BirdLife Australia submission to the Australian Pesticides and Veterinary Medicines Authority (APVMA)

Anticoagulant rodenticides (SGARs)

Response to the Special Gazette (16 December 2025) and Gazette No. 5 (10 March 2026)

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Submission

About BirdLife Australia

BirdLife Australia is the country's largest independent bird conservation organisation, supported by more than 400,000 contributors across 32 regional branches and four specialist interest groups. With over 125 years of organisational history, BirdLife Australia delivers

evidence-based conservation programs grounded in ecological science, long-term monitoring, and data-driven policy development.

Guided by BirdLife Australia's Bird Conservation Strategy 2023-2032, the organisation's key mission is to put birds and nature on a path to recovery by informing and leading action to halt biodiversity loss and restore ecosystems, across our four pillars: sites, systems, species and society.

Key work encompasses applied research, threatened-species management, large-scale citizen-science monitoring, and collaboration with government agencies, universities, land managers and community groups. Core programs target major drivers of biodiversity decline, including habitat loss, invasive species, altered fire regimes, and emerging environmental contaminants and disease.

BirdLife Australia leads or co-leads conservation programs and recovery actions for numerous nationally threatened species. This includes long-term population monitoring, ecological research, habitat management and participation in recovery efforts for species such as the Regent Honeyeater (*Anthochaera phrygia*), Australasian Bittern (Botaurus *poiciloptilus*), Red Goshawk (*Erythrotriorchis radiatus*) and Far Eastern Curlew (*Numenius madagascariensis*).

The organisation maintains one of the country's most extensive biodiversity datasets, supported by a national Birdata platform, that holds more than 30 million bird records, contributed through over 200,000 surveys annually, and is widely used by governments, researchers and industry to inform policy, environmental impact assessments, and species-recovery actions. This is supported through public engagement platforms that support broad national reach, enabling rapid dissemination of scientific findings and conservation guidance.

BirdLife Australia's work is underpinned by scientific expertise, robust monitoring programs, and partnerships across research and land-management sectors. This positions the organisation to provide technically informed, evidence-based input on regulatory decisions affecting Australia's wildlife, including the impacts of SGARs on native species and ecosystems.

Executive Summary

BirdLife Australia has reviewed the consultation materials issued by the Australian Pesticides and Veterinary Medicines Authority, including the Special Gazette (16 December 2025), the accompanying Technical Report, and Gazette No. 5 (10 March 2026). We provide our concerns and recommendations in light of the APVMA's decision to suspend all second-generation anticoagulant rodenticide (SGAR) product registrations and label approvals for 12 months (from 24 March 2026), with supply and use permitted only in accordance with Attachment 2 of the March 10 Gazette deemed permit instructions.

BirdLife Australia welcomes the APVMA's certification that it is in the public interest to declare all SGARs as Restricted Chemical Products (RCPs). This represents a significant shift beyond earlier proposals focused only on commercial-labelled products. If accepted by the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF), RCP status would remove SGARs from general retail sale and restrict access within a nationally consistent regulatory framework.

However, during the proposed suspension period SGARs remain available through existing retail and online stock. Manufacture and import are paused, but existing products may still be sold provided each sale includes a printed copy of Attachment 2 and use follows the national instructions. These measures continue to rely primarily on user-dependent compliance and do not materially interrupt the dominant mechanism of harm to wildlife: secondary poisoning through trophic transfer.

Scientific evidence demonstrates widespread and persistent secondary exposure of Australian wildlife to SGARs, including threatened raptors and marsupial carnivores, under normal conditions of use. Because secondary poisoning arises from the intrinsic chemical properties and ecological pathways associated with SGARs, mitigation measures that act only at the point of bait placement such as labels, packet size restrictions, bait station requirements, or proximity limits cannot meaningfully interrupt exposure once poisoned prey enters the food chain. A structural regulatory response is therefore required to reduce environmental loading and ensure SGARs are not used as a routine pest-control tool.

BirdLife Australia therefore urges the APVMA to accelerate the transition to a Restricted Chemical Product framework, working with DAFF and state and territory control-of-use authorities to implement a tightly controlled access system in which SGARs are used only as a genuine last resort. This transition should occur as early as possible to minimise continued wildlife exposure during the suspension period.

Accordingly, BirdLife Australia asks the APVMA to:

1. Formally acknowledge that secondary poisoning is an inherent and predictable consequence of normal SGAR use and assess all proposed controls against whether they disrupt this pathway.
2. Progress the removal of SGARs from general retail sale as quickly as possible by:
    a. maintaining its certification that all SGARs should be declared Restricted Chemical Products and urging DAFF to make the declaration without delay; and
    b. working with state and territory regulators so that, once declared, SGARs are no longer available to the general public and access is restricted under a nationally consistent licensing or permit framework.
3. Ensure any ongoing access to SGARs occurs only within a tightly controlled professional framework, in which deployment is strictly limited and SGARs are used only as a last resort within integrated pest management (IPM). This framework should prohibit routine, prophylactic or permanent use and prohibit outdoor baiting except under formally approved conservation-critical programs.
4. Work with DAFF and state and territory governments to ensure appropriate arrangements are in place for the safe management and disposal of remaining SGAR stock during the transition to restricted access frameworks.
5. Establish two linked systems independent of the APVMA:
    a. a National SGAR Deployment Monitoring System to track quantities, locations, justification and duration of use; and

b. a National Wildlife Exposure Monitoring Program, focused on sentinel species, to quantify exposure trends and evaluate regulatory effectiveness.

6. Recognise that the absence of national monitoring and regulatory frameworks limits the ability to determine whether SGARs can be used safely or effectively and avoid relying on user-compliance mechanisms that cannot be verified or enforced at scale.

Without structural reductions in availability and deployment, specifically removal from retail sale and tightly controlled professional access, secondary poisoning will continue at high levels. Failure to implement enforceable controls would be inconsistent with the APVMA's mandate to manage risks to non-target animals and the environment.

About this Submission

BirdLife Australia welcomes the APVMA's acknowledgement, within this reconsideration, that current use patterns of second-generation anticoagulant rodenticides (SGARs) present unacceptable risk to nontarget animals, including native wildlife and pets. This is reflected in the APVMA's decision to suspend all SGAR product registrations and label approvals for 12 months (from 24 March 2026), with supply and use permitted only in accordance with Attachment 2 deemed permit instructions published in Gazette No. 5 (10 March 2026).

However, BirdLife Australia submits that the measures applied during this suspension year, and the earlier proposals, will not materially reduce environmental risk or harm to wildlife. The dominant exposure pathway is secondary poisoning: predators and scavengers are exposed after rodents (and other non-target animals such as possums) have already ingested bait, regardless of bait placement in a station. Measures that act at the point of bait access (e.g., small pack sizes, station use, proximity rules, label changes) do not interrupt trophic transfer once bait is consumed.

The current approach relies predominantly on user dependent controls, now made nationally enforceable via Attachment 2 during the suspension, but still subject to real-world limitations in compliance, enforceability and ecological effectiveness. Further, while Attachment 2 clarifies use conditions for both domestic and commercial products, these controls do not address post ingestion mobility of poisoned prey nor the resulting secondary poisoning of wildlife.

