Chapter 3

Unlocking the Full Power of Section 4(d) to Facilitate Collaboration and Greater Species Recovery

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The Endangered Species Act (ESA) enjoys strong public support, but is also frequently steeped in controversy. Fights over land use, private property rights, hunting, and more have pitted different cohorts of conservationists against each other. Even so, most agree it is one of the most powerful and successful laws ever enacted on the planet to prevent species extinction. However, many also agree that the ESA can be improved upon in ways that can reduce litigation, increase social tolerance at the local level, and accelerate species recovery. Many of the improvements can be realized simply by identifying more authentic and meaningful ways for states to engage in threatened species management and recovery.

When Congress passed the Endangered Species Act in 1973, it stated that "the successful development of an endangered species program will ultimately depend upon a good working arrangement between Federal agencies, which have broad policy perspective and authority, and the State agencies, which have the physical facilities and the personnel to see that the State and Federal endangered species policies are properly executed."[1] To meet this objective, the ESA sought to "have the federal government oversee the state wildlife management programs to ensure that they satisfied the national standards and goals. The ESA would rely on existing state programs to manage wildlife in a manner that prevented extinction."[2] Consequently, the ESA would not affect states with adequate programs.[3] The federal role was essential, but to make the ESA work, states would have to take a leading role in implementation.[4]

There are multiple sections of the ESA that could be used to empower state leadership in species recovery. However, this chapter will focus on section 4(d), its history, and how the U.S. Fish and Wildlife Service (FWS)[5] could use it to create a road map to delisting by allowing states to manage a largely recovered, but still listed species, as though it were delisted. To illustrate the point, this chapter takes a deep dive into grizzly bear recovery and management in the lower 48 states—particularly in the Greater Yellowstone Area and Northern Continental Divide Area near Glacier National Park. However, incrementally designating authority for management of a federally listed species back to the states could work for almost any threatened species. As this chapter will illustrate, such an approach could facilitate faster species recovery, reduce delisting litigation, free resources for use on other vulnerable species, and rebuild support and trust for ESA implementation and state management from those most skeptical of each.

HISTORY OF 4(D) RULES

Section 9 of the ESA expressly prohibits any activity resulting in the "take" of an endangered species. The ESA defines "take" to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct."[6] Despite this strict prohibition on take, section 10 of the ESA authorizes the FWS to permit the take of an endangered species, if that taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."[7]

Notably, the ESA does not automatically apply the same take prohibition standard to species listed as threatened. Instead, section 4(d) affords the FWS discretion to write a rule that limits the take of threatened species. The language of section 4(d) states:

> Whenever any species is listed as a threatened species pursuant to subsection (c) of this section, the Secretary shall issue such regulations as he deems *necessary and advisable to provide for the conservation of such species.* The Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or Section 9(a)(2), in the case of plants, with respect to endangered species; except that with respect to the taking of resident species of fish or wildlife, such regulations shall apply in any State which has entered into a cooperative agreement pursuant to section 6(c) of this Act only to the extent that such regulations have also been adopted by such State [emphasis added].

The application of 4(d) is also informed by section 3(3), which defines "conserva- tion" as:

> [T]he use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, *in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking* [emphasis added].

The FWS began issuing 4(d) rules in 1974 in an effort to tailor protections for threatened species. Originally, this was used to decide what, if any, of the section 9 protections that apply to endangered species should also apply to those listed as threatened.[8] Then, in 1975 (for animals), and 1977 (for plants) the FWS promulgated what is widely referred to as the "blanket 4(d) rule," which extended all of the section 9 prohibitions to threatened species, unless the FWS drafted a species specific 4(d) rule exempting certain activities from those prohibitions.[9]

In August 2019, the FWS withdrew its blanket 4(d) rule for plants and animals, and reverted back to the pre-1975 method of tailoring prohibitions to individual species. Whether imposing take prohibitions, or exempting activities from take, the language of section 4(d) requires the FWS to issue regulations that are "necessary and advisable to provide for the conservation of such species." Then, in July of 2022, a federal court reinstated the blanket 4(d) rule.

Since passage of the ESA, the FWS and NMFS have completed more than 140 4(d) rules subjecting species to certain take prohibitions or exempting a host of activities from the take prohibitions of the ESA.[10] The rules offer management flexibility and are often

issued to advance conservation or to mitigate the impact of a listing on landowners and others in the regulated community. In many cases, 4(d) rules frequently allow activities that cause habitat disturbance or direct take.

For example, a 4(d) rule for Utah prairie dogs permits lethal take of prairie dogs to ameliorate conflicts with agricultural uses or human health and safety.[11] Both incidental and direct take is permissible for northern long-eared bats to protect human life and property, or as a result of permissible tree removal activities. The 4(d) rule for the Georgetown salamander permits development activities that may cause incidental take of the salamander so long as they comply with the City of Georgetown's Universal Development Code. This code aims to reduce water quality degradation by requiring developers to undertake certain conservation measures.

A number of 4(d) rules provide broad exemptions to protect routine farming and ranching activities. Species like the California tiger salamander, Preble's meadow jumping mouse, and red-legged frog fall into this category. When it comes to large predator species, 4(d) rules for grizzly bears and gray wolves allow federal, and sometimes state agency staff, to kill animals that prey on domestic livestock.

Subsistence use is another area where 4(d) rules frequently permit direct take. Alaska Natives are permitted to harvest threatened northern sea otters and polar bears for subsistence uses like food and clothing. Subsistence use is also permitted for green, loggerhead, and olive ridley sea turtle populations. Another rule exempts tribes from take prohibitions to allow harvest of threatened salmon species so long as the harvest occurs under an approved Tribal Resource Management Plan.

Some 4(d) rules even authorize sport fishing of threatened species. Special rules for Gila, bull, and Apache trout allow limited catch and release sport fishing as an incidental take so long as the fishing is consistent with state laws and rules.

Each of these 4(d) rules have helped blunt the perceived impact of a listing decision. In some instances, a well-tailored 4(d) rule, given time to operate, can largely quash opposition and fear that a listing can generate. Preble's meadow jumping mouse illustrates this well. Preble's meadow jumping mice are found along the eastern edge of Colorado's front range—beginning in southeast Wyoming, and running south to Colorado Springs. At the time of listing, landowners feared that the listing would bankrupt them. Consequently, years of litigation ensued. However, after operating under a 4(d) rule for nearly 20 years that exempts many routine agricultural practices from the take prohibitions of ESA, complaints about the listing status of the mouse are sparse.

Despite the many successes of 4(d) rules, there remains room for increased collaboration with states as well as additional innovation and creativity when crafting 4(d) rules. For example, the polarizing nature of protecting and recovering charismatic spe- cies has limited the way FWS uses 4(d) rules. Despite a host of 4(d) rules authorizing direct take by either agencies or citizens, regulated hunting is largely avoided today despite evidence that it can contribute to species conservation.[12] Wood bison is one of the only species where FWS contemplated hunting in its 4(d) rule. However, to date, FWS has not allowed the bison hunt to proceed over concerns about the legality of hunting a threatened species.

