New York State Coyote Incident Standard Operating Procedures

New York State Department of Environmental Conservation

Division of Fish and Wildlife

Bureau of Wildlife

Revised 2018

Executive Summary

Increasing urbanization and alteration of natural landscapes has led to human-coyote conflicts becoming a problem in many areas throughout New York State. The New York State Department of Environmental Conservation (DEC) began documenting coyote incidents in 2005 based on program input provided by Dr. Rex O. Baker of California State Polytechnic University (Pomona).

Based on current research and documentation about human-coyote conflicts, in 2005 DEC developed Standard Operating Procedures (SOPs) to: (1) document aggressive behavior of coyotes and coyote incidents: and (2) develop a protocol for managing aggressive coyotes and procedures for responding to a reported coyote incident. At that time, an assessment of any legal or regulatory issues which required resolution was conducted and public communications strategies were developed. Communications efforts centered around teaching people about coyote ecology and natural behaviors and teaching people how to respond to aggressive coyotes.

Since 2005, coyotes have moved into New York City and Long Island. Statewide, the number of human-coyote incidents has remained relatively low, but stable, with significant year-to-year variation. Based on changes in the distribution of coyote populations, as well as insights gained from providing guidance to the public over the last 13 years, we have updated this document to provide a more comprehensive overview of incidents where coyotes may interact with people and recommendations about how those incidents should be addressed.

With increased concern about the presence of coyotes near people in urban and suburban areas, there is need for wildlife managers to educate communities and guide responses so that real and perceived conflicts with coyotes can be prevented or resolved. This SOP focuses on otherwise healthy coyotes that exhibit an escalating pattern of bold behaviors that may put people and pets at risk.

As urban, suburban, and exurban sprawl continues in New York, our wildlife adapts to living in close proximity to people. The updated New York Coyote Incident Standard Operating Procedures supports the understanding of natural coyote behaviors and a reduction in human-coyote conflicts.

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Table of Contents

Coyote Behavior Quick Response Chart **4**

Introduction **7**

Nuisance Coyotes & Coyotes Causing Property Damage 8

Distressed and Injured Coyotes 8

Sick-Acting Coyotes 8

Coyotes Residing Near People – When is there Cause for Concern? 9

New York Coyote Incident Standard Operating Procedures **12**

Response by DEC Staff 12

Management Methods 13

New York Coyote SOP: Category of Behaviors 15

Class 1 Documentation and Actions 16

Class 2 Documentation and Actions 19

Class 3 Documentation and Actions 21

Class 4 Documentation and Actions 23

Literature Cited **26**

Appendices **28**

Appendix 1. DEC ECO and Wildlife Phone Numbers and On-line Resources 28

Appendix 2. Coyote Incident Report Fields 29

Appendix 3. Avoiding Coyote Conflicts 30

Appendix 4. BMPs for Coyote Removal 33

Appendix 5. County Health Department Contacts 35

Appendix 6. Rabies, Mange, & Canine Distemper Fact Sheets 38

Coyote Behavior[1] Quick Response Chart

Coyote Actions/Behaviors	Class[2]	Response
Coyote bites or injures a person[3]	Class 1	• Record information on animal(s) involved • Document circumstances including time and location • Contact local law enforcement, ECOs, Wildlife staff • If coyote has left the area, provide info re: NWCO, USDA WS or landowner regarding lethal removal of the coyote (no permit needed) • Inform them of potential rabies exposure risk and need to follow-up with a doctor and county health department
Coyote bites or injures a pet on a leash while it is accompanied by a person [2]	Class 1	• Record information on animal(s) involved • Document circumstances including time, location, information about pet • Contact local law enforcement, ECOs, Wildlife staff • If coyote has left the area, provide info re: NWCO, USDA WS or landowner regarding lethal removal of the coyote (no permit needed) • Inform them of potential rabies exposure risk and need to follow-up with a vet and county health department
Coyote is aggressive towards a person, showing teeth, lunging/nipping without contact	Class 1	• Record information on animal(s) involved • Document circumstances including time, location, and whether there is a den nearby (as a possible underlying cause) • Contact local law enforcement, ECOs, Wildlife staff • Recommend permit issuance - if coyote has left the area, provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote
Coyote lingering near schools, playgrounds, play areas and does not flee when hazed *(no contact w/ people, pets observed)*	Class 1	• Record information on animal(s) involved • Document circumstances including time, location, whether there is a den nearby (as a possible underlying cause), and proper hazing techniques • Contact local law enforcement, ECOs, Wildlife staff • Recommend permit issuance - if coyote has left the area, provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote
Coyote bites or injures a pet[2]	Class 2	• Record information on animal(s) involved • Document circumstances including time, location, information about pet • Contact local ECOs, Wildlife staff • If coyote has left the area, provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote (no permit needed; need permission to access land where incident occurred).

		• Inform them of potential rabies exposure risk and need to follow-up with a vet and county health department
Coyote enters yard and injures or kills pets[2]	Class 2	• Record information on animal(s) involved • Document circumstances including time, location, information about pet • Educate about coyote behavior (territoriality), removing yard attractants, proper techniques for hazing • Contact local ECOs, Wildlife staff • Provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote (no permit needed) • Inform them of potential rabies exposure risk and need to follow-up with a vet and county health department
Coyote following or approaching a person without a pet	Class 2	• Record information on animal(s) involved • Document circumstances including time, location, possible attractants in area • Educate about coyote behavior, proper techniques for hazing, removing attractants (e.g., food), if applicable • Contact Wildlife staff • Recommend permit issuance - provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote
Coyote following or approaching a person and pet	Class 2	• Record information on animal(s) involved • Document circumstances including time, location, information about pet • Educate about coyote behavior (territoriality), proper techniques for hazing, pet management • Contact Wildlife staff • Recommend permit issuance - provide info re: NWCO, USDA WS, or landowner regarding lethal removal of the coyote
Coyote seen near schools, playgrounds, child play areas *(no contact w/ people, pets observed)*	Class 3	• Record information on animal(s) involved • Document circumstances including time, location, and whether there is a den nearby (as a possible underlying cause) • Educate about coyote behavior (territoriality), proper techniques for hazing, removing attractants (e.g., food), signs to be aware of re: escalating behaviors • Contact Wildlife staff • Permit issuance may be necessary if coyote(s) do not respond to removal of attractants and hazing
Coyote seen several times in the same area around residences	Class 3	• Record information on animal(s) involved • Document circumstances including time, location, and whether there is a den nearby (as a possible underlying cause) • Educate about coyote behavior (territoriality), proper techniques for hazing, removing attractants (e.g., food), pet

		management (supervising pets), signs to be aware of re: escalating behaviors • Contact Wildlife staff
Coyotes entering a yard with people and pets *(no contact w/ people, pets observed)*	Class 3	• Record information on animal(s) involved • Document circumstances including time, location, and whether there is a den nearby (as a possible underlying cause) • Educate about coyote behavior (territoriality), proper techniques for hazing, removing attractants (e.g., food), pet management (supervising pets), signs to be aware of re: escalating behaviors • Contact Wildlife staff
Coyote entering a yard without people or pets present	Class 4	• Educate about coyote behavior (territoriality), proper techniques for hazing, removing attractants (e.g., food), pet management (supervising pets), signs to be aware of re: escalating behaviors • Contact Wildlife staff
Coyotes seen out and about during daylight hours	Class 4	• Educate about coyote behavior, removing attractants (e.g., food), pet management (supervising pets), signs to be aware of re: escalating behaviors
Coyotes heard near home	Class 4	• Provide education about normal coyote behaviors and how to avoid conflicts

[1]This chart describes coyotes that appear healthy, but whose actions may be indicative of escalating aggressive behavior. This chart does not address cases of sick-acting coyotes. Any sick-acting coyote that comes into contact with people or pets should be treated as a suspect rabies exposure, and law enforcement (or other first responders) should contact the local county health department to report the possible exposure. Local ECOs, appropriate Regional Wildlife staff, and the Wildlife Health Unit should also be contacted.

[2] Class 1 and Class 2 incidents will result in a recommendation to lethally remove the coyote(s) and a permit will be issued to do so, if necessary. Class 3 occurrences ***may*** result in the issuance of a permit to lethally remove a coyote if its behavior does not change in response to hazing and the removal of attractants.

[3] In the case of bites, injuries, or aggression toward people, the person should immediately contact their local police department, who can provide the fastest response. If there is physical contact between a coyote and a person or pet, they must also contact their county health department due to suspect rabies exposure.

Introduction

Coyotes exist throughout New York State, including many urban and suburban areas with a high density of human development. Coyotes can co-exist with people in most circumstances and their mere presence should not be considered a threat. As outlined in these Standard Operating Procedures (SOPs), coyotes that are habituated to people and/or who exhibit aggressive behavior toward people or pets should be removed (i.e., lethal removal or live capture and euthanasia). The goal with lethal control is to remove offending individuals and not large-scale population reduction.

Under other circumstances, lethal removal may not be appropriate or warranted. When coyotes are merely a nuisance or an animal is distressed or injured, DEC Regional Wildlife staff, Environmental Conservation Officers (ECOs), and licensed Nuisance Wildlife Control Operators (NWCOs) or licensed wildlife rehabilitators can provide technical guidance, and in some cases, take action to resolve the issue.

This document establishes guidance for resolving conflicts involving individual animals which require intervention. These events are relatively uncommon but can occur at any time. In the vast majority of situations, the most appropriate course of action will be not to intervene. This guidance focuses on response once a determination has been made that an intervention is necessary. Because each situation requiring a response will be unique based on the particular circumstances of that case, guidance is provided here based on common scenarios encountered by DEC staff and experience dealing with changes in coyote behaviors.

