

PIGEON MANAGEMENT



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BIOLOGY

Pigeons (aka rock doves; *Columba livia*) are medium-sized perching birds found in urban areas, abandoned structures, and rock cliffs throughout Montana. Pigeons usually sport gray coloration with two black bands on the wings and an iridescent bib around their neck and throat area that reflects colors of green, purple, and/or bronze (Fig. 1).



Figure 1. Pigeons showing the black stripes on the wings and purple coloration on the throat.

While gray coloration is the most common, pigeons can also exhibit white and brown coloration. Their feet are red to pinkish in color with three toes pointing forward and one pointing to the rear, with a total top-to-bottom length of two to three inches. Pigeon vocalizations can sound like co-ah-roo, co-roo-coooo, and cock-a-war.

Pigeons may be confused with mourning doves and Eurasian collared-doves. Mourning doves, however, have a more elongated and slender appearance and lack white coloration on their rump. Eurasian collared-doves have a semi-circular line visible on the back and sides of their neck.

Adult pigeons are larger than robins and smaller than crows weighing about 13 ounces and extending 13 inches in length. With a 24-inch wingspan, pigeons are exceptional flyers, capable of reaching speeds of 90 mph and

flying as high as 6,000 feet. Their flying prowess and homing ability were used during World War I to carry dispatches from the front to headquarters.

Pigeons are highly adaptable birds, capable of living in cities or in the wild, in flocks or alone. While their diet primarily consists of grains, pigeons will eat invertebrates, such as snails, and scraps of human food.

Pigeons form monogamous pairs. In more temperate regions, pigeons can breed year-round. But in Montana, breeding usually occurs between April and September. Eight to twelve days after mating, females lay one to two eggs in a simple nest made from sticks and hardened droppings situated on a ledge with overhead protection from rain (Fig. 2). Both male and female mates take turns incubating the eggs which hatch about 18 days later. Both adults feed their rapidly growing young a substance called “pigeon milk” from their crops, which is a food storage area located at the base of their esophagus. After 30 days, the chicks are mature enough to leave the nest. Under favorable conditions, the parents can repeat the nesting process up to three more times in a year.



Figure 2. Pigeon next to two squabs on a stick nest.

DAMAGE

Pigeon droppings can have significant impacts on human interests ranging from being aesthetically displeasing to endangering human health and

safety. With each pigeon depositing 22-26 pounds of droppings per year, flocks of birds can deposit large amounts of excrement quickly. Droppings are not only unsightly but can degrade building materials and cause slip hazards. One cubic foot of dried pigeon droppings weighs 40 pounds. So accumulated droppings can cause structural collapse by clogging drainpipes and overloading rafters and ceilings.

Droppings can transmit bacterial and fungal diseases (Fig. 3). While those with compromised immune systems are at the greatest risk, anyone with sufficient exposure can contract a disease. Long-term exposure to even small amounts of droppings can cause victims to develop an allergic condition, “Pigeon Breeder’s Lung.”



Figure 3. Pigeon droppings on a sidewalk. Penny used for scale.

The decision to control pigeons depends on several factors, including personal preferences, extent of damage, cost of cleanup, cost of control, and other concerns. In general, it is advisable to control pigeons as soon as one thinks they are a problem. Control while the problem is small, is usually significantly easier and less expensive than waiting till it’s a problem you can no longer ignore.

LEGAL STATUS

Since humans have been raising pigeons for thousands of years (aka pigeon fanciers), pigeons are also classified by the Department of Livestock as poultry (ARM 32.3.201). Pigeons deliberately kept by people are considered private property.

Pigeons in the wild (aka feral), however, have no protections because pigeons are not native to the United States (MCA 87-5-201). Pigeons are designated depredatory and nuisance birds under the category of vertebrate pests by the MDA (MCA 80-7-1101). As a vertebrate pest, landowners may have pigeons controlled any time of year. Hunting or trapping licenses are not required. Always follow proper safety and legal guidelines for the control method you choose to use in your pigeon management plan.

Relocation or translocation of pigeons is prohibited without permission from MT Fish Wildlife & Parks (MTFWP). Lessees on land managed by the Bureau of Land Management (BLM) and U.S. Forest Service are prohibited from using pesticides to control pigeons.