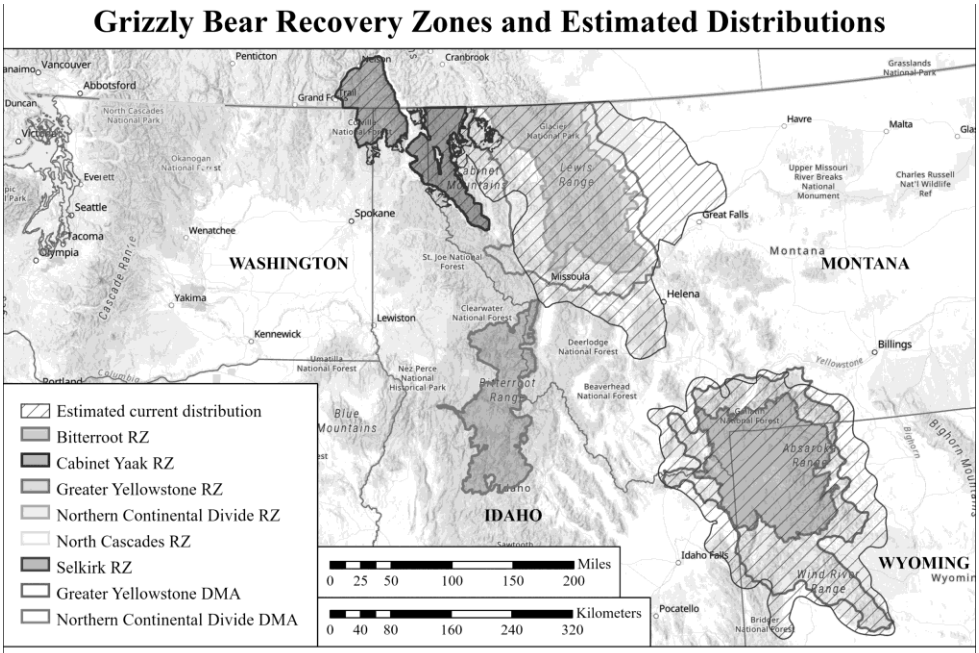
The reluctance to exempt regulated recreational hunting from the take prohibitions of section 9 is relatively new, and largely in response to very narrowly tailored federal court decisions. Prior to those cases, regulated recreational hunting was an important tool to

facilitate recovery of iconic, but controversial species. One of the earliest 4(d) rules the FWS issued was for grizzly bears, and the history of that rule, and the current status of the species, bears explanation.

THE 1975 GRIZZLY BEAR 4(D) RULE

The FWS listed grizzly bears in the lower 48 states as threatened under the ESA on July 28, 1975. At the time, scientists believed there were 229 to 312 bears remaining in the Greater Yellowstone Area (GYA)—most of them being confined to the boundaries of Yellowstone National Park.[13] Another population of bears was found in and around Glacier National Park.

The listing came with little fanfare, and few objections from the states of Montana, Wyoming, and Idaho. This is likely for three reasons. First, the Endangered Species Act was in its infancy, and not yet embroiled in controversy. The ESA passed only two years earlier with near unanimous support from Congress. The first significant test of the legal bounds of the ESA would not come for several more years when the Supreme Court of



Estimated distributions are current as of 2020 for the Greater Yellowstone and the Northern Continental Divide and are current as of 2019 for the Cabinet-Yaak and Selkirk. There are currently no known populations in the North Cascades and Bitterroot. Current distributions do not include low-density peripheral locations and represent a minimum known area of occupancy, not extent of occurrence.
DMA = Demographic Monitoring Area; RZ = Recovery Zone

Figure 3.1. The grizzly bear (*Ursus arctos horribilis*) is managed within the continental United States in six recovery zones, each hosting a distinct population segment (DPS). The Greater Yellowstone Ecosystem DPS and the Northern Continental Divide Ecosystem DSP have reached their recovery targets, while the Selkirk Ecosystem DSP and the Cabinet-Yaak Ecosystem DPS have not. The North Cascades Ecosystem DPS is occupied only sporadically (bears are able to cross over from British Columbia), while the Selway-Bitterroot Ecosystem DPS is unoccupied. *Jean Beaufort/Wikimedia Commons.*

the United States decided *TVA v. Hill*, 437 U.S. 153 (1978), and confirmed that a species should be protected regardless of the economic harm it causes.

Second, grizzly bears largely occurred in areas under federal jurisdiction—Yellowstone and Glacier National Parks. Bears that did leave the confines of the parks roamed massive federally designated wilderness areas or expansive national forests. In the GYA, grizzly bears rarely came into contact with humans or human activities. Conflicts with livestock were rare, as were attacks on humans. The area around Glacier National Park did include areas of human conflict; however, as discussed below, the 4(d) rule proactively addressed high conflict areas.

Third, the 4(d) rule accompanying the listing decision allowed states to retain significant control over the management of grizzlies as they began recovering and moving into new areas. The rule created a series of take exceptions that were favorable to the state wildlife agencies proactively engaging in grizzly bear recovery, while also managing local politics in a way that maintained support for grizzly recovery. Those exceptions included: taking a grizzly in self-defense, or in defense of others; the removal of nuisance bears by authorized state employees; the capture and collection of bears for scientific or research purposes; and even limited hunting.

The prospect of hunting a federally listed species might seem counter-intuitive, but for nearly 20 years the FWS expressly endorsed and encouraged the practice. The original 4(d) rule allowed the state of Montana to continue a regulated hunt of grizzly bears in the Bob Marshall ecosystem, now referred to as the Northern Continental Divide Ecosys- tem ("NCDE").[14] FWS contended that pursuant to sections 4(d) and 3(3), respectively, hunting was "necessary and advisable for the conservation of such species" and that it constituted an "extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved."

In making its case for limited hunting, the FWS noted that the grizzly population in the NCDE was large enough that bears were wandering into settled areas and threatening human safety, as well as committing significant depredations on legally present livestock.[15] Additionally, they argued that grizzly bears are large, aggressive, and sometimes dangerous animals that are very mobile and difficult to capture. As a result, trapping and transplanting is too dangerous and too expensive to be done in a way that will relieve the population pressures. Finally, they suggested that a hunt would also create a fear of man that would reduce human-bear conflicts.[16]

In an effort to maintain state support for listing, the FWS also stated that when the Greater Yellowstone Area (GYA) population recovered "to the point where population pressures require removal of part of the population, consideration will be given to a controlled reduction by sport hunting conducted by concerned State wildlife agencies and these regulations will be modified accordingly."[17]

Under this backdrop, the states and federal government got to work implementing one of the greatest recovery success stories in the history of the ESA. Much of the on- the-ground work was done by state wildlife agencies in Idaho, Montana, and Wyoming. These states invested tens of millions of dollars in grizzly bear recovery—mostly at- tributed to license fees collected from hunters and anglers. Using the authorities of the 4(d) rule, the states trapped and relocated problem bears, and reimbursed landowners for livestock losses caused by grizzly bears. They engaged in public education campaigns, handed out free bear spray, and worked with non-profit conservation organizations to

install bear-proof trashcans. They conducted countless hours of scientific research to better understand grizzly bear population dynamics, habitat and food needs, and more. And, in Montana, the state fish and game department authorized and regulated hunting.