Situations involving the fate of highly visible individual animals can become controversial and result in significant public interest. DEC Regional Wildlife staff and members of DEC's Division of Law Enforcement (DLE) who become aware of an incident involving a coyote should inform the Regional Director of the circumstances, particularly in cases where a coyote has threatened or attacked a person. The regional Citizen Participation Specialist should also be notified of the situation. Dependent on the circumstances, actions may be summarized as:

DEC has the lead to determine:

- Animal is to be left alone (location and actions monitored)
- Animal is to be euthanized (with permit issuance, if necessary; see DEC Wildlife Euthanasia SOP)
- Contact NWCOs
- Contact licensed wildlife rehabilitator(s) for inured coyote that is not a threat to people or

When the Regional Director authorizes municipal lead, staff will be directed:

- DEC is to:
  - Provide technical guidance
  - Issue permit (if necessary/required)
  - Euthanize (based on DEC Wildlife Euthanasia Guidelines)
  - Trap and Relocate (only in certain circumstances; see below under "Distressed or Injured Coyotes")

pets (i.e., it is not exhibiting behaviors indicative of habituation or loss of fear of people)

- Provide list of NWCOs
- Provide list of wildlife rehabilitators

Nuisance Coyotes and Coyotes Causing Property Damage

In cases where coyotes are exhibiting nuisance behaviors or causing property damage, but are not a threat to people or pets, the public should contact their DEC Regional Wildlife Office for guidance. As per ECL 11-0523, no permit is needed to remove coyotes causing property damage; however, a permit from DEC is needed for coyotes that are deemed a "nuisance." A licensed Nuisance Wildlife Control Operator can usually help with nuisance cases, but people should be informed that they charge a fee for their services. A listing of licensed NWCOs is available on the DEC website (https://www.dec.ny.gov/cfmx/extapps/sls_searches/index.cfm?p=live_nwco). USDA Wildlife Services has provided assistance to municipalities, homeowners associations, and other entities dealing with nuisance wildlife and can be reached at (518) 268-2290 or 1-866-4USDAWS.

Distressed and Injured Coyotes

A coyote that appears healthy and is not exhibiting nuisance behaviors can sometimes become trapped in a structure or become injured. In some cases, the animal may leave on its own, or it may be possible to capture and release it to the wild nearby. In such cases, DEC's Regional Wildlife Offices and ECO's can provide technical guidance, and in some cases, may be able to provide assistance.

If an injured coyote presents no risk to human health and safety, a licensed wildlife rehabilitator may be able to help. Wildlife rehabilitators are not always able to accept every injured animal. If the injury is severe, euthanasia may be the most appropriate option. A listing of licensed rehabilitators, including the types of animals they usually handle, is available on the DEC website (https://www.dec.ny.gov/animals/83977.html).

Coyotes that become entrapped in fenced areas or injured, but that are not habituated or aggressive, may be captured, treated by a licensed wildlife rehabilitator if necessary, and relocated to the nearest suitable habitat. Permission of the landowner must be obtained for the location where the animal is proposed to be released.

Sick-Acting Coyotes

The primary diseases that coyotes may contract are mange, distemper, and rabies; however, the New York State Rabies Laboratory reports only one case of rabies in coyotes per year, on

average (NYSDOH, 2018). In cases of mange, there is no significant threat to human health and safety, and other than keeping pets away from coyotes (which is recommended regardless of disease), there is no action to be taken.

If a coyote appears ill or is acting abnormally, guidance should be given by DEC staff to the public to keep people and pets away from the suspect animal and to contact their local police department and/or animal control officer. If it can be done safely, sick-acting coyotes should be euthanized and tested for rabies (see Appendix 4 for BMPs for Coyote Removal for link to DEC's Wildlife Euthanasia Standard Operating Procedures).

Any sick-acting coyote that comes into contact with people or pets should be treated as a suspect rabies exposure, and law enforcement (or other first responders) should contact the local county health department to report the possible exposure. If they determine there is an exposure of concern, the health department in each county in New York State is responsible for coordinating submission of animals for testing (see Appendix 5 for listing of county health departments). In some cases, the Wildlife Health Program can assist the county health department with retrieval and submission of samples for testing. Local ECOs, appropriate Regional Wildlife staff, and the Wildlife Health Unit should also be contacted.

In the case where local law enforcement, animal control, or DEC dispatches a sick-acting animal, extreme care should be taken in handling and transporting the dead animal. Guidance should be provided to staff responding to the incident to protect themselves from contact through proper use of personal protective equipment (e.g., latex gloves, protective eyewear) and proper specimen collection techniques and materials (e.g., double bag specimens in hazmat or other leak-proof bags for transport; see link in Appendix 1 to Cornell AHDC on-line training module on safe handling of wildlife specimens).

If an animal appears sick and has not come into contact with people, DEC's Wildlife Health Program (518-478-3034 Delmar; 607-253-3900 Cornell AHDC) and the Regional Wildlife Office should be contacted. The Wildlife Health Program may be interested in examining the animal and testing for other diseases.

Coyotes Residing Near People – When is there Cause for Concern?

DEC Wildlife staff receive occasional reports of potentially aggressive coyote behavior, and in rare cases, coyotes have bitten people. A small fraction of these cases involve an animal with rabies, but this is exceedingly uncommon (about 250 Class 1 and Class 2 incidents between 2005-14, compared to 5 coyotes with rabies over that same period; NYSDOH 2018). This SOP focuses on otherwise healthy coyotes that exhibit an escalating pattern of bold behaviors that may put people and pets at risk.

With increased concern about the presence of coyotes near people in urban and suburban areas (Baker and Timm 2017, Alexander and Quinn 2012), there is need for wildlife managers to educate communities and guide responses so that perceived conflicts with coyotes can be prevented or resolved. This SOP is tiered to respond to an escalating level of coyote actions and behaviors in close proximity to people.

Coyotes are found statewide and incidents can occur any time of year, but reported incidents peak during certain periods (Figure 1). The public should be made aware of steps they can take to minimize the risk that an incident will occur prior to these peak periods.

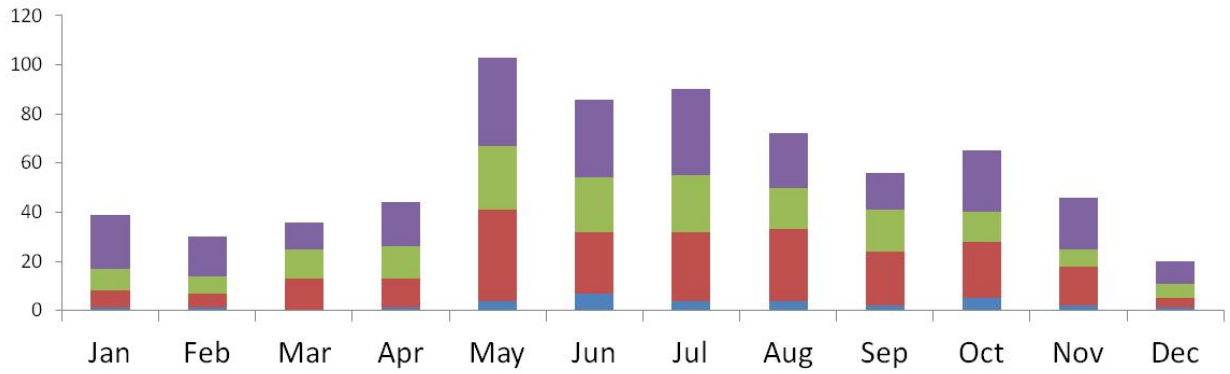

Figure 1. Monthly distribution of 687 coyote incident reports in New York State from May 2005 through January 2014. The peak reporting of incidents corresponds with the period when coyotes are feeding pups (May) and the period when people are more active outdoors (mid-Summer). Class 4 incident = purple, Class 3 incident = green; Class 2 incident = red; Class 1 incident = blue.

For example, smaller dogs (e.g., <40 lbs.) are viewed as competitors to a territorial coyote during breeding or denning season in the late winter and early spring. In an examination of coyote incidents in Canada, Alexander and Quinn (2011) documented 91 incidents that involved dogs which resulted in 38 cases of dog mortality, 34 of those being small breed dogs. In 92% of those encounters, the dog was off leash. Additionally, there were 32 reports of coyote attacks on cats, all of which were fatal. Larger dogs (65 pounds or more) may be perceived as competitors which may lead to territorial confrontations, but large dogs tend to be at lower risk than smaller dogs. Later in the year, in August and September, young-of-the-year coyotes may display a curious nature which can make them visible and a cause for concern. This is typically short-lived.

Coyotes that occur in suburbs are going to be more tolerant of people than coyotes residing in more rural habitats, and are generally unconcerned when seen by people; however, coyotes in urban/suburban habitats should still have a natural wariness of people and should not exhibit behaviors indicative of habituation or attraction to people and pets (Whittaker and Knight 1998).

Options for coyotes that are repeatedly seen in close proximity to human development (particularly during the spring pup-rearing season), but are not habituated or aggressive, include providing information to landowners and land managers to remove food sources and harassment of individual animals to maintain their fear of people (see http://www.dec.ny.gov/animals/6971.html for more information).

DEC will authorize lethal removal of dangerous animals meeting the criteria provided in this SOP. NWCOs, licensed by DEC, may be the best option for most municipalities or land owners who seek to remove individual animals that are causing problems. In general, coyotes are not suitable for capture and relocation. ***There is no acceptable non-lethal outcome to a coyote that is aggressive to people or pets.***

Warning behaviors (in increasing level of severity) exhibited by coyotes (adapted from Baker and Timm 1998, Baker 2008) that require a response:

1. Daylight observance of coyotes who do not flee when hazed (e.g., yelling, waving arms, throwing sticks/stones).
2. Coyotes non-aggressively approaching people or pets during day or night.
3. Seeing coyotes chasing or attacking pets at night.
4. Coyotes seen lingering around children's play areas, school grounds, and in parks at midday.
5. Seeing coyotes during the day chasing or attacking pets.
6. Coyotes attacking and/or taking pets on a leash or in close proximity to their owners.
7. Coyotes chasing and/or acting aggressively towards people.

This SOP outlines the procedures to document and respond to coyote incidents where the above behaviors have been observed.

New York Coyote Incident Standard Operating Procedures

This SOP has been developed for use primarily by DEC staff who routinely handle phone calls pertaining to coyotes, but may be a valuable reference document for other entities interacting with public experiencing conflicts with coyotes (e.g., Cornell Cooperative Extension personnel, municipal law enforcement and animal control officers).