Public Relations

Many people enjoy watching birds, including those considered pests, such as pigeons. Before initiating control, consider the potential for negative publicity. It is one thing to control pigeons on a ranch 10 miles from your nearest neighbor. It is quite another to control pigeons in a city’s business district.

Always perform control methods legally and with sensitivity that someone may be watching and/or filming your actions. Make sure that the birds you are managing are accurately identified to avoid violating state and federal laws. Handle the birds with respect and never dispatch them in public view. For assistance in choosing appropriate control methods for your situation, reach out to the MDA’s Vertebrate Pest Specialist listed at the end of this document.

CONTROL METHODS

When pigeon damage reaches levels where you believe control is needed, select method(s) that fit your goals while following both regulations and safety requirements. Establish clear goals as they will help you select the appropriate control methods. For example, if your goal is to prevent the flock from growing, then you should seek to reduce the flock by 30% annually. This may be done by limiting access

to food, reducing nesting and/or roosting sites, and/or using birth control. To achieve significant reductions in damage for multiple years, you will need to consider netting, ledge products, and/or lethal control to achieve desired results.

The information below summarizes the various control options available. Control of pigeons is not a one step or one method process. To obtain significant reductions in pigeon-related damage, you may have to employ several control strategies over a few years. Multiple methods thoughtfully employed will often provide the best results.

Habitat Modification

Habitat modification involves reducing the environmental conditions that favor pigeon survival. Pigeons thrive in areas where there is sufficient food, sun-exposed loafing spots, and protected ledges for nesting. Do not disregard the importance of habitat modification. Research has shown that reductions in food and harborage can reduce pigeon numbers by 25% or more by themselves.

Food & Water Access

Reduce human-provided food sources for pigeons. Humans feed pigeons in two ways: actively and passively. Active feeding occurs when people deliberately give food to pigeons. Food establishments and outdoor eating areas should have signs prohibiting the feeding of birds (Fig. 4). Communities should pass ordinances banning the practice of feeding pigeons. Humans also feed pigeons passively when we fail to close dumpster lids or clean up spilled grain.

Make pigeons find water elsewhere by ensuring that roofs and surfaces are graded to prevent pooling. In situations where that is not possible, use gravel or grates to prevent pigeons from reaching the water. Check air conditioning condensers to ensure they drain properly. Fix leaking faucets and make sure gutters are graded to drain water.

Exclusion

Prevent pigeons from sensitive areas by

repairing or installing barriers. Pigeons should never be able to enter buildings, especially abandoned ones. Install ¼-inch hardware cloth over openings to prevent entry. In situations where traffic makes doors impractical, install thick plastic strips over openings to interfere with bird access.



Figure 4. Sign telling patrons not to feed pigeons.

Side Bar: Exclusion Safety

Whenever one is securing an opening to a structure there is always the risk of trapping an animal inside. Before sealing off an opening with screening or solid material, make sure there are no animals that may be trapped inside.

Evaluate the opening for signs of the types of animals that may be using it. In situations where you cannot be sure, only partially secure the opening and then monitor it throughout the day. For example, applying screening but only secure it on two sides. This will allow rodents to squeeze through while still stopping birds. Any birds trapped inside will make their presence known by pecking at the screen. You can then return and open the screen to allow them to escape.

The use of one-way doors can also provide a way to allow trapped animals to escape while preventing animals from returning.

Crevices and gaps, such as eaves around dormers, should be boxed out or filled to eliminate roosting and nesting areas. If there is no concern for excluding smaller birds like starlings or sparrows, then all openings the

sizes listed below or larger need to be secured to prevent pigeon access.

- Minimum Width: 1.58 inches
- Minimum Height 1.97 inches
- Minimum Sq opening: 2.36 x 2.36 inches

Professionally Manufactured Exclusion Products

Manufacturers have developed a variety of bird exclusion products to address the common sites pigeons prefer. The following information will describe the most common equipment. For specific details on the products consult manufacturers/suppliers directly. The largest companies include Bird Barrier®, Bird-B-Gone®, Bird-X, and Nixalite®.