Accordingly, this submission addresses three interrelated areas requiring regulatory action:

1. **Retail controls**
   Why measures such as bait station requirements, proximity-to-building rules, pack size changes and label amendments are unlikely to meaningfully reduce wildlife exposure to SGARs, particularly via secondary poisoning pathways, even under the suspension-year Attachment 2 settings.
2. **Professional access and use**
   Whether and how any continued professional access to SGARs should be regulated, including the need for a strict and enforceable framework that defines narrow, justified circumstances for use. The submission examines the risks associated with routine, preventative or ongoing deployment of SGARs, and whether outdoor use can be compatible with wildlife protection outside formally approved conservation-critical programs. It also considers whether any framework established under a Restricted

Chemical Product determination must go beyond the suspension-year Attachment 2 settings where those settings do not demonstrably reduce secondary exposure in practice.

3. **Independent national monitoring and evaluation**
   The need for independent, national systems to assess whether regulatory changes reduce SGAR deployment and wildlife exposure:
   a. A National SGAR Deployment Monitoring System to track quantities, locations, duration and justification for any professional use; and
   b. A National Wildlife Exposure Monitoring Program incorporating at least two sentinel species:
      i. a predator whose diet is predominantly rodents, and
      ii. a predator/scavenger whose diet is not predominantly rodents, to detect broader ecosystem exposure.

For several years, BirdLife Australia has consistently called for removal of SGARs from public sale and restriction to licensed, trained professionals under strict regulatory controls. Our position is intended to substantially reduce overall SGAR deployment, eliminating routine, preventative and day today commercial/private baiting. Restriction to professional use must function as a narrowing mechanism, not a continuation of existing practice under a different label. The APVMA's public interest certification to declare all SGARs as RCPs is a critical step in that direction; our submission sets out how the professional must be designed to deliver genuine reductions in environmental loading and secondary poisoning.

RCP status will remove SGARs from retail shelves, but international evidence shows that only a tightly restricted, low deployment, professional use framework, not a consumer ban alone, reduces wildlife exposure.

Australia's Biodiversity Crisis

Australia is experiencing a significant and ongoing biodiversity crisis and bears a disproportionate share of global biodiversity loss. Australia has recorded more mammal extinctions (40 species) than any other country and has already lost nine bird species and 22 bird subspecies. There are 2,315 native species across all taxa threatened with extinction (EPBC Act, 1999), including ~19% of Australia's bird species, which equates to approximately one in five.

Biodiversity losses reflect ecosystems under sustained and compounding pressures, including habitat loss, climate change, invasive species and chemical exposure. In this context, incremental and chronic sources of mortality are relevant to extinction risk, particularly for long-lived species with low reproductive rates, such as many raptors.

The APVMA has acknowledged that current SGAR use presents an unacceptable risk to wildlife. Regulatory decisions that permit ongoing, predictable harm should therefore be assessed in the context of cumulative pressures and species vulnerability, rather than in isolation. The continued availability and widespread use of SGARs represents an avoidable source of mortality that exacerbates existing pressures on native wildlife.

The International Regulatory Context

A growing number of comparable Organisation for Economic Co-operation and Development (OECD) jurisdictions have restricted or removed non-professional access to second-generation anticoagulant rodenticides (SGARs) in recognition of their high secondary-poisoning risk and the limitations of label-based mitigation measures. Central to these shifts is a large evidence base showing persistent SGAR residues in predators and scavengers despite stewardship schemes, bait-station mandates and label changes (e.g. Gabriel *et al.*, 2012; Hughes *et al.*, 2013; Shore *et al.*, 2015; Broughton *et al.,* 2022; Elliot *et al.,* 2022; Keating *et al.,* 2026)

International regulatory approaches to SGARs now fall into four broad models (Table 1). Details of these approaches across various jurisdictions can be found in Appendix 1.

Model Type	**Jurisdictions**	**Core Feature**
Highly restrictive / exposure-reduction models	Netherlands, Germany, Sweden, Norway, California, British Columbia	Restrict both who can use SGARs and how/where they can be used; strong controls designed to reduce overall deployment and environmental loading.
Consumer-ban models	United States (federal), Canada (federal)	Remove household/retail access but retain high levels of professional deployment with relatively light constraints.
Stewardship-constrained models	EU (excluding those listed above), United Kingdom, France	Allow retail and professional access with layered mitigation (competence requirements, stewardship, monitoring).
Permissive model	New Zealand (and currently Australia)	Broad retail and professional availability; limited structural controls

Table 1: Overview of regulatory models across jurisdictions, illustrating the spectrum from highly restrictive to relatively permissive approaches to SGAR access and use

The APVMA's certification that all SGARs should be declared Restricted Chemical Products (RCPs) marks a substantial shift away from Australia's historically permissive model. Once implemented, RCP status will remove SGARs from general retail sale and limit purchase and use to licensed, trained users under state/territory control-of-use systems. However, an RCP framework in itself does not determine whether Australia will adopt a consumer-ban model or move further toward a highly restrictive, exposure-reduction model.

In the United Kingdom, mitigation for nearly two decades relied heavily on statutory label restrictions and best-practice guidance. However, long-term monitoring during this period documented persistent and widespread secondary exposure to second-generation anticoagulant rodenticides among non-target predators (e.g. Hughes *et al.*, 2013; Sainsbury *et al.*, 2018). These findings led regulators, during the European biocidal product review process, to require additional risk mitigation measures as a condition of continued product authorisation, resulting in the introduction of the industry-led stewardship regime in 2015. Despite this, monitoring continues to document widespread SGAR residues in predatory

wildlife, indicating that even this stewardship step has not resolved the underlying exposure pathway (Osaki *et al.,* 2025) and regulations have tightened further in response. The Netherlands introduced structural restrictions on SGAR use in 2017 specifically because stewardship-style approaches were considered insufficient.

Evidence also suggests that removing retail access alone is not a solution in and of itself, especially if professional deployment remains on going and high. In Massachusetts, research conducted after the U.S. federal consumer ban found that 96% of raptors tested still contained SGAR residues, largely attributed to ongoing professional use in residential and commercial settings (Murray, 2017). This indicates, that to be effective, restrictions must address the total volume and context of placement SGARs in the environment, not just the point of sale.

The APVMA must also be wary of 'substitution effects' seen in other jurisdictions. Data from Western Canada (British Columbia) (Elliot *et al.*, 2022) showed that when certain SGARs were restricted in 2013, mean concentrations of those specific chemicals in Barred Owls (*Strix varia*) did decrease but they were immediately replaced by an increase in another available SGAR, bromadiolone. This 'chemical treadmill' effect demonstrates that advisory/label changes do not reduce the overall risk to wildlife; they merely shift the burden between different toxic compounds. It was the failure of these 2013 measures to lower the total exposure rate that ultimately forced British Columbia to move to a full structural ban (a highly restrictive model) in 2023.

