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RE: Draft Proposed Anticoagulant Rodenticide Regulations

Deputy Director Teerlink:

These comments are submitted on behalf of the Center for Biological Diversity and Raptors Are The Solution on the Draft Proposed Anticoagulant Rodenticide ("AR") Regulations presented during the September 24, 2025 California Department of Pesticide Regulation ("DPR") Anticoagulant Rodenticide Mitigation Informal Public Workshop.

We appreciate the information and context provided by DPR during the presentation. We are gravely disappointed, however, that instead of strengthening restrictions on these dangerous, bioaccumulative poisons that have infiltrated California's ecosystems, DPR is choosing to weaken the restrictions, which will result in more animals becoming sick or dying from exposure. Instead of weakening the restrictions and attempting to circumvent the intent of the Poison Free Wildlife Act of 2025, and preceding AR-focused laws, DPR needs to narrow the existing loopholes in the law, including that of agricultural use.

The legislature set a higher standard for DPR in adopting regulations related to ARs than any other pesticide under DPR's regulatory control. Importantly, DPR must ensure that any regulations reduce exposure in wildlife and require the implementation of Integrated Pest Management ("IPM") or Sustainable Pest Management ("SPM") before any anticoagulant rodenticide use. Unfortunately, the current draft regulations do not achieve

these critical objectives included in the Poison Free Wildlife Act of 2025, and preceding laws restricting anticoagulant rodenticides.

As DPR is well aware, there are a range of sustainable pest management strategies that do not require the use of ARs for rodent control that can be adopted in a cost-effective manner to successfully address rodent infestations.

Anticoagulant Rodenticide Regulations Must Ensure a Trend of Reduced Wildlife Exposure

The use of anticoagulant rodenticides results in pervasive exposure in non-target wildlife. Despite previous restrictions, the exposure of non-target wildlife to ARs remains high. The most recent publicly available statewide report from the California Department of Fish and Wildlife found that 71.9% of wildlife tested had been exposed to ARs, with exposure to Second Generation Anticoagulant Rodenticides ("SGARs") remaining high. (CDFW 2024). As CDFW noted, "exposures detected in 2023 were most likely related to use after AB1788 was implemented (January 1, 2021)", which means that SGAR exposure rates remain high despite the current moratorium (CDFW 2024). Previous attempts to restrict AR exposure by classifying SGARs as restricted materials have also proven to be ineffective in reducing exposure. (DPR 2018). This is likely due to the ability of ARs to bioaccumulate in non-target wildlife *regardless of the method of use*, indicating that increased restrictions are necessary to avoid continued harm to wildlife.

The Poison Free Wildlife Act and preceding anticoagulant rodenticide laws create a higher burden on DPR in developing restrictions to avoid adverse effects than other pesticides. In order for the current moratorium to be lifted, DPR must make a finding of reduced exposure in wildlife. Specifically, DPR must have "adopted any additional restrictions necessary to ensure a trend of statistically significant reductions in the percentage of wildlife exposed…" (Cal. Food & Agric. Code § 12978.7). DPR's proposed regulations would allow for large expansions of the current exemptions to enabling more use of ARs in restaurants, grocery stores, parks, and wildlife habitat areas, and continue the exemption for agriculture.

Expanding loopholes to allow use in more areas will increase exposure, contrary to the purpose of the law to limit exposure. Estimates project there are between over 86,000-98,000 restaurants in California (National Restaurant Association 2025, Snappy 2025). There are approximately 30,000 grocery stores in the state (Xmap 2024). The California Grocers Association alone represents more than 6,000 brick-and-mortar stores, and approximately 150 grocery supply companies (California Grocers Association 2025). DPR's "Crosswalk of Anticoagulant Legislation and Proposed Regulations" also highlights the expansion to allow First Generation Anticoagulant Rodenticides ("FGARs")

in Wildlife Habitat Areas, and non-production agricultural sites such as cemeteries, golf courses, parks, highways, and railroads "away from manmade structures with the 35 consecutive day duration limit if allowed on the product label" totaling up to 105 days per year (DPR Crosswalk 2025). The proposed ability to use ARs in wildlife habitat areas is shocking and runs contrary to the intent of laws restricting ARs that have consecutively tried to prohibit use in Wildlife Habitat Areas. Expanding use to hundreds of thousands of additional locations, and linear miles of highways and railroads, while continuing the current exempted uses, runs counter to the substantial evidence that there is continued high level exposure even with the restrictive moratorium.