The regulations were written so that "sport hunting in the Bob Marshall Ecosystem would be stopped when the total number of grizzly bears killed by whatever cause in a given year reaches 25."[18] In 1985, FWS issued an emergency rule to "ensure the conservation of the species in all areas where it occurs."[19] This rule only applied to the 1985 season, and reduced the allowed mortality of bears from 25 to 15, or six female bears.[20] In 1986, the FWS issued a new permanent regulation that reduced the known mortality limit from hunting and other causes to 14, or six female bears.[21]

The FWS and state of Montana operated under this regulation until 1991, when the environmental organization, Fund for Animals, challenged the regulation in federal court. In its motion for a preliminary injunction, Fund for Animals argued that the FWS failed to show that authorizing a hunt of a threatened species was justified. The ESA allows the FWS to authorize hunting a threatened species only in the "extraordinary case where population pressures within a given ecosystem cannot otherwise be relieved."[22] However, in this case, the court suggested that FWS acted arbitrarily and capriciously in claiming that the population pressures in northern Montana represented an "extraordinary case" justifying hunting.

The court opined that no reliable data existed to support the contention that it was an extraordinary case, and in fact, FWS admitted significant data gaps in scientific information related to grizzly bears.[23] This included lacking information about "carrying capacity, total numbers, annual reproduction and mortality, and most importantly, annual turnover and population trends."[24] Because of this, the court felt that Fund for Animals had a high likelihood of success on the merits of the case, and issued a preliminary injunction pausing the grizzly bear hunt until the case was decided on the merits.

In 1992, before the federal court could decide the merits of the case, the FWS extinguished the regulation and mooted the case.[25] As a result, despite strong dicta, the court never decided the case on the merits, leaving the question about what specific circumstances would justify authorizing a regulated hunt of grizzly bears under the ESA unsettled. This was not the first case to consider the merits of regulated hunting of a federally listed species. In fact, the likely motivation for Fund for Animals came from an 8th Circuit Court of Appeals decision several years prior. That case, *Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985), explored whether the Secretary of the Interior had the authority under the ESA to permit a hunting season for gray wolves.

In that case, a federal district court held that "[b]efore a threatened species may be taken [via sport hunting], a determination must be made that population pressures within the animals' ecosystem cannot otherwise be relieved." The court further stated: "The government does not even attempt to argue that such an extraordinary case ex- ists." Rather, the novel argument is asserted that "the declaration of a sport season is within the Secretary's discretion" and "a sport season would enhance the value of the wolf in the eyes of the public." The district court found that neither of the government's arguments could meet the "extraordinary case" standard within section 3(3) of the ESA. The government then appealed the decision to the 8th Circuit Court of Appeals, which affirmed the district court's ruling.[26]

These two cases help establish the sorts of conditions that fall short of meeting the ESA's high bar for exempting regulated hunting from section 9 take prohibitions. However, neither case affirmatively establishes the conditions that would justify a take exemption for regulated hunting as a means of conserving a threatened species. Since suspending the regulated grizzly bear hunt in Montana in 1992, the FWS has never attempted to reinstate any regulated hunting of grizzly bears in either the NCDE or GYA.

Despite this ideological shift, states continued to work with the FWS and local stakeholders recovering grizzly bears. In 2007, FWS issued a rule that created, and delisted a distinct population segment[27] of grizzly bears in the GYA.[28] At the time, grizzly bears in the GYA met or exceeded recovery goals for more than the three consecutive years required by the recovery plan. However, a federal district court, later affirmed by the 9th Circuit Court of Appeals, found that the FWS failed to adequately address what impact the decline in white bark pine seeds (a grizzly bear food source) might have on the bear population and reinstated federal protections.[29]

Following this setback, biologists prepared a food synthesis report that concluded declining white bark pine seeds would not have a material impact on grizzly bear populations. The FWS again proposed delisting a GYA distinct population segment of grizzly bears in 2017. Again, environmental litigants challenged the delisting, and again, the 9th Circuit found in their favor and reinstated protections for grizzly bears.

Tempers boiled over in the states. Landowners vowed vigilante justice toward menacing grizzlies. The state of Wyoming threatened to stop investing money in grizzly recovery. Members of Congress from the three states introduced bills in the U.S. House and the U.S. Senate to legislatively delist grizzly bears and bar judicial review. Hunters grew impatient with their license dollars going to pay for damages caused by a species they were not permitted to hunt. And U.S. Senator John Barrasso of Wyoming introduced a bill to amend the ESA in a way that would bar litigation challenging a species delisting until the end of the statutory post-delisting monitoring period.[30]

Members of Congress opposed to delisting introduced legislation akin to the Bald and Golden Eagle Protection Act that would permanently protect grizzly bears and prohibit recreational hunting if the FWS successfully delisted them. Environmental litigants also began filing lawsuits challenging administrative removal of problem bears, filed lawsuits in state court challenging state grizzly bear regulations, and pushed to cancel grazing allotments on national forests where conflicts between grizzly bears and livestock existed. After nearly 50 years of recovery efforts that most would consider remarkable, grizzly bears are becoming more and more polarizing due to the differences of opinion surrounding delisting. In late 2021, the state of Montana submitted a petition to FWS pursuant to the ESA to delist the NCDE population of grizzly bears, and the state of Wyoming submitted a similar petition seeking the delisting of the GYA population of grizzly bears in early 2022.

The FWS is obligated to consider the contents of the petitions and determine whether they contain enough information to merit a detailed finding. It seems likely that based on the FWS's prior efforts to delist the GYA population, it will undertake this more detailed finding, which will lead to a judicially reviewable decision as to whether either population warrants delisting. Regardless of that finding, grizzly bears are destined to more litigation. If the FWS attempts to delist again, environmental litigants will certainly

Figure 3.2. The grizzly bear has been listed as a threatened species since 1975. Its recovery, especially in the iconic Greater Yellowstone Ecosystem, has been accompanied by controversies over bear management as the growing population has come into conflict with human population centers and livestock. Due to a 4(d) rule that allowed states to retain significant control over the management of grizzlies, the species' recovery is being overseen by the Interagency Grizzly Bear Committee, which is composed of representatives of the U.S. Forest Service, the National Park Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, the U.S. Geological Survey, and the state wildlife agencies of Idaho, Montana, Washington, and Wyoming. *U.S. Fish and Wildlife Service. 2022. Spe- cies Status Assessment for the grizzly bear (*Ursus arctos horribilis*) in the Lower 48 States. Version 1.2, January 22, 2022. Missoula, Montana. 369 pp.*

find something disagreeable in that decision. If the FWS declines to delist, the states will challenge that decision. Ultimately, there are no winners continuing with the status quo.

THE ROLE OF LITIGATION IN SPECIES DELISTING EFFORTS

There is a general conception that litigation involving species delisting is rampant. Largely, this is driven by two high profile species—grizzly bears, which we just discussed, and gray wolves. The FWS tried delisting grizzly bears in the Greater Yellowstone Ecosystem in 2007 and 2017, only to have the 9th Circuit affirm the reinstatement of ESA protections. Since 2003, the FWS has promulgated no fewer than 10 rules to delist various gray wolf population segments in the United States. For the population of wolves in the Western Great Lakes region of Minnesota, Michigan, and Wisconsin, the FWS attempted delisting four times.[31] For the Northern Rockies population that included Wyoming, Montana, Idaho, and portions of Oregon, Washington, and Utah, the FWS

made five attempts.[32] Only one attempt, a 2017 rule delisting wolves in Wyoming, survived judicial review. In 2020, the Trump administration delisted gray wolves throughout the entirety of the lower 48 states; that delisting rule was challenged. Recently, a federal district court judge invalidated the nationwide delisting rule and reinstated protections for wolves everywhere but the Northern Rockies.[33]

Despite these high-profile, and often cited cases, very few species proposed for delisting are judicially challenged. At the time of publication, the FWS has delisted 71 species due to recovery.[34] Only five were judicially challenged: gray wolves, Louisiana black bear; Stellar sea lions; northern Virginia flying squirrel; and bald eagles. Currently, each of these species are delisted, with the exception of wolves, where they remain protected everywhere outside of the Northern Rockies.