Australian must shift to a highly restrictive/exposure reduction model rather than a stewardship or commercial ban model of regulation. Leading jurisdictions like the Netherlands have effectively ended access to SGARs by the public by banning retail sales and requiring professionals to prove they have tried every non-chemical method (via an IPM framework) before any poison can used (Ctgb, 2023).

The lack of an immediate, cliff-edge type drop in residue detection following the implementation of such highly restrictive models should not be misinterpreted as a lack of efficacy. Rather, it is a testament to the extreme biological persistence and bioaccumulative nature of SGARs. Because these chemicals have such a long hepatic half-life (up to 350 days for some SGAR chemicals), the environment carries a toxic debt that can take years to clear after the source is removed. However, the international data is conclusive on one point: while it is too early to see the full benefits of the most restrictions, the decades of data from the stewardship and consumer ban models prove they are incapable of achieving a downward trend in wildlife exposure.

If the APVMA relies on label changes alone, or a RCP framework that permits ongoing widespread use, it is essentially committing Australia to a baseline of contamination that comparable nations have already spent twenty years proving is irreversible through advisory means. The delay in seeing results from more restrictive models is not a reason to avoid them; it is the most compelling reason to implement them immediately.

The Science on SGARs

Impact on wildlife

Scientific evidence demonstrates widespread exposure of wildlife internationally to second-generation anticoagulant rodenticides (SGARs) across numerous taxa and landscapes. In

Australia, approximately 25 publishes studies in the scientific literature have reported AR residues in wildlife or studied ARs in Australian systems, with particularly high prevalence recorded in predatory and scavenging species (Appendix 2).

These studies, together with additional monitoring records, veterinary reports, postmortem findings, and non-peer-reviewed investigations, form a substantial evidence base that has previously been provided to the APVMA through BirdLife Australia and other scientific experts.

Across both published literature and broader monitoring datasets, more than 90 species of native birds, mammals, reptiles and amphibians have been documented as exposed to SGARs in Australia since 1985. For example, a two-decade study in Tasmania detected anticoagulant rodenticides in 74% of tested Wedge-tailed Eagle (*Aquila audax fleayi*)(Pay *et al.*, 2021). BirdLife Australia research previously provided to the APVMA identified anticoagulant rodenticide exposure in 92% of Powerful Owl (*Ninox strenua*) individuals tested in Greater Sydney (BirdLife Australia, 2022). The most frequently detected compounds were the SGAR brodifacoum (89%) and bromadiolone (58%), and 69% of specimens contained residues of more than one anticoagulant rodenticide.

Importantly, exposure is not limited to direct predation of target rodent species. SGAR residues move through food webs via multiple trophic pathways. Predators may be exposed by consuming rodents that have ingested bait, by consuming non-target animals that access bait (e.g. small marsupials and possums), or through tertiary exposure when prey species have themselves consumed contaminated organisms. Documented residues in apex and mid-level predators demonstrate bioaccumulation beyond the immediate target species and confirm that exposure pathways extend through broader ecological networks.

Secondary poisoning is not a result of violation of label conditions; it is a predictable consequence of legal SGAR deployment. SGARs are designed to persist in rodent tissues, cause delayed mortality, and allow poisoned rodents to remain mobile for days following ingestion. The intrinsic chemical properties of SGARs create unavoidable exposure pathways for predators and scavengers.

Even sublethal exposure can have population-level consequences for long-lived species by reducing survival and reproductive success (Herring *et al.* 2023). Sublethal anticoagulant rodenticide exposure has been shown to impair physiological function and behaviour in raptors, increasing the risk of mortality through indirect causes such as collisions or reduced hunting ability (Low *et al.,* 2024). The predictable and unavoidable nature of secondary poisoning underscores the limitations of regulatory approaches that rely primarily on user compliance, labelling, and retail controls.

Emerging Australian work indicates SGAR exposure is occurring at frequencies and severities consistent with population-scale harm. A national study of dasyurid carnivores including the Tasmanian devil (*Sarcophilus harrisii*) and spotted-tailed quoll (*Dasyurus maculatus*) detected SGAR residues in 50% of individuals, with 21% containing multiple compounds and approximately 17% showing residue burdens consistent with likely anticoagulant rodenticide-related mortality (Lohr *et al.* 2025). Similarly high exposure has been documented in threatened raptors: Tasmanian Masked Owls (*Tyto novaehollandiae castanops*) showed 94% SGAR detection, with more than 50% of individuals having liver concentrations consistent with toxic exposure (Clarke *et al.,* 2025).

Importantly, population modelling linked to these exposure data indicates that relatively small increases in mortality can have severe consequences for long-lived species. For example, modest increases in juvenile or adult mortality (approximately 15–30% in Tasmanian devils and 10–20% in spotted-tailed quolls) drive high extinction probabilities within management timeframes (Lohr *et al.,* 2025). More broadly, modelling shows that increases in stochasticity in adult or juvenile mortality and reproductive output, as expected under SGAR exposure, reduce population growth, with outcomes particularly sensitive to juvenile survival (Cisterne *et al.,* 2023). Together, these findings indicate that the exposure levels currently documented in Australian wildlife are consistent with mechanisms capable of driving population decline.

Genetic resistance in rodents

Widespread, continued use, particularly of SGAR products, may also lead to genetic resistance in rodent populations. This would risk their effectiveness in emergency situations. This is one of the reasons why, for example, the Netherlands have removed public access to all ARs and restricted professional use to an IPM framework (Ctgb, 2023).

Internationally, resistance linked to mutations in the VKORC1 gene is well documented in both black rats (*Rattus rattus*) and Norway rats (*Rattus norvegicus*) as well as house mice (*Mus musculus*) across Europe and North America and has been associated with reduced sensitivity to FGARs and SGARs (e.g. Pelz *et al.,* 2005; Buckle, 2013; Goulois *et al.,* 2016). The development of resistance has historically driven escalation toward more potent second-generation compounds, increasing persistence and bioaccumulation in non-target wildlife.

Australian research also now indicates the presence of a VKORC1 gene mutation in black rat populations, suggesting that resistance mechanisms are present domestically (Gorbould *et al.*, 2025). The emergence of resistance creates a perverse regulatory dynamic: as efficacy declines, pressure increases to intensify baiting regimes or rely on more persistent SGAR formulations, thereby increasing environmental loading and secondary poisoning risk. Continued widespread deployment of SGARs therefore risks entrenching both resistance evolution and wildlife exposure, undermining long-term control efficacy and environmental safety. Conversely, Duncan *et al.* (2020) found house mice populations in two locations in Western Australia did not show genetic resistance to any ARs. This suggests that, at least in this region, weaker anticoagulant rodenticides (i.e. FGARs) can be employed in pest control and eradication attempts, which will result in reduced negative impacts on non-target species.

Statutory context: Section 5A and intrinsic risk

Under section 5A of the Agricultural and Veterinary Chemicals Code (Agvet Code), the APVMA must be satisfied that a product “meets the safety criteria”, which includes not having an unacceptable effect on the environment when used according to label instructions

In the case of SGARs, secondary poisoning is not incidental, speculative, or misuse driven. It arises directly from:

- delayed time to death,
- persistence in liver tissue,
- high toxicity at low dose, and

- bioaccumulation and biomagnification through trophic pathways.

