds, and endangered species as well as disrupt state-managed water allocation systems. By destroying tree cover, they also undermine efforts to reduce climate change. The challenge is how to end these highly profitable, illegal operations or subject them to environmental regulations.

Complicating the situation is the odd federalism problem surrounding marijuana regulation, as its use for medical and increasingly for recreational purposes is outlawed at the federal level, but allowed in many states.⁶ Potential federal enforcement against possessing or distributing marijuana inhibits state regulation of the drug lest it be perceived as engaging in or facilitating a federally banned activity⁷ and causes all kinds of harm to marijuana users and members of the industry.⁸ Doctor Sharon Levy attributes the adverse environmental effects of marijuana cultivation to the continuing possibility of federal enforcement, which has discouraged state regulation⁹ and has had an inflationary effect on marijuana prices, increasing the illegal growers' profit margin and the financial attractiveness of their operations to them.¹⁰

Assuming it is highly unlikely that Congress will delist marijuana from Schedule I of the Controlled Substances Act (CSA)¹¹ or that an Administration

1069, 1092 (2013) ("In 2009, 'California produced more outdoor-grown marijuana . . . than Mexico,' most of it grown on public lands.").

6. Robert A. Mikos, *On the Limits of Supremacy: Medical Marijuana and the States' Overlooked Power to Legalize Federal Crime*, 62 VAND. L. REV. 1421, 1481 (2009) ("Though Congress has banned marijuana outright through legislation that has survived constitutional scrutiny, state laws legalizing medical use of marijuana not only remain in effect, they now constitute the de facto governing law in thirteen states.").

7. Ernest A. Young, *Modern-Day Nullification: Marijuana and the Persistence of Federalism in an Age of Overlapping Regulatory Jurisdiction*, 65 CASE W. RES. L. REV. 769, 783 (2015) ("Colorado has done more than decline to regulate marijuana; rather, it has put in place a state regulatory regime that arguably supports and encourages a line of business that still violates federal law.").

8. See *infra* Part III.A.

9. See Jennifer K. Carah et al., *High Time for Conservation: Adding the Environment to the Debate on Marijuana Liberalization*, 65 BIOSCIENCE, 822, 826 (2015), <https://bioscience.oxfordjournals.org/content/65/8/822> ("[I]n Mendocino County, the local authority's attempts to regulate medical markets have come into direct conflict with federal authorities, causing local officials to cease regulating the medical market (Mozingo 2013). This conflict also encourages secrecy and invisibility among producers for both the semi-legal medical and black markets, leading to lower levels of voluntary compliance with existing environmental regulation.").

10. See Levy, *supra* note 2, at 270 ("Federal prohibition creates the problem. 'The root cause of environmental damage on public lands,' says Tony Silvaggio, an environmental sociologist at the Humboldt Institute for Interdisciplinary Marijuana Research, 'is the failed federal policy of marijuana prohibition. Prohibition inflates the price and makes it profitable to grow weed anywhere.'").

11. Mikos, *supra* note 6, at 1434: ("The federal government has steadfastly refused to expand legal access to marijuana. Congress has rejected proposals to reschedule the drug or to suspend enforcement of the CSA against people who may use marijuana under state law. Likewise, the federal Drug Enforcement Agency [] has denied petitions to reschedule the drug administratively."); see Erwin

will decriminalize it,¹² and that more states will authorize its use, the demand for the drug will continue to grow, regardless of the environmental harms its production generates.¹³ Scholars have proposed various ways short of delisting the drug, many of which this Article discusses in detail, to solve the federalism problem: for example, continuing the federal policy of tolerating violations of the federal ban; allowing states to share marijuana enforcement with the federal government¹⁴ or receive waivers¹⁵ from or opt out of federal enforcement under the CSA;¹⁶ or nullifying application of the CSA to the states.¹⁷ However, none of these ways by themselves assures that the illegal cultivation of marijuana will end as long as there is a market for the drug in the states that have legalized marijuana use and its production is profitable for its cultivators, processors, and distributors. This Article, therefore, focuses on how to reduce the market for illegally grown marijuana by persuading consumers to select the legally produced drug. Of course, this solution depends on the government allowing states to regulate the possession, distribution, and use of marijuana so there is a legal product for consumers to buy, bringing one back to square one and the federal ban.

To tell this story, the Article begins by presenting background information on the marijuana industry, its expansion, where and how the crop is produced, and the environmental impacts of illegal marijuana farming. This discussion

Chemerinsky et al., *Cooperative Federalism and Marijuana Regulation*, 62 UCLA L. REV. 74, 113 (2015) (“Several federal marijuana-related bills have been introduced in Congress in recent years, but none has gained much traction.”); Reitz, *supra* note 3, at 1108 (“Marijuana could be delisted either by an act of Congress or by the Attorney General’s finding that marijuana ‘does not meet the requirements for inclusion in any schedule.’”).

12. Reitz, *supra* note 3, at 1108 (“Attorney General Eric Holder stated on April 4, 2014 that the administration would not move to delist marijuana unless it had the support of Congress.”). “Decriminalization entails sharply reducing to the equivalent of a traffic offense or completely eliminating criminal penalties for the possession and use of small amounts of the drug.” Steven B. Duke, *The Future of Marijuana in the United States*, 91 OR. L. REV. 1301, 1316 (2013). In Europe most “countries have decriminalized marijuana, instead of legalizing it. As a result, the possession of a small amount of marijuana for personal use is only subject to a civil penalty, such as a fine.” Melanie Reid, *The Quagmire that Nobody in the Federal Government Wants to Talk About: Marijuana*, 44 N.M. L. REV. 169, 199 (2014).

13. Reitz, *supra* note 3, at 1112 (“Legalizing marijuana will bring rogue growers out of the shadows, decreasing the number of growers that use stream and groundwater illegally and contaminate water sources with toxic chemicals.”).

14. See, e.g., Chemerinsky et al., *supra* note 11, at 80 (proposing a shared federal-state regulation of marijuana).

15. See, e.g., *id.* at 115 (“Under a permissive federalism approach, Congress could allow an administrative agency to grant state-level temporary, revocable waivers of the CSA marijuana provisions based on specified criteria. During the period of the waiver, participating states could experiment with their own laws and regulations while the federal government agrees not to enforce federal law.”).

16. For example, Kamin proposes that Congress amend the CSA to allow states to “opt out of its marijuana provisions” and authorize the Attorney General “to certify that a state is regulating marijuana in a manner consistent with federal priorities.” Sam Kamin, *Cooperative Federalism and State Marijuana Regulation*, 85 U. COLO. L. REV. 1105, 1120–21 (2014).

17. Young, *supra* note 7, at 772 (suggesting modern day nullification may be a winning strategy).

focuses on Northern California because that is where most of the illegal cultivation activity and environmental damage is occurring. Part II examines the evolving legal status of marijuana in this country. In doing so, it addresses the enforcement problems created by inadequate federal resources, physical challenges presented by the location of these illegal grow sites, and the divergent federal-state views on marijuana's legality. Part III investigates the impact of criminalization on the state-authorized marijuana industry and individual consumers. Turning to possible solutions to the federalism conflict, Part IV evaluates the current federal approach of tolerating state regulation, as well as other approaches like state waivers or opt outs from federal enforcement, state nullification of the ban, and the cooperative-federalism model of modern alcohol regulation. This Part concludes that, while a cooperative-federalism approach has some political viability, its implementation will have minimal effect on the black market for illegally produced drugs.

Therefore, Part V turns to potential government actions that might weaken and eventually dry up the market for illegally produced marijuana, including the federal government pursuing a policy of strict enforcement in states that have legalized marijuana. Part V also considers whether non-regulatory approaches, such as norm manipulation, market-based incentives or disincentives, eco-labeling and product certification, and public education about the environmental harms caused by these operations, might induce consumers to buy legal marijuana, lessening the demand for illegal marijuana and with it, the profits associated with its illegal production. Part V concludes that no single approach provides a way to destabilize and eventually dry up the black market in marijuana, as each has flaws. However, a policy of adaptive diversification¹⁸ would allow any combination of these approaches to be tried and fine-tuned to fit the characteristics of the particular drug market. But indirect approaches, in tandem or sequentially, can only succeed if there is a legal marijuana alternative for consumers to choose. Thus, the Article returns to the intractability of the federalism conflict, admitting that progress cannot be made until it is resolved. Nonetheless, the author hopes that the information and analyses presented in the Article may be useful when, as likely, the drug is eventually decriminalized in response to public and state demand.

I. A BILLION DOLLAR INDUSTRY THAT IS CAUSING AN ENVIRONMENTAL CATASTROPHE IN CALIFORNIA

Marijuana is the most widely used illegal drug in the United States.¹⁹ A 2012 study “estimated 18.9 million individuals in the United States (7.3% of

18. See generally Charles F. Manski, *Drug Control Policy in an Uncertain World*, 91 OR. L. REV. 997, 1005 (2013).

19. Reitz, *supra* note 3, at 1090; see Reid, *supra* note 12, at 171 (“Forty years after the passage of the CSA, 30 million Americans reported using marijuana. Between 124 million and 300 million

the population) had used marijuana in the past month.”²⁰ According to a 2010 study, “the marijuana market in America is probably about \$40 billion a year, with the potential to grow to \$100 billion per year in the event of widespread legalization.”²¹ One marijuana plant produced out-of-doors yields seven ounces of marijuana.²² “Between 2001 and 2005, the cost of one gram of marijuana averaged approximately six dollars.”²³ Multiplied by the thousands of plants that are produced on public lands, the yield from these crops is in excess of one million dollars.²⁴ The epicenter of this billion-dollar industry is the remote Sierra Nevada Mountains in Northern California.²⁵

California produces 60 percent of the marijuana consumed in the United States.²⁶ Assuming a \$6600-per-kg price, wholesale marijuana sales in California alone “total approximately \$16.7 billion (\$11.2 billion if one assumes a lower price of \$4400 per kg).”²⁷ The estimated value of marijuana grown only in Mendocino County, the center of the epicenter, is between \$1.5 billion to \$10.5 billion a year.²⁸ These estimates may make marijuana “the largest cash crop in California, with the next largest commodity, milk and cream, securing \$6.9 billion in wholesale sales.”²⁹

The environmental harms associated with this billion-dollar industry are substantial.³⁰ This may be because of the physical needs of the crop, where the

people—3 to 4 percent of the world’s population—have reported using marijuana every year, which makes marijuana the most widely used illegal drug on the planet.”)

20. Reitz, *supra* note 3, at 1090.

21. Reid, *supra* note 12, at 194–95 (noting in addition that “[t]he real beneficiaries of the medical marijuana movement are the doctors who hand out marijuana medical cards like candy and the business owners who avoid paying federal taxes and who follow little-to-no state regulations”).

22. Hunter E. Starr, *supra* note 5, at 1093.

23. *Id.*

24. *Id.*

25. *Id.* at 1092 (“In 2009, ‘California produced more outdoor-grown marijuana . . . than Mexico,’ most of it grown on public land.”); *see id.* at 1098 (saying “California has been the site of rampant large-scale marijuana cultivation that has led to public safety hazards, degradation of the environment, and large expenditures in public tax money to regulate unlawful cultivation.”); *see also* Nathaniel Popper, *The First Big Company to Say It’s Serving the Legal Marijuana Trade? Microsoft*, N.Y. TIMES, (June 16, 2016), <http://www.nytimes.com/2016/06/17/business/dealbook/microsoft-following-the-clouds-to-offer-marijuana-tracking-software.html> (reporting that Matthew A. Karnes, the founder of Green Wave Advisors, a company providing data and analysis to the marijuana business, expects “legal marijuana sales to jump to \$6.5 billion this year, from \$4.8 billion last year,” which could climb to \$25 billion by 2020 now that California voters have authorized the use of recreational marijuana).

26. Carah et al., *supra* note 9, at 825.

27. *Id.*

28. Reitz, *supra* note 3, at 1110.

29. Carah et al., *supra* note 9, at 825; *see* Reitz, *supra* note 3, at 1110 (making a similar comparison to the state’s grape crop, which is valued at just \$75.3 million).

30. *See* Anne C. Mulkern, *Pot Legalization Heads to Ballot, With Money for Environment*, GREENWIRE (June 29, 2016) (reporting on a Nature Conservancy analysis estimating that it will cost \$187 million per year to deal with the environmental impacts of growing pot in California, including approximately \$100 million per year to repair damage already done to the state’s rivers and streams). An additional problem, unrelated to environmental harms, but nonetheless serious, is the violence that occurs around these sites. “Pot growers in the backwoods tend to be armed and hostile to anyone who

cultivation is occurring, or that it is happening beyond the reach of any applicable federal or state regulations.³¹

Unfortunately, illegal growers often care little about the environmental impacts of their operations, and are more concerned with maximizing their profits and avoiding the authorities. To begin, illegal growers sometimes use heavy earthmoving equipment to clear-cut forest in order to plant their marijuana crop. To obtain water for their plants, these growers frequently divert water from creeks illegally and indiscriminately, tapping into streams that may be on someone else's property or may be critical habitat for endangered fish. Because these illegal growers usually do not have an interest in maintaining the long-term quality of the land, it is not uncommon for them to sprinkle repellants such as rat poison at the base of their plants, which are then washed off with the rain into streams, killing fish and polluting water supplies. When they are done harvesting their crop and ready to move on, they regularly leave fertilizers and dangerous chemicals that leach into soil and nearby streams, killing wildlife and causing irreparable damage.³²

California, which was the first state to legalize medical marijuana, has suffered the most severe environmental consequences from the absence of regulation.³³ Since the 1996 Compassionate Use Act, both legal and illegal cultivation of marijuana for medical purposes have grown substantially; in the

stumbles across their crop." Levy, *supra* note 2, at 266; *see also* Carah et al., *supra* note 9, at 826, Fig. 4 ("[M]arijuana water demand (on a per-area basis) exceeds water yield by almost ten times.").

31. Carah et al., *supra* note 9, at 822–23 (noting, "[h]owever, [that] regulation designed to mitigate environmental harm is more difficult to implement for marijuana cultivation than for other agricultural activities because of its unique and evolving legal status"); *see* Eric Biber, *How Certification Could Reduce the Environmental Impacts of Marijuana Farms*, BERKELEY BLOG (Jan. 16, 2013), <http://blogs.berkeley.edu/2013/01/16/how-certification-could-reduce-the-environmental-impacts-of-marijuana-farms>. Additionally, enforcement of environmental regulations by any jurisdiction is often opposed by local communities, which see them as problematic for the businesses, making enforcement against these illegal operations more difficult in isolated rural areas. *Id.*

32. Reitz, *supra* note 3, at 1094.

33. *Id.* at 1110; *see* Starr, *supra* note 5, at 1089 ("Large-scale marijuana cultivation damages California's environment and natural resources. In Yosemite National Park, for instance, where sixty rangers patrolled over one-thousand square miles as of 2009, '[c]ultivating marijuana . . . has noticeably affected the water quality, animal life, and health and safety of the public.' In addition to the danger to wildlife and hikers, large-scale marijuana cultivation negatively affects California during drought years by diverting precious water resources."); *id.* at 1090 ("Even on the federal level, agencies recognize the deleterious environmental effects of marijuana cultivation. The Office of National Drug Control Policy stated that '[o]utdoor marijuana cultivation . . . has negative environmental effects.' The paper cited the same kinds of problems that have plagued Yosemite National Park: 'chemical contamination and alteration of watersheds; diversion of natural water courses; elimination of native vegetation; wildfire hazards; poaching of wildlife; and disposal of garbage, non-biodegradable materials, and human waste.' In California, the problem is so prevalent that the United States Forest Service has printed warnings in the Mendocino National Forest that instruct hikers and visitors on what to do if they stumble upon a marijuana grow operation.") (quoting Marijuana Cultivation on U.S. Public Lands: Hearing Before the Senate Caucus on Int'l Narcotics Control, 112th Cong. (2011) (statement of Gil Kerlikowske, Dir., Off. of Nat'l Drug Control)).

last five years alone, “watersheds in northern California have seen increases in area under production ranging from 55% to over 100%.”³⁴

The availability of water, sun, and remote public lands explains the state’s popularity for illegal marijuana cultivation.³⁵ Mendocino County holds the dubious title of being described as “‘the marijuana capital of the world’ due to its combination of rich soil, moderate temperature, and extensive forests that can be used for camouflage.”³⁶ Local law enforcement in Mendocino County, which seized 540,000 plants in 2009, estimated that they obtained only 5-10 percent of the illegally grown marijuana in the county.³⁷ In 2009, more than 3.5 million marijuana plants were removed from public lands in California; in 2013, 1 million more plants were eradicated.³⁸

Illegal marijuana production in California mostly occurs in sensitive, biodiversity-rich watersheds, which provide habitat for several rare state- and federally listed species.³⁹ The following description gives a sense of the environmental damage at one of these sites.

On a steep south-facing slope, acres of land had been clear-cut and terraced to grow rows of pot plants. Four natural springs were dug up and tapped; the creeks running down the hillside were diverted to water the crop. Seventeen primitive dams and reservoirs, reinforced with downed branches, lined with tarps and capable of holding more than 15,000 gallons, captured all the water on the site. More than 4000 pounds of fertilizer was found amid the debris. The growers dumped heavy loads of fertilizer right into the cisterns that they had built before they used the water for irrigation. The nitrogen-laden water from grow sites like this one drains into nearby streams, where it can cause intense blooms of algae that suck the oxygen from the water, suffocating native fish and aquatic life.⁴⁰

Illegal marijuana cultivation’s environmental impacts can be “disproportionally large” considering the size of the area under production because marijuana is a “water-hungry crop” that is being grown in an area of limited water resources and sensitive ecosystems.⁴¹ Some state officials

34. Carah et al., *supra* note 9, at 825.

35. Levy, *supra* note 2, at 268 (“[I]llegal pot farms have popped up anywhere there is water, sunshine, and remote public land.”); *id.* at 269 (“Illegal grows have been found on public lands scattered through 20 states, but the problem is most intense in California and the West.”).

36. Reitz, *supra* note 3, at 1110.

37. *Id.*; see Levy, *supra* note 2, at 265 (“Illegal grows are widespread: an intensive effort by federal agents in 2011 eradicated 55 grow sites in and around Northern California’s Mendocino National Forest, some of them containing more than 20,000 plants. In the U.S. Forest Service [] Pacific Southwest Region, 222 grows were busted in 2012 and 329 in 2013.”).

38. Levy, *supra* note 2, at 269.

39. Carah et al., *supra* note 9, at 822; see *id.* at 823 (“[M]arijuana cultivation is typically irrigated with summer and fall surface water diversions directly from headwater streams and springs. These diversions are localized in smaller, sensitive watersheds that are hotspots of biodiversity—and particularly aquatic biodiversity.”) (internal citations omitted).

40. Levy, *supra* note 2, at 266.

41. Carah et al., *supra* note 9, at 822; see *id.* at 824 (even relatively small grow sites “can have a disproportionately large impact on water resources and flow”).

consider illegal marijuana farming the “number one threat” to salmon in Mendocino County because it depletes streams that function as habitat for the fish during dry periods.⁴² Surface water diversions associated with illegal marijuana cultivation reduce, and in some cases eliminate entirely, streams that already have low flows during California’s dry summer season, threatening “the survival of rare and endangered salmonids, amphibians, and other animals.”⁴³ It is not uncommon to find that the demand for water for marijuana cultivation “exceed[s] minimum instream flows in the summer by more than a factor of 2.”⁴⁴

Illegal marijuana grow sites are particularly deadly to wildlife, including endangered species.⁴⁵ “Pesticides, used heavily in black-market marijuana cultivation on public lands, make their way into terrestrial food chains, posing significant risks to mammalian and avian predators.”⁴⁶ Over 80 percent of deceased endangered Pacific fishers that a team of state wildlife biologists recovered in Northern California and the southern Sierra Nevada were exposed to anticoagulant rodenticides, used to control wood rats.⁴⁷ Rats and other rodents that are the target of these rodenticides may not die immediately and become prey for wild predators, like raptors or other scavengers.⁴⁸ It is not hard

42. Reitz, *supra* note 3, at 1110; see Levy, *supra* note 2, at 266 (quoting the deputy supervisor of the Six Rivers National Forest as saying “[t]he water the growers divert is lost to our watersheds, and that impacts sensitive species like coho salmon and lamprey.”); Carah et al., *supra* note 9, at 823 (“Both semi-legal and black-market marijuana plantations can be harmful to water resources and aquatic life. In the California north coast region, an estimated 22 liters (L) of water or more per plant per day are applied during the June–October outdoor growing season . . . if we assume a planting density of 130,000 plants per km, water application rates would be approximately 430 million L per km² of outdoor-grown marijuana per growing season. For comparison, wine grapes on the north coast are estimated to use a mean of 271 million L of water per km² of vines per growing season (CDWR 2001, 2002, 2003, 2004, 2005). Marijuana is therefore estimated to be almost two times more ‘thirsty’ than wine grapes, the other major irrigated crop in the region.”).