Response by DEC staff

DEC staff receiving calls about real and perceived conflicts between a person (or their pet) and a coyote should record this information using the Coyote Incident Report form (see Appendix 2) found within the Nuisance Wildlife Database. This form is used to document coyote incidents including escalating behaviors that may indicate increased risk to people and pets.

Proper identification should be made to ensure the animal involved in the conflict is actually a coyote and not a domestic dog or a fox. Coyotes can exhibit different coat colors, although the typical color is gray-brown with reddish ears and flanks, they may come in colors ranging from blonde to black. The average weight of a northeastern coyote is between 25-40 lbs. (Metzger et al. 2017) although their thick coats may make them appear much larger, especially in winter. If positive identification is not possible, a physical inspection of the incident location may be necessary to make a determination (e.g., identification of tracks or other sign).

Whenever possible, efforts should be made to resolve coyote conflicts by directing the public to licensed trappers or hunters when coyote hunting or trapping seasons are open. If the conflict is of a more immediate nature, callers should be directed to their local law enforcement agency and/or animal control officer (if appropriate; not all animal control officers can handle wildlife), and their local ECOs. If there is not an immediate threat to human health and safety, callers should be directed to DEC licensed NWCOs or USDA APHIS Wildlife Services, and informed of when a permit is and is not needed.

Situations involving coyotes preying on livestock or damaging crops have not been shown to lead to imminent threats to human safety and therefore, this SOP does not cover those incidents (see “Nuisance Coyotes and Coyotes Causing Property Damage” above for a brief description of recommended actions). DEC staff receiving calls involving livestock depredation or crop damage should inform the complainants that they are legally allowed to lethally remove coyotes without a permit from DEC, and in a manner consistent with local ordinances.

The public should be advised that DEC does not support and will not permit the live trapping and relocation of coyotes deemed to be a nuisance, damaging or injuring property, or that are a threat to public health or safety. This is often poorly understood by the public, but in addition to the

potential of offending coyotes continuing their undesirable behavior and spreading diseases, relocated coyotes either die shortly after release or travel long distances to try to return to their original territory (Gehrt 2006, Craven et al. 1998).

It is important to note that a field response by DEC Wildlife staff may not be feasible, and depending on the circumstances, may not be appropriate. As previously mentioned, each situation is unique, and DEC Wildlife staff presence during a field response will be determined on a case-by-case basis. When Bureau of Wildlife staff are involved in a field response, it will usually be in a support capacity to DEC Law Enforcement and local law enforcement personnel.

If coyotes present a threat to public health and safety, staff from the Bureau of Wildlife will coordinate with both DEC Law Enforcement and local law enforcement staff to jointly decide upon the appropriate action and response based on the circumstances, location, and potential threat.

Management Methods

There are many strategies available to manage coyotes in urban and suburban settings, many of which involve the public. The primary strategy for addressing most incidents is educating the public on how to respond to certain coyote behaviors. Changing public perception of coyotes (when all available information indicates the animal is exhibiting normal behavior and is not a threat) and changing human behaviors (e.g., removing food sources, hazing coyotes when appropriate) can resolve most conflicts. The primary reason public action should be encouraged is because in the absence of negative consequences and/or when attractants are not removed, coyotes can lose their natural fear of people, which can increase the likelihood that conflicts will occur (Bonnell and Breck 2017).

Management strategies can be broken down into two main categories: lethal and non-lethal. A brief description of lethal and non-lethal methods is included below.

Non-lethal methods: Coyote occurrences and population density tend to increase in suburban and urban environments due to access to food resources, water features, and cover (Ordeńana et al. 2010). Suburban and urban locations that have features attractive to coyotes have been shown to follow some predictive parameters. For example, backyards selected by coyotes as foraging locations were 67 times less likely to have fences, 22 times more likely to contain anthropogenic food sources, and contained 3 times more cover than other yards (Murray and Clair 2017).

> *Physical Exclusion* - One of the simplest means of preventing coyotes from accessing a property is through physical exclusion such as fencing. Murray and Clair (2017) highlight the effectiveness of a barrier such as a fence for deterring coyotes from yards. For best

results, a good fence should be 5 ½ feet high and have a buried apron a minimum of 6 inches deep, but ideally should be buried about 15 inches deep.

Altering Habitat - Minimizing cover such as brush, bushes, and woodpiles where coyotes can hide around yards and residential areas can make properties unattractive to coyotes. Property owners should remove food sources such as trash, pet foods, and bird feeders, and encourage their neighbors to do the same. Installing bright lights or motion lighting can make areas less appealing to coyotes during the night.

Hazing - The public should be educated about ways to haze coyotes. Hazing is a method that uses negative stimulus to move an animal out of an area. Hazing techniques include standing your ground, making yourself look big, using a loud strong voice to yell at a coyote, taking a step towards the coyote, and using noisemakers, air horns, and shaker cans (aluminum can with pennies or stones inside), or throwing projectiles such as sticks or stones near the coyote to scare it. Hazing must continue until the coyote leaves, otherwise the coyote will learn to wait until the person gives up and become more difficult to haze in the future.

It should be noted that hazing may have no detectable effect on influencing coyotes to avoid areas with a high density of human development, and thus encouraging the public to haze a coyote does not mean that a long-term resolution of coyote conflicts has been reached (Breck et al. 2017). This may be because hazing does not affect coyote behavior or that the public does not properly implement hazing. Either way, coyotes that do not respond to hazing should be considered for lethal removal. Baker (2007) found that once coyotes started exhibiting aggressive behaviors such as approaching people and chasing pets, changes in coyote behavior due to hazing were usually temporary unless one or more coyotes were lethally removed.

Lethal Methods: It is important to note that the goal of lethal removal is to eliminate one or a few animals exhibiting bold or aggressive behaviors. The goal is not local or large-scale population reduction, which is neither practical nor effective.

Lethal control is generally reserved for coyotes that have been identified as a public safety threat through their behavior or the location and circumstances in which they occurred (i.e., Class 1 and 2 incidents, and some Class 3 incidents where coyote(s) do not respond to removal of attractants and hazing; see below for description of classes). Lethal removal should follow euthanasia guidelines (http://internal.dec.state.ny.us/dfwmr/dfwmr96.html), but in the case of an imminent human safety threat, euthanasia methods may not be practical or warranted.

Shooting a coyote with a firearm can selectively remove a problem coyote, but in urban/suburban areas shooting should only be done by trained professionals such as a public safety officer or DEC personnel in compliance with state and local ordinances (e.g., 500-foot set back from dwellings). Problem coyotes can be trapped by licensed NWCOs with the issuance of a permit by the DEC Regional Wildlife Office. NWCOs can humanely dispatch coyotes that have been trapped as part of a lethal removal effort.

In some cases, the landowner experiencing the problem may be able to take action on their own with a permit from DEC (in the case of a nuisance animal) or without a permit (in the case of property damage). If this is their preference, guidance should be provided on ways to minimize impacts on non-target animals (e.g., dog-friendly trapping methods) and minimize conflicts with other landowners. Of course, any methods they use must be in compliance with local ordinances regarding trapping and discharge of a firearm.

When and where possible, encouraging hunting and trapping of coyotes during the open season may help minimize the chance that negative interactions occur, but this may not be practical in most urban and suburban locations.

New York Coyote Standard Operating Procedures: Category of Behaviors

In this SOP, the behaviors frequently exhibited by coyotes have been standardized to maintain consistency between regions in New York State. This helps identify problem animals and enables DEC to better track trends in nuisance complaints and the severity of the complaint. For example, a Class 2 coyote would require more effort to resolve than a Class 4 coyote, and a Class 1 coyote has clearly been identified as a human health and safety threat (see below for a description of classes). The current rating system is described below with a short definition and the suggested approach needed to handle a problem coyote. It is meant as a guide as every nuisance situation is different.

Responding to various situations involving coyotes in a timely manner that meets public expectations is increasingly problematic due to staff and time constraints. Attempting to resolve conflicts with coyotes or to lethally remove a coyote in urban/suburban settings can be difficult due to the mixed habitats coyotes can utilize and their elusive nature. This SOP was developed to provide a consistent response to situations involving coyotes with the caveat that all incidents and associated circumstances are different, and at times responses different than those explained below may be necessary.

- Class 1 – A coyote has threatened or attacked a person. A coyote is exhibiting behavior that is dangerous toward people including biting or injuring a pet on a leash while it is

accompanied by a person. Coyote(s) has been lingering in or around child play areas, school yards, or parks at midday and does not flee when hazed.

- Class 2 – A coyote has threatened, attacked, or killed a pet. A coyote is showing undesirable or threatening behaviors in the presence of humans.

- Class 3 – A coyote is lingering in the same setting repeatedly. A coyote is entering yards and does not show distress in the presence of people.

- Class 4 – A coyote has been observed in an area but is exhibiting normal, natural behaviors.

Class 1 – A coyote has threatened or attacked a person. A coyote is exhibiting behavior that is dangerous toward people including biting or injuring a pet on a leash while it is accompanied by a person. Coyote(s) has been lingering in or around child play areas, school yards, or parks at midday and does not flee when hazed.

As coyote and human interactions increase, the likelihood of a coyote threatening or attacking a person also increases. Conflicts with coyotes occur more frequently in developed areas than in natural or agricultural areas (Poessel et al. 2013). Though rare, incidents where coyotes have bitten a person have been associated with young children left unattended or people walking dogs (Penteriani et al. 2016). An encounter should be considered potentially threatening if it meets behaviors 4 through 7 listed in the Introduction. An encounter should be considered an attack any time that a person is bitten.

Coyotes lingering in and around child play areas, school yards, or parks during midday that do not flee when hazed pose a potential risk to young children. Coyotes in these situations should be dealt with aggressively.

Class 1 occurrences will result in a recommendation to lethally remove the coyote(s) and a permit will be issued to do so, if necessary.

