PIGEON PROBLEMS AT INNER CITY SCHOOLS IN THE CITY OF LOS ANGELES.

The common pigeon, **Columba livia**, is the most important pest bird associated with inner city schools in the City of Los Angeles. Schools are excellent nurturing and harboring places for large numbers of pigeons. They provide all of the critical and essential requisites for pigeon survival and reproduction, including food, water, nesting and loafing sites. The noisy and dense diurnal human presence is also a deterrent the predators. Pigeons are highly adaptable and opportunistic birds which have found the human-created asphalt jungle habitat of inner city schools much to their liking.

FOOD

Pigeons which frequent inner city schools are a breed apart. They are unique in their intelligence and opportunistic behavior. In recognition of the smartness of school pigeons, they are being elevated to subspecies status and hereby designated as **Columba livia scholastica**. They have learned the times of day when food is available at the schools and they arrive at food locations like clockwork. School building and grounds workers are quite familiar with the precise temporal sequence of pigeon activity at the various schools. Some of these employees have sarcastically stated that the pigeons are wearing Timex® watches while others have emphatically stated that the pigeons are tuned in to the school bell which announces nutrition breaks and lunch periods. One astute worker referred to the birds as Pavlov's pigeons.

Pigeon populations at inner city schools reach their highest densities during lunch periods. Most of Los Angeles inner city schools are overcrowded and outdoor lunch areas at many schools can only accommodate a fixed number of students at one time. As a result, lunch periods have to be staggered or extended to cater to all the pupils. This affords school pigeons a protracted opportunity to capitalize on an abundant but ephemeral food source. This transient food availability has forced and conditioned inner city school pigeons to become focused and targeted and to seek out the food with a sense of urgency and purpose.

Over time, school pigeons have learned that students will not harm them and they have habituated themselves to search for food within a few feet of the children. School pigeons have no fear of inner city school pupils and they are frequently seen foraging under and between lunch tables and briskly walking between students feet under lunch tables. School staff and students alike have observed certain pigeons with deformed feet or characteristic coloration being at the same school at about the same time of day over a protracted period of time. This type of fidelity to specific time schedules is indicative of circadian rhythm behavior.

It should be noted that inner city school pigeons may have also learned to associate heavy human presence, their noise, and activity, etc., with the availability of food, as school pigeons are not present in appreciable numbers on holidays and weekends when people are not present at the schools, even though the bells still ring on schedule.

PROBLEMS CREATED BY PIGEONS AT SCHOOLS

Structural pest management professionals, who have been in the industry for any appreciable period of time, know the common problems associated with pigeon infestations in, on, or around structures. Pigeon problems at inner city schools pose some unique issues which are not and it is important that these be addressed here. These problems are:

- Pigeon ectoparasites often disrupt classroom and administrative activities by biting and crawling on people.
- Increased cost of pest management associated with controlling pigeon ectoparasites as this work has to be done after normal business hours.
- Increased costs incurred in cleaning and maintenance of air conditioning units that are fouled by pigeons and their accompanying debris.
- Air handling units on roofs of buildings that are heavily contaminated with pigeon feces push particulate fecal materials and other related pigeon allergens directly into classrooms.
- Pigeon feces on hardscapes below nesting, roosting, and loafing sites pose a slip/slide/fall hazard to running children.
- Pigeon droppings on hardscapes in front of school entry doors are significantly tracked in buildings because of heavy foot traffic into schools.
- Dried, trampled, and crumbled particulate pigeon droppings on exterior hardscapes readily become airborne when the wind blows and it can contaminate food and beverages being consumed by students at outdoor lunch areas.
- Pigeons foraging for food and water on top of lunch tables often defecate there putting their feces and pathogens in close proximity to children food, drinks, and hands.
- Children at preschools and early education centers often put their fingers in their mouths or rub their eyes thus increasing the chances of infection from pigeon feces pathogens.
- Amorous cooing, fighting, scratching, and other pigeon noise-making activities on buildings and on hardscapes near buildings are distracting to children who are trying to concentrate and learn in classrooms.
- Children running about and chasing one another around the lunch areas at schools are sometimes startled by the sudden flight of a pigeon(s) and this can cause accidents.
- Pigeon nests at schools are often found to be infested with insects which can enter buildings and become fabric and pantry pests.
- Pigeon droppings, feathers, carcasses, nest materials, etc. often clog flat roof drains and downspouts sometimes causing roof flooding and collapse because of excess water accumulation on the roof.

- Accumulated pigeon droppings have been found to be a source of annoying and pestiferous little houseflies which can often be seen hovering in clusters in front of recessed school entryways.
- Odors emanating from piles of pigeon droppings sometimes enter classrooms when windows close to roofs are opened.
- Pigeon droppings sometimes foul emergency escape ladders which can be a hazard for fire crews and other rescue personnel.
- Drinking fountains which are commonly attached to outside walls of school buildings directly below pipes and roof edges are often defecated on by pigeons creating a direct health hazard (Fig. 1).
- Pigeons often enter classrooms and other rooms at schools through open doors and windows and become entrapped creating nuisance problems and disrupting the learning environment.
- Pigeon feces on certain areas of school buildings cannot be easily removed and cleaned because of lead paint and asbestos issues.

