THE WILDLIFE SOCIETY

FACT SHEET

Feral Cats: Impacts of an Invasive Species

A domestic cat carries its prey. Free-ranging and feral cats kill billions of animals each year (Credit: Wikimedia Commons User Lxowle).

What is a feral cat?

Domestic cats can be categorized into three groups: indoor, free-ranging, and feral. Indoor cats are "house cats" and spend all of their time within the home. Free-ranging cats spend all or a portion of their time roaming outdoors but are habituated to humans. Feral cats are not socialized to humans and live entirely outdoors. However, "house cats" can easily revert to feral behaviors if released outdoors and all cats are predators, regardless of their socialization, and will hunt prey if given the opportunity.

The domestic cat (*Felis catus*) is the most prevalent pet in the U.S., numbering between 148 and 188 million individuals.[1] Originally bred from wild cats (*Felis silvestris*) in the Near East approximately 10,000 years ago,[2] domestic cats are now considered a distinct species. As a domesticated animal, cats have no native range and are considered a non-native, invasive, feral species when allowed outdoors to interact with native ecosystems. An invasive species is an organism that causes or is likely to cause ecological or economic harm, or endanger human health in an environment where it is not native.[3]

Reproduction

Domestic cats can reproduce prolifically. Individuals become sexually mature as early as six months of age, and reproduction can occur throughout the year.[4] A single female may produce as many as three litters each year with two to four kittens per litter,[5, 6] with the capacity to successfully raise as many as 12 offspring each year. Production of only two offspring over an individual's reproductive life is enough to establish a stable population.

Predatory Behavior and Ecological Impact

Domestic cats are highly skilled, instinctive predators. All cat species are carnivorous and even when well-fed, domestic cats continue to hunt.[7] This innate ability and desire to hunt makes the domestic cat a threat to native wildlife species whenever cats are permitted to live or roam outdoors.

While indoor cats pose little threat to native wildlife, free-ranging and feral cats cause severe ecological impacts. Domestic cats are responsible for the extinction of numerous mammals, reptiles, and at least 33 bird species globally.[8] A study published in 2013 estimated between1.4–3.7 billion birds and 6.9–20.7 billion mammals are killed annually in the U.S. by feral and free ranging domestic cats, making them the largest human-influenced source of mortality for birds and mammals in the country.[9]

Free ranging and feral cats decrease native wildlife abundance and diversity, especially of species that nest on or near the ground, such as California Quail, Killdeer, and Ovenbirds. In addition, free-ranging and feral cats can cause serious harm to populations of rare or endangered wildlife, especially when human-supported cat colonies concentrate large numbers of feral cats within the range of an at-risk species.[10]

Disease Transmission

Domestic cats can serve as a vector for a number of diseases, including zoonoses – diseases that can be transmitted to humans - such as rabies, toxoplasmosis, bartonellosis, and salmonellosis.[11] Their ability to transmit these diseases poses serious health risks to humans and native wildlife.

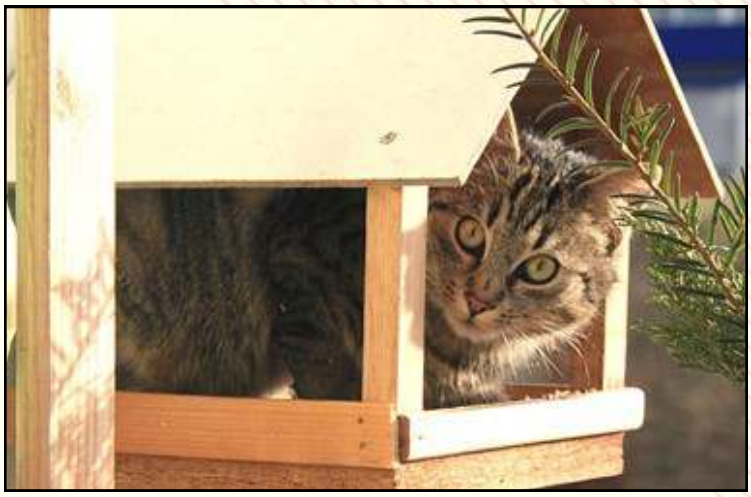
Rabies is a viral disease that affects the central nervous system, and is most often transmitted through bite wounds. In the U.S., cats make up a small percentage of mammals identified as rabies vector species, but are responsible for a disproportionate number of human exposures. For example, in New York State cats represented just 2.7% of the animals infected with rabies from 1993-2002, but were responsible for approximately 33% of the recorded human exposure incidents.[12]

Cats are the primary host of the parasite *Toxoplasma gondii* which can cause toxoplasmosis, a disease responsible for neurologic and ocular symptoms in humans. Toxoplasmosis is transmitted to humans through contact or consumption of food, water or soil contaminated with cat feces carrying *Toxoplasma gondii* eggs.[13]

Humans provide a potential mechanism for disease transmission when they establish outdoor feeding stations for feral cats. Managed feral cat colonies bring together all the elements necessary to create a high risk of disease transmission from cats to people or wildlife -- concentrated numbers of unvaccinated cats, wildlife attracted by food sources, and close proximity to humans.

Indoor Cats

Keeping cats indoors protects wildlife and also cats. Cats that live or are allowed outside are subject to many hazards, including cars, attacks by domestic and wild animals, poisoning, predation, and increased disease exposure.