Documentation and Actions:

Depending on the circumstances of the Class 1 incident, recommended actions may be slightly different (see below). Regardless of the circumstances:

1. Advise the caller that an attempt to lethally remove (shoot or trap) the problem animal(s) is recommended. Refer the caller to public safety agencies, USDA/APHIS/WS, municipal animal control professionals (if available), or nuisance wildlife control

operators as appropriate (licensed NWCOs http://www.dec.ny.gov/animals/7005.html; USDA/APHIS/WS program (518) 268-2290 or 1-866-4USDAWS).

a. Explain to the caller that there may be a fee associated with services provided by licensed NWCOs or by USDA/APHIS/WS.
b. Provide technical expertise to callers who wish to attempt to handle the removal (e.g., type and size of traps, effective baits and lures, minimum gauge/caliber firearms; see "BMPs for Coyote Removal" in Appendix 4) themselves (if a legal option in their area). See Curtis et al. (2017) or www.nwco.net for detailed guidance on best practices for coyote control, or the link in the Appendix 1 to "Best Management Practices for Trapping Coyotes in the Eastern United States" (AFWA 2014).
c. In extreme cases, it may be necessary for staff from DEC's Division of Law Enforcement or Bureau of Wildlife to actively attempt to remove the coyote(s).

2. Collect as much information about the incident as you can by completing a Coyote Incident Report form (see Appendix 2; use form found within the Nuisance Wildlife Database). Using the questions on the form, try to determine if there were circumstances that may have led to the attack (e.g., coyotes being fed, escalating coyote behaviors).

3. Advise the caller to keep young children and other pets indoors and out of harm's way until the coyotes have been removed. Pets may be protected by taking them out on a leash, only taking them out during daylight hours or in well-lit areas, keeping them confined in a completely enclosed kennel (all sides, bottom, and top) or by keeping them in an area enclosed by a fence at least 6 feet high.

4. Provide additional information to the caller on coyote behavior and ecology. If the caller has internet access, direct them to the DEC website pages that deal with coyote ecology and nuisance coyotes and to the USDA, APHIS, WS website at www.aphis.usda.gov/.

Recommended actions for specific types of Class 1 incidents:

1. **An attack is occurring on a person or on a pet on a leash while it is accompanied by a person.**
   a. Immediately arrange for a public safety officer (often the first responders) and ECO to go to the scene to protect the individual(s). Responders should arrive at the scene prepared to humanely destroy the coyote (avoid damage to the head if possible).
   b. When a coyote has bitten a person and/or pet and has been subsequently destroyed, local law enforcement or the responding ECO should contact the local

county health department to arrange for the proper disposal and testing of the animal. In some cases, local law enforcement may request assistance from regional wildlife staff to transport the dead animal to the proper location.

c. The person(s) who was bitten should follow-up with a doctor and the county health department regarding potential rabies exposure.
d. After the immediate threat to human safety has abated, collect as much information about the incident as you can by completing a Coyote Incident Report form.

2. **An attack on a person or on a pet on a leash while it is accompanied by a person has occurred, but is being reported "after the fact."**
    a. Determine whether there was physical contact between the coyote and person or pet. If there was contact, inform the caller of the potential rabies exposure risk and the need to follow-up with a doctor and/or vet, and the county health department.
    b. Provide the caller with information for a NWCO and USDA WS regarding lethal removal of the animal (no permit is needed).
    c. Inform local law enforcement, ECOs, and appropriate Wildlife personnel of the incident.

3. **A coyote threatened a person but no physical contact was made.**
    a. Try to determine if person(s) were truly threatened. Some individuals will feel threatened by the mere presence of a coyote. If the threat is perceived rather than real, refer to the actions in Categories 3 and 4.
    b. If it was a true threatening situation, provide the caller with information for a NWCO and USDA WS regarding lethal removal of the animal (issue a permit using the Nuisance Wildlife database).
    c. Inform local law enforcement, ECOs, and appropriate Wildlife personnel of the incident.

4. **A coyote is lingering in or around a child play area, school yard, or park during midday, and does not flee when hazed.**
    a. Ask if more than one coyote was involved and if they were adults, juveniles, or both. Ask if children were present at the time the coyotes were observed.
    b. Try to determine the behavior the coyote(s) have displayed (e.g., passing through, curious, aggressive).
    c. Inquire whether hazing techniques were used, what those techniques entailed, and the coyote's response to hazing.
    d. If the reported hazing techniques were adequate (i.e., hazing of a significant style and duration that a coyote would be expected to flee), provide the caller with

information for a NWCO and USDA WS regarding lethal removal of the animal (issue a permit using the Nuisance Wildlife database).

e. Inform local law enforcement, ECOs, and appropriate Wildlife personnel of the incident.

Class 2 – A coyote has threatened, attacked, or killed a pet. A coyote is showing undesirable or threatening behaviors in the presence of humans

Coyote encounters with cats and dogs appear to be on the increase in many areas (Baker and Timm 2017). Cats and small dogs are likely viewed as potential prey items by coyotes and therefore subject to occasional attacks. In addition, all dogs may be viewed as competitors during the breeding or denning season, but smaller dogs (e.g., <40 lbs.) are more likely to actually be confronted or injured by a coyote.

"Outdoor cats" that are unsupervised are not considered "pets" in the context of coyote behavior and management. Coyotes are predators with a diverse diet, including both plant and animal matter. Free-roaming cats are vulnerable to predation by coyotes, just like any free-roaming animal existing in the wild. Free-roaming cats face threats of injury or death from other cats, domestic dogs, wildlife, and humans (i.e., automobiles), so assigning blame to a coyote can be difficult.

Class 2 incidents will result in a recommendation to lethally remove the coyote(s) and a permit will be issued to do so, if necessary.

Documentation and Actions:

Depending on the circumstances of the Class 2 incident, recommended actions may be slightly different (see below). Regardless of the circumstances:

1. Advise the caller that an attempt to lethally remove (shoot or trap) the problem animal(s) is recommended. Refer the caller to public safety agencies, USDA/APHIS/WS, municipal animal control professionals (if available), or nuisance wildlife control operators as appropriate (licensed NWCOs http://www.dec.ny.gov/animals/7005.html; USDA/APHIS/WS program (518) 268-2290 or 1-866-4USDAWS).
    a. Explain to the caller that there may be a fee associated with services provided by licensed NWCOs or by USDA/APHIS/WS.
    b. Provide technical expertise to callers who wish to attempt to handle the removal (e.g., type and size of traps, effective baits and lures, minimum gauge/caliber firearms; see "BMPs for Coyote Removal" in Appendix 4) themselves (if a legal option in their area). See Curtis et al. (2017) or www.nwco.net for detailed

guidance on best practices for coyote control, or the link in the Appendix 1 to "Best Management Practices for Trapping Coyotes in the Eastern United States" (AFWA 2014).

c. In extreme cases, it may be necessary for staff from DEC's Division of Law Enforcement or Bureau of Wildlife to actively attempt to remove the coyote(s).

2. Collect as much information about the incident as you can by completing a Coyote Incident Report form (see Appendix 2; use form found within the Nuisance Wildlife Database). Using the questions on the form, try to determine if there were circumstances that may have led to the attack (e.g., coyotes being fed, escalating coyote behaviors).

3. Advise the caller to keep young children and other pets indoors and out of harm's way until the coyotes have been removed. Pets may be protected by taking them out on a leash, only taking them out during daylight hours or in well-lit areas, keeping them confined in a completely enclosed kennel (all sides, bottom, and top) or by keeping them in an area enclosed by a fence at least 6 feet high.

4. Provide additional information to the caller on coyote behavior and ecology. If the caller has internet access, direct them to the DEC website pages that deal with coyote ecology and nuisance coyotes and to the USDA, APHIS, WS website at www.aphis.usda.gov/.

Recommended actions for specific types of Class 2 incidents:

1. **Coyote injures or kills a pet.**
   a. Ask the caller if they personally witnessed the attack.
   b. Confirm that the person observed physical contact between the pet and the coyote. Collect the names and phone numbers of anyone who witnessed the attack.
   c. Determine whether there was physical contact between the coyote and person or pet. If there was contact, inform the caller of the potential rabies exposure risk and the need to follow-up with a doctor and/or vet, and the county health department.
   d. If the pet was a dog, be certain to determine the breed, size, age, sex, and general health of the dog. This information may provide clues as to whether the attack was of a predatory or territorial nature. Ask if more than one coyote was involved and if there were adults, juveniles, or both.
   e. Provide the caller with information for a NWCO and USDA WS regarding lethal removal of the animal (no permit is needed). If the incident did not occur on their property, inform the caller that permission must be obtained from the landowner where the incident occurred prior to any actions to remove the coyote.
   f. Inform local law enforcement, ECOs, and appropriate Wildlife personnel of the incident.

2. **Coyote follows or approaches a person with or without a pet.**
    a. Try to ascertain why the caller felt compelled to report the sighting. Let the caller "tell their story" before you begin asking questions.
    b. Get as many details as possible about the circumstances of the incident including details on the behavior of the coyote, whether it was "passing by", seen in close proximity, or actively approached the person.
    c. If the person was accompanied by a dog, be certain to determine the breed, size, age, sex, and general health of the dog. This information may provide clues as to whether the attack was of a predatory or territorial nature. Ask if more than one coyote was involved and if there were adults, juveniles, or both.
    d. Confirm that there was no physical contact between the coyote and person or pet. If there was contact, inform the caller of the potential rabies exposure risk and the need to follow-up with a doctor and/or vet, and the county health department.
    e. Provide the caller with information for a NWCO and USDA WS regarding lethal removal of the animal (issue a permit using the Nuisance Wildlife database). If the incident did not occur on their property, inform the caller that permission must be obtained from the landowner where the incident occurred prior to any actions to remove the coyote.
    f. Inform local law enforcement, ECOs, and appropriate Wildlife personnel of the incident.

Class 3 – A coyote is lingering in the same setting repeatedly. A coyote is entering yards and does not show distress in the presence of people.

Occasional coyote observations near areas of human habitation are common. Repeated observations in the same general vicinity can be unusual and may be cause for concern.

There are obvious signs in coyote behavior that may indicate a potential human safety risk including increased observations in areas of human habitation and stalking of pets or people. One reason for this is that people fail to act aggressively when encountering coyotes by taking such actions as yelling or throwing things at the coyote (Penteriani et al. 2016). Coyotes become habituated to people and become less afraid of humans the more they interact with them without negative reinforcement.