43. Carah et al., *supra* note 9, at 823.

44. *Id.* at 824.

45. See Starr, *supra* note 5, at 1089–90: (“Large-scale marijuana cultivators harm wildlife indirectly through detriment to their habitat, and directly by killing animals, including endangered species, through the use of chemicals or by poaching. Marijuana cultivators use pesticides and herbicides to keep their marijuana plants healthy. Illegal marijuana cultivators will often use herbicides and fuel into the water supply pesticides that have been banned in California. Further, cultivators may use generators, which can leak fuel into the soil and the water supply. Some cultivators leave hazardous materials, such as sewage and trash. They create a danger of wildfire through the use of chemicals, generators, and cooking fires. Aside from the indirect effect on wildlife, cultivators may poach wildlife. In Yosemite, cultivators kill animals for a variety of purposes. They ‘hunt [] deer for meat, they kill [] bear to hang as a deterrent to other wildlife, and even poach []’ endangered species, such as the ring-tail cat, to keep ‘for a souvenir.’”).

While it is clear that illegal marijuana cultivation can be “lethal” to wildlife, less clear may be its impact on people who consume it. “Marijuana smokers do not use filters, and many of them have no idea that the pot they are smoking is contaminated with powerful toxins.” Levy, *supra* note 2, at 271.

46. Carah et al., *supra* note 9, at 824.

47. *Id.* Brodifacoum is an anticoagulant rodenticide that impairs normal blood clotting. Levy, *supra* note 2, at 267.

48. Levy, *supra* note 2, at 267 (“Raptors and other creatures that hunt rodents have been known to die from eating contaminated prey.”).

to correlate the fisher deaths with marijuana cultivation, as they all occurred in the spring, which is “primetime for marijuana seedling planting in California and likely the period of heaviest toxicant use to protect the young plants from rodent damage.”⁴⁹ The fact that only “two remnant populations [of fishers] survive in California: one in the southern Sierra Nevada and the other in the mountains of the far northwestern corner of the state,” underscores the tragedy of what is happening to the species.⁵⁰ Levy considers fishers “the canary in the coal mine, a warning that there’s a major problem in the woods.”⁵¹

Illegal marijuana cultivators often camp out on public lands for “months at a time and poach wildlife for sport and sustenance.”⁵² Associated cultivation activities, like terracing land, constructing roads, and clearing forest, destroy native vegetation that otherwise would provide habitat for many species of wildlife.⁵³ These activities also increase erosion, which deposits fine sediments into streams, in turn, smothering salmon spawning and nursery habitats, including the federally endangered Coho salmon.⁵⁴ “Nonbiodegradable trash and human excrement are commonly dumped around black-market marijuana cultivation sites,” as are pesticides, herbicides, fertilizers, and fuel; these pollutants can enter surface water and contaminate entire watersheds.⁵⁵ Even when enforcement actions occur at these sites, there are insufficient resources to clean and remediate them.⁵⁶ Effectively “[a]ddressing” the environmental harms from the illegal cultivation on public lands “requires a commitment to both addressing illegal production explicitly and remediating the environmental impacts from illegal production.”⁵⁷

49. *Id.*; *see id.* at 268 (saying “[i]n a recent study, Thompson [a U.S. Fish and Wildlife Service research ecologist] found that female fishers’ survival rates were related to the number of marijuana grows in the animals’ home range: the more grow sites that a fisher encountered, the shorter her life span”).

50. *Id.* at 267. Levy describes the fisher as “[a]n elegant, house-cat-size member of the weasel family” that is a “rare predator” and “a candidate for listing under the federal and California Endangered Species Acts.” *Id.* at 266; *see Carah et al., supra* note 9, at 824 (“The use of these pesticides is a significant threat to fishers, which are already rare and are candidates for listing under the Federal Endangered Species Act.”).

51. Levy, *supra* note 2, at 268 (quoting Craig Thompson, a U.S. Forest Service research ecologist).

52. Carah et al., *supra* note 9, at 824.

53. *Id.*

54. *Id.*

55. *Id.* at 824–25.

56. *Id.* at 827; *see Reitz, supra* note 3, at 1111 (“Water regulators have started a pilot project in Northern California where the California Department of Fish and Wildlife and the State Water Resources Control Board have teamed up to form the Watershed Enforcement Team []. The goal is for officials to get people in compliance with existing state environmental laws.”).

57. Carah et al., *supra* note 9, at 825; *see id.* at 823 (“(a) [T]he environmental harm caused by marijuana cultivation in both the semi-legal and black-market context is significant and merits a direct policy response, (b) current approaches to and funding for governing the environmental effects are inadequate, and (c) neglecting discussion of the environmental impacts of cultivation when shaping future marijuana-use and -possession policies represents a missed opportunity to reduce, regulate, and mitigate environmental harm”).

While shifting marijuana cultivation indoors would eliminate many of the problems associated with these illegal grow sites, it would be trading one set of problems for another, given the high energy needs of indoor cultivation and the resulting large carbon footprint.⁵⁸ Based on an assumption that one-third of the marijuana produced in this country is grown indoors, homegrown marijuana consumes approximately 1 percent of the country's electricity consumption.⁵⁹ "In California—the largest producer of marijuana among the states—indoor cultivation is responsible for around 3% of all electricity use, or 9% of household use."⁶⁰ One marijuana joint produced by indoor cultivation "represents 1.5 kg (3 pounds) of [carbon dioxide] emissions."⁶¹ This makes shifting marijuana cultivation outdoors a quintessential Hobson's choice between dramatically reducing the amount of energy used in growing marijuana indoors and the industry's carbon footprint,⁶² and the previously discussed substantial environmental impacts associated with illegal outdoor marijuana cultivation. Additionally, homegrown marijuana, like its outdoor cousin, uses pesticides, is a source of mold,⁶³ and creates its own security concerns, such as the theft of electricity to sustain these operations and the resultant possibility of fires.⁶⁴ Like the outdoor production of marijuana, homegrown marijuana also allows for diversion of the drug to illegal markets

58. Reid, *supra* note 12, at 181: ("[A]n increase in indoor-cultivation of marijuana could result in a higher carbon foot-print, and in a massive increase in energy use resulting in greenhouse-gas pollution: '[I]ndoor cannabis production results in energy expenditures of [US] \$6 billion each year—[six] times that of the entire U.S. pharmaceutical industry—with electricity use equivalent to that of [two] million average U.S. homes. This corresponds to 1% of national electricity consumption, or 2% of that in households. The yearly greenhouse-gas pollution (carbon dioxide) from the electricity plus associated transportation fuels equals that of [three] million cars. Energy costs constitute a quarter of wholesale value.'"); see Reitz, *supra* note 3, at 1100 ("According to estimates by the NPCC, one kilogram of marijuana produced indoors requires 4,000 to 6,000 KWH (kilowatt hours). In comparison, it takes only 16 KWH to produce one kilogram of aluminum, which is typically considered to be an energy-intensive product. To put those numbers in more concrete terms, the energy required to grow four marijuana plants indoors is equivalent to the amount of energy used by 29 refrigerators.").

59. Reitz, *supra* note 3, at 1101.

60. *Id.*

61. *Id.* at 1101–02.

62. *Id.* at 1102 (saying "one study estimated that the average carbon emissions for outdoor-cultivated marijuana would be 150 kg [carbon dioxide] per kg of marijuana, or about 3% of that associated with indoor production").

63. Reid, *supra* note 12, at 182: ("Pesticides used in hydroponic grow-systems can be toxic to animals and pollute local rivers and streams. Because there is 'significant use of water' in indoor grow operations, it is not uncommon for water-main breaks to occur, and leaking water could seep into adjacent homes and businesses, causing mold to grow. As a byproduct of growing marijuana indoors, large amounts of mold can form in the residence, creating a hazard for current and future residents."); see John Hudak, *Colorado's Rollout of Legal Marijuana Is Succeeding: A Report on the State's Implementation of Legalization*, 65 CASE W. RES. L. REV. 649, 670 (2015).

64. Reid, *supra* note 12, at 182 (noting that risks associated with homegrown marijuana include product safety, production quality, and environmental issues like black mold that can invade production spaces); see Hudak, *supra* note 63, at 670 ("Law enforcement also echoed concerns that crimes like burglary and larceny may affect homegrown operations and could create additional, localized crime problems.").

and distribution across state lines.⁶⁵ Illegal homegrown marijuana, just like illegally cultivated outdoor marijuana, drains customers and revenue from legal state retail markets.⁶⁶

Marijuana is a growth industry, most of which is sustained by illegally harvested crops on public lands. The industry has thrived in the confusion created by the drug's strange legal status where it is criminalized at the federal level and legal in slightly more than half the states. The next Part describes this strange and strained situation.

II. THE STRANGE AND STRAINED LEGAL STATUS OF MARIJUANA IN THE UNITED STATES

“Marijuana is the only substance, and its possession is the only activity, that is prohibited at the federal level while it is being taxed and regulated in the states.”⁶⁷ Before the 2016 election, twenty-three states had legalized medical use of marijuana;⁶⁸ after the election, three more states joined them, making medical use of marijuana legal in slightly more than half of the country's states.⁶⁹ Non-medical use of marijuana largely remains “strictly forbidden and usually (though not always) criminal . . . at the state level,”⁷⁰ but even that is beginning to change, as some states are legalizing recreational use of the drug and/or are substituting civil penalties for criminal ones, as discussed in more detail below. At the federal level, there is no exception to the drug's criminalization⁷¹—any use of the drug, its cultivation, possession, or sale, is a federal crime.⁷² Take medical marijuana, for example. Its state legalization and federal criminalization creates the federalism conflict underlying much of this Article. This situation is unique in that it is rare for a state to legalize an activity that is prohibited at the federal level.⁷³

65. Hudak, *supra* note 64, at 670.

66. *Id.*

67. Adler, *supra* note 1, at 1427.

68. Alex Kreit, *What Will Federal Marijuana Reform Look Like?*, 65 CASE W. RES. L. REV. 689, 718 (2015); see Mikos, *supra* note 4, at 764 (2015) (“Twenty-three states have legalized marijuana for some purposes under state law. As of the November 2014 election, at least twenty-one of those states have also legalized some form of retail distribution of marijuana.”).

69. Adam Bates, *Drug Prohibition was a Loser Last Night*, Cato at Liberty (Nov. 9, 2016, 11:38 AM), https://www.cato.org/blog/drug-prohibition-was-loser-last-night?gclid=CjwKEAiAvs7CBRC24rao6bGCoiASJABaCt5DhxhhdJ80sDDnulDrH5fC66hYMNcGWLxGEXMHQV5Q-RoCVgDw_wcB.

70. Mikos, *supra* note 6, at 1427.

71. Chemerinsky et al., *supra* note 11, at 109–10.

72. Adler, *supra* note 1, at 506.

73. Kamin, *supra* note 16, at 1005. See Adler, *supra* note 1, at 508: (“It is not often that states affirmatively seek to legalize conduct prohibited by federal law. Rarer still do states seek to expressly authorize and affirmatively regulate commercial activities that remain subject to federal prohibition. Yet that is precisely what is occurring with marijuana. Indeed, what the federal government seeks to prohibit, many states hope to tax.”).

A. Federal Criminalization

In 1937, Congress enacted the Marijuana Tax Act making possession of the drug illegal. “The passage of the [CSA] in 1970 cemented and systematized this prohibition.”⁷⁴ The federal ban on marijuana remains “very much the law of the land,” despite repeated attempts to alter the drug’s criminal status under the CSA.⁷⁵

Marijuana is classified under the CSA as a Schedule I drug, as are LSD and heroin.⁷⁶ The CSA makes it a serious felony to manufacture, possess, or sell marijuana, and doctors are prohibited from prescribing it.⁷⁷ Doing any of these things in a state that has legalized marijuana is a federal crime and is subject to serious sanctions.⁷⁸ The federal marijuana ban has withstood Commerce Clause challenges as well as claims that it exceeds a “fundamental right to access pain relief” by those who use it for medical purposes.⁷⁹ While it is possible for the president to administratively reclassify marijuana under the CSA,⁸⁰ and indeed, in 2011 the governors of Rhode Island and Washington called for the President to do exactly that,⁸¹ international treaties prevent the

74. Kamin, *supra* note 16, at 1106; see Chemerinsky et al., *supra* note 11, at 82 (“In 1937 the federal government set out to regulate the drug for the first time. That year, Congress passed the Marijuana Tax Act, which led to dropping marijuana from the Federal Pharmacopoeia, the list of permissible medicines approved by the federal government. Although the American Medical Association [] opposed the reclassification of marijuana, those trumpeting its association with crime and disfavored minority groups ultimately prevailed.”).

75. *Id.*; see *id.* (“The Supreme Court has upheld Congress’s authority to regulate marijuana—even marijuana grown at home for the personal use of the grower—under its Commerce Clause power.”); see also Duke, *supra* note 12, at 1305 (“The Supreme Court held (correctly) in *Gonzales v. Raich*, [545 U.S. 1, 29–33 (2005)] that federal prosecution of persons who complied with state medical marijuana laws is lawful under the Commerce and Supremacy Clauses.”); Chemerinsky et al., *supra* note 11, at 83 (stating that in *Americans for Safe Access v. Drug Enforcement Administration*, 706 F.3d 438, 440–41 (D.C. Cir. 2013), the Circuit Court for the District of Columbia “declined to characterize as arbitrary and capricious the Drug Enforcement Administration[]’s refusal to reschedule marijuana”).

76. Chemerinsky et al., *supra* note 11, at 82–83; see Young, *supra* note 7, at 774 (marijuana is “a Schedule 1 drug under the CSA based on a finding that it has no accepted medical use and a high potential for abuse”); Chemerinsky et al., *supra* note 11, at 82 (a Schedule 1 drug is defined “as a drug with a high likelihood of addiction and no safe dose”).

77. Kamin, *supra* note 16, at 1106. See also Chemerinsky et al., *supra* note 11, at 83 (“Under the CSA, the manufacture, distribution, and possession of Schedule 1 narcotics is prohibited and punishments can extend to life in prison for large volume manufacturers and dealers.”). Only two limited exceptions to the federal ban on marijuana have been made. The first, a compassionate use program created under President Carter, is superficially analogous to extant state medical use programs; it allows patients to use marijuana legally for therapeutic purposes. The marijuana for the program is supplied by a federally approved grow-site at the University of Mississippi (the only federally approved grow-site in the United States). However, the program stopped accepting new applications in 1992, and only eight (yes, eight) patients currently receive marijuana through it. Over its entire history, only thirty-six patients have been enrolled. The second and only other way to obtain marijuana legally under federal law is by participating in an FDA-approved research study. Mikos, *supra* note 6, at 1433 (2009).

78. Mikos, *supra* note 6, at 1435.

79. Young, *supra* note 7, at 774.

80. Kreit, *supra* note 68, at 696.

81. *Id.* at 697.

DEA from doing this.⁸² Even if the agency could do this, according to Professor Alex Kreit, the DEA would not move the drug lower than Schedule II.⁸³

Sanctions for violating the federal ban are harsh. Even minor drug convictions can cause severe “collateral sanctions,” such as loss of student financial aid and public assistance.⁸⁴ Possession of marijuana is a misdemeanor, punishable by up to one year in prison and a minimum \$1000 fine plus costs.⁸⁵ It is a felony to manufacture, distribute, or possess any amount of marijuana with intent to distribute, earning the violator a maximum five-year jail term and a maximum fine of \$250,000 for individuals and \$1 million for organizations.⁸⁶ If the defendant has a prior federal drug conviction, the maximum sanction is doubled.⁸⁷ Distribution of a small amount of marijuana for free constitutes simple possession, a misdemeanor, but only if the “social sharing” is among friends.⁸⁸ The CSA also allows the federal government to seize assets used in violation of the Act, including real property and any structures on seized land.⁸⁹ Given the vulnerability of marijuana business assets to seizure, it easy to see why banks would be wary of using them as collateral for any loans.⁹⁰

The federal government has largely ceded enforcement of the CSA to the states because there are far fewer federal enforcement officers than state ones.⁹¹

82. *Id.*; see Duke, *supra* note 12, at 1302 (“Repeal at the federal level may be constrained by international treaties, which permit decriminalization but may not allow outright legalization.”); Reid, *supra* note 12, at 186 (“In 1961, 170 countries, including the United States, signed the United Nations Single Convention on Narcotic Drugs. This convention required signatory nations to make the production, trade, and possession of marijuana for non-medical reasons a punishable offense.”); *id.* (“The United States is also a participant in the United Nations Convention on Psychotropic Substances of 1971 and the United Nations Convention against Illicit Traffic of 1988. According to these conventions, possession of any prohibited substance for non-medicinal or nonscientific use was to be made a criminal offense under domestic law.”); *Id.* at 187 (“If the United States chooses to legalize marijuana production and use, it runs the risk of appearing hypocritical in the face of its international treaty obligations.”).

83. Kreit, *supra* note 68, at 697; see Reid, *supra* note 12, at 192 (“In order to place a drug on Schedule II, the FDA would have to determine the correct dosage for medicinal use.”).

84. Mikos, *supra* note 6, at 1435 (“What is more, even minor drug convictions can trigger harsh collateral sanctions under both state and federal law, including loss of student financial aid and public assistance.”).

85. *Id.* (“Offenders with prior drug records, however, face tougher sanctions: one prior conviction triggers mandatory prison time of fifteen days, raises the minimum fine to \$2,500, and extends the maximum prison term to two years; a second conviction triggers a minimum term of ninety days imprisonment, a minimum fine of \$5,000 plus costs, and a maximum prison term of three years.”).

86. *Id.*

87. *Id.*

88. *Id.* at 1436 n.61.

89. Kamin, *supra* note 16, at 1108, n.15.

90. Chemerinsky et al., *supra* note 11, at 93.

91. Adler, *supra* note 1, at 507 (“There are approximately four times as many state and local enforcement officers within the states of Washington and Colorado as there are Drug Enforcement Administration agents across the globe.”); see *id.* at 506 (citing *Gonzales v. Raich*, 545 U.S. 1 (2005), as affirming federal authority to ban marijuana possession and distribution, while noting that “the ability of

Federal officials only handle 1 percent of about 800,000 marijuana cases processed annually, and those numbers are going down.⁹² Since after *Printz v. United States*,⁹³ the federal government cannot compel the states to help enforce the CSA, it “must wage its war on drugs without many foot soldiers.”⁹⁴ The weak enforcement posture of the federal government may explain the government’s tolerance of state legalization and why President Obama has instructed his Departments of Justice and Treasury “to accommodate these state departures from federal norms.”⁹⁵

In recognition of the disparity in enforcement resources, the Department of Justice has slowly pulled back on federal enforcement in a series of Attorney General Memoranda. In 2009, the so-called Ogden Memorandum, named after Deputy Attorney General David Ogden, announced to U.S. attorneys that “prosecuting seriously ill people who used state-legal medical marijuana was ‘unlikely to be an efficient use of limited federal resources.’”⁹⁶ In 2011, Deputy Attorney General James Cole issued a new memorandum, clarifying that “[t]he Ogden Memorandum was never intended to shield ‘large-scale’ cultivation of marijuana even where permitted under a state’s medical marijuana laws.”⁹⁷ In 2013, Deputy Attorney Cole issued a second memorandum, addressing the legalization of marijuana in Colorado and Washington, in which federal prosecutors were advised “not [to] consider the size or commercial nature of a marijuana operation alone,” but also “the existence of a strong and effective state regulatory system, and an operation’s compliance with such a system.”⁹⁸

the federal government to enforce this policy is largely dependent upon state cooperation”); Chemerinsky et al., *supra* note 11, at 84 (“Since the CSA’s implementation more than forty years ago, nearly all marijuana enforcement in the United States has taken place at the state level. For example, of the nearly 900,000 marijuana arrests in 2012, arrests made at the state and local level dwarfed those made by federal officials by a ratio of 109 to 1.”); Carah et al., *supra* note 9, at 826 (“The small number of state agents currently available to regulate this industry and others—and to enforce environmental laws—is not sufficient to adequately address the large number of marijuana cultivation sites.”).

92. Mikos, *supra* note 6, at 1424; see Reid, *supra* note 12, at 178 (“[M]arijuana related prosecutions at the federal level have significantly decreased.”).

