

PEST MANAGEMENT ADVISORY COMMITTEE

San Francisco–Marin County Field Trip

Thursday, July 10, 2008

Managing Pests in a Rapidly Expanding Urban Landscape: Challenges and Opportunities

|| Laguna Honda Hospital, San Francisco ||

The 62-acre, city- and county-owned Laguna Honda Hospital and Rehabilitation Center is located on the western slopes of Twin Peaks in central San Francisco. Established in 1867, Laguna Honda Hospital was originally called the Almshouse. The hospital provides a full range of skilled-nursing services to adult residents of San Francisco who are disabled or chronically ill, including specialized care for those with wounds, head trauma, stroke, spinal cord injuries, orthopedic injuries, AIDS and dementia. The hospital also has a hospice program. Staff efforts are supplemented by over 700 volunteers who contribute more than 70,000 service hours every year. The 1,060 nursing facility residents of Laguna Honda are diverse in ethnicity, age, and clinical conditions.



The Green Replacement Project. Planning for Laguna Honda's ambitious construction project began in 1999, when the citizens of San Francisco voted to rebuild the hospital's outdated facilities. Most of the existing hospital will be demolished and rebuilt, although the historic administration building will be restored and used for nonmedical purposes. Part of a pilot program for benchmarking the green design of all future City of San Francisco development, its performance will be monitored by the city's Department of Environment. Architects Anshen + Allen and Gordon H Chong Partners designed the 850,000 square foot acute- and long-term care hospital to be Basic LEED NC-certified (NC = new construction), with a focus on indoor air quality to create a healthful environment for patients and staff.

The concept that residents are healthier with exposure to natural light was embedded into the design criteria. Therefore, every resident has his or her own large operable window, and the center of the long-term care building is all glass.

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Laguna Honda has been designed to use 30 percent less energy than required by California's energy code, and will generate at least five percent of its total power with solar cells and microturbines, which are compact generators that deliver energy using renewable and fuel sources such as biodiesel. The heat-island effect of the building, which increases demand for cooling, will be mitigated with high reflecting roofs and parking surfaces, shading devices, and planting materials.

Automobile traffic around the hospital will be reduced with improved public transit access, ride sharing, use of shuttles and alternative fuel vehicles, and encouraging the use of bicycles with bike storage and changing facilities.

The hospital is formulating a sustainable building operations plan that includes low-VOC emitting medical products, furniture and cleaning products. Food will be as locally grown as possible, and use of transfats eliminated. Outdoors, the hospital will establish a healing garden, and bring back a therapeutic farm with raised beds, a fruit tree orchard, greenhouse, and some animals, including rabbits, pigs, chickens and ducks.

Note: Adapted from a document written by Dr. Terry Hill, Medical Director of Laguna Honda Hospital, and Assistant Clinical Professor in the UCSF Department of Medicine. Additional information about Laguna Honda's green construction from "The Top 10 Green Hospitals in the U.S.: 2006," by Kim Weller, AIA.

Laguna Honda's Pest Management. The Agurto family's company, Pestec, has worked with Laguna Honda Hospital for over ten years, monitoring indoors daily for German cockroaches and outdoors for



Argentine ants. Mice were a huge problem and required extensive trapping indoors and outdoors. Pestec avoided using toxic baits or glueboards, and rodent-proofed all hospital buildings, installing doorsweeps and caulking cracks.

Pigeons have also been a widespread problem around the hospital, especially when patients intentionally feed them. **Luis Agurto, Jr.**, of Pestec is planning a trial of OvoControl® P (nicarbazin), which interferes

with egg hatching and doesn't harm the birds themselves. The surrounding ravines and overgrown areas provide habitat for coyotes, opossums, raccoons, and skunks. A number of feral cats live around the hospital. In 2005, fleas from these cats invaded the hospital by the thousands. Yellowjackets have also been a problem because the hospital is surrounded by 22 acres of overgrown vegetation.

Every September since 2005, Laguna Honda Hospital has brought in 600 South African Boer goats from Monterey County to feed on the overgrown brush and vines, thereby reducing habitat for rats and yellowjackets, and the chance of fire. Although the goats' munching would more effectively trim the vegetation in spring rather than late summer, the severe pruning of new growth might interfere with fledging birds or destroy the last few remaining indigenous plant species.