DPR noted that it is important for the regulations to reduce repeat AR exposure for non-target wildlife, reduce the overall amount of ARs in the environment, and reduce how long they are available in the environment (DPR Presentation 2025, slide 4 of 19). DPR proposes some time limitations on certain ARs, such as allowing 105 days of use per year for not longer than 35 consecutive day periods (DPR Draft Regulations 2025). These time limitations allow use up to three times for over a quarter of the calendar year, creating a pathway for repeated exposure in wildlife. DPR provides no evidence or background explaining how a 35 day use period up to three times per year totaling 105 days would reduce exposure, or why that period of time is needed for the efficacy of the ARs.

While these calendar restrictions are proposed for some uses, for others, such as the use of FGARs in agriculture or in water supply and hydroelectric energy, there are no calendar use restrictions, allowing for use throughout the entire year. DPR's proposal to expand uses to over 100,000 new sites at restaurants and grocery stores would increase repeat AR exposure, increase the overall amount of ARs in the environment, and increase how long ARs are in the environment, contrary to the stated intention and the requirement that DPR ensure reduced exposure rates.

DPR's proposed regulations allow for increased use by unlicensed individuals. Despite the legislative requirements to make ARs restricted use materials, DPR has proposed to exempt individuals from the permit requirements for sales, purchase, and use (3 Cal. Code Regs. § 6414). This would allow for greater potential for individuals to misuse materials because they can be purchased and used without the more stringent licensing and oversight requirements typically required for restricted use materials. Misuse of rodenticides by non-licensed professionals has been documented as a means to increase exposure in wildlife (Bartos 2012). Creating a permitting loophole that makes it easier for non-licensed professionals to access and potentially misuse products increasing the potential for exposure in wildlife as well as in children, pets, and other animals.

DPR's proposed regulations would expand usage without evidence of how such expansion would ensure there is reduced exposure when the regulations are enacted, and as the

regulations are implemented throughout the years. DPR must use the "best available science" to demonstrate that there would be reduced exposure (Cal. Food & Agric. Code § 12978.7). DPR's proposed package of regulations have provided no scientific evidence regarding ongoing AR exposure rates or how increasing the allowable use sites would "ensure a trend of statistically significant reductions in the percentage of wildlife exposed" to ARs (Cal. Food & Agric. Code § 12978.7). DPR cannot simply enact regulations without a finding that the regulations result in a reduction of wildlife exposure. DPR's regulations must create a continuing mechanism to "ensure" an ongoing trend of statistically significant reductions in the percentage of wildlife exposed in the future. DPR's monitoring and ongoing obligations to ensure reductions continues into the future.

DPR Must Disclose Findings and Data Regarding AR Effects

Good government requires transparency and public exposure, and the laws restricting ARs detail additional requirements for DPR's AR regulations. In any lifting of the AR moratorium, DPR's findings must be rigorous, including an "analysis regarding exposure pathways, sublethal effects, species sensitivity, and the cumulative and synergistic effects of exposure to anticoagulant rodenticides, including lethal and sublethal effects on wildlife, including rare, sensitive, special status, threatened, or endangered species" (Cal. Food & Agric. Code § 12978.7, emphasis added). Wildlife protected under the federal and state Endangered Species Acts, such as mountain lions, Pacific fishers, San Joaquin kit foxes, and northern spotted owls, have suffered from high rates of AR exposure. DPR must analyze the lethal and sublethal effects of their proposed regulations on these imperiled species that are sensitive to AR exposure.

