

The Cooper Center for Environmental Learning



Demonstration Project By: Lyndale Bondoc

Wrote an article on The Dangers of Rodenticides for the Desert Leaf Publication

Sonoran Sage

The Dangers of Rodenticides

by Lyndale Bondoc, Cooper Center for Environmental Learning



Pack rat

The Sonoran Desert is home to a wide array of species, including plants, mammals, reptiles, birds, and insects that have all adapted to the harsh desert environment. Within the mammal family are rodents, a crucial part of this desert ecosystem that are prey for larger animals such as bobcats and hawks. The use of rodenticides in the Sonoran Desert poses significant threats to the balance of its ecosystem. While these poisons are often seen as a necessary tool for pest control, their harmful effects extend far beyond the intended targets and can have long-term environmental impacts on a wide range of wildlife, including predators, scavengers, and even domestic animals, as well as potentially harming human health.

Types of Rodenticides

The two general categories of rodenticides are *anticoagulant* and *non-anticoagulant*. The former type is the most commonly used rodenticide. This poison disrupts a rodent's ability to produce vitamin K, which results in the animal's dying from internal bleeding. The anticoagulants are further divided into two types: first-generation and second-generation anticoagulants (SGARs).

First-generation anticoagulants require multiple doses to be lethal, whereas SGARs usually require only one dose to kill, and they stay in the body and are a risk to the life of the predator that consumes the poisoned rodent. Nontarget species are highly likely to be harmed or killed when catching prey poisoned with an anticoagulant.

Nonanticoagulants kill rodents by acting on the nervous system to produce toxic gas in their stomach. This poison is less common but still harmful to nontarget species and the environment.

Risks to Nontarget Species

Among the nontarget species in the Sonoran Desert are predators such as coyotes, bobcats, owls, and even turkey vultures, which can all experience secondary poisoning from a poisoned rodent that can result in illness or death. Many mammals and birds consume rodents or carcasses of rodents as a primary food source. Harm to nontarget species through secondary poisoning is one of the most significant effects of rodenticides, because it can cause a decrease in wildlife. Use of these poisons also diminishes the population of ro-

dents, reducing the availability of food for predators and thus further disrupts the desert ecosystem.

Risks to Humans and Domestic Animals

When humans use rodenticides to control pack rats, destructive rodents, and infestations in urban environments, they risk accidentally poisoning both humans and domestic animals. Household pets such as dogs and cats may ingest the baits set for rodents, which can lead to severe illness or even death. Children, especially, may be attracted by the colorful appearance of bait. Depending on how much toxin is ingested, the result can be internal bleeding, neurological damage, and death in extreme cases. Even the smallest amounts of rodenticide will result in health issues for all beings that consume it.

Safer and More Sustainable Options

Given the significant dangers presented by rodenticides in the Sonoran Desert, it is vital to consider safer, more sustainable alternatives. Integrated pest management (IPM) is a comprehensive approach that focuses on long-term prevention and control of pests through a combination of methods. In the case of rodents, IPM strategies might include habitat modification such as sealing entry points to buildings and removing food sources, using mechanical traps, and encouraging natural predators like owls and hawks to control rodent populations. By adopting IPM practices and reducing reliance on toxic chemicals, it is possible to protect both the delicate balance and biodiversity of the Sonoran Desert's unique ecosystem and human communities alike. To learn more about IPM, visit the Environmental Protection Agency's website, epa.gov/safepestcontrol/integrated-pest-management-ipm-principles.

At Camp Cooper, students are taught to appreciate and respect the natural cycles of the Sonoran Desert and the relationships between predator and prey. They learn that toxic chemicals disrupt these cycles and destroy the fragile balance of nature in our desert. ☺

Lyndale Bondoc is an Earth Grant intern at the Cooper Center for Environmental Learning. Comments for publication should be addressed to letters@desertleaf.com.

EarthKeepers Program



3-day program for 4th and 5th grade students focuses on learning about ecological concepts, deepening feelings for the earth, making a pledge to reduce energy and materials use at home and school, and sharing these experiences with others.

Sonoran Synergy Program

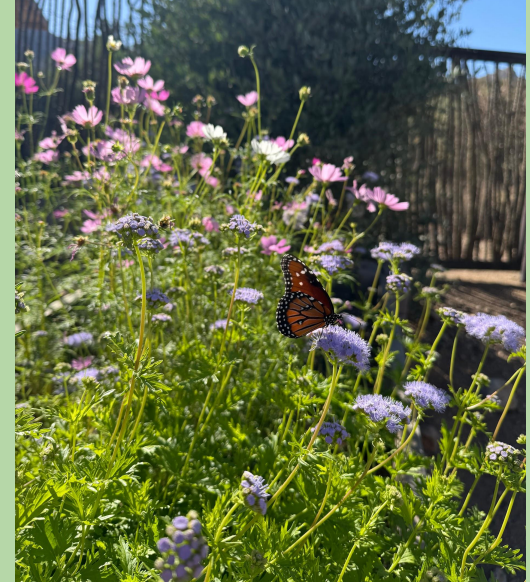


Students work together to gather data on the Sonoran Desert and fight for its protection from development by a fictional construction company.



Garden Presentations

Led presentations in our garden by the Compost Cats and taught about the five seasons in Arizona, composting, gardening in the Sonoran Desert.



Snake Presentations

Assisted in showing and teaching students about the Sonoran Mountain Kingsnake, native to the southwestern United States.