93. *Printz v. United States*, 521 U.S. 898 (1997).

94. Adler, *supra* note 1, at 507.

95. Young, *supra* note 7, at 771; see *id.* at 774 (“The federal government has too few law enforcement agents to handle the large number of potential targets. Simply put, the expected sanctions for using or supplying marijuana under federal law are too low, standing alone, to deter many prospective marijuana users or suppliers.”) (quoting Mikos, *supra* note 6, at 1463).

96. William Baude, *State Regulation and the Necessary and Proper Clause*, 65 CASE W. RES. L. REV. 513, 516 (2015).

97. *Id.* at 516.

98. *Id.*; see Kamin, *supra* note 16, at 1111 (“Deputy Cole announced that the Department of Justice would not be moving to block the implementation of recreational marijuana regulation in Colorado and Washington. This second Cole memo noted the historical reality that nearly all marijuana enforcement is done at the local level. While the federal government continues to have strong policy concerns about marijuana—e.g., the sale to minors, the diversion of marijuana between states, and the involvement of organized crime—it has generally left the enforcement of those priorities to the states.”).

The second Cole Memorandum clarifies that the default option remains enforcement of the CSA for states that prefer that option or for those states that are unable to deal with federal marijuana concerns. “But those states that wish to tax and regulate marijuana—either for medical or adult use—will be left to their own devices so long as they can demonstrate that their regulations are achieving the federal goals.”⁹⁹ The second Cole Memorandum also directed federal prosecutors to pursue only those cases that will:

prevent[] distribution of marijuana to minors; prevent[] revenue from the sale of marijuana from going to criminal enterprises, gangs, and cartels; prevent[] the diversion of marijuana from states where it is legal under state law in some form to other states; prevent[] state-authorized marijuana activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity; prevent[] violence and the use of firearms in the cultivation and distribution of marijuana; prevent[] drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use; prevent[] the growing of marijuana on public lands; and prevent[] marijuana possession or use on federal property.¹⁰⁰

However, if a state regulatory program is not sufficiently “robust” to meet these criteria, then the federal government may challenge that program and/or bring its own enforcement action.¹⁰¹ The threat of federal intervention, should a state’s regulatory program fail, looms sufficiently large over the legal marijuana market in states like Colorado that it has encouraged members of that industry to push for and comply with state regulations.¹⁰²

Thus, under the current federal policy, “states are allowed to experiment with marijuana law reform through an act of prosecutorial grace”; meaning that because “federal prosecutors have chosen not to prosecute them.”¹⁰³ Former Attorney General Eric Holder once said that “full legalization”—that is, legalization of not only medical marijuana, but also recreational marijuana—“would cross a red line.”¹⁰⁴ Moreover, federal enforcement policy is only a policy, and what appears to be lenient today may become less so under a new,

99. Kamin, *supra* note 16, at 1112.

100. Reid, *supra* note 12, at 179–80.

101. Kamin, note 16, at 1112 (quoting JAMES M. COLE, DEPUTY ATTORNEY GENERAL, GUIDANCE REGARDING MARIJUANA ENFORCEMENT 3 (2013), <http://www.justice.gov/iso/opa/resources/3052013-829132756857467>); see Hudak, *supra* note 63, at 653 (“For legalized marijuana [successful] implementation matters . . . [t]he federal government, in the context of Justice Department enforcement, will take a hands-off approach to the enforcement of the [CSA] if, and only if, states implement regulation[s] effectively and comprehensively.”).

102. Hudak, *supra* note 63, at 665 (“[T]he federal threat improved compliance, brought industry to the table, motivated firms to play by the rules, induced the industry to see the need for regulation, and facilitated communication between industry and regulators.”).

103. Kamin, *supra* note 16, at 1121.

104. *Id.* at 1110; but see Duke, *supra* note 12, at 1306 (“A decision voiding state permissiveness would be patently unsound and unenforceable. The Court that decided *Bush v. Gore*, [531 U.S. 98 (2000)] *could* render such a decision, but it would deserve no respect.”) (emphasis added).

or even the same, Administration.¹⁰⁵ And experimentation that allows states to tax and regulate marijuana under the second Cole Memorandum at the state level seems unlikely to occur as long as the drug is illegal at the federal level regardless of a policy of non-prosecution.¹⁰⁶ The very fact that the threat of federal enforcement remains can “cripple” implementation of those state laws and subject both “practitioners and consumers to the threat of significant prison terms,”¹⁰⁷ as discussed later in this Article.¹⁰⁸

The federal government is not completely out of the marijuana enforcement business. However, its limited enforcement resources have led it to shift its resources from criminally prosecuting medical-marijuana users to doctors who recommend the use of the drug and growers who supply it.¹⁰⁹ Focusing on suppliers like large marijuana cooperatives, which can service thousands of customers, can have a large impact and trigger much stiffer penalties than for simple possession, the charge most individual drug users are subjected to.¹¹⁰ Despite not prioritizing marijuana enforcement in states that have legalized marijuana, the federal government spent \$483 million dollars interfering with those laws between 1996 and 2012, by conducting over 500 raids and prosecuting dozens of people operating in compliance with them.¹¹¹ In California, as a way to “disrupt essential components of the state marijuana program,” the DEA has raided almost 200 medical marijuana cooperatives, as well as their landlords and the doctors who prescribe the drug to patients.¹¹² The government’s “hard line” on medical marijuana may be “rooted” in the sincere belief that the benefits of medical marijuana have not yet been demonstrated, that “it harms users and third parties, that legalizing marijuana for medical purposes suggests the drug is safe for other uses as well, and that

105. Baude, *supra* note 96, at 517 (“[F]ederal enforcement policy can change. The memoranda themselves illustrate this, as each takes a different position from the previous one on how to assess marijuana producers who comply with state law.”); see Kamin, *supra* note 16, at 1121 (saying that the decision not to prosecute “can be undone by yet another memo”).

106. Kamin, *supra* note 16, at 1120 (“Deputy Attorney General Cole stated that federal policy is to let states achieve federal goals through the taxing and regulation of marijuana rather than state-level prohibition, but the criminality of marijuana at the federal level makes such experimentation essentially impossible in practice.”).

107. *Id.* at 1108; see Duke, *supra* note 12, at 1306 (“[A]n ardent, widespread, and protracted federal campaign of prosecuting marijuana users, growers, and distributors would have a powerful chilling effect on all who use or contemplate using or distributing marijuana, however clearly they might comply with state law,” and could “virtually” nullify those laws if such a campaign were to focus on those who are in compliance with state laws as opposed to those who are not.).

108. See *infra* Part III.

109. Mikos, *supra* note 6, at 1465. See *id.* at 1467 (“[T]he [Drug Enforcement Administration] has raided nearly 200 medical marijuana cooperatives in California alone since 1996. It has also commenced forfeiture proceedings against landlords who knowingly rent property to marijuana growers.”).

110. *Id.* at 1467.

111. Kreit, *supra* note 68, at 690.

112. Mikos, *supra* note 6, at 1443.

marijuana grown for medical purposes would invariably be diverted onto the black market.”¹¹³

One problem hampering even this aspect of the federal government’s marijuana enforcement program is that the drug is so easy to produce.¹¹⁴ Marijuana plants can be grown “virtually anywhere, indoors and out, requiring little horticultural expertise or significant financial investment.”¹¹⁵ A new marijuana dispensary can take the place of any one that is shut down and smaller growers can satisfy the demand for marijuana created by any large grower the federal government has closed.¹¹⁶ “Shut them all down—an expensive and extremely unlikely endeavor—and many marijuana users would simply grow the stuff themselves.”¹¹⁷ High demand for the drug may result in federal eradication campaigns pushing marijuana production into “smaller operations that are harder to detect, more costly to prosecute given their sheer numbers, and subject to lower sanctions under the CSA,”¹¹⁸ and the frustration of states like Colorado that are trying to monitor the supply of marijuana.¹¹⁹

B. State Legalization

Until the 1910s, when a number of states criminalized growing and consuming marijuana, the drug had been legal.¹²⁰ For a variety of reasons—the pointlessness of prohibiting something that was widely available, the racially disparate impact of marijuana laws, or the resources enforcement of marijuana laws expended—states started to reconsider their marijuana laws.¹²¹ Starting in 1996 with the passage of California’s Compassionate Use Act, states began

113. *Id.* at 1434; *see Reid, supra* note 12, at 193 (“Cannabis or marijuana cannot be defined chemically, nor can it be easily standardized. . . . [S]moking as a dosage form to deliver marijuana to the human body is unsuitable for medical treatment due to: (1) lack of standardization of the marijuana, (2) lack of knowledge of the amounts of each constituent available, (3) lack of knowledge of the activity of the chemicals while burning, (4) amount of product ingested being dependent on the individual’s smoking technique, and (5) possible carcinogenic effect of smoking. There are no drugs which are delivered by smoking which are medically used in the United States.”) (quoting Marijuana Scheduling Petition: Denial of Petition, 54 Fed. Reg. 53,767, 53,773 (Dec. 29, 1989)).

114. Mikos, *supra* note 6, at 1467 (“One of the main reasons these efforts have failed is because there are no substantial barriers to entry in the marijuana market. Marijuana can be produced in almost any climate. Unlike other drugs, no special skills, technologies, or special inputs are needed to cultivate the plant (or so I’m told). Indeed, one can easily obtain advice on how to grow the drug at bookstores and via various websites.”).

115. Duke, *supra* note 12, at 1315.

116. Mikos, *supra* note 6, at 1467–68. Government failure can also be costly, create regulatory and market uncertainty, lower the morale of government employees and trust in government, and even cause both public and political embarrassment. Hudak, *supra* note 63, at 652.

117. Mikos, *supra* note 6, at 1468.

118. *Id.*

119. *Id.* (“[S]uch a campaign may have an unintended and deleterious consequence: to the extent users turn to smaller (and more numerous) suppliers or simply grow the drug themselves, the federal campaign would frustrate state efforts to supervise the supply of marijuana.”).

120. Chemerinsky et al., *supra* note 11, at 81. The authors attribute the move to regulate marijuana to racism and xenophobia. *Id.*

121. *Id.* at 84–85.

authorizing its use, first for medical purposes and more recently for recreation.¹²² Today, over half the states and the District of Columbia allow for the medical use of marijuana, and some states and the District of Columbia have legalized the drug entirely.¹²³

In 2012, Colorado and Washington legalized recreational use of marijuana, followed two years later by Alaska, Oregon, and the District of Columbia.¹²⁴ California, Massachusetts, and Nevada legalized recreational marijuana in the 2016 election; only Arizona rejected it by a small margin.¹²⁵ Prior to the most recent election, “37 states and the District of Columbia ha[d] liberalized their marijuana laws in some way.”¹²⁶ Even before the Colorado and Washington ballot initiatives legalizing recreational marijuana, many states had laws punishing the use or possession of marijuana much more leniently than the CSA; some punished possession of less than an ounce of marijuana only by a fine.¹²⁷ By removing criminal sanctions for possession of marijuana, these states were allowing individuals to engage in conduct criminalized under federal law.¹²⁸

“As a practical matter, by simply legalizing a given behavior, the states can remove or at least diminish the most significant barriers inhibiting that behavior, including state legal sanctions . . . and the personal, moral, and social disapproval of the behavior as well.”¹²⁹ State legalization of medical marijuana has created a more tolerant personal and social atmosphere about the drug’s use.¹³⁰ Additionally, state medical marijuana laws have more influence over private behavior than the federal ban, in part, because states have more influence over “the non-legal forces that shape behavior, including personal beliefs, moral obligations, and social norms.”¹³¹ By not punishing marijuana

122. Kamin, *supra* note 16, at 1107 (“States are authorizing under their own laws the possession, manufacture, and distribution of the drug—either for medical patients or for all adults—while the federal government continues to treat marijuana as a prohibited substance.”).

123. Kreit, *supra* note 68, at 718; Bates, *supra* note 69. See Mikos, *supra* note 4, at 764 (Prior to the 2016 election, “twenty-three states ha[d] legalized marijuana for some purposes under state law. As of the November 2014 election, at least twenty-one of those states ha[d] also legalized some form of retail distribution of marijuana.”).

124. Reitz, *supra* note 3, at 1086–87.

125. Bates, *supra* note 69.

126. Reitz, *supra* note 3, at 1086–87.

127. Chemerinsky et al., *supra* note 11, at 111.

128. *Id.*

129. Mikos, *supra* note 6, at 1424 (“[S]tates also have comparatively strong sway over the private (i.e., non-legal) forces that shape our actions, such as our personal beliefs about behavior and our social norms. Simply by allowing their residents to use marijuana for medical purposes, the states have arguably fostered more tolerant attitudes toward the practice, making it seem more compassionate, less dangerous, and less wicked, thereby removing or softening the personal and societal reproach that once suppressed medical use of the drug. The expressive power of permissive state legislation—largely ignored by the academy—cannot easily be undone or countered by Congress. As a result, the states may possess even more de facto power vis-à-vis Congress than is commonly perceived.”).

130. *Id.* at 1424–25.

131. *Id.* at 1426. See *infra* Part V.A.2.

use, particularly after having banned its use for so many years, “the states are arguably suggesting that marijuana use is safe, beneficial, and not wicked.”¹³² The result is that “medical marijuana use has survived and indeed thrived in the shadow of the federal ban”¹³³—it is “easier to find a head shop than a coffee shop” in Boulder, Colorado.¹³⁴ On the other hand, “[a]s long as the federal ban persists, so the argument goes, social norms condemning drug use and criminal behavior will continue to suppress use of marijuana for medical purposes, even if the federal ban is not rigorously enforced.”¹³⁵

All indications are that the state “legalization train is not slowing down.”¹³⁶ State legalization of marijuana has strong public support;¹³⁷ even national public opinion is clearly moving toward legalization.¹³⁸ “In 1969, only 12% of Americans were in favor of legalizing the use of marijuana—but today, between 51% and 61% of Americans support its legalization.”¹³⁹ The result is a rather strange federalism moment where states are legalizing and regulating behavior that is a federal crime, for which public support is diminishing.¹⁴⁰ States like Colorado that are licensing marijuana suppliers and medical users to distribute or use marijuana, are “literally, licensing a violation of the

132. Mikos, *supra* note 6, at 1454.

133. *Id.* at 1482.

134. Young, *supra* note 7, at 774.

135. Mikos, *supra* note 6, at 1443–44.

136. Popper, *supra* note 25 (explaining Microsoft’s decision to provide software to states that have legalized medical or recreational marijuana use to track marijuana plants from “seed to sale”); see Chemerinsky et al., *supra* note 11, at 113 (“Given the significant limitations on the federal government’s ability to nullify state laws legalizing marijuana, and the increasing public support for liberalizing marijuana laws, the number of states doing away with their marijuana prohibitions is likely to only grow in the years to come.”); *but see* Mikos, *supra* note 4, at 720 (“But the states are now facing growing opposition from within their own borders. Citing concerns over marijuana’s perceived harms, many local communities in marijuana legalization states are seeking to reinstate marijuana prohibitions at the local level. Communities in at least twelve marijuana legalization states have already passed local bans on marijuana dispensaries. Even in Colorado, arguably the state with the most liberal marijuana policies, more than 150 municipalities have passed ordinances banning the commercial sale of marijuana.”); *id.* (“[C]ountless other communities that otherwise welcome or at least tolerate the marijuana industry are nonetheless attempting to regulate it, imposing their own idiosyncratic rules concerning the location, size, hours, signage, security, and goods sold and taxes paid by local vendors.”).

137. Kreit, *supra* note 68, at 698 (“[P]olling indicates substantial support for deferring to states, even among legalization opponents.”).

138. Hudak, *supra* note 63, at 653–54; *but cf.* Young, *supra* note 7, at 791 (“National public opinion on marijuana places the [CSA] in a kind of limbo. There is insufficient public demand for legalization to engender a strong political movement for repeal or amendment, but there is also insufficient support for prosecuting marijuana users to prompt federal authorities to allocate increased resources that might compensate for state noncooperation.”); *see id.* at 773 (pointing out that President Obama is “both sympathetic to legalization and fond of not enforcing federal laws with which it disagrees”).

139. Reitz, *supra* note 3, at 1087; *see* Mikos, *supra* note 6, at 1477 (“[O]pinion polls consistently show more than 70 percent of the American public now approves of the use of marijuana for medical conditions.”).

140. Mikos, *supra* note 6, at 1425 (“[F]or all practical purposes, [states have] already made medical marijuana de facto legal within their jurisdictions.”).

[CSA].”¹⁴¹ These states have not just declined to enforce federal law; they have constructed regulatory regimes that “arguably support[] and encourage[] a line of business that still violates federal law.”¹⁴²

The next Part discusses the problems the federal-state conflict over marijuana policy causes for all involved in the industry¹⁴³ and some possible ways to resolve that conflict.

III. PROBLEMS CAUSED BY THE FEDERAL-STATE CONFLICT OVER MARIJUANA POLICY

The status quo of state legalization and federal criminalization of marijuana is not good for anyone. What is happening in the states cannot help but undermine federal enforcement of the law and respect for the law in general.¹⁴⁴ Criminalization of marijuana imposes “human costs on producers and consumers” of the drug and “gives states little incentive to behave well in setting up their own legal regime.”¹⁴⁵ It has done little, if anything, to end the illegal cultivation of marijuana on public lands. On the other hand, decriminalizing marijuana would not only eliminate the negative effects of criminalization, but could also result in a safer drug, create tax revenues for the states, which could be used to defray the cost of regulation, and might lower the cost of the drug, making it less attractive to black-market suppliers.

A. *The Costs of Criminalization*

The continuing possibility of federal enforcement hangs like a sword of Damocles over the heads of businesses that engage in the marijuana industry, as well as over individuals who use it for medical or recreational purposes,

141. Young, *supra* note 7, at 786.

142. *Id.* at 783; *see id.* at 786 (“Colorado has not simply decided not to prohibit marijuana use. Rather, it has established a regulatory regime predicated on the legality of some marijuana consumption—notwithstanding the continuing prohibition of marijuana cultivation, distribution, and consumption under federal law.”); *id.* at 787 (“Certainly proposals to have the state cultivate marijuana in order to safeguard its quality are preempted (and could well lead to actual federal prosecution of state officials).”).

143. Popper, *supra* note 25 (commenting that this strange regulatory situation has given a somewhat “improvisational nature to the cannabis industry”).

144. Brannon P. Denning, *Vertical Federalism, Horizontal Federalism, and Legal Obstacles to State Marijuana Legalization Efforts*, 65 CASE W. RES. L. REV. 567, 578 (2015) (“[S]tate legalization regimes permitting marijuana use for medical or recreational purposes present a substantial obstacle to the implementation of a federal law that (1) recognizes no medical use for marijuana and (2) seeks to eliminate the national market in marijuana by banning all production, possession, and transfer. Only the DOJ announced policy of forbearance keeps this conflict from coming to a head.”).

145. Baude, *supra* note 96, at 516 (“The new marijuana federalism—a federalism accomplished through state legalization and federal nonenforcement—is problematic for those who support decentralization. First, the status quo imposes human costs on producers and consumers in the marijuana business. It might be good for those who opposed decentralization in the first place, but that is not the premise from which the relevant states or the executive branch appear to be proceeding. Second, the status quo gives states little incentive to behave well in setting up their own legal regime.”).

practitioners—like doctors—who prescribe it, and marijuana dispensaries who sell the drug.¹⁴⁶ Even if federal drug laws are not enforced in states that have legalized marijuana, their existence creates “serious problems for banks, lawyers, and others who might otherwise want to work with the in-state marijuana industry.”¹⁴⁷ Additionally, and not inconsequentially, the threat of federal enforcement undermines the ability of those states that have legalized the drug to establish a stable regulatory regime.¹⁴⁸

Because marijuana businesses are taking part in a criminal activity, they may have trouble entering into any contractual relationships,¹⁴⁹ and cannot rely on any contracts they do conclude, including insurance contracts.¹⁵⁰ They may also have problems getting legal help in understanding “the legal minefield created by complex state regulatory apparatuses.”¹⁵¹ Marijuana businesses also suffer severe tax consequences. For example, marijuana businesses must declare any income that they earn, and do so even though this might expose them to criminal prosecution or tax penalties.¹⁵² Since a marijuana retailer can only deduct “the cost of obtaining the goods for sale,” they must pay taxes on their gross receipts.¹⁵³ “All other usual business expenses—retail rent, employee payroll, lights, and heating and cooling—cannot be deducted as they

146. *Id.* at 517 (“Dispensaries themselves are burdened by the unenforced federal law as well. For instance, they might be held civilly liable under the federal racketeering statute, which is outside executive control.”).