Any regulations issued by DPR must be accompanied by "concurrence with the Department of Fish and Wildlife [CDFW]." (Cal. Food & Agric. Code § 12978.7) DPR has not described whether CDFW has provided any concurrence on the proposed regulations before they were released. As you know, CDFW has not publicly released the most recent Pesticide Exposures & Mortalities in Non-target Wildlife for the 2024 calendar year. Information on 2024 exposures provides a necessary data point regarding any proposed regulations. AB1322, which restricted diphacinone use, went into effect in 2024, and CDFW data regarding diphacinone exposure after the moratorium is some of the best available science regarding trends for AR exposure, which DPR must analyze. The most recent exposure data from public agencies should be available to the public itself to analyze as part of DPR's regulatory decisionmaking.

DPR Must Strengthen Restrictions Because Exposure Remains High

Evidence continues to demonstrate that AR exposure remains high even with the current legislative moratorium restricting use. The California Dept. of Fish & Wildlife's 2023

Annual Report, “Pesticide Exposures & Mortalities in Non-target Wildlife,” reiterated that “despite the implementation of AB1788 that restricted SGAR-use, non-target wildlife was still at risk of exposure and toxicosis” (CDFW 2024). AR exposure was detected in 71.9% of non-target wildlife tested (CDFW 2024). High rates of exposure continue in many species after the legislative moratorium went into effect, including mountain lions, bobcats, coyotes, foxes, owls, eagles, and hawks (CDFW 2023, CDFW 2024). Exposure rates remain high for California mountain lions at 92.8% (CDFW 2024). The Southern California and Central Coast populations of the mountain lion are protected under the California Endangered Species Act. AR exposure continues to threaten the endangered San Joaquin kit foxes (CDFW 2024).

This incredibly high level of exposure in predatory mammals indicates widespread food web contamination and is far too high to allow for relaxing any of the standards of the moratorium now in place. In fact, the moratorium does not go far enough; anticoagulants should be banned for all users in California except to address public emergencies.

Widespread exposure has also been demonstrated in other studies. Current data from investigations into the exposure to anticoagulants in barred owls in Northern California demonstrate continued exposure to anticoagulant rodenticides throughout that landscape. Specifically, SGARs are still being detected in barred owls, varying in age (1-10+years) throughout the Northern California landscape. Specifically, SGAR makes up the majority of exposures, 36% of over 700 barred owls collected and tested from 2018-2024 (Gabriel 2025).

As many as 12.5 percent of turkey vultures in the Los Angeles area tested positive for anticoagulants in a recent study published in the Journal of Raptor Research (Saggese 2024). Because these birds are obligate scavengers, this exposure demonstrates widespread contamination of the food web. According to study author Miguel D. Saggese, an avian and wildlife researcher at Western University of Health Sciences in Pomona, California, the results “provide further evidence that there is still a problem out there for non-target species” (High Country News 2025).

Another study of turkey vultures and endangered California condors found SGARs in all condor flocks tested: liver AR residues were detected in 42% of the condors (27 of 65) and 93% of the turkey vultures (66 of 71). There was evidence of prolonged blood clotting time in 16% of the free-flying condors. According to the study’s authors, “Exposure to ARs may complicate recovery efforts of condor populations within their current range and in the soon to be established northern California experimental population” (Herring 2022).

Anticoagulant rodenticides have emerged as an important threat in forests of the western United States, including for forest dwelling owls. Sixty-two percent of owl specimens (72 barred and 7 barred and spotted owl hybrids) were exposed to anticoagulant rodenticides,

in particular to SGARs. Females and owls sampled close to the wildland–urban interface were more likely to be exposed to anticoagulant rodenticides. The high rate of anticoagulant rodenticide exposure in barred owls and hybrids provides mounting evidence of an additional risk to state and federally-listed threatened Northern spotted owls (Hofstadter 2021).

Not all anticoagulant poison victims end up being necropsied by CDFW or recorded in studies, so it is likely the data undercounts these animals. For instance, in early October a weak and lethargic turkey vulture was admitted to WildCare, a wildlife rehabilitator in Marin County. (Wildcare 2025). The turkey vulture vomited up blue stomach contents, a possible sign of anticoagulant poisoning. Diphacinone has also been found in wild pigs, demonstrating exposure to wildlife and hunting families (CDFW 2025). These incidents point to the fact that there is more exposure than what the state is recording.