These properties are intrinsic to the chemistry and mode of action of SGARs. Accordingly, the relevant regulatory question is not whether label amendments reduce point-of-sale risk, but whether the proposed controls materially disrupt the dominant environmental exposure pathway.

Where a chemical's inherent properties produce predictable and widespread non-target exposure under normal conditions of use, the APVMA must consider whether the risk is capable of mitigation in practice. If it is not, cancellation or structural restriction is the proportionate response under the Code.

Limitations of Label-based Regulations

Label- and placement-focused measures (pack sizes, bait-station rules, proximity limits, amended instructions) regulate access to bait, but they do not address the dominant pathway of harm: secondary poisoning. Following ingestion of anticoagulant rodenticides (ARs), poisoned rodents typically remain active for several days and may take up to two weeks to die (Fisher *et al.,* 2019). This timing effect is common to anticoagulant rodenticides and is amplified for SGARs by their single-feed potency, long biological half-lives, and tissue persistence/bioaccumulation During this period, the disruption of blood clotting causes progressive internal bleeding, weakness, dehydration and neurological impairment. Studies have also documented behavioural changes in the poisoned rodent, including reduced coordination, increased daytime activity and greater movement in open areas (Cox and Smith, 1992). These effects disrupt normal thigmotaxis and circadian behaviour, making poisoned rodents slower and more conspicuous (e.g. Kotler *et al.*, 1988). As a result, they are more vulnerable to predation and scavenging than healthy rodents. They then enter local food webs regardless of whether bait was placed in accordance with label directions. Predators and scavengers are exposed through normal foraging behaviour, not through atypical or misuse scenarios.

These chemical and ecological realities are unaffected by packaging, placement, or user-compliance settings; they determine what happens after bait access has occurred. Consequently, any system that relies chiefly on labels and placement, whether during the suspension period or beyond, cannot plausibly deliver a material reduction in secondary exposure. Therefore, as Australia moves to an RCP regime, licensed access must come with strict, enforceable use-conditions that reduce total deployment and prevent routine or prophylactic use; outdoor use should be exceptional and permit-based for conservation-critical operations only, supported by auditable records and active oversight. This is the only approach consistent with interrupting the real-world exposure pathway and achieving measurable reductions in wildlife residues and harm.

Bait stations

Mandatory bait station requirements are intended to restrict access to bait at the point of placement. However, bait stations do not address secondary poisoning, because they do not influence rodent behaviour after ingestion. They cannot prevent poisoned rodents from leaving

the baiting area, which is why bait boxes don't fill up with dead rodents, nor can they prevent those rodents from being consumed by predators or scavengers. Furthermore, possums can reach into bait boxes to access the bait, and death from brodifacoum poisoning averaged 20.7 ± 1.7 days (Littin *et al.*, 2002). This puts species like Powerful Owls at great risk, as 92% of their diet consists of possums (Scammell *et al.*, 2025).

Bait stations are not a reliable control for preventing primary exposure by non-target wildlife, particularly when used outdoors, even if within 2 m of a building. In these outdoor environments they are also subject to environmental wear, movement, or interference, further increasing the likelihood of unintended access. There are 57 species of native rodents, around 20 of which are threatened with extinction, that are the same size or smaller as introduced rats. None of these species will be excluded by bait stations, and all of them are omnivorous, meaning it is reasonable to expect them to eat the bait. Many other taxa can also access bait stations, such as reptiles, amphibians and invertebrates. These species are often nocturnal, omnivorous, and active in the same environments where bait stations will be placed. Indeed, bobtails and frogs have already been found with SGAR poisoning, either by direct bait consumption or predation on invertebrates (Lettoof *et al.*, 2020; Rowley *et al.*, 2024). Please see the APVMA submission from Assoc. Prof. Rob Davis for details about recent research on the diversity of wildlife accessing bait boxes in Southwest Western Australia.

Experiences from Western Australian island eradications illustrate how difficult it is to reliably prevent non-target exposure using bait boxes, even under controlled conditions. On small islands without native mammals, pindone-baited oats successfully eradicated introduced rats but on Boodie Island, where threatened burrowing bettongs were present, attempts to cover baits still failed to stop non-target uptake, and bettongs disappeared due to poisoning. The species had to be subsequentially reintroduced. In contrast, on Barrow and Middle Islands, success was achieved only with custom-built stations engineered specifically to exclude local mammals while allowing rat access, deployed in dense, highly controlled grids (Morris, 2002). These conditions are not comparable to the realities of retail SGAR bait-box use. The island evidence demonstrates that developing a truly wildlife-safe bait station is complex, species-specific, and operationally intensive, far beyond the capability of standard retail products.

Accordingly, bait stations do not provide a robust or reliable barrier to either primary or secondary exposure under real-world conditions. Their effectiveness depends heavily on correct placement, ongoing maintenance, and assumptions about species behaviour that do not reflect the ecological complexity of Australian environments.

Indoor baiting for mice and near-building baiting for rats

The March 10 decisions formalised a distinction between (i) indoor-only use for domestic-classified products (rats and mice), and (ii) limited outdoor use for commercial-classified products for rats only, specifically within 2 m of buildings, with no outdoor baiting for mice, no burrow baiting, and mandatory use of tamper- and weather-resistant bait stations secured in place. These controls apply nationally during the suspension under Attachment 2 deemed-permit instructions.

From an ecological perspective, this spatial distinction does address secondary poisoning risk, although allowing indoor only use may reduce risk of primary poisoning for a number of non-

targets. House mice and rats move freely between indoor and outdoor environments; rodents baited indoors frequently exit buildings via vents, gaps, drains or roof spaces before death. Because ARs cause delayed mortality over days (Fisher *et al.,* 2019), poisoned rodents remain mobile and conspicuous, increasing the likelihood of predation/scavenging and thus residue transfer along food webs. Consequently, rodents exposed indoors often die in gardens and adjacent habitats while still bearing residues.

Similarly, restricting outdoor rat baiting to ≤ 2 m from buildings does not confine risk to built environments. A host of wildlife will come close to buildings (e.g. possums, reptiles and invertebrates) and thus are at risk of accessing bait boxes outdoors. Rats also commonly forage across boundaries and linear features (fence lines, vegetation corridors, drains, bushland edges); poisoned individuals can die well beyond the immediate baiting location, where predators and scavengers encounter them. Once ingestion has occurred, the poison remains biologically active for days, if not weeks; therefore, the location of deployment (indoors vs. within 2 m) is not determinative of secondary-poisoning risk, even though indoor-only domestic use can reduce some primary (direct) access by non-targets.

Pack size limits

Restrictions on pack sizes of pellet and solid bait blocks will do little to constrain the total quantity of SGARs introduced into the environment over the coming 12 months. Consumers will be able to still make unlimited repeat purchases across multiple retail outlets, or even at the same outlet, resulting in cumulative environmental loading that is not meaningfully reduced by smaller individual packages. As such, pack-size limits are unlikely to function as an effective cap on use. Further, commercial products will be, during the suspension period, still available in larger quantities, with again, compliance reliant on users adhering to new labelling.

