

April 23, 2020

Honourable Patty Hajdu
Minister of Health
70 Colombine Driveway
Tunney's Pasture
Ottawa, ON. K1A 0K9

Via electronic mail and online form

Dear Minister Hajdu,

Re: Notice of Objection to Re-evaluation Decision RVD2020-06, "Strychnine and Its Associated End-use Products (Richardson's Ground Squirrels)" (March 4, 2020)

This Notice of Objection is submitted by Animal Justice, Wolf Awareness, Humane Society International Canada, International Fund for Animal Welfare Canada, Coyote Watch Canada, and Cochrane Ecological Institute pursuant to subsection 35(1) of the *Pest Control Products Act*, SC 2002 c 28 ("PCPA").

The Pest Management Regulatory Agency ("PMRA") has conducted a re-evaluation of products containing the active ingredient strychnine used as bait to kill Richardson's ground squirrels. Although products containing strychnine are also applied as bait to kill other species, including wolves and coyotes, the PMRA's present review focused only on products used to kill Richardson's ground squirrels.

Under the PCPA, re-evaluations of registered pesticides are aimed at ensuring products in use in Canada continue to meet current health and environmental standards and continue to have value. Based on data and information from pesticide manufacturers, published scientific reports, and other regulatory agencies, Health Canada concluded that products containing strychnine used to kill Richardson's ground squirrels in Canada pose unacceptable risks for non-target organisms, including species at risk.

On March 4, 2020 Health Canada announced its decision to cancel the registration of strychnine, and all associated end-use products, used to control Richardson's ground squirrels upon determining that the risks to the environment are not acceptable when strychnine is used according to the current conditions of registration, or when additional mitigation is considered.

Despite these risks, the PMRA has decided that products cancelled will be phased out in accordance with a three-year implementation timeline, with the use of strychnine products to kill Richardson's ground squirrels continuing in Canada until March 4, 2023.

While Animal Justice, Wolf Awareness, Humane Society International Canada, International Fund for Animal Welfare Canada, Coyote Watch Canada, and Cochrane Ecological Institute support the overall decision to cancel this product and all products containing strychnine, we object to the continued use of this harmful and dangerous product for the next three years during "phase-out", and request that the cancellation of products containing strychnine used to kill Richardson's ground squirrels be effective immediately. There is no scientific basis for a three-year delay in the cancellation. In lieu of prioritizing alternative solutions and measures in the

absence of strychnine, there is a risk that individuals will use this period to stockpile this dangerous product.

As described in the PMRA's Re-evaluation Decision RVD2020-06, "Strychnine and Its Associated End-use Products (Richardson's Ground Squirrels)" ("**Re-evaluation Decision**"), "[a]n evaluation of available scientific information confirmed that there are risks of concern for non-target organisms, including species at risk, for products registered to control Richardson's ground squirrels." This is because non-target organisms consume treated bait that has been ejected from some burrows, as well as the bodies of Richardson's ground squirrels and other organisms that have been poisoned. Thousands to tens of thousands of songbirds alone are killed each year by strychnine intended to kill ground squirrels in Saskatchewan.¹

In addition to the risk of death to non-target organisms, killing with strychnine is inhumane, causing prolonged pain and suffering.

I. Strychnine is Inhumane

Strychnine is widely recognized to be an inhumane method to kill vertebrate animals. Because strychnine poisoning is extremely painful and prolonged, it is considered an inhumane killing method by the Canadian Council on Animal Care, the American Veterinary Medical Association, the Canadian Veterinary Medical Association, and the American Society of Mammalogists.²

In the Re-evaluation Decision, Health Canada acknowledges the growing concern among Canadians about the use of pest control products to control vertebrate pests, stating that it is currently reviewing comments from PMRA's 2018 "Consultation: Humane Vertebrate Pest Control". In light of this, it is unclear why Health Canada would choose to continue allowing ground squirrels and non-target organisms to be subject to this serious distress and suffering prior to death.

Once ingested, strychnine is absorbed into the bloodstream, with clinical signs occurring in approximately 10-30 minutes.³ Strychnine causes persistent and uncontrollable excitement of neurons in the brain and spinal cord, leading to uncontrollable muscle contractions and convulsions. Symptoms of strychnine poisoning are some of the most painful of any known toxic substance.

Early signs of strychnine poisoning include nervousness, rapid breathing, drooling, tenseness, stiffness, difficulty walking, and, occasionally, vomiting. Victims experience severe tetanic seizures as well as an extreme rigidity, causing animals to pull their neck and head back in a high arch with their front legs stiffened to point forward. They often display a 'sardonic grin' caused by spasms of the facial muscles and jaw. During these early stages, the animal remains

¹ McKinnon, D. & P. Mineau. 2004. Effectiveness and non-target impact of zinc phosphide and various concentrations of strychnine in controlling Richardson's Ground Squirrels in Saskatchewan. Unpublished Report.