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|| San Francisco Botanical Garden (Strybing Arboretum), San Francisco ||

When visiting verdant Golden Gate Park, it's hard to believe that this grassy, forested area was mostly sand dunes a little more than one hundred years ago. The Strybing Arboretum, planted in the late 1930s, occupies 55 acres and includes over 7,500 cultivars of plants from around the world. Although surrounded by the Pacific Ocean and San Francisco Bay, the Arboretum is the coldest spot in San Francisco, and is hit with a hard freeze every year.

Bob Fiorello has worked at the Arboretum for a number of years. The biggest challenges there are gophers and weeds. For the gophers, gardeners at the Arboretum have started using a Canadian method of peripheral trapping with some success. The Arboretum does have hawks, owls and egrets that eat some of the gophers, but the rodents still manage to invade the area.

Bob's philosophy of weed management is to place desirable plants wherever possible to crowd out the undesirable weeds. Still, the Arboretum is in a prime plant-growing climate and several invasive weed species grow in spite of crowding from specimen plants, mulching and hand pulling. These include ehrharta or



Stebbins grass, *Ehrharta erecta*; Bermuda buttercup, *Oxalis pes-caprae*; pampasgrass, *Cortaderia* spp.; and bedstraw, *Galium* spp. Sedges and sowthistle also seem to thrive in the edges of beds where water collects. Ehrharta is so aggressive that it grows right through hedges and gives the Arboretum an unkempt look. In early spring, Bob sometimes treats stands of ehrharta with a low rate of Roundup (less than 2 percent). Three days before doing this, he posts warning signs at all four entrances.

Snails and slugs can be a problem. Many are eaten by rats, but Bob also uses iron phosphate. Pitch canker, a disease of pine trees caused by the fungus *Fusarium circinatum*, shows up in the Monterey pines. With the diversity of plants there's a potential for infestation by the light brown apple moth (LBAM), so the Arboretum has a monitoring program in place. The nursery produces plants for the Arboretum's use and sells plants to the public, which would stop in the event of an LBAM infestation.

With the exceptional diversity of flowering plants, the garden provides pollen and nectar to honey bees and other bee species, and an array of parasitic and predaceous insects including brown and green lacewings, minute pirate bugs, assassin bugs, and big-eyed bugs.

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|| Training Retail Employees ||

The UC IPM Program is creating online training modules to educate retail store employees about pesticide safety and alternatives. Employees take an online quiz and can then print out a certificate. The first module, on pesticide safety, is complete and can be accessed at <http://www.ipm.ucdavis.edu/IPMPROJECT/retailtraining.html>. (It takes about 40 minutes to go through the whole module, or you can try part of it and not qualify for the certificate.) The second module, on IPM, is in progress.

For several years there's been concern about store employees who give incorrect information, and the consumers who walk out of stores lacking accurate information and are unlikely to follow the product's label directions. Some of these consumers may purchase and apply the wrong product, misuse or overuse the product, and possibly cause damage to health and the environment. Without information about reduced-risk alternatives, consumers often purchase the most toxic product such as metaldehyde bait for slugs and snail, and systemic rose insecticide with disulfoton. Both of these active ingredients have poisoned dogs, yet both have safe, effective alternatives. For example, iron phosphate snail bait isn't toxic to humans and pets and remains effective after it gets wet. Aphids on roses can simply be hosed off, or an insecticidal soap solution applied.



Point-of-sale Consumer Education

When Walgreens was fined by DPR for selling unregistered products, DPR's legal office offered a creative settlement option. Walgreens paid a reduced settlement fee in exchange for agreeing to work with Our Water, Our World. After two years of discussion with Walgreens' attorneys, they selected a small store in Los Altos to initiate a pilot program. Our Water, Our World's consultant, **Annie Joseph**, is working with Walgreens' buyers and suggesting replacements for certain products and phasing out others such as ultrasonic rodent repellents. Annie has posted shelf-talker labels that explain what certain products such as ant bait do, and installed fact sheets for consumers. The store's manager admits that pesticides sell poorly at that store, and he's eager to introduce green products. He's also offered to open his books to see how the green products do over time.

