AMERICAN BIRD CONSERVANCY

Bringing back the birds

10/25/2017

ADF&G Boards Support Section
ATTN: Board of Game Comments
P.O. Box 115526
Juneau, AK 99811-5526

Dear Alaska Department of Fish and Game:

On behalf of American Bird Conservancy (ABC), please accept this letter as testimony in **OPPOSITION to Proposal 62** (5 AAC 92.029), which would "allow the release of sterilized, feral cats into the wild" and in **SUPPORT of Proposal 63** (5 AAC 92.029), which would "prohibit the release of feral or stray domestic [sic] cats into the wild."

Feral domestic cats (*Felis catus*) are one of the world's most harmful invasive species and have contributed to the extinction of 63 species.[i,ii] Free-roaming cats are the top source of direct, anthropogenic mortality to birds in the United States and Canada and kill an estimated 2.4 billion birds and 12.3 billion mammals in the U.S. annually.[iii] Furthermore, the mere presence of a cat in the environment reduces bird reproductive output and survival by altering prey behaviors and indirectly harms wildlife through competition for resources and the spread of diseases.[iv]

Disease transmission is a serious concern not only for wildlife but also for people and domesticated species. Cats are the top carrier of rabies among domestic animals in the U.S. and are a definitive host for the parasite (*Toxoplasma gondii*) that causes toxoplasmosis. Any warm-blooded species may become infected with *T. gondii*, and the consequences can be severe. In people, infection may result in miscarriage, blindness, organ failure, or death.[v,vi] Infection has also been linked with numerous neurological impairments including memory loss, obsessive-compulsive disorder, and schizophrenia.[vii,viii] Because cats excrete the parasite's infectious eggs (oocysts) into the environment and these oocysts have been identified as a major cause of human infections in multiple epidemics, free-roaming cats are a major risk factor for *T. gondii* transmission.[ix]

The management of feral cats is a necessity, but purposely permitting these feral animals to continue to roam parks, neighborhoods, and communities is irresponsible and ineffective. The program known as trap, neuter, release (TNR), which is advocated for in Proposal 62, fails to effectively reduce feral cat populations. An evaluation of two long-term TNR programs in California and Florida led researchers to conclude that "no plausible combinations of life history variables would likely allow for TNR to succeed in reducing [feral cat] population size, although neutering approximately 75% of the cats would achieve control (which is unrealistic)."[x] Another study suggested that TNR was actually worse than doing nothing.[xi] Furthermore, while TNR cats persist in the environment the rest of their lives, they continue to harm wildlife. Even a well-fed cat will hunt and kill.[xii] The following organizations have adopted position statements that formally oppose TNR:

American Association of Wildlife Veterinarians | American Ornithologists' Union | Association of Avian Veterinarians | Association of Fish and Wildlife Agencies | Black Swamp Bird Observatory | Cooper Ornithological Society | International Wildlife Rehabilitation Council | National Association of State

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Shaping the future for birds

Public Health Veterinarians | National Wildlife Federation | Texas Parks and Wildlife Department | The Wildlife Society

The major issue of concern with regard to feral cat population management is confinement. Effective removal of cats from the environment is critical, whether this be through adoption, placement in a sanctuary or shelter, or euthanasia, and is the only way to reliably reduce feral cat populations and eliminate harm to sensitive wildlife. Any sanctioning of roaming feral cats further represents a legal liability for the State, which would be at risk should a threatened or endangered species or person be harmed by a released feral cat. Confinement eliminates this liability.

ABC appreciates this opportunity to provide comments on the proposed amendments to the Alaska Administrative Code and asks that, in order to effectively manage the pervasive threat to wildlife from feral cats, you please **OPPOSE Proposal 62** and **SUPPORT Proposal 63**.

Respectfully,

Grant Sizemore, M.S., AWB®
Director of Invasive Species Programs

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[i] Lowe S., M. Browne, S. Boudjelas, and M. De Poorter. 2000. 100 of the World's Worst Invasive Alien Species: A Selection from the Global Invasive Species Database. The Invasive Species Specialist Group, International Union for the Conservation of Nature.

[ii] Doherty T.S., A.S. Glen, D.G. Nimmo, E.G. Ritchie, and C.R. Dickman. 2016. Invasive predators and global biodiversity loss. Proceedings of the National Academy of Sciences 113: 11261-11265.