While Attachment 2 improves clarity, it regulates where and how bait is deployed, not what happens after ingestion, and therefore cannot, by itself, resolve the secondary poisoning pathway that the APVMA has already identified as unacceptable.

Bittering agents and dyes

Most SGAR products already include bittering agents (such as Bitrex © - denatonium benzoate) and dyes. While the APVMA proposes cancelling products that lack either component, these are largely FGARs.

Crucially, bittering agents and dyes operate at the point of bait access; they do not change SGAR toxicokinetics, half-lives, or tissue persistence, and APVMA's own rationale describes bitterants as repellents for some non-target vertebrates (e.g., pets/livestock) while noting they do not alter efficacy against target rodents. None of this bears on what happens after a rodent has ingested bait.

Because bittering agents do not make poisoned prey "bitter" and dyes do not reduce residues in prey, these measures cannot interrupt secondary exposure pathways. This is consistent with the Gazette's discussion of secondary poisoning in mammals and birds and its instruction to remove carcasses specifically to reduce secondary exposure. Evidence from the field confirms this pathway remains fully open even when baits contain these dyes and bittering agents: Sullivan and Carthey (2025), in an as yet unpublished paper examining dietary changes in

Powerful Owls, documented two pellets in situ that contained clearly identifiable green dyed rodenticide fragments. This indicating the prey (e.g., rat or possum) had recently ingested bait and was then taken by the owl. While indigestible bait matrix can be regurgitated in pellets (i.e., not passed through the intestine), the anticoagulant itself may be absorbed into the prey's liver, blood and soft tissues prior to predation, and these tissues are digested and assimilated by the owl, resulting in secondary exposure. In other words, the presence of dyed bait in pellets demonstrates transfer of bait material from bait to prey to predator, while the toxicant is simultaneously transferred via prey tissues, meaning bitterants and dyes neither deter predation nor mitigate the toxic transfer that drives wildlife harm.

The Gazette asserts bittering agents are "well-known repellents … including birds," but does not provide peer-reviewed evidence for avian systems; moreover, the predominant avian risk is secondary, not primary bait uptake. Where avian taste has been studied, responses to bitter compounds are species-specific (Wang and Zhao, 2015) and often weak relative to mammals, reflecting differences in bitter taste receptor repertoires; available literature does not demonstrate reliable denatonium-based deterrence in free-living birds offered complex food matrices (Mason and Clark, 1998).

The FGAR regulatory imbalance

BirdLife Australia notes a potential inconsistency in the proposed regulatory outcome concerning first-generation anticoagulant rodenticides (FGARs) and second-generation anticoagulant rodenticides (SGARs).

FGARs (e.g. warfarin, coumatetralyl, diphacinone) are less persistent in animal tissues and are associated in the scientific literature with substantially lower secondary poisoning risk compared to SGARs. By contrast, SGARs are highly persistent, bioaccumulative, and widely detected in non-target wildlife.

Under the proposed outcome, all but one retail FGAR product is proposed to be deregistered due to the absence of mandated dyes and bittering agents. At the same time, the majority of SGAR products remain eligible for domestic classification, as they already meet these specific formulation requirements.

If reformulation would permit continued registration of FGAR products, this should be clearly articulated. Absent such clarification, the practical effect of the proposal may be to reduce retail availability of comparatively lower-risk anticoagulants while maintaining broad access to compounds with greater intrinsic environmental hazard profiles, at least during the suspension period.

Dyes and bittering agents are human-safety mitigation measures. They do not reduce environmental persistence, bioaccumulation, or the secondary poisoning pathway. The addition of Bitrex © does not alter the toxicological risk posed to raptors and other wildlife consuming poisoned prey.

Under section 5A of the Agvet Code, the APVMA must be satisfied that the environmental risks posed by the chemical are not 'unacceptable' before it can be approved. Regulatory settings

should therefore reflect relative environmental hazard and avoid outcomes that may inadvertently shift use toward more persistent and higher-risk active constituents.

Carcass collection and disposal requirements

The conditions under the 12-month suspension (as also likely, under the RCP) require users to search for and dispose of poisoned rodent carcasses and terrestrial invertebrates, including slugs and snails, as a means of reducing secondary poisoning of non-target wildlife. While this requirement reflects a correct recognition of the exposure pathway of concern, it cannot reasonably be expected to function as an effective risk mitigation measure under conditions of normal use. It also fails to consider the breadth of species that experience primary exposure, including a wide range of non-target invertebrates, amphibians, reptiles, birds and mammals that directly ingest bait (even if in a bait box). See 'Bait Station' information above. These species often remove or fragment bait, ingesting toxic material before any potential observation or intervention by the user. Because the APVMA's proposed measures address only rodent and gastropod carcasses, they do not account for, or protect, the many species that are exposed directly at the bait point itself, nor the wildlife that would prey upon them either live or scavenge when dead.

Even if bait access was able to be restricted only to introduced rodents and gastropods, following ingestion of SGARs, poisoned rodents commonly remain active for up to 14 days (Fisher *et al.,* 2019). During this period, they move through and between buildings, gardens, roof spaces, drains, fence lines, bushland edges and surrounding habitats. This mobility increases the likelihood that impaired rodents will be captured by predators or scavenged by other animals before death occurs, or before any opportunity for carcass retrieval exists.

Where poisoned rodents are not consumed prior to death, mortality can occur in locations that are inaccessible or unknown to users, including wall cavities, roof spaces, sub-floor areas, drains, neighbouring properties, and beyond property boundaries. In these circumstances, compliance with carcass collection requirements is not physically feasible.

Field evidence underscores the practical limit of these user-dependent measures. On Penguin Island (WA), Bettink (2013) reported an estimated 2,000–5,000 rats on the island during control efforts, yet only 123 rodent carcasses were recovered by volunteers. At most that equates to 6% of the population of rodents exposed to rodenticide during the attempted island eradication. This illustrates that routine carcass retrieval is not operationally achievable at scale, and therefore cannot be relied upon to meaningfully reduce secondary exposure for native predators and scavengers. Comparable studies on vole control have shown that carcasses are frequently removed by scavengers within hours to a day following death, with 87–100% scavenging rates depending on the season (Montaz *et al.,* 2014), leaving little to no opportunity for retrieval by users.

The same limitations apply more acutely to poisoned slugs and snails. Slugs and snails are small, mobile, often nocturnal, and widely dispersed across gardens, including lawns, garden beds, mulch and surrounding vegetation. They will also not be the only invertebrates with the potential to consume bait. Detecting poisoned individuals in outdoor environments is inherently unreliable, particularly at the scale implied by routine domestic use. Many bird species, reptiles, amphibians and mammals consume slugs, snails and other invertebrates opportunistically, and this would include shortly after exposure, meaning secondary poisoning

will occur before any reasonable opportunity for collection exists. SGARs have been detected in insectivorous passerines in New Zealand, with levels found in deceased Stewart Island robin (*Petroica australis rakiura*) nestlings comparable to those associated with mortality in adult birds of other species (Masuda *et al.,* 2014).