Our Water, Our World is active in 19 counties and over 200 stores—many independent nurseries and garden centers, but also all Orchard Supply Hardware stores and some Rite Aid (San Jose store pictured at left) and Longs stores. The store managers and employees become familiar with the fact sheets and shelf talkers, and involved in the product renovation. In many cases, the stores install new end caps.

DPR plans to continue its retail-related ventures. When possible, DPR will fund projects that educate consumers and retail employees. DPR will also document success of the Walgreens creative settlement and negotiate other creative settlement opportunities. Stewardship discussions with manufacturers will continue as well as documenting successful retail programs in other states.

For more information on Our Water, Our World's programs, see www.ourwaterourworld.org.

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|| San Francisco's IPM Ordinance and Program ||

In 1996, the San Francisco Board of Supervisors passed an ordinance requiring that San Francisco's 70-plus departments manage pests on public property using IPM. The ordinance also established posting and recordkeeping requirements, and phased out use of certain pesticides. In 1999, agency staff developed a tiered system of approved pesticides, ranking pesticides for potential hazards. Those in the highest hazard category are not used. The list is reviewed annually, but is not the focus of the program. Every month, building and landscape management staff from each department convene for a technical advisory committee meeting. The meetings emphasize the expertise of the pest managers and peer-to-peer problem solving. The program regularly holds hands-on workshops.

Since the ordinance has been in place, San Francisco has reduced gallons of pesticides used by 85 percent and pounds of all pesticides used by 55 percent. The program is currently addressing issues including aesthetic use of pesticides on golf courses, rodents and public health, and green building standards including designing facilities for pest prevention.

All county departments have achieved significant reductions in pesticide use. San Francisco's IPM Program educates and encourages public workers to use pesticide alternatives in hospitals (such as Laguna Honda), jails, office buildings, the San Francisco Port and the International Airport, golf courses, parks, and watershed areas. Most herbicide use has been replaced with mulches, weed cloth, improved landscape design, and competitive plantings; beneficial insects manage aphids and scale in greenhouses and landscapes. A citywide structural pest control contract requires use of IPM in and around public buildings. San Francisco also hosts an annual IPM Conference that attracts IPM specialists from across the state; holds monthly technical meetings to discuss pest management challenges and successes, and hosts demonstration days for new pest management tools.

For more on the San Francisco program, visit the Web site, www.sfenvironment.org.

|| Marin County's IPM Ordinance and Program ||

In 1983, Marin County adopted an IPM policy for its departments of parks, open space, and cultural commission. Since then, pesticide use has dropped by 75 percent, and the most hazardous pesticides eliminated. The ordinance includes employee written safety programs, appropriate state pest control licensing and continuing education for employees, and compliance with federal and state pest control laws and regulations. In the mid-1990s, the County Department of Agriculture established a Weed Management Area where weeds are removed mechanically, and biological control agents are released to keep weed populations low.



In 1999, Marin County schools were selected to participate in a DPR-funded Model School IPM Project, designed to implement the Healthy Schools Act and help schools make the transition to IPM. In 2002, the project provided training for school personnel, in Marin, Alameda, Contra Costa, and Solano counties, and offered a forum for Marin school maintenance directors and their staff to exchange information about problems and successes in their pest management programs.

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|| EcoWise Certified: Role of Certification for PCOs Who Offer IPM Services ||

What happens when a public agency is required to use IPM practices for its buildings? That's where EcoWise steps in. EcoWise is a nonprofit program administered by the Association of Bay Area Governments (ABAG), and funded under a grant from the State Water Resources Control Board. The program works with regulatory initiatives to prevent insecticide runoff into urban streams from commercial and consumer pesticide use. Studies have shown increasing levels of aquatic toxicity in recent years from pyrethroid applications made by commercial applicators and consumers. In 2004, the Berkeley-based Bio-Integral Resource Center (a 1997 IPM Innovator) wrote the Standards for IPM Certification in Structural Pest Management. It became the foundation for the EcoWise certification process for California pest control operators (PCOs) who wanted to pursue IPM training and marketing. More than 70 individual PCOs and seven companies are certified. EcoWise's mission statement is: "Improve water quality, environmental and human health and safety by minimizing pesticide use via an IPM certification program."