² Proulx, Brook, Cattet, and Paquet. 2015. Poisoning wolves with strychnine is unacceptable in experimental studies and conservation programmes. *Environmental Conservation* 43:1-2.

³ Patocka, Jiri "Strychnine" in Gupta, Ramesh C. ed, *Handbook of Toxicology of Chemical Warfare Agents*, 2nd ed, Chapter 17 (2015, Elsevier Inc.) pp.215-222; Nordt, Sean Patrick, "Strychnine" in Olson, Kent R. ed, *Poisoning and Drug Overdose*, 6th ed, Chapter 145 (202, The McGraw-Hill Companies Inc.).

conscious.

As more strychnine is absorbed into the animal's bloodstream, seizures increase in severity and length, the animal's body temperature rises, and their breathing is impaired due to spasms of the diaphragm and respiratory muscles. Death eventually occurs from exhaustion or suffocation during seizures. Prolonged convulsions before death can cause hemorrhages of the heart and lungs, as well as cyanotic congestion from low tissue oxygenation. Death can take anywhere between one and 24 hours or more, depending on the dose.

Poisoning any animal with strychnine is inhumane and causes unnecessary suffering. Ground squirrels play an important role in grassland ecosystems, with their burrows providing important services for plants, insects, birds, and mammals.⁴ While their presence may be troublesome to some, they are not properly considered "pests". Humans living and farming in grassland ecosystems should be required to treat these animals in a humane manner.

II. Strychnine Poses Significant and Irreversible Risks to the Environment

Scientific studies reviewed by the PMRA show that the application of strychnine baits to kill Richardson's ground squirrels results in the presence of the bodies of poisoned ground squirrels on the surface near the site where the baits were applied. Non-target animals then scavenge these carcasses, resulting in secondary poisoning of predators and scavengers.

Based on conservative estimates, the application of these baits on 60 hectares of land results in the bodies of approximately 221 dead ground squirrels on the surface, available to be scavenged by other organisms.⁵ To put these numbers into perspective, the 2001 Emergency Registration of 2% Liquid Strychnine Concentrate in Saskatchewan resulted in approximately 4680-4980 bodies of strychnine poisoned ground squirrels being available to non-target animals, scavengers, and predators at ground level. Scavenging of these bodies would have resulted in secondary poisonings of a significant number of other animals.

When strychnine baits are placed in burrows, bait can be ejected, posing a risk to non-target organisms due to a significant number of small concentrated areas of strychnine-treated grain on the soil surface.⁶ As a result of the 2001 Emergency Registration of 2% Liquid Strychnine Concentrate in Saskatchewan, a minimum of 108 000 small concentrated areas of strychnine-treated grain were created, posing a significant risk to non-target organisms. Deer mice, songbirds, and other organisms that consume the bait are killed, with their bodies then presenting another means by which other non-target organisms can suffer secondary poisoning. The 2001

⁴ See, e.g. Levi J Newediuk et al. "Burrowing Richardson's ground squirrels affect plant seedling assemblages via environmental but not seed bank changes" *Current Zoology* (2019).

⁵ Bourne, J. B., Roy, L. D., Hiltz, M., Merrill, P. N., & Hoffmann, W. 2002. Strychnine baits to control Richardson's ground squirrels: an old story, a new twist. In *Proceedings of the Vertebrate Pest Conference* (Vol. 20, No. 20, pp. 11-16).

⁶ McKinnon, D., Wilk, C., & Mineau, P. 2001. Potential for primary poisoning of non-target species from the use of strychnine-treated wheat bait to control Richardson's Ground Squirrels. Unpublished Report; Tansey, J. A. 2019. Evaluation of Strychnine Baiting on Richardson's Ground Squirrel, *Urocitellus richardsonii*, Control and Effects on Non-Target Organisms. Saskatchewan Ministry of Agriculture. 26 pages.

Emergency Registration of 2% Liquid Strychnine Concentrate in Saskatchewan is estimated to have resulted in the poisoning of 1800-1950 songbirds.⁷ The bodies of these poisoned songbirds would have then been a source of further secondary poisonings.

Strychnine used as a rodenticide has contributed to the endangerment of the long-tailed weasel, and local extirpation of the American badger.⁸ The use of poisons such as strychnine to kill ground squirrels has also had an adverse impact on populations of burrowing owl and swift fox, thousands of songbirds, and many other species.⁹

As acknowledged by the PMRA, reported target and non-target poisoning counts are likely underestimated because (a) people conducting searches of fields miss some bodies of poisoned animals, and (b) scavengers are quick and effective at removing dead animals from the surface of fields, removing many poisoned bodies before people attend a site to count them. Non-target animals can then travel great distances before the symptoms of secondary poisoning take effect, making it impossible to determine the number of non-target animals impacted by the use of strychnine to kill Richardson's ground squirrels.

