

## POTENTIAL HEALTH HAZARDS OF URBAN WILDLIFE TO HUMANS AND THEIR PETS

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The interactions of humans and their pets with wildlife is an increasing concern. A number of factors have led to increasing interactions of humans with wildlife including: (1) alteration of natural rural habitat, (2) establishment of forested urban habitats, (3) reduction of natural predators, (4) encroachment of humans into rural areas, and (5) abundance of food resources (waste receptacles, land fills, pet food bowls, bird feeders etc) in the urban environment. As these interactions increase the potential for transmission of parasites and other diseases between humans, their pets and wildlife increases. A number of parasitic diseases can be transmitted between humans, domesticated dogs and cats and urban wildlife.

Raccoons, *Procyon lotor* can carry a number of parasitic, viral and bacterial diseases that can be transmitted to and from dogs, cats and humans. The biggest problem is the potential of raccoons to carry and transmit rabies. The risk of exposure to rabies by dogs, cats and humans involved in wildlife management is high. *Baylisascaris procyonis*, is a roundworm of raccoons that is a well recognized cause of cerebrospinal nematodiasis in animals as well as man (Kazacos & Boyce 1989). When non-raccoons accidentally ingest infective *B. procyonis* eggs some of the larvae will migrate to the central nervous system (Kazacos & Boyce 1989). This aberrant migration of the larvae through the CNS leads to CNS disease and occasionally death in animals and humans (Kazacos & Boyce 1989, Cunningham et al. 1994, Huff et al. 1984, Fox et al. 1985). A survey conducted in Kansas demonstrated that up to 75% of raccoons were infected with *B. procyonis* (Robel et al. 1989).

In addition to *B. procyonis* raccoons can carry fleas, ticks, *Cryptosporidium parvum* (Intestinal Protozoan), Canine Distemper, *Dirofilaria immitis* (Canine Heartworm) and *Trypanosoma cruzi* (American Trypanosomiasis) (Martin & Zeidner 1992, Snyder et al. 1989, Telford & Forrester 1991 ). Red fox (*Vulpes vulpes*) and coyotes (*Canis latrans*) can also be carriers of *D. immitis*, fleas, ticks, rabies, and several gastrointestinal parasites that can infect dogs (Gier & Ameal 1959, Thorson 1979, Whitaker & Goff 1979).

In addition to raccoons, skunks the traditional carrier of rabies are still prevalent throughout most of North America {139, 1023, 1648, 1713}. Skunks are routinely found in urban areas. In addition to rabies, they can also be infested with fleas and ticks that can be transmitted to dogs and cats.

Bobcats, *Lynx rufus*, which have been observed with increasing frequency in urban areas are known reservoirs of feline cytauxzoonosis (Kocan & Kocan 1991, Hoskins 1991). *Cytauxzoon felis* is a blood parasite of wild and domestic cats that is thought to be transmitted by an arthropod vector. It produces almost a 100% fatality rate in domestic cats (Hoskins 1991). In preliminary testing, blood samples collected from 3 out of 5 bobcats live-trapped from Fort Riley contained *Cytauxzoon felis* organisms.

In urban-rural fringe settings, the potential for human, pet and wildlife interactions are numerous. Not only are wildlife such as raccoons, opossums, skunks, red fox, coyote and bobcats seen in and near housing but humans and their pets on camping trips, picnics, hiking etc., could potentially encounter these animals or their feces. Direct contact with the animal is not necessary to transmit many of the parasitic diseases. Often transmission is through contact with feces or insect vectors.

External parasite transmission between humans, their pets and wildlife is also of concern. Raccoons are commonly infested with a variety of ticks common found infesting dogs, including *Ixodes scapularis*, the principal vector of *Borrelia burgdorferi* (Fish & Dowler 1989, Kollars 1993). The potential for raccoons to carry borrelia infected ticks into the urban environment is great.

Coyotes are also seen to occur in urban areas and are occasionally infested with *Sarcoptes scabiei* (Pence & Windberg 1994). This mange mite is readily transmissible to dogs and even humans. While, *S. scabiei* var. *canis* generally will not establish on humans, it can be a serious problem for 1 to 3 weeks.

It is important to recognize that a number of studies have been conducted examining the external parasite burdens of rural wildlife. However, it has become increasingly apparent that studies of rural wildlife may not reflect parasite burdens in urban or fringe mammalian wildlife populations.

A recent study conducted in Northeastern KS demonstrated dramatic differences in external parasite fauna of urban versus rural wildlife (Dryden et al. 1995). Small and medium sized mammals were live-trapped within the city limits of Manhattan, Kans., and in rural areas surrounding this city, including a few sites at Fort Riley. Trapping was initiated June 20, 1994 and continued through June 30, 1995. Fleas were recovered from 50 to 100% of urban trapped raccoons, with parasite densities up to 50 fleas per raccoon during November and December. Whereas, rural raccoons never had over 17% of animals infested with fleas during any month and no raccoon had over 6 fleas. In examining for potential interactions of wildlife with domesticated dogs and cats it was found that cat fleas, *Ctenocephalides felis*, were recovered from 61.5 (64/104) and 21.6% (24/111) of urban trapped opossums, *Didelphis virginiana* and raccoons, respectively; Whereas, cat fleas were recovered from only 10.0 (2/20) and 8.3% (2/24) of rural trapped opossums and raccoons, respectively.

Because of the large number of diseases and parasites carried by urban wildlife precautions should be taken to ensure the safety of humans attempting to manage or relocate those animals. At a minimum all personnel who work around wildlife must be vaccinated for rabies. In addition education of the public to the potential hazards of wildlife transmitted diseases is also essential.

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