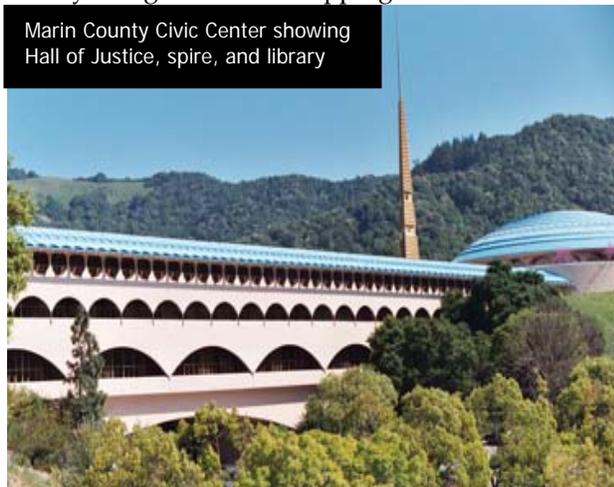
|| Marin County Civic Center, San Rafael ||

"The outside of any building may now come inside and the inside go outside, each seems as part of the other."

— Frank Lloyd Wright (1867–1959)

The civic center complex was Frank Lloyd Wright's last commissioned structure, the largest constructed public project of his career, and the only one designed for government. Completed after his death in 1962, the Civic Center is a national- and state-designated historic landmark. Lloyd Wright tried to integrate the Civic Center with the surrounding golden, rolling hills by using arches and capping the structure with a gold-colored roof. By the time the structure was built, the manufacturer of the plastic roof membrane had to substitute sky blue.

Lloyd Wright's use of unusual architectural features and his effort to integrate outside with inside, has introduced some interesting pest management challenges. **Richard Estrada's** company, ATCO Pest Control, has been servicing the Civic Center for several years. Richard and building engineer **Jon Wright**, balance historic preservation with inventive IPM practices.



Interiorscapes—The Atria. The long, low buildings of the Civic Center feature atria that seem to bring nature indoors—sometimes literally. Subtropical plantings of ivy, *Clivia*, bromeliads, anthurium, schefflera, *Tradescantia*, pothos, hibiscus, and bird of paradise often have infestations of mealybugs and spider mites. Richard discovered that one mystery pest—German cockroaches—lived under the plastic liner of the atrium planters. He used boric acid bait to eliminate them.

"True ornament is not a matter of prettifying externals. It is organic with the structure it adorns, whether a person, a building or a park." — Frank Lloyd Wright

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Other Architectural Features. Gold spheres decorate the indoor and outdoor rooflines. During rainy weather, the roof leaks and water pools up and drains right into the spheres, which leaves them moldy. The solution? Jon Wright drilled small holes through the bottom of the spheres for drainage.

Civic Center Café. There were so many German cockroaches that it was standard to spray and fog with Dursban (chlorpyrifos) every three months. After years of use, the kitchen needed a thorough cleaning. Workers scrubbed every nook and cranny, and sealed up openings to exclude the roaches. Now they monitor constantly and use bait, and have not had any roaches since. In the early 1990s the buildings were retrofitted for seismic safety. Huge gaps appeared during construction, and it wasn't unusual to see mice, rats, and even pigeons in the café.

Outside the café is a patio, pond, and lawn with plantings of mayten trees, *Agapanthus*, and birch trees. Occasionally, people have complained of a biting pest attacking them from that area. Just to the north, gardeners remove ivy growing on the slopes that provides a home for rats.

The Offices. Because the building is surrounded by vegetation, it's not unusual for offices to have infestations of fleas from deer, field cockroaches, spiders, and mice and rats. One year an office worker decorated her office with a bird's nest. This resulted in complaints about bird mites, which are very hard to eliminate. Some of the occupants are a bit untidy. For example, lawyers in the public defender's office left food everywhere, which attracted cockroaches and ants. Recyclables were picked up too infrequently, which made the roach and ant problem even worse.

Building occupants have a range of tolerances for pests: people frequently complain about any skin eruption that resembles an insect bite, although these are probably not bites they got at work. One person adopted as a pet a black widow that lived in her office's corner, and fed it flies that she caught.

Because of its unique architectural qualities combined with structural flaws, a number of IPM training events have taken place at the Civic Center since the mid-1990s. This includes a U.S. EPA-sponsored class that explored IPM in the Civic Center for two days.

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