147. *Id.* at 513; *see id.* at 516–17 (“[F]ederal law likely does not allow banks to serve the industry, though recent enforcement guidance indicates that these rules will not be enforced against banks that comply with certain additional requirements.”).

148. Young, *supra* note 7, at 789; *see* Chemerinsky et al., *supra* note 11, at 79 (“Although President Obama has said that state policy experiments in Washington and Colorado are ‘important’ and should go forward, the continuing federal prohibition of marijuana substantially undermines these new state laws.”); Duke, *supra* note 12, at 1302 (“Unless reform occurs at the federal level, though, state-level reforms face a myriad of limitations and uncertainties.”); *id.* at 1308 (“Prohibition is inconsistent with control, because only that which is legal can be regulated by law.”); Paul J. Larkin Jr., *Regulation, Prohibition, and Overcriminalization: The Proper and Improper Uses of the Criminal Law*, 42 HOFSTRA L. REV. 745, 746 (2014) (arguing against the use of criminal law to enforce a regulatory regime because “[t]he function of the criminal law . . . is to enforce [a] moral code” while “the function of the regulatory system is to efficiently manage components of the . . . economy”), quoted in Kreit, *supra* note 68, at 706 n.73.

149. Baude, *supra* note 96, at 517. *See* Kamin, *supra* note 16, at 1113 (“Because marijuana remains illegal at the federal level, much of the predictability that comes from enforceable contracts is unavailable to marijuana practitioners.”).

150. Chemerinsky et al., *supra* note 11, at 97.

151. *Id.*

152. *See generally id.* at 79 (“Banks, attorneys, insurance companies, potential investors, and others—justifiably concerned about breaking federal law—are reluctant to navigate complex state and local regulations and provide investment capital, legal advice, and other basic professional services necessary for businesses to function. Federal tax rules treat these marijuana business activities like any other federal drug crime, which enormously increases tax liability by disallowing deductions for common business expenses. And those engaging in marijuana activity entirely legal under state law—whether recreational or medical—still risk losing their jobs, parental rights, and many government benefits.”).

153. *Id.* at 94.

can in any other business, either legitimate or illegal.”¹⁵⁴ “Because marijuana remains contraband at the federal level,” companies and individuals who invest in state-authorized marijuana businesses “have no guarantee their investments are safe from the whims of federal law enforcement.”¹⁵⁵

Marijuana businesses cannot get loans from, or use the services of, a bank because of federal prohibitions on illegal financial transactions.¹⁵⁶

The lack of commercial banking is more than a dignitary harm for those operating in the marijuana industry; for many it is a sincere safety concern. Marijuana businesses present an easy target for thieves who are aware that these businesses often have no choice but to keep large quantities of cash on hand.¹⁵⁷

Even though in 2014, the Departments of Justice and Treasury issued joint memoranda “purporting” to allow banks to engage in business with those involved in the marijuana industry, the memoranda, “like the second Cole memo which preceded it, stopped short of removing the specter of future enforcement actions.”¹⁵⁸ The cash basis of these operations also makes it more difficult for states to tax and regulate them.¹⁵⁹

Lawyers may run afoul of state bar rules prohibiting engagement in an illegal activity if they counsel anyone using or distributing marijuana.¹⁶⁰

Model Rule of Professional Conduct 1.2(d) and its state analogs prohibit attorneys from knowingly facilitating criminal conduct. A literal reading of that rule would preclude a lawyer from providing any assistance—e.g.,

154. *Id.*

155. Baude, *supra* note 96, at 519.

156. *Id.* at 513 (“Because marijuana remains contraband at the federal level, businesses and lawmakers who invest in responsible legalization at the state level have no guarantee their investments are safe from the whims of federal law enforcement. Moreover, even if the federal drug laws are not actively enforced in those states, the laws create serious problems for banks, lawyers, and others who might otherwise want to work with the in-state marijuana industry.”); *see also* Chemerinsky et al., *supra* note 11, at 79 (“Banks, attorneys, insurance companies, potential investors, and others—justifiably concerned about breaking federal law—are reluctant to navigate complex state and local regulations and provide investment capital, legal advice, and other basic professional services necessary for businesses to function. Federal tax rules treat these marijuana business activities like any other federal drug crime, which enormously increases tax liability by disallowing deductions for common business expenses. And those engaging in marijuana activity entirely legal under state law—whether recreational or medical—still risk losing their jobs, parental rights, and many government benefits.”).

157. *Id.* at 91; *see* Kamin, *supra* note 16, at 1114 (“Principally, the lack of banking services keeps marijuana businesses operating in the shadows of society. As cash businesses, they are targets for violent crime.”).

158. Kamin, *supra* note 16, at 1115.

159. Chemerinsky et al., *supra* note 11, at 92.

160. *See generally* Young, *supra* note 7, at 789–90. *See also* Baude, *supra* note 96, at 517 (“It is not clear whether lawyers can advise in-state dispensaries without being guilty of criminal conspiracy or accomplice liability.”); Kreit, *supra* note 68, at 695 (“Federal prohibition also leaves marijuana businesses with a great deal of uncertainty when it comes to intellectual property rights.”).

drafting contracts, negotiating leases—to clients whom the attorney knows are engaged in on-going violations of the CSA.¹⁶¹

Even when a state may authorize lawyers to assist marijuana clients, this would not relieve them of having to tell their clients that there is “profound legal uncertainty” surrounding their representation because of the possibility of federal enforcement.¹⁶²

While the negative consequences discussed above primarily affect marijuana businesses, “the consequences are no less profound for those simply wishing to consume marijuana in compliance with their state’s laws.”¹⁶³ As long as the CSA bans the use or possession of marijuana, “promises from the federal government to let the states take the lead in marijuana enforcement” do not eliminate the possibility of federal enforcement.¹⁶⁴ As long as the federal ban is on the books, marijuana consumers run the risk of losing their jobs if their use is discovered, and any benefits they may have accrued,¹⁶⁵ as well as custody of their children and the very real possibility of jail time or heavy fines.¹⁶⁶ Practitioners could lose their medical licenses.¹⁶⁷ Other public

161. Kamin, *supra* note 16, at 1116; *see id.* (discussing the split among states that have considered the question of a lawyer’s responsibility to provide professional services to individuals involved in the marijuana industry); Chemerinsky et al., *supra* note 11, at 95 (“The Model Rules of Professional Responsibility and the ethics rules of nearly every state prohibit an attorney from knowingly facilitating a client’s criminal conduct. Because nearly all the actions of a marijuana business remain violations of federal law, any assistance that a lawyer gives to a business that she knows to be in violation of federal law could be construed as an ethical violation. This is true not only when the lawyer helps a marijuana retailer purchase product from a marijuana grow facility—in other words, when she assists in the actual violations of federal law—but also when the lawyer incorporates the marijuana business, helps draft a lease, lobbies local government officials for a zoning exemption, or negotiates an employment agreement. Because all these tasks help a marijuana business to break federal law, there is a plausible argument that the lawyer subjects herself to discipline for knowingly doing so.”).

162. Chemerinsky et al., *supra* note 11, at 95.

163. Kamin, *supra* note 16 at 1118; *see id.* at 1120 (“[C]ontinued prohibition of marijuana at the federal level leads to unsettled expectations, not just for those trying to make a living in the marijuana industry but also for those who would take advantage of state laws permitting marijuana use.”).

164. *Id.*

165. *Id.* (“Currently, one of the biggest impediments to the legalization of marijuana in the states is the fact that those who test positive for marijuana can lose their employment even if their conduct is entirely consistent with state law.”); *see id.* (“Colorado courts have concluded that an individual fired for testing positive for marijuana is ineligible for unemployment benefits under the same reasoning, even if that individual is a marijuana patient acting in compliance with state law.”).

166. *See generally* Young, *supra* note 7, at 789–90; *see* Duke, *supra* note 12, at 1307 (“[A]s long as federal prohibition remains in place, those who distribute, grow, or possess marijuana are risking severe federal civil and criminal sanctions.”); Chemerinsky et al., *supra* note 11, at 99 (“While there is little case law on point, it is becoming increasingly clear that marijuana use will likely play a role in family law proceedings, particularly in child custody disputes. Some courts have held that a parent’s medical marijuana use alone cannot form the basis of diminishing her parenting rights. But there is no guarantee that marijuana use—even use sanctioned by state law—will not provide a basis for diminishing a parent’s rights.”). Professor Duke asserts that prohibition of marijuana damages can destroy lives because of the high rate of incarceration for mere possession of marijuana (in 2010, 46 percent of the drug arrests were for possession of marijuana, resulting in 800,000 arrests). *Id.* at 1311.

benefits, such as public housing and student loans to government employees, “are conditioned on the recipient’s abstinence from illegal-drug use.”¹⁶⁸ State courts have used the federal ban on marijuana to deny parole or probation to otherwise qualified criminal defendants, even though marijuana is legal in that state.¹⁶⁹ The possibility of federal enforcement gives federal prosecutors a “lever” to use against individuals who have been targeted by the criminal justice system for some other reason.¹⁷⁰ More people are arrested for marijuana offenses than for violent crimes,¹⁷¹ and those arrested are more likely to be blacks and Latinos than whites.¹⁷²

In addition to the harms visited on businesses and individuals from federal criminalization of marijuana, the federal position has also undermined states that have legalized marijuana.¹⁷³ Since states cannot legalize marijuana on their own “either as a formal or as a practical manner,”¹⁷⁴ the federal ban has created “a highly unstable situation” where the threat of enforcement inhibits regulatory innovation at the state level.¹⁷⁵

The “uncertainty that conflicting federal and state laws create also discourages individuals who want to grow marijuana legally from entering the market, depressing the supply from legal growers, and allowing illegal growers to continue to meet the unmet demand of the market.”¹⁷⁶ An unregulated marijuana market enables illegal growers “to move their product into legal channels,” like marijuana dispensaries, instead of disposing of it as contraband on the street.¹⁷⁷ Although the creation of legal markets for the drug may “dry

167. Duke, *supra* note 12, at 1306 (“It is also conceivable, though I doubt its legality, that a state, while itself legalizing or medicalizing marijuana, could deny or revoke professional or occupational licenses to compliant users for violating federal law.”).

168. Kamin, *supra* note 16, at 1119.

169. *Id.* at 1118.

170. Young, *supra* note 7, at 789–90.

171. Duke, *supra* note 12, at 1303.

172. *Id.* at 1312 (“Although Blacks and Latinos account for no more than twenty percent of the drug-using population, they comprise eighty-six percent of those who are arrested for marijuana possession in New York City.”).

173. Kamin, *supra* note 16, at 1121 (“[T]he problem with the status quo is that marijuana possession, manufacture, and distribution remain illegal under the second Cole memo. Even if the government keeps its promise not to intervene in states that have enacted robust marijuana regulations, the continuance of federal marijuana prohibition has a profound effect in those states.”).

174. Young, *supra* note 7, at 789–90; see Chemerinsky et al., *supra* note 11, at 113 (“Expectations are unsettled and state policy goals are frustrated by the legal-but-not-entirely-legal status of marijuana in twenty-three states.”).

175. Young, *supra* note 7, at 789–90; see also Chemerinsky et al., *supra* note 11, at 77 (“Divergent federal and state laws also create debilitating instability and uncertainty on the ground in those states that are pioneering new approaches to marijuana control.”); Kreit, *supra* note 68, at 710 (“[R]egardless of the details, replacing federal prohibition with regulation would leave states free to decide to legalize marijuana without having to obtain a federal waiver or leaving state-legal marijuana businesses at risk of federal prosecution. In this sort of system, state legalization laws would not have to operate with federal prohibition lurking in the background.”).

176. Reitz, *supra* note 3, at 1089–90 n.22.

177. *Id.*

up” black markets where the drug is currently sold, legalizing the drug state-by-state will take time and will not stop “growers who exploit public land” from making “big money” by exporting their illegally grown crop to states where the drug “remains illegal and the black-market price is higher.”¹⁷⁸

By insisting on criminalizing marijuana, the federal government has lost effective “state and local enforcement partners,”¹⁷⁹ as well as “the chance to harness state energy and creativity to responsibly regulate marijuana and control interstate spillovers.”¹⁸⁰ The ambiguity and secrecy surrounding a criminalized industry hide associated environmental impacts and impede efforts to abate those impacts.¹⁸¹

The semi-legal status of the medical market and the significant intermixing of the medical and black markets complicate regulation of the industry. As a result, local marijuana-specific laws and regulations, as well as other existing state and federal laws that apply (*e.g.* the state Fish & Game Code and Water code and the federal Clean Water Act and Endangered Species Act) are currently inconsistently and lightly enforced.¹⁸²

This confused federalism “status separates marijuana from fully legal agricultural commodities and greatly complicates regulation of the industry.”¹⁸³ On the other hand, criminalizing the production and use of marijuana is easier than legalizing it because all it means is that there are existing state and federal laws that could be enforced more rigorously.¹⁸⁴

One area in which federal enforcement could be effective is against the marijuana traffickers who are growing marijuana illegally in California and Colorado as a way of avoiding the U.S. border patrol interdicting imported marijuana.¹⁸⁵ Mexican drug cartels, which once earned \$1.1 to \$2 billion dollars exporting marijuana to the United States, are now selling illegally grown marijuana to local legal dispensaries or smuggling it to other states where its sale is illegal.¹⁸⁶ These are very “cost-effective business venture[s],” as there are no land acquisition or regulatory compliance costs, which have

178. Levy, *supra* note 2, at 270.

179. Young, *supra* note 7, at 790.

180. Baude, *supra* note 96, at 539.

181. Carah et al., *supra* note 9, at 827.

182. *Id.* at 826.

183. *Id.* at 823.

184. See Reid, *supra* note 12, at 188.

185. *Id.* at 189; see Levy, *supra* note 2, at 268 (“After the terrorist attacks of 11 September 2001, border security was tightened. Smuggling pot into the United States became too risky, and international groups of marijuana growers began to move into California’s national parks, forests, and tribal lands.”). These traffickers kidnap and force Mexican nationals to work on illegal-marijuana grow sites. Reid, *supra* note 12, at 189; see also Levy, *supra* note 2, at 268 (“Many of the growers—at least those who do the grunt work, the ones who get arrested—come from south of the Mexican border.”).

186. Reid, *supra* note 12, at 189–90; *id.* at 203 (“In 2012, in Colorado alone, ‘there were 274 marijuana interdiction seizures destined for other states, compared to 54 of such seizures in 2005. This is a 407 percent increase.’”).

generated millions of dollars in cash that is then sent back to Mexico.¹⁸⁷ As a result of these operations, “marijuana production levels in the United States have become comparable to that in Mexico.”¹⁸⁸ But the federal government is barely visible as an enforcement presence.

B. The Benefits of Decriminalization, Legalization, and Regulation

There are discernible benefits from decriminalizing marijuana, or at minimum continuing the Administration’s policy of non-enforcement, and then regulating it at either the federal or state level. There would be popular support for the position: an end to the harms federal criminalization has visited on commercial enterprises and individuals. Doing this might slow the flow of illegally cultivated marijuana into the market place and thus curtail its production, and end the debilitating charade of non-enforcement of a federal crime, among other benefits. At a more abstract level, decriminalizing marijuana might lessen the impact of non-enforcement on “the moral authority of law”¹⁸⁹ and improve confidence in government.¹⁹⁰

Legalization of marijuana could lower the drug’s cost and thus make it less attractive to those who are growing it illegally. In California, where legalization of medical marijuana has enabled marijuana consumers to grow their own marijuana legally, the cost of the drug has dropped, and with it the demand for illegal marijuana.¹⁹¹ However, this price drop has had a negative effect on the local economies of some California communities that rely heavily on marijuana production,¹⁹² requiring some commercial growers in those communities to expand their operations to keep profitable or even encourage

187. *Id.* at 190.

188. *Id.*

189. Edward K. Cheng, *Structural Laws and the Puzzle of Regulating Behavior*, 100 NW. U. L. REV. 655, 659–62 (2006); see Katrina Fischer Kuh, *When Government Intrudes: Regulating Individual Behaviors that Harm the Environment*, 61 DUKE L.J. 1111, 1120 n.22 (2012) (citing Cheng, *supra* note 189, at 659–62).

190. See Werner F. Ebke, *Enforcement Techniques Within the European Communities: Flying Close to the Sun with Waxen Wings*, 50 J. AIR L. & COM. 685, 720 (1985) (Referring to the “macro” effect of “micro” motives, Ebke says that these motives nonetheless deserve “special attention,” going on to note, “[i]n the context” of enforcing against violations by member states of various European Community treaties, “that, because of increasing economic and financial difficulties, the member states, like individuals, more frequently seem to feel a sense of helplessness and futility about their capacity to influence the conduct of the other member states for the sake of the common objectives. These feelings often may result in an increasing willingness of at least some of the member states not to conform with Community obligations, though they may well realize and recognize that even minor violations of the law of the Communities tend to lessen public and private confidence in the Community and that this lack of confidence in turn endangers the possibilities of achieving the Communities’ objectives as set forth in the constitutive Treaties.”). *Id.*

191. Starr, *supra* note 5, at 1094.

192. *Id.*

first-time cultivators to get into the business,¹⁹³ making them a target for drug cartels to exploit.¹⁹⁴

Regulated drugs are substantially safer, meaning that consumers can trust that the drug will not be either poisonous or contaminated in some way.¹⁹⁵ Legalizing marijuana might also eliminate the crime and violence that is associated with its production.¹⁹⁶ “In the United States, large criminal organizations maintained by violence and bribery increasingly control the networks that distribute marijuana.”¹⁹⁷ Many terrorist organizations are financed by distributing drugs.¹⁹⁸ Given the ineffectiveness of enforcing the ban against these criminal organizations, enforcement resources might be better spent enforcing against those serious secondary crimes instead of being distracted by the ban, which is perhaps even indirectly facilitating those crimes.¹⁹⁹

If marijuana were no longer prohibited, enforcement costs, like the costs of jailing offenders, might decrease²⁰⁰ and revenues might rise because the sale of marijuana could be taxed.²⁰¹ While some states that have legalized marijuana are considering taxing it, as long as producing or distributing the drug remains a federal crime, few marijuana businesses will either file tax forms or pay taxes at the state level that might end up with their federal prosecution.²⁰² While decriminalization may reduce some of the costs associated with the federal ban, it could, at the same time, encourage black-market distribution as demand for the drug increases and make the violence and corruption that are innate to illegal distribution networks worse, unless the drug is simultaneously fully legalized and regulated.²⁰³

193. *Id.*

194. *Id.* at 1095.

195. Duke, *supra* note 12, at 1308.

196. *Id.* at 1309; see Diana Marcum, *Central Valley's Booming Medical Marijuana Crop Draws Violence*, L.A. TIMES (Oct. 2, 2010), <http://articles.latimes.com/2010/oct/02/local/la-me-pot-crop-2010-1003>.

197. Duke, *supra* note 12, at 1309; see Starr, *supra* note 5, at 1098 (“Considering that large-scale grow operations present a more lucrative opportunity to anyone who would use violence to obtain or protect the plants and that large-scale operations often take place on public lands, cultivation of a large number of plants increases the probability and extent of violent crime and environmental degradation.”).

198. Duke, *supra* note 12, at 1309.

199. *Id.* at 1310–11.

200. Keith Humphreys, *So, Something Interesting Happens to Weed After It's Legal*, WASH. POST: WONKBLOG (May 4, 2016), <https://www.washingtonpost.com/news/wonk/wp/2016/05/04/the-price-of-legal-pot-is-collapsing/>. (“[B]argain-basement prices undercuts the black market, bringing the public reduced law enforcement costs, both in terms of tax dollars spent on jail and the damage done to individuals who are arrested.”).

201. Duke, *supra* note 12, at 1313. *But see* Humphreys, *supra* note 200, at 2 (commenting that states will receive less sales tax revenue if the price of marijuana declines).

202. Duke, *supra* note 12, at 1313 (projecting that six billion dollars could be raised annually by taxing the sale of marijuana).

203. *Id.* at 1316. See Carah et al., *supra* note 9, at 827 (“In addition, black markets (and the environmental impacts associated with black-market cultivation) are unlikely to disappear in the face of local liberalization policies. . . . For example, black market–marijuana cultivation remains a problem in

Legalizing marijuana would decrease the amount of clandestine indoor cultivation of the drug, which would dramatically reduce energy production and the resulting carbon footprint of indoor production.²⁰⁴ Indoor marijuana production would likely transition out-of-doors, enabling farmers and other producers to transition into marijuana cultivation with confidence and security. However, this transition may have no impact on the illegal marijuana cultivation on federal lands, if at the same time the black market for marijuana does not also decrease.