Child play areas are a priority because of the most frequently recorded attacks on humans, 47% occurred to children who were left unattended (Penteriani et al. 2016). Because parks and child play areas are often near greenspace in suburban and urban environments, coyotes may live in close proximity to these areas without being a threat to people because of the limited habitat

available in developed landscapes. It is important to determine whether observed coyote behaviors warrant treating the incident as Class 1 or Class 3.

Class 3 occurrences <u>may</u> result in the issuance of a permit to lethally remove a coyote if its behavior does not change in response to hazing and the removal of attractants.

<u>Documentation and Actions:</u>

1. Collect as much information about the observation as you can by completing a Coyote Incident Report form (see Appendix 2; use form found within the Nuisance Wildlife Database). Try to ascertain why the caller felt compelled to report the sighting. Let the caller "tell their story" before you begin asking questions. Understanding what motivated the individual to make the call (fear, curiosity, concern) can help guide you in your handling of the call. Ask if other residents of the area have observed coyotes. Try to determine the behavior of the coyote(s) have displayed (passing through, curious, aggressive). Ask if more than one coyote has been observed and if they were adults, juveniles, or both.

2. In the case of coyotes seen near schools, playgrounds, and child play areas, it is important to document the circumstances, including time, location, whether there was a den nearby, whether hazing was used to deter the animal, and the effect of hazing. If, based on the description, hazing was done properly and the coyote(s) did not respond, follow the steps for a Class 1 incident (see above).

3. If the caller reports having observed a pair of adults or young and it is whelping/denning season (April-June), then advise the caller to avoid that location and keep all pets from that location as well. If pups are present, it indicates a den location which could lead to aggressive behavior as the coyotes defend their territory. Inform the caller that in time, the coyotes will move on, as coyotes often move their den site.

4. Educate the caller about actions that can be taken when encountering a coyote such as: observe the animal from a distance, do not feed, and be aggressive in your behavior. Caution the caller about leaving pets or young children unattended. Try to determine if there is anything in the area which may have served as an attractant to the coyote. Advise the caller on things that can be done that make areas less attractive to coyotes such as:

    - Removing all water and food sources including pet food, garbage, compost, bird feeders, dropped fruit under fruit trees, water bowls, and cleaning outdoor grill drip trays after use.

- Keep cats and small dogs indoors. Do not leave pets unattended outside.
- Cut back brush around the home and yard and restrict access under decks and sheds, around wood piles or any structure that can provide denning locations or cover.
- Erect fencing around the yard that is at least 6-foot-high and buried at least six inches underground (15 inches deep is ideal).
- Install motion lights or bright outdoor lights or leave a radio on outside at night.

5. Inform the caller that it may be necessary to remove or negatively condition the coyotes in order to alleviate their situation. If the caller desires such action, refer him/her to licensed NWCOs (http://www.dec.ny.gov/animals/7005.html) in the area, contact the USDA/APHIS/WS program (518) 268-2290 or 1-866-4USDAWS or municipal animal control professionals (if available) and issue any necessary permits. Explain to the caller that there may be a fee associated with services provided by licensed NWCOs. Provide technical expertise to callers who wish to attempt to handle the removal (e.g., type and size of traps, effective baits and lures, minimum gauge/caliber firearms; see "BMPs for Coyote Removal" in Appendix 4) or negative conditioning (rubber buckshot, spraying with a hose, pepper spray) themselves (if a legal option in their area). See Curtis et al. (2017) or www.nwco.net for detailed guidance on best practices for coyote control, or the link in Appendix 1 to "Best Management Practices for Trapping Coyotes in the Eastern United States" (AFWA 2014).

6. Provide additional information to the caller on coyote behavior and ecology. If the caller has internet access, direct them to the DEC website pages that deal with coyote ecology and nuisance coyotes and to the USDA, APHIS, WS website at www.aphis.usda.gov/.

Class 4 – A coyote has been observed in an area but is exhibiting normal, natural behaviors.

Coyotes are known to exist in all areas of New York State, and have even begun showing up in areas where they traditionally did not occur, such as Long Island and New York City. Increases in urban and suburban sprawl and a healthy coyote population have led to increased coyote conflicts in some areas of the state. While many people are aware that coyotes exist in New York, few expect to find them living among people. Many residents have the misconception that coyotes and other wild animals live only "in the woods." Coyotes have learned to utilize the abundant food resources such as small prey animals and anthropogenic foods found in urban areas and select areas adjacent to golf courses, urban parks, ball fields, and retention ponds as part of their habitat. Like many mammalian predators, coyotes are often perceived in a negative

light due to various influences in our culture. This may cause some people to be apprehensive and concerned over even a single, distant sighting.

Documentation and Actions:

1. Collect as much information about the observation as you can by completing a Coyote Incident Report form (see Appendix 2; use form found within the Nuisance Wildlife Database). Try to ascertain why the caller felt compelled to report the sighting. Let the caller "tell their story" before you begin asking questions. Understanding what motivated the individual to make the call (fear, curiosity, concern) can help guide you in your handling of the call.

2. Inform the caller that coyotes are a common part of nature, typically afraid of humans and that the sights and sounds of coyotes may be enjoyed like other wildlife species. If appropriate, inform them that coyotes living in suburban habitats may be more tolerant of people than coyotes living in rural habitats, but that these animals should still maintain a natural wariness of people.

3. Educate the caller about actions that can be taken when encountering a coyote such as: observe the animal from a distance, do not feed, and be aggressive in your behaviors. Try to determine if there is anything in the area which may have served as an attractant to the coyote. Advise the caller on things that can be done that make areas less attractive to coyotes such as:

    - Removing all water and food sources including pet food, garbage, compost, bird feeders, dropped fruit under fruit trees, water bowls, and cleaning outdoor grill drip trays after use.
    - Keep cats and small dogs indoors. Do not leave pets unattended outside.
    - Cut back brush around the home and yard and restrict access under decks and sheds, around wood piles or any structure that can provide denning locations or cover.
    - Erect fencing around the yard that is at least 6-foot-high and buried a minimum of six inches underground (15 inches deep is ideal).
    - Install motion lights or bright outdoor lights or leave a radio on outside at night.

4. Provide additional information to the caller about actions that can be taken when encountering a coyote. If the caller has internet access, direct them to the DEC website pages that deal with coyote ecology and nuisance coyotes and to the USDA/APHIS/WS website at www.aphis.usda.gov/.

5. Thank the caller for reporting the observation.

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Appendix 1.

New York State Regional Environmental Conservation Officers and Wildlife Offices

DEC Region	ECOs	Bureau of Wildlife
Region 1 – Long Island	(631) 444-0250	(631) 444-0310
Region 2 - NYC	(718) 482-4885	(718) 482-4922
Region 3 – Hudson Valley	(845) 256-3013	(845) 256-3098
Region 4 – Capital Area	(518) 357-2047	(518) 357-2355 Schenectady (607) 652-7367 Stamford
Region 5 – Eastern Adirondacks	(518) 897-1326	(518) 897-1291 Ray Brook (518) 623-1240 Warrensburg
Region 6 – Western Adirondacks	(315) 785-2231	(315) 785-2263 Watertown (315) 866-6330 Herkimer (315) 265-3090 Potsdam
Region 7 – Central NY	(315) 426-7431	(607) 753-3095 x.247
Region 8 – Finger Lakes	(585) 226-6706	(585) 226-5380 Avon (607) 776-2165 Bath
Region 9 – Western NY	(716) 851-7050	(716) 851-7010 Buffalo (716) 372-0645 Allegany
DEC 24/7 Central Dispatch Center	1-844-DEC-ECOS	

On-line Resources

How to Avoid Conflicts with Coyotes - https://www.dec.ny.gov/animals/6971.html

Listing of ECOs by County - www.dec.ny.gov/about/50303.html

Listing of County Health Departments - www.health.ny.gov/contact/contact_information/

Listing of Licensed Nuisance Wildlife Control Operators - www.dec.ny.gov/animals/7005.html

New York USDA APHIS Wildlife Services - https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa_reports/sa_informational%20notebook/ct_newyork_info

BMPs for Trapping Coyotes in the Eastern U.S. - http://www.dec.ny.gov/outdoor/81564.html

Listing of Licensed Wildlife Rehabilitators - www.dec.ny.gov/animals/83977.html

Cornell AHDC Training Module on Safe Handling of Wildlife Specimens - https://cwhl.ahdc.vet.cornell.edu/module/essential-training-dec-field-staff

Information about Wildlife Health - www.dec.ny.gov/animals/261.html

Information about the Eastern Coyote - https://www.dec.ny.gov/animals/9359.html

Appendix 2. Coyote Incident Report fields from the Nuisance Wildlife Database

Incident Report

User Guide & SOPs | Incident Report Summary | Print | Email | NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation | Duplicate This Incident Report | Unlock | Switchboard

Report ID: 11498

Wildlife Incident Report

Report Class: 3

Report Type: Filter Selections By: Choose a filter; Nuisance Wildlife Complaint

Species: coyote

Date of Incident: 9/4/2018

Time of Incident:

IR Details

Compiled By

Region: 7

Office: Cortland

Recording Agent: Picciano

Reported By

Organization: Private Citizen

First Name: Chris

Last Name: Young

Phone: (315) 289-7072

Incident Location(s)

Add Incident Location | *TO EDIT, DOUBLE CLICK THE BLUE BOX TO THE LEFT OF A RECORD.

