Section 7: Exotic animals & wildlife

7-1 Dangerous animals prohibited in King County (King County Code Chapter 11.28)
7-2 WA State list of prohibited deleterious exotic wildlife (WAC 232-12-017)
7-3 WA State list of prohibited animals (RCW 16.30, RCW 77.15.250)
7-4 Instructions for people who find a baby animal or bird (PAWS Wildlife Center fact sheets)
7-5 List of wildlife rehabilitators (WDFW)
7-6 Diseases from Raccoons and How to Clean up a Raccoon Latrine (PHSKC fact sheets)
7-7 Hantavirus (PHSKC fact sheet, CDC brochure)
7-8 Disease Precaution for Hunters (AVMA tips and guidelines)

Information & resources

King County Code

7-1 Title 11 (Animal Control), Chapter 11.28 Exotic Animals
www.kingcounty.gov/council/legislation/kc_code.aspx

WA State WAC

7-2 WAC 232-12-017 http://apps.leg.wa.gov/wac/default.aspx?cite=232-12-017

WA State RCW

RCW 77.15.250 http://apps.leg.wa.gov/rcw/default.aspx?cite=77.15.250

WA State Department of Fish and Wildlife (WDFW)

NON-EMERGENCY Poaching/Violations or Dangerous Wildlife Complaints:
1-877-933-9847 or (425) 775-1311 (call 911 if emergency)
Living with Wildlife series: www.wdfw.wa.gov/wlm/living/index.htm
7-5 http://wdfw.wa.gov/conservation/health/rehabilitation/

Public Health – Seattle & King County

7-6 and 7-7 Raccoons and Hantavirus fact sheets at:
www.kingcounty.gov/healthservices/health/communicable/diseases.aspx
How to get rid of rats: www.kingcounty.gov/healthServices/health/ehs/rats.aspx
Dead bird reporting in King County: Report by phone at 206-263-9566 or online at
WA Dept. of Health at https://fortress.wa.gov/doh/eh/portal/ehs/odbrs/
West Nile Virus information: hotline: 206-205-3883 and
www.kingcounty.gov/healthservices/health/ehs/westnile.aspx

CDC

Hantavirus: www.cdc.gov/hantavirus/
7-7 www.cdc.gov/hantavirus/pdf/HPS_Brochure.pdf

PAWS Wildlife Center for injured or orphaned wildlife

7-4 www.paws.org/wildlife/injured/
www.paws.org/media/found_wild_baby_mammal.pdf
www.paws.org/media/found_wild_baby_bird.pdf

AVMA

7-8 www.avma.org/public/Health/Documents/hunters_precautions.pdf

June 2013
Title 11
ANIMAL CARE AND CONTROL (Formerly ANIMAL CONTROL)
11.28  EXOTIC ANIMALS

Sections:
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11.28.010 Chapter intent. It is the intent of the King County council to limit and set conditions on the possession or maintenance of exotic animals in order to preserve the public peace and safety and to assure the humane treatment of exotic animals. (Ord. 2473 § 1, 1975).

11.28.020 Definitions. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.
A. "Animal care and control authority" means the regional animal services section in the records and licensing services division, acting alone or in concert with other municipalities for enforcement of the animal care and control laws of the county and state and the shelter and welfare of animals.
B. "Director" means director of the department of executive services.
C. "Exotic animal" means any of the following:
1. Venomous species of snakes capable of inflicting serious physical harm or death to human beings;
2. Nonhuman primates and prosimians;
3. Bears;
4. Nondomesticated species of felines;
5. Nondomesticated species of canines and their hybrids, including wolf and coyote hybrids; and

11.28.030 Possession unlawful - exception - rules and regulations compliance. The possession or maintenance of an exotic animal within King County by private citizens as pets is prohibited unless the owner possessed or maintained the exotic animal on or before June 10, 1994, and agrees to promptly act to satisfy the licensing requirements in K.C.C. 11.28.040 through 11.28.090 and such rules and regulations as the animal care and control authority may adopt as provided in K.C.C. chapter 2.98 regarding the maintenance of the animals. (Ord. 15801 § 50, 2007: Ord. 11340 § 2, 1994: Ord. 2473 § 3, 1975).

11.28.040 License - issuance generally - fees. The animal care and control authority may cause to be issued an exotic animal owner's license that shall authorize the licensee to possess or maintain all or some of such species of exotic animals are specified according to K.C.C. 11.28.030 if the application is accompanied by payment of the license fee, contains the information required by K.C.C. 11.28.050 and meets the cage or confinement rules and regulations of the animal care and control authority.

The fee for the license shall be as provided for in K.C.C. 11.04.035. All licenses shall expire one year from the original application. (Ord. 15801 § 51, 2007: Ord. 11161 § 1, 1993: Ord. 10671 § 1, 1992: Ord. 10168 § 10, 1991: Ord. 2473 § 4, 1975).

11.28.050 License - application - content.
A verified application for an exotic animal owner's license made in triplicate shall be filed by the applicant with the animal care and control authority. The application shall contain the following:
A. A legal or otherwise adequately precise description of the premises that the applicant desires to use under the required license;
B. Whether the applicant owns or rents the premises to be used;
C. If the applicant rents the premises, a written acknowledgment by the property owner that the applicant has the owner's permission to carry on the activity as described in the license application for the duration of the license;
D. The extent of improvement upon the premises;
E. A map or diagram of the premises showing where the improvements are located thereon;
F. A statement indicating the species of exotic animal that the applicant desires to possess or maintain;
G. A statement indicating how the animal will be caged or otherwise confined, accompanied with a drawing detailing the dimensions of and the materials used for the cage or similar confinement; and
H. Such further information as may be required by rules and regulations of the animal care and control authority. (Ord. 15801 § 52, 2007: Ord. 2473 § 5, 1975).

11.28.060 License - issuance - inspection. If, after investigation by the manager of the regional animal services section, it appears that the applicant is the owner or tenant of or has a possessory interest in the property shown in the application; if applicable, has the written permission of the property owner as specified in K.C.C. 11.28.050 and that the applicant intends in good faith to possess or maintain an exotic animal in accordance with the law and the rules and regulations of the regional animal services section, the regional animal services section shall issue a license to the applicant describing therein the premises to be used by the licensee and certifying that the licensee is lawfully entitled to use the same for the possession or maintenance of the exotic animal or animals specified in the license. However, before issuing the license, the regional animal services section shall inspect the cage or other confinement as required by rule or regulation and specified in the licensee's application in order to determine whether the cage or confinement meets the standard specifications for the classification of the exotic animal. If the cage or confinement is deemed inadequate, the applicant shall make such changes as are necessary to meet the standard specifications before the license shall be issued. (Ord. 16861 § 45, 2010: Ord. 15801 § 53, 2007: Ord. 2473 § 6, 1975).

11.28.070 Periodic inspection of premises. The manager of the regional animal services section, or any other officer authorized by the manager, may make routine periodic inspections of a licensee's premises and records in order to determine the number, kind, weight and condition of exotic animals possessed by the licensee, and for purposes of enforcing this chapter and the rules and regulations of the regional animal services section. (Ord. 16861 § 46, 2010: Ord. 15801 § 54, 2007: Ord. 2473 § 7, 1975).

11.28.080 License revocation - notice - hearing. The animal care and control authority may revoke, suspend or refuse to renew any exotic animal owner's license upon good cause for failure to comply with any provision of this chapter or the rules and regulations of the animal care and control authority authorized by this chapter, though the violator shall be first notified of the specific violation or violations and, if the violation can be remedied, the violator shall have fifteen days after receiving the notice of violation to correct the violation. Also, enforcement of such revocation, suspension or refusal shall be stayed during the pendency of an appeal filed in the manner provided by K.C.C. 11.04.270. (Ord. 15801 § 55, 2007: Ord. 2473 § 8, 1975).

11.28.090 Violation - penalty. Any person possessing or maintaining an exotic animal in King County without an exotic animal owner's license as provided herein, or transferring possession of an exotic animal to a person not licensed as provided by this chapter, is guilty of a misdemeanor and is subject to a fine not to exceed two hundred fifty dollars and/or by imprisonment not to exceed ninety days. (Ord. 2473 § 9, 1975).

11.28.100 Euthanasia in exigent circumstances. An exotic animal possessed or maintained in violation of this chapter or the rules and regulations of the animal care and control authority may be subject to euthanasia as defined in K.C.C. 11.04.020.F. if any one of the following exigent circumstances is deemed to exist by the manager of the animal care and control authority section:
A. The exotic animal presents an imminent likelihood of serious physical harm to the public and there is no other reasonably available means of abatement;
B. There is no reasonable basis to believe that the violation can be or in good faith will be corrected and after reasonable search or inquiry by the animal care and control authority no facility as authorized by local, state or federal law is available to house the exotic animal; or
C. The exotic animal suffers from a communicable disease injurious to other animals or human beings, though this subsection shall not apply if the animal is under treatment by a licensed veterinarian and may reasonably be expected to recover without infecting other animals or human beings. (Ord. 15801 § 56, 2007: Ord. 2473 § 10, 1975).

11.28.110 Chapter limitations.
A. The purpose of this chapter is to prohibit the private ownership of exotic animals as pets. Therefore, the provisions of this chapter shall not apply to any facility possessing or maintaining exotic animals as defined in this chapter which is owned, operated or maintained by any city, county, state or the federal government, including but not limited to public zoos, nor shall it apply to museums, laboratories and research facilities maintained by scientific or educational institutions, nor to private or commercial activities such as circuses, fairs, or private zoological parks which are otherwise regulated by law, nor to any recognized program engaged in the training of exotic animals as defined in this chapter for use as service animals by disabled citizens.

B. Breeding, or allowing the reproduction of, exotic animals as defined in this chapter is prohibited, provided that this prohibition shall not apply to any governmental facility possessing or maintaining exotic animals nor shall it apply to private or commercial activities as set forth in section A. (Ord. 11340 § 3, 1994: Ord. 2473 § 11, 1975).
WAC 232-12-017
Deleterious exotic wildlife.

(1) The following animals are hereby designated as deleterious exotic wildlife:

(a) Birds:

In the family Anatidae, the mute swan (Cygnus olor).

(b) Mammals:

(i) In the family Viverridae, the mongoose (all members of the genus Herpestes).

(ii) In the family Suidae, the wild boar (Sus scrofa and all wild hybrids).

(iii) In the family Tayassuidae, the collared peccary (javelina) (Tayassu tajacu).

(iv) In the family Bovidae, all members and hybrids of the following genera: Rupicapra (Chamois); Hemitragus (Tahr); Capra (goats, ibexes except domestic goat Capra (hircus); Ammotragus (Barbary sheep or Aoudad); Ovis (sheep), except domestic sheep Ovis aries; Damaliscus (Sassabies); Alcelaphus buselaphus (Hartebeest); and Connochaetes (Wildebeests).

(v) In the family Cervidae, the European red deer (Cervus elaphus elaphus), all nonnative subspecies of Cervus elaphus, and all hybrids with North American elk; Fallow deer (Dama dama), Axis deer (Axis axis), Rusa deer or Sambar deer (Cervus unicolor, Cervus timorensis, Cervus marniannus and Cervus alfredi), Sika deer (Cervus Nippon), Reindeer (all members of the Genus Rangifer except Rangifer tarandus caribou), and Roedeer (all members of the Genus Capreolus).

(2) It is unlawful to import into the state, hold, possess, propagate, offer for sale, sell, transfer, or release live specimens of deleterious exotic wildlife, their gametes and/or embryo, except as provided under subsection (3), (4), (5), (6), or (7) of this section, and as provided in WAC 232-12-01701.

(3) Scientific research or display: The director may authorize, by written approval, a person to import into the state, hold, possess, and propagate live specimens of deleterious exotic wildlife for scientific research or for display by zoos or aquariums who are accredited institutional members of the Association of Zoos and Aquariums (AZA), provided:

(a) The specimens are confined to a secure facility;

(b) The specimens will not be transferred to any other location within the state, except to other AZA-accredited facilities with written director approval or as otherwise authorized in writing by the director;

(c) The specimens will be euthanized and all parts incinerated at the end of the project, except for federally listed endangered or threatened species, which may be retained or transferred where in compliance with federal law;

(d) The person will keep such records on the specimens and make such reports as the director may require; and

(e) The person complies with other requirements of this section.
(4) Retention or disposal of existing specimens lawfully in captivity:

(a) Specimens lawfully in captivity prior to January 18, 1991: A person holding exotic wildlife specimens in captivity that were classified by the fish and wildlife commission as deleterious exotic wildlife on or before January 18, 1991, may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to January 18, 1991, provided such person complies with subsections (4)(c) through (4)(h) hereunder and the other requirements of this section;

(b) Specimens lawfully in captivity prior to June 20, 1992: A person holding the following deleterious exotic wildlife specimens in captivity that were classified by the fish and wildlife commission as deleterious exotic wildlife by operation of emergency rule filed June 19, 1992 (in the family Bovidae, Sassabies (all members of the Genus Damaliscus), Hartebeest (Alcelaphus buselaphus), Wildebeests (all members of the Genus Connochaetes), Markhor (Capra falconeri), and Marcopolo sheep (Ovis ammon); and in the family Cervidae, Fallow deer (Dama dama), Axis deer (Axis axis), Sika deer (Cervus nippon), and Rusa deer or Sambar deer (Cervus unicolor, Cervus timorensis, Cervus mariannus and Cervus alfredi), may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to June 20, 1992, and the lawful progeny thereof, provided such person complies with subsection (4)(c) through (h) of this section and the other requirements of this section and except as provided under subsection (7) of this section;

(c) The person reported to the director, in writing, the species, number, and location of the specimens, as required;

(d) The specimens are confined to a secure facility at the location reported;

(e) Live specimens are not propagated, except at AZA-accredited facilities with the written permission of the director or as otherwise authorized in writing by the director;

(f) Live specimens shall be neutered, physically separated by sex, and/or rendered infertile by means of contraception, except at AZA-accredited facilities with the written permission of the director;

(g) Live specimens are not released; and

(h) Live specimens are not sold or transferred, except:

(i) Live specimens in lawful possession may be permanently removed from the state of Washington or transported directly to slaughter where in accordance with other applicable law;

(ii) Federally listed endangered or threatened species may be transferred to AZA-accredited facilities where in compliance with federal law;

(iii) Live specimens may be moved to the new primary residence of the possessor with the written approval of the director, provided that all other requirements are satisfied and the total number of locations where animals are held is not increased; and

(iv) AZA facilities may sell and/or transfer live specimens within the state with the written permission of the director.