It is important to recognize that the effects of ARs manifest in lethal, sublethal, and cumulative impacts. As CDFW states in its recent report on rodenticide exposure:

> It is important to note that exposure in the absence of toxicosis should not be ignored. The uncertainties about the magnitude and drivers of chronic exposure and/or sub-lethal levels of rodenticide exposure demonstrate the need for continued monitoring. Exposure to ARs may predispose wildlife to excessive hemorrhage following an otherwise non-lethal traumatic injury or increase sensitivity to additional exposure(s).
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> Additionally, it is important to note that the concentration of ARs quantified in tissue samples does not necessarily equate to risk of toxicosis, as even trace levels (quantities detected below the reporting limit) can be associated with signs of coagulopathy and a toxicosis diagnosis (CDFW 2024).

Many studies emphasize the sublethal and cumulative impacts (CDPR 2018). Only a few of the more recent studies are mentioned here; however please see white paper attached. (RATS Fact Sheet). A 2023 study by Vyas, et al. found that sublethal chlorophacinone exposure can directly or indirectly evoke adverse effects in wild raptors, including the ability to thermoregulate (Vyas 2023). A 2020 study by Rattner, et al. found that exposure to one anticoagulant can cause increased risk when an animal is exposed to additional anticoagulants (Rattner 2020). Anticoagulants can reduce reproductive success in barn owls and reduce body weight and growth of nestlings (Naim 2010, Naim 2011).

Sublethal bromadiolone exposure reduces the body weight and condition of common kestrel nestlings, which can impact fitness and survivability (Martinez-Padilla 2017). Anticoagulant rodenticide exposure to bobcats was measured in two areas in southern California over a 16-year period, revealing high levels of exposure, and association with

disease (Serieys 2015). ARs pose a substantial threat to bobcats, and likely other mammalian and avian predators, living at the urban-wildland interface.

The effects and trends in the aquatic food web from anticoagulants must be analyzed prior to adopting any proposed regulations. A 2024 study by Regenery, et al. found that second-generation anticoagulant rodenticides accumulated in wild fish and were transferred to piscivorous predators via the aquatic food chain (Regnery 2024). This study builds on previous studies of the aquatic food web in Germany and Pennsylvania finding frequently detected residues of anticoagulant rodenticides in primarily piscivorous mammalian predators, despite strictly regulated sale, supply, and use of rodenticides (Facka 2024). Another new study found that Brodifacoum caused coagulopathy, anemia, and mortality in rainbow trout at environmentally relevant hepatic concentrations, indicating "the risks associated with the use of AR for wild fish" and reinforcing the need to prevent emissions at their source (i.e., urban rat baiting campaigns near sewers and waterways) (Schmieg, et al. 2025).

Rodenticide Use Poses Human Health Risks

ARs also pose an unreasonable adverse effect on human health. The most recent data from the National Poison Data System affirms that an unreasonable level of annual poisonings continue: over 2,800 poisonings occurred in 2023 with over 75% of those rodenticide poisonings occurring in children (Gummin 2023). Additionally, evidence continues to mount regarding increased mortality because of exposure to rodenticides. A recent study found "reduced survival among children with [leukemia] previously exposed to rodenticides" (Desai 2025). Rodenticides can lead to other counterproductive outcomes for public health. Studies show that rodenticides can increase disease prevalence in rodents by weakening their immune systems and disrupting their social structures (Murray 2021).

IPM/SPM Must be Implemented Before Any AR Use

DPR must ensure that sustainable pest management is implemented before the use of any anticoagulants. DPR's restrictions on anticoagulant rodenticides "shall include a requirement to *implement* sustainable pest management and integrated pest management practices, such as biological control, habitat manipulation, and modification of cultural practices, *before*" the use of anticoagulant rodenticides (Cal. Food & Agric. Code § 12978.7 (emphasis added)). The development of plans and recordkeeping requirements are important, but, currently, there are no clear requirements in the proposed regulations that those plans be *implemented* before using anticoagulants. Indeed, "implement" isn't even used in the regulations even though that is the language required by the legislature.