When producing and cultivating marijuana is no longer a federal crime, its distribution should become more efficient and the drug less costly to purchase.²⁰⁵ This is because the federal ban imposes many costs on illegal drug producers, such as the costs of operating secretly, not advertising, having to pay higher wages to compensate for the risk of arrest, and inability to use courts to resolve contract disputes.²⁰⁶ Legal companies bear none of these costs and can benefit from economies of scale that can further reduce production costs.²⁰⁷

Legalizing marijuana would turn what had been a criminal matter into an administrative one of licenses and permits.²⁰⁸ Marijuana consumers would feel morally comfortable²⁰⁹ and secure, which could lead to more consumption²¹⁰ and a stronger marijuana market. Opponents of legalization argue that increased consumption will correspondingly increase the need for treatment programs as more consumers become dependent on the drug.²¹¹ However,

Colorado despite the legalization of recreational use. . . . Legalization will likely increase consumption—and may increase demand or black market marijuana—depending on how markets are regulated and enforcement conducted.”) (internal citations omitted).

204. Reitz, *supra* note 3, at 1094.

205. Duke, *supra* note 12, at 1314–15; *see* Humphreys, *supra* note 200 (reporting on the fall in marijuana prices in Washington of about 2 percent per month, predicting a possible drop of “25 percent each year going forward”).

206. Humphreys, *supra* note 200.

207. *Id.*

208. Reid, *supra* note 12, at 184.

209. Hudak, *supra* note 63, at 664 (“The introduction of retail sales,’ according to the Chief of the Colorado Association of Chiefs of Police, ‘was at least a more honest conversation than medical.’”); *see id.* at 665 (“By reducing the recourse to wink-and-nod circumventions of medical-marijuana rules, such ‘policy honesty’ may temper resentment, improve the new policy’s perceived legitimacy, and encourage compliance.”).

210. Duke, *supra* note 12, at 1315; *but see* Young, *supra* note 7, at 789–90 (“[N]ot everyone is Justice Holmes’s ‘bad man’—that is, motivated only by the fear of sanctions. Even if adverse legal consequences are unlikely, some persons may have strong moral or religious aversions to law breaking.”).

211. Reid, *supra* note 12, at 177–78 (“In one study, nine percent of those who used marijuana became clinically dependent on it.”); *see id.* at 180–81 (“Negative consequences of legalization may include: 1. a higher incidence of emphysema and other respiratory problems, and increased effects of second-hand marijuana smoke; 2. increased use of more potent drugs by those who use marijuana as a potential gateway drug, impaired mental health based upon prolonged use; 3. adverse education and employment outcomes, and higher rate of automobile crashes; 4. increased secondary effects on children that ensue from parental use of marijuana; and, 5. impair[ed] short-term memory and motor coordination, slow[er] reaction time, alter[ed] mood, judgment, and decision-making, and . . . severe anxiety (paranoia) or psychosis (loss of touch with reality).”). Reid adds “[h]owever, compared to

since criminal enforcement of the illegal possession of marijuana has declined, increasing the supply of the drug will not inevitably increase demand nor will it lead to more “egregious criminal behavior.”²¹² “For many, the benefits of using marijuana would be realized with little or no risks.”²¹³

The marijuana industry supports decriminalization because ineffective regulation and enforcement can lead to serious public policy problems, causing public support for the industry to “plummet.”²¹⁴ Allowing state regulation to proceed would “incorporate the idea of state marijuana legalization into federal law in a way that would make it hard to turn back.”²¹⁵ Thus, federal marijuana regulation would, in essence “be a concession to the idea that existing state-level medical and recreational marijuana laws are not going anywhere and that state marijuana legalization is a legitimate policy option.”²¹⁶ And treatment of the marijuana industry as part of the federal criminal justice system might actually increase federal control over the drug either by having the federal government enforce its prohibition in states that want the drug banned or license its manufacture and sale in states that have legalized it.²¹⁷ In either situation, the federal government would have a strong hand in the drug’s regulation. The federal government could use these licenses to prevent marijuana commercialization, for example, by limiting retailers to one license at one location, and could strictly limit the amount of marijuana that can be produced annually under a marijuana license—“in effect resulting in a marijuana market made of exclusively craft beer-size manufacturers.”²¹⁸

And it is not as though enforcement of the federal ban has been successful. “Most medical marijuana users and suppliers can feel confident they will never be caught by the federal government.”²¹⁹ Federal eradication efforts have only induced growers “to establish ‘guerilla patches,’ which are harder to see using

alcohol, marijuana is less toxic, has a lower addiction risk, and has a weaker link to traffic accidents and violence.” *Id.* at 181; *see also* Kreit, *supra* note 68, at 712–13 (“While legalization skeptics have cited a range of concerns, perhaps chief among them is the specter of a large-scale commercial marijuana industry . . . [which] would invest heavily in promoting and advertising marijuana As former Secretary of Health Education and Welfare Joseph A. Califano Jr. put it, ‘not only would legalized drugs be more openly available . . . but of even greater damage to our children would be the commercial reality that Madison Avenue marketers would be free to glamorize substances like marijuana.’”).

212. Reid, *supra* note 12, at 178.

213. *Id.*

214. Hudak, *supra* note 63, at 665 (“ . . . industry wants effective regulation and enforcement. Members of the industry realize that if inadequate regulation leads to serious public policy problems, public support may plummet. Moreover, the threat of federal intervention, however defined, looms large over the legal marijuana market in Colorado, and that threat induces members of the industry to push for and comply with regulations”).

215. Kreit, *supra* note 68, at 711–12.

216. *Id.*

217. *Id.* at 713–14.

218. *Id.* at 714.

219. Mikos, *supra* note 6, at 1424.

aerial surveillance techniques, and have also caused them to move their operations to public lands.”²²⁰

Decriminalization would allow states to function as laboratories to identify effective marijuana regulatory programs and then share that information with each other and with new states that want to legalize the drug. Despite the cloud of federal enforcement, many states that have legalized marijuana have designed robust programs to regulate its use.²²¹ However, the CSA restricts the extent to which states can experiment with drug laws because those laws are potentially illegal should the federal government’s current lenient policy toward state regulation end.²²² If marijuana were not criminalized, there might be even more experimentation at the state level and open exchange of information.

The cost-benefit balance of current marijuana policy tips pretty decidedly toward federal decriminalization and state regulation. However, the political likelihood of the former happening is low. Accordingly, the next Part discusses possible resolutions of the federalism conflict with the hope that the resolutions might have some impact on illegal marijuana cultivation.

IV. POSSIBLE RESOLUTIONS OF THE FEDERALISM CONFLICT OVER MARIJUANA POLICY

Most scholarly attention about marijuana has focused on resolving the federalism conflict,²²³ which Dean Erwin Chemerinsky calls “one of the most important federalism conflicts in a generation.”²²⁴ Several of these scholars propose either defying or amending the CSA, for example, by not enforcing it, nullifying it, or opting out of its provisions, while others propose a cooperative-or fused-federalism approach modeled on alcohol regulation. Non-enforcement

220. Starr, *supra* note 5, at 1092.

221. See generally Mikos, *supra* note 6, at 1428–32.

222. See Manski, *supra* note 18, at 1008 (“At present, the federal [CSA] mandates a uniform national classification of drugs that limits the ability of the states to effectively vary the drug laws that persons face. The Act consequently prevents implementation of the federalist version of adaptive diversification.”).

223. See, e.g., Mikos, *supra* note 6, at 1460 (“The anti-commandeering rule permits Congress to encourage positive action it cannot oblige states to take. When it comes to marijuana, Congress could offer states (1) money or (2) regulatory power in return for a promise to re-criminalize use for medical purposes. As long as the inducement Congress offers is not coercive, it would not offend existing anti-commandeering doctrine.”); Kreit, *supra* note 68, at 699–700 (identifying four different categories of reconciliation approaches: “(1) preventing the Department of Justice from spending money to interfere with state marijuana laws; (2) providing an affirmative defense based on compliance with state marijuana laws; (3) letting states opt out of federal marijuana prohibition; and (4) ending the federal ban on marijuana and replacing it with some sort of federal regulatory structure.”); David S. Schwartz, *High Federalism: Marijuana Legalization and the Limits of Federal Power to Regulate States*, 35 CARDOZO L. REV. 567 (2013) (discussing the federalism crisis created by state legalization of marijuana and the CSA’s “blanket federal marijuana prohibition” and the application of the “anti-commandeering clear statement rule”).

224. Chemerinsky et al., *supra* note 11, at 77. It is not as though there have not been proposals by scholars of ways to resolve that conflict; there have been many.

and nullification are constitutionally dubious, and each of the other approaches requires unlikely congressional action. While cooperative federalism might provide a politically less contentious path forward, neither it nor any of the other options directly address what is happening on public lands. However, reconciliation of the conflict, allowing states to legalize marijuana, might increase the number of legal cultivators, reducing the strength of the black market, and might also redirect federal officials to enforce against illegal operations on public lands.²²⁵

A. Tolerance, Nullification, Opt Outs, and Waivers

1. Tolerance

The current approach of the federal government towards state legalization of marijuana is to tolerate it.²²⁶ By ignoring various state laws legalizing medical and increasingly recreational use of the drug, the federal government avoids any direct conflict with the states. It is a policy of necessity because there are too few federal resources to enforce violations of the ban in states that have legalized the drug, let alone elsewhere. Tolerance has dropped a scrim, a semi-transparent curtain, between the federal government and the states on the topic of marijuana enforcement.

However, there are serious problems with this approach, including its dubious constitutionality. Anything short of Congress authorizing the federal government not to enforce a federal statute has the effect of suspending that statute, usurping “Congress’s constitutional authority” to set national policy.²²⁷ Moving beyond the Second Cole Memorandum permissiveness to a “more definite nonenforcement policy” runs this risk—“[p]rosecutorial discretion does not permit the executive to fix the pall of legal uncertainty that hangs over

225. *But see* Young, *supra* note 7, at 775 n.28 (“As the husband of a federal prosecutor, however, I must note that federal enforcement policy seems to be different with respect to marijuana use on federal lands—such as national parks, forests, and seashores. At least in North Carolina, marijuana crimes continue to be pursued when they occur in these federal enclaves, even though the Feds might be unlikely to prosecute such crimes where the state has primary jurisdiction.”).

226. Federal tolerance of conflicting state laws raises the question why the federal government has chosen not to preempt those laws. Adler, *supra* note 1, at 506 (saying in addition that the government has not tried to preempt those laws, including laws that “affirmatively license and regulate a growing marijuana industry”). Kamin notes that if the federal government sued to enjoin a state law legalizing marijuana it would lead to a “showdown over the preemptive power of the CSA, an issue that has not been tested to date” in the courts. Kamin, *supra* note 16, at 1108; *see* Mikos, *supra* note 6, at 1460 (“In sum, the anti-commandeering rule bars Congress from preempting state medical marijuana exemptions and accompanying registration/ID programs And Congress could go a step further and preempt both state laws requiring police to return marijuana and laws protecting citizens from private sanctions, but for the most part it has not yet done so.”).

227. Baude, *supra* note 96, at 522; *id.* at 538 (“[F]ederal prosecutorial discretion has not traditionally extended to ‘prospective licensing of prohibited conduct.’”) (quoting Zachary S. Price, *Enforcement Discretion and Executive Duty*, 67 *VAND. L. REV.* 671, 675 (2014)).

state markets and regulations.”²²⁸ Moreover, applying federal law in some states and not in others conflicts with the norm of equal application of the law.²²⁹

2. Nullification

Some scholars think there is no federalism conflict because the states already possess the power to regulate marijuana.²³⁰ They advocate a modern form of nullification, enabling the states to take over marijuana regulation, as is their right.²³¹ For example, Professor Ernest Young argues that contrary to South Carolina’s “infamous” ordinance, most modern nullifications may be legal.²³² “They generally do not purport to alter the binding force of federal law, but they rely on the likelihood that, as a practical matter, federal authorities cannot enforce national law without the cooperation of state officials.”²³³

According to Young, “the history of marijuana legalization over the past decades suggests that, at least on some issues, contemporary nullification is a winning strategy,” saying that California and other states that have legalized marijuana have made a “good” bet that the CSA is unlikely to be enforced unless states cooperate.²³⁴ He considers these states to be engaging in “functional—not principled—nullification,” the on-the-ground effect of which is “very close to what John C. Calhoun’s South Carolina hoped to achieve.”²³⁵ He also argues that when regulatory jurisdictional spheres “overlap,” as they do in the case of marijuana enforcement, “the fact that state officials do not work for federal authorities affords the states important opportunities to influence—and sometimes defy—the enforcement of federal law.”²³⁶ While Young admits that nullification will not be successful if there are direct beneficiaries of federal regulation who could sue to compel enforcement of federal law,²³⁷ it is hard to think of who they might be here.

228. Baude, *supra* note 96, at 538; see Kreit, *supra* note 68, at 696 (“[T]he dividing line between acceptable guidance about how to use limited law enforcement resources and a problematic de facto suspension of federal law by the Executive is open to debate. But, at the very least, a sustained nonenforcement policy presents difficult questions about executive power and the rule of law.”).

229. Kreit, *supra* note 68, at 696.

230. See Young, *supra* note 7, at 772; see also Mikos, *supra* note 6, at 1426 (saying “states (generally) possess legal authority to enact permissive legislation governing such issues, in spite of contrary congressional policy,” and all that the states are doing is “merely restoring the state of nature”).

231. Young, *supra* note 7, at 770 (“[S]tate officials derive the power to defy federal policy from the fact that they are not *servants*, but rather officers of a different government with an independent base of legitimacy and accountability.”).

232. See *id.* at 772.

233. See *id.*

234. See *id.* at 772, 776.

235. See *id.* at 776.

236. See *id.* at 794.

237. See *id.* at 791.

However, like non-enforcement, nullification presents a shaky constitutional foundation for any resolution of the existing federalism conflict.

3. Opt Outs and Waivers

An alternative approach is to allow states to “opt out” of or seek a waiver from the CSA’s marijuana provisions.²³⁸ Professor Sam Kamin proposes that Congress amend the CSA to allow states to “opt out of its marijuana provisions” and authorize the Attorney General “to certify that a state is regulating marijuana in a manner consistent with federal priorities.”²³⁹ If a state fails to meet these criteria, the default would be “an essentially unenforceable federal prohibition,”²⁴⁰ rather than the federal government substituting its own regulatory program and becoming the primary regulator, as is common in cooperative federalism schemes under pollution-control laws.²⁴¹

238. Any proposal that would remove marijuana from the CSA is vehemently opposed by large drug companies, which have lobbied vigorously to preserve the existing status of the drug. See Christopher Ingraham, *One Striking Chart Shows Why Pharma Companies are Fighting Legal Marijuana*, WASH. POST: WONKBLOG (July 13, 2016), <https://www.washingtonpost.com/news/wonk/wp/2016/07/13/one-striking-chart-shows-why-pharma-companies-are-fighting-legal-marijuana/> (“These companies have long been at the forefront of opposition to marijuana reform, funding research by anti-pot academics and funneling dollars to groups, such as the Community Anti-Drug Coalition of America, that oppose marijuana legalization.”).

239. Kamin, *supra* note 16, at 1120–21. A variation of waiver is to allow states to “nullify the application of the CSA in their jurisdictions”; see, e.g., Young, *supra* note 7, at 772 (“Unlike South Carolina’s infamous ordinance, most of these instances of modern-day nullification may well be legal. They generally do not purport to alter the binding force of federal law, but they rely on the likelihood that, as a practical matter, federal authorities cannot enforce national law without the cooperation of state officials. The history of marijuana legalization over the past decades suggests that, at least on some issues, contemporary nullification is a winning strategy.”). Young cites California and those states that have legalized marijuana as making a bet, which he calls a “good one,” that the CSA is unlikely to be enforced unless states cooperate, and engaging in “functional—not principled—nullification, but its effect on the ground is very close to what John C. Calhoun’s South Carolina hoped to achieve.” *Id.* at 776. He also argues that when regulatory jurisdictional spheres “overlap, the fact that state officials do not work for federal authorities affords the states important opportunities to influence—and sometimes defy—the enforcement of federal law.” *Id.* at 794.

240. Kreit, *supra* note 68, at 708. See Chemerinsky et al., *supra* note 11, at 80 (“Under our cooperative federalism approach the Attorney General would be required to create a certification process allowing states to opt out of the CSA’s marijuana provisions if state laws and regulatory frameworks satisfy enforcement criteria that the DOJ has already announced. In opt-out states certified by the Attorney General, only state law would govern marijuana-related activities and the CSA marijuana provisions would cease to apply. Federal agencies could continue to cooperate with opt-out states and their local governments to jointly enforce marijuana laws, but state law rather than the CSA would control within those states’ borders. Equally important, nothing would change in those states content with the status quo under the CSA.”).

241. Young, *supra* note 7, at 781 (“As Colorado and Washington are demonstrating, their ability to oppose federal policy—and get away with it, to a considerable extent—arises from the blending of federal and state institutions within cooperative federalism schemes. The federal government depends on state cooperation to enforce national law, and that dependence is what empowers state officials to dissent . . . [T]his power of opposition may not extend far enough for dissenting states to establish and secure their own policies, but they can at least force a national conversation and some sort of compromise on the issues they care about.”); see *id.* at 775 (“Hence, the ‘War on Drugs’ amounts to a

Chemerinsky and his co-authors label Kamin's solution a "permissive federalism approach," under which Congress might authorize federal agencies to grant states temporary, revocable waivers of the CSA's marijuana provisions based on specific criteria.²⁴² In contrast, their approach would allow "states to operate as laboratories of ideas, generating regulatory models that could serve as templates for federal policy,"²⁴³ legalizing conduct that would otherwise be illegal in that state.²⁴⁴ Since neither Kamin's nor Chemerinsky's "more modest" approach repeals or ignores the CSA, it may offer a more appealing political resolution of the federalism conflict.²⁴⁵ It may also provide a better barrier to federal enforcement than the Second Cole Memorandum, which does nothing to make illegal action legal and under which non-enforcement is dependent on a government's constitutionally dubious promise not to enforce.²⁴⁶ By not eliminating the federal government entirely from the field of marijuana regulation, it also avoids the risk of completely relying on the states, whose programs are less than perfect.²⁴⁷

cooperative federalism regime not all that different, say, from state implementation of the Clean Air Act."); *id.* ("Federal marijuana policy thus depends heavily on state and local enforcement. In this sense, drug policy parallels any number of other federal regulatory regimes—from environmental policy to Medicaid—in which state officials play a critical role in implementing federal policy."). Although Young finds nothing unusual in this form of cooperative federalism, which he says is also common in criminal law where the two jurisdictions "share constitutional jurisdiction over drug crimes," it is a bit unusual when the two levels of government have disagreed over which activities to criminalize, which is the second element he identifies as a basis for shared authority. Young also notes that the federal government in the case of marijuana regulation plays "a decidedly secondary role . . . [because the] overall ratio of federal to state and local law enforcement personnel in this country is roughly one to ten, and drug enforcement is not the priority it once was." *Id.* at 774.

242. Chemerinsky et al., *supra* note 11, at 81, 115.

243. *Id.* at 115 ("During the period of the waiver, participating states could experiment with their own laws and regulations while the federal government agrees not to enforce federal law."). According to Young, some of the advantages of "modern-day nullification" include "the traditional benefits of federalist policy diversity but also the potential to defuse important and intractable problems of separations of powers at the national level." Young, *supra* note 7, at 773.

244. Chemerinsky et al., *supra* note 11, at 117. The authors cite as examples of this approach the Clean Air and Clean Water Acts and operation of Health Care exchanges under the Affordable Care Act. *Id.* at 117–18.

245. *See id.* at 122 ("With growing majorities of Americans in favor of legalizing marijuana, the tension between state and federal law will not resolve itself. Short of a decision by Congress to drop marijuana from the CSA entirely—an unlikely political outcome even given the majority of Americans who might favor it—a more modest federal legislative solution is needed. The cooperative federalism solution that we suggest is both feasible and effective—it will allow state experimentation to proceed while giving the federal government the ability to influence the direction of that legal change."); *but see* Reid, *supra* note 12, at 204 ("However, this proposed solution [cooperative federalism] flies in the face of the rule of law: A collection of legal principles that all relate to the placement of limitations on the exercise of political power and the operation of government. Those principles include (1) government must follow its own rules; (2) government must apply the law impartially; and (3) government must provide due process for those accused of breaking the rules.").

