



REPORT IN BRIEF

Emerging Trends in Implementation of Section 4(d) of the Endangered Species Act: **A New Era of Opportunities and Challenges**

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This brief summarizes an October 2026 report created by Defenders of Wildlife evaluating the landscape of protective 4(d) rules for threatened species issued from May 2016 to January 2026. Below we summarize the report's findings and recommendations as to how future 4(d) rules can better align species conservation goals with practical considerations for the regulated community.

Over half of all threatened animal species protected under the Endangered Species Act now depend on a rule written just for them.

Of the 361 threatened animal species listed under the Endangered Species Act (ESA), 51% are covered by a species-specific 4(d) rule, a tool that has become increasingly used to manage, protect, and conserve threatened species. The repeated removal and reinstatement of the blanket 4(d) rules in recent years have done little or nothing to slow this shift: for over a decade now, the U.S. Fish & Wildlife Service (FWS) has favored issuing rules that tailor section 9 take prohibitions and exemptions to each species, and the agency has not applied the blanket 4(d) rule to a newly-listed threatened species since 2018. The National Marine Fisheries Service (NMFS, collectively the Services) has never had a blanket 4(d) rule and has extended protections to threatened

species solely through species-specific rules.

To meet the goals of the ESA, 4(d) rules should set a clear, predictable baseline of protection that supports recovery while easing the regulatory burden on activities that pose little to no threat to the species. Our analysis found that most species-specific rules issued over the past decade meet this standard, delivering either an overall benefit to the species or neutral to minimal adverse impacts, often through avoidance or minimization measures in the rule. Among the remaining rules, however, we identified exemptions that could undermine recovery, ranging from inadequate mitigation requirements to overly broad exemptions for activities that threaten the species.

Species-specific 4(d) rules involve a variety of tailored protections.

Our report created several categories of activities that 4(d) rules exempt: conservation activities (e.g., habitat restoration, captive propagation and reintroduction), non-conservation activities (e.g., silviculture, transportation and infrastructure projects), state/federal/Tribal actions (e.g., permitted angling, Department of Defense installation management), and international trade, commerce, or captivity involving foreign species.

Our analysis found that species-specific 4(d) rules predominantly included conservation actions (63%) and non-conservation actions (67%), with 49% of rules



containing both. Trade and commerce exemptions were present in 18% of rules, and captivity exemptions in 8%. The remaining two categories applied primarily to foreign-listed species (Table 1).

Within these, exemptions for habitat restoration and enhancement activities accounted for 84% of conservation-related exemptions, while land management—covering forest management, landscaping, trail maintenance, and pesticide application—made up 63% of non-conservation exemptions. Together, these results show that species-specific rules exempt multiple activities (Table 2).

We also found increasing use of mitigation measures to reduce potentially adverse effects, such as restrictions on certain types of disturbance, avoidance of occupied habitat, limits on ground disturbance during sensitive periods, and industry-targeted minimization measures. Specificity varies: some rules set clear timelines and conditions for how mitigation-based exemptions work, while others rely on vaguer mitigation standards. In addition, FWS has at times added monitoring and reporting requirements, defined take thresholds, and clarified exempted activities to better distinguish authorized from unauthorized take. Collectively, these findings indicate that 4(d) rules vary widely in specificity but point to an expanded use of approaches calibrated to species-specific needs.

How well species-specific 4(d) rules work depends on how they are written.

FWS interprets the purpose of 4(d) rules as “provid[ing] for the conservation of a threatened species,” incentivizing beneficial actions while relieving the regulatory burden on forms of take considered inconsequential to conservation. In principle, these rules should prevent threatened species from becoming endangered, provide flexibility for the regulated community only where such flexibility does not conflict with conservation goals, and ultimately promote recovery of listed species.