The draft regulations include a vague provision that individuals "using anticoagulant rodenticides must follow relevant components of the General Rodent Management Plan when making decisions to apply anticoagulant rodenticides" (3 Cal. Code Regs. § 6414(b)(4)). However, that gives discretion as to what portions of the plan are relevant components to apply, and does not include the implementation of strategies the legislature specifically enumerated: "biological control, habitat manipulation, and modification of cultural practices" (Cal. Food & Agric. Code § 12978.7). For example, a user could decide that the only relevant component is "maintaining records," "toxicity scales," "product rotation," or "pest management threshold," which would eliminate the action forcing steps to implement "biological control, habitat manipulation, and modification of cultural practices."

We encourage DPR, at a minimum, to include a requirement that applicators certify that IPM/SPM methods of "biological control, habitat manipulation, and modification of cultural practices" have been implemented before any ARs are used.

DPR's regulations must provide for a mechanism of oversight and enforcement to ensure that IPM/SPM is implemented before any ARs are used. DPR must ensure that there is ongoing implementation of IPM/SPM before any repeated use of ARs, and not simply before the first use.

Alternatives to Rodenticides

There are a wide range of cost-effective alternatives available today. For example, California has over 100 EPA registered non-anticoagulant rodenticide alternatives to anticoagulant rodenticides. This range of registered rodenticide alternatives doesn't even take into account the range of methods to reduce rodent infestation through mechanical, physical, and biological methods. Sustainable and cost-effective rodent control begins with exclusion and sanitation, which are integral parts of any rodent pest management system. Rodent fertility control has increasingly become a viable solution to reducing rodent populations without harming non-target species (Siers 2020, RATS 2023). Without holistic rodent management, rodenticides are an inadequate, short term, perpetually expensive, and counterproductive solution. Resources for sustainable alternatives are readily available via online resources such as SafeRodentControl.org or RaptorsAreTheSolution.org/Got-Rats.

Rodent fertility control has increasingly become a viable solution to reducing rodent populations without harming non-target species. The benefits of a contraceptive based approach may extend to lowered intraspecific competition and lowered disease burden associated with high-density populations. The idea behind rodent contraception is simple, yet grounded in ecology: when population density is lower, disease transmission drops and rodent conflict (which can also spread disease) declines. Paired with proven strategies like

improved sanitation (such as removing food waste and adequate trash collection) and rodent-proofing our homes and storage facilities, contraceptives offer a science-based, humane, and effective rodent control method.

ContraPest is a contraceptive registered in California that uses a combination of 4-vinylcyclohexene diepoxide and triptolide. Laboratory evaluations of ContraPest demonstrated highly effective suppression of reproduction in wild-caught black rats (Siers 2020). In Seattle, a mixed-use business district pilot study managed by Raptors Are The Solution in 2022 illustrated cost savings and effective rat population management using ContraPest as a replacement for anticoagulants, reducing the rat population by 91 percent in just three months (RATS 2023). The maker of ContraPest, Senestech, has also demonstrated the viability of another contraceptive product, Evolve, in a nine-month trial at UC Irvine's residential community, where declining product consumption over time indicated a reduced rodent population (Senestech 2025). At Olsen's Grain and Mill in Chino Valley, AZ, rodent numbers were reduced by 98 percent over 17 months with a 95 percent reduction in product losses showing successful application of rodent fertility control (Good Bites) in an agricultural production facility (Mayer 2025).

Alternatives to Rodenticides Are Working

Since the more stringent restrictions on anticoagulants went into effect in California, data suggests alternative rodent control methods have proven effective without anticoagulant rodenticides. For example, data obtained from seven major county public health/vector control/environmental health departments through Public Records Act requests indicates that rodent complaint numbers since the first anticoagulant bill was implemented do not show significant increases in annual complaints. (Figure 1)