Property owners are understandably concerned with the building's aesthetics. They do not want to eliminate one eyesore only to replace it with another. While no exclusion product is invisible, selecting the correct color and type can go a long way to hide the devices from critical eyes. Additionally, what many people think will be ugly before installation often becomes inconsequential after installation. Not only because the fear of ugliness was overblown but also because pigeon droppings are always less aesthetically pleasing than a strip of bird spikes.

Netting. Nets are the gold standard for bird exclusion. When properly installed, they provide a bird-proof method for keeping birds out of unwanted areas. Two-inch weave is sufficient to prevent pigeon access. Consult distributors for proper mesh size if excluding smaller birds (e.g. starlings or house sparrows) is also needed. Install zippers to allow access to crawl spaces and utilities. Only use nets treated to resist UV radiation. Use caution when installing nets horizontally in outdoor settings because snow and freezing rain can build up on nets causing them to break (Fig. 5). Net installation does require some skill so be sure to measure twice before cutting.



Figure 5. Netting to exclude pigeons from a roof area.

Ledge Products. Since pigeons can roost on a 90°, one sided ledge as narrow as 1.57 inches, it is understandable why there are so many types of ledge exclusion products. While ledge products are simple and relatively easy to install, improper use will result in their failure. To ensure effective use, implement the following principles.

1. Follow the manufacturer guidelines on choosing and installing ledge products. Not all ledge products are appropriate for every level of bird pressure. Disregarding manufacturer recommendations is a recipe for failure.
2. Avoid tunnel vision. You must consider not only where the birds are roosting now, but where they will roost following your installation. Consider protecting areas beyond the portion of immediate concern (see Fig. 6). Another common mistake is installing a ledge product on a surface where pigeons are unwanted, but a few weeks later the birds are nesting in the ledge product. They were able to do this because they dropped debris onto the ledge product by standing on the ledge above the protected surface. Bottom line, protect ledges above the ledge you are primarily concerned about.
3. Consider the chance of having problems with smaller birds. Is it possible that your management of pigeons will allow house sparrows or European starlings to fill the void? If so, be sure to use ledge products capable of handling these smaller birds as well as pigeons.

Bird Pressure

“Bird pressure” refers to the level of attachment a bird has to a location. The concept is important because the control method should be sufficient to overcome the bird’s attachment to a site. Many control efforts fail because the person did not use a method sufficient to overcome the bird’s attachment to a site.

Low Bird Pressure: Birds are recent arrivals to the location. Food, water, and nesting sites are not readily available.

Medium Bird Pressure: Birds regularly use the site. Food and/or water may be nearby. The site may be suitable for catching sunlight. Nests are not present.

Heavy Bird Pressure: Birds are nesting at the location. Birds have been using the site for extended periods of time, (e.g. months). Food and water may be available nearby.

While the three types of bird pressure are listed individually, keep in mind that a location may have all three levels of pressure present. For example, birds may be nesting in one area, loafing in another, and only recently using another. If you believe the site is a low or medium pressure, but are unsure, always default to the level of pressure higher than your initial assessment.

Ledge Products. Types of ledge products range from those that increase the ledge slope, to those that interfere with standing, such as wires and spikes, to those that cause pain, such as electric shock.

Angle Increaseers. These products change the slope of the ledge from flat (i.e. 180°) to 45° or 50° thereby making it difficult for a pigeon to perch without sliding off.

Coil. Coil products look like a big slinky that has been strung horizontally on a ledge. The idea is that a bird trying to land is unable to obtain solid footing.

Wire. Wire consists of stainless-steel cordage suspended by poles. Like coil products, the wires interfere with the bird’s landing and ability to find space to perch. Wire’s key advantage lies in its ability to blend in with the structure.

Spikes. This ledge product exploits the

behavior of avoiding sharp objects (Fig. 6).



Figure 6. Bird spikes on a wooden beam. Note the nest in the middle of the image where spikes were not placed.

Electric Shock. This device entails a strip of vinyl containing two wires about an inch apart. Birds landing on the strip touch both wires thereby completing the electrical circuit and receiving a harmless but painful shock. The device can be energized by a solar panel with battery backup or connected to an ordinary outlet. While electric shock products are more expensive than spikes on a foot-by-foot basis, when installation costs are considered, the electric shock product is often less expensive.