(5) Retention or disposal of existing specimens lawfully in captivity prior to February 13, 1993: A person holding exotic wildlife specimens in captivity that are newly classified by the fish and wildlife commission as deleterious exotic wildlife by operation of this rule (Reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou), and Roedeer (all members of the Genus Capreolus)), may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to February
13, 1993, provided:

(a) The person reports to the director in writing by March 31, 1993, and reports annually thereafter, or as otherwise required by the director, the species, number, and location of such specimens; and

(b) The person complies with subsection (4)(d) through (h) of this section and the other requirements of this section.

(6) The provisions of this section shall not prohibit the importation, possession, propagation, sale, transfer, or release of live specimens of federally listed threatened or endangered species, their gametes and/or embryo, where in compliance with federal law.

(7) Notwithstanding the provisions of subsection (2) of this section, Fallow deer (Dama dama) and reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou) may be imported into the state, held, possessed, propagated, offered for sale, sold, and/or transferred, provided:

(a) The person complies with subsection (4)(c) through (g) of this section and the other requirements of this section, except for subsection (4)(e), (f), and (h) of this section; and

(b) The person complies with the department of agriculture WAC 16-54-180 as now or hereafter amended, except:

Animals that have resided at any time east of a line drawn through the eastern boundaries of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and the 100th Meridian where it passes through Texas, or that have had contact with or shared common ground with animals which have resided at any time east of such line, shall not be imported into the state of Washington unless specifically authorized in writing by the director of the department of agriculture and the department of fish and wildlife;

(c) No specimens affected with any infectious or communicable disease shall be imported into the state unless in compliance with all applicable laws and regulations and unless written permission is obtained from the directors of the department of agriculture and the department of fish and wildlife;

(d) The specimens are confined to a secure facility; and

(e) Reindeer may not be imported into, held, or possessed in Ferry, Stevens, or Pend Oreille counties or that portion of Spokane County north of Spokane River.

(8) Escaped animals:

(a) Escaped deleterious exotic wildlife, including Fallow deer (Dama dama) and Reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou) will be considered a public nuisance. The department or any peace officer may seize, capture, or destroy deleterious exotic wildlife that have escaped the possessor's control. The former possessor shall be responsible for costs incurred by the department in recovering, maintaining, or disposing of such animals, as well as any damage to the state's wildlife or habitat.

(b) Escapes of deleterious exotic wildlife must be reported immediately to the department.

(c) The recapture or death of escaped deleterious exotic wildlife must be reported immediately to the department.

(9) Secure facility:
(a) All deleterious exotic wildlife will be held in a secure facility. For the purpose of this rule, a secure facility is an enclosure so constructed as to prevent danger to the environment or wildlife of the state, including escape of deleterious exotic wildlife specimens or ingress of resident wildlife ungulates (hoofed animals). The adequacy of the facility shall be determined by the director or agents of the director.

(b) For deleterious exotic wildlife listed in subsection (1)(b)(iv) and (v) of this section, the "secure facility" must comply with the fencing requirements in subsection (10) of this section, unless otherwise authorized by the director in writing.

(10) Fencing requirements:

(a) Perimeter fences must be, at a minimum, eight feet above ground level for their entire length. The bottom six feet must be mesh of sufficient size to prevent resident wildlife ungulates (hoofed animals) from entering and deleterious exotic wildlife from escaping. Supplemental wire required to attain a height of eight feet may be smooth, barbed, or woven wire (at least 12-1/2 gauge) with strands spaced not more than six inches apart.

(b) Perimeter fences constructed of high tensile wire must be supported by a post or stay at minimum intervals of eight feet.

(c) Perimeter fences must be at least 12-1/2 gauge woven wire, 14-1/2 gauge high-tensile woven wire, chain link, nonclimbable woven fence, or other fence approved by the director.

If the wire used is not a full eight feet in height, it must be overlapped one row and securely fastened at every other vertical row or woven together with cable.

(d) Electric fencing materials may be used on perimeter fences only as a supplement to conventional fencing materials.

(e) All gates in the perimeter fences must be self-closing, equipped with two locking devices, and installed only in locations that have been approved by the director. Double gates may be required at points in the perimeter fences subject to frequent vehicle traffic that is not related to activities involving the holding of deleterious exotic wildlife.

(f) Posts used in the perimeter fences must be:

(i) Wood (pressure treated), five-inch minimum diameter or an equivalent as approved by the director;

(ii) Spaced no more than twenty-four feet apart with stays or supports at eight foot intervals between the posts;

(iii) Extended at least eight feet above ground level; and  

(iv) Have corners braced with wood or with an equivalent material as approved by the director.

(g) Fences must be maintained at all times to prevent deleterious exotic wildlife from escaping or resident wildlife ungulates (hoofed animals) from entering the enclosure. If such animals do pass through, under, or over the fence because of any topographic feature or other conditions, the person possessing deleterious exotic wildlife must immediately supplement the fence to prevent continued passage.

(h) For any fence existing prior to February 13, 1993, a person may petition the director in writing for
a variance from the above fencing requirements. Any such petition must be filed no later than May 31, 1993, and must identify all aspects in which the existing fence does not meet the fencing requirements contained herein. On approval of the director, such person may maintain such existing fence with normal repair. However, any extension or relocation of existing fence must meet the fencing requirements contained herein.

(11) Marking requirements:

(a) All live specimens of deleterious exotic wildlife, except those listed in subsection (1)(a) and (b) of this section, shall be permanently and individually identified by methods approved by the director.

(b) Identification assigned to an individual animal may not be transferred to any other animal.

(c) All specimens of deleterious exotic wildlife identified in subsection (1)(b)(iv) and (v) of this section must be individually identified by the methods specified below:

(i) All live specimens of such deleterious exotic wildlife shall be marked with USDA Official ear tags or with ear tags supplied or approved by the department. Tags shall be applied in sequential order; and

(ii) All live specimens of such deleterious exotic wildlife shall be marked with a tattoo with an identifying number that has been recorded with the director. The tattoo must be placed on the left ear of the animal.

(d) All lawful progeny of deleterious exotic wildlife must be tagged and tattooed by December 31 of the year of birth or upon leaving the holding facility, whichever is earlier.

(e) Where allowed, if an animal is sold or transferred within the state, the tag and tattoo must accompany the animal. The new owner or possessor shall not renumber the animal.

(f) Where allowed, live specimens of deleterious exotic wildlife shall be marked prior to importation.

(g) No unmarked deleterious exotic wildlife may be sold or otherwise transferred from the holding facility.

(12) Testing of specimens:

(a) Where allowed, prior to entry into the state of Washington, a person importing any member of the Genus Cervus, which is identified in subsection (1)(b)(v) of this section herein, must submit records of genetic tests conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex Cervus elaphus not indigenous to the state of Washington). Such testing shall be at the possessor's expense. Animals that are deemed by department of wildlife biologists upon examination to exhibit either: Behavioral (vocalization), morphological (size, rump patch, color), or biochemical indications of such influence (hemoglobin, superoxide dismutase, transferrin and post-transferrin, or others to be developed) may not be imported.

(b) The director may require a person currently possessing any member of the Genus Cervus that are identified in subsection (1)(b)(v) of this section to submit records of genetic tests conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex Cervus elaphus not indigenous to the state of Washington) for each individual cervid to the department. Such testing shall be at the possessor's expense. The director may require that any animal identified as a red deer or having nonindigenous genetic influence be destroyed, removed from the state, or neutered.
(c) The director may require that all specimens of deleterious exotic wildlife lawfully in captivity be tested for brucellosis (brucella abortus), tuberculosis (mycobacterium bovis and mycobacterium tuberculosis), meningeal worm (Paralophostrongylus tenuis), and muscle worm (Elaphostrongylus cervis) in accordance with the procedures specified in department of agriculture WAC 16-54-180 as now or hereafter amended and/or for other disease or parasites determined to pose a risk to wildlife. The results of such tests shall be filed with the director as required.

(13) Reporting:

(a) A person holding deleterious exotic wildlife in captivity shall submit a completed report no later than March 30, 1993, and then no later than January 31 of each year, or as otherwise required by the director, on a form provided by the department.

(b) Persons possessing deleterious exotic wildlife must notify the director within ten days of any change of such persons' address and/or location of the holding facility.

(14) Inspection:

(a) All holding facilities for deleterious exotic wildlife located in the state are subject to inspection for compliance with the provisions of this section.

(b) Such inspections shall be conducted at reasonable times.

(15) Notification and disposition of diseased animals:

(a) Any person who has reason to believe that deleterious exotic wildlife being held pursuant to this rule have or have been exposed to a dangerous or communicable disease or parasite shall notify the department immediately.

(b) Upon having reason to believe that deleterious exotic wildlife held pursuant to this rule have been exposed to or contracted a dangerous or contagious disease or parasite, the director may order inspection of such animals by a licensed, accredited veterinarian or inspection agent. Inspection shall be at the expense of the possessor.

(c) The director shall determine when destruction of animals, quarantine, or disinfection is required at any facility holding deleterious exotic wildlife, pursuant to this rule. If the director determines that destruction, quarantine, or disinfection is required, a written order shall be issued to the possessor describing the procedure to be followed and the time period for carrying out such actions. Such activities shall be at the expense of the possessor.

(16) Quarantine area:

(a) Any facility holding deleterious exotic wildlife must have an approved quarantine facility within its exterior boundary or submit an action plan to the director that guarantees access to an approved quarantine facility within the state of Washington.

(i) An approved quarantine facility is one that meets criteria set by the Washington state department of agriculture.

(ii) The quarantine area must meet the tests of isolation, separate feed and water, escape security, and allowances for the humane holding and care of its occupants for extended periods of time.
(b) Should the imposition of a quarantine become necessary, the possessor must provide an on-site quarantine facility or make arrangements at such possessor’s expense to transport the animals to the approved quarantine facility named in the quarantine action plan.

(17) Seizure:

(a) The department of wildlife may seize any unlawfully possessed deleterious exotic wildlife.

(b) The cost of any seizure and/or holding of deleterious exotic wildlife may be charged to the possessor of such animals.

[Statutory Authority: RCW 77.12.020, 77.12.047, and 77.12.455. 10-03-088 (Order 10-08), § 232-12-017, filed 1/19/10, effective 2/19/10. Statutory Authority: RCW 77.12.047, 77.04.020, and 34.05.353. 07-06-086, § 232-12-017, filed 3/7/07, effective 4/7/07. Statutory Authority: RCW 77.12.047. 02-19-007 (Order 02-223), § 232-12-017, filed 9/5/02, effective 10/6/02. Statutory Authority: RCW 77.12.040. 99-08-024 (Order 99-19), § 232-12-017, filed 3/29/99, effective 4/29/99. Statutory Authority: RCW 77.12.020 and 77.12.040. 93-04-039 (Order 582), § 232-12-017, filed 1/27/93, effective 2/13/93. Statutory Authority: RCW 77.12.020. 91-03-082 (Order 482), § 232-12-017, filed 1/17/91, effective 1/18/91; 90-10-067 (Order 434), § 232-12-017, filed 5/1/90, effective 6/1/90. Statutory Authority: RCW 77.12.040. 85-09-014 (Order 247), § 232-12-017, filed 4/9/85; 81-22-002 (Order 174), § 232-12-017, filed 10/22/81; 81-12-029 (Order 165), § 232-12-017, filed 6/1/81.]
16.30.005 Intent.

It is the intent of the state of Washington to protect the public against the serious health and safety risks that dangerous wild animals pose to the community.

[2007 c 238 § 1.]

16.30.010 Definitions.

(1) "Animal control authority" means an entity acting alone or in concert with other local governmental units for enforcement of the animal control laws of the city, county, and state and the shelter and welfare of animals.

2) "Potentially dangerous wild animal" means one of the following types of animals, whether bred in the wild or in captivity, and any or all hybrids thereof:

   (a) Class mammalia

   (i) Order carnivora

      (A) Family felidae, only lions, tigers, captive-bred cougars, jaguars, cheetahs, leopards, snow leopards, and clouded leopards;

      (B) Family canidae, wolves, excluding wolf-hybrids;
(C) Family ursidae, all bears;

(D) Family hyaenidae, such as hyenas;

(ii) Order perissodactyla, only rhinoceroses;

(iii) Order primates, all nonhuman primate species;

(iv) Order proboscidae, all elephants [elephant] species;

(b) Class reptilia

(i) Order squamata

(A) Family atractaspidae, all species;

(B) Family colubridae, only dispholidus typus;

(C) Family elapidae, all species, such as cobras, mambas, kraits, coral snakes, and Australian tiger snakes;

(D) Family hydrophiidae, all species, such as sea snakes;

(E) Family varanidae, only water monitors and crocodile monitors;

(F) Family viperidae, all species, such as rattlesnakes, cottonmouths, bushmasters, puff adders, and gaboon vipers;

(ii) Order crocodilia, all species, such as crocodiles, alligators, caimans, and gavials.

(3) "Person" means any individual, partnership, corporation, organization, trade or professional association, firm, limited liability company, joint venture, association, trust, estate, or any other legal entity, and any officer, member, shareholder, director, employee, agent, or representative thereof.

(4) "Possessor" means any person who owns, possesses, keeps, harbors, brings into the state, or has custody or control of a potentially dangerous wild animal.

(5) "Wildlife sanctuary" means a nonprofit organization, as described in RCW 84.36.800, that cares for animals defined as potentially dangerous and:

(a) No activity that is not inherent to the animal's nature, natural conduct, or the animal in its natural habitat is conducted;

(b) No commercial activity involving an animal occurs including, but not limited to, the sale of or trade in animals, animal parts, animal byproducts, or animal offspring, or the sale of photographic opportunities involving an animal, or the use of an animal for any type of entertainment purpose;

(c) No unescorted public visitations or direct contact between the public and an animal; or
(d) No breeding of animals occurs in the facility.

[2007 c 238 § 2.]

