

Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

MEMORANDUM

Date: July 25, 2013

To: Board Members

From: 
Andrea Gullo, Executive Director

Subject: Agenda Item No. 9) Discussion regarding opposing the sale, purchase and use of anticoagulant rodenticides in communities surrounding the Puente Hills Preserve.

Recommendation:

Discussion and possibly provide direction.

Background:

Anticoagulant rodenticides used to control rodent populations are increasingly being identified as having negative effects on a wide variety of wildlife. Their commercial, institutional and residential use has the potential to impact the health of the Puente Hills Preserve. Urging the cessation of their sale, purchase and use may help reduce this potential threat.

Anticoagulant rodenticides:

Used to control rodent populations, anticoagulant rodenticides (AR's) are widely used in urban and rural settings. The AR's can be delivered by tablets or pellets, paraffin blocks and/or bait stations, to name a few. Tablets, pellets and paraffin blocks can be especially dangerous if placed in the outdoors where wildlife have access to the AR. Bait stations have holes that limit the size of animals that can enter the station, therefore selectively allowing for certain species but non-target species, including natives, can still access the bait station. Once ingested, the animals' blood loses its clotting ability and capillaries are damaged, causing the individual to die from internal bleeding. First-generation anticoagulant rodenticides (FGAR's) require multiple feedings and are persistent in the liver up to 90 days (United States Environmental Protection Agency [USEPA] per CA Department of Fish and Wildlife [DFW] 2012). Due to the development of resistance to FGAR's in rodents, companies developed second-generation anticoagulant rodenticides (SGAR's) that are more toxic (may only require one feeding for a lethal dose) and are more persistent in tissue (up to 248 days; USEPA per DFW 2012). However, due to

delayed action it may take days for the animal to die, allowing for multiple feedings and very high concentrations in the body. Active ingredients in SGAR's include at least one the following:

- Brodifacoum
- Bromadiolone
- Difenacoum
- Difethialone

Species have varying levels of susceptibility to the toxins found in anticoagulants and, therefore, their effects differ by species. Once ingested, individuals may continue to live with the toxin in their tissues for days, even months, prior to death, and can become prey for wildlife. Thus, targeted and non-targeted individuals may be affected by direct ingestion of the anticoagulants but also secondarily by ingesting an animal that has ingested the toxin. It is in this way that the toxin can be transferred to animals higher on the food chain or to decomposers such as turkey vultures that feed on carrion (dead animals). In a PowerPoint presentation on impacts of rodenticides in 2012, the DFW listed the following species as impacted by AR's (only those found on Habitat Authority land are listed below; complete list has 21 species):

- Great-horned owl
- Barn owl
- Red-tailed hawk
- Red-shouldered hawk
- Cooper's hawk
- American kestrel
- Turkey vulture
- Coyote
- Mountain lion
- Bobcat
- Raccoon

According to a study conducted by Riley et al. (2007) in southern California, anticoagulants were found in 90% of bobcats tested and two adult mountain lions died as a direct result of anticoagulant toxicity. Other indirect deaths of bobcats and mountain lions were linked to exposure to AR's. According to DFW (2012 presentation), 100% (14 individuals) of mountain lions tested by DFW during 2011/2012 tested positive for AR's. The one Puente Hills Preserve (Preserve) bobcat tested for anticoagulants in 2009 (direct death due to vehicle collision) was determined to have multiple AR's in its tissues, including SGAR's.

Mange:

Aside from death due to direct ingestion of AR's, exposure has been linked to other illnesses such as mange. Mange is a skin disease caused by parasitic mites that burrow into the skin causing an allergic-like reaction including itching. This can lead to thickening of the skin and hair loss which can affect an individuals' ability to maintain their body temperature. Eventually the skin may open from scratching providing a wound where bacteria may enter the body and either weaken the animal further and/or lead to death. Healthy individuals can typically fight the infection, however those with weakened immune systems (for instance individuals exposed to toxins such as AR's)

have a harder time fighting the disease giving time for the mites to reproduce and invade the entire body. (<http://www.urbancarnivores.com/notoedric-mange-a-disease-of/>).

Mange can be transmitted from one animal to another and there are other types of closely related mites that cause mange: a) notoedric mange, caused by the *Notoedres cati* species of mite, infects cats including bobcats, and b) sarcoptic mange, caused by the *Sarcoptes scabiei* species of mite, infects dogs including coyotes. A notoedric mange epizootic hit the Santa Monica Mountains in 2002 and more than 50% of radio collared bobcats in Thousand Oaks died of mange between 2002 and 2006

(<http://www.urbancarnivores.com/archives/>). In the Puente Hills Preserve during 2013, two bobcats were radio collared as part of a study conducted by the U.S. Geological Survey; the male bobcat was collared on January 16th and the female was collared on January 18th. Mange was not detected on either bobcat at the time of collaring. The last time the female bobcat was observed by wildlife camera traps was on 3/27 and a mortality signal was detected on 4/15. Upon location of the females' body, she had severe mange. Therefore this individual became infected with mange and died in less than 3 months. The male bobcat, observed to have increasing levels of mange on the wildlife camera trap pictures, was captured on 6/26 and transported to a veterinarian for care. He continues to be treated. Testing for anticoagulants must be done postmortem but unfortunately the females' body was too far decomposed for analysis and therefore, we do not know the levels of AR's in the female or male bobcat. In addition, wildlife camera photos and observation by a Habitat Authority Ranger have also indicated that coyotes in the Preserve have developed mange.