[iii] North American Bird Conservation Initiative, U.S. Committee. 2014. The State of the Birds 2014 Report. U.S. Department of Interior, Washington, D.C. 16 pages.

[iv] Bonnington C., K.J. Gaston, and K.L. Evans. 2013. Fearing the feline: domestic cats reduce avian fecundity through trait-mediated indirect effects that increase nest predation by other species. Journal of Applied Ecology 50: 15-24.

[v] Undseth O., P. Gerlyng, A.K. Goplen, E.S. Holter, E. von der Lippe, and O. Dunlop. 2014. Primary toxoplasmosis with critical illness and multi-organ failure in an immunocompetent young man. Scandinavian Journal of Infectious Diseases 46: 58-62.

[vi] Tenter A.M., A.R. Heckeroth, and L.M. Weiss. 2000. Toxoplasma gondii: from animals to humans. International Journal of Parasitology 30: 1217-1258.

[vii] Gajewski P.D., M. Falkenstein, J.G. Hengstler, and K. Golka. 2014. Toxoplasma gondii impairs memory in infected seniors. Brain, Behavior, and Immunity 36: 193-199.

[viii] Torrey E.F. and R.H. Yolken. 2013. *Toxoplasma* oocysts as a public health problem. Trends in Parasitology 29: 380-384.

[ix] Boyer K., D. Hill, E. Mui, K. Wroblewski, T. Karrison, J.P. Dubey, M. Sautter, A.G. Noble, S. Withers, C. Swisher, P. Heydemann, T. Hosten, J. Babiarz, D. Lee, P. Meier, and R. McLeod. 2011. Unrecognized ingestion of *Toxoplasma gondii* oocysts leads to congenital toxoplasmosis and causes epidemics in North America. Clinical Infectious Diseases 53: 1081-1089.

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AMERICAN BIRD CONSERVANCY

Shaping the future for birds

[x] Foley P., J.E. Foley, J.K. Levy, and T. Paik. 2005. Analysis of the impact of trap-neuter-return programs on populations of feral cats. Journal of the American Veterinary Medical Association 227: 1775-1781.

[xi] McCarthy R. J., S. H. Levine, and J. M. Reed. 2013. Estimation of effectiveness of three methods of feral cat population control by use of a simulation model. Journal of the American Veterinary Medical Association 243: 502-511.

[xii] Loyd K.A.T., S.M. Hernandez, J.P. Carroll, K.J. Abernathy, and G.J. Marshall. 2013. Quantifying free-roaming domestic cat predation using animal-borne video cameras. Biological Conservation 160: 183-189.

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Submitted By
Alice Anderson
Submitted On
10/25/2017 12:52:27 PM
Affiliation

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I taught biology and mathematics at Ketchikan Commuity College in 1974-76. Although many residents kept indoor pet cats, there were no outdoor cat colonies. Flocks of juncos enlivened street scenes, and spring mornings were filled with songs of hermit thrushes and Swainson's thrushes. These delightful little birds are favorite prey for running-at-large house cats,

Beginning around 1990, a fad for feeding stray cats swept the nation. Consequently, cat colonies infest many U.S. cities, including some Alaskan cities. I am saddened to learn that Ketchikan's juncos and thrushes may be replaced with house cats

You have been asked to amend sections 62 and 63 of the state game regulations, to legalize the release of sterilized house cats to run at large. Cat advocates call running-at-large house cats "community cats", because a community, i.e. a group, of people feed them. Those requesting the change claim, "Over time, TNR stabilizes or reduces community cat populations." They offer no evidence to support their claim. They provide a long list of technical, semi-technical, and popular references, but none of these references document a cat colony being eliminated by TNR. Nor do they document a long-term reduction or stabilization of colony size. Mere reduction or stabilization does not correct the problem of house cats running at large.

The cat advocates list Finkler et al 2011 on cat behavior, but they omit the companian paper published in the same issue of the Journal of the American Veterinary Medical Association.

Gunther, Idit, Hilit Finkler, and Joseph Terkel. 2011. Demographic differences between urban feeding groups of neutered and sexually intact free-roaming cats following a trap-neuter-return procedure. JAVMA Vol. 238 No. 9: 1134-1140, May 1, 2011.