Three additional species, gray wolves outside of the Northern Rockies, the GYA population of grizzly bear, and Preble's meadow jumping mouse, were proposed for delisting. In each of these cases, courts reinstated ESA protections after litigation and they remain listed today. All told, only about 10 percent of species proposed for del- isting resulted in litigation, and only three percent of species proposed for delisting remain listed today due to court action. The overwhelming majority are quietly delisted and returned to state management.

Despite the relatively low numbers of delisting efforts that are challenged, high profile cases can significantly erode support for the ESA among those who actually contribute to providing and restoring habitat for those species. In turn, this makes it more difficult to protect vulnerable species. It leads to increased calls for congressional action to weaken the protections of the ESA, and encourages efforts to delist species or prevent species listings through congressional actions.[35] In addition, landowners that manage important habitat for species are less inclined to support recovery efforts, and may go to great lengths to prevent species from being found on their property, including illegally killing them.

SOCIAL TOLERANCE FOR LISTED SPECIES IN THE FACE OF LITIGATION

There is evidence that the mere threat of litigation can negatively impact a listed species, and even unlisted species. Social science research supports the idea that if a party's economic interests are threatened, they will modify habitat to the detriment of listed species. For example, when the cactus ferruginous pygmy owl was listed in 1997,[36] development in Tucson, Arizona accelerated by about a year.[37] In another study involving the red-cockaded woodpecker, economists found that the closer a forest plot was to a woodpecker colony, the more likely the trees were to be harvested.[38] Another study, involving the Preble's meadow jumping mouse, involved surveying landowners. In that survey, University of Michigan scientists concluded that the listing may have actually harmed the species. Landowners denuded or otherwise altered an acre of habitat for every acre managed for species conservation.[39]

In addition to habitat modification and destruction to avoid having listed species, or even vigilante justice against individual listed species, litigation breeds distrust toward the federal government, and in some instances state governments. Take the Delmarva fox squirrel, for example. It was one of the original species listings—only being found in four Maryland counties at the time. From 1973 until 1998, the U.S. Fish and Wildlife Service largely left Delmarva fox squirrel recovery to the states.[40] Landowners were proud when they found squirrels on their property and would even show them off to friends.[41]

In 1998, the FWS settled a lawsuit where environmental litigants alleged that FWS violated the ESA by approving a habitat conservation plan and granting incidental take permits for a housing development proposed in important squirrel habitat. After that litigation, no one would admit to having squirrels. Landowners were afraid that the FWS would use that information to control how they managed their land.[42] However, once the FWS delisted the squirrel in 2015, landowners once again boasted about having squirrels on their property.[43]

In the case of black-footed ferrets, the fear of litigation and distrust of the federal government have led landowners to oppose ferret reintroduction in some areas deemed vital to the ultimate recovery of the species.[44] However, it was not actually black-footed ferrets that concerned landowners. Instead, it was the ferret's prey base—prairie dogs—that landowners feared.

Figure 3.3. The black-footed ferret (*Mustela nigripes*) is listed as an endangered species, and therefore is not subject to section 4(d), which is limited to threatened species. Regulatory flexibilities for the ferret have instead been realized through safe harbor agreements under section 10(a)(1) and experimental populations under section 10)(j), and the species has been reintroduced in several locations. Here, the author participates in one such release near the National Black Footed Ferret Recovery Center in northern Colorado, October 12, 2017. *Courtesy of David Willms.*

In the early 2000s, I worked as a field biologist in the vicinity of the Thunder Basin National Grassland of northeast Wyoming. A landowner association retained my employer to map prairie dog colonies and conduct population estimates on their private lands. Additionally, we surveyed sensitive species that relied upon prairie dog colonies for food or shelter. The primary objective of the research was to enable landowners to more effectively manage their lands for the benefit of livestock and wildlife. However, a secondary objective was locating active prairie dog colonies so landowners could effectively contain them or efficiently remove them from private lands.

Around that time, the FWS considered a petition to list black-tailed prairie dogs under the ESA. On February 4, 2000, FWS concluded that black-tailed prairie dogs warranted listing, but declined to do so due to other higher priorities.[45] Fearing the impacts a listing could have on their agricultural businesses, landowners sought to eliminate prairie dogs from their property. They hoped to blunt the impact of a listing by either showing that prairie dogs did not live on their property, or that prairie dogs were confined to very limited areas, so that land uses on the vast majority of their ranch land would not be restricted.

Even when the FWS later determined that listing black-tailed prairie dogs was not warranted, landowners resisted ferret reintroduction on adjacent federal lands for a couple of reasons. First, they worried that ferrets might migrate to private lands, which would limit their ability to manage prairie dogs, and ultimately negatively impact their business. Second, many of the ranches were not profitable without large federal grazing leases. Landowners feared that expanding ferret populations would necessitate expanded prairie dog populations. This could limit the production of their grazing leases, or even result in lease cancellation. In short, landowners feared that the return of ferrets could put them out of business.

These examples elucidate how litigation and other punitive effects of a prospective listing can cloud the perception of the ESA and impede species recovery. Shifting the paradigm to the point that finding a listed species on private property is reveled rather than reviled will take time and creativity. It should reward, not penalize those who aim to conserve species. It should incentivize innovation and recovery. It should provide a clear path to delisting, and insulation from the pendulum swings of litigation, without compromising access to the judicial system. Finally, it should satisfy the ultimate goals of the ESA—to prevent extinction and recover species to the point that the protections of the ESA are no longer required.

Section 4(d) contains limitless untapped potential to enhance species recovery, provide regulatory flexibility, accelerate delisting, rebuild support from landowners and others in the regulated community, and reduce the need for litigation. The remainder of this chapter will outline one path for reaching this untapped potential—the incremental delegation of authority over threatened species to states up to and including management as though it were already delisted.

USING SECTION 4(D) TO ESTABLISH BENCHMARKS FOR INCREMENTAL DELEGATION OF AUTHORITY TO STATES

Recovering and delisting a species can take many paths. Often, it begins with the FWS approving a recovery plan with defined recovery metrics, and then partnering with stakeholders on plan implementation. Once recovery metrics are achieved, the FWS conducts a

species status review to ensure that the threats jeopardizing the species in the first instance are ameliorated. During this analysis the FWS evaluates the sufficiency of the state or states' statutory and regulatory framework. This is coupled with an evaluation of the state or states' post-delisting management plan to ensure that the species will remain recovered for the foreseeable future. Once the FWS delists a species, the ESA requires that the Secretary of Interior, in cooperation with the states, establish a system to monitor a delisted species for not less than five years from the date of delisting.[46]

During this statutory post-delisting monitoring period, the states have primacy over the species, and manage it in accordance with their approved management plan, under their established legal framework. Annual reports to the FWS ensure that a state's plan is working as intended, and that the species remains biologically recovered. If data provided to the FWS in those annual reports suggest that the plan is not working, the FWS can suggest that the state adapt its management plan to address apparent deficiencies.