Since the publication of PRVD2018-13 in 2018, three incidents involving the death of dogs from strychnine poisoning have been reported to Health Canada involving strychnine used to kill Richardson's ground squirrels.¹⁰ Media reports suggest that at Saskatchewan's Western College of Veterinary Medicine alone, there are approximately 6-7 cases of dogs poisoned by strychnine each year.¹¹

Based on the unacceptable environmental risks of products containing strychnine used to kill Richardson's ground squirrels, the PMRA concluded as follows:

As a result of repeated bait applications over a relatively large area during a full-scale RGS control program with strychnine, the level of exposure is expected to be high. Potential mitigation measures, such as placing the bait deeper into the burrow or covering the burrow, have been shown to be ineffective at reducing the number of poisoned ground squirrels available on the surface or the frequency of bait ejections from treated burrows. No further label improvements or additional mitigation measures have been identified that could reduce the potential exposure to non-target organisms to a level that would be considered acceptable. Therefore, based on a scientific evaluation of the available data, the environmental risks associated with the use of strychnine to control

⁷ McKinnon, D., Wilk, C., & Mineau, P. 2002. Potential for secondary poisoning from the use of 2% strychnine-treated wheat bait to control Richardson's Ground Squirrels. Unpublished Report.

⁸ Proulx and MacKenzie, 2012. Relative abundance of American badger (*Taxidea taxus*) and red fox (*Vulpes vulpes*) in two landscapes with high and low rodenticide poisoning levels. *Integrative Zoology* 7: 41-47.

⁹ Hjertaas, Brechtel, De Smet, Dyer, Haug, Holroyd, James, and Schmutz. 1995. National recovery plan for the Burrowing Owl. Report No. 13. A report prepared for the Committee for the Recovery of Nationally Endangered Wildlife. Canadian Wildlife Federation. 33 pp, at 17, 26; Swift fox (*Vulpes velox*) COSEWIC assessment and status report 2009; PMRA. 2005. Proposed Acceptability for Continuing Registration document PACR2005-08, Re-evaluation of Strychnine. Catalogue number: H113-18/2005-8E (H113-18/2005-8E-PDF).

¹⁰ Only one of these dogs was autopsied so as to allow confirmation of death from strychnine poisoning.

¹¹ <https://www.cbc.ca/news/canada/saskatchewan/health-canada-considers-strychnine-ban-gophers-1.4771402>

RGS are not considered to be acceptable.¹²

III. Cancellation Should Take Effect Immediately

Based on Health Canada's conclusion that the environmental risks associated with the use of strychnine to kill Richardson's ground squirrels are not acceptable, Health Canada has correctly decided to cancel the registration of these products.

According to the PCPA, the Minister may only delay the effective date of a cancellation if no suitable alternative is available and the health and environmental risks and value of the product are acceptable until the effective date of the cancellation. In this regard, subsections 21(2)-(3) of the PCPA state as follows:

Amendment or cancellation

- (2) If the Minister does not consider that the health or environmental risks or value of a pest control product are acceptable, the Minister shall
- (a) amend the registration if the Minister considers that the health and environmental risks and value of the product would be acceptable after the amendment; or
 - (b) cancel the registration.

Delay of effective date

- (3) The Minister may delay the effective date of the amendment or cancellation if
- (a) no suitable alternative to the use of the pest control product is available; and
 - (b) the Minister considers that the health and environmental risks and value of the product are acceptable until the effective date of the amendment or cancellation.

These requirements for delay in cancellation of products are addressed in Health Canada's Regulatory Directive DIR 2018-01 "Policy on Cancellations and Amendments Following Re-evaluation and Special Review" ("**Policy on Cancellations and Amendments**"). According to this Policy, the primary consideration for the implementation of timelines for cancellation is whether risks are imminent and serious. As noted above, the scientific evidence reviewed by the PMRA clearly demonstrates that the environmental risks of using strychnine to poison Richardson's ground squirrels are both imminent and serious, potentially amounting to thousands of deaths of non-target animals each year.