16.30.020 Exceptions.

(1) The provisions of this chapter do not apply to:

(a) Institutions authorized by the Washington department of fish and wildlife to hold, possess, and propagate deleterious exotic wildlife pursuant to RCW 77.12.047;

(b) Institutions accredited or certified by the American zoo and aquarium association or a facility with a current signed memorandum of participation with an association of zoos and aquariums species survival plan;

(c) Duly incorporated nonprofit animal protection organizations, such as humane societies and shelters, housing an animal at the written request of the animal control authority or acting under the authority of this chapter;

(d) Animal control authority, law enforcement officers, or county sheriffs acting under the authority of this chapter;

(e) Veterinary hospitals or clinics;

(f) A holder of a valid wildlife rehabilitation permit issued by the Washington department of fish and wildlife;

(g) Any wildlife sanctuary as defined under RCW 16.30.010(5);

(h) A research facility as defined by the animal welfare act, 7 U.S.C.A. 2131, as amended, for the species of animals for which they are registered. This includes but is not limited to universities, colleges, and laboratories holding a valid class R license under the animal welfare act;

(i) Circuses, defined as incorporated, class C licensees under the animal welfare act, 7 U.S.C.A. 2131, as amended, that are temporarily in this state, and that offer performances by live animals, clowns, and acrobats for public entertainment;

(j) A person temporarily transporting and displaying a potentially dangerous wild animal through the state if the transit time is not more than twenty-one days and the animal is at all times maintained within a confinement sufficient to prevent the animal from escaping;

(k) Domesticated animals subject to this title or native wildlife subject to Title 77 RCW;

(l) A person displaying animals at a fair approved by the Washington department of agriculture pursuant to chapter 15.76 or 36.37 RCW; and

(m) A game farm meeting the requirements of WAC 232-12-027(1).

(2) This chapter does not require a city or county that does not have an animal control authority to
create that office.

[2007 c 238 § 3.]

16.30.030 Prohibited behavior.

(1) A person shall not own, possess, keep, harbor, bring into the state, or have custody or control of a potentially dangerous wild animal, except as provided in subsection (3) of this section.

(2) A person shall not breed a potentially dangerous wild animal.

(3) A person in legal possession of a potentially dangerous wild animal prior to July 22, 2007, and who is the legal possessor of the animal may keep possession of the animal for the remainder of the animal's life. The person must maintain veterinary records, acquisition papers for the animal, if available, or other documents or records that establish that the person possessed the animal prior to July 22, 2007, and present the paperwork to an animal control or law enforcement authority upon request. The person shall have the burden of proving that he or she possessed the animal prior to July 22, 2007.

[2007 c 238 § 4.]

16.30.040 Confiscation — Duties of animal control authority or law enforcement officer.

(1) The animal control authority or a law enforcement officer may immediately confiscate a potentially dangerous wild animal if:

(a) The animal control authority or law enforcement officer has probable cause to believe that the animal was acquired after July 22, 2007, in violation of RCW 16.30.030;

(b) The animal poses a public safety or health risk;

(c) The animal is in poor health and condition as a result of the possessor; or

(d) The animal is being held in contravention of the [this] act.

(2) A potentially dangerous wild animal that is confiscated under this section may be returned to the possessor only if the animal control authority or law enforcement officer establishes that the possessor had possession of the animal prior to July 22, 2007, and the return does not pose a public safety or health risk.

(3) The animal control authority or law enforcement officer shall serve notice upon the possessor in person or by regular and certified mail, return receipt requested, notifying the possessor of the confiscation, that the possessor is responsible for payment of reasonable costs for caring and providing for the animal during the confiscation, and that the possessor must meet the requirements of subsection (2) of this section in order for the animal to be returned to the possessor.

(4) If a potentially dangerous wild animal confiscated under this section is not returned to the possessor, the animal control authority or law enforcement officer may release the animal to a facility such as a wildlife sanctuary or a facility exempted pursuant to RCW 16.30.020. If the animal
control authority or law enforcement officer is unable to relocate the animal within a reasonable period of time, it may euthanize the animal.

(5) An animal control authority or law enforcement officer may euthanize a potentially dangerous wild animal under this section only if all known reasonable placement options, including relocation to a wildlife sanctuary, are unavailable.

(6) This section applies to animal confiscations on or after July 22, 2007.

[2007 c 238 § 5.]

16.30.050 City or county ordinances.

A city or county may adopt an ordinance governing potentially dangerous wild animals that is more restrictive than this chapter. However, nothing in this chapter requires a city or county to adopt an ordinance to be in compliance with this chapter.

[2007 c 238 § 6.]

16.30.060 Violations — Civil penalty.

A person who violates RCW 16.30.030 is liable for a civil penalty of not less than two hundred dollars and not more than two thousand dollars for each animal with respect to which there is a violation and for each day the violation continues.

[2007 c 238 § 7.]


(1) The animal control authority and its staff and agents, local law enforcement agents, and county sheriffs are authorized and empowered to enforce the provisions of this chapter.

(2) If a locality does not have a local animal control authority, the department of fish and wildlife shall enforce the provisions of this chapter.

[2007 c 238 § 8.]


If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected.

[2007 c 238 § 9.]
I found a baby mammal! What should I do?

**Is the baby mammal a rabbit, deer fawn, seal pup or opossum?**

- **NO**
- **YES – See reverse**

**Is the baby mammal hurt or sick? (Bleeding, vomiting, shivering, lethargic, attacked by cat/dog?)**

- **NO**
- **YES**

**Can you find the nest or den? Is it intact?**

- **NO**
- **YES**

Place the baby in a **surrogate nest (see below)**, close to where it was found and off the ground (preferably in a tree), out of the sun, rain, etc.

Keep all pets and people away and watch from a distance.

**Are the parents visiting the nest/den?**

- **NO**
- **YES**

Call a wildlife rehabilitator.

Leave the area. Baby is fine.

**Call a wildlife rehabilitator.**

To find a licensed wildlife rehabilitator, contact:
- Washington Department of Fish & Wildlife
  360.902.2936
- PAWS
  paws.org or 425.412.4040
- Washington Wildlife Rehabilitation Association
  wwrwildlife.org
- National Wildlife Rehabilitators Association
  nwrwildlife.org
- Your local animal control

NOTE: It is illegal in the state of Washington to possess a wild animal without a permit unless you are transporting that animal to a licensed wildlife rehabilitator.

How to make a surrogate nest

1. Find a container such as a small box.
2. Fill the box with leaves, paper towels or a clean, soft cloth.
3. Place the nest in the tree or bush closest to where the animal was found, out of the sun and rain, as high up as you can safely manage.
4. Place the animal(s) in the nest (wear gloves) and leave the area.

See reverse side for:
- **How to safely contain a wild animal**
Is the baby mammal a rabbit, deer fawn, seal pup or opossum?

YES – See below

Baby Rabbit

If the nest is still intact, place the baby(ies) back into the nest and cover with twigs or leaves. The nest will be a shallow depression in the ground, lined with fur, usually located under brush or other form of cover. Leave the area. If people or pets are present, the mother will not return. The mother visits the nest at dawn and dusk.

If the baby rabbits are at least four to five inches long, able to hop, have their eyes open and ears up, and there are no visible signs of injury, leave them alone. They are old enough to be on their own.

Deer Fawn

Mothers normally leave their babies alone while they forage for food. If the baby looks cold, hungry, diseased, or confused, or if dogs, other animals, or people threaten his safety, or if you found the dead mother, call a licensed wildlife rehabilitator, or Washington Department of Fish and Wildlife. (See section “To find a licensed wildlife rehabilitator in your area” on page 1.) Otherwise, leave the baby alone and leave the area. The mother will not return if people or pets are present.

Seal Pup

Mothers normally leave their babies alone while they forage for food. If the pup looks cold, hungry, diseased, or confused, or if dogs, other animals, or people threaten the pup’s safety, call the Northwest Marine Mammal Stranding Hotline at 1.800.853.1964, managed by the National Oceanic and Atmospheric Administration (NOAA) Fisheries department. They will dispatch an expert to evaluate the pup. Otherwise, leave the baby alone and leave the area. The mother will not return if people or pets are present.

Never attempt to rescue a seal yourself. Doing so may endanger both you and the seal, and may also lead to heavy fines under the federal Marine Mammal Protection Act, which prohibits people from harassing, disturbing or capturing marine mammals.

Virginia Opossum

Young opossums who are five to six inches long (excluding the tail) are large enough to be independent from their mothers. If you find an opossum five to six inches or longer who does not appear to be injured or in distress, leave the animal alone. If you are uncertain of whether or not the animal is in distress, call a licensed wildlife rehabilitator. (See section “To find a licensed wildlife rehabilitator in your area” on page 1.)

How to safely contain a wild animal

1. Find a suitable container (cardboard box, pet carrier). Poke air holes in it, if needed. Line it with a clean, soft cloth.
2. Gently pick up the animal (wear gloves) and place in the container.
3. Place the container on a heating pad on the lowest setting. If a heating pad is not available, use a hot water bottle or a plastic soda bottle filled with hot water covered with a towel. Place it inside the container, next to the animal for warmth.
4. Secure the container so the animal cannot crawl or jump out.
5. Keep the animal in a warm, dark, quiet place. Do not give her food or water. Leave her alone.
6. Take the animal to a licensed wildlife rehabilitator as soon as possible.
I found a baby bird! What should I do?

**Is the baby bird a duckling or gosling?**

**NO**

**Is the baby bird hurt or sick? (Bleeding, shivering, lethargic, attacked by cat/dog?)**

**NO**

**Is the bird feathered?**

**NO**

The baby is a nestling. Can you find the nest? Is it intact?

**NO**

Place the baby in a surrogate nest (see reverse), close to where it was found and off the ground (preferably in a tree or bush), out of the sun, rain, etc. Watch from a distance.

**YES**

If it’s hopping on the ground, it’s a fledgling. Are cats, dogs or people threatening the bird?

**NO**

Keep all pets and people away and watch from a distance.

**YES**

To find a licensed wildlife rehabilitator in your area, contact:

- Washington Department of Fish & Wildlife 360.902.2936
- PAWS 425.412.4040
- Washington Wildlife Rehabilitation Association wwwwildlife.org
- National Wildlife Rehabilitators Association nwwwildlife.org
- Your local animal control

**Are the parents visiting the nest?**

**NO**

Call a wildlife rehabilitator.

**YES**

Leave the area. Baby is fine.

**Are the parents nearby?**

**YES**

Leave the area. Baby is fine.

**NO**

Call a wildlife rehabilitator.

See reverse side for:
- How to safely contain a wild animal
- How to make a surrogate nest

**NOTE:** It is illegal in the state of Washington to possess a wild animal without a permit unless you are transporting that animal to a licensed wildlife rehabilitator.
Is the baby bird a duckling or gosling?

**YES – See below**

**Baby Duck (duckling) or Goose (gosling)**

If you know the mother is dead, or if the baby is injured, call a wildlife rehabilitator.

If the baby is separated from the mother and you know where she is, place the baby close to the flock so she can hear the baby. Watch from a distance. If the baby joins the flock and the mother does not reject him, leave the area, the baby is fine.

If the baby is rejected, or if the mother cannot be found, call a wildlife rehabilitator.

**How to safely contain a wild animal**

1. Find a suitable container (cardboard box, pet carrier). Poke air holes in it, if needed. Line it with a clean, soft cloth.
2. Gently pick up the animal (wear gloves) and place in the container.
3. Place the container on a heating pad on the lowest setting. If a heating pad is not available, use a hot water bottle or a plastic soda bottle filled with hot water covered with a towel. Place it inside the container, next to the animal for warmth.
4. Secure the container so the animal cannot crawl or jump out.
5. Keep the animal in a warm, dark, quiet place. Do not give her food or water. Leave her alone.
6. Take the animal to a licensed wildlife rehabilitator as soon as possible.

**How to make a surrogate nest**

1. Find a container such as a small box.
2. Fill the box with leaves, paper towels or a clean, soft cloth.
3. Place the nest in the tree or bush closest to where the animal was found, out of the sun and rain, as high up as you can safely manage.
4. Place the animal(s) in the nest (wear gloves) and leave the area.
Wildlife Rehabilitation (WA Department of Fish and Wildlife)

Wildlife Rehabilitators in/near King County:

Teresa Yamamoto - Wolftown
Burton, WA 98013
206-463-9113
Night/Cell Phone: 206-550-3068

Dr. Jan White - South Sound Critter Care
28727 216th Ave SE
Kent, WA 98042
360-886-8000

Jennifer Convy, Director - PAWS Wildlife Center
15305 44th Ave W
Lynnwood, WA 98046
425-412-4040
Notes: All species

Or contact the WDFW North Puget Sound, Region 4 office:
Bob Everitt - Regional Director
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541
Office Hours: Monday – Friday 8:00 a.m. - 5:00 p.m. excluding legal holidays
Telephone (425) 775-1311
Fax (425) 338-1066
TeamMillCreek@dfw.wa.gov
How to Clean Up a Raccoon Latrine

What is a raccoon latrine?

Raccoons establish community latrines—sites where they repeatedly deposit fresh feces (droppings or scat) on top of old feces in a particular area in their environment.

What do raccoon latrines look like?

Raccoon latrines consist of piles of raccoon feces of different ages. Fresh raccoon feces are tubular in shape, with blunt ends, and about the same diameter as a nickel or dime. Generally, fresh raccoon feces are dark in color, but it depends on what the animal was eating. Seeds or nut shells may be seen in the feces. As feces age, they weather and decompose. Old feces may look like dried leaves or debris.

Where are raccoon latrines found?

Raccoons prefer sites that are flat and raised off the ground, but they also use the base of trees, and occasionally, open areas. Common sites for raccoon latrines are roofs, decks, unsealed attics, haylofts, forks of trees, fence lines, woodpiles, fallen logs, and large rocks.

Why should I clean up a raccoon latrine?

A raccoon latrine in King County is very likely to contain roundworm eggs that can be hazardous to human health. The adult stage of the raccoon roundworm (*Baylisascaris procyonis*) lives in the raccoon’s intestine and produces microscopic eggs that are shed in the raccoon’s feces. One raccoon roundworm can produce more than 100,000 eggs a day. A raccoon can pass millions of eggs in its feces everyday, depending on how many worms are in its intestines. Once deposited in the environment, the eggs develop into the infectious form in 2-4 weeks, and can survive in the soil for several years.
If these infectious eggs are inadvertently swallowed by humans, other mammals, or birds, larvae (immature stage of worms) hatch out of the eggs and move into the organs of the body.

The larvae travel throughout the body and may cause serious eye disease, spinal cord or brain damage, or death. Discouraging raccoons from living around people and cleaning up raccoon latrines reduces the chance that people will get sick from raccoon roundworms.

Is it dangerous to clean up a raccoon latrine?