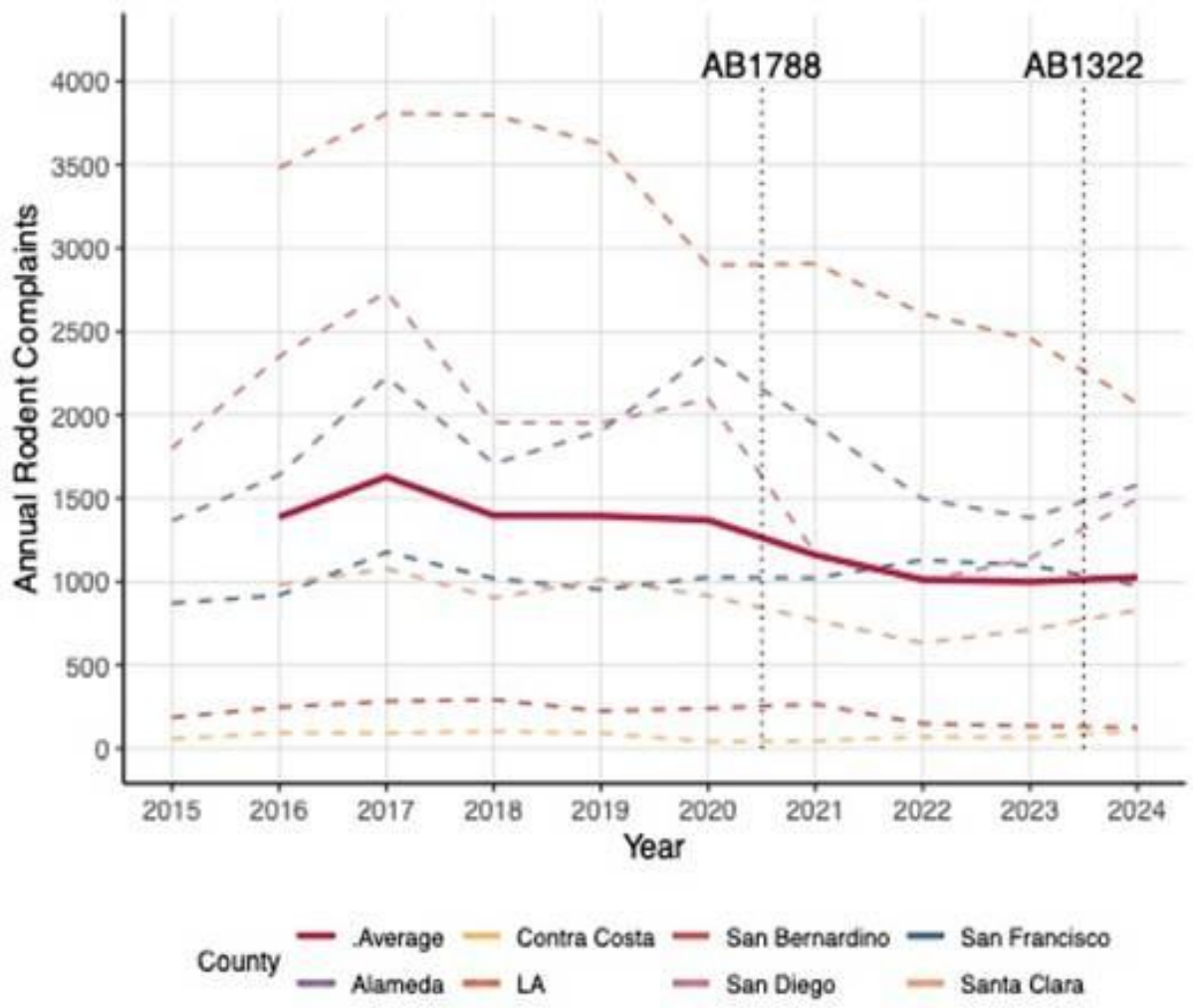

Figure 1- Rodent complaints to public health/vector control/environmental health departments for seven major California counties after rodenticide restrictions.

Conclusion

We remind DPR that it is obligated to follow the intent and requirements of the suite of laws passed restricting rodenticide use in California. The Poison Free Wildlife Act requires DPR to follow the best available science in adopting regulations and it cannot ignore the wealth of evidence demonstrating an ongoing trend of high levels of exposure in wildlife. To date, DPR has provided no scientific evidence that its proposed regulations would reduce exposure in non-target wildlife. Unfortunately, the draft proposed mitigations appear to circumvent the letter and intent of the law and in a premature step, weaken the existing moratorium rather than strengthen protections for wildlife as required.

We urge DPR to ban the use of ARs except for public health and environmental emergencies.

Sincerely,

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