The factors set out in the Policy on Cancellations and Amendments further support a conclusion that phase out is inappropriate in the context of this cancellation:

- **Potential magnitude of harm** (i.e., seriousness of the effect of concern, including reversibility): The magnitude of harm to non-target animals is serious and, where secondary poisonings result in death, clearly irreversible. Scientific evidence noted above demonstrates that thousands to tens of thousands of non-target animals, including songbirds, hawks, coyotes, wolves, foxes, and endangered species, are killed each year,

¹² <https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/decisions-updates/reevaluation-decision/2020/strychnine.html#a1>.

though the magnitude of non-target deaths is impossible to determine with certainty given that when strychnine is placed in an ecosystem the harm caused over time and across a geographically diverse area cannot be documented with precision.

- **Likelihood of the effect occurring** (i.e., whether an effect of concern is likely to happen based on how the product is being used): As noted above, deaths to non-target species will undoubtedly occur when strychnine baits are used to kill Richardson's ground squirrels. The PMRA has concluded that there is no realistic way to mitigate these harmful effects.
- **Information from post-market surveillance** (e.g. incident reports, poison control centre data, monitoring data): As noted above, companion dogs are regularly killed due to ingestion of strychnine intended to kill Richardson's ground squirrels, though not all of these deaths are reported to the PMRA.

Because imminent and serious risks to the environment are present, the PMRA should not apply the implementation timelines outlined in section 6.0 of the Policy on Cancellations and Amendments. Rather, the cancellation should take effect immediately.

There is virtual certainty that serious effects in the form of non-target poisonings will occur. The Policy on Cancellations and Amendments therefore requires as follows:

Implementation may be expedited when risks of concern are considered to be imminent and serious. Such circumstances involve a significant likelihood of serious effects occurring, for example, adverse effects reported in incident reports submitted to the PMRA involving death or serious bodily harm. In these circumstances, other appropriate measures may also be required, such as requiring the registrant to over-sticker labels on existing stocks with risk mitigation statements, or issuing an immediate product recall in accordance with the *Pest Control Products Act* (s.21(5)(b)).

As noted above, although the implementation date of a cancellation may be delayed if no suitable alternatives to the use of a product exists, this is only the case where the environmental risks are considered to be acceptable until the effective date of the cancellation (PCPA s21(3)).

According to the Policy on Cancellations and Amendments:

[t]he suitability of potential alternatives as replacements is determined by factors such as whether they can provide a reasonable level of control of the pest, the economic impact of the change, or whether the change would promote misuse of other products or practices.

The environmental risks posed by the use of strychnine to kill Richardson's ground squirrels are unacceptable, so the suitability of alternatives is not a valid reason to delay cancellation of these products. Nonetheless, it is worth noting that an integrated pest management approach including monitoring, preventative cultural practice, and humane control methods which do not cause injury or death to Richardson's ground squirrels can, and should, be used to maintain Richardson

ground squirrel population densities at acceptable levels without the use of strychnine or other poisons.¹³

The purpose of the implementation timeframe set out in section 6.1 of the Policy on Cancellations and Amendments is to “allow a limited opportunity to exhaust existing stocks at each level of supply chain...to minimize potential risks associated with disposing of large quantities of existing product, and to transition to suitable alternatives.”¹⁴ No explanation is given in the March 4, 2020 Re-evaluation Decision to suggest that the three-year phase in period is necessary to accomplish any of these objectives. Furthermore, as noted above, because the environmental risks of strychnine are imminent and serious, cancellation should be immediate, regardless of other factors such as enabling a gradual transition to suitable alternatives. Finally, the precautionary principle of international and domestic environmental law, as enshrined in the PCPA, mandates that where there are threats of serious or irreversible harm, a lack of scientific certainty should not be used as a basis to delay action. Here, we know that significant numbers of animals, including endangered species, are being poisoned when strychnine is used to kill Richardson’s ground squirrels. This harm is both serious and irreversible, and Health Canada must therefore act immediately to prevent the harm even though it is not possible to track the precise number of deaths caused by secondary poisonings throughout geographically diverse ecosystems.

For these reasons, we submit this notice of objection and request that the Minister establish a panel to review the Re-evaluation Decision insofar as it sets out a three-year implementation timeline. Our organizations support the overall Re-evaluation Decision and request that the cancellation of products containing strychnine used to kill Richardson’s ground squirrels be given immediate effect.

Yours truly,

Kaitlyn Mitchell
Staff Lawyer
Animal Justice

Sadie Parr
Executive Director
Wolf Awareness Inc.

Michael Bernard
Deputy Director
Humane Society International Canada

Sheryl Fink
Director, Canadian Wildlife
International Fund for Animal Welfare Canada

Clio Smeeton
President
Cochrane Ecological Institute

Lesley Sampson
Founding Executive Director
Coyote Watch Canada

¹³ Witmer, G. and Proulx, G., 2010. Rodent outbreaks in North America. *Rodent outbreaks: ecology and impacts*, at p253.

¹⁴ Policy on Cancellations and Amendments at p4.