Serious roundworm disease is rare (25 cases reported in the U.S. since 2003), but because the disease can be so severe, special precautions should be taken when cleaning up raccoon latrines. If you do not ingest developed eggs, you cannot get the disease. Taking special precautions will help reduce the chance that you will accidentally swallow eggs or contaminate other surfaces or objects. Be sure to avoid spreading eggs further when you clean up a latrine, and keep pets and children away from the latrine area until the cleanup is finished.

How do I protect myself while cleaning up a raccoon latrine?

- Wear disposable gloves—rubber, plastic or latex.
- Wear disposable plastic booties, or rubber boots that can be scrubbed and left outside.
- If working in a confined area, such as an attic or crawl space, wear a N95-rated particle mask (home renovation or safety supply stores carry them) to prevent accidental ingestion of eggs or fungal spores.
- Thoroughly launder your clothes with hot water and detergent after cleaning up the latrine.
- Read and carefully follow the instructions below.
- Never use a leaf-blower or vacuum cleaner to clean up a raccoon latrine—that will blow the eggs and dust up into the air.

What are the steps in cleaning up an outdoor raccoon latrine?

- Avoid stirring up dust and debris. Lightly mist the latrine area with a little water from a spray bottle to reduce the amount of dust.
- Use a shovel or disposable rigid scoop to gently lift feces and any other contaminated material and place it into a heavy-duty plastic garbage bag.
- Close the plastic bag tightly with a “twist-tie” or tape, and place it inside another garbage bag (“double-bagging”), discard it in your garbage collection can, and make sure that raccoons cannot get into the can.
• Disinfect hard, smooth surfaces (including shovel blades) with boiling water. Most chemicals do not kill roundworm eggs and are not suitable for outdoor use. If the latrine is on the ground and the soil is heavily contaminated with feces, you may want to remove and discard the top 2-4” of soil and replace it. Large quantities of removed soil are best discarded in landfill disposal sites.

Should I flame the latrine site with a propane torch?

Extreme heat will kill eggs instantly. Flaming with a propane torch is effective, but could cause a fire, burn injury, or surface damage. **Before flaming any latrine site, call your local fire department for details on local regulations and safety practices.** Concrete pads, bricks, and metal shovels or garden implements can be flamed without damage. Do not attempt to flame surfaces that could melt or catch fire. Break up and turn over contaminated soil several times, flaming each time.

How do I clean up indoor raccoon latrines?

• Wear the protective clothing recommended for cleaning up outdoor latrines.
• Wear an N95-rated particle mask if cleaning up a latrine in a confined space such as an attic or crawl space.
• Avoid stirring up dust and debris—you can lightly mist the latrine area with a little water from a spray bottle to reduce the amount of dust.
• Remove feces as directed for cleaning up outdoor latrines.
• If you cannot use heat (flame, boiling water), use hot soapy water and a damp (not wet) sponge to wipe up residual fecal material. Rinse often.
• Flush dirty rinse water down the toilet.
• Place the used sponge in a plastic bag and put the plastic bag in the garbage.
• Disinfect the wash- and rinse-water containers with boiling water.

What should I do if I get raccoon feces on my skin or clothes?

• Wash skin with plain soap and warm water—clean thoroughly under your nails with a brush.
• Wash clothes separately in very hot, soapy water; bleach can be used if desired, but is not required.

Cleaning up latrines helps deter raccoons from the property, but removal of attractants (such as pet food, accessible garbage, shelter under decks, etc.) and exclusion methods are necessary to prevent raccoons from returning. For information about excluding raccoons, visit the Washington Department of Fish and Wildlife website “Living with Washington Wildlife”, at [www.wdfw.wa.gov](http://www.wdfw.wa.gov). A professional, licensed pest management company can be found in the phone book under “Pest Control Services”.
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<th>Supply List</th>
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<tr>
<td>• Disposable latex or rubber gloves</td>
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<td>• Particle mask</td>
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<td>• Rubber boots</td>
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<td>• Heavy-duty plastic garbage bags</td>
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<td>• Shovel or metal scoop</td>
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<td>• Paper towels / sponge</td>
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<tr>
<td>• Portable propane torch</td>
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<td>• Boiling water</td>
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<td>• Bucket of hot, soapy water</td>
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Facts About Hantaviruses

What You Need To Know To Prevent the Disease
Hantavirus Pulmonary Syndrome (HPS)
Facts About Hantaviruses

What You Need To Know To Prevent the Disease Hantavirus Pulmonary Syndrome (HPS)

What are hantaviruses?
Hantaviruses are a group of viruses that may be carried by some rodents. Some hantaviruses can cause a rare but deadly disease called hantavirus pulmonary syndrome. The disease is called HPS for short.

What animals can give people hantaviruses?
Only some kinds of mice and rats can give people hantaviruses that can cause HPS. In North America, they are the deer mouse, the white-footed mouse, the rice rat, and the cotton rat. However, not every deer mouse, white-footed mouse, rice rat, or cotton rat carries a hantavirus. Other rodents, such as house mice, roof rats, and Norway rats, have never been known to give people HPS. Since it is hard to tell if a mouse or a rat carries a hantavirus, it is best to avoid all wild mice and rats and to safely clean up any rodent urine, droppings, or nests in your home. Dogs and cats cannot give people hantavirus infections.

Who can get HPS?
Any man, woman, or child who is around mice or rats that carry harmful hantaviruses can get HPS. You do not have to already be sick to be at risk for HPS. Healthy people have become ill with HPS.

While HPS is a very rare disease, cases have occurred in all regions of the United States except for Alaska and Hawaii.
How do people get HPS?

People get HPS when they breathe in hantaviruses. This can happen when rodent urine and droppings that contain a hantavirus are stirred up into the air. People can also become infected when they touch mouse or rat urine, droppings, or nesting materials that contain the virus and then touch their eyes, nose, or mouth. They can also get HPS from a mouse or rat bite.

Here are some activities that can put people at risk for HPS:
- Improperly cleaning up mouse and rat urine, droppings, and nests.
- Cleaning a shed or cabin that has been closed for some time.
- Working in areas where mice and rats may live (such as barns).

In the United States, there has never been a case in which a person with HPS has given the disease to another person.

What are the symptoms of HPS?

If people get HPS, they will feel sick 1 to 5 weeks after they were around mice or rats that carried a hantavirus.

At first people with HPS will have:
- Fever
- Severe muscle aches
- Fatigue

After a few days they will have a hard time breathing. Sometimes people will have headaches, dizziness, chills, nausea, vomiting, diarrhea, and stomach pain. Usually, people do not have a runny nose, sore throat, or a rash.

How can HPS be prevented?

- Keep mice and rats out of your home.
- Clean up mouse and rat urine, droppings, and nesting materials with a disinfectant or a mixture of bleach and water.
How To Clean Up After Mice and Rats

How to clean up mouse and rat urine and droppings:

- Wear rubber or plastic gloves.
- Spray urine and droppings with a disinfectant or a mixture of bleach and water. Make sure you get the urine and droppings very wet. Let it soak for 5 minutes.
- Use a paper towel to wipe up the urine or droppings.
- Throw the paper towel in the garbage.
- Mop or sponge the area with a disinfectant or bleach solution.
- Wash gloved hands with soap and water or spray a disinfectant or bleach solution on gloves before taking them off.
- Wash hands with soap and warm water after taking off your gloves.

Clean-up tip:
Do not sweep or vacuum up mouse or rat urine, droppings, or nests. This will cause virus particles to go into the air, where they can be breathed in.

Use either of these when cleaning up after mice and rats:

- General-purpose household disinfectant. Make sure the word “disinfectant” is written on the label.

  OR

- Bleach and water solution. Mix 1 ½ cups of household bleach with 1 gallon of water. Smaller amounts can be made with 1 part bleach and 9 parts water.
How to clean up a dead mouse or rat in a snap trap and how to clean up a rodent nest:

- Wear rubber or plastic gloves.
- Spray the dead mouse, rat, or nest, as well as the surrounding area, with a disinfectant or a mixture of bleach and water. Let it soak.
- Place nesting materials or trap with the dead rodent in a plastic bag. If you plan to reuse the trap, get the mouse or rat out of the trap by holding it over the bag and lifting the metal bar. Let the mouse or rat drop in the bag. Disinfect the trap.
- Seal the bag. Place the full bag in a second plastic bag. Seal that bag.
- Throw the bag into a covered trash can that is regularly emptied or contact your state health department for information on other ways to throw away dead mice and rats.
- Wash gloved hands with soap and water or spray a disinfectant or bleach solution on gloves before taking them off.
- Wash hands with soap and warm water after removing your gloves.

**Nesting Materials:**
Some materials mice and rats use to build their nests include paper, tissues, insulation, and the stuffing from furniture.

**Important:**
If you live in the western United States, you may be at risk for plague carried by fleas from rodents. Use insect repellent (containing DEET) on clothing, shoes, and hands to reduce the risk of flea-bites while picking up dead rodents. Contact your local or state health department to find out if plague is a danger in your area and for more information on other flea-control methods.
How to clean out cabins, sheds, barns, or other outbuildings:

- Open all doors and windows. Leave them open for 30 minutes before cleaning.
- Wear rubber or plastic gloves.
- Clean up all rodent urine, droppings, nests, or dead mice or rats by using a disinfectant or a mixture of bleach and water.
- Mop floors or spray dirt floors with a disinfectant or mixture of bleach and water.

- Clean countertops, cabinets, and drawers with a disinfectant or a mixture of bleach and water.
- Steam clean, shampoo, or spray upholstered furniture with a detergent, disinfectant, or a mixture of bleach and water.

- Wash any bedding and clothing with laundry detergent in hot water if you see any mouse or rat urine or droppings on them.

Air out cabins

Mop floors

Wash clothes and bedding with detergent in hot water
How to Keep Mice and Rats Out of Your Home

Why keep mice and rats out of your home?
Some mice and rats can carry harmful diseases, such as HPS, Leptospirosis, lymphocytic choriomeningitis, plague, and typhus. The best way to protect you and your family from these diseases is to keep mice and rats out of your home.

What you can do inside your home:
• Keep food in thick plastic or metal containers with tight lids.
• Clean up spilled food right away. Wash dishes and cooking utensils soon after use.
• Put pet food away after use. Do not leave pet-food or water bowls out overnight.
• Keep garbage in thick plastic or metal containers with tight lids.
• Check inside your house for gaps or holes that a pencil can fit into. Seal them with steel wool, lath metal, and caulk.
• Inside your home, use snap traps baited with peanut butter.
What you can do outside your home:

- Use a thick plastic or metal garbage can with a tight lid. Make sure there are no holes in the garbage can.
- Clean up trash, brush, and weeds around your home.
- Check the outside of your house for gaps and holes. Seal them with cement, lath metal, hardware cloth or sheet metal.
- Put away pet food after use.
- Keep grains and animal feed in thick plastic or metal containers with tight lids.
- Get rid of old trucks, cars, and old tires. Mice and rats may use these as homes.
- Keep grass and shrubbery within 100 feet of the home well trimmed.
- Move woodpiles 100 feet or more from the house. Raise the wood at least 1 foot off of the ground.
- Use traps in areas outside your home where you think mice and rats live.
- Fix gaps in trailer skirtings.
- Keep composting bins 100 feet or more from the house.
Where to look for gaps or holes inside your home:
- Inside, under, and behind kitchen cabinets.
- Inside closets near the floor corners.
- Around the fireplace.
- Around doors.
- Around the pipes under sinks and washing machines.
- Around the pipes and going to hot water heaters and furnaces.
- Around floor vents and dryer vents.
- Inside the attic.
- In the basement or crawl space.

Where to look for gaps and holes outside your home:
- In the room among the rafters, gables, and eaves.
- Around windows.
- Around doors.
- Between the foundation of your house and the ground.
- Attic vents and crawl space vents.
- Under doors.
- Around holes for electrical, plumbing, and gas lines.
How to seal gaps and holes inside and outside your house:

- Fill small holes with steel wool. Put caulk around steel wool to keep it in place.

- Use lath screen or lath metal, cement, hardware cloth, or metal sheeting to fix large holes. Lath screen can be folded and pushed into holes. It can also be cut to fit around pipes. This material can be found in the masonry or building materials section at a hardware store.

Seal holes with caulk

Fold lath metal and place in holes in the foundation of houses

Use lath metal around pipes
How to use snap traps:

- Choose the right kind of snap trap. Some traps are made for catching mice and some traps are made for catching rats.
- Read the instructions on the box before setting the snap trap.
- Place some peanut butter about the size of a pea on the bait pan on the snap trap. Chunky peanut butter works best.
- Place the snap trap on the floor right next to the wall. Put the end of the trap with the bait on it next to the wall so it forms a “T” with the wall.

- Place snap traps in areas where you have seen mice or rats, nesting materials, urine and droppings, or nibbled food. Also, place snap traps in closed areas, such as behind the stove and refrigerator, and in the back of cabinets and drawers.
- Put traps near other areas where you think mice or rats are coming into your home.

**Trapping tips:**

- Keep traps away from children and pets.
- Use only snap traps. Glue traps and live traps should not be used. These traps can scare the caught live mice and rats and cause them to urinate. This may increase your chance of getting sick.
How to use poison baits:

Poison baits can be useful if you have a serious mouse or rat problem. Make sure to carefully read the instructions on the bait package you buy.

- Place bait trays or bait station in or near places where you have seen mice or rats, droppings, or nesting materials.

- Place baits out of reach from children and pets.

- Check bait every week and re-fill or move it as needed for at least 15 days. Leave the bait out longer if you still have mice and rats.

Place bait where you have seen mice or rats

Important trapping and bait reminders:

- Keep traps and bait out of reach from children and pets.

- If you live in the western United States, you may be at risk for plague carried by fleas from rodents. Use insect repellant (containing DEET) on clothing, shoes, and hands to reduce the risk of flea-bites while picking up dead rodents. Contact your local or state health department to find out if plague is a danger in your area and for more information on flea-control methods.
For more information about hantavirus pulmonary syndrome or rodent control, call your state or local health department.

Or call the Centers for Disease Control and Prevention (CDC) at 1-877-232-3322

Or see the CDC web page at: http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm
Hantavirus facts

What is it?

- Hantavirus Pulmonary Syndrome (HPS) is a severe illness caused by infection with the Sin Nombre virus.
- Humans become infected from exposure to the droppings of wild rodents that carry the virus.
- In Washington State, the deer mouse (*Peromyscus maniculatus*) is the main carrier of hantavirus. About 1-5 hantavirus cases are reported each year in Washington State and about one third of the cases have been fatal.
- In other parts of the U.S. and in other parts of the world, other rodents also carry hantaviruses.