246. Chemerinsky et al., *supra* note 11, at 115.

247. Baude, *supra* note 96, at 518 ("Early reports, however, suggest that there may nonetheless be substantial diversion of marijuana out of Colorado. The quantity limits are easily evaded because purchases are not tracked and visitors can purchase the limit from multiple stores, even in a single day."); *see id.* ("Moreover, interactions between the state's growing limits and the state's possession

At the same time, this approach would require legislative action authorizing federal agencies to grant waivers, which would itself be problematic given Congress's steadfast opposition to anything that smacks of legalization of marijuana.²⁴⁸

B. Cooperative or Shared Federalism

The cooperative, or shared, federalism approach is reflected in current alcohol policy. Alcohol regulation may be a good template for marijuana policy because of the obvious parallels between the two histories. "Like marijuana criminalization, the movement towards prohibiting alcohol was mostly politically motivated, and had racist roots."²⁴⁹ Federal prohibition in both cases empowered organized-crime organizations: in the case of alcohol, bootleggers and mobsters, and in the case of marijuana, drug cartels.²⁵⁰ In both cases, "neighboring countries supplied America's demand for the outlawed substance—Canada for liquor and Mexico for marijuana."²⁵¹ In both cases, it has been "impossible to eradicate the drug's source, and efforts to interdict the smuggling of the drug have only marginal effects on price and consumption."²⁵² And in both cases, initial federal enforcement focused on consumers rather than producers or distributors of the illegal substances, making "the least culpable" suffer.²⁵³ This led states, consecutively, to decline to enforce the federal ban—in the case of marijuana, decriminalization or legalization—leaving the bulk of the enforcement burden to the federal government.²⁵⁴ "The stark contrast between the attitudes about marijuana held

limits may be leading to leakage into the black market. Officials in some neighboring states claim that Colorado marijuana has led to large increases in marijuana trafficking in their state"); Hudak, *supra* note 63, at 666–73 (including among the problems with Colorado rollout, an increase in the medical marijuana rolls. This results in less revenue for the state, because the tax and fee structure for medical marijuana is substantially lower than for retail marijuana. Thus, "current policies drive tourists to the edibles market, creating risks for public health and safety."); *but see id.* at 660 ("In Colorado, fortunately, both the Department of Revenue and MED had a constitutional mandate, public and legislative support, industry cooperation, and the political space to reform a troubled institution in ways that improved governance, rather than simply satisfied politics.").

248. *See Mikos, supra* note 6, at 1434 (2009) ("The federal government has steadfastly refused to expand legal access to marijuana. Congress has rejected proposals to reschedule the drug or to suspend enforcement of the CSA against people who may use marijuana under state law. Likewise, the federal Drug Enforcement Agency [] has denied petitions to reschedule the drug administratively.").

249. Reitz, *supra* note 3, at 1091 ("For example, during the alcohol prohibition era, prohibitionists claimed that alcohol could turn 'black [men] into [] beast[s]' and Hispanic men into killers. Still, while alcohol prohibition had racist roots, its primary purpose was to save white people from themselves, and was founded on religious rhetoric. In contrast, marijuana laws were largely built around racist rhetoric framed as saving whites from minorities, and saving minorities from their lack of self-control."); *see id.* ("This enduring legacy of racism in marijuana laws may help to explain its longevity in comparison to alcohol prohibition, which came and went rather quickly.").

250. Reitz, *supra* note 3, at 1091–92.

251. *Id.*

252. Duke, *supra* note 12, at 1315.

253. Reitz, *supra* note 3, at 1092.

254. *Id.*

by a majority of the citizenry and those reflected in federal criminal law is reminiscent of alcohol Prohibition, when for thirteen years the government tried and failed to keep its people from drinking.”²⁵⁵

These obvious parallels raise the question of whether the approach taken to alcohol once Prohibition collapsed provides a model for resolving the marijuana federalism conflict.²⁵⁶ Under the post-Prohibition model, the federal government retained control of illegal interstate trafficking in alcohol, but allowed states room to regulate alcohol use. As an example of the potential nexus between alcohol and marijuana regulation in the modern era, Washington even placed regulation of marijuana dispensaries under the state liquor control board.²⁵⁷ Professor Brannon Denning suggests a constitutional amendment like the Twenty-First Amendment, which would legalize marijuana and allocate responsibility for its regulation between the states and the federal government²⁵⁸—a form of shared federalism.²⁵⁹

Professor Steven Duke also suggests that the government follow the alcohol regulatory model, rescinding the ban, while continuing to restrict “interstate commerce in drugs that are unlicensed, mislabeled, inadequately identified, or lacking appropriate disclosures and warnings.”²⁶⁰ Like alcohol, he suggests, “most regulation would be left to the individual states.”²⁶¹ Like alcohol, some states might limit the distribution of the drug to state-owned distribution centers; others might license private individuals or businesses to perform these functions.²⁶² Under Duke’s proposal, all states might restrict the places where marijuana can be distributed and consumed, as they now restrict alcohol and impose sanctions against providing the drug to minors, similar to

255. Duke, *supra* note 12, at 1302.

256. See Denning, *supra* note 144, at 593 (“The Twenty-First Amendment was the product of dissatisfaction with a proscriptive legal regime that had turned otherwise law-abiding citizens into criminals and empowered and enriched vast criminal enterprises. Widespread noncompliance undermined the rule of law; official efforts to coerce compliance arguably produced concomitant infringements on citizens’ civil liberties.”).

257. Baude, *supra* note 96, at 519.

258. Denning, *supra* note 144, at 594 (suggesting that “the second-best outcome for state experimentation would be legislation that (1) clarified the legal status of state decriminalization or compassionate use laws under the CSA and (2) permitted states to regulate marijuana free from the strictures of the DCCD”).

259. *Id.* at 594 (suggesting that doing this “might serve as a vehicle for a wide-ranging national debate on drug policy that the country has probably never properly had”).

260. Duke, *supra* note 12, at 1308.

261. *Id.* See Mikos, *supra* note 4, at 761 (warning against further devolving regulatory authority to the counties based on the post-prohibition experience with alcohol, which has let “wet counties” undermine controls imposed in dry counties, or dry counties to transfer “their harms onto wet counties, or both”); see also *id.* at 760 (postulating that since “alcohol localism has failed to meet expectations, why would we expect marijuana localism to fare any better?”).

262. Duke, *supra* note 12, at 1308.

laws against providing alcohol to minors.²⁶³ Under the alcohol model, both jurisdictions could continue to tax the product's production and distribution.²⁶⁴

In 2013, Congressman Jared Polis introduced a bill²⁶⁵ that would have exempted marijuana from the CSA and transferred enforcement authority over the drug to a “newly renamed Bureau of Alcohol, Tobacco, Marijuana, Firearms, and Explosives.”²⁶⁶ Congressman Polis's bill would also have added marijuana to the Wilson Act and the Webb-Kenyon Act, two key federal alcohol statutes, completing its integration into the laws governing alcohol consumption and distribution.²⁶⁷ His bill would have delegated to the states the details of licensing and regulating the marijuana industry, even though it would have been the federal government that issued permits to operate a marijuana business.²⁶⁸ The federal government might also impose limits on the size of marijuana companies to “combat commercialization” and regulate sales to minors.²⁶⁹ “Federal marijuana regulation,” according to Kreit, “could look a lot like alcohol regulation, as in [Congressman] Polis's bill, or it could be much more restrictive or (less likely) more open.”²⁷⁰ Even under an approach that delegated licensing to the states, an alphabet soup of federal agencies would be involved in setting standards governing the drug's production and use, as well as thwarting smuggling and trafficking.²⁷¹

So maybe the approach taken to alcohol after repeal of the Eighteenth Amendment, where control of the substance largely, but not exclusively, devolved to the states, would provide an effective fused- or shared-federalism regulatory model that could blend federal and state regulation of marijuana. The political question is whether the approach is close enough to complete federal deregulation of the drug to trigger congressional disapproval.

263. *Id.* Both of Duke's proposals are consistent with the criteria set out in the Second Cole Memorandum. *See supra* Part II.A; *see also* Mikos, *supra* note 4, at 761 (saying studies show state imposed regulatory controls short of bans, e.g., minimum drinking ages, beer taxes, more successful at reducing auto fatalities, and that adoption of “a broad array of measures, including limits on access, police sobriety checkpoints, community mobilization, and training of alcohol vendors, reduced the incidence of alcohol-related automobile injuries and other harms in the community”).

264. Duke, *supra* note 12, at 1308.

265. Ending Federal Marijuana Prohibition Act, H.R. 499, 113th Cong. § 101 (2013).

266. Kreit, *supra* note 68, at 709–10.

267. *Id.*

268. *Id.* at 710. *But see* Reid, *supra* note 12, at 183–84 (recommending that State Alcoholic Beverage Commissions and/or State Liquor Control Boards “regulate the marijuana industry through the issuance of licenses to suppliers/manufacturers/growers, wholesalers/processors, and retailers”).

269. Kreit, *supra* note 68, at 710.

270. *Id.*

271. Reid, *supra* note 12, at 183 (“The Federal Trade Commission, the ATF, and the Drug Enforcement Administration [] would have to establish and enforce strict regulations that govern the production and use of marijuana. The Food and Drug Administration (“FDA”) would have to participate in the process, if marijuana enters the food supply-chain. The ATF could reduce marijuana smuggling and contraband-marijuana trafficking, thereby divesting criminal and terrorist organizations of monies derived from illicit activity, and minimize tax revenue losses to the states, and to the federal government.”).

Each of the approaches discussed above suffers from constitutional uncertainty or the need for enabling legislative authority. Additionally, none of the approaches discussed in this Part offers a direct solution to what is happening on public lands as the enforcement problems remain the same regardless of which jurisdiction is regulating the industry. While getting the federal government out of the day-to-day marijuana enforcement business might help to free up more federal resources to target these illegal operations, there probably would still be a numerical imbalance between illegal growers and enforcers that favors the former. Nor does any approach get at the root cause of the problem—a thriving black market for the drug. Because black markets are impervious to normal competitive market forces,²⁷² as long as illegally grown marijuana remains less expensive and more available than drugs produced legally, public lands will continue to be destroyed to supply that market.

The next Part tackles the last piece of the problem: how to lessen illegal marijuana cultivation on public lands by decreasing the demand for it.

V. NEW APPROACHES TO THE PROBLEM OF ILLEGAL CULTIVATION OF MARIJUANA

Given the low likelihood that the federal government will legalize marijuana or broadly decriminalize it, which at best may have only a small impact on illegal marijuana cultivation, the only way to substantially reduce the illegal grow sites in the Sierra Nevada Mountains is to reduce the black market supporting those sites. One way to do this is to change the preferences of marijuana consumers so that they do not buy illegally produced marijuana, which of course depends on the availability of a legal substitute.²⁷³

“The government regularly nudges and prods Americans to behave in ways that are better for the environment.”²⁷⁴ Strict enforcement of existing laws is one way to encourage good behavior. Taxes, subsidies, technical assistance,²⁷⁵ manipulating social norms, public education, shaming bad

272. Levy, *supra* note 2, at 270 (“[B]lack market prices are inflated, because you don’t have true market forces of supply and demand driving the price down.”).

273. Carah et al., *supra* note 9, at 826 (calling for legal clarification of marijuana’s status).

274. Kuh, *supra* note 189, at 1126–27 (citing as examples carpool lanes that result in faster commutes, subsidies to public transportation and hybrid car purchase, sponsorship of public service campaigns encouraging good behavior, policing of green marketing claims to avoid consumers being misled, etc.); *see id.* at 1160–61 (“The government regularly alters individual environmental behaviors and reduces or increases the environmental impacts of individual behaviors without imposing mandates directly on individuals. Most notably, product mandates constrain and, in some cases, extinguish individual choice. A variety of subsidies, taxes, and public-information campaigns encourage environmentally friendly behaviors, such as the use of public transportation, or discourage environmentally harmful behaviors.”).

275. Carah et al., *supra* note 9, at 826 (“If liberalization proceeds, future efforts to govern the environmental effects of marijuana production should include both incentives as well as regulatory and enforcement efforts to help legal producers comply with environmental laws and protect environmental resources. In legal markets, technical assistance and outreach programs could play a significant role in

behavior, and rewarding good behavior can also affect the practices people engage in.²⁷⁶ Any one of these extralegal approaches can dissuade malefactors from engaging in antisocial, anti-environmental behavior,²⁷⁷ and none “glamorize[s] the wrong doing, as in liquor and marijuana prohibition where life styles more than societal jeopardy was the key issue.”²⁷⁸ When behavior is glamorized, individual “life styles” become more important than “societal jeopardy.”²⁷⁹ This makes behavioral change more difficult, especially if the force behind the change is the threat of legal sanction.²⁸⁰ However, since none of these approaches offers a winning strategy by itself, the discussion ends by recommending the application of a policy of “adaptive diversification.” Adaptive diversification allows informed experimentation with proposed solutions to a problem and the selection of the best one(s).²⁸¹

Several of these approaches and adaptive diversification are discussed below.

encouraging the adoption of best management practices and voluntary compliance. Similar efforts could encourage the management of stream flows that integrate human and ecosystem needs and mitigate some of the impacts of agricultural water diversion from natural systems Other incentive programs, such as certification and ecolabeling, have been used widely to help reduce the environmental externalities for other agricultural crops and could play a similar role in marijuana production.”)

276. Cf. Ebke, *supra* note 190, at 686 (discussing how compliance with European Union directives is achieved, and saying that “[t]he desire for a good name, the will to play the role demanded, and the wish to conform for the sake of the common objectives are almost as powerful a motive among the members of the Communities as they are among individuals in national states”).

277. Victoria Jenkins, *The Legal Response to Safeguarding Local Environmental Quality*, 35 LEGAL STUD. 648, 656 (2015) (“Nevertheless, it is undoubtedly the case that it is not necessarily appropriate to impose sanctions for local environmental crime through the courts. The search for appropriate responses to local environmental crime reflects wider concerns about the need for more innovative approaches to sanctioning in criminal law, particularly for offences that are not considered very morally reprehensible.”).

278. Stuart S. Nagel, *Incentives for Compliance with Environmental Law*, 17 THE AM. BEHAV. SCI. 690, 707 (May/June 1974).

279. *Id.* at 692; *but see id.* at 690 (“[P]ositive and negative incentives have other effects that may need to be considered and controlled such as the degree of (1) cost to the government and thus the taxpayers, (2) cost to consumers, especially those who can least afford to pay, (3) cost to the polluter and thus to his stockholders, (4) cost to the employees of the polluter, and (5) cost to the general public in terms of reduction in fair procedure and respect for the legal system if the incentives are manipulated without adequate concern for separating the innocent from the guilty. Likewise, political feasibility or likelihood of significant adoption and application should also be considered.”).

280. Michael P. Vandenbergh, *Beyond Elegance: A Testable Typology of Social Norms in Corporate Environmental Compliance*, 22 STAN. ENVTL. L.J. 55, 101 (2003) (“[T]he greater the perceived importance of autonomy, the less likely the individual will respond to threats of formal legal sanctions by increasing compliance. Instead, when the freedom to conduct an activity is very important, individuals may react to increased threats to restrict that freedom by simply increasing their commitment to the illegal activity.”).

281. See generally Manski, *supra* note 18.

*A. Possible Ways to Change Individual Preferences**1. Strict Enforcement*

One way to influence behavior is to have the government strictly enforce against socially undesirable behavior. Often that is the simplest approach to take²⁸² and here it could be effective against marijuana dispensaries.²⁸³ But there are problems with enforcing federal marijuana laws, which may not be correctible.

One of these problems is the lack of federal resources to do the job, as discussed earlier in this Article.²⁸⁴ The inadequacy of enforcement resources means that the federal government cannot impose the CSA's harsh penalties with sufficient frequency to make a meaningful impact on the prohibited behavior.²⁸⁵ Take the situation involving the medical use of marijuana. "More than 14.4 million people regularly use marijuana in the United States every year, including 4 million who live in states that legalize medical use."²⁸⁶ Although only roughly 400,000 of those people are doing this legally under state law, "there is no easy way for the federal government to focus its scarce resources on them alone."²⁸⁷ Assuming further that the states did not help with federal enforcement in those states, the result would be that "only 0.05 percent—or roughly 1 in 2000—of medical marijuana users would be uncovered by federal authorities" given the current situation.²⁸⁸ The fact that the marijuana ban is not being enforced undercuts its deterrent effect.²⁸⁹

282. Reid, *supra* note 12, at 189 ("Criminalizing the production and use of marijuana would prove to be an easier option than legalization, since there are underlying state and federal laws that could simply be more strictly enforced.")

283. *Id.* at 188 ("Strict enforcement by the [Drug Enforcement Administration] would significantly cripple most dispensary owners via administrative forfeiture.")

284. See *supra* Part III.

285. Mikos, *supra* note 6, at 1464; see *id.* ("All told, federal agents made 154,000 arrests in 2007—30,000 for all drug offenses, including 7,276 for marijuana. These figures amount to only 1 percent of all criminal arrests, 1.6 percent of all drug arrests, and less than 1 percent of all marijuana arrests made in the United States that year."); see *id.* at 1465 ("Given limited resources and a huge number of targets, the current expected sanction for medical marijuana uses is quite low."); Kreit, *supra* note 68, at 699 ("But because the federal government depends almost entirely on state law enforcement resources to enforce drug prohibition laws, it did not have the resources to deter medical marijuana business from openly operating."); Young, *supra* note 7, at 794 ("California, Colorado, and other states have demonstrated that, at least in some circumstances, states can establish a legal regime contrary to federal law simply because the national government lacks the resources and political will to enforce its rules without state cooperation."); cf. Ebke, *supra* note 190, at 718 (discussing the internal enforcement problems within the European Union, and saying "[t]he unavailability of sanctions involves, to some extent, the acceptance of the legitimacy of the *status quo* Given particularized interests within the societies of the member states, voluntary adjustments or changes in the laws of the member states often seem too high an expectation, regardless of how rational and desirable the arguments for adjustments and changes may be.").

286. Mikos, *supra* note 6, at 1464–65.

287. *Id.*

288. *Id.* at 1465.

289. Cheng, *supra* note 189, at 659–62.

Some people refrain from illegal behavior because they feel morally obliged to obey a legal prohibition.²⁹⁰ These individuals are “prone to obey law not because they think it is in their self-interest (narrowly defined) to do so, but because it is the *right*, the *moral* thing to do; it is what people *should* do, even when they disagree with the law.”²⁹¹ However, despite this “generalized obligation to obey law,” that feeling may not extend to compliance with the federal marijuana ban²⁹² because of the frequency with which it is violated²⁹³—nobody likes to be the fool who observes a law when no one else does.²⁹⁴

Additionally, “[s]ocial learning theory posits that observing unpunished inappropriate behavior reduces the inhibition to engage in that behavior,” even increasing inappropriate behavior in observers.²⁹⁵ Thus, inadequate federal enforcement can actually increase negative behavior to the extent that observing unpunished inappropriate behavior reduces any inhibition observers might feel about engaging in that behavior.²⁹⁶

Another problem is that people may think that the federal ban is illegitimate or unfair, which may make them less likely to comply with it.²⁹⁷

290. Robert D. Cooter, *Three Effects of Social Norms on Law: Expression, Deterrence, and Internalization*, 79 OR. L. REV. 1, 20 (2000) (“The primary way to prompt people to instill civic virtue in each other is by aligning law with morality. When the law aligns with morality, individuals who cultivate morality necessarily acquire civic virtue. Consequently, the law enlists the force of internalization to achieve the ends of the state.”); *but see* Richard A. Posner, *Social Norms, Social Meaning, and Economic Analysis of Law*, 27 J. LEGAL STUD. 553, 554, 560 (1998) (“I do not myself believe that many people do things because they think they are the right thing to do unless they have first used the plasticity of moral reasoning to align the ‘right’ with their self-interest. I do not think that knowledge of what is morally right is motivated in any serious sense for anyone except a handful of saints [I]n general, you need to appeal to a person’s altruism, fear or pride (sometimes moral pride, which is not to be confused with morality) to explain non-self-interested behavior.”).

291. Mikos, *supra* note 6, at 1472–73.

292. *Id.* at 1473.

293. Vandenberg, *supra* note 280, at 112 (“[P]erceptions of widespread noncompliance undermine compliance.”).

294. Mikos, *supra* note 6, at 1474 (“Congress’s ban may have lost its moral influence because so many people flout it, and federal authorities have done little thus far to punish them. In other words, the lack of enforcement of the federal ban may have undermined not only the deterrent effect of the ban’s sanctions, but also the deterrent effect of the generalized moral obligation to obey the law.”); Vandenberg, *supra* note 280, at 108 (“[T]hose parties that invest in compliance may react negatively if others do not and are not penalized . . . [, and] the parties that comply may perceive themselves as ‘dupes’ and their commitment to the law compliance norm may diminish.”).