RLocID	State	County	Town	WMU	Aggregate	House Number	
11376	NY	Onondaga	Manlius	7F	Oneida Lake Plain	8022	Bla

Record: 1 of 1 | No Filter | Search

Report Notes: twice in the last week

Nature of Complaint | DEC Response

	Class	$ Annual Damages	Acres Affected
Coyote seen several times in the same area around resider	3	$0.00	0

View Class Descr PDF

Incident Report | frmCoyoteIRDetails

ReportID 11542 CDetailID 52

Number of coyotes observed:

☐ Adult ☐ Juvenile ☐ Unknown

Prior to incident, coyotes seen in the last 3 months: (check one)

☐ Never ☐ Few Times (1-3) ☐ Common (4+)

Incident occurred at: (check one)

☐ Residence (yard) ☐ Park ☐ Trail ☐ School ☐ Children play area ☐ Street ☐ Farm ☐ Other:

Human related incident:

☐ Adult (16+)
☐ Child (0-15) Age
☐ Jogger
☐ Bicyclist

Coyote behavior: (check all that apply)

☐ Saw coyote at a distance (+50 yds)
☐ Saw coyote up close (-50 yds)
☐ Coyote non-fearful
☐ No response to hazing
☐ Approached/followed humans
☐ Threatened humans
☐ Chased humans
☐ Attacked humans (physical contact)
☐ Suspected physical contact with humans
☐ Other:

Pet/domestic animal (dom anim) related incident:

☐ Cat
☐ Dog Breed (use MIXED for mixed breeds/mutt)
Age ☐ M Weight (lbs)
☐ F
☐ Domestic animal Species
☐ Other species:

Pet/dom anim was: (check all that apply)

☐ On leash
☐ In kennel
☐ Close to humans
☐ Unsupervised
☐ In fenced yard
☐ Invisible fence
☐ Other:

Coyote behavior: (check all that apply)

☐ Approached pet/dom anim
☐ Chased pet/dom anim
☐ Attacked/injured pet/dom anim (physical contact)
☐ Suspected physical contact with pet/dom anim
☐ Killed pet/dom anim
☐ Pet/dom anim missing
☐ Other:

Artificial food sources available nearby: (check all that apply)

☐ Bird feeder ☐ Pet food ☐ Garbage ☐ Compost

Human response: (check one)

☐ None/evasion ☐ Threatened coyote ☐ Killed coyote

Appendix 3.

Avoiding Coyote Conflicts

The Eastern coyote is firmly established in New York. They live in New York as an integral part of our ecosystems. People and coyotes can usually coexist if the natural fear of people that coyotes have is maintained. Pets and young children are typically most at risk.

Recommendations

Below are steps you should take to reduce and prevent coyote problems from occurring. For additional information see our wildlife damage control page.

- **Do not feed coyotes and discourage others from doing so** (also see "Feeding Wildlife: a wrong choice").
- **Unintentional food sources attract coyotes and other wildlife and increase risks to people and pets**. To reduce risks:
  - Do not feed pets outside.
  - Make any garbage inaccessible to coyotes and other animals.
  - Eliminate availability of bird seed. Concentrations of birds and rodents that come to feeders can attract coyotes. If you see a coyote near your birdfeeder, clean up waste seed and spillage to remove the attractant.
- **Do not allow coyotes to approach people or pets**.
- Teach children to appreciate coyotes from a distance.
- If you see a coyote, **be aggressive** in your behavior - stand tall and hold arms out to look large. If a coyote lingers for too long, then make loud noises, wave your arms, or throw sticks and stones.
- Do not allow pets to run free. Supervise all outdoor pets to keep them safe from coyotes and other wildlife, especially at sunset and at night.
- Regulated hunting and trapping increases the "fear" coyotes have towards people.
- Fencing your yard may deter coyotes. The fence should be tight to the ground, preferably extending six inches below ground level, and taller than 4 feet.
- Remove brush and tall grass from around your property to reduce protective cover for coyotes. Coyotes are typically secretive and like areas where they can hide. See "Tips to Eliminate Wildlife Conflicts" for more information.

- Contact your local police department and NYSDEC regional office for assistance if you notice that coyotes are exhibiting "bold" behaviors and have little or no fear of people.
- Ask your neighbors to follow these same steps.

Coyotes and People

Coyotes provide many benefits to New Yorkers through observation, photography, hunting, and trapping; however, not all interactions are positive. While most coyotes avoid interacting with people, some coyotes in suburbia become emboldened and appear to have lost their fear of people. This can result in a dangerous situation. A coyote that does not flee from people should be considered dangerous. Coyotes in residential areas can be attracted to garbage, pet food, and other human-created sources of food. Coyotes can associate people with these food attractants. In addition, in some cases human behavior has changed to be non-threatening to coyotes (running into your home after seeing a coyote is behaving like prey). In short, people may unintentionally attract coyotes with food and people may behave like prey. Add to the mix people intentionally feeding coyotes and the potential for a coyote attack becomes very real.

Children are at greatest risk of being injured by coyotes. If a coyote has been observed repeatedly near an area where children frequent, be watchful for coyotes and do not let a coyote approach anyone. Follow the steps outlined above.

Potential does exist for coyote attacks in New York. However, a little perspective may be in order. On average, 650 people are hospitalized and one person killed by dogs each year in New York State. Nationwide, only a handful of coyote attacks occur yearly. Nevertheless, these conflicts are bad for people, pets, and coyotes.

Coyotes and Pets

Of great concern to many people is the interaction of coyotes with cats or dogs.

Cats

Do coyotes kill cats? Absolutely, but so do foxes, dogs, bobcats, vehicles, and even great horned owls. Cat owners need to be aware that cats allowed to roam free are at risk from many different factors. To protect your cat, keep it indoors, or allow it outside only under supervision. Coyotes in some areas appear to become "specialists" at catching and killing cats.

Dogs

Do dog owners need to be concerned about coyotes? The answer is maybe. Conflicts between dogs and coyotes can happen any time of the year, but are more likely in the months of March and April. It is during this time that coyotes are setting up their denning areas for the soon-to-arrive pups. Coyotes become exceptionally territorial around these den sites in an attempt to create a safe place for their young. In general, coyotes view other canines (dogs) as a threat. Essentially it comes down to a territorial dispute between your dog and the coyote. Both believe that your yard is their territory.

Owners of large and medium sized dogs have less to worry about, but should still take precautions. Coyotes, with an average weight of 40 lbs., know they are overmatched by large dogs and will yield part of their territory (your yard) to the dog. A confrontation may occur between a mid-sized dog and a coyote. Such confrontations, however, usually do not involve physical contact between the two animals, but coyotes may challenge or chase mid-sized dogs.

Owners of small dogs have cause for concern. Small dogs are of greatest risk of being harmed or killed by coyotes. Small dogs are at risk when left unattended in backyards at night, and should be supervised by owners. Coyotes have attacked and killed small dogs unattended in backyards. Coyotes may approach small dogs along streets at night near natural areas, even in the presence of dog owners. Be alert of your surroundings and take precautions such as carrying a flashlight or a walking stick to deter coyotes. While rather uncommon, people that have picked up their small dog to protect them from coyotes have been injured (scratched or bitten) by coyotes.

Coyotes and Livestock

Problems with coyotes and livestock do occur in New York. Most problems involve sheep or free ranging chickens and ducks. Most problems can be avoided with proper husbandry techniques. It is much easier to prevent depredation from occurring than it is to stop it once it starts.

Contacts

Regional DEC Wildlife Offices - http://www.dec.ny.gov/about/558.html

USDA APHIS: (518) 268-2290 or 1-866-4USDAWS; 572 3rd Avenue Ext., Suite 2, Rensselaer, NY 12144-5609

Listing of Licensed Nuisance Wildlife Control Operators - www.dec.ny.gov/animals/7005.html

Appendix 4.

Best Management Practices (BMPs) for Coyote Removal

Shooting

Be aware of local ordinances that may prohibit discharge of a firearm within a municipality. Landowners (and others) should also be made aware that they cannot discharge a firearm within 500 feet of buildings unless they have permission from all landowners within that distance.

Specific shot location is critical in the humane killing of coyotes (see Curtis et al. 2017 and NYSDEC 2017 for diagrams of proper shot placement).

Rifles – recommend using .223, .22-250, .220, or .243 (fitted with a scope if shooting at a distance)

Shotgun – recommend 12 gauge with No. 4 or larger shot for shooting at short range (less than 50 yards)

Trapping

Foothold traps – recommend Nos. 1.75 (5 ¼ inch jaw spread) or greater; pan tension set to four pounds improves selectivity and foot placement in the trap

Cage traps – recommend 54 x 20 x 24-inches minimum, but 60 to 72 x 20 x 26 inches preferred

Traps Meeting BMP Criteria for Coyotes in the Eastern United States (AFWA 2014)

Trap Category	Jaw/Frame Characteristics	Inside Jaw/Frame Spread at Dog (inches)	Inside Width at Jaw/Frame Hinge Posts (inches)
Coil-spring foothold trap	Padded	4 ½ - 5 ½	4 9/16 – 6 ½
	Unmodified	5 – 5 ¼	5
	Offset, laminated and/or wide	4 ½ - 5 ½	4 ¾ - 6 3/8

Euthanasia Guidelines

The preferred euthanasia method for coyotes is gunshot to the chest/body. Gunshot to the head should be avoided if possible because it destroys samples needed for rabies testing and increases the risk of exposure to the virus in brain tissue. While CO_2 is recognized as an acceptable method, it requires special equipment and is not available to most people. Blunt force trauma to

the head should only be used if no other options are possible as it increases the risk of human exposure to rabies due to damage to the skull, and is likely not acceptable in public. Drowning or injection with acetone are not recognized as acceptable methods of euthanasia because they do not promote a rapid loss of consciousness and can cause considerable distress. DEC's Wildlife Euthanasia SOP is available on In-site (http://internal.dec.state.ny.us/dfwmr/dfwmr96.html).

References

Association of Fish and Wildlife Agencies (AFWA). 2014. Best management practices for trapping coyote in the eastern United States. Association of Fish and Wildlife Agencies, Washington, D.C.

Curtis, P. D., S. E. Hygnstrom, S. M. Vantassel, and R. Smith. 2017. New York State Nuisance Wildlife Control Manual. National Wildlife Control Training Program LLC, New York.

NYSDEC. 2017. Wildlife Euthanasia Standard Operating Procedures. New York State Department of Environmental Conservation, Division of Fish and Wildlife. Albany, NY. 7 pp.