Symptoms

- Symptoms develop between approximately one week and six weeks after exposure to mouse droppings that are contaminated with the virus.
- Early symptoms are fever, chills, weakness, and muscle aches. The muscle aches are often severe and can involve the thighs, hips, back and shoulders.
- Other symptoms may include headache, lightheadedness, dizziness, abdominal pain, nausea, vomiting and diarrhea.
- In severe cases, lung involvement with coughing and shortness of breath and low blood pressure follow the early symptoms by a few days to about a week.
- There is no specific treatment or vaccine for hantavirus infection. Early recognition of symptoms and prompt evaluation by a health care provider are important so that supportive care can be provided.

How is a person exposed to hantaviruses?

- Hantavirus infections are spread to people when viruses in rodent urine, droppings, or saliva are stirred into the air and breathed in.
- A person may be exposed to hantaviruses by actions that raise dust into the air, such as disturbing nests or cleaning areas where infected mice have been.
- Not all deer mice are infected with hantaviruses and infected mice carry the virus without appearing sick. The number of infected mice probably changes from year to year based on environmental conditions.

What do deer mice look like?

- The deer mouse is about six inches long, from the nose to the tip of its tail. It is yellow-brown to gray-white on top with a white belly and feet, large ears, and a furry tail that is white on the underside.
- House mice (*Mus musculus*) are gray to light brown on top, light brown (not white) on the underside, and have scales showing on the tail.
- Deer mice live in all parts of Washington but are found mainly in rural areas.

Can I get hantavirus from another person or animal?

No. Only rodents carry the virus. There have been no cases of person-to-person spread of hantavirus infection in the U.S.
How can I avoid exposure to hantavirus?

- Keep mice away from your home, workplace, and places such as cabins, sheds, barns, garages and storage facilities.
- Clear the area within 100 feet of your house of junk piles, debris or old cars where mice will nest. Keep weeds, brush and grass cut.
- Plug up, screen or cover all openings into your home that a mouse might get through (larger than 1/4 inch wide). Use steel wool to plug holes around the base of buildings. Stack firewood, lumber and hay 12 inches off the ground and as far away from the house as possible.
- Remove food sources and nesting places.
- Don't store pet food uncovered or in open feeding dishes. Store grains and animal feed in containers with tight fitting covers.
- Use a plastic trash can with a lid for kitchen garbage and food scraps. Tightly cover outdoor garbage cans and raise them 12 inches off the ground.
- Be careful when trapping mice and other wild rodents. Learn more about rat prevention [here](http://www.kingcounty.gov/healthservices/health/ehs/rats.aspx).
- Never touch live mice. Use spring-loaded mousetraps. If you use poison bait, follow the directions carefully. Do not leave poison bait where small children and pets have access to it. Wear gloves and dust masks when handling dead mice.

What precautions should I use when working, hiking or camping outdoors?

- Avoid contact with rodents. Do not disturb rodent dens or nests.
- Stay out of cabins or shelters until they have been disinfected and aired out.
- Pitch tents well away from garbage cans, woodpiles or other places that rodents live.
- Avoid any areas where you see burrows or rodent droppings.
- Do not sleep on the bare ground. Use a tent with a floor.
- Keep food and food scraps in tightly covered containers.
- Clean dishes and cooking utensils right after using them.

How do I clean where mice have been?

If you are cleaning out a building that has been closed up, such as a cabin, shed, or garage, or areas where rodent nesting material have been found, follow these steps.

1. Air out the building for at least 30 minutes by opening windows and doors. Leave the building while it is airing out.
2. Wear latex or rubber gloves and a dust mask while cleaning.
3. Avoid raising dust that may spread the virus through the air: Do not vacuum, sweep or dust. Carefully wet down areas with disinfectant before cleaning.
4. Use rags, sponges and mops that have been soaked in the disinfectant solution to wipe down counter tops, cabinets and drawers, mop floors and baseboards.
5. Mix a solution of 1 cup bleach to 10 cups water or use a household disinfectant.
6. Steam clean carpets, rugs, and upholstered furniture.
7. Thoroughly spray or soak any dead mice, droppings, or nesting areas with disinfectant or bleach solution.
8. Wash clothes and bedding in hot water and detergent. Set the dryer on high.
9. To dispose of contaminated items, including dead mice, put them in a plastic bag. Seal the bag and put it in another plastic bag. Seal the outer bag and put it in your outdoor garbage can.
10. When you are done, disinfect or throw away the gloves you used. Wash your hands or shower with soap and hot water.
If I find deer mice can I have them tested for hantavirus?

Hantavirus testing of mice is done at the Centers for Disease Control and Prevention only as part of investigations into human cases and is not available on a routine basis.

Report all King County cases to Public Health by calling 206-296-4774.

Other hantavirus fact sheets:

- Centers for Disease Control & Prevention (http://www.cdc.gov/hantavirus/) (CDC)
- Washington State Department of Health (http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Hantavirus.aspx)

For King County health care providers:

- Hantavirus Pulmonary Syndrome (HPS) is a notifiable condition in King County. Please see disease reporting requirements (http://www.kingcounty.gov/healthservices/health/communicable/providers/reporting.aspx#requirements).
- Information on health advisories, resources and guidelines (http://www.kingcounty.gov/healthservices/health/communicable/providers.aspx).

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This paper is intended to be a general guide about diseases that hunters and their hunting dogs may encounter. Links to additional information have been provided where appropriate.

Hunters should always consult their physician if they are concerned they have been exposed to a disease or are showing symptoms of illness.

If there are any concerns that your hunting dog or any other companion animal may have contracted any of these diseases, please contact your veterinarian.
Introduction

There is an increasing awareness among hunters that there are medical risks associated with handling wildlife, and certain safety precautions should be taken. The American Veterinary Medical Association (AVMA) has the following advice on certain health concerns linked to hunting, both in North America and in other areas of the world. This document is by no means intended to discourage people from hunting; instead, it is intended to inform hunters of the risks they face and steps they can take to reduce those risks.

Hunters and their dogs can be exposed to infectious diseases not only from infected animals, but also via insect vectors and contaminated soil and water. Diseases that are transmitted from animals to humans, either through direct contact with the animal or a contaminated surface or water, through ingestion of animal products (including meat and milk) or through insect transmission from an animal are called zoonotic (pronounced ZO-oh-NOT-ik or zoo-NOT-ik) diseases. Insects such as mosquitoes, ticks, flies, fleas or mites serve as vectors, capable of transmitting infection from an infected animal to another animal or a person.

For information about hunting and hunting safety, contact your state’s fish and wildlife agency.

Protecting Hunters from Risk: Some Common Sense Guidelines

- Avoid hunting if you are feeling ill. People are more prone to disease if their immune systems are weakened by other illnesses or conditions.
- Take precautions to minimize insect bites.
- Do not handle or eat wild game or fowl that appeared ill or were acting in an abnormal manner before they were killed.
- Do not eat, drink or smoke while cleaning wild fowl or game.
- Always protect your hands with gloves (heavy rubber, latex, or nitrile) when field dressing wild game or fowl.
- Do not use the same utensils to clean different species.
- If there are any old wounds on the carcass, and especially if there is pus present, meat in this area should be removed and discarded. A large area of tissue around the wound and pus pockets should also be cut away with the wound, even if the tissue looks normal, because it can still harbor infection.
Prior to Hunting Season:
- Make sure hunting dogs are up-to-date on their vaccines, especially rabies.
- Begin (or continue) heartworm prevention medications in consultation with your veterinarian.

During and After Hunting:
- Do not hunt if you are ill.
- Minimize insect bites.
- Avoid abdominal shots.
- Report any sick wildlife or wild bird die-off.
- Avoid wearing the same clothes on consecutive days.
- Conduct frequent body checks for ticks.
- Do not feed entrails, raw meat or other offal to your dogs.
- Consider using non-lead ammunition.

Handling and Cleaning the Carcass:
- Do not eat, drink or smoke while cleaning wild fowl or game.
- Wear gloves (latex, nitrile or heavy rubber).
- Do not use the same utensils to clean different species.
- If abnormalities are seen in the intestines, abdominal cavity or chest cavity during cleaning, consider disposing of the entire carcass. Report abnormalities to your state’s fish and game agency.
- Remove wide margins of tissue around all wounds.
- Remove the intestines as soon as possible.
- Minimize contact with brain or spinal tissues.
- Discard meat that has come into contact with intestinal contents.
- Protect carcass from flies.
- Wash hands thoroughly with soap and water or an alcohol-based sanitizer.

Processing the Meat:
- Wear gloves (latex, nitrile or heavy rubber).
- Thoroughly wash and disinfect tools, equipment and working surfaces after use.

Cooking and Storing the Meat:
- Do not eat meat from wild game or fowl that appeared ill or abnormal.
- Avoid eating raw or undercooked meat.
- Do not keep meat at room temperature.
- Thoroughly cook meat.
- Promptly refrigerate or freeze uncooked meat.
- Properly wrap and store wild game meat separate from other foods.

More information about these tips and zoonotic disease prevention for hunters can be found in the AVMA’s Disease Precautions for Hunters document.
If any abnormalities are seen in the chest or abdominal cavity of the carcass, consider disposing of the entire carcass.

Minimize contact with brain or spinal tissues. When boning out the carcass, keep both the head and spine intact. Do not cut into the head of any antlered animal that showed abnormal behavior, even to remove the rack. When removing antlers from a healthy animal, use a hand saw rather than a power saw, and always wear safety glasses.

Avoid abdominal shots because they lead to contamination of the meat and can cause the animal needless suffering. If any intestinal contents of the game come into contact with meat, the meat should be considered contaminated and should be cut off and discarded. Do not feed the contaminated meat to other animals, or they may become infected.

Large game should be shot with a clean, humane kill shot, preferably avoiding the abdomen, followed quickly by removal of the intestines; this minimizes the risk of intestinal contents contaminating the meat.

If any of the intestines have an abnormal smell or discharge, or if pockets of blood are seen in the muscle unassociated with the bullet/shot/arrow wound, the flesh should be considered unfit for eating.

The abdominal cavity should be cleaned, dried and cooled until the meat is processed. During warm weather (over 65° F, or 18.3 C), bags of ice should be placed in the body cavity to hasten cooling. The carcass should be protected against flies.

Wash hands thoroughly with soap and water or an alcohol-based sanitizer immediately after handling wild game or fowl, including the tissues and meat.

Wash tools, equipment and working surfaces (including tables and cutting boards) thoroughly with soap and water, followed by disinfection immediately after handling any wild game or fowl. Adding a minimum of 1 tablespoon of bleach to 1 gallon of water is usually adequate for use as a cleaning/disinfecting solution.

If you prepare your own ground meat, thoroughly clean and disinfect all equipment after use.

Avoid eating raw or undercooked meat.

Always cook wild meat until the juices run clear and the meat is no longer pink in color (generally 150-180°F [65.6 – 82.2 C], depending on the type of meat). This will reduce the risk of food-borne disease. Because the color of the meat is not always a reliable indicator of proper cooking, use of a meat thermometer is highly recommended for safety. Extra attention to the internal temperature should be used when cooking with a microwave oven.

Cook wild birds thoroughly - any cooked bird should reach an internal temperature of 165°F (73.9 C) or higher to make sure that organisms and parasites are killed and are no longer infective.
• Any uncooked game should be promptly frozen, refrigerated or disposed of properly.
• Keep uncooked wild game separate from cooked or ready-to-eat foods to avoid contamination.
• Meat should be properly wrapped and stored on bottom shelves of the refrigerator or freezer to avoid blood dripping on (and potentially contaminating) other foods.
• Meat should be refrigerated or frozen properly and should not be kept at room temperature.
• Freezing meat does not necessarily protect against disease.
• In the United States, hunters should report any signs of sick wildlife or wild bird die-off to the state’s game and fish agency or wildlife agency.
• Make sure hunting dogs are up-to-date on their vaccines, especially rabies, prior to hunting season.
• Consult your veterinarian about proper preventive treatments for your hunting dogs, such as heartworm prevention, and use the products as recommended.
• Consult your veterinarian about regular stool exams of hunting dogs to check them for parasites, including those that can be passed to people.

**Tick-borne diseases** pose a hazard to both hunters and their dogs. They are usually transmitted to people through tick bites, but skin contact with the internal fluids of infected ticks also poses a risk of infection. Cases of tick-borne diseases, such as anaplasmosis, ehrlichiosis, Rocky Mountain Spotted Fever (RMSF) and others, have increased in the last decade. These diseases can be fatal. The symptoms of these diseases can be somewhat vague, making it difficult for physicians to diagnose the disease until it has become more severe. Hunters and their dogs are especially vulnerable to tick-borne diseases because of time spent in tick-infested environments. Preventing tick bites is the single most important step in preventing tick-borne diseases.

The following guidelines are recommended for hunters and their dogs to avoid tick-borne diseases:

• Apply tick repellants to exposed skin and clothing.
  • DEET (N, n-diethyl-m-toluamide) and picaridin are commonly used insect repellents. The CDC provides guidelines [for selecting the appropriate insect repellant](https://www.cdc.gov/parasites/ticks/preventing.html).
  • If skin becomes wet from perspiration or water, towel off and reapply to dry skin.
  • Spray permethrin-containing products on outer clothing, including shoes. Permethrin is not an effective repellant for use on skin.
  • If chemical odors are a concern, there are unscented and neutral odor products available, such as [DeepWoods Off! Sportsmen](https://www.deepwoods.com/).
• Avoid wearing the same clothes on consecutive days without washing them first to remove ticks. Wash clothes immediately after returning home.
• Wear long-sleeved shirts and long pants.
  • Tuck pant legs into socks.
• Conduct body checks immediately after returning from outdoor activities in tick-infested areas.
  • Use mirrors if necessary, but check all body areas and remove all ticks found.
  • Check children, especially behind the ears, back of the neck, around the waist, and in and along the hairline.
  • Remove attached ticks by using fine-tipped tweezers. If tweezers are not readily available, you can improvise by shielding your fingers with tissue paper, a foil-covered gum wrapper, or plastic sandwich bag and grasping the tick as close to the skin as possible, pulling upward with steady, even pressure.
  • Do not twist the tick as you remove it – this may cause the tick’s mouthparts to remain in the skin, increasing the risk of infection.
  • Do not attempt to suffocate the tick with alcohol-soaked cotton – this will cause the tick to regurgitate while its mouthparts are still in the skin, and can increase the risk of infection.
  • Avoid direct contact with the tick’s body because its fluids may be infectious.
  • Wash the affected area with soap and water, and disinfect the bite site and your hands. Ordinary household brands of 70% isopropyl (rubbing) alcohol, chlorhexidine (such as Hibiclens®, Nolvasan®, etc.) or povidone-iodine (Betadine®) are adequate skin-surface disinfectants.