Alternatively, the FWS can take the dramatic step of relisting the species if prudent to reverse species decline. Notably, the FWS has never relisted a species that it delisted due to recovery. This indicates that implementation of state management plans successfully maintains recovered species. In short, the post-delisting system works.

However, for charismatic species like wolves and grizzly bears, perpetual delisting litigation has prevented states from implementing any post-delisting management plans despite broad agreement that the species has recovered in the areas proposed for delisting. Though the lawsuits allege a host of creative deficiencies in agency promulgated delisting rules, the fear of states authorizing unsustainable lethal removal of recovered species drives many of the lawsuits. In the case of gray wolves and grizzly bears, environmental litigants do not trust that states will maintain healthy populations after delisting. The litigants are concerned that states will use hunting and other means to drive down numbers and jeopardize recovery efforts. Unfortunately, this distrust is frequently supported by harmful rhetoric and state legislative action—even if that rhetoric and legislative action does not actually result in excessive take.

To combat this distrust, FWS could develop 4(d) rules that incrementally delegate management authorities to states (should the states want the authority) when certain recovery benchmarks are met. FWS could also tie incremental expansion of section 9 take exemptions to these benchmarks so any authorized take is rationally related to the new management authorities.

Benchmarks should generally establish that the state is committed to and invested in recovering the species, and that their investment is successfully achieving recovery objectives. In effect, the 4(d) rule should lay out a series of incentives to encourage and then reward states for proactive and collaborative conservation. Benchmarks that could lead to increased state management might include, but are absolutely not limited to:

(1) *State appropriation of financial and/or personnel resources to aid species recovery efforts*;
(2) *State engagement in recovery plan development and implementation*;
(3) *State contributions to meeting recovery plan objectives*;
(4) *States passing laws, promulgating regulations, issuing executive orders, or adopting agency policies that commit to sustained species recovery and conservation over the long-term; and*
(5) *States collaborating with FWS, other states, and interested stakeholders to develop a post-delisting management plan for the species.*

Using this model of incremental delegation, a state could resume management at its pace, and as its resources, priorities, and politics allow. Once all recovery benchmarks laid out in the 4(d) rule are achieved, a state could ultimately regain full management of the listed species prior to delisting. This could include the ability to make all management decisions pursuant to their approved post-delisting management plan—as though FWS already delisted the species.

A model like this is incentive based, not punitive. It offers maximum flexibility to tailor a 4(d) rule that prioritizes species recovery, but recognizes the needs of states, landowners, and others in the regulated community. It permits states the opportunity to prove, prior to delisting, the effectiveness of their management plan, and adapt if warranted. It can also serve as an insurance policy against delisting litigation. If a state has assumed full management authority of a species pursuant to a 4(d) rule, it would likely retain management through the judicial process related to a delisting rule.

However, certain structural changes are necessary before an incrementally delegated management scheme can reach its full potential. In order for a state to manage a listed species pursuant to its post-delisting management plan, *all* management tools must be available to states. This means that FWS needs the authority to grant exemptions from the section 9 take prohibitions for any management prescriptions a state would undertake upon delisting—including multiple forms of direct take.

For species like grizzly bears and gray wolves, direct take after delisting could include self-defense, defense of property, removal of socially incompatible animals, or even regulated hunting. However, as noted earlier in this chapter, the handful of courts that have weighed in on the prospect of regulated hunting of a threatened species have established a much higher standard for direct regulated take from hunting versus other methods of direct regulated take such as agency removal of problem bears. Addressing this inconsistent application of section 4(d) could be done in a couple of ways—either through a new interpretative regulation, or by amending the ESA to more specifically authorize the types of direct take that could be permissible exemptions to the section 9 take prohibitions.

In the regulatory context, the FWS could promulgate rules further defining the terms "conserve," "conserving," and "conservation" in section 3(3) of the ESA. Currently, the ESA defines the three words as meaning "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."[47] Those methods can include regulated taking ". . . in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved[.]"[48]

This clause requires further clarity through an expanded definition. The FWS could promulgate rules articulating instances that constitute population pressures warranting intervention. This might mean that the population has exceeded its biological carrying capacity for a defined period of time. Alternatively, it might include instances where segments of a population are increasingly coming into contact with humans or human activity in a negative way even if the population as a whole has not yet reached biological carrying capacity.

Similarly, FWS will need to determine when those population pressures "cannot be otherwise relieved." Perhaps this means that regulated take, and particularly hunting, must be an absolute last resort after the agency has exhausted all other mechanisms to relieve population pressures. In contrast, FWS could consider regulated hunting as a more cost-effective tool to address population pressures than paying agency personnel to trap and

lethally remove an animal. Using more cost effective, but similarly effective tools could enable the FWS to redeploy its limited resources on recovering other imperiled species.

However, rulemaking is subject to judicial review. Depending on how the agency interprets the above clauses, environmental litigants, states, or members of the regulated community may initiate litigation. In recent years, the FWS has attempted to define other ambiguous language in the ESA, including "significant portion of the range" and "habitat." Each of these rulemakings led to protracted litigation that have failed to clarify the issues. This means that while politically difficult, amending the ESA could offer the best path to ensuring a meaningful and lasting impact.

Enabling maximum flexibility in the development of 4(d) rules requires amending section 3(3) slightly. Here is one example of what an amendment might look like:

"Such methods and procedures include, but are not limited to, all activities associ- ated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, ~~and~~ transplantation, and, ~~in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.~~ <u>at the discretion of the Secretaries, regulated taking.</u>"

This simple language affords discretion to the Secretary of the Interior to determine whether regulated taking, and what type of regulated taking, would advance the statutory objective of recovering a species to the point that the protections of the ESA are no longer required. The exercise of such discretion would still be subject to judicial review, so it must be rooted in something defensible. However, it would create maximum flexibility for creatively recovering species.

While statutory or regulatory action could broaden authority for FWS to develop 4(d) rules with the most flexibility, further guidance is prudent to capture the concept of an incremental delegation of authority to states. Some have suggested that FWS develop a 4(d) handbook that establishes best practices and the conditions under which rules should or should not be used.[49] According to University of Wyoming professor Temple Stoellinger, a guidance handbook would facilitate continuity and consistency among rules. This is correct, and could also be used to develop a consistent approach to incrementally delegate authority to states.

A defined process for states to regain primacy over a listed species, with specific triggers that authorize more state control, and more liberal exemptions to section 9 take prohibitions will do several things. Most importantly, it may facilitate faster species recovery, and ensure that once the species is delisted it will not warrant relisting in the foreseeable future. Additionally, it creates certainty and predictability for the regulated community, may reduce litigation upon delisting, restore trust in the ESA, and even free up limited resources of the FWS to be redeployed to invest in other federally listed species.

To provide an example of how this incremental delegation of authority could work in practice, let's revisit the history of grizzly bear recovery.