Electro-magnetism. Pigeons have physiology that is sensitive to electro-magnetic waves. When exposed to electromagnetic waves at the proper levels, pigeons are unable to navigate and become disoriented. Though the discovery of electro-magnetism as a control method was made around 2009, a retail-user available device has only been available around the last five to six years. To learn more about the product visit <https://gosymterra.com>.

Frightening Devices

Frightening devices are mechanical products that seek to drive birds away from unwanted areas by eliciting fear. Frightening devices are classified by how they are perceived by the birds. Many frightening devices will only work for a short time because the birds will quickly realize that they do not pose a real threat. In

general, try to overwhelm the birds' senses by using as many different modes of action as possible. Your goal is to shower the birds with various stimuli, as in shock and awe. For example, using audible and visual frightening devices simultaneously will likely have better results for a longer period of time than using them sequentially. Likewise, devices that turn on only when birds are present are harder for birds to habituate to than those that are on all the time.

Visual Devices

Visual frightening devices disturb birds through their sense of sight. Many people prefer visual frightening devices because they are quiet and will not disturb the neighbors. These devices are most effective when employed before birds become attached to a location.

Balloons & Kites. Balloons and kites usually have a large “eye” painted on them that is to mimic the stare of a raptor. Their ability to move in the wind adds to their menacing power. Typically, these products are used in agricultural areas to protect crops.

Effigies. Models of owls, hawks, and snakes (Fig. 7) have been used to frighten birds. Typically, these items work for a week or so. Moving them around to new locations increases the length of their efficacy.



Figure 7. Snake effigy.

Lasers. The intense light of a laser frightens pigeons from perching on exposed areas. The development of motorized lasers allows the light to be moved around a location to help prevent habituation and the need for human operation. Due to safety concerns, it is

essential that they do not shine in the eyes of people or aircraft pilots.

Spinners. Spinners are shiny devices that reflect light to irritate birds (Fig. 8). Their construction allows light to reflect in multiple directions. Some spin by capturing wind or by a motor.



Figure 8. Eagle Eye® by Bird Barrier®.

Audible Devices

Audible frightening devices emit irritating sounds, distress calls, or the calls of predators to convince birds to flee.

Propane Cannons. These cannons are quite loud and thus their use is limited to rural areas.

L.R.A.D. Long-range Acoustical Device sends a concentrated sound wave to the location where it is pointed. Originally developed for riot control, it is also used to disperse birds in flight or situated at a specific location. Like the propane cannon, L.R.A.D.s are used in rural areas.

Sound Devices. These products can emit distress calls, predator calls, or distressing sounds. Consult with dealers concerning the proper recordings you should purchase as well as the size and configuration of the sound device.

Ultrasound

Despite various experiments, ultrasound (i.e. sounds with frequencies at or above 20 kHz) have not been shown to be frighten pigeons.

Audio-Visual Devices

These frightening devices use sound and visual techniques to frighten birds.

Pyrotechnics. Typically, these devices are pyrotechnic products that are discharged by shotgun or a special pistol. Once fired, the devices travel up to 100 yards and then explode. While the devices always frighten birds, they are difficult to use around structures. In addition, they can ignite fires if conditions are dry enough.

Scary-Inflatable-Man. Just as car dealers use them to get our attention, we can use them to frighten birds. The appearance, motion, and noise can scare birds from unwanted areas.

Biological ‘Devices’

Biological frightening involves the use of predators to haze birds from unwanted areas. Raptors are the most common example (Fig. 9), but in some circumstances pets that won't leave the property, can be used for a similar effect.



Figure 9. Example of a raptor.

Avitrol

Avitrol is a restricted-use pesticide designed to cause a distress-alert in treated birds that causes the flock to avoid returning to treated sites. While birds receiving a high enough dose will

die, applications using a ratio of treated grain to non-treated grain of 1:40 can avoid any bird mortality. Secondary poisoning concerns with this pesticide are so low as to be practically non-existent at recommended treatment levels. The manufacturer provides online training and consultation to applicators interested in implementing best practices with the product.

Repellents

Repellents are chemicals used to keep birds away from unwanted areas. Since repellents are legally classified as pesticides, they must be registered by the Montana Department of Agriculture to be legally applied in Montana. Visit

<http://npirspublic.ceris.purdue.edu/state/default.aspx> to see if the repellent is registered in Montana.

