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Keeping rodents away from sensitive environments through landscape management and IPM Shaku Nair, Dawn H. Gouge, Shujuan Li, Ursula Schuch University of Arizona

Sensitive environments (schools, childcare, medical and assistedliving facilities) house vulnerable populations such as children, the ill or elderly. The value of trees and natural areas in promoting good health, healing and general well-being (Fig. 1) is widely documented (Velarde et al. 2007). Prevalence of pests, such as rodents, sometimes leads to drastic measures including severe pruning or even complete removal of plants or trees, to avoid providing habitat, food, and water resources to these pests. However, it is possible to manage these pests effectively and still have a beautiful landscape.

Do fruit and nut trees encourage or support rodent pest populations?

This is a common concern with homeowners and landscape managers. Many rodents feed on a variety of plant materials such as seeds, flowers, leaves, roots and bark, not just fruits and nuts. They also forage in and around buildings and dumpsters to utilize different food resources. Studies have shown that neither roof rat density nor number of plant species in the diet is correlated with the number of available food plant species in the environment (Clark, 1982). **Thus, removal of trees or specific plants will not serve to reduce existing rodents or prevent new ones from becoming established.** However, proper landscape management can help to keep rodents and other pests away.

- Correct and timely pruning ensures that branches do not touch walls and roof lines (Fig. 2), preventing pests from gaining access to attics, windows and wall voids.
- Removal and prompt disposal of fallen citrus, acorns, and other fruits and nuts (Fig. 3) on the ground keeps the landscape clean, and prevents rodents and other pests being attracted by these foods. This will discourage rodent activity around buildings, and force them to move further away in search of food sources.
- Use of fruit inhibitors (e.g., ethephon) is an option to minimize fruit set. Make sure to follow label directions, and correct application timing is important.

Integrated pest management (IPM) is the best approach to managing rodents in sensitive environments.

- 1) **Recognize signs of rodent activity.**
- **Droppings**. Rodent droppings are elongated, with tapered ends.
- **Rub marks**. Rub marks are created on surfaces by the skin oils of all rodents.
- Sounds. Rodent activity generate sounds in attics and walls.
- **Chewed or gnawed items**. Chewed fruit, nuts, or other items may be observed (Fig. 4). Chewed up wiring, insulation, gnaw marks on doors or furniture indoors may also be seen.



Figure 2. Landscape tree branches provide roof access for rodents when they touch walls and rooflines. The branches should be trimmed to prevent touching.



Figure 3. Fallen fruit and nuts serve as food for roof rats and other animals. Use fruiting inhibitors or clean up fallen fruits and nuts weekly.



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2) Correct pest identification. Roof rats (*Rattus rattus*) (Fig. 5) are medium sized rodents with long, slender bodies and black, gray, or brown fur and larger eyes and ears. The head and body together measure 7-8 inches. The tail alone can be 8-9 inches in length (nearly always longer than the head and body length) and will touch the tip of the rat's nose if stretched forward. The tail is dark, scaly and hairless, and is used as a support when climbing vertical surfaces. Other rodents may also be encountered, but roof rats are usually the most problematic in landscapes. Read more about them at: <u>https://tinyurl.com/y49hdoqj</u>, page 173. See Fig. 6 on right, for a guide to identify domestic rodents.

3) Monitoring for rodent activity. Educate and encourage site management staff to recognize and report sightings of signs. Regular inspection of buildings for entry points and timely pest proofing is essential.

4) Removal of existing rodents and remediation of contaminated areas inside buildings. This is a public health priority and a task that should be done by designated, trained staff or pest management service providers. Severe rodent infestations indoors can result in large amounts of rodent feces, urine and fallen hair, as well as hoarded food material.

5) Waste management. Dumpsters and external trash receptacles are primary commensal rodent attractors to buildings (Fig.7). Dumpster lids should be kept closed at all times. Dumpsters should be steam cleaned at least 2 times each year, and placed on a concrete slab which is maintained clean and clear of debris. Dumpsters should be at least 50 feet from the building, but are often located too close to buildings.

6) Exclusion. Preventing rodents from gaining access to building interiors MUST be undertaken concurrently to the above steps.

Three important things to remember regarding roof rats in sensitive environments:

- 1. Roof rats are well established in some Arizona neighborhoods.
- 2. In those areas, roof rats are a long-term reality. Unless there is an area-wide long-term eradication program established, they are here to stay.
- 3. Prevent them from entering buildings by effective pestproofing, and keeping them away by good landscape and waste management.

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Figure 6. FIELD IDENTIFICATION OF DOMESTIC RODENTS





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