These outcomes are not the result of misuse or non-compliance. They are predictable and parallel consequences of normal SGAR use arising from the intrinsic properties of the active constituents and the ecology of the affected species. In both rodent and invertebrate scenarios, secondary exposure occurs independently of user intent: either because exposure takes place before recovery is possible, or because recovery is not feasible at all.

Accordingly, carcass and organism collection requirements do not meaningfully disrupt the predominant wildlife-exposure pathway responsible for environmental harm and should not be treated as a substantive or reliable environmental safeguard.

Over-reliance on unreasonable user compliance

The suspension assumes sustained, correct, and verifiable user behaviour. However, the APVMA does not directly enforce compliance, with monitoring resting with state and territory regulators. In this context, assumptions of consistent compliance cannot reasonably underpin a determination that environmental risk is acceptably managed. Where exposure pathways operate independently of user intent or awareness, behavioural controls are inherently unreliable.

Taken together, these limitations demonstrate that the measures enacted during this suspension, and that will potentially be carried forward into any RCP determination, do not materially reduce the quantity of SGARs entering ecosystems, nor do they meaningfully disrupt the pathway by which wildlife is exposed. They focus on controlling bait access despite clear evidence that environmental harm occurs primarily after bait ingestion, through the movement and consumption of poisoned rodents.

A science-based regulatory response must disrupt the exposure pathway responsible for harm; measures that do not alter that pathway cannot reasonably be expected to alter the outcome. In the case of SGARs, label-based retail controls fail this test and if simply applied beyond the suspension period to any new framework, be expected to deliver a substantive reduction in secondary poisoning of Australian wildlife.

Human-safety mitigation versus environmental mitigation

Many of the recommendations and changes under the suspension, including the need for dyes, bittering agents, and the use of bait boxes, primarily address acute human exposure scenarios despite the APVMA technical report aligning these proposed changes with limiting exposure to non-target animals overall.

While these are important of course, the environmental harm documented in Australia arises predominantly through secondary poisoning of wildlife.

A mitigation measure that may reduce accidental child ingestion but does not reduce trophic transfer does not resolve the environmental safety question under s 5A. The APVMA's own risk

assessment acknowledges unacceptable risk to wildlife; the regulatory response must therefore be evaluated against whether it reduces wildlife exposure, not solely whether it improves retail safeguards.

Retail withdrawal is a proportionate response

Consumers can reasonably expect that products available for domestic or commercial use will not pose a high likelihood of causing serious harm to native wildlife. In the case of SGARs, this expectation is not met.

Removal of SGARs from general retail sale is a proportionate, evidence-based first step that would reduce environmental exposure while maintaining access to lower-risk alternatives for the public for rodent management. Therefore, the recommendation of the classification of all SGARs as RCPs is welcome. It must follow though, with a Restricted Professional Use (RPU) Framework that lower the overall amount of SGARs entering the environment through limits on access and deployment.

Framework for Restricted Professional Use

Statutory Context

Section 41 of the Agvet Code empowers the APVMA to vary, suspend, or cancel registrations where it is no longer satisfied that the statutory criteria in section 5A are met.

Where intrinsic chemical properties drive unavoidable secondary exposure, reliance solely on user-dependent mitigation measures may be insufficient to restore satisfaction under section 5A. Structural controls may therefore be required.

The APVMA has concluded that current SGAR use patterns pose unacceptable risks to wildlife. Any regulatory framework stemming from an RCP classification must be capable of materially reducing environmental exposure at a system level.

International experience indicates that simple designation as “professional use only” is unlikely, in isolation, to materially reduce environmental loading. Frameworks that combine access restriction with enforceable constraints on deployment patterns are structurally better positioned to reduce exposure pathways, such as those in the Netherlands (Appendix 1).

This section outlines the minimum structural features necessary for any Restricted Professional Use (RPU) Framework to materially reduce environmental exposure. These features are informed by international regulatory and wildlife monitoring evidence (Appendix 1). This space is always changing as new evidence emerges. For example, from 1 January 2026, the United Kingdom has tightened its stewardship program and now requires all purchasers of professional-use rodenticides to provide either CRRU-approved training completed within the past five years or membership in a CRRU-recognised CPD scheme. Farm assurance schemes are no longer accepted as proof of competence, and evidence must be provided at the point of sale (Think Wildlife 2024). This is because monitoring of sentinel species continues to show high levels of SGARs (Osaki *et al.,* 2025).

By integrating training, accountability, monitoring, conservation carve-outs, and adaptive management, a RPU Framework can deliver measurable reductions in secondary poisoning.

This approach ensures SGARs are used only where justified, minimises preventable harm to wildlife, and avoids the continuation of routine, indiscriminate deployment under a professional label, in alignment with the APVMA's statutory, science-based mandate under section 5A and section 41.

Rationale for Professional Use Restrictions

Professional and commercial use of SGARs represents a major continuing pathway for toxicant entry into the environment and that has been demonstrated in the international literature. Although Australia currently lacks any national reporting or monitoring system capable of mapping where, how often, or in what quantities SGARs are deployed (to our knowledge), wildlife exposure data clearly demonstrate that SGAR residues originate from multiple sectors, including urban, peri urban and agricultural pest control activities. These residues cannot be attributed solely to domestic (retail) use. This means that retail withdrawal alone (while welcome and very important) cannot meaningfully reduce secondary poisoning unless professional use is also tightly constrained, accountable and enforceable.

It is important to distinguish this routine professional deployment from conservation led rodent eradication programs, which are time limited, publicly assessed, scientifically designed and subject to environmental monitoring. In contrast, ongoing commercial and professional baiting for routine or prophylactic use in populated landscapes occurs without equivalent oversight, reporting, or outcome monitoring. As long as such deployment continues unregulated, environmental residues and secondary exposure will persist, undermining the effectiveness of retail restrictions.

Minimum Features of an Effective Restricted Professional Use Framework

BirdLife Australia submits that if professional/commercial access to SGARs is maintained, with SGARS declared RCPs, it must be governed by a framework that incorporates at minimum the following features:

Competency-Based Access

Access must be restricted to authorised users holding current, verified certification appropriate to SGAR risk. Competency should cover topics such as rodent ecology and infestation assessment, SGAR chemistry, persistence, and secondary poisoning pathways, environmental risk minimisation and IPM principles, with SGARs as a last-resort tool.

Professional purchase and use should be contingent on evidence of competence. International precedents, such as the UK from January 2026, reinforce the importance of linking professional access to verifiable training.

It is also critical that there be careful consideration as to the groups of users who can apply for this training and use the products. It should not be simply accessible to the broader community who wish to gain access to SGARs for routine use.

Prohibition of Routine, Prophylactic, or Permanent Baiting

SGAR deployment must be infestation-based and curative, not preventative and also time-limited, with clear cessation once control is achieved. Open-ended or standing baiting materially increases cumulative environmental loading. International assessments, including EU-level reviews, advise against permanent or broad-area baiting by professional operators

where lower-risk alternatives exist. An effective restricted scheme must prevent SGARs being used as routine tools of standard commercial pest control contracts.