Like frightening devices, the efficacy of repellent depends on the situation. It is important to have realistic expectations. Repellents are classified by their mode of action.

Tactile Repellents

Tactile repellents irritate birds through contact. Gel products are the most common tactile repellent. These are sticky gels that are applied to surfaces with a caulking gun. Because these gels can collect dust, it is best to protect surfaces with plastic sheeting (etc.) so that old applications can be easily removed. Do not over apply gels, as excessive application raises the risk of entrapping smaller birds.

Olfactory Repellents

Olfactory repellents disturb the nasal passages of birds. When birds inhale methyl anthranilate, the active ingredient, at sufficient levels they must flee for fresh air. If the problem pigeons are near airports, avoid applying when planes are approaching to reduce the risk of a bird strike.

Multi-sensory Repellents

Disked Gels. This product is held in a clear plastic dish. The contained product repels birds through touch, smell, and sight. While there are

some questions about the veracity of some of these claims, industry practitioners have stated that the product has been effective in field conditions. Repellency can last up to a year.

Shooting

Shooting refers to any method, not just guns, that uses projectiles to kill pigeons. The key benefit of this method is rapid results, particularly with small numbers of birds. Shooting in proximity to populated areas typically requires permits from local officials. Do not assume that discharging air rifles or other non-powder guns is legal as many ordinances are written to prohibit any discharge of projectiles within town limits.

Even where legal, shooters must consider safety and public reaction. Know your weapon's capabilities, your back stop, and what is down range. Shooting can result in 911 calls regarding an "Active Shooter." Make sure that police are aware of your activities prior to and on the day of your shooting activities to avoid a friendly-fire confrontations.

Shotguns. Shotguns loaded with #7½- or 8-shot can take pigeons on the wing as they fly to and from their roosting or nesting locations.

Rifles. Single-shot projectiles can be very effective in removing roosting birds. Shooters should be able to hit ½-inch groups at the range needed to take pigeons at the site. Thirty yards is a good rule of thumb. Figure 10 shows where you want to shoot on profile shots. When the pigeon is facing you, focus on center of mass and/or spine.

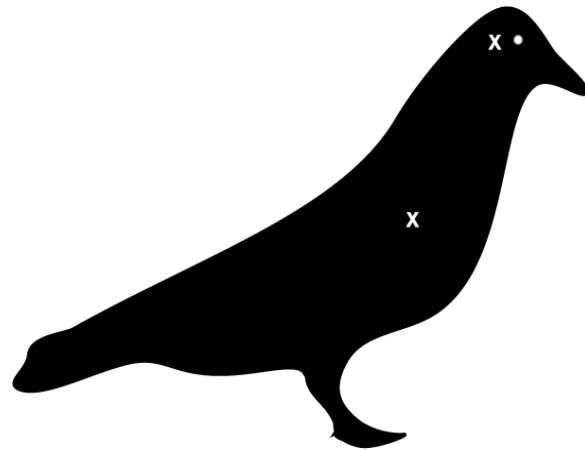


Figure 10. Shot placement sites for pigeons.

Air-fired Projectiles. Use non-pointed pellets when shooting air rifles. In areas where safety is a heightened concern, consider blow guns.

Trapping

Trapping problem pigeons is one of the most effective and underutilized control methods. Do not translocate pigeons and have a plan for euthanasia and carcass disposal prior to trapping.

Clamshell Traps. Clamshell traps consist of two nets strung on two half-circle bars. These traps are designed to capture one bird at a time. The traps are placed on a flat surface and baited with whole corn. Pigeon flies down and when he pecks at the bait, the two half circle arms of the trap swing upward, capturing the bird.

Mist Nets. Mist nets are grids made of ultrafine string. These nets are typically used to capture birds inside structures. When hung properly, birds fail to avoid the nets and become entangled. To hasten the process, birds can be frightened from roosting spots to fly into the nets. Unlike other traps, mist nets are typically actively monitored to remove captured birds before they die from excessive struggling.