OTHER RESOURCES AVAILABLE TO PIGEONS AT SCHOOLS.

WATER

School policy dictates that trash be removed and the lunch area cleaned and washed after lunch. This washing is done with a pressure water hose whereby the tops of the lunch tables and the hardscape areas below are hosed out. School pigeons love this daily washing because it concentrates the small food particles and it provides them with a copious and reliable supply of good, clean water to drink. I have observed school pigeons turning their heads sideways in order to drink water from shallow water films on the tops of lunch tables (Fig. 2). Pigeons have been seen following the water flow from the lunch area out to the street feeding in and drinking from it (Fig. 3). Inner city school pigeons appear to hang around after their lunch feeding frenzy for the washing process to commence so that they can obtain a good drink of water before they leave the area.

NESTING AND LOAFING SITES

Many Los Angeles inner city schools were constructed in the early 1900's. These schools were built without any consideration given to conditions which are conducive to pigeon nesting, roosting, and loafing. In short, pigeon nesting, roosting, and loafing sites are ubiquitous in and on these school buildings. The tops of air conditioning units which are attached to exterior walls of school buildings are favorite nesting sites of pigeons (Fig. 4). The undersides of large and numerous air conditioning units which are commonly found on flat roofs of school structures often harbor numerous pigeon nests, eggs, squabs, feathers, and feces.

PROTECTION FROM PREDATORS

Because of their locations, inner city schools and their surrounding areas do not harbor important aerial predators of pigeons. On rare occasions, hawks have been seen taking adult and fledgling pigeons at isolated inner city schools. Crows have occasionally been

observed stealing pigeon eggs and killing and eating squabs at a few schools. The plant manager of one school, which has many tall trees on the premises, reported seeing a peregrine falcon taking pigeons at that school on several occasions. However, none of these avian predators are capable of appreciably reducing pigeon populations at inner city schools. Feral cats have been seen killing and eating pigeons on school grounds at night. Inner city schools are unique asphalt jungle environments as far as wild animal populations are concerned. The heavy diurnal activity of large numbers of students, staff, faculty, administrators, and their accompanying vehicles, equipment, and human noise are not conducive to the presence of diurnal pigeon predators.

PIGEON MANAGEMENT STRATEGIES AT SCHOOLS

NEST DESTRUCTION

Inspecting affected schools every two weeks and locating and destroying pigeon nests can be helpful in dealing with an infestation. However, this strategy is labor intensive and costly and it takes time to see appreciable results. It can still be an effective supplement to other aggressive control strategies. Many pigeons which forage at inner city schools often nest and roost elsewhere and nest removal and destruction is not likely to deplete the pigeon populations at these schools. However, it is important that nests on school property be periodically removed to prevent biting incidences by pigeon ectoparasites and a build-up of stored product pests which could subsequently invade the buildings.

SANITATION

It is unlikely that sanitation can be improved so as to impact pigeon populations at inner city schools. The building and grounds workers are currently doing a good job of maintaining sanitation vigilance. Pigeons at these schools obtain most of their food during lunch period from food scraps which fall off lunch tables and foods that are tossed to them by the kids. Pigeons are often these children's only exposure to wildlife and they frequently treat these birds as pets. Educating the children about the hazards and diseases associated with pigeons may deter them from feeding these birds and thus encouraging them to hang around.

BIRD PROOFING STRUCTURES

Bird netting is extremely useful in excluding pigeons from certain critical areas. For example, netting the undersides of roofs over lunch tables will prevent pigeons from perching there and dropping feces and feathers below on children and their food (Fig. 5). Bird netting excludes birds from an area but it does not reduce a pestiferous bird population. Pigeons denied access to an area simply go somewhere else. There is no shortage of alternative nesting, roosting and loafing sites for pigeons at inner city schools. It is simply too costly and labor intensive to net off all the areas that need netting on school facilities and even if that was possible, pigeons will still fly in from neighboring areas to forage at the schools. Hardware cloth and various other forms of rust-proof wire mesh can also be used to deny pigeons access to certain small areas.

BIRD SPIKES

Pointed spikes and various other forms of anti-landing projections can prevent pigeons from lighting and perching at their favorite vantage locations. When pigeons arrive at an inner city school lunch area, they more often than not perch at strategic vista points on adjacent roof edges in order to acquire a panoramic view of the foraging area below. From these vantage points, they survey the area below and decide where they are going to descend and land to begin scavenging on the hardscape. These vantage points can be taken away from them by the installation of bird spikes, bird coils, bird wires, etc. Vantage points are easy to locate by just being at the schools at lunch time and observing pigeon behavior at the lunch areas.

Mechanical bird deterrent devices only discourage birds from landing and perching on certain areas where the devices are installed. They do not negatively impact a pigeon population. If there were 200 pigeons present at the school before these devices were installed, there will be 200 pigeons present after the devices were installed with the exception that the birds will now be resting, landing, perching and loafing on other areas. I have seen thousands of lineal feet of bird spikes installed at various schools that had no impact on the pigeon population. They simply move birds from one location to another. Bird spikes will deny pigeons access to certain critical areas, for example, on roof edges and pipes above entry doorways from where they can foul the hardscapes below and make fecal deposits on people ingressing and egressing buildings. Bird spikes are useful tools that can be effectively used as one facet of an integrated pigeon management program. They cannot be relied on by themselves to solve pigeon problems at inner city schools.