Regulation:

The California Department of Fish and Wildlife (DFW) expressed concern to the California Department of Pesticide Regulation (DPR) about the effects of brodifacoum on non-target wildlife back in 1999 and requested a review of the product. Since the USEPA was already conducting its own review, the DPR decided to wait for the results of that assessment (DPR 2013).

In 2008, the USEPA released a Risk Mitigation Decision for Ten Rodenticides (RMD) which included reducing children's exposure to rodenticides in the home and reducing wildlife risks. Specifically, FGAR's (and other non-anticoagulant rodenticides) would no longer be allowed to be sold in pellets (must now be sold with bait stations) and use of SGAR's outdoors also requires the use of bait stations. The EPA also included sales, distribution and packaging restrictions on SGAR's to avoid sale on the residential consumer market (EPA 2008).

In response to a lack of compliance, the USEPA is currently taking action to remove 12 products (those that don't comply with the Risk Mitigation Decision, including products containing any of the four SGAR's) from the market (EPA 2008). The DPR conducted a study and found that impacts to non-target wildlife is an issue statewide and that they are exploring mitigation measures such as designating SGAR's as restricted material (DPR 2013). Recently, the Center for Biological Diversity released a 60-day Notice of Intent to

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Sue for violations related to the Endangered Species Act, Migratory Bird Treaty Act and several other laws/acts (Center for Biological Diversity 2/21/2013) as a result of the noncompliance with the Risk Management Decision.

Based on a non-comprehensive internet search, 11 cities and 2 counties in California have taken action supporting the EPA's Risk Management Decision. In 2011, the City of Albany adopted a resolution (No. 2011-60) urging businesses in the city to no longer sell rat and mouse poisons that would be prohibited under the USEPA's RMD, asking property owners to not use the products, and urging the California DPR to cancel or refuse to renew the registration of products listed in USEPA 2008 decision. On January 17, 2012, the City of Berkeley adopted a resolution (No. 65,581-N.S.) to urge Berkeley businesses to stop the sale of rodenticides prohibited under the USEPA's Risk Mitigation Decision. Since then, other cities have adopted similar resolutions including the City of Brisbane (No. 2013-15), City of Malibu (No. 13-28) and numerous others. See the attached City of Albany resolution and Malibu staff report for your reference.

Local concern:

Recent detections of mange in coyotes and bobcats on the Preserve, as well as the recent death of one bobcat due to mange, create concern for wildlife due to anticoagulant exposure. Especially since an enclosed bait station was recently discovered on private property adjacent to the Preserve but the exact type of AR is unknown. Outreach with the property owner is occurring.

Alternatives:

There are many alternatives to using harmful pesticides. An important component to controlling rodent populations is prevention. This involves sealing entry points into your home or business, keeping food in sealed containers indoors, keeping outdoor pet food in sealed storage containers and lids on garbage containers, decluttering the inside of homes, removing debris piles around homes, and not planting ivy (www.saferodentcontrol.org). For rodent elimination, snap or electronic traps are only recommended for indoor use only since outside you can capture other unintended animals (<http://www.urbancarnivores.com/alternatives-to-poisons/>). The University of California, Statewide Integrated Pest Management Program (<http://www.ipm.ucdavis.edu/PDF/PESTNOTES/index.html>) and Urban Carnivores website (<http://www.urbancarnivores.com/alternatives-to-poisons/>) contain a wealth of information regarding alternative controls. The DFW recommends the following alternatives to SGAR's <http://www.dfg.ca.gov/education/rodenticide/>:

- Habitat modification - seal entrances to your home, remove yard debris, etc.
- Trapping (not recommended outdoors by Habitat Authority)
- Use other non-anticoagulant rodenticides (bromethalin, zinc phosphide, cholecalciferol) since there is less risk of secondary poisoning (not recommended by Habitat Authority)
- Use first-generation anticoagulant rodenticides (not recommended by Habitat Authority)

Literature Cited:

California Department of Fish and Wildlife. 2012. The current state of anticoagulant rodenticides in California. <http://www.cdpr.ca.gov/docs/dept/prec/2012/031612rodenticides.pdf>

California Department of Pesticide Regulation. 2013 February 12. DPR Rodenticide Update at Agricultural Pest Control Advisory Committee meeting.

Center for Biological Diversity. 2013 Feb 21. 60-Day Notice of Intent to Sue for Violations of Section 9 of the Endangered Species Act; Notice of Violations of the California Endangered Species Act, California's Fully protected Species Laws, the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Environmental Protection Agency. 2008. Risk Mitigation Decision for Ten Rodenticides (<http://www.epa.gov/oppsrrd1/reregistration/rodenticides/finalriskdecision.htm>)

Riley, S., C. Bromley, R. Poppenga, F. Uzal, L. Whited and R. Sauvajot. 2007. Anticoagulant exposure and notoedric mange in bobcats and mountain lions in urban southern California. *Journal of Wildlife Management* 71 (6): 1874-1884.

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www.saferodentcontrol.org

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