Walk-in Traps. Walk-in traps are cage boxes with one or more one-way doors. Traps are placed on flat surfaces, preferably on rooftops or similar elevated locations. Ideal trapping locations are flat roofs with staircase access. Wire open the doors and place whole corn inside the trap with a trail to the outside through the opened door(s). Use whole corn because it

targets larger birds, such as pigeons, as the kernels are too large for smaller birds to eat. When the pigeons become comfortable entering the trap, the door(s) is/are closed. When the birds return the next day, the pigeons bump through the door to get the bait and it closes behind them.

When placing the walk-in trap, consider the following:

1. Secure the trap so that it cannot be blown off the roof.
2. Place the trap on a large sheet of plywood to prevent any roof damage. Secure the plywood as you would the trap, to ensure it does not fall off the roof.
3. Cover a portion of the trap with a durable tarp to provide a sheltered area with protection against wind, sun, and rain for trapped birds. A water source should also be provided, such as one suitable for chickens. Do not use the tube water dispensers, like those used with parrots, as pigeons lack the ability to extract water from the tube (Fig. 11).



Figure 11. Walk-in trap with captured pigeons under a cover and with available water.

4. Leave a couple of birds in the trap to attract others. Mark them, however, so that they can be replaced by others.

Trapping is most suitable when 20 or more birds are frequenting an area.

Avicides

DRC-1339 is an avicide that kills birds by interfering with kidney function. Birds expire in one to three days. DRC-1339 is a highly

restricted product with application privileges confined to licensed USDA-Wildlife Services' personnel only. You can contact USDA-Wildlife Services to see if an avicidal treatment is appropriate and cost-effective for your situation. They can be reached at 406-657-6464.

Birth Control

OvoControl-P, with the active ingredient, nicarbazin, inhibits pigeon fertility (Fig. 12). OvoControl-P is a general-use pesticide, so an applicator's license is not required when used on your own property. Applications should occur daily during the reproductive period of Montana's pigeons which is between April 1 and September 30. Fertility returns when birds stop feeding on the product. Outside of reproductive period, it is recommended that pigeons be fed plain grain to keep them habituated to the feeding site. Consider using an automatic feeder to save time making applications.

Treated flocks can experience population declines of 30-50% in a few years. One strategy, however, is to reduce the pigeon population with trapping first. Then use OvoControl to stop recruitment through reproduction. Secondary poisoning does not occur with nicarbazin.



Figure 12. OvoControl-P.

SAFETY

Pigeon control, as with all vertebrate control activities, involves risk through injury or disease. Wear protective equipment when

trapping, shooting, applying pesticides, etc. Since bird control often involves heights, be sure you understand and implement proper ladder practices.

Store pesticides (which includes repellents) under lock and key in a dry location away from children, livestock, and pets. Always store pesticides in the original, labeled containers. Buy only enough pesticides for one season's use. Store excess pesticides in a location where the temperature will remain cool. To reduce dehydration of baits, keep them in their original container(s) and place inside plastic garbage bags during storage. Use the carry-over bait at first opportunity the following year. Bait that is dehydrated or moldy will not be attractive to birds.

Though the pesticides used for pigeon management pose extremely low risks to secondary consumers, it is good practice to remove dead or dying birds from the landscape and dispose of them according to the label. Be sure to wear gloves as pigeons can carry parasites and pathogens that can affect you.

Disease Safety

Research has shown that pigeons can carry over 70 diseases and parasites that can affect people. While that is a scary number, the fact is most of these threats require significant exposure and/or a compromised immune system. Nevertheless, even if you are healthy, you should still follow basic safety practices to protect yourself and those you love. Monitor your health for several weeks following bird control activities. If you are not feeling well, be sure to inform your physician that you were handling wild birds. Since safety is contextual, suggestions for different situations are provided below.

Pigeon Handling

Always wear protective gloves when handling pigeons. Be especially careful of pigeons with drainage from their nose or eyes, have diarrhea, and/or look generally unkempt.

With disease and ectoparasites, distance is your friend. Using tongs to pick up dead birds or

removing nests is better than gloves alone and gloves is better than bare hands. Do not neglect hand washing, changing clothes, and showering following bird control activities.

Pigeon Contaminated Areas

Nesting sites and feces contaminated areas are a special concern because pathogen carrying droppings can be aerosolized and inhaled. While cleanup requirements are different for sites close to occupied buildings than isolated outbuildings, the following personal protective equipment should be considered a minimum standard.