Appendix 5. Contact Information by County Health Office	
Albany County Department of Health Phone: 518-447-4580 Fax: 518-447-4698 Website: http://www.albanycounty.com/Government/Departments/DepartmentofHealth.aspx Allegany County Department of Health Phone: 585-268-9250 Fax: 585-268-9264 Website: http://www.alleganycountyhealth.com Broome County Health Department Phone: 607-778-2802 Fax: 607-778-2838 Website: http://www.gobroomecounty.com/hd Cattaraugus County Health Department Phone: 716-373-8050 Fax: 716-701-3737 Disease Control: 716-701-3394 Website: http://www.cattco.org/health Cayuga County Health Department Phone: 315-253-1560 Fax: 315-253-1156 Website: http://cayugacounty.us/health Chautauqua County Health Department Phone: 716-753-4590 Fax: 716-753-4640 Website: http://www.co.chautauqua.ny.us/219/Health-Human-Services Chemung County Health Department Phone: 607-737-2028 Fax: 607-737-3576 Website: http://www.chemungcountyhealth.org Chenango County Health Department Phone: 607-337-1660 Fax: 607-337-1720 Website: http://www.co.chenango.ny.us/public-health Clinton County Department of Health Phone: 518-565-4840 Fax: 518-565-4717 Disease Control: 518-565-4848 Website: http://www.clintonhealth.org Columbia County Department of Health Phone: 518-828-3358 Fax: 518-828-5894	Niagara County Department of Health Phone: 716-439-7435 Fax: 716-439-7402 Disease Control: 716-278-1900 Website: http://www.niagaracounty.com/Health Oneida County Health Department Phone: 315-798-6400 Fax: 315-266-6138 Website: http://ocgov.net/oneida/health Onondaga County Department of Health Phone: 315-435-3252 Fax: 315-435-5720 Disease Control: 315-435-3236 Website: http://www.ongov.net/health/ Ontario County Public Health Phone: 585-396-4343/1-800-299-2995 Fax: 585-396-4551 Website: http://www.ontariocountypublichealth.com Orange County Health Department Phone: 845-291-2332 Fax: 845-291-2341 Website: http://www.orangecountygov.com/content/124/1334/default.aspx Orleans County Health Department Phone: 585-589-3278 Fax: 585-589-2873 Website: http://www.orleansny.com Oswego County Health Department Phone: 315-349-3545 Fax: 315-349-3435 Website: http://www.oswegocounty.com Otsego County Health Department Phone: 607-547-4230 Fax: 607-547-4291 Website: http://www.otsegocounty.com Putnam County Health Department Phone: 845-808-1390 Fax: 845-808-1336 Website: http://www.putnamcountyny.com/health Rensselaer County Department of Health Phone: 518-270-2626 Fax: 518-270-2638 Website: http://www.rensco.com

Website:
https://sites.google.com/a/columbiacountyny.com/health

Cortland County Health Department
Phone: 607-753-5135
Fax: 607-753-5209
Disease Control: 607-753-5203
Website: http://cchd.cortland-co.org

Delaware County Public Health Services
Phone: 607-832-5200
Fax: 607-832-6021
Website: http://www.delawarecountypublichealth.com

Dutchess County Dept. of Behavioral and Community Health
Phone: 845-486-3004
Fax: 845-486-3448
Disease Control: 845-486-3402
Website:
http://www.co.dutchess.ny.us/CountyGov/Departments/DBCH/HDindex.htm

Erie County Department of Health
Phone: 716-858-6976
Fax: 716-858-8701
Disease Control: Epidemiology at 716-858-7697
Website: http://www.erie.gov/health

Essex County Public Health Department
Phone: 518-873-3500
Fax: 518-873-3539
Website: http://www.co.essex.ny.us/PublicHealth

Franklin County Public Health Services
Phone: 518-481-1710
Fax: 518-483-9378
Website: http://franklincony.org/content/Departments/View/2

Fulton County Public Health Department
Phone: 518-736-5720
Fax: 518-762-1382
Website:
http://www.fultoncountyny.gov/publichealth/index.php

Genesee County Public Health Department
Phone: 585-344-2580
Fax: 585-345-3064
Website:
http://www.co.genesee.ny.us/departments/health/index.html

Greene County Public Health Department
Phone: 518-719-3600
Fax: 518-719-3781
Website: http://greenegovernment.com/departments/public-health/

Rockland County Health Department
Phone: 845-364-2997
Fax: 845-364-3658
Website: http://www.rocklandgov.com/departments/health

Saratoga County Public Health Services
Phone: 518-584-7460
Fax: 518-583-1202
Website: http://www.saratogacountyny.gov

Schenectady County Public Health Services
Phone: 518-386-2810
Fax: 518-382-5418
Website: http://www.schenectadycounty.com

Schoharie County Department of Health
Phone: 518-295-8365
Fax: 518-295-8786
Website: http://www.schohariecounty-ny.gov

Schuyler County Public Health Department
Phone: 607-535-8140
Fax: 607-535-8157
Website: http://www.schuylercounty.us/phha.htm

Seneca County Health Department
Phone: 315-539-1920
Fax: 315-539-9493
Website:
http://www.co.seneca.ny.us/departments/community-services/public-health/

St. Lawrence County Public Health Department
Phone: 315-386-2325
Fax: 315-386-2203
Website: http://www.co.st-lawrence.ny.us/Departments/PublicHealth/

Steuben County Public Health
Phone: 607-664-2438
Fax: 607-664-2166
Website: http://www.steubencony.org/Pages.asp?PGID=36

Suffolk County Department of Health Services
Phone: 631-854-0000
Fax: 631-854-0108
Disease Control: 631-854-0333
Website:
http://www.suffolkcountyny.gov/departments/healthservices.aspx

Sullivan County Public Health Services
Phone: 845-292-5910
Fax: 845-513-2276

Hamilton County Public Health Nursing Service
Phone: 518-648-6497
Fax: 518-648-6143
Website: http://www.hamiltoncountyhhs.org

Herkimer County Public Health Nursing Service
Phone: 315-867-1176
Fax: 315-867-1444
Website:
http://herkimercounty.org/content/Departments/View/13

Jefferson County Public Health Service
Phone: 315-786-3710
Fax: 315-786-3761
Website: http://www.jcphs.org

Lewis County Public Health Agency
Phone: 315-376-5453
Fax: 315-376-7013
Website: http://www.lewiscountypublichealth.com

Livingston County Dept. of Health
Phone: 585-243-7270
Fax: 585-243-7287
Website: http://www.co.livingston.state.ny.us/doh.htm

Madison County Department of Health
Phone: 315-366-2361
Fax: 315-366-2697
Website: http://www.healthymadisoncounty.org

Monroe County Health Department
Phone: 585-753-2991
Fax: 585-753-5115
Website: http://www2.monroecounty.gov/health-index.php

Montgomery County Public Health
Phone: 518-853-3531
Fax: 518-853-8218
Website:
https://www.co.montgomery.ny.us/web/sites/departments/publichealth/default.asp

Nassau County Department of Health
Phone: 516-227-9500
Website: http://www.nassaucountyny.gov/health

New York City Dept. of Health and Mental Hygiene
Phone: 347-396-4100
Disease Control: 1-866-692-3641
Website:
http://www.nyc.gov/html/doh/html/home/home.shtml

Website:
http://co.sullivan.ny.us/Departments/PublicHealthServices/tabid/3293/Default.aspx

Tioga County Public Health Department
Phone: 607-687-8600
Fax: 607-687-6041
Website: http://www.tiogacountyny.com

Tompkins County Health Department
Phone: 607-274-6604
Fax: 607-274-6620
Disease Control: 607-274-6604
Website: http://www.tompkinscountyny.gov/health

Ulster County Health Department
Phone: 845-340-3150
Fax: 845-334-8337
Website: http://ulstercountyny.gov/health/health-mental-health

Warren County Health Services
Phone: 518-761-6580
Fax: 518-761-6422
Website: http://www.warrencountyny.gov/healthservices

Washington County Public Health Services
Phone: 518-746-2400
Fax: 518-746-2461
Website: http://www.co.washington.ny.us

Wayne County Public Health Services
Phone: 315-946-5749
Fax: 315-946-5762
Website: http://www.co.wayne.ny.us

Westchester County Department of Health
Phone: 914-813-5000
Fax: 914-813-5003
Website: http://www.westchestergov.com/health

Wyoming County Health Department
Phone: 585-786-8890
Fax: 585-786-3537
Website: http://www.wyomingco.net/health/main.html

Yates County Health Department
Phone: 315-536-5160
Fax: 315-536-5146
Website: http://www.yatescounty.org

Appendix 6.

Rabies

Cornell University
College of Veterinary Medicine
Animal Health Diagnostic Center

BASICS

Rabies is an acute, viral infection of the central nervous system caused by a Rhabdovirus. All mammals, including humans, can become infected with rabies. Once clinical signs appear, rabies is nearly **100% FATAL.**

Rabies is **WIDESPREAD** in NY and raccoons, skunks, bats, foxes, and coyotes make up the vast majority of cases in the United States.

CLINICAL SIGNS can vary and are not typical. Many diseases can have similar signs, including distemper. Nonspecific signs may include restlessness, anorexia, difficulty swallowing, vomiting, or diarrhea.

An **ACUTE NEUROLOGIC** period usually follows the nonspecific stage of disease by 1 to 2 days. Animals may show problems with balance, excessive aggression, salivation, incoordination, appearing "tame" or a **LACK OF FEAR**, self-mutilation, agitation, and head tilt.

Animals may appear "dumb" with lethargy, **MILD PARALYSIS**, frequent urination or incontinence, constipation, flaccidity (low muscle tone), and decreased reflexes.

TRANSMISSION of the rabies virus is primarily through the **SALIVA** from the bite of an infected animal.

Rabies **DIAGNOSIS** is done by direct fluorescent antibody (FAT) in a specialized laboratory. A specific section of **BRAIN TISSUE** is required to make a definitive diagnosis.

There is **NO** successful medical **TREATMENT** for clinical rabies infection in humans, however prompt vaccination is highly effective at preventing the disease. If bitten by a suspect animal, flush the wound with soap and water. **CONTACT THE LOCAL HEALTH DEPARTMENT.**

Rabies can be controlled by **VACCINATION** of domestic animals and quarantine of domestic animals that may be exposed to rabies.

The NYS Wildlife Health Program | cwhl.ahdc.vet.cornell.edu
A partnership between NYS Dept. of Environmental Conservation and Cornell Wildlife Health Lab

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Since about 1990, **RACCOONS** have had the most rabies cases of all wildlife species in New York State. Rabies does not infect birds or reptiles.