In line with this, BirdLife Australia maintains its position that no outdoor SGAR baiting should occur except under approved conservation programs. Outdoor settings present the highest opportunity for both primary and secondary exposure because both poisoned rodents and nontarget wildlife have access to bait or carcasses in these environments. Routine commercial outdoor deployment is therefore incompatible with wildlife protection objectives.

Mandatory Job-Level Justification within an IPM Hierarchy

Professional use should require documented evidence that target infestations have been confirmed, feasible non-chemical measures have been implemented, lower-risk chemical alternatives have been considered and that SGAR deployment is necessary and proportionate for the specific job.

This “last resort” approach aligns with enforceable international highly restrictive/exposure reduction models, such as British Columbia and the Netherlands, where SGAR use is restricted to essential services under a documented IPM program.

Documentation, Monitoring, and Oversight

The framework must include standardised, mandatory recordkeeping (rationale, formulation, quantities, evidence of alternatives considered) and include auditing and risk-based compliance checks, there must also be consequences for non-compliance (e.g., suspension or revocation of authorisation). We note that records are to be collected for use of commercial SGARs (along with signage) under the 12-month suspension, however currently there is no mechanism to centralise that data collection. See Monitoring and Evaluation for more details.

Such mechanisms enable national trend analysis, adaptive management, and enforcement. British Columbia demonstrates that mandatory recordkeeping and reporting are achievable and effective.

Conservation-Critical Exceptions

Narrow, science-based exceptions for outdoor baiting should be permitted (e.g., island eradication programs, high-risk invasive species interventions) under strict permit processes, justification, and oversight, ensuring deployment occurs only where environmental benefits outweigh unavoidable risks.

Monitoring and Evaluation

To support the Restricted Professional Use Framework, BirdLife Australia supports the establishment of two coordinated national monitoring systems that are managed independently of the APVMA:

1. National SGAR Deployment Monitoring System (professional-use monitoring)

A national framework is required to monitor:

- SGAR quantities used,
- where, when, and by whom SGARs are deployed,
- baiting duration and patterns of use,

- compliance with justification, IPM requirements, and time-limited cycles.

These data are essential for evaluating whether regulatory controls are reducing SGAR deployment and improving environmental outcomes.

2. National Wildlife Exposure Monitoring Program (coordinated wildlife monitoring)

A coordinated program is required to:

- track SGAR residues in sentinel wildlife species (e.g., raptors). Sentinel species selected should include at least one species that consumes introduced rodents as a primary food source (e.g. Australian Boobooks or Barn Owls), and at least one species that primarily feed on other prey that may have ingested rodent bait (e.g. Powerful Owls)
- assess exposure trends over time,
- identify hotspots and high-risk landscapes
- evaluate the effectiveness of regulatory changes.

International experience shows that wildlife residue monitoring is crucial for assessing the effectiveness of regulations, and that persistently high exposure levels have driven further regulatory tightening. In places like the UK it is leading to the tightening of restrictions even just this year around usage (Think Wildlife, 2024).

It is important to note that the absence of monitoring data should not be interpreted as evidence of safety, particularly where exposure pathways and impacts are already well documented. In Australia to date, residue testing in wildlife has been undertaken primarily through independent academic research, non-government organisations, wildlife hospitals, veterinarians, and community groups, rather than through a coordinated, nationally funded surveillance program. Despite these efforts, which have consistently demonstrated widespread exposure, there has been no comprehensive, systematic national monitoring framework designed to quantify trends over time or assess the effectiveness of regulatory settings.

Monitoring systems must be intentionally established and adequately resourced to detect change over time and guide adaptive management.

What BirdLife Australia asks APVMA to do

In addressing the APVMA's anticoagulant rodenticides chemical review, and addressing key consultation documents and public consultation, BirdLife Australia asks the APVMA to:

1. Formally acknowledge that secondary poisoning is an inherent and predictable consequence of normal SGAR use arising from intrinsic chemical properties and assess all proposed regulatory controls against whether they meaningfully disrupt this pathway.
2. Accelerate the removal of SGARs from general retail sale by:
    a. Maintaining its public-interest certification that all SGARs should be declared Restricted Chemical Products (RCPs);
    b. Urging the Australian Government Department of Agriculture, Fisheries and Forestry to implement the declaration without delay; and

    c. Working with state and territory control-of-use authorities to ensure that, once declared, SGARs are no longer available to the general public and access is restricted to authorised users operating under a nationally consistent licensing or permit framework.
3. Establish clear national conditions for any authorised use of SGARs, ensuring these products are deployed only as a last resort within integrated pest management, explicitly preventing routine, prophylactic or permanent use and prohibiting outdoor baiting except under formally approved conservation-critical programs.
4. Work with DAFF and state and territory governments to ensure appropriate arrangements for the safe management and disposal of remaining SGAR stock during the transition to restricted access.
5. Establish two linked systems independent of the APVMA:
   a. a National SGAR Deployment Monitoring System (quantities, locations, justification and duration), and
   b. a National Wildlife Exposure Monitoring Program focused on sentinel species to quantify exposure trends and evaluate regulatory effectiveness.
6. Recognise that the absence of suitable monitoring and control frameworks is directly relevant to determinations of safety and effectiveness and avoid reliance on user-compliance mechanisms that cannot be enforced at scale.

Conclusion

BirdLife Australia welcomes the APVMA's recent actions on SGARs, including the decision (10 March 2026) to suspend all SGAR importation and manufacturing for 12 months with nationally enforceable Attachment 2 instructions, and the public-interest certification that all SGARs should be declared Restricted Chemical Products (RCPs). These steps recognise that current SGAR use presents unacceptable risk to non-target wildlife and set a clear pathway to stronger national controls.

Critically, once SGARs are declared RCPs, they will be removed from general retail sale and access will be limited to licensed, trained users. This is a shift we strongly support, provided the RCP framework tightly constrains professional access and deployment, prevents routine/prophylactic use, and limits outdoor use to exceptional, permitted conservation-critical operations with robust oversight. In the interim, existing stock remains on retail shelves under the suspension framework (supply/use only with Attachment 2 and in accordance with its conditions), which continues to rely on user-dependent measures and does not interrupt the secondary-poisoning pathway.

To meet the APVMA's statutory obligation to ensure products do not have unacceptable effects on the environment, the transition to RCP should be implemented swiftly and accompanied by strict professional-use conditions and credible monitoring that deliver measurable reductions in both SGAR deployment and wildlife exposure. Without structural reductions in availability and use, not simply improved labels or proximity rules, predictable and avoidable secondary poisoning will continue.

BirdLife Australia stands ready to assist with technical input on wildlife-exposure pathways and the design of a strong, nationally consistent RCP framework that ensures SGARs are not the default in pest management and are used only where justified, licensed and auditable.

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Appendix 1

Examples of various regulations around SGARs from other international jurisdictions.