HYPOTHETICAL GYA GRIZZLY BEAR 4(D) RULE WITH INCREMENTAL MANAGEMENT DELEGATION TO STATES

Imagine that when the FWS listed grizzly bears in 1975, it drafted a comprehensive 4(d) rule with a series of benchmarks facilitating Wyoming, Idaho, and Montana's gradual

reclamation of full management of the species in the GYA. This is not far-fetched. In fact, the original 4(d) rule contained at least one benchmark. It noted that when certain circumstances presented themselves in the future, state-regulated hunting of grizzly bears may be permitted in the GYA. That benchmark was removed when the FWS declined to continue with a regulated grizzly bear hunt in the early 1990s; however, its original inclusion showed the perceived flexibility of section 4(d) at the time.

In a hypothetical 4(d) rule, benchmarks that could facilitate returning more author- ity to the states might look much like those articulated earlier in this chapter. They include: (1) the development of a recovery plan with detailed recovery objectives, (2) development of a conservation strategy, (3) a state regulatory framework suitable to maintaining a stable population of grizzly bears upon delisting, and (4) a FWS approved post-delisting management plan.

Over the near 50-year recovery effort for the GYA grizzly bear population, states have shown deep commitment to grizzly bear recovery and have worked with FWS and other partners to implement each of these benchmarks. After the grizzly bear was listed in 1975, state and federal managers formed two working groups—the Interagency Grizzly Bear Study Team and the Interagency Grizzly Bear Committee, which worked collaboratively to coordinate in all areas of grizzly bear recovery. This initial work led to the development of the *Grizzly Bear Recovery Plan* in 1993, which was later revised in 2007.[50] This plan served as the blueprint for management decisions that would recover the species, as well as the metrics necessary to lead to delisting.

The plan required several things: (1) maintain a minimum population size of 500 animals; (2) maintain a minimum of 48 females with cubs of the year in the GYA (cannot drop below 48 for any two consecutive years); (3) 16 of 18 bear management units must be occupied by females with young, with no two adjacent bear management units unoccupied; and (4) do not exceed annual mortality limits for males or females (males no more than three consecutive years, females no more than two).

As the GYA population moved closer to achieving the objectives in the recovery plan and therefore becoming biologically recovered, the Interagency Grizzly Bear Study Team and the Interagency Grizzly Bear Committee developed the *Grizzly Bear Conser- vation Strategy*, which would guide management once FWS delists the population.

Subsequently, the states of Montana, Idaho, and Wyoming developed a robust legal framework aimed at sharing the responsibility for maintaining a recovered population under state management. This framework included:

(1) Individual state grizzly bear management plans that tier to the *Grizzly Bear Conservation Strategy*. These management plans articulated how each state would manage grizzly bears once they are delisted;
(2) A Tri-State Memorandum of Agreement to apportion discretionary mortality; and
(3) A regulatory and/or statutory framework articulating how the states would man- age a regulated hunting season for grizzly bears, in the event the states choose to permit hunting.

The FWS could have easily incorporated the benchmarks outlined above into a 4(d) rule that progressively enhanced the role of states in grizzly bear management. Ultimately, this could have led to the states retaking full management responsibilities prior

to delisting. If FWS took this approach it is conceivable that states could have regained full management authority of GYA grizzly bears around 2003.

That said, nothing prevents the FWS from initiating a process to modify the existing 4(d) rule today. The benchmarks outlined above are currently achieved, so theoretically, once the FWS finalizes the 4(d) rule interested states could immediately retake management authority of grizzly bears pursuant to their post-delisting management plan. The 4(d) rule could also contain provisions for limiting state management if benchmarks are no longer met.

This approach will almost certainly generate controversy, particularly if the states intend to authorize regulated hunting as part of their discretionary mortality allocation. However, authorizing state management, including limited regulated hunting of a species like grizzly bears while they await formal delisting could make sense for several reasons. First, it gives states an opportunity to prove the merits and effectiveness of their management strategy. If, for some reason, the program is not working effectively, it provides an opportunity for FWS and the states to work together to adapt the plan in ways that ultimately ensure sustained recovery. Second, it could increase the social tolerance for grizzly bears, not only where they are currently found, but for expanding their populations into new habitat.

Third, it could be used as a tool to reduce grizzly bear conflicts with livestock. Currently, the state of Wyoming pays more than a million dollars per year to landowners to compensate for livestock losses caused by grizzly bear predation. Montana and Idaho are also expending significant resources to mitigate grizzly conflict. Regulated hunting that reduces conflicts could make additional money available for the state wildlife agencies to invest in the management and recovery of other species—including many species of concern listed in their state wildlife action plans. Fourth, application and license sale revenue for limited grizzly bear hunting could generate consequential revenue for grizzly bear management, and again, allow state wildlife agencies to use their limited financial resources on other species.

Another benefit of adopting a 4(d) rule that delegates authority to manage species over time is the potential to either reduce post-delisting litigation, or at least provide an insurance policy against the wide pendulum swings that litigation creates. Those concerned about delisting because of the uncertainty surrounding state management will benefit from this 4(d) model. The species remains federally listed under this approach. Further, any flaws in the state management scheme can be quickly addressed without necessitating a relisting process. If the flaws cannot be overcome, the FWS can reas- sume management using processes laid out in the 4(d) rule. Using this collaborative and adaptive process, a final delisting rule should be durable—at least with respect to state management of a delisted species.

To the extent this approach does not assuage concerns and someone wishes to judicially challenge a delisting rule, the 4(d) rule provides consistency and predictability. Commonly, litigation challenging species listing can take two years or more to reach final resolution. During the time between initiating the lawsuit and final disposition, there are a couple of possible procedural outcomes.

In some cases, a court may allow the delisting rule to remain in full effect pending final disposition of the case. When this happens, states retain primacy over the species and can manage them pursuant to their post-delisting management plan. If a court later

finds the delisting rule invalid, then federal protections are reinstated, and management returns to the federal government. In other cases, a court may enjoin part, or all of the delisting rule from going into effect. In these cases, the FWS continues to treat the species as listed. Both of these processes create confusion and pendulum swings that cause anger and distrust within the regulated public.

A 4(d) rule that delegates management authority to states would enable consistency throughout the delisting process. When the FWS publishes a delisting rule, the state would simply continue to manage the species in accordance with its management plan. If a court reinstates protections for the species through either an injunction or dispositive decision, the 4(d) would also reinstate—meaning states would continue managing in ac- cordance with the terms of the management plan incorporated by reference in the 4(d) rule. In short, in the eyes of the public nothing changes.

This could blunt the impacts of litigation and offer the predictability and certainty that so many in the regulated community crave.[51] In turn, this could increase social tolerance for the species at issue, as well as other listed species. Despite this, using 4(d) rules in this expanded way could open new avenues of ESA litigation. Specifically, delegating management authority to the states, and broadening exceptions to the take prohibitions of section 9 could lead to more litigation challenging individual 4(d) rules. To date, courts have afforded great deference to FWS in its issuance of 4(d) rules, and there is no reason to believe this will change.