- Gloves
- Rubber boots
- Tyvek-style suit
- Goggles
- Respirator N-95 with proper fitting. Users should be healthy enough to wear a respirator.

Principles of cleaning up droppings include:

- Avoid disturbing droppings more than necessary to reduce aerosolization of droppings.
- Wet down droppings to reduce dust.
- Shovel, mop, or wipe up droppings and place inside 3mm plastic bags. Seal bags to prevent contamination of other locations. Do not vacuum.
- Use portable walls to protect sensitive areas from being exposed to dust during cleaning activities.

For more detailed information on how to safely clean up pigeon droppings see Lenhart, S. W., et. al. 2005. *Histoplasmosis: Protecting Workers at Risk*. Dept. of Health and Human Services. NIOSH 2005-109 available in PDF download at <https://stacks.cdc.gov/view/cdc/6568>, (Fig. 13).

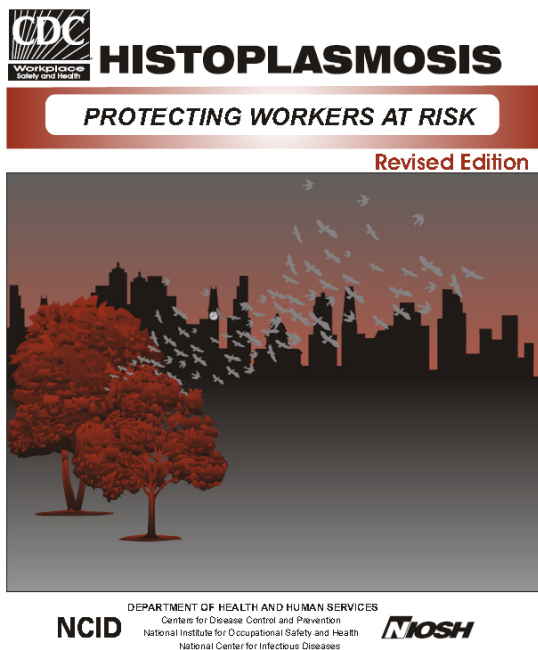


Figure 13. Cover of *Histoplasmosis: Protecting Workers at Risk*.

Bird control supply companies sell pigeon dropping cleaning agents, which may help reduce the pathogen load. However, these products do not disinfect every potential pathogen so do not consider treated areas “disinfected.”

Pigeon nesting and roosting areas can also harbor ectoparasites, such as mites and ticks, that will seek other hosts when the birds are removed. Consult with a pest control company for assistance with controlling ectoparasites.

Euthanasia & Disposal

Captured pigeons should be dispatched in a responsible manner. They should not be released. Several handling options are available.

Raptor Handlers

Individuals and groups that care for birds of prey may be willing to take your pigeons to feed their raptors. Only birds captured by traps or non-toxic shot/bullets should be offered. The raptor handlers will provide additional instructions.

Euthanasia

Euthanasia or “good death” dispatches animals

with minimal suffering. Neck wringing and carbon dioxide are the two ways to euthanize pigeons. Whichever method you choose, always dispatch birds out of public view.

Neck Wringing. With gloved hands, grasp the pigeon by the body with one hand. Then grasp the head between the thumb and index finger of the other. With one smooth action, pull the head while twisting. You should feel a crack in the bird’s neck. Do not be surprised if the bird flutters. The key is to ensure that your pull and twist is sufficient to break the neck without decapitating the bird.

Carbon Dioxide. Carbon dioxide euthanasia requires several pieces of equipment (Fig. 14):

- a water-tight chamber, such as a plastic trash can with a loose-fitting lid or plastic garbage bag (preferably clear plastic),
- bottled carbon dioxide (available from gas supply stores),
- regulator, and
- hose.



Figure 14. An illustration of a carbon dioxide cylinder and regulator.

Fill chambers at a rate of 20% per minute. To calculate the flow rate of carbon dioxide for your particular chamber.

Measure the chamber’s internal length, width, and height in inches. Multiply those 3 numbers (length x height x width) to determine the chamber’s volume in cubic inches. For example, a 13-inch x 13-inch x 33-inch tank = 5,577 cu inches in volume. Divide by 61 to convert the volume to liters (5,577 divided by 61 = 91.39661 liters or 91.4). Then multiply

91.4 by .20 because we only want 20% of the tank to fill per minute. This comes to 18.28 liters. Therefore, you should set your gravity flow meter to a little more than 18 liters per minute and leave it on to fill the tank completely in 5 minutes.