295. Daniel W. Shuman, *The Psychology of Deterrence in Tort Law*, 42 U. KAN. L. REV. 115, 158–59 (1993).

296. *Id.* (“Exposure to unpunished transgressions tends to increase prohibited behavior in observers.”); Dan M. Kahan, *Social Influence, Social Meaning, and Deterrence*, 83 VA. L. REV. 349, 358 (1997) (When no one else is obeying the law, submitting “to a burdensome legal duty is likely to feel more servile than moral.”).

297. Vandenberg, *supra* note 280, at 81 n.71 (“People clearly have a strong predisposition toward following the law. If authorities can tap into such feelings, their decisions will be widely followed. The norm of law compliance is thus closely related to the norm of legitimacy. To the extent that an individual views an authority as legitimate, studies suggest that an individual is more likely to comply

The fact that medical marijuana is legal in many states may lessen the obligation people might otherwise feel to obey federal law.²⁹⁸ That feeling may be even stronger in states that have allowed marijuana use by public referendum, where people will “see themselves collectively as having the exclusive right to dictate marijuana policy.”²⁹⁹ In those jurisdictions “the federal ban will command very little moral authority.”³⁰⁰

There are additional problems with enforcing the ban against marijuana consumers. Regulation of individual behavior is more likely to be perceived as unfair and the desired legal behavior too costly or inconvenient to justify the hoped for outcome.³⁰¹ This reaction can intensify when the undesirable behavior has an adverse environmental impact because the costs to the individual are more immediately apparent and the benefits from regulation or enforcement may not accrue until the future.³⁰² Here, the federal ban on marijuana affects current consumers, but the benefit of environmental protection will benefit only future generations, if at all.³⁰³ Furthermore, the environmental benefits that do accrue “are generalized benefits to the collective not typically viewed as producing any substantial, immediate benefit at an individual level.”³⁰⁴

with the law. This proposition holds true for some individuals even though the required action conflicts with their self-interest.”) (internal citations omitted).

298. Mikos, *supra* note 6, at 1474.

299. *Id.*

300. *Id.*; *see id.* at 1474 n.190 (“Surveys show that people consistently deem voter referenda more legitimate than laws passed by their representatives (state or federal).”).

301. Kuh, *supra* note 189, at 1175; *see* Michael P. Vandenbergh, *From Smokestack to SUV: The Individual as Regulated Entity in the New Era of Environmental Law*, 57 VAND. L. REV. 515, 520 (2004) (When regulators have tried “to impose restrictions on individual behavior . . . the restrictions have been unpopular and have provoked a public backlash.”).

302. Kuh, *supra* note 189, at 1178 (“Avoiding public opposition to the environmental regulation of individuals, whether direct or indirect, may be particularly difficult for a variety of reasons. The benefits of regulation may, for example, accrue to future generations or may not be immediate, tangible, or obvious. Some strategies that could increase the chances that a measure will pass public balancing might include (1) maximizing the benefits achieved by a measure and effectively educating the public about those benefits, (2) obscuring the costs imposed on the public, or (3) minimizing the costs imposed on the public. Intrusion—whether viewed in terms of invading privacy or in terms of government overreaching more generally—is simply a cost that regulation imposes on individuals. Direct mandates on environmentally significant behaviors may sometimes impose intrusion costs that indirect methods of regulation do not and may also render more transparent the costs—intrusion and others—being imposed on individuals. But indirect methods of regulating individuals can also impose intrusion costs and visible costs, and such methods are likewise sometimes politically unacceptable. And any measure, whether its regulation of environmentally significant individual behaviors is direct or indirect, may be vulnerable to opposition if its costs cannot be justified by its benefits.”).

303. *See generally* Hope M. Babcock, *Assuming Personal Responsibility for Improving the Environment: Moving Toward a New Environmental Norm*, 33 HARV. ENVTL. L. REV. 117, 124–34 (2009) (discussing the barriers to changing personal environmental behavior, including cognitive dissonance, personal habits, and complexity).

304. Ann Carlson, *Recycling Norms*, 89 CALIF. L. REV. 1231, 1243 (2001). *See* Michael P. Vandenbergh, *Order Without Social Norms: How Personal Norm Activation Can Protect the Environment*, 99 NW. U. L. REV. 1101, 1123 (2005) (“[T]he law should induce individuals to believe

Direct regulation of individuals, more so than indirect regulation, is likely “to spur public objection because it makes the costs borne by individuals clearer to those individuals.”³⁰⁵ It may also be difficult for people to understand how individual *de minimis* actions collectively harm the environment—such as understanding how smoking a single joint can affect a watershed. This attenuated causation can make it more likely that they will perceive, and even resent, any actions taken against them as unfair.³⁰⁶ Enforcement of regulations affecting individual behavior may necessitate collecting information about that behavior or tracking it. These activities may intrude on individual privacy or other civil liberties in ways that can raise public objections.³⁰⁷ Public animosity toward regulations may increase when enforcement takes place near or in homes.³⁰⁸ As most marijuana consumption occurs in the home or other “safe” spaces because of the need for secrecy, enforcement of the federal ban is likely to trigger a backlash against it.³⁰⁹

Directly enforcing against individuals, who are indirectly causing environmental harm by purchasing marijuana on the black market, would not only run the high risk of being perceived as intrusive and unfair, and therefore, objectionable to many, but would also be difficult for the federal government to do.³¹⁰ This is because marijuana users “are numerous and spread out” and engage in illegal behavior in private, making detection particularly difficult and expensive.³¹¹ Consequently, technologies making it easier to track and identify bad environmental behaviors, like “solo commuting” or improper “disposal of household waste,”³¹² have no relevance to the illegal use of marijuana.

that the environmental problems caused by the behavior are significant . . . and that if they change behavior these problems can be ameliorated.”).

305. Kuh, *supra* note 189, at 1175; *see id.* at 1181 (“direct regulation, unlike some forms of indirect regulation, will often make clear to individuals the costs—including inconvenience, economic costs, and limitations on choice—that the government is requiring them to incur in the name of environmental protection.”).

306. *Id.* at 1122.

307. *Id.* at 1119–20; *see* Carlson, *supra* note 304, at 1235 (“When numerous people must act to solve a collective action problem and lack the economic incentive to do so, traditional government regulation, such as formal law, may be infeasible, ineffectual, or politically difficult. The costs of monitoring and enforcement can be prohibitively expensive and may raise privacy concerns.”).

308. Kuh, *supra* note 189, at 1160; *see id.* at 1168–69 (“[L]isting cases and observing that ‘our law has long recognized that the home provides a kind of special sanctuary in modern life’”) (Stevens, J., dissenting) (citing *McDonald v. City of Chicago*, 130 S.Ct. 3020, 3150 (2010)); *id.* at 1170 (“[S]ubstantive due process cases recognize the home as a private space warranting special protection from government invasion. The home is considered ‘the most private of places,’ and laws that would require ‘police invasion’ of the home for their enforcement are deemed particularly suspect.”).

309. Government enforcement of restrictions that have been placed on products is generally considered less intrusive and less restrictive of individual liberty. Kuh, *supra* note 189, at 1160.

310. Vandenberg, *supra* note 304, at 1103 (“Regulations that seek to direct personal behavior by fiat are extremely unpopular, and they are often inefficient and costly to enforce.”).

311. *See* Kuh, *supra* note 189, at 1120–21; *but see id.* at 1122 (“Piggybacking enforcement efforts on existing local regulation may also reduce administrative costs.”).

312. *Id.* at 1121–23.

2. Norm Manipulation

Another way of changing individual behavior is through manipulating norms. “A norm is a social rule that does not depend on government for either promulgation or enforcement”³¹³— in other words, “a private alternative” to laws³¹⁴ and a way to change individual behavior the community does not approve of. As such, a norm is “an informal obligation that may be internalized (and enforced through guilt) or that may arise without internalization (and be enforced through external non-legal sanctions such as stigma or ostracism).”³¹⁵ Norms thus function as “non-legal rules or obligations” that individuals conform to even without the threat of legal sanctions.³¹⁶ Defying or disregarding a social norm imposes a cost on the individual, which can “tip the cost-benefit balance in favor of conformity with the norm.”³¹⁷ In fact, pressure to conform to prevailing social norms enables norms to influence the behavior of even those whose personal beliefs are not consistent with the norm.³¹⁸

Since norms purportedly reflect a social consensus about which behaviors are worthy of admiration, they are generally enforced by the community withholding its esteem.³¹⁹ Typical community sanctions are those that engender a feeling of shame in the wrongdoer or, for more extreme sanctions, expulsion from a social group.³²⁰ The threat of community disapproval can make norms even more powerful than law as a means of inducing individual behavior change.³²¹

The problems with relying on community disapproval as a way to change the behavior of marijuana users are the emerging public consensus that using the drug is socially acceptable, albeit illegal, and state legalization of the drug, which immunizes people from social sanctions by “signaling public approval of

313. Richard A. Posner, *Creating and Enforcing Norms, with Special Reference to Sanctions*, 19 INT'L REV. L. & ECON. 369, 369 (1999); see *id.* at 382 (“Norms provide a private, decentralized, and competitive alternative to government control of social behavior.”).

314. Alex Geisinger, *A Group Identity Theory of Social Norms and Its Implications*, 78 TUL. L. REV. 605, 621 (2004).

315. Michael P. Vandenbergh, *The Social Meaning of Environmental Command and Control*, 20 VA. ENVTL. L.J. 191, 200 (2001); see Cooter, *supra* note 290, at 5 (defining a social norm as “an obligation backed by a social sanction”; an obligation as “a statement about what people ought to do, such as pay taxes and clean up after their dogs”; a social sanction as a “punishment imposed, not by state officials, but by ordinary people, such as shunning a litigious lawyer or refusing to deal with a law firm that organizes hostile takeovers”).

316. Carlson, *supra* note 304, at 1238 (“[B]ecause defiance would subject them to sanction from others (typically in the form of disapproval, lowered esteem, or even ostracism) or because they would feel guilty for failing to conform to the norm (a so-called internalized norm)”; see Mikos, *supra* note 6, at 1475 (“Like law, and in contrast to personal beliefs or the internalized moral obligation to obey law, social norms exert external pressure on individuals to conform. Unlike law, however, that external pressure is applied by civil society rather than the government.”).

317. Carlson, *supra* note 304, at 1238.

318. Mikos, *supra* note 6, at 1475.

319. Geisinger, *supra* note 314, at 640.

320. *Id.* at 608.

321. Mikos, *supra* note 6, at 1475.

once taboo conduct.”³²² This makes the desirability of legal compliance ambiguous and may decrease any guilt a person might otherwise feel when they violate the law.³²³

Furthermore, shaming individuals who ignore or violate a social norm, if taken too far, can make that person into an “outlaw”—someone who does not care about public opinion—and can “spill over” and stigmatize individuals who are complying with the norm.³²⁴ The problem with marijuana is that everyone involved in the marijuana culture is in some way already a federal outlaw. This makes shame an ineffective sanction, and its use could trigger a negative backlash.³²⁵

People can use heuristics to “neutralize” any feeling of shame by “redefining the problem . . . [so] that [it] does not trigger the applicable norm,” by putting the blame on someone else, or by not finding an alternative course of action to avoid the harm.³²⁶ It is easy to assert that using marijuana is not the problem, rather it is how the drug is grown, that others are causing the environmental harm—here, illegal cultivators—and that no alternative course of action to buying illegally produced marijuana exists because of the federal prohibition. Even among people who profess to care about the environment, the desire to “make their attitudes, beliefs, cognitions, and behaviors as consistent as possible” will propel them to avoid information that is inconsistent with those beliefs so that they do not feel bad about themselves.³²⁷

Another problem with norms here is that the individuals to whom the norm might apply will neither personally benefit from its application, making compliance less appealing, nor are they likely to be subject to legal or social sanction³²⁸ if they violate the norm, because of inadequate federal enforcement and the drug’s expanding use. The sheer number of people currently violating the federal ban undermines the effect of any legal, let alone social, sanction applied to any one of them.³²⁹

Norms may also be ineffective when people do not believe that their conduct is causing a problem, like harming the environment.³³⁰ So, even if

322. *Id.* at 1478.

323. Vandenberg, *supra* note 280, at 85.

324. Nagel, *supra* note 279, at 700.

325. See generally Babcock, *supra* note 303, at 159–65 (discussing the positive and negative features of shaming undesirable personal behavior).

326. Vandenberg, *supra* note 280, at 77.

327. Vandenberg, *supra* note 301, at 593–94.

328. Vandenberg, *supra* note 304, at 1101 (“One of the greatest problems facing norms theorists and regulators is how to induce individuals to act who will not benefit personally and who are not subject to legal or social sanctions.”).

329. *Id.* at 1102 (“[I]n an increasingly crowded society, individuals face numerous situations in which acting in their personal interest will harm the collective interest, but their large numbers undermine the influence of legal and social sanctions.”).

330. *Id.* at 1126 (“Perhaps the most important challenge for the theory is whether norm activation will occur if an individual believes that all individuals in the aggregate cause an environmental problem but that the individual’s personal contribution is inconsequential.”).

people are aware of the environmental harm from illegal marijuana cultivation on distant public lands, a social norm may not be activated unless they believe they personally caused the problem,³³¹ which the attenuated chain of causation makes highly unlikely. Professor Ann Carlson thinks that norms have little effect on people's behavior and that the convenience of environmentally appropriate alternatives is much more influential.³³² Here, where both legal and illegal marijuana are inconvenient because of the secrecy surrounding their distribution, norms might come into play if one could find legal marijuana to buy, especially if it is not too expensive.³³³

Despite these problems, laws can have “an expressive effect even in the absence of rigorous enforcement.”³³⁴ The enactment of the legal mandate sends a message that the prohibited behavior is wrong and that engaging in it will be “dangerous or depraved” because it is “formally” condemned.³³⁵ Even though the attitude of Americans toward the morality of using marijuana is ambivalent at best,³³⁶ marijuana users might still be criticized on moral grounds for violating a federal mandate.³³⁷ Thus, the federal ban might trigger what is called the compliance norm.³³⁸ The compliance norm describes a situation where, even though the expected benefits of violating the law outweigh the

331. *Id.* at 1126.

332. Carlson, *supra* note 304, at 1295–96 (“If the desired behavior is very convenient, then commitment to a norm in favor of the behavior has little bearing on whether people will participate [T]he more convenient the behavior, the less important a moral commitment to the behavior is in encouraging participation and the greater the number of people who will participate.”).

333. *Id.* at 1279 (“Curbside [recycling] programs . . . [that] allow households to display their compliance with a recycling norm very visibly to their neighbors” may account for their success as much as reducing the cost of the behavior “by making it easier for individuals to recycle.”).

334. Kuh, *supra* note 189, at 1122; see Vandenberg, *supra* note 315, at 202 (“[L]aw is expressive in the sense that it can signal, reinforce or change social meaning . . . , [and] the public can receive a message conveyed by law, whether intended or unintended, and that this message can have an impact on perceptions about the sources of a problem and on the social norms that develop in response to those perceptions.”); Vandenberg, *supra* note 301, at 600 (“[A]lthough command and control measures are unlikely to be effective as the exclusive instrument for steering individual environmentally significant behavior, their expressive effects, in combination with information regulation and other measures, may be quite important.”).

335. Mikos, *supra* note 6, at 1470.

336. Manski, *supra* note 18, at 999 (“Drug control policy has long been normatively contentious, with Americans varying in their moral judgment of drug use and in their concern with the collateral consequences of drug law enforcement.”).

337. Duke, *supra* note 12, at 1306.

338. See Vandenberg, *supra* note 280, at 123 (“The norm of law compliance (and the norms of human health and environmental protection, to the extent they are implicated by the violation) thus may lead individuals to develop more compliant behavior intentions immediately upon detection . . . [while,] the norms of good faith and autonomy . . . may explain why increasing the likelihood of detection may have only a limited effect on compliance.”); see also Mikos, *supra* note 6, at 1470 (“To the extent lawmakers can shape preferences and redefine self-interest, they can diminish citizens’ desire to engage in prohibited activity without having to impose costly legal sanctions.”).

costs of doing so, and thus there are no strong “legal incentives to obey,” people will still obey the law.³³⁹

Through enacting laws and people’s predilection to obey laws, lawmakers “can shape social norms by manipulating whether society condemns or condones a given behavior, similarly to the way they can shape personal beliefs about that behavior.”³⁴⁰ However, because “norms are entrenched; lawmakers must take norms as they find them” and have little control over whether the undesirable behavior is condemned or condoned.³⁴¹ In the case of marijuana, an increasing number of people are condoning, not condemning its use.

An additional problem with relying on the expressive strength of the federal ban to change behavior is that its expressive strength is weaker than contrary state laws because states are generally seen by their citizens as more trustworthy.³⁴² States also usually have more relevant, up-to-date information about social norms than the federal government because “comparatively majoritarian-friendly [state] lawmaking processes,” like referenda and ballot initiatives, enable state laws to stay current with changes in societal views.³⁴³ State laws additionally “convey more accurate information about *local* norms,” which is important because local norms are far more influential than “norms held by distant strangers.”³⁴⁴ Thus state laws legalizing medical marijuana are broadcasting a more current and relevant signal concerning societal approval or disapproval of medical marijuana. They are arguably sending out a clearer signal as well because currently all but seven states and the District of Columbia address only the medical use of marijuana; whereas the CSA addresses many topics, “meaning the signal it broadcasts on any one of them (e.g., should marijuana be legal) will be quite noisy.”³⁴⁵

The enactment of a new law may reduce uncertainty about norms, particularly if those norms are changing,³⁴⁶ as they are with respect to marijuana. State marijuana laws have all been enacted after passage of the CSA.³⁴⁷ The enactment of these laws in thirteen states, frequently by “wide

339. Mikos, *supra* note 6, at 1469 (“At this point, a neoclassical economist would probably surmise that the federal ban does not significantly reduce the use or supply of marijuana because the expected *legal* sanctions for disobeying the ban are, for many people, outweighed by the expected benefits of disobedience. Contrary to this prediction, however, people often do obey the law, even when they do not expect to be punished by the government for non-compliance – i.e., even when they lack strong legal incentives to obey.”); see Carlson, *supra* note 304, at 1263 (Laws “encourage cooperation by taking advantage of a more generalized norm of law abidingness.”).

340. Mikos, *supra* note 6, at 1475.

341. *Id.* at 1476.

342. *Id.* at 1471.

343. *Id.* at 1477.

344. *Id.* at 1478.

345. *See id.* at 1478 n.202.

346. *Id.* at 1476.

347. *Id.* at 1478 (“[S]tarting with California in 1996 and continuing through Michigan in 2008, [t]hese state laws have been supported by large and growing majorities. Support for the most recently enacted measure—Michigan’s Proposition 1—topped 63 percent.”).

margins,” signals that the citizens in those states are “more likely to support than to censure medical use of marijuana.”³⁴⁸ This means there is no social norm condemning medical use of marijuana in those states; certainly there is no consensus in those states to censure that behavior through shaming or otherwise.³⁴⁹ And while a federal law that comes into being only after a lot of effort and time “usually signal[s] a strong national consensus and norm,” the very fact that it can take years to produce that law, which once enacted is rarely changed, allows the message of the original law to fade.³⁵⁰ Thus, recently enacted state laws create a more relevant, localized social norm, signaling society’s approval of certain uses of marijuana and constraining “Congress’s already limited ability to impose legal sanctions on those who violate the federal ban.”³⁵¹

Therefore, the use of norms to induce behavioral change in individual marijuana users is sufficiently problematic and cannot be relied on as the only strategy to end the black market in marijuana and the drug’s illegal cultivation. Although like strict enforcement, norms may be part of an overall strategy to encourage behavior change in some circumstances.

3. *Financial Incentives*

One possible way to change individual preferences is through financial incentives, like rewards and subsidies, and disincentives like taxes or fines.

One such strategy is using taxes, or alternatively, tax relief, to encourage good behavior by an industry and its customers. Because taxing black-market marijuana simply passes the cost onto consumers,³⁵² it might encourage consumers to purchase legally produced marijuana because the price may be lower. Conversely, tax rewards, like eliminating the sales tax on legal marijuana, and subsidies, like refunding part of the purchase price for legal marijuana, might encourage good behavior.³⁵³

348. *Id.*

349. *Id.*

350. *Id.* at 1477.