Section 9 take exemptions can target a range of activities: some are directly compatible with recovery, particularly conservation-focused actions such as habitat restoration and species monitoring; others offer incidental benefits; and others are deemed to have minimal impact on listed species. For example, routine bridge and culvert maintenance, when paired with mitigation mea-

4(d) exemption categories	Number	Percentage
Conservation Actions	31	63%
Non-Conservation Actions	33	67%
State, Federal & Tribal	12	24%
Trade & Commerce	9	18%
Captivity	4	8%

Table 1. Species-specific 4(d) rule exemptions categorized by activities

Category 1: Conservation actions	Number of exemptions
Restoration & Enhancement	26 (84%)
Bank Stabilization	14 (45%)
Threat Removal	14 (45%)
Propagation & Reintroduction	8 (26%)
Monitoring & Research	12 (39%)
Educational Outreach	4 (13%)
Category 2: Non-conservation actions	Number of exemptions
Land Management	23 (63%)
Silviculture	12 (32%)
Transportation & Infrastructure	9 (24%)
Agriculture & Ranching	11 (30%)
Fire Management	15 (41%)
Recreation	6 (16%)
Energy	2 (5%)
Broad Development	3 (8%)

Table 2. Exemptions by activity across species-specific 4(d) rules for U.S. animal species

tures, can benefit aquatic species by removing migration barriers. Grazing effects vary by species and management regime, but for the Stephens' kangaroo rat, sparsely vegetated, disturbance-dependent grassland habitat allows the species to coexist with livestock. Recreational angling, when regulated to limit incidental impacts, can generate conservation funding and support education alongside species protection.

While 4(d) rules aim to reduce regulatory oversight of low-risk, conservation-compatible activities, distinguishing insignificant impacts from consequential ones can be difficult—particularly under the political and industry pressure that surrounds listing decisions. These pressures can produce rules with inadequate protections against significant threats.

Our analysis identified instances in which section 9 take exemptions were granted for activities that could undermine species recovery. In some cases, the very threats that led to a species' listing were subsequently exempted under a species-specific rule. We also found regional and geographic exclusions that authorize take across large areas of land, allowing industry activities known to threaten listed species to proceed without section 10 permitting and mitigations. These examples illustrate how overly broad 4(d) exemptions—when applied to known species threats—can erode core ESA safeguards and undermine the Act's integrated permitting framework.

Species-specific 4(d) rules can still be improved to help ensure that threatened species continue on the path to recovery.

We offer several recommendations to strengthen the development of 4(d) rules for threatened species, including the following:

- **Expand Use of Mitigation Requirements:** Mitigation can reduce impacts to minimally adverse or negligible levels. We encourage the Services to continue using mitigation, develop best practices for incorporating mitigation requirements into 4(d) rules, and expand its

use, drawing on historically effective, proven mitigation approaches with greater clarity and detail.

- **Strengthen Adaptive Management and Monitoring Provisions.** Species-specific 4(d) rules should incorporate adaptive management directly by conditioning prohibitions and exemptions on measurable, species-specific recovery benchmarks, reducing restrictions as species approach recovery goals and tightening them if status declines. This flexibility is only as reliable as the data behind it, so 4(d) rules should also use robust



Longleaf pine habitat, Tall Timbers, Florida | Justin Grubb, Running Wild Media

monitoring and public reporting of population trends and take. Consistent, transparent monitoring ensures the Services can detect population-level impacts early and adjust management before impacts become irreversible.

- **Appropriately Tailor Geographic, Temporal, and Industry Prohibitions and Exemptions:** Species-specific 4(d) rules can tailor section 9 exemptions by location, season, or industry, focusing protections where needed. However, broad exclusions from take prohibitions should be applied cautiously because they may unintentionally exempt significant threats, including those that led to the species' listing, from section 10 permitting requirements, even in lower-quality habitats that are important for long-term recovery.
- **Improve 4(d) Rule Transparency for the Public:** Create a centralized, “one-stop” platform for clear public access to species-specific 4(d) information. This should build on existing Services tools and draw on successful models like EPA's Bulletins Live! and FHWA's Environmental Review Toolkit.