Following the incubation period, the disease progresses through a short nonspecific stage. Animals may show **ABNORMALITIES** of the nerves that control the eyes, face, tongue, and other structures of the head. Coma followed by multi-organ failure usually **LEADS TO DEATH**. In dogs, the time from the onset of illness to death is typically 10 days or less. In bats, it may be as long as 18 days.

TRANSMISSION occurs during a relatively short period of time during the final stages of the disease. In infected animals the virus travels through the central nervous system to the brain where it replicates and spreads to the **SALIVARY GLANDS** and other tissues. The further the exposure site is from the brain, the longer the virus will take to get there and the longer the incubation period. Typically in domestic animals the incubation period varies from about 1 to 3 months. This period is not certain for most wild animals.

Reports of **NON-BITE EXPOSURES** are less common and include saliva entering an open wound, the eyes, or the mouth. Rare infections have occurred from **INHALATION** of infected particles in a bat cave or laboratory, and through transplantation of infected tissues.

DIAGNOSIS In some cases, the entire head can be submitted to the lab for testing. Bats can be submitted whole. Gloves should be worn whenever handling carcasses. Domestic animals that have bitten a person may be **QUARANTINED** for observation at the order of the health department instead of being submitted for testing.

TREATMENT Contact the local health department to discuss if vaccines are warranted and arrange for treatment. The vaccine schedule for non-immunized individuals involves injection of rabies vaccine on days 0, 3, 7, and 14 after an exposure. In some cases additional treatment with rabies immunoglobulin at the wound site is given.

People in **HIGH RISK JOBS** receive pre-existing vaccines and require fewer doses after an exposure. For more information about the medical treatment of rabies exposure in humans, visit the Centers for Disease Control and Prevention.

PRECAUTIONS AND PREVENTION Vaccination of dogs, cats, and domesticated ferrets is **REQUIRED** by New York State law no later than four months after birth and a second vaccination is required within one year thereafter. People **AT RISK** for exposure should be vaccinated for rabies. These occupations include veterinarians, wildlife biologists, wildlife rehabilitators, and other animal handlers.

Vaccination of **FREE-RANGING WILDLIFE SPECIES** is expensive but may be implemented to attempt to control rabies in reservoir populations. Oral vaccination programs have been **SUCCESSFUL** in eliminating fox rabies in Europe and Texas. The USDA Wildlife Services has had the National Rabies Management Program in place since 1995 to prevent the further spread of rabies using oral rabies vaccination baits in targeted areas.

PUBLIC HEALTH In New York State, the **DEPARTMENT OF HEALTH WADSWORTH CENTER IN ALBANY HANDLES ALL RABIES TESTING.** A designated local county health department official makes the determination if testing is warranted in cases of possible human or domestic animal exposure and authorizes payment of the testing fees. If expedited testing is needed (for instance over a weekend or holiday) the county health department can make a special request to the laboratory. Typically results are available the same day the specimen is received at the lab. **FOR MORE INFORMATION** on the submission of rabies specimens and proper sample collection, visit the New York State Department of Health, Wadsworth Center.

Mange

Cornell University
College of Veterinary Medicine
Animal Health Diagnostic Center

BASICS

Mange is a skin disease that affects mammals caused by microscopic mites that burrow into skin.

There are different species ofmites that can cause the disease. **SARCOPTIC MANGE** can affect wild and domestic mammals and is often reported in wild canids such as red foxes, coyotes, gray wolves, and red wolves. **NOTOEDRIC MANGE** is generally host specific to squirrels and has been reported in the western gray squirrel, eastern gray squirrel, fox squirrel, and rarely in bobcats. **DEMODECTIC MANGE**, also called demodicosis, has been reported in many mammalian species including white-tailed deer, mule deer, elk, and black bears.

CLINICAL SIGNS vary by type but a common sign is hair loss.

SARCOPTIC MANGE signs often include hair thinning and hair loss and thickening and wrinkling of the skin. Scabs and foul-smelling crusts result from secondary infections with bacteria and yeast. **NOTOEDRIC MANGE** results in hair loss in affected squirrels that begins over the chest and shoulders and progresses to affect the entire body. **DEMODECTIC MANGE** signs include hair loss and dry, flakey, thickened skin. Disease is more severe in stressed animals with weakened immune systems or poor nutrition.

TRANSMISSION occurs when a host becomes infected by direct contact with an affected animal or by coming into a contaminated environment like burrows or nests where free-living mites can survive for several weeks in high humidity and low temperatures.

Mites can be **IDENTIFIED** by examining **SKIN SCRAPINGS** from affected animals under a microscope. Differences in appearance can help determine the type of mite.

Oral administration of Ivermectin can **TREAT** mange but is not typically used in free-ranging wildlife because of the need for repeat treatments several weeks apart.

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DETAILS

There are **SEVERAL SPECIES OF MITES** that can cause mange, the most common is *Sarcoptes scabiei* which cause sarcoptic mange. *Notoedres centrifera* and several species of the genus *Demodex* can cause notoedric mange and demodectic mange, respectively but the **APPEARANCE IS SIMILAR.**

There is a variety of *S. scabiei* mite that causes **SCABIES** in people, and people can sometimes become infected with animal varieties of *S. scabiei* after direct contact with infected wild animals or pets. These infections are usually self-limiting infections and only last about 10-14 days. Sarcoptic mange has also been reported in black bears, porcupines, rabbits, squirrels and raccoons. In NY State it may be increasing in black bears.

Demodex mites are **NORMAL INHABITANTS** of the skin of all mammals but the mites can sometimes cause damage. There are several Demodex species that are mostly host specific but some species can affect closely related mammals.

TRANSMISSION Sarcoptic and notoedric mites have similar transmission and life cycles. A host becomes infected by direct contact with an affected animal or by coming into a contaminated environment like burrows or nests where free-living mites can survive for several weeks in high humidity and low temperatures.

Once infected, the **MITES BURROW** into the outer layer of skin and form tunnels where females lay their eggs. In 3 or 4 days, the eggs hatch into larvae, which either remain in the tunnels or move to the surface of the skin. The larvae develop into nymphs in 3 to 4 days and then into adults in another 5 to 7 days. The complete life cycle of a male take 13 to 16 days and a female about 18 to 23 days.

Species of Demodex mites **INHABIT HAIR FOLLICLES** and associated glands. The mites are most likely transmitted from mother to young.

CLINICAL SIGNS With sarcoptic mange, the head is usually most severely affected and in more severe cases the lesions can cover the trunk and limbs. Advanced cases can result in severe hair loss and systemic bacterial infections with emaciation, depression, hypothermia and death. Skin changes on the face may result in blindness, impaired hearing, and difficulty eating.

Notoedric mange **CAN BE FATAL IN SQUIRRELS** particularly in the winter months in which loss of the insulating layer of fur would expose them to the cold.

In healthy animals, Demodex mites do not usually cause clinical signs.

TREATMENT Topical treatments that can kill mites for extended periods after a single dose may be more effective. Some healthy animals may resolve their mange without intervention.

ADVANCED MANGE ON BLACK BEAR

Canine Distemper

Cornell University
College of Veterinary Medicine
Animal Health Diagnostic Center

BASICS

Canine Distemper is a **HIGHLY CONTAGIOUS** disease caused by a paramyxovirus. It is a widespread disease affecting wild and domestic carnivores and this primarily infeects raccoons, grey fox and skunks in the spring and fall.

CLINICAL SIGNS begin 10-14 days after infection and include discharge from the eyes and nose, dyspnea (difficulty breathing), coughing, and pneumonia. Fever, anorexia and respiratory tract issues are **MOST COMMON.**

Canine distemper virus (CDV) also causes gastrointestinal illness, thickening of the nose and foot pads, and a **NEUROLOGIC** phase that has symptoms similar to **RABIES**.

TRANSMISSION occurs from contact with infected saliva, urine, feces or respiratory secretions. Animals can shed up to 2 weeks after they recover. The virus can **SURVIVE** long periods in the environment if the temperatures are below freezing.

Canine distemper can be **DIAGNOSED** by detection of DNA from nasal or ocular swabs or from tissue samples such as foot pads, bladder or lung.

There is **NO CURE**, only supportive care, so preventative measures to reduce the risk of spreading the virus are key. This virus is nearly 100% fatal for mustelids.

The NYS Wildlife Health Program | cwhl.ahdc.vet.cornell.edu
A partnership between NYS Dept. of Environmental Conservation and Cornell Wildlife Health Lab

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DETAILS

The disease is found in canids (domestic dogs, coyotes, wolves, foxes) as well as raccoons, javelinas, and some marine mammals. Mustelids (black footed ferrets, mink, and skunks) are especially **SUSCEPTIBLE** to the disease. One case has been reported in a black bear and cases have been reported in monkeys. It can cause high mortality in large exotic cats (tigers and lions).

TRANSMISSION The virus is transmitted by inhalation of aerosolized particles and direct contact. It is shed in the urine, feces, and secretions of infected animals. The virus is resistant to cold and the majority of cases in domestic dogs occur in the fall and winter.

The disease is often fatal with a mortality rate of 50% in adult dogs and 80% in puppies. Most wildlife cases occur in the spring and fall. However, there are cases year round. The **MORTALITY RATE** is close to 100% in mustelids.

CLINICAL SIGNS The virus causes respiratory issues and fever. It also causes gastrointestinal illness including vomiting and diarrhea, as well as thickened skin on the nose and footpads (hyperkeratosis).

The **NEUROLOGIC PHASE** of the disease affects the central nervous system and can cause disorientation and weakness along with progressive seizures. The "chewing gum fit" is the classic distemper sign that begins with snapping and jaw spasms that progress to seizures. Wild animals with late neurologic stage distemper have can exhibit fearlessness, aimless wandering, and aggressiveness.

TREATMENT The treatment for canine distemper is supportive care as there is no cure. Therefore, prevention is important in preventing mortality from CDV.

PRECAUTIONS AND PREVENTION CDV is not transmissible to humans. Preventative measures include vaccination of domestic species, removal of infected carcasses, and decontamination of areas where infected animals were treated.

EXAMPLE OF FOOT PAD THICKENING