To protect hunting dogs, hunters should consult their veterinarian, but basic guidelines include:
• Apply topical or systemic tick-control treatments. Consult your veterinarian about the appropriate product for your dog.
• If possible, limit access to tick-infested areas.
• Treat kennels as needed to kill ticks. Consult your veterinarian and/or a pest-control company about the safest and most appropriate alternative.
• Any ticks attached to dogs should be promptly and carefully removed, using the same guidelines as posted above for tick removal from human skin.
People involved in outdoor activities, such as hunters, are naturally more exposed to the threat of being bit by mosquitoes that can carry diseases such as West Nile virus and encephalitis viruses. For protection against mosquito-borne diseases, hunters should always:

- Use insect repellant lotions and sprays with DEET, Picaridin, oil of lemon eucalyptus, or IR3535 on exposed skin. The expected duration of exposure to mosquitoes determines the concentration of the product needed.
- If odorless mosquito protection is desired, consider the use of Area Repellant Systems such as Thermacell®.
- Spray permethrin-containing products on outer clothing and footwear.
- Wear long-sleeved shirts and long pants tucked into socks. Both clothing and shoes should be treated with permethrin or another insect repellant.
- In areas with heavy mosquito infestation (such as marshlands), increased protective gear is suggested (jacket, heavy pants and a fine-mesh “bug suit”).

**A note on lead poisoning**

While not a zoonotic disease, lead poisoning may be another risk associated with hunting using lead-containing ammunition. *There is conflicting information regarding the level of risk associated with residual lead in the meat of wild game.* Lead is known to cause damage to the brain and central nervous system, especially in young children and pregnant women. The risk may be based on the amount and frequency of game consumption. There is a possibility that lead may be overlooked in processing game – lead fragments may be located far from the wound and may be overlooked during cleaning and processing.

Lead poisoning is a known cause of death in birds of prey, and certain states and hunting areas no longer allow the use of lead ammunition when hunting certain game. For regulations, consult the state’s wildlife department. Consider using non-lead ammunition when hunting.

**Diseases**

**Anaplasmosis**

*Anaplasmosis* is a tick-borne disease caused by the *Anaplasma phagocytophilum* bacteria (and less commonly by *Anaplasma platys*). It is spread by tick bites, primarily by the blacklegged and western blacklegged ticks.

Anaplasmosis is a reportable disease—this means that health care providers and laboratories that diagnose cases of laboratory-confirmed anaplasmosis are required to report those cases to their local or state health departments, which in turn report the cases to CDC. In 2008, 1,009 cases of anaplasmosis were reported in the United States; the majority of the cases were reported in the eastern and Central U.S. The bacteria is
considered endemic (established in the environment) in the upper Midwest, East and Northeast regions of the United States, as well as the Western coastal regions.

Symptoms of anaplasmosis in humans generally appear 5-21 days after a bite from an infected tick, and include headaches, fever, chills and muscle aches, and may be confused with flu symptoms. While some people may only experience mild symptoms and recover without medical attention, elderly or immunocompromised people may develop a more severe illness.

Dogs with anaplasmosis may show signs of lameness and joint pain, and some may also develop vomiting, diarrhea, coughing or labored breathing. It can be difficult to distinguish anaplasmosis from Lyme disease because the signs of disease are very similar and they occur in essentially the same areas of the country.

As with all tick-borne diseases, preventing tick bites is essential to preventing the disease.

**Avian Influenza**

There are many different strains of the avian influenza virus, most of which are considered of “low pathogenicity” (less likely to cause disease) and are not zoonotic. Worldwide, the highly pathogenic H5N1 strain of avian flu has received much attention in the media because of its ability to infect people who come in close contact with infected birds; H5N1 has not yet been detected in wild or domestic birds in North America to date, but precautions are highly recommended for hunters to reduce the risk of contracting any wildlife disease.

A 2006 report of 39 bird hunters and 68 wildlife professionals in Iowa found antibodies to a strain of avian influenza virus in the blood of one of the hunters and two of the wildlife professionals, indicating past exposure to a less common (and less infectious) type of avian flu. Although it involved a small number of test subjects, this study suggests that human exposure to avian influenza virus when handling wild waterfowl may occur more commonly than expected, and these fowl are capable of transmitting the disease to humans. The investigators did not determine if any of the people had become ill as a result of the virus. The study’s results suggest that handling wild waterfowl, especially ducks, may be a risk factor for direct transmission of avian influenza virus to humans. (Gill 2006 EID)

Infection with the avian influenza virus may not cause illness at all, or may cause flu-like symptoms. Illness in dogs due to avian influenza has not been reported.

**Babesiosis**

*Babesiosis* is a relatively unknown, malaria-like disease that is caused by *Babesia* parasites. It is transmitted by ticks – the same species of ticks that can carry Lyme disease and ehrlichiosis. It can also be transmitted by blood transfusion from an infected blood donor.

It is found mainly in Northeastern states, as well as Minnesota, Wisconsin and Washington state. Symptoms are flu-like and it can be difficult to diagnose.

*Babesiosis in dogs* can also be difficult to diagnose because of the variety of signs that may be observed. Infected dogs may appear normal, or they might suddenly
go into shock from rapid destruction of their blood cells – these dogs show signs of fever, weakness, depression, swollen lymph nodes and very pale gums.

**Brucellosis**

*Brucellosis* is most commonly caused by the *Brucella abortus* or the *Brucella suis* bacteria. Bison, elk, reindeer and caribou can become infected with the bacteria and develop brucellosis, but their role in transmission of the infections to livestock remains under debate. Brucellosis is one of the most serious diseases of livestock, can cause significant economic losses in production, and can infect people. As a result, the United States Department of Agriculture’s Animal and Plant Health Inspection Service developed a [brucellosis eradication program](#) to eliminate the disease from our nation’s herds. Controversy continues in the Greater Yellowstone Ecosystem regarding what role the bison and/or elk that wander outside Yellowstone National Park’s borders play in infecting domestic cattle. Brucellosis is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed brucellosis are required to report those cases to their local or state health departments, which in turn report the cases to CDC.

There was one suspected, but not confirmed, human case of brucellosis linked to the use of deer and elk urine as a scenting agent during hunting in 1996. Many of these wildlife lures consist of urine, ground-up scent glands, and various other ingredients that may be contaminated by bacteria. There is a possibility that disease organisms could be transmitted from infected animals to humans, so it is recommended to follow basic sanitary measures when handling these lures, including avoiding ingestion, inhalation or direct skin contact.

Currently, human brucellosis due to *Brucella suis* in the U.S. is primarily associated with exposure to infected feral (wild) boars/hogs.

Hunters may become infected with the *Brucella* bacteria during the cleaning of carcasses. Protective equipment, such as gloves and protective eyewear, is recommended.

Brucellosis in dogs is more commonly caused by *Brucella canis*, which is generally not spread to humans. Contact with or ingestion of infected milk, fetal membranes (placenta) or aborted fetuses from infected animals can result in infection with *B. abortus* or *B. suis*. Infection with *B. abortus* or *B. suis* rarely causes signs of disease in dogs but can cause abortion in pregnant bitches. Dogs infected with *B. abortus* or *B. suis* can infect humans.

**Campylobacteriosis (Campylobacter jejuni)**

*Campylobacteriosis* is a disease caused by *Campylobacter jejuni* or *Campylobacter coli* bacteria. It affects the intestinal tract and, in rare cases, the bloodstream. It is one of the most commonly reported causes of bacterial diarrhea.

*Campylobacter* bacteria are generally spread by eating or drinking contaminated
food or water, unpasteurized milk, and by direct or indirect contact with stool from an infected person, animal or pet. Many animals, including pigs (including wild pigs), cattle, dogs, moose, hares and birds, can carry the bacteria in their intestines.

Most infected animals will not show signs of disease, but they can develop diarrhea.

**Chronic Wasting Disease (CWD)**

*CWD* is a transmissible spongiform encephalopathy, in the same class of diseases as bovine spongiform encephalopathy (BSE – more commonly known as “mad cow disease”). These diseases are caused by prions, which are infectious proteins. The diseases affect the brain and spinal cord, causing signs such as weakness, incoordination and abnormal behavior. How CWD is spread from animal to animal is not fully understood, but it is believed to be transmitted through direct animal-to-animal contact or when an animal eats soil contaminated by saliva or manure from an infected animal. *CWD prions have been found in elk antler velvet*, suggesting a possible route of transmission from elk to elk.

To date, only 4 species are known to be naturally susceptible to CWD: mule deer, white-tailed deer, Shiras moose and Rocky Mountain elk.

Signs of a possibly infected animal include stumbling, lowered head, droopy ears, weakness, a wide stance (as if trying to balance themselves), excessive salivation and emaciation (“wasting”).

Hunters need to be aware that many states ban importation of whole carcasses and animals from states in which CWD has been reported; in fact, some states have check stations at their borders. For more information about the regulations for each state, visit the [USDA’s CWD pages](https://www.aphis.usda.gov/aphis/ourfocus/wildlifedisease/chronicwastingdisease).

According to the U.S. Centers for Disease Control and Prevention (CDC), there is no current evidence that CWD passes to humans. However, simple cautionary measures should be taken by any hunter handling deer, moose and elk. To date, data from an ongoing [multi-year study](https://www.cdc.gov/cwd/epidemiology.html) suggests CWD may not be spread to people through consumption of meat from infected animals; however, eating meat from an obviously ill animal is not recommended.

Hunters should check with the state fish and game agency about any reported outbreaks of CWD, and the following simple precautions should be taken when handling any deer, moose or elk:

- Do not shoot, handle or consume any animal that is acting abnormally or appears to be ill. Contact your state fish and game agency if you see or harvest an animal that appears ill.
- Wear latex or rubber gloves when field dressing deer, moose or elk. When skinning the animal, use extra caution around the anus and other areas that may be soiled by stool.
- If removing antlers, use a saw specifically kept for this purpose and dispose of the blade afterward.
• Remove bones from the animal by separating them at joints instead of sawing through the bones and avoid cutting through the brain or spinal cord except to remove the head. Use a knife specifically kept for this purpose to minimize the risk of contaminating meat.
• Minimize handling of all brain and spinal tissues.
• Wash hands and tools thoroughly after field dressing is completed.
• Avoid consuming the brain, spinal cord, eyes, spleen, tonsils and lymph nodes of harvested animals. Normal field dressing, coupled with boning out a carcass, will remove most, if not all, of these body parts. Cutting away all fat and connective tissue will remove any remaining lymph nodes.
• If your deer has been chosen to be sampled for CWD, do not eat any meat until test results have been returned. In some states, this may take weeks to months, so if there is any concern, dispose of the carcass.
• If you have your deer, moose or elk commercially processed, request that your animal is processed individually, without meat from other animals being added to the meat from your animal.

To date, there is no evidence dogs can become infected with CWD. However, it is best to avoid feeding brain and spinal cord tissues from killed game to dogs.

Studies have demonstrated that CWD prions can be excreted in the saliva, urine and manure of infected animals. These findings have led to recommendations for bans of the use of deer urine to lure deer.

**Cryptosporidiosis**

*Cryptosporidiosis* is an illness caused by a simple, one-celled parasite named *Cryptosporidium* (there are several different species of the parasite that are capable of infecting animals and people), which is shed in the stool of wild and domestic animals. Infection generally occurs by contact with the stool of infected animals, contaminated surfaces or by drinking water or eating uncooked food contaminated with stool from infected animals. People can also become infected by swimming in contaminated water.

Although some people may not become ill after being infected, the most common symptoms of infection are extreme diarrhea, along with stomach cramps, nausea, vomiting, fever, headache and decreased appetite. People with weakened immune systems can develop severe disease if infected with *Cryptosporidium*. Cryptosporidiosis is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed cryptosporidiosis are required to report those cases to their local or state health departments, which in turn report the cases to the U.S. Centers for Disease Control and Prevention (CDC).

The best way to prevent infection is by using good hygiene. Avoid drinking untreated water; water can be made safe by heating it to a rolling boil for at least 1 minute or by using a filter that has an absolute pore size of 1 micron (µm) or smaller, or has been NSF rated for “cyst removal.”

This information has been prepared as a service by the American Veterinary Medical Association. Redistribution is acceptable, but the document’s original content and format must be maintained, and its source must be prominently identified. Please contact Dr. Kimberly May (800.248.2862, ext 6667; kmay@avma.org) with questions or comments.
Infected persons can shed the organism in the stool for several weeks after infection, emphasizing the need for good hygiene.

**Dogs can become infected with Cryptosporidium** but generally do not show signs of illness. Mild diarrhea may develop. To date, there is little evidence that dogs can readily infect their owners with Cryptosporidium; however, proper hygiene is always recommended when handling dog stool.

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**Deer Parapoxvirus**

*Deer Parapoxvirus* has been reported in red deer in New Zealand, but human infections have occurred in the United States. The virus is related to the orf virus, which affects sheep and goats, and the pseudocowpox virus, which affects cattle. The deer parapoxvirus causes scabby, crusty lesions on the muzzle, lips, face, ears, neck and antlers of affected deer.

There have been two confirmed cases of deer parapoxvirus infection in humans in the U.S., both of whom were deer hunters on the East Coast of the U.S. Both patients had nicked their fingers while dressing the deer carcasses and later developed pox lesions (scabby crusts) on their hands. One hunter also developed swollen lymph nodes. Both hunters reported that the deer had not shown any signs of illness at the time they were dressed.

The CDC continues to investigate deer parapoxvirus cases in the U.S. More information will be provided as it is obtained.

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**Hydatid Tapeworms (Echinococcosis)**

Hunters and their dogs can be infected by several species of tapeworms. *Echinococcus multilocularis* infects rodents (including field mice), and coyotes, wolves, foxes and dogs can become infected by eating infected rodents; the worms develop in the animal’s intestines, and their eggs can infect people who come into contact with the infected animal’s stool (or anything, including the animal’s fur, that is contaminated with stool).

*Echinococcus granulosus* tends to cycle between canine species (coyotes, foxes, wolves, dogs, etc.) and larger grazing animals (sheep, goats, cattle, deer, elk, moose, caribou, etc.). Hunting dogs can become infected when they eat infected organs; the worms grow inside the dog's intestines and begin to shed eggs that pass in the stool and can continue the cycle of infection. Infected dogs do not usually show any signs of disease.