Physical bird deterrent wires and spikes are also prone to damage and vandalism at inner city schools even when they are installed on roof edges . I have observed children using basketballs, volleyballs, soccer balls, etc. to damage and knock bird deterrent devices off structures. As a result, these devices require periodic inspection and on-going maintenance which entails additional labor costs.

GEL REPELLENTS

Nontoxic, sticky gel repellents can be used to deter pigeons from landing and/or loafing on certain areas. When placed on edges of roofs of single story buildings surrounding lunch areas of schools to prevent pigeons from using these vantage points, these sticky gels occasionally become a problem. Volleyballs, soccer balls, basketballs and other types of balls which are inadvertently knocked or thrown on top of the roofs often come back down with the tacky gels on them. This sometimes alarms students, teachers, coaches and administrators who often think the worst of this unknown tacky substance.

Bird repellent gels are short term deterrents because they lose their effectiveness over time as a result of the accumulation of dust and miscellaneous debris on them.

LIVE TRAPPING

Live trapping of pigeons can be a useful control strategy. However, it is not effective as a stand-alone control method. It is time-consuming and labor intensive because traps must to be monitored and serviced frequently for efficiency and humane purposes.

Disposing of trapped pigeons in Los Angeles County is a major issue. The City of Los Angeles, Department of Animal Services, which operates seven shelters, is not

very receptive to disposing of pigeons that are trapped and brought to them by pest control operators. Animal shelters often take live pigeons from pest control operators and then simply release them again once the delivery person leaves. Trapped birds should not be released within their homing range because pigeons have an excellent homing ability and they will fly back to where they were trapped in short order.

AVICIDE

Avitrol® (4-aminopyridine), is a flock frightening material, which when used properly, can be an effective pigeon dispersal tool. To the uninformed, Avitrol® creates a series of flock frightening reactions in affected birds which causes others to disperse and leave an area. Reality is that there are a number of negative issues associated with the use of 4-aminopyridine for pigeon control. Some of these issues are:

- Avitrol® is lethal to most birds which consume enough bait to produce signs of intoxication.
- Birds which consume enough of this bait will display unusual behavior, hyperactivity, convulsions, violent thrashing about on the ground, and other abnormal behavior that will be recognized by almost anyone as unusual behavior. Convulsing birds almost always attract attention from predators and humans.
- Avitrol® "downed" birds can thrash about for almost an hour before they die. To the uninformed observer this Avitrol®-induced reaction in pigeons appear to be inhumane
- Even at the most conservative blend ratios of 1 to 29, one can anticipate about 5-7 percent mortality among the flock.
- Affected pigeons may fly considerable distances before exhibiting signs and dying. Occasionally, affected birds will die in flight and fall out of the sky. Pigeons may die in unintended high profile areas. Some pigeons baited at an elementary school died a block away at a high school. They were obviously foraging at both of these sites.
- Responsible, trustworthy and vigilant people must be assigned to monitor Avitrol® baiting areas and promptly and quickly retrieve convulsing, downed, dying, and dead birds and properly dispose of them.

CONCLUSIONS

Schools are sensitive and unique environments with respect to any pest control activity. Serious and careful considerations must be given to the school environment and all other peripheral factors, such as potential public relations issues, before contemplating the use of Avitrol® for pigeon control at inner city schools. Most schools usually have a large student body. The overwhelming majority of these pupils will be extremely alarmed if they were to encounter an Avitrol®-induced, convulsing pigeon on school grounds. Times have changed and society's perceptions have changed. Nowadays, misinformed and misguided people are quick to call the authorities on matters where they perceive adverse negative effects on animals as a result of control programs. However, when school pigeon populations reach densities where they pose a threat to human

health and safety, Avitrol® use may become warranted. However, such a control program must be carefully planned and executed by knowledgeable people who can foresee and plan ahead for all the potential negative possibilities. Good communications with all parties likely to be negatively impacted are an absolute necessity when executing a pigeon control program that is likely to cause bird mortality.

It should be obvious from the issues discussed in this paper that pigeon abatement at inner city schools must be based on an integrated pest management approach which carefully assesses and evaluates each problem site and employs control strategies which are appropriate to that location.

One-dimensional approach to pigeon management at inner city schools is doomed to failure. Reliance on physical bird deterrent devices alone will not produce the desired results. Bird spikes, bird coils, bird wires, etc., simply move birds over a little. They do not cause pigeons to leave a location where all their life requirements are abundant and readily available.

After fairly extensive use of physical bird deterrent devices at one school that was plagued by pigeons, I received a fax from on-site personnel that was rather poignant. It simply stated: “We have the nets and we have the spikes, but we still have the pigeons. Is there anything else you can do?” I think that statement succinctly sums up the sole reliance on physical bird deterrent devices for pigeon management.

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