Two urban cat colonies, treated with TNR plus feeding, grew slightly in one year. Two other colonies, treated with feed-don't neuter, shrank slightly in one year. This paper indicates that neutering some cats in a colony enhances colony growth.

The cat advocates also list

Levy, J.K., N.M. Isaza, and K.C. Scott. 2014. Effect of high-impact targeted trap-neuter-return and adoption of community cats on cat intake to a shelter. The Veterinary Journal, 201(2014):269-274.

The authors studied a ZIP code in Florida, where TNR had been promoted and practiced since 1998. A telephone survey of cat feeders found that only 14% (7/49) feeders had neutered any of the cats they fed. Then about half the estimated free-roaming cat population was trapped. Only 5% (111/2366) had been neutered. TNR fails to eliminate, reduce, or stabilize cat colonies because cat feeders do not neuter enough of the cats they feed.

The appendix submitted to you by cat advocates says, "A habitat will support a population of a certain size." The most important components of urban outdoor house cat habitat are food and, in Alaska, shelter. To reduce cat numbers, the habitat must be made unsuitable by eliminating food and shelter. Stop feeding, dismantle shelters, and the cats will disappear under what cat advocates call natural attrition.

A cat advocate can rescue stray cats by trapping them, neutering them, and confining them in a fenced yard at his home. Even if the cats do not become friendly to their rescuer, they will be safe in his yard, and their confinement will protect wildlife and the public.

Please do not legalize releasing house cats.

Audubon ALASKA

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www.ak.audubon.org

Kristy Tibbles
Executive Director
Alaska Board of Game
dfg.bog.comments@alaska.gov

VIA EMAIL SUBMISSION

Re: November 2017 Statewide Regulations Alaska Board of Game meeting; opposition to Proposal 62

October 27, 2017

Dear Director Tibbles,

Thank you for the opportunity to comment on the Alaska Board of Game consideration of proposals on statewide regulations. Audubon Alaska is an independent 501(c)(3) nonprofit that works to conserve habitat for the birds and wildlife in Alaska, to ensure their place for future generations. We are opposed to Proposal 62 that seeks to change Alaska regulatory code *5 AAC 92.029. Permit for possessing live game*, in order to allow the release of sterilized feral cats into the wild. If implemented, this proposal would effectively create a "Trap Neuter Release" program, or TNR program. This regulatory change would legalize the release of feral cats into Alaska's outdoors to the detriment of our state's native birds. The Board of Game should decline to implement Proposal 62.

The science clearly shows that outdoor cats have a large negative effect on our nation's native bird populations. A 2013 study indicates that between 1.4 billion to 3.7 billion birds are killed by cats in the U.S. every year.[1] Cats are second only to habitat loss as a leading cause of bird deaths nationwide, according to the *2014 State of the Birds* report, published by the U.S. Fish and Wildlife Service and the North American Bird Conservation Initiative.

TNR programs are often defended by claiming that the program will reduce feral cats over time. However, this and other claims simply do not withstand strong scientific scrutiny.[2] There is no

[1] S.R. Loss, T. Will and P.P. Marra. The impact of free-ranging domestic cats on wildlife in the United States. Nature Communications. doi: 10.1038/ncomms2380 (2013).
[2] Longcore, T., Rich, C. & Sullivan, L. M. Critical assessment of claims regarding management of feral cats by trap-neuter-return. Conserv. Biol. 23, 887–894 (2009).

evidence that TNR programs effectively reduce feral cat populations. Instead, strong evidence exists that TNR programs allow feral cat populations to perpetuate and cause a measurable detriment to individual birds and bird populations.

The Alaska Board of Game is charged with conservation of Alaska's native wildlife, including its birds. The Board should continue to prohibit the release of feral cats, which are non-native predators that negatively impact our state's native birds. We urge the Board of Game to decline to implement Proposal 62 and instead retain 5 AAC 92.029 as currently written. Please feel free to contact us with any questions or requests for additional information.

Sincerely,

Susan Culliney

Susan Culliney
Policy Director
Audubon Alaska

Submitted By
Laurie Benson
Submitted On
10/26/2017 12:23:14 AM
Affiliation
Ms.