Although rare, hydatid tapeworms can be transmitted to humans from dogs, and the eggs eventually grow into cysts in the lungs, liver or other internal organs. These cysts can cause permanent damage.

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**Ehrlichiosis**

*Ehrlichiosis* is a disease caused by bacteria that belong to the *Ehrlichia* species. There are several types of the bacteria that can cause illness. The disease is transmitted via the bite of an infected tick. It is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed
Ehrlichiosis are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Symptoms usually occur within 1 to 3 weeks after exposure and can range from mild to severe. Common symptoms include fever, muscle pain, headache and chills. Occasionally, symptoms may include nausea/vomiting, a sharp drop in weight, mental confusion, cough and skin rash.

In dogs, the disease has 3 distinct phases. During the initial phase of infection, which generally lasts 1 to 3 weeks, the signs are nonspecific and include fever, loss of appetite, weight loss, depression and swollen lymph nodes. If the disease is not detected or treated during the initial phase, the dog may again appear normal. Chronic infection can develop, however, and can be life-threatening. Signs of severe ehrlichiosis include dramatic weight loss and loss of muscle tone, swollen lymph nodes, high fever, and bleeding.

**Equine Encephalitis Viruses**

Equine encephalitis viruses, including the Eastern equine encephalitis virus (EEE), Western equine encephalitis virus (WEE) and Venezuelan equine encephalitis virus (VEE), are transmitted by mosquitoes. As with West Nile Virus (WNV), the reservoir hosts for the encephalitis viruses are primarily wild birds.

Human infection with encephalitis viruses often causes symptoms such as fever, flu-like illness, muscle pain, vomiting and neurologic signs including seizures and convulsions. Infection with equine encephalitis viruses can be fatal. Infection with any of the equine encephalitis viruses is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed encephalitis are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Although dogs can become infected with the viruses (particularly VEE), they do not usually develop illness.

**Escherichia coli Infection (E. coli)**

*Escherichia coli*, or *E. coli*, is a bacteria that causes diarrhea and stomach pain in people and is the leading cause of hemolytic uremic syndrome, a rare kidney disorder that can cause kidney failure. Many types of *E. coli* are harmless, but certain types can cause severe disease.

Although most cases of *E. coli* infection come from eating contaminated beef or drinking unpasteurized, contaminated milk products, it is possible for white-tailed deer to become infected when they graze in cow pastures contaminated with the bacteria. Disease-causing *E. coli* has been found in cattle, goats, sheep, deer, elk, pigs and birds. Infection can also occur if a person drinks or swims in contaminated water. The bacteria are spread through fecal-oral transmission; an infected person or animal sheds the bacteria in their stool, and others are infected by accidentally eating the bacteria after they have touched a contaminated surface or had contact with infected stool. The bacteria are invisible to the naked eye, and people can become infected even if they don’t see the contamination.
Dogs can become infected with *E. coli*. Intestinal infection often causes diarrhea and abdominal pain. *E. coli* infection in dogs can also cause urinary tract infections, uterine infections, ear infections and other problems.

Because the bacteria live in the animal’s intestines, shooting a deer through its abdomen can increase the risk of contamination of the muscle (meat) by the intestinal fluids. The risk of infection is also related to how the carcass is handled, dressed, processed, preserved, stored and cooked.

**Giardiasis**

*Giardiasis* is caused by infection with a microscopic parasite called *Giardia duodenalis*. The parasite is shed in the stool of infected wild and domestic animals. Infection generally occurs by contact with the stool of infected animals, contaminated surfaces or by drinking water or eating uncooked food contaminated with stool from infected animals. People can also become infected by swimming in contaminated water.

Although some people may not become ill after being infected, the most common symptoms of infection are diarrhea with “greasy” stools, along with gas, stomach cramps, nausea, vomiting, fever, and decreased appetite. It may take up to 1-2 weeks for these symptoms to occur, and illness may last 2-6 weeks. People with weakened immune systems can develop severe disease if infected with *Giardia*.

The best way to prevent infection is by using good hygiene. Avoid drinking untreated water; water can be made safe by heating it to a rolling boil for at least 1 minute or by using a filter that has an absolute pore size of 1 micron (μm) or smaller, or has been NSF rated for “cyst removal.”

Infected persons can shed the organism in the stool for several weeks after infection, emphasizing the need for good hygiene.

Dogs can become infected with *Giardia* but generally do not show signs of illness. Mild diarrhea may develop. The risk is very low that dogs can readily infect their owners with *Giardia*; however, proper hygiene is always recommended when handling dog stool.

**Hantavirus**

Hantaviruses have worldwide distribution. Rodents (such as deer mice) are the natural hosts for these viruses. The viruses can be found in the rodents’ urine, feces, and saliva, and when these substances have been deposed and dried, the viruses can become airborne and infect humans when they breathe in the airborne particles. Another way to get infected, although not as common, is via a rodent bite or drinking or eating food or water contaminated by rodents. Hantavirus pulmonary syndrome (respiratory disease due to hantavirus infection) is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed hantavirus infection are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

The illness that develops in humans depends on the type of hantavirus. There is a severe illness known as hantavirus pulmonary illness that was first reported in the
Southwestern U.S. in the early 1990s. This syndrome starts with fever, body aches, headache, nausea, vomiting, diarrhea and a dry cough. The major symptoms that indicate more serious illness are shortness of breath and difficulty breathing. This may lead to respiratory failure (which happens about 4 days after the symptoms first appear), when the lungs fill up with fluid and results in death in about 50% of infected patients.

Preventive measures to reduce the risk of hantavirus infection include:

- When hunting, avoid rodents and try not to disturb rodent nesting areas or burrows.
- Avoid contact with rodent feces, urine or saliva. If contact happens, wash hands thoroughly with soap and water.
- If camping:
  - Avoid sleeping on bare ground; pitch camps away from woodpiles
  - Avoid sleeping in cabins or other structures that are currently, or have recently been, infested with rodents.
  - Keep food in rodent-proof containers and do not drink untreated surface water.

To date, hantavirus infections in dogs have not been reported.

**Leptospirosis**

Leptospirosis is caused by *Leptospira* bacteria. The bacteria are found worldwide. Many species of both wildlife and domestic animals can spread leptospirosis. It is transmitted through an infected animal’s urine.

Hunters and their dogs become exposed to *Leptospira* bacteria when they wade in contaminated waters or swamps; walk through contaminated soil, mud and wet plants; by direct contact with infected animals; or by eating food or meat or drinking water contaminated with the bacteria. The bacteria can also infect people and their dogs through open wounds or if contaminated water or food comes into contact with mucous membranes (e.g., linings of the nose, mouth and eyes). Person-to-person transmission is rare.

Symptoms of leptospirosis in humans range from mild to severe. The symptoms usually appear 5-14 days after infection, with a mild fever, chills, muscle ache and headache. Symptoms may progress to abdominal pain, vomiting, diarrhea and skin rash. The most severe cases develop liver and kidney problems, heart dysfunction and mental confusion. These severe cases are more common in older people and can result in death.

The signs of leptospirosis in dogs vary and can be vague. Infected dogs might not show any signs of disease, or they may exhibit fever, vomiting, diarrhea, loss of appetite, weakness and depression, stiffness or infertility. Younger animals may be more likely to develop the disease.
**Lyme Disease (Lyme borreliosis)**

Lyme disease is an illness caused by a bacterium, *Borrelia burgdorferi*, which is a “spirochete” (a bacterium that has a worm-like, spiral-shaped form). Deer ticks are the primary carriers of the bacteria.

In humans, often the earliest indication of infection is a “bullseye” rash at the site of the tick bite – so named because it resembles a target. As the infection develops, symptoms include fever, headache, fatigue, and muscle and joint pain. The disease can progress to cause chronic joint problems as well as heart and neurological problems. Lyme disease is not contagious from one person to another. Lyme disease is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed Lyme disease are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Dogs infected with Lyme disease may not show signs for 2-5 months, at which time they usually develop fever, loss of appetite and lameness. It can be difficult to distinguish Lyme disease from anaplasmosis because the signs of disease are very similar, and they occur in essentially the same areas of the country.

Because it can be a difficult disease to diagnose, it is best to prevent infection by taking appropriate measures to prevent tick bites.

**Plague**

Plague is a disease caused by infection with *Yersinia pestis* bacteria, the same bacteria responsible for the “Black Death” that killed millions of people in the 1300s. The bacteria is still present in the environment in several regions of the nation, and the disease has recently been reported in mountain lions, rodents, rabbits, squirrels and other carnivorous animals. There are two common forms of plague – pneumonic plague, which involves the lungs and is more life-threatening; and bubonic plague, which is more common and less severe.

Plague can be transmitted to hunters and their dogs through bites of infected fleas or by direct contact with infected animal tissues when skinning or handling wild game. The highest risks of exposures come from infected blood and tissues. The disease is more commonly found in areas with high populations of prairie dogs or other rodents.

The symptoms of plague in humans include high fever, chills, weakness, headache, nausea, and often a painful enlarged lymph node (in the groin area or armpit). Plague is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed plague are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Signs of infection in dogs are usually open sores around the head and neck, and a veterinarian should be consulted immediately. Do not allow hunting dogs or pets near established prairie dog colonies, because they may become infested with plague-carrying fleas and may become ill and/or bring the infected fleas into your home or onto your property, increasing the risk of human infection.
**Q fever**

**Q fever** is a disease caused by the *Coxiella burnetii* bacteria. Cattle, sheep and goats are the primary reservoirs of *C. burnetii*, but cats, dogs, some wild mammals, birds and ticks are also natural reservoirs. The bacteria can be present in high numbers in the birth tissues (e.g., amniotic fluid, placenta and uterus) of infected animals and in lower numbers from their milk, urine, vaginal mucus, semen and manure/feces. The nesting sites of infected animals pose a high risk for infection. The bacteria most often infects humans and animals through an aerosol route – as the infected fluids dry, the bacteria remains in the dust. Infection can also develop following ingestion of contaminated, unpasteurized dairy products.

Both hunters and hunting dogs can become infected with Q fever. In humans, Q fever is often mistaken for a flu or cold; symptoms include fever, chills, headache, muscle pain, weakness and severe sweats, usually lasting 2 weeks. There is a possibility of complications involving the lungs, nervous system or heart. Q fever is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed Q fever are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Many animals do not exhibit signs of the disease, but infected dogs can shed the bacteria in their urine or milk and serve as sources of infection of their owners.

**Rabies**

**Rabies** is caused by different variants (similar to strains) of the rabies virus. The virus is transmitted primarily through bites and causes severe damage to the brain. Non-bite transmission of the rabies virus is very rare but can occur through scratches, abrasions, open wounds or mucous membranes contaminated with saliva or other potentially infectious material (such as brain tissue) from a rabid animal. Once clinical signs of rabies are observed, it is 100% fatal in animals and almost 100% fatal in humans.

In the United States, rabies is most common in raccoons, foxes, skunks and bats. The virus can infect any mammal, and there are documented cases of rabies in many wildlife and domestic species.

The symptoms of human rabies cases can vary, but early symptoms may include fever, headache, sore throat, tingling at the site of the bite and fatigue. As the disease progresses, infected humans can develop disorientation, paralysis, hallucinations, seizures, coma and death.

Rabies is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed rabies are required to report those cases to their local or state health departments, which in turn report the cases to the CDC. Suspected cases are also reportable to local and state health departments.

The first clinical signs of rabies seen in animals are usually nonspecific and may include lethargy, vomiting, fever and anorexia (loss of appetite). Signs rapidly progress and in days may include restlessness, confusion/disorientation, ataxia/incoordination, lameness, hypersalivation, weakness, paralysis, aggression, self mutilation, tremors,
seizures, choking, or difficulty breathing or swallowing. Contrary to popular belief, rabid dogs are more likely to exhibit lethargy and paralysis than aggression.

Common sense guidelines for avoiding exposure to rabies include:

- Don’t hunt any animal that behaves in an abnormal or uncharacteristic manner, such as:
  - aggressive animals
  - animals that display no fear of humans
  - animals that appear disoriented or are wandering aimlessly
  - animals showing any signs of sickness or paralysis
- Don’t touch or tag any animal you find dead, unless you specifically killed the animal and it appeared healthy beforehand.

Do not take any extraordinary risks if you do see a potentially rabid animal – the presence of a potentially rabid animal should be reported to the proper authorities. If it is necessary to kill the animal before the proper authorities can be contacted or can arrive, avoid killing the animal by a head shot or causing any trauma to the animal’s head – the brain must be intact for rabies to be confirmed. Do not handle any potentially rabid animals without proper protection (such as gloves), and avoid any contact with the animal’s mouth, eyes and nose.

If you are bitten or come into physical contact (scratches or direct contact with the brain or saliva) with a potentially rabid animal, immediately wash the area with soap and water. Contact your physician immediately; rabies is almost always fatal if not treated immediately. Also contact the local or state health department.

View the AVMA’s World Rabies Day page for more information.

**Raccoon Roundworm (Baylisascaris procyonis)**

The raccoon roundworm, *Baylisascaris procyonis*, is a large parasitic worm that lives in the intestines of raccoons, although over 90 species of mammals, including dogs, rabbits, rodents, birds and humans can become infected with it. It is a common parasite in raccoons and has been reported throughout the U.S. (mainly in the Northeast, midAtlantic, Midwest and West Coast states).

The adult worms shed millions of microscopic eggs that are passed through the infected animal’s stool into the soil, where the eggs can survive for months or even years. Humans become infected through accidentally eating eggs in contaminated food or water, or through contact with raccoon feces or objects that have been contaminated with raccoon feces. Because raccoons tend to use specific “latrine” areas, there can be a very high number of infective eggs in the soil in these areas.

While the worm does not cause harm to raccoons, it can cause serious illness in humans. Symptoms include nausea, lethargy, liver enlargement and loss of muscle control, eventually resulting in coma and blindness. Deaths are rare, but permanent liver, eye or brain damage can occur.

Dogs can be infected with the raccoon roundworm by contact with the stool of infected raccoons (or soil or water contaminated by the stool) or by contact with (or eating) the intestinal contents of an infected raccoon. Signs of illness include fatigue,
blindness, incoordination and other nervous system problems. It is possible that an infected dog could shed eggs that can infect its owner. It has been suggested that monthly heartworm preventives may decrease the risk of infection in dogs.