351. *Id.* at 1478–79 (citing as an example jurors who “may be unwilling to convict people who use marijuana for medical purposes (or the people who help them) if they know that local society generally approves of medical marijuana”).

352. Nagel, *supra* note 279, at 694 (“The main disadvantage of such a tax is that it will be passed on to the consumers of the products involved to the extent that it can be passed on without the consumers shifting to other products or simply reducing their use of the products involved.”).

353. *Id.* (“Tax rewards and subsidies, on the other hand, tend to emphasize positive incentives, although the withdrawal of a tax reward or subsidy which a firm had been receiving can be thought of as a punishment, especially if the firm’s competitors are continuing to receive the tax reward or subsidy.”); see Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 *CAP. U. L. REV.* 21, 99 (2001) (noting how “[d]eposit and refund measures to promote recycling or proper disposal of beverage containers or used batteries require consumers to pay a fee on purchase of disposable items, which is refunded when they comply with command requirements specifying the proper method of disposal or return”).

Taxing marijuana, regardless of whether it is produced legally or illegally, could also produce tax revenues of between \$10 billion per year and \$14 billion per year, depending on the tax rate.³⁵⁴ However, taxing just illegally produced marijuana may not increase the price sufficiently to dissuade people from buying it, especially if the costs of producing legal marijuana go up in response to regulatory compliance costs, and will not “eliminate all criminal activities and elements associated with the production and use of marijuana.”³⁵⁵ On the other hand, tax revenues could be used to mitigate the environmental harms caused by illegal marijuana cultivation, such as by restoring damaged watersheds,³⁵⁶ and to fund monitoring of the environmental impacts of both legal and illegal marijuana cultivation.³⁵⁷ “The scale of the existing marijuana markets in California and elsewhere suggests that taxation and fines could fund these measures.”³⁵⁸

Rewarding good behavior can encourage it.³⁵⁹ However, Professor Michael Vandenberg warns that rewards create a risk that their psychological effects might “undermine” their effectiveness, discouraging rather than encouraging the desired behavior.³⁶⁰ Professor Robert Cooter says rewarding good behavior with the goal of enhancing individual civic virtue is difficult for government officials to do because they lack necessary information about

354. Reid, *supra* note 12, at 185 n.109 (“Revenue from taxation of marijuana sales would range from \$2.4 billion per year if marijuana were taxed like ordinary consumer goods to \$6.2 billion if it were taxed like alcohol or tobacco.”) (quoting JEFFREY MIRON, THE BUDGETARY IMPLICATIONS OF MARIJUANA PROHIBITION, (2005), www.prohibitioncosts.org/); see Mulkern, *supra* note 30, (estimating that a new law, the Control, Regulate and Tax Adult Use of Marijuana Act, if passed, “could raise \$1 billion or more in revenues”).

355. Reid, *supra* note 12, at 185.

356. Reitz, *supra* note 3, at 1111–12 (“[A] system of taxation and regulation similar to alcohol would produce combined savings and tax revenues of \$10-14 billion per year, a portion of which could be spent on mitigating the environmental impacts of legal and illegal marijuana cultivation.”); see Mulkern, *supra* note 30 (reporting 20 percent of the tax revenues projected to result from a recently proposed California law are earmarked for environmental restoration and protection, including “for the cleanup, remediation, and restoration of environmental damage in watersheds affected by marijuana cultivation and related activities”).

357. Carah et al., *supra* note 9, at 827.

358. *Id.* Dispersing revenues earned through taxing marijuana from any source to other state government departments like health or education might overcome resistance to legalizing and then regulating the drug; see *id.* at 826 (“Colorado and Washington State both allocate their projected \$67 million and \$389 million tax revenues, respectively, from legal recreational marijuana sales to state funds supporting public health and education.”); see also Hudak, *supra* note 63, at 663 (commenting that Colorado uses tax revenue not only to fund its MED and related policy areas, including “education, prevention, and public safety . . . [i]t also delivers a portion of funds to unrelated areas like school construction. The system allows for more regulatory stability, creating an agency that is self-funded, while using the excess to ensure that other policy groups have a stake in the success of the new marijuana industry.”). See Reitz, *supra* note 3, at 1112.

359. Cooter, *supra* note 290, at 19 (“To induce people to internalize values, the state must reward citizens for having civic virtue.”); see *id.* at 19–20 (government officials often “bestow honors, awards, and praise, as well as their opposites (dishonor, punishments, and condemnations)”).

360. Vandenberg, *supra* note 301, at 608.

individual character.³⁶¹ Awards are also expensive and difficult to administer and only rewarding “exemplary behavior” suggests that complying with legal requirements is “optional rather than obligatory.”³⁶²

At the opposite end of the spectrum, fining consumers who buy illegal marijuana may backfire by signaling that individuals may engage in a socially bad behavior as long as they pay a “price.”³⁶³ Increasing the size of the fines, or perhaps “escalating” them for repeat offenders, might make the fine look more like a penalty than a price for engaging in the activity.³⁶⁴ If fines are accompanied by a public education campaign, it might lessen the possibility that they would be considered merely a cost of doing business.³⁶⁵

But there are overarching problems with using fines to encourage good behavior by marijuana users. And that is the perceived unfairness of penalizing individuals who engage in none of the environmentally harmful activities that attend the drug’s illegal production, and the difficulty of finding, let alone catching, illegal marijuana producers to make things fairer.

4. Public Education, Information Dispersal, and Labeling

One way of changing individual preferences is through public information or education campaigns.³⁶⁶ A well-designed public information campaign, when accompanied by “other regulatory instruments,” can work.³⁶⁷ Campaigns against smoking and littering, as well as those supporting seatbelts, recycling, and properly disposing of hazardous waste and used motor oil are examples of successful public information campaigns.³⁶⁸ Another way of educating consumers is signaling desired behavior about which product to buy through some system of labeling or certification, as Professor Eric Biber suggests. The strengths and weakness of each approach are discussed below.

Since 1998, the federal government has spent over \$1.5 billion on an “aggressive” anti-marijuana advertisement campaign to discourage marijuana use, particularly by the young, “by portraying the drug as dangerous, wicked, and uncool.”³⁶⁹ This campaign has neither reduced the amount of marijuana consumed nor changed public attitudes toward the drug.³⁷⁰ This failure may be attributed to the fact that the public does not “trust the messenger,” since “the persuasiveness of any campaign may depend as much on its source as its

361. Cooter, *supra* note 290, at 19–20.

362. Shuman, *supra* note 295, at 156.

363. Kuh, *supra* note 189, at 1179 n.270.

364. *Id.*

365. *Id.* at 1179 n.270.

366. Mikos, *supra* note 6, at 1470 (“A second way lawmakers can change internal preferences is by ‘educating’ (or more pejoratively, indoctrinating) the public.”).

367. Vandenbergh, *supra* note 301, at 614.

368. *Id.*

369. Mikos, *supra* note 6, at 1470.

370. *Id.*

contents.”³⁷¹ Generally, people trust state messengers more than federal ones, giving states a greater advantage than their federal peers at “manipulating” individual behavior.³⁷² The federal message’s accuracy does not matter; if the government “suffers a trust deficit,” it will have trouble “nudging people’s beliefs in the direction” it wants.³⁷³ Moreover, the federal government’s message about the dangers of marijuana is directly contradicted by state legalization of medical marijuana, which signals to potential consumers that its use is not dangerous, “wicked,” or a “reckless indulgence”; rather it is about “compassion and hope for the sick.”³⁷⁴

Awareness of environmental harms, even more than human-health harms, can “activate a norm and influence [individual] behavior.”³⁷⁵ Therefore, information about the adverse effects of illegal cultivation on public lands might change the behavior of consumers by helping them “understand the wider impacts of their behavior.”³⁷⁶ But, when a problem is out of sight, as with illegal marijuana cultivation on remote tracts of public lands, it can be harder for people to be concerned about it.³⁷⁷ On the one hand, “studies of environmental behavior support the hypothesis that information about the aggregate effects of individual behavior can activate norms and change behavior.”³⁷⁸ On the other hand, if people do not believe that “the mean, aggregate and relative effects of their behavior” are significant, concrete norms, like protecting the environment, may not be triggered, and environmental protective behavior may not happen.³⁷⁹ So, linking the use of illegal marijuana

371. *Id.* at 1471.

372. *Id.* at 1471–72.

373. *Id.* at 1471. Young argues that this trust deficit is “one reason that modern-day nullification can be successful. When state governments are more trusted than the Feds, state judgments about, say, the appropriateness of marijuana use more readily displaces the moral suasion of federal law.” Young, *supra* note 7, at 792.

374. Mikos, *supra* note 6, at 1472.

375. Vandenberg, *supra* note 280, at 97; see Stewart, *supra* note 353, at 140 (noting that “disclosure of health risks” can be “uninformative (because they fail to convey magnitude of the risks posed by different substances) and alarmist,” and that “too much information may overwhelm consumers, or simply cause them to disregard it entirely”).

376. Jenkins, *supra* note 277, at 674; see *id.* (discussing the problem of local environmental harms); *id.* at 673 (“The educational value of a process of ‘community justice’ can also extend to the wider community; and can be viewed as a means of ‘social learning’ to support environmental citizenship: ‘In broad terms, learning is supposed to take place when individuals and organisations [sic] appreciate that their private interests are closely associated with broader social interests such as environmental protection.’ This leads on to a second important assertion of this paper, that there should be greater attention to education in safeguarding local environmental quality.”).

377. *Cf. id.* at 655–56 (“[L]ocal environmental crime suffers from a lack of moral opprobrium, which makes it difficult to provide an appropriate sanction. This is a problem that plagues environmental crime more generally, but is considered particularly significant in the context of local crimes.”)

378. Vandenberg, *supra* note 304, at 1127.

379. *Id.* at 1129.

to the environmental harms caused by its cultivation might make the federal government's anti-marijuana campaign more successful.³⁸⁰

However, public information and education campaigns that try to tie a single toke to the massive environmental harms on public lands from marijuana's illegal cultivation are subject to substantial uncertainties and tenuous linkages. To establish that link creates a danger of "information overload, leading people to simply disregard or discount the communication or distort it through simplification."³⁸¹ While simple, descriptive information works better than hortatory statements about an individual's obligation to take a certain action,³⁸² if the target of the campaign thinks that the desired behavior is not in their interest and engaging in bad behavior is an "ingrained" habit, the campaign may also be ineffective.³⁸³ In the case of using marijuana, both may be true.

Even when information about environmental harm is effectively displayed, people have to be willing and able to process that information properly and act on it appropriately.³⁸⁴ Most people "have limited time, energy, and attention" to do this.³⁸⁵ People also use "heuristics" formed by "their prior experiences to process information and deal with uncertainty."³⁸⁶ Here, to the extent that there are heuristics associated with marijuana, they are positive and not associated with environmentally harmful activities. Another obstacle is that the average marijuana smoker may not have sufficient interest in the environment to demand an environmentally benign product, like legal marijuana.³⁸⁷

Product labels, another type of public information or education campaign, can be effective where product choice can have an environmental effect, like

380. Shuman, *supra* note 295, at 162 ("[P]eople tend to evaluate information based upon the way information is framed"); see Vandenberg *supra* note 301, at 614–15 (listing factors for a successful campaign as including "external constraints (*e.g.*, the existence or lack of infrastructure for recycling), the characteristics of the population in which the behavior occurs (*e.g.*, the existence of close-, intermediate-, or loose-knit groups) and the extent to which the behavioral change conveys a tangible personal benefit to the individual (*e.g.*, the tangible safety benefits of seat belt use versus the intangible psychic benefits of recycling).").

381. Stewart, *supra* note 353, at 141.

382. Vandenberg, *supra* note 304, at 1138 ("Studies indicate that the alternative approach often taken – hortatory information that highlights the individual's personal obligation to act—can have a 'boomerang effect.' Instead of changing behavior, the information may induce the individual to believe that she will feel less satisfaction if she alters her behavior or to believe that her personal freedom is being restricted.").

383. Vandenberg, *supra* note 301, at 610.

384. Stewart, *supra* note 353, at 141.

385. *Id.*

386. *Id.* ("[P]eople use heuristics, including those based on their prior experiences, to process information and deal with uncertainty. Their perceptions of risks are affected by socioeconomic variables, and by their psychological saliency and accessibility may produce distortions.").

387. *Id.* at 135.

choosing legally, as opposed to illegally, grown marijuana.³⁸⁸ But studies show that so-called “eco-labels” only affect consumer behavior when considerations like the product’s price and quality are the same.³⁸⁹ Therefore, the effectiveness of any marijuana label at swaying consumer preferences will depend on the price of illegally grown marijuana. Additionally, for eco-labels to be effective their message must be easily understood by consumers and be “trustworthy.”³⁹⁰ Eco-labels are not successful when consumers are not aware of or not interested in the information they contain.³⁹¹

Biber’s proposed certification program, which identifies legally cultivated marijuana, is a form of eco-labeling.³⁹² He bases his optimism about this approach on the fact that a “non-trivial proportion of the consumers of marijuana in the United States are higher-income, left-of-center, and generally sympathetic to environmental causes.”³⁹³ He believes that his certification program will increase the demand for legally grown marijuana, which might reduce the demand for black-market marijuana, putting “market pressure on marijuana growers to reduce their impacts” to compete with certified legal cultivators.³⁹⁴ But, Biber recognizes that there will always be consumers who are more concerned about price than the environmental harm a particular desirable product causes.³⁹⁵

There are other problems with Biber’s proposal that he also readily admits. For example, the “murky legal status” of marijuana might make it difficult to get growers to “come out of the shadows” to gain certification for their product.³⁹⁶ For certification to work there must be enforceable regulatory standards³⁹⁷—again problematic in the shadow of potential federal enforcement of the CSA—and these standards must be sufficiently stringent to actually protect the environment.³⁹⁸ And any certification program must be an effective public education program to be sure that “consumers are aware of the problem, the existence of the certification system as a possible solution to the problem, and can easily identify and purchase products that are certified.”³⁹⁹

388. Vandenberg, *supra* note 304, at 1138, n.158 (“For example, the focus of eco-labeling on the consumer’s point of purchase for a vehicle will miss the effects that arise from driving style, such as driving speed and idling.”).

389. *Id.* at 1134–35.

390. Stewart, *supra* note 353, at 137.

391. *Id.* at 139.

392. See Biber, *supra* note 31.

393. *Id.*

394. *Id.*

395. *Id.*

396. It would also be difficult for participants in any certification system to enforce any contractual arrangement in court as long as the drug is illegal. *Id.*

397. *Id.*

398. *Id.* (“[C]ertification standards may not be high enough to protect the environment, and the non-profits or institutions doing the certification may not adequately ensure that the standards are actually being met by certified companies.”).

399. *Id.*; see Kuh, *supra* note 189, at 1177 (“Mandates are more likely to succeed when they do not impose disproportionate burdens on a select few, when they do not unduly transgress the home, when

The illegality of the product, however, makes such widespread public marketing campaigns difficult, to put it mildly.⁴⁰⁰ Nonetheless, Biber remains optimistic that if marijuana is decriminalized, a certification program might work “so long as there are proactive efforts to try and build up a demand among consumers for low-impact marijuana production.”⁴⁰¹

B. Adaptive Diversification

This review of possible approaches to reducing the demand for illegally grown marijuana shows that each has problems; none offers a perfect solution. While a law, like the federal ban, can have an expressive effect that can help support positive social norms, this will not happen here where that consensus is moving in the opposite direction and the federal government’s message about the dangers of marijuana is being directly undercut by state legalization. Financial incentives are ineffective if they seek to reward good behavior or punish bad behavior when the good behavior cannot be exercised because legally produced marijuana is not available, and fines can boomerang if they appear unfair. Nor can any public information or education program that extolls the environmental benefits of buying legal marijuana have any impact because of the meaningless of that message to the average consumer. And hanging over all of these approaches is the threat of federal enforcement, to the extent that all of them require that legally produced marijuana be available to consumers.

But in combination, or tried in different contexts, they might be successful. Professor Charles Manski calls such an approach adaptive diversification and suggests its application to drug policy in general.⁴⁰² “Adaption” is a well-known concept from conservation biology, which allows lessons learned from experience to modify an approach to a problem.⁴⁰³ Diversification means that losses that occur from a single approach, what Manski refers to as putting “all eggs in one basket,” are avoided.⁴⁰⁴

they are designed to minimize inconvenience and other costs to the public, and when they are effectively ‘sold’ to the public through communication and demonstration of the measure’s benefits.”).

400. Biber, *supra* note 31.

401. *Id.*

402. Manski, *supra* note 18, at 1005.

403. *See id.* at 1006 (“The idea of adaptive diversification is to use the lessons learned from observation of earlier outcomes to update the allocation of persons to policies later on.”); *see* Hudak, note 63, at 652 (identifying adaptive regulations as those regulations that “embrace[] regulatory lookback and process-oriented learning” as well as “changes in culture in state and local government, among interest groups, and among the public”); Robert L. Fischman & Jeffrey B. Hyman, *The Legal Challenge of Protecting Animal Migrations As Phenomena of Abundance*, 28 VA. ENVTL. L.J. 173, 214 (2010) (“While existing scientific tools are inadequate to this task, the challenge is important enough that a legal response to migration conservation should build in adaptive management experiments to explore effective approaches.”); *id.* at 204–05 (“[E]cosystem management emphasizes three elements critical to successful transboundary coordination: maintenance of ecological integrity, collaborative and cooperative decision making, and adaptive management continually adjusting to the unexpected.”).

404. Manski, *supra* note 18, at 1006.

While Manski proposes using states as laboratories to try out different approaches to drug control,⁴⁰⁵ this Article recommends its application to changing the preferences of marijuana consumers. Since adaptive diversification would allow for trying more than one of the methods for changing personal behavior described above, it might offer a way to both find and then tailor the best approach to the circumstances in which it is applied. Doing this would also help cope with uncertainty about which approaches might work, perhaps even reducing uncertainty over time as divergent approaches either succeed or fail.⁴⁰⁶ However, “[a]n iterative process such as adaptive management has both direct implementation costs and opportunity costs.”⁴⁰⁷ Moreover, since some of the behavioral approaches described in this Article have not been tested with respect to marijuana consumption, before field testing any one of them, lessons learned from prior experiments must be passed forward to officials running the next one.⁴⁰⁸

CONCLUSION

Illegal marijuana cultivation on public lands is causing massive environmental harm. Growing consumer demand for the drug coupled with state legalization of its use fuels the black market for it. The illegal grow sites are so profitable that the Mexican drug cartels that operate many of them have switched from importing the drug into the United States to exporting the cash they earn from these operations back to Mexico. The federal government lacks the resources to wage what would be a difficult and costly campaign to eradicate illegal marijuana cultivation on its lands and instead uses its limited resources to ineffectually enforce the federal marijuana ban. Decriminalization of the drug might squeeze out the illegally produced product as the drug becomes more widely available. But the likelihood of this happening is extremely low. Opt out or waiver programs and federal tolerance of criminal activity raise constitutional problems, and cooperative or fused regulation, while perhaps less politically contentious, will similarly have little direct impact on marijuana’s illegal cultivation.

405. *Id.* at 1008; *id.* at 1007 (commenting on how our federal system allows different laws to apply in different states, allowing adaptive diversification at the state level); see *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (“It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”) (Brandeis, J., dissenting).

406. Manski, *supra* note 18, at 1008.

407. Alejandro E. Camacho and Robert L. Glicksman, *Legal Adaptive Capacity: How Program Goals and Processes Shape Federal Land Adaptation to Climate Change*, 87 U. COLO. L. REV. (forthcoming 2016) at 737.

408. See Manski, *supra* note 18, at 1006 (“The idea of adaptive diversification is to use the lessons learned from observation of earlier outcomes to update the allocation of persons to policies later on.”); see Hudak, *supra* note 63, at 652 (identifying adaptive regulations as those regulations that “embrace[] regulatory lookback and process-oriented learning” as well as “changes in culture in state and local government, among interest groups, and among the public.”).

The key is reducing demand for the illegal drug by changing public buying preferences. While these may change in response to the approaches discussed in this Article, even they will be ineffective if there is no legal alternative drug. Nonetheless, the author believes that the analysis of these different approaches and the application of the concept of adaptive diversification to them hold promise when, as must happen, the drug is finally decriminalized, allowing states to regulate its use.

We welcome responses to this Article. If you are interested in submitting a response for our online companion journal, *Ecology Law Currents*, please contact cse.elq@law.berkeley.edu. Responses to articles may be viewed at our website, <http://www.ecologylawquarterly.org>.