Finally, this chapter used grizzly bears in the GYA as a case study for expanding the use of 4(d) rules. However, and importantly, this model can work with a host of species that are currently listed, or that may become listed in the future. Over the next 50 years, finding new and creative ways to facilitate species recovery is paramount to the continued success of the ESA. From freshwater mussels to prairie grouse species and from bats to birds, using 4(d) to harness and reward the collective resolve of states in species recovery should be an integral part of the future of the ESA. Doing so will guarantee that the ESA will remain a powerhouse of conservation laws and guarantee that our suite of species will remain for the benefit of future generations.

NOTES

1. See Congressional Research Service, *A Legislative History of the Endangered Species Act of 1973; as amended in 1976, 1977, 1978, 1979, and 1980*, 146 (1982) (concluding that "the states are far better equipped to handle the problems of day-to-day management and enforcement of laws and regulations for the protection of endangered species than is the Federal government"); Congressional Research Service, *A Legislative History of the Endangered Species Act of 1973*, 199–200 (advising that "the greater bulk of the enforcement capability concerning endangered species lies in the hands of the State fish and game agencies, not the Federal Government").

2. John Nagle, "The Original Role of the States in the Endangered Species Act," *Idaho Law Review* 53 (2017): 394.

3. John Nagle, "The Original Role of the States in the Endangered Species Act"*; Endangered Species Act of 1973: Hearings Before the Subcomm. on Environment of the S. Comm. on Commerce,* 93rd Cong. 75 (1973) (statement of Sen. Ted Stevens) (stating that "I don't want to get into the position where we are getting in to such a cloudy relationship between the State fish and game people and [the federal officials] that we will be in a constant battle"); *Endangered Species: Hearing Before the Subcomm. on Fisheries and Wildlife Conservation and the Environment of the H. Com. on Merchant Marine and Fisheries,* 93rd Cong. 211 (1973) (statement of Nathaniel Reed, Assistant Secretary of Fish

and Wildlife and Parks, Department of the Interior) (expressing the hope that "each of the States will pass a program which will be acceptable to us, and our job will be looking over their shoulder. It will be a very friendly look over the shoulder . . .").

4. Congressional Research Service, *A Legislative History of the Endangered Species Act of 1973*, 200.

5. The National Marine Fisheries Service also implements the Endangered Species Act for marine species and anadromous fish. However, this chapter is intended to focus on the U.S. Fish and Wildlife Service and its authorities. Concepts explored in this chapter can also be applied to the National Marine Fisheries Service.

6. 16 U.S.C. § 1532(19).

7. 16 U.S.C. § 1539(a)(1)(B).

8. Section 9 of the ESA prohibits the "take" of any species of fish or wildlife classified as endangered. It also prohibits the removal or possession of any endangered species of plants on lands under federal jurisdiction. In both cases, it also prohibits violating any rule related to threatened species promulgated by the Secretary pursuant to the ESA's authority.

9. The blanket 4(d) protections for wildlife were implemented pursuant to Reclassification of the American Alligator and Other Amendments, 40 Fed. Reg. 44425 (September 26, 1975), as amended at Protection for Threatened Species of Wildlife, 43 Fed. Reg. 18181 (April 28, 1978); State Cooperation Agreements Relating to Endangered and Threatened Species of Fish and Wildlife or Plants, 44 Fed. Reg. 31580 (May 31, 1979); Special Rule to Control the Trade of Threatened Beluga Sturgeon (Huso huso), 70 Fed. Reg. 10503 (March 4, 2005). The blanket 4(d) protections for plants were implemented pursuant to General Provisions, General Permit Procedures and Endangered and Threatened Wildlife and Plants, 42 Fed. Reg. 32380 (June 24, 1977), as amended at Endangered and Threatened Wildlife and Plants; Prohibitions and Permits, 50 Fed. Reg. 39691 (September 30, 1985). It is worth noting that the National Marine Fisheries Service has ESA jurisdiction over marine plants and animals, and never issued a blanket 4(d) rule. That rule only applied to species under FWS jurisdiction.

10. Only once, in 1993, did anyone challenge the legality of the Blanket 4(d) rule. In that case, the D.C. Circuit Court upheld the rule. *Sweet Home v. Babbitt*, 1 F.3d 1 (D.C. Cir. 1993). At the time of this book's publication, the 2019 rule is currently being litigated.

11. Authorized take of Utah prairie dogs totaled 30,753 animals across four Utah counties from 1985 to 2011.

12. At the beginning of the twentieth century, many species we take for granted today were suffering severe declines due to market hunting and other forms of overexploitation. If an Endangered Species Act existed at the time there is no doubt that species like bison, elk, mule deer, black bear, wild turkey, pronghorn, and big horn sheep would have warranted listing. However, regulated hunting contributed immensely to their recovery. The money raised from hunter license fees and through programs like the Federal Aid in Wildlife Restoration Act provided agencies with the financial resources and the social license necessary to recover these species. Today, as a result of those efforts, these species are among the most prosperous in the United States.

13. Designating the Greater Yellowstone Ecosystem Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife, 70 Fed. Reg. 69854 (November 17, 2005) (population at 2005 proposed delisting was about 500 bears).

14. Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species, 40 Fed. Reg. 31734 (July 28, 1975)

15. Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species.

16. Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species.

17. Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species.

18. Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species.

19. Modification of the Special Regulations for the Grizzly Bear, 50 Fed. Reg. 35087 (August 29, 1985).

20. Modification of the Special Regulations for the Grizzly Bear at 35088.

21. Revision of Special Regulations for the Grizzly Bear, 51 Fed. Reg. 33753 (September 23, 1986).

22. *Fund for Animals v. Turner*, Civ. A. No. 91-2201 (D. D.C. 1991), citing 16 U.S.C. § 1532(3); *Sierra Club v. Clark*, 755 F.2d 608, 613–18 (8th Cir. 1985) ("rejecting, after lengthy analysis of the statutory scheme and the legislative history, the FWS's argument that it had discretion under the statute to authorize a regulated taking of a threatened species whenever it found such a taking 'necessary and advisable'").

23. *Fund for Animals v. Turner*.

24. *Fund for Animals v. Turner*.

25. Grizzly Bear; Removal of the Special Rule Allowing a Limited Special Hunt, 57 Fed. Reg. 37478 (August 19, 1992). "The [FWS] removes 50 [C.F.R.] 17.40(b)(i)(E), the special rule that allows [the taking] of grizzly bears through a special hunt in northwestern Montana in order to respond to a memorandum opinion of the U.S. District Court." Grizzly Bear; Removal of the Special Rule Allowing a Limited Special Hunt.

26. *Sierra Club v. Clark*, 755 F.2d 608, 613–18 (8th Cir. 1985). First, the court turned to the meaning of the phrase "population pressures" in section 3(3) of the ESA. The court noted that the conference report submitted with the ESA explained "population pressures" as:

> In extreme circumstances, as where a given species *exceeds the carrying capacity of its particular ecosystem* and where this pressure can be relieved in no other feasible way, this "conservation" might include authority for carefully controlled taking of surplus members of the species. To state that this possibility exists, however, in no way is intended to suggest that this extreme situation is likely to occur—it is just to say that the authority exists in the unlikely event that it ever becomes needed.