Jurisdiction	Regulatory architecture	Consumer SGAR sale?	Professional SGAR access (certified professional/ licenced applicator)	Structural limits on professional use	What this means in practice	2026 Status & Recent Changes	Direction of travel	Key sources
European Union (framework)	Active substance approval under Biocidal Products Regulation (BPR); Member State authorisations; hazard classification drives risk mitigation	Determined by Member State; BPR permits consumer products subject to risk mitigation	Yes	IPM obligations; prohibition on permanent baiting; time-limited campaigns; outdoor and perimeter use restrictions; stewardship and competency requirements in some Member States	SGARs are recognised as high-risk; consumer exposure reduced via packaging, formulation, and use controls; several Member States moving toward full non-professional prohibition		Tightening	European Chemicals Agency – All news - ECHA
└ **Netherlands**	National implementation under EU BPR; IPM + proof of infestation rules	No	Yes	Mandatory IPM; proof of infestation; perimeter use largely prohibited	SGARs are a last-resort professional tool; routine outdoor baiting effectively banned		Strongly tightening	Ctgb – Rodenticides | Board for the Authorisation of Plant Protection Products and Biocides
└ **Germany**	Federal Chemicals Act implementation of EU BPR +	No	Yes	Permanent baiting prohibited; time limits; IPM required	SGARs only used in restricted, professional scenarios		Tightening	Authorisation of Anticoagulant Rodenticides in Germany | Umweltbundesamt

Jurisdiction	Regulatory architecture	Consumer SGAR sale?	Professional SGAR access (certified professional/ licenced applicator)	Structural limits on professional use	What this means in practice	2026 Status & Recent Changes	Direction of travel	Key sources
	national use conditions							
└ **France**	Ministerial decrees implementing EU BPR; label-based restrictions	Yes – ready-to-use formulations only; subject to mandatory mitigation measures	Yes	Secured baiting; monitoring; IPM emphasis	Consumer SGAR access constrained; professional use monitored		Tightening	https://www.anses.fr/en/content/biocidal-products
└ **Norway**	National chemicals regulation; certification required for professional biocide use	No	Yes	Mandatory professional certification; strong environmental safeguards	SGARs tightly constrained; environmental protection prioritised		Tightening	Norwegian Environment Agency – https://www.miljodirektoratet.no
└ **Sweden**	Chemicals Agency regulation under national environmental code	No	Yes	Ban on permanent baiting; IPM mandatory	SGARs treated as high-risk; professional deployment strictly controlled		Tightening	Swedish Chemicals Agency – https://www.kemi.se
└ **Belgium**	National implementation under EU BPR; The Federal Public Service (FPS) ensures compliance,	Yes - limited to lower concentrations and ready-to-use products (“free circuit”)	Yes - higher concentrations restricted to certified professionals (“closed circuit”)	Professional certification required for closed-circuit products; permanent baiting	SGAR market divided between low-risk consumer products and professional-only higher concentration products; structural	Progressive tightening of authorisation conditions under EU BPR renewals	Tightening	https://food.ec.europa.eu/system/files/2019-03/pesticides_sup_nap_dan-rev_en.pdf

Jurisdiction	Regulatory architecture	Consumer SGAR sale?	Professional SGAR access (certified professional/ licenced applicator)	Structural limits on professional use	What this means in practice	2026 Status & Recent Changes	Direction of travel	Key sources
	requiring certification for safe rodenticide use			restricted; IPM emphasis	separation between user categories			
└ **Denmark**	National implementation under EU BPR; Danish Environmental Protection Agency (EPA) oversight; centralised reporting of rodenticide use	No	Yes	Mandatory authorisation; centralised digital reporting of rodenticide use; restrictions on permanent baiting; IPM hierarchy embedded; municipal oversight	Highly structured professional-only model with mandatory reporting and deployment transparency; strong oversight of use patterns	Significant tightening with 2023 IPM requirements	Strongly tightening	https://mst.dk/erhverv/sikker-kemi/biocider/brancher/skadedyrsbekaempelse
United Kingdom	National product authorisations + mandatory CRRU industry stewardship scheme	Yes - Limited consumer SGARs available	Yes	Mandatory CRRU stewardship; competence requirements; IPM compliance	SGARs available but contingent on stewardship and professional competence	From 1 Jan 2026, professional SGARs only sold to those with approved certification (≤5 yrs old or active CPD); open-area use ban now enforceable	Tightening	Campaign for Responsible Rodenticide Use – https://www.thinkwildlife.org
United States (federal)	Federal label restrictions under FIFRA; EPA risk	No	Yes	Label restrictions; tamper-resistant bait stations;	Consumer SGAR sale removed nationally in theory but only products 'targeted to consumers'. Still sold		Static federally; tightening at state level	United States Environmental Protection Agency –

Jurisdiction	Regulatory architecture	Consumer SGAR sale?	Professional SGAR access (certified professional/ licenced applicator)	Structural limits on professional use	What this means in practice	2026 Status & Recent Changes	Direction of travel	Key sources
	mitigation decision			limited structural use	commercially and in places like farm stores; professional use allowed under federal label			https://www.epa.gov/rodenticides
└ **California**	State statutory prohibition (Food & Agricultural Code amendments) + DPR enforcement	No	Yes (limited exemptions)	Broad prohibitions; exemptions for public health/agriculture	Routine structural SGAR use largely incompatible with law	From 1 Jan 2025, moratorium expanded to include FGARs; all anticoagulants now "Restricted Materials" requiring permit	Strongly tightening	California Department of Pesticide Regulation – https://www.cdpr.ca.gov
└ **New York**	State pesticide law; proposed statutory amendment (pending)	Yes (currently)	Yes	Standard professional controls; no statewide deployment limits	Consumer SGARs still sold; Pending legislation (e.g. S7532 / A10012) would prohibit sale to non-certified purchasers once enacted	Pending legislation	Tightening (pending legislation)	New York State Senate – https://www.nysenate.gov/legislation/bills/2025/S7532
Canada (federal)	Federal re-evaluation under Pest Control Products Act; label amendments	No	Yes	Perimeter restrictions; enhanced label controls; IPM guidance	Consumer SGAR sale largely removed federally; professional access structured	PMRA "Rodenticide Cluster" re-evaluation 2025–2027 underway; provinces adding restrictions	Tightening	Questions and Answers - Additional Mitigation Measures for Rodenticides - Canada.ca
└ **British Columbia**	Provincial statutory prohibition under Integrated	No	Yes (limited exemptions)	Broad bans on outdoor/structural SGAR use	Among the strictest SGAR regimes globally		Strongly tightening	Second-generation anticoagulant rodenticide (SGAR) use in British Columbia -

Jurisdiction	Regulatory architecture	Consumer SGAR sale?	Professional SGAR access (certified professional/ licenced applicator)	Structural limits on professional use	What this means in practice	2026 Status & Recent Changes	Direction of travel	Key sources
	Pest Management Regulation							Province of British Columbia
New Zealand	HSNO & ACVM frameworks	Yes	Yes	Label based controls; no national stewardship	SGARs widely available; structural controls light	Importers/manufacturers now required to report active ingredient amounts (due May 2026)	Static / permissive	Poison for pests and rodents | EPA

Appendix 2

Reference list of scientific publications documenting the presence of ARs in Australian wildlife or in Australian systems. *While every effort has been made to compile a complete list, some publications may not have been identified. This also does not include reports and other non-peer reviewed literature*.

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