A domestic cat peers out of a bird feeder. Cats are known to predate on wildlife including many birds. (Credit: Wikimedia Commons User Karelj).

Problems with Trap-Neuter-Release

Trap-neuter-release (TNR) is advocated by some as a humane solution to the problems posed by feral cats. In this approach, cats are trapped, marked with a clipped ear, sterilized, vaccinated, and then returned to a feral cat colony, with the assumption sterilized cats will not be able to reproduce and therefore colony size will decrease over time. However, numerous scientific studies have found that trap-neuter-release operations fail to reduce populations within a colony.[14, 15, 16, 17, 18, 19, 20, 21]

As a result, feral cats released back into native ecosystems, even those sterilized and vaccinated, continue to have significant consequences for native wildlife and people.

1 Dauphine, N., and R. J. Cooper. 2009. Impacts of free-ranging domestic cats (*Felis catus*) on birds in the United States: a review of recent research with conservation and management recommendations. Pages 205-219 *in* Proceedings of the Fourth International Partners in Flight Conference: Tundra to Tropics. T. Rich, chair. McAllen, Texas, USA.
2 Driscoll, C. A., Menotti-Raymond, M., Roca, A. L., Hupe, K., Johnson, W. E., Geffen, E., Harley, E. H., Delibes, M., Pontier, D., Kitchener, A. C., Yamaguchi, N., O'Brien, S. J., and Macdonald, D. W. 2007. The Near Eastern origin of cat domestication. *Science* 317:519-523.
3 The National Invasive Species Council. 2006. Invasive species Definition Clarification and Guidance White Paper (accessed at http://www.invasivespeciesinfo.gov/docs/council/isacdef.pdf).
4 Nutter, F. B., Levine, J. F., and Stoskopf, M. K. 2004. *Journal of American Veterinary Medical Association* 225(9): 1399-1402.
5 Root, M. V., Johnston, S. D., and Olson, P. N. 1995. Estrous length, pregnancy rate, gestation and parturition lengths, litter size, and juvenile mortality in the domestic cat. *Journal of the American Animal Hospital Association* 31(5): 429-433.
6 Adamec, R. E. 1976. The interaction of hunger and preying in the domestic cat (Felis catus): an adaptive hierarchy. *Behavioral Biology* 18: 263-272.
7 Turner, D. C. 2000. The domestic cat: the biology of its behaviour. Second edition. Cambridge University Press, Cambridge, United Kingdom.
8 Lever C. 1994. Naturalized animals: the ecology of successfully introduced species. T & AD Poyser Ltd., London.
9 Loss, Scott R., Tom Will, and Peter P. Marra. 2013. The Impact of Free-ranging Domestic Cats on Wildlife of the United States. *Nature Communications* 4, article #1396.
10 Winter, Linda and George E. Wallace. 2006. Impacts of Feral and Free-ranging Cats on Bird Species of Conservation Concern. *A report from the American Bird Conservancy*. Accessed at : www.abcbirds.org/newsandreports/NFWF.pdf
11Cornell University College of Veterinary Medicine. Zoonotic Disease: What can I catch from my cat? Accessed online June, 2014 at http://www.vet.cornell.edu/FHC/health_resources/Zoonotic.cfm.
12 Edison, M. and A.K. Bingman. 2010. Terrestrial rabies and human postexposure prophylaxis, New York, USA. *Emerging Infectious Diseases* 16:527-529.
13 Dabritz, H.A., and P. A. Conrad. 2010. Cats and *Toxoplasma:* implications for public health. *Zoonoses and Public Health.* 57: 34-52.
14 Baker, P.J., S.E. Molony, E. Stone, I.C. Cuthill, and S. Harris. 2008. Cats about town: is predation by free-ranging pet cats *Felis catus* likely to affect urban bird populations? *Ibis* 150: 86-99.
15 van Heezik, Y., A. Smyth, A. Adams, and J. Gordon. 2010. Do domestic cats impose an unsustainable harvest on urban bird populations? *Biological Conservation* 143: 121-130.
16 Andersen, M. C., B. J. Martin, and G. W. Roemer. 2004. Use of matrix population models to estimate the efficacy of euthanasia versus trap-neuter-return for management of free-roaming cats. *Journal of the American Veterinary Medical Association* 225:1871–1876.
17 Barrows, P. L. 2004. Professional, ethical, and legal dilemmas of trap-neuter-release. *Journal of the American Veterinary Medical Association* 225:1365–1369.
18 Castillo, D., and A. L. Clarke. 2003. Trap/neuter/release methods ineffective in controlling domestic cat "colonies" on public lands. *Natural Areas Journal* 23:247–253.
19 Longcore, T., C. Rich, and L. M. Sullivan. 2009. Critical assessment of claims regarding management of feral cats by trap-neuter-return. *Conservation Biology* 23:887–894.
20 Winter 2004. Trap-neuter-release programs: the reality and the impacts. *Journal of the American Veterinary Medical Association* 225(9): 1369-1376.
21 Gutilla, D.A., and P. Stapp. 2010. Effects of sterilization on movements of feral cats at a wildland–urban interface. *Journal of Mammalogy* 91(2):482–489.

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