Second, given the perceived tie to population pressures being a result of populations meeting or exceeding carrying capacity, the court also questioned whether reliable data existed that could convincingly establish population pressures. In fact, it noted that the FWS "candidly stated that '[t]here appear to be certain gaps in the scientific information relating to grizzly bears. Specifically lacking are better data on habitat condition or carrying capacity, total numbers, annual reproduction and mortality, and most importantly, annual turnover and population trends. This lack of information greatly hinders the present management program for grizzly bears. '"

27. 16 U.S.C. 1532(16). A distinct population segment is incorporated as part of the definition of "species" in section 3(16) of the ESA. The FWS developed a policy explaining the characteristics constituting a DPS. Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, 61 Fed. Reg. 4722 (February 7, 1996). The DPS Policy considers two elements to determine if a species qualifies as a Distinct Population Segment: (1) Discreteness of the population segment in relation to the remainder of the species/taxon and, if discrete; (2) the significance of the population segment to the species/taxon. Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act.

28. Final Rule Designating the Greater Yellowstone Area Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; 90-Day Finding on a Petition To List as Endangered the Yellowstone Distinct Population Segment of Grizzly Bears, 72 Fed. Reg. 14866 (March 29, 2007).

29. Greater Yellowstone Coalition v. Servheen et al., 672 F.Supp. 2d 1105 (D. Mont. 2009), Affirmed by Greater Yellowstone Coalition v. Servheen, 665 F.3d 1015, 1020 (9th Cir. 2011).

30. Endangered Species Act Amendments of 2020, S. 4589, 116th Congress (2020).

31. The first three times, the FWS rescinded the proposed rule "delisting" the gray wolf, on the orders of federal courts. The fourth time, FWS rescinded the proposed rule on its own initiative when facing another likely legal challenge. Humane Soc'y of the United States v. Jewell, 76 F.Supp.3d 69, 77 (D. D.C. 2014).

32. Only one of the five attempts to delist survived judicial review—for delisting the Wyoming gray wolf population. The remainder or the Northern Rocky Mountain population was delisted via Congress after efforts stalled in the courts.

33. In addition, environmental groups have petitioned to relist the Northern Rocky Mountain DPS, or create a new western DPS of gray wolves and list it. That petition is pending at the time of this book.

34. U.S. Fish and Wildlife Service, Delisted Species, ecos.fws.gov/ecp/report/species-delisted (accessed January 17, 2022).

35. Congress reinstated a 2011 delisting rule for gray wolves in Montana and Idaho. Riders to congressional appropriations bills prevented the listing of lesser prairie chickens and greater sage-grouse. Also, numerous bills have been introduced to delist grizzly bears, though to date none of them have passed.

36. The FWS later delisted the owl in 2006 due to it not being a listable entity. Final Rule To Remove the Arizona Distinct Population Segment of the Cactus Ferruginous Pygmy-owl (*Glaucidium brasilianum cactorum*) From the Federal List of Endangered and Threatened Wildlife; Withdrawal of the Proposed Rule To Designate Critical Habitat; Removal of Federally Designated Critical Habitat, 71 Fed. Reg. 19452 (April 14, 2006).

37. John A. List, Michael Margolis, and Daniel E. Osgood, "Is the Endangered Species Act Endangering Species?," NBER Working Papers 12777, National Bureau of Economic Research, Inc. (2002), 27, https://www.nber.org/system/files/working_papers/w12777/w12777.pdf (accessed July 20, 2022).

38. Dean Lueck and Jeffrey A. Michael, "Preemptive Habitat Destruction under the Endangered Species Act," *The Journal of Law & Economics* 46, no. 1 (2003): 27–60, https://doi.org/10.1086/344670. The authors found that when southern pines were near existing colonies of red-cockaded woodpeck- ers, the probability of landowners harvesting the tree plot increased, and the age of trees at harvest decreased. The birds prefer nesting in older trees, so landowners sought to avoid ESA restrictions by removing trees before they became suitable red-cockaded woodpecker habitat.

39. Amara Brook, Michaela Zint, and Raymond De Young, "Landowners' Responses to an Endangered Species Act Listing and Implications for Encouraging Conservation," *Conservation Biology* 17, no. 6 (2003): 1638–49. More than half of the respondents said they would not allow biologists to survey their property for Preble's meadow jumping mice, which limited data collection necessary to recover the species. In announcing the study, the Society of Conservation Biology, publisher of *Conservation Biology* said, "New Research confirms fears that Endangered Species Act listings do not necessarily help—and may even harm—rare species on private lands." Society for Conservation Biology, "Endangered Species Listings May Backfire: Some Private Landowners Destroy Habitat," *ScienceDaily*, www.sciencedaily.com/releases/2003/11/031126070018.htm (accessed July 20, 2022).

40. Ted Williams, "Recovery: America's Giant Squirrel Back from the Brink," *Cool Green Science* (blog), *The Nature Conservancy*, July 24, 2018, http://blog.nature.org/science/2018/07/24/recovery-americas-giant-squirrel-back-from-the-brink/.

41. Ted Williams, "Recovery: America's Giant Squirrel Back from the Brink."

42. Ted Williams, "Recovery: America's Giant Squirrel Back from the Brink." Maryland DNR's Forest Service representative on the recovery team, Dan Rider, noted, "I used to keep records, but after the settlement I didn't share that information with anyone because I didn't want landowners getting mad at me. I wouldn't even tell the landowners because I was afraid some would see the squirrels as a liability and manage against them."

43. Ted Williams, "Recovery: America's Giant Squirrel Back from the Brink," quoting landowners as saying, "Yeah, I've got 'em, had 'em all along." "Now I'm [Dan Rider] seeing landowners actively managing their woods for the squirrel."

44. Christine Peterson, "Forest Service Unveils Proposed Plan for Prairie Dogs in Wyoming Grassland Amid Concerns from Conservationists," *Casper Star-Tribune*, April 27, 2019, available at https://trib.com/outdoors/forest-service-unveils-proposed-plan-for-prairie-dogs-in-wyoming/article_67b5c2df-71a3-53eb-bb2f-e1eb804b99e5.html (stating, "Black-footed ferrets haven't been reintroduced into the area yet, Pellatz said, and likely won't in the near future not because of prairie dog numbers but because of social pressures").

45. 65 CFR 5476 (2000). In 2004, FWS revisited the decision and based on new information, de- termined that the threats to the species were not as serious as previously believed. Consequently, FWS removed black-tailed prairie dogs from the candidate species list and noted that it did not warrant listing (69 CFR 51217).

46. 16 USC 1533(g)(1).

47. 16 USC 1532(3).

48. 16 USC 1532(3).

49. Ya-Wei-Li, "Section 4(d) Rules: The Peril and the Promise," Defenders of Wildlife White Paper Series, 14 (2017), https://defenders/org/sites/default/files/publications/section-4d-rules-the-peril-and -the-promise-white-paper_0.pdf; Temple Stoellinger, Michael Brennan, Sara Broadnax, Ya-Wei Li, Murray Feldman, and Bob Budd, *Improving Cooperative State and Federal Species Conservation Ef- forts*, Wyo.L.Rev. 20, No.1, Art 3 (2017).

50. Recovery Plan and supplements to the recovery plan available at https://www.fws.gov/species /grizzly-bear-ursus-arctos-horribilis.

51. It is worth noting that delegating management authority to the states, and broadening exceptions to the take prohibitions of section 9 could lead to more litigation challenging 4(d) rules. However, to date, courts have afforded great deference to FWS in its issuance of 4(d) rules. There is no evidence to suggest that would change.