Place birds inside the chamber and insert the hose. Turn on the gas at the appropriate flow rate. Since carbon dioxide gas is heavier than room air, the room air is displaced by the carbon dioxide gas. That is why the lid needs to be loose so that room air can escape the chamber. After five minutes, the entire chamber will be filled, reduce the rate of flow to three to five liters per minute (lpm) to save CO₂. Do not turn the flow off as you will need to maintain positive pressure to prevent room air from re-entering the chamber.

Confirmation of Death. Make sure the birds are deceased. Dead birds will be limp, have closed, eyes, and will not be breathing. Dead birds do not blink when their eye is touched (use a gloved finger) nor do they react when their toe is squeezed (wear gloves). Turn off the gas and bleed the regulator.

Consult gas dealer about the safe handling of pressurized cylinders to avoid injuries.

Disposal

Carcasses of birds can be disposed of in sanitary landfills, burial, or cremation. For birds that have been exposed to pesticides, follow disposal guidelines listed in the label.

Sanitary Landfills. Consult dump managers about the proper packaging of birds prior to disposal.

Burial. If you have access to sufficient land, burial is good option. Be sure to locate burial sites away from water (i.e. 100 or more feet), particularly drinking water. Bury carcasses should be deep enough to prevent excavation by scavengers. The Department of Environmental Quality requires burials to be at least 24 inches below ground (MCA 75-10-213 and 75-10-214).

Monitoring & Follow Up

Once the pigeon problem has been resolved, it is essential to monitor. Monitoring is necessary to ensure that the control measures employed are continuing to be effective. While you are free to monitor the situation as often as you wish, it is recommended that monitoring be done at least annually.

DEPARTMENT SERVICES

As with most programs, control of vertebrate pests will be most effective when all affected landowners work together. The Montana Department of Agriculture vertebrate pest specialist program will work with county commissioners, extension agents and landowners to establish a program suited to local and county needs. Field demonstrations are provided to inform landowners how, when, and where to control vertebrate pests. Interested individuals should contact the Montana Department of Agriculture.

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Phone (406) 431-7720

svantassel@mt.gov

In Helena:

Matt Deaton, Program Supervisor

Phone - (406) 444-3676

Mathew.Deaton@mt.gov

Additional printed information on the control of other vertebrates is available from the Montana Department of Agriculture website

<https://agr.mt.gov/Vertebrate-Pests>

**MONTANA POISON CONTROL
(Emergencies)
1-800-222-1222**

**MONTANA DEPARTMENT OF PUBLIC
HEALTH & HUMAN SERVICES
Injury Prevention Program
1-406-444-5622**

<https://dphhs.mt.gov/publichealth/InjuryViolenceandSafety>

Disclaimer: Reference to commercial products or trade names is made with the understanding that no discrimination is intended of those not mentioned and no endorsement by the Montana Department of Agriculture is implied for those mentioned.

Credits

Cover: Stephen M. Vantassel/Montana Department of Agriculture

Fig. 1. Stephen M. Vantassel, Montana Department of Agriculture

Fig. 2. National Park Service

Figs. 3-8, 10-12 Stephen M. Vantassel, Montana Department of Agriculture.

Fig. 9. Wildlife Control Consultant, LLC.

Fig. 13. Richard A. Carlson, U.S. Department of Health and Human Services.

Fig. 14. Kevin B./Wikimedia Commons.

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WASTE PESTICIDE DISPOSAL PROGRAM

Do You Have Unwanted/Unused Waste Pesticides Such As:

- * contaminated pesticides
- * old products
- * canceled or suspended products
- * unknown pesticides
- * empty metal pesticide containers

Remember to Pre-Register!



Waste Pesticide Disposal Districts



No Penalties! First 200lbs FREE!



*One district per year

* Four collection locations within that district

*Collection sites in each district every third year

FOR MORE INFORMATION:

Contact: Montana Department of Agriculture at 406-444-5400 or Visit: <http://agr.mt.gov>