SPRAGUE

# CASE STUDY

## GUARDIANS OF THE ZOO: BALANCING PEST MANAGEMENT WITH ANIMAL WELFARE

Managing pests in a zoo environment presents challenges far beyond traditional commercial or institutional accounts. With plentiful food, water, shelter, and optimal temperatures, zoos can quickly become havens for pests if not carefully managed.

The stakes are also higher than in most facilities. Pest activity not only threatens animal health and visitor safety but also requires solutions that protect sensitive and often endangered species. Successful zoo pest management depends on close collaboration with staff and veterinarians, detailed service plans, and a thorough understanding of the unique behaviors and vulnerabilities of each species.

Jeremy Hundley, BCE, regional entomologist for Sprague Pest Solutions, notes that zoos must also meet strict accreditation and regulatory requirements. Agencies such as USDA's Animal and Plant Health Inspection Service (APHIS) and professional zoo associations monitor facilities closely. Even something as seemingly minor as a few rat sightings can trigger concern.

"If inspectors see more than two rat sightings, USDA takes notice," Hundley said. "Facilities are mandated to address it quickly, so proactive pest prevention is essential."

Another layer of complexity is material usage. Most zoos maintain restricted lists of pesticides and treatments, and nothing can be applied without explicit approval. Decisions often require collaboration with veterinarians and animal health teams, especially when treatments occur near enclosures.

"How close you're applying a product to an enclosure matters," Hundley added. "It's not just about effectiveness. It's about safety for the animals and compliance with their health standards."

Coordinating with keepers and zoologists adds another challenge. Pest management must align with carefully structured animal care routines where timing is critical. Moving species such as jaguars is no small task, so every service plan must be flexible and adaptable to the facility's needs.

Layered on top of these scheduling demands are regulatory oversight, animal welfare considerations, and operational expectations. Together, they make zoos among the most demanding environments for pest management providers. Sprague's science-based approach and depth of experience help ensure institutions meet obligations while safeguarding animals, staff, and visitors.

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**Jeremy Hundley, BCE**
Regional Entomologist
Sprague Pest Soutions

## Conducive Conditions in Zoos: Why Pests Thrive

Zoos are designed to replicate natural habitats, but the same conditions that sustain animals also attract pests. Warmth, humidity, food, water, and harborage are abundant, making proactive management essential.

- **Water:** Aquatic habitats, moats, irrigation systems, and routine power washing provide consistent moisture. Standing water and cracks left after cleaning can become pest hotspots. Regular inspection, drying strategies, and maintenance are critical.
- **Food:** From crickets and grains to produce and meat, zoos store and prepare diverse food sources. Leftover feed and improperly stored product attract pests and may introduce stored product insects. Wetlands, aviaries, and primate habitats where messy eaters leave waste can quickly draw pests.
- **Shelter:** Naturalistic materials like rockwork, wood, and soil provide harborage for ants, cockroaches, and rodents. Non-public areas, hollow block walls, and imported exhibit materials add risk.
- **Warmth:** Tropical exhibits, indoor aviaries, and aquariums provide temperature and lighting conditions that favor German cockroaches and pharaoh ants.
- **Location:** Zoos are often in park-like settings, increasing pressure from surrounding wildlife, birds, and rodents that introduce parasites and disease.
- **Food Service and Storage:** Restaurants, concessions, and storage areas create additional pest pressure. Flies and Indian meal moths are common concerns.

Sprague's team was once called to a zoo after hours when stinging insects were spotted near a summer camp program. Technicians found a yellowjacket nest under the awning of a portable food unit. Recognizing the risk to campers and employees, the team removed the nest that evening and restored the area before programming resumed.

## Working with Zoo Staff: Building Trust and Transparency

Pest management in zoos requires sensitivity not only to the animals but also to the staff who care for them. Keepers view themselves as guardians and are cautious about any measures that could compromise animal health.

Strong communication is essential. By building trust and collaborating with staff and veterinarians, pest professionals can identify acceptable strategies and establish clear thresholds for action. In some cases, tolerating low levels of nuisance pests may be preferable to unnecessary treatments.

"When you're rooted in IPM, it's not an off-the-shelf service. We do not think about checking boxes and instead focus on identifying, investigating, and really diving into each challenge," said Nate Cechman, a Sprague branch manager. "Zoos require us to use our full set of skills whether that's building custom wooden boxes for monitoring devices or placing trail cameras in dense vegetation. Every solution has to be unique and in sync with the zoo's standards."

Cechman added that staff perspectives on humane pest disposal must also be respected. Discussing available control methods upfront ensures programs align with zoo values while still protecting animals, staff, and visitors.

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**Nate Cechman**
Branch Manager
Sprague Pest Solutions

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## Unique Areas, Unique Infestations

The features that make zoos engaging for visitors and comfortable for animals can also create perfect pest conditions. Exhibits designed with natural materials - wood, rock, soil, and plants - offer cracks, crevices, and organic substrates that attract ants, cockroaches, and rodents. Live vegetation is especially prone to ant activity, while bamboo, wood panels, and rockwork in aquariums provide abundant harborage.

"Rodents are hard-wired to seek out areas with dense vegetation since the thick roots make it easier for them to burrow," said Cechman.

Sprague has used targeted $CO_2$ applications in burrows located in heavy vegetation area with success.

Behind the scenes, hollow block walls, cage supports, weight scales, and hollow metal frames often serve as refuges for German cockroaches and rodents.

Zoos also face risk from the wide variety of materials they bring in. While animals are quarantined before entering exhibits, plants and enrichment items often are not. This can introduce invasive pests such as fire ants, ghost ants, Australian cockroaches, wood-boring beetles, and ornamental plant pests like scales and aphids.

Thorough inspection of incoming materials is essential to protect both animal health and exhibit integrity.

## Best Practices Zoos Can Use to Reduce Pest Risks

Effective zoo pest management isn't just about treatments; it begins with what the facility can control daily. By tightening sanitation and planning for access, zoos can significantly reduce pest pressures.

- Maintain consistent trash pickup; don't leave bins overnight.
- Upgrade to foot-pedal bins in high-risk areas.
- Keep dumpster lids closed to prevent infestations.
- Separate landscaping debris from food and general waste.
- Increase service frequency where restaurants and keeper areas share dumpsters.
- Plan for access so pest control providers can treat effectively.
- Coordinate with animal care teams; tight spaces and adjacent exhibits may require multi-day planning to safely move animals and post signage.

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