**Rocky Mountain Spotted Fever (tick-borne typhus fever) and other spotted fevers**

*Rocky Mountain Spotted Fever* (RMSF) is caused by the *Rickettsia ricketsii* bacteria and can be transmitted to hunters via tick bites. Person-to-person transmission does not occur.

Symptoms of RMSF usually appear within 3 to 14 days after the bite of an infected tick, with moderate to high fever (which may last for 2 to 3 weeks), severe headache, fatigue, muscle aches, chills and skin rash. The rash looks like blood spots or heavy freckles, explaining the “spotted fever” part of the name, and begins on the legs and arms and may include the soles of the feet and palms of the hands, spreading rapidly to the rest of the body. It is important to note that not everyone who has RMSF will develop a rash. RMSF is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed RMSF are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

In dogs, the first sign observed is usually a high fever, occurring 4-5 days after a bite from an infected tick. Blood spots (pinpoint or larger in size) may be seen on the lips, gums and nonhaired (or shorthaired) areas of the dog’s skin. The dog’s legs may swell, as well as the lips, ears and sheath. In the late stages of the disease, or sometimes during recovery, the damage in the legs can be severe enough that sloughing of the skin and tissues can occur.

There are new spotted fevers being detected worldwide that are similar to RMSF, and these are also transferred via tick bites. In the United States, the most frequently diagnosed rickettsial infection associated with hunters returning from international travel is African tick bite fever.

**Salmonellosis (Salmonella species)**

*Salmonellosis* is a bacterial infection caused by *Salmonella* species. There are many *Salmonella* species that can cause infection and illness. Many species of animals, including pets, livestock, reptiles, birds and wildlife, can be infected and can spread *Salmonella*.

These bacteria usually infect the intestinal tract but also can be found in urine, blood or in other body tissues.

*Salmonella* bacteria are spread through fecal-oral transmission; an infected person or animal sheds the bacteria in their stool, and others are infected by accidentally eating the bacteria after they have touched a contaminated surface or have had contact with infected stool. The bacteria are invisible to the naked eye, and people can become infected even if they don’t see the contamination.

Symptoms in humans and animals may include mild to severe diarrhea, stomach pain, fever and vomiting. Infections in the bloodstream are rare but potentially can be
very dangerous. Salmonellosis is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed salmonellosis are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

**Sarcoptic mange**

Sarcoptic mange is a skin disease caused by sarcoptic mange mites, which are found nationwide. This mange can be found in feral swine, foxes, coyotes and wolves, as well as in big game (including moose, elk, caribou, lions and water buffalo). It is spread by contact from animal to animal or from an infected environment to an animal and becomes more common when animal populations are high and contact is more likely.

Sarcoptic mange mites burrow through the top layer of the dog’s skin and cause intense itching. Clinical signs include generalized hair loss, a skin rash and crusting. Skin infections may develop secondary to the intense irritation. It usually appears first in the hind end and tail regions, and gradually expands up along the back to the head.

People who come in close contact with an affected dog may develop a skin rash and should see their physician. When hunters come across an infected carcass, they should burn or bury the carcass, and as always, when dealing with a wild animal carcass, gloves should be worn and the workplace disinfected afterwards. If a hunting dog comes in contact with a mange-infested carcass, prompt use of mite-killing topical products can prevent infection. Consult your veterinarian for a product recommendation.

**Toxoplasmosis**

Toxoplasmosis is caused by *Toxoplasma gondii*, a single-celled parasite. A person can get toxoplasmosis by eating raw or undercooked meat, especially venison, lamb or pork, or from consuming unpasteurized milk or milk products. Humans can also get toxoplasmosis by consuming food, water, or soil contaminated with cat feces.

Healthy people rarely develop toxoplasmosis. If illness occurs, symptoms include fever and swollen lymph nodes. Eye problems can also occur. Less common symptoms include skin rash, fatigue and muscle pain, and serious cases (usually in persons with weakened immune systems) develop pneumonia and central nervous system (brain or spinal cord) disorders. If a pregnant woman becomes infected, it may result in severe birth defects or death of the baby.

Dogs can become infected with *T. gondii*, but it is uncommon for them to develop illness. Illness is more likely to develop in dogs with weakened immune systems, and the signs of illness include incoordination, weakness and seizures.

Preventive measures include thoroughly cooking meat and using proper food hygiene (washing hands and utensils after contact with raw food, washing fruit before eating it, etc.) Avoid eating raw eggs or unpasteurized milk.
Trichinellosis (Trichinosis)

Trichinellosis, also called trichinosis, is caused by a parasite called *Trichinella spiralis*. Unlike many other parasites that can infect people, this parasite lives in the muscle tissue of animals (including the tongue and diaphragm, both of which are specialized muscles). Because the meat of the animal is actually its muscle tissue, the parasite can infect people who eat the meat of an infected animal.

*T. spiralis* is found worldwide, in a wide range of birds and mammals. In North America, it is common in the cougar and the grizzly bear but has also been reported in black bear, wolf, red fox, coyote, lynx and wild hogs.

Although it is considered to be a relatively minor disease in wildlife, causing only minor behavioral changes (such as less activity, increased predation and decreased reproductive activity), trichinellosis can be fatal in humans. As they burrow into the muscle cells, the muscle cells serve to “protect” the larvae, so they can live for years in an animal. They only become reactivated when the meat they have been living in is eaten by a carnivore or hunter.

Symptoms include stomach pain and fever, muscle aches, and swelling around the eyes. Thirst, sweating, chills, weakness and fatigue may follow. Chest pain can occur if the parasite has infected the diaphragm. The onset of illness depends on the number of parasites and the amount of meat eaten. Trichinellosis is a reportable disease—this means that health care providers and laboratories that diagnose cases of laboratory-confirmed trichinellosis are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

*Trichinella spiralis* can infect dogs that eat raw meat infected with the parasite. Infected dogs may not show any signs of illness or they may develop mild diarrhea.

The main course of prevention against trichinellosis is the proper handling and cooking of meat. Smoking, freezing or curing game meat *may* kill the larvae, but this is not the case for all strains of *Trichinella*. Low-temperature smoking will not kill the larvae. In addition, livestock should never be served the meat or offal of wildlife.

Tuberculosis

*Mycobacterium bovis*, a bacteria, causes bovine tuberculosis (TB). This is a different disease and different bacteria than human tuberculosis. *M. bovis* infection has been reported in wild boars, white-tailed deer, mule deer, elk, bison, badgers, possums, water buffalo, wapiti and other species. *M. bovis* poses a minimal risk to people, but can easily infect domestic cattle herds. For this reason, there are federal and state eradication programs. When field dressing an elk or deer, hunters should look for tan or yellow pea-sized lumps in the wall of the rib cage or in the lungs. If these lumps are present, the hunter should immediately stop handling the carcass, attach a game tag, and contact the local fish and wildlife agency.

*Mycobacterium tuberculosis*, the cause of human TB, has been reported in meerkats and mongoose in South Africa, but the significance of free-ranging wildlife in the spread of human TB remains unknown.

Tuberculosis is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed tuberculosis are required to
report those cases to their local or state health departments, which in turn report the cases to the CDC.

**Tularemia**

*Tularemia* is caused by infection with *Francisella tularensis* bacteria, commonly found in the United States in rabbits, squirrels, muskrats, beavers, prairie dogs, cats, bobcats, deer and sheep. Rabbits are the most common source of tularemia in the United States. It is a potentially fatal disease. It can be spread to animals and people by deerflies and other insects. Tularemia is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed tularemia are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Historically, people that work outdoors (landscapers, etc.) have been more likely to be infected with tularemia. Hunters are at risk of exposure because of the amount of time they spend outdoors and in their handling of game species prone to infection.

Routes of exposure may include:

- Exposure of skin or mucous membranes (eyes, nose and mouth) with blood or tissue when handling or dressing infected game.
- Via infected flea or tick bites.
- Handling/eating undercooked infected meat. Rabbit meat can remain infective even after being frozen several years.

Less common routes may include:

- A scratch or a bite from a cat.
- Drinking contaminated water.
- Inhaling dust from contaminated soil.
- Handling contaminated animal pelts.

Symptoms of tularemia in people usually include skin lesions and swollen glands. If the infection is caused by eating infected meat, symptoms may include sore throat, intestinal pain, diarrhea and vomiting. Inhalation of the bacteria may produce a fever or may also cause a pneumonia-like illness. While the symptoms may appear anywhere from 2-10 days after exposure, they usually appear after 3 days. Simple measures can be taken to minimize the risk of tularemia, including the following:

- Wear rubber gloves when handling or dressing game (especially rabbits).
- Always thoroughly cook rabbit and/or squirrel meat.
- Use protective clothing and insect repellants and check for ticks frequently.
- Avoid drinking untreated water.
- Avoid handling any sick animals or any dead animals that you have not shot.
Dogs can be affected by tularemia, but the signs observed may be mild and nonspecific. The signs that may be observed are related to the mode of transmission and include fever, depression, mucopurulent (mucus with pus) discharge from the nose and/or eyes, pustules at the sites of contact, swollen lymph nodes, and loss of appetite. In most cases, the disease is self-limiting with supportive treatment.

**West Nile Virus**

African mosquitoes carrying the [West Nile virus (WNV)](https://en.wikipedia.org/wiki/West_Nile_virus) first arrived in New York City in 1999. The virus has since spread throughout North America. The virus infects wild birds, and mosquitoes then transfer the virus to other animals and to humans.

Approximately 20% of people who are exposed to the virus via mosquito bites develop symptoms. Approximately 1% develop encephalitis (inflammation of the brain) or meningitis (inflammation of the linings of the brain or spinal cord) that can lead to death. West Nile Virus infection is a reportable disease – this means that health care providers and laboratories that diagnose cases of laboratory-confirmed West Nile Virus infections are required to report those cases to their local or state health departments, which in turn report the cases to the CDC.

Sudden bird die-offs can indicate the presence of West Nile virus in the area. Hunters should report any noticeable increase in dead birds to the state or local agencies. Hunters should avoid handling dead birds they encounter that have not been shot during the hunt. Follow the state or local health department’s instructions regarding what to do with the dead bird. If instructed to dispose of the bird, hunters should use gloves or protect their hands with a plastic bag to place the bird carcass in a garbage bag and dispose of it in the trash.

Dogs are not likely to show signs of disease when infected with the West Nile virus.

**Specific Risks Associated with International Hunting**

Many of the same risks associated with hunting in North America may also be present worldwide, but there are additional risks with international hunting. These risks include diseases unique to the area. It is recommended that hunters find out the health situation in each destination country as they are determining where they will hunt. The World Health Organization’s (WHO) [International travel and health site](https://www.who.int/ith/en/) provides basic information, as well as advisories on safe food, health regulations and other topics. The U.S. Centers for Disease Control and Prevention also maintains a [Traveler’s Health](https://www.cdc.gov/travel/) section with advice and information.

Below are some of the zoonotic diseases unique to international destinations.
**Chikungunya**

Chikungunya fever is caused by the chikungunya virus, which is transmitted to humans via the bite of an infected mosquito.

Big game hunters in Africa and Asia need to be especially aware of this virus, as it has been the cause of many epidemics in both these continents. The mosquito that carries the virus, *Aedes aegypti*, is known to be an aggressive daytime biter that appears to be attracted to humans. This mosquito also transmits the virus between humans. It is suspected that monkeys and possibly other wild animals serve as reservoirs for this virus. Lately, the *Aedes albopictus* mosquito (Asian tiger mosquito) has also been recorded as transmitting the virus to humans in Asia, Africa and Europe. There are also certain African forest-dwelling mosquitoes that have been found to be infected with the virus.

Rarely, a person can have chikungunya without any symptoms. A primary symptom of chikungunya is severe joint pain. It may progress to a more serious illness, with fever, headache, fatigue, nausea, vomiting and rash. Acute chikungunya usually lasts from a few days to several weeks, but some people can experience fatigue or joint pain for a longer period of time.

To date, chikungunya infection in dogs has not been reported.

**Crimean Congo hemorrhagic fever**

Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne disease caused by a Nairovirus. It is found in Eastern Europe, Africa, Northwest China, Central Asia, the Middle East, India, the Mediterranean and Southern Europe. Ixodid (hard) ticks are the transmitters of the CCHF virus. Both wild and domestic animals, such as cattle, goats, sheep and hares, may be infected with these ticks. Transmission to hunters may occur through tick bites or the infected blood of an animal. CCHF can be transmitted from one infected human to another by contact with infected blood or body fluids. The first signs of CCHF are sudden, with headache, high fever, back and joint pain, stomach distress, red eyes, flushed face, sore throat, and red spots in the mouth. Rare symptoms include jaundice, and in severe cases there are mood swings and changes in vision and hearing. Severe bruising and nosebleeds also occur.

**Rift Valley Fever virus**

Rift Valley Fever (RVF) is caused by the Rift Valley Fever virus (RVFV), a mosquito-borne virus that has been associated with widespread outbreaks of severe disease in livestock and humans in Africa, and more recently, the Arabian peninsula. Infections in livestock cause 10-20% deaths in adults and 100% in newborns. Infections in humans usually consist of mild illness, but in 1-2% of human cases, RVF can progress to liver problems, blindness, severe bleeding and death. Epidemics always occur during heavy rainfall seasons, when the infected mosquitoes are present in high numbers. RVF is considered a serious threat, and recent studies, while not yet confirmed, have indicated that certain wildlife species may be reservoirs for this virus between outbreaks, including African buffalo, lesser kudu, black rhinos, white rhinos and
impala. These studies also suggest that, during a RVF outbreak in a region, any wildlife meat, if not properly handled, may pass the RVF infection on to humans.

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**Additional resources:**

**U.S. Department of Agriculture (USDA)**
- Fact sheets: Game from Farm to Table
- Fact sheets: Food Safety while Hiking, Camping & Boating
- Fact sheet: Roasting Those “Other” Holiday Meats
- Freezing and Food Safety
- Safe food handling

**Centers for Disease Control and Prevention (CDC)**
- Avian influenza among waterfowl hunters and wildlife professionals
- Protect yourself from tick bites
- Tickborne rickettsial diseases
- Updated information regarding insect repellents
- Wildlife, Exotic Pets, and Emerging Zoonoses

**Wisconsin Department of Agriculture, Trade, and Consumer Protection**
- Common Sense: Handling and processing venison

**US Centers for Disease Control and Prevention (CDC)**
- Traveler’s Health pages