I am opposed to proposal #62 that would allow feral cats to be released into the wild. Cats are highly efficient predators, have caused extinction of bird species worldwide and are a significant cause in the decline of some bird species. They are not part of the Alaskan ecosystem and are not even native to North America. Introduced predators are bad news for Alaskan wildlife. Capture, neuter and release programs have not eliminated a single cat colony. Those programs just allow the cats to keep on killing. Alaska for Alaskan wildlife. Just say no to this nutty idea.

Submitted By
Anissa Berry
Submitted On
10/23/2017 10:40:00 AM
Affiliation

Phone
9077663490
Email
backlagoon@aol.com
Address
PO Box 1222
Haines, Alaska 99827

Dear Board of Game,

I am against Proposal 62.

The debate of what to do with feral cat colonies should be centered on the ecological implications of destruction of native species rather than emotion. The third sentence in Proposal 62, "Killing cats is cruel," is subjective and based on an emotions from the cat-loving community. With no disrespect to the cat-lovers, the problem of feral cats has nothing to do with people's personal feline pets. The question to you is, do Alaskans want the ability to legally dispose of feral cats which have devastating effects on small mammal and bird populations or do we wish to limit management techniques? To pass this proposal would limit techniques to only Trap, Neuter and Release (TNR).

Within the purview of the Board of Game's task this fall are proposals to limit numbers of large animal predators, wolves and bears, to support large game management. Proposal 62 is unusual in that it limits the management of an invasive predator on an ecosystem. Feral cats have a large detrimental impact on wild birds and small mammals. Supporting studies show that feral cats cause more mortality than free-ranging house cats and cause significantly more wildlife death than previously thought. These feral cat colonies are "likely the single greatest source of anthropogenic mortality for US birds and mammals." (Loss, Scott R. and Tom Will and Peter P. Marra. The impact of free ranging domestic cats on wildlife of the United States. Nature Communications, 1396 (2013), doi:10.1038/ncomms2380)

This proposal has good intentions to try to limit cat populations, however, the effectiveness of TNR has not shown largely effective. It is impossible to treat, monitor and account for feral cats within communities because it's a dynamic open system in which no TNR program can effectively treat. No one organization can claim to be able to effectively manage feral cat populations.

The Board of Game should not limit the management of feral cat populations to TNR only. The State of Alaska should not give up its authority to use other forms of control to limit feral cat populations to effectively control the degradation of an ecosystem.

Sincerely,

Anissa Berry
PO Box 1222
Haines, AK 99827

Submitted By
Anissa Berry
Submitted On
10/24/2017 8:51:17 AM
Affiliation

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backlagoon@aol.com
Address
PO Box 1222
Haines, Alaska 99827

Dear Board of Game,

I am in support of Proposal 63.

I have already submitted comments in opposition to Proposal 62.

The research concludes that TNR programs do not effectively eradicate feral cat populations. Feral cats are invasive species which heavily predate on birds and small mammals. Their impact to native fauna has serious implications with the decline of migratory songbird populations. Not only do they heavily predate on wildlife, they can host disease, transmissable to humans.

The TNR programs cannot effectively manage wild cat populations. The only way to eradicate them is via extermination via lethal means. The research included in the Proposal supports this claim.

Thank you,

Anissa Berry

Submitted By
Tim Bleicher
Submitted On
10/26/2017 7:29:45 PM
Affiliation
None

Against 62 and for 63. NO FERAL CATS. Feral cats are a public health risk. They will kill Alaska small mammals and songbirds including those that are rare or threatened already . They will displace Alaska natural animals such as ermine, fox and lynx. Just look at the mess worldwide with invasive animals. Not here in Alaska. NO FERAL CATS.

Submitted By
Mary
Submitted On
10/27/2017 7:41:17 AM
Affiliation

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Po box 220103
Anchorage, Alaska 99522

Proposals 63/62

I do not agree w turning feral cats loose. They are a huge detriment to songbirds and other small animals. And this would reduce the levels of birds even more than w just people who let their cats out of doors. This is not well thought through at all

Submitted By
Scott Christy
Submitted On
10/25/2017 6:55:09 PM
Affiliation
none

Phone
907 248-3363
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Scott512@gci.net
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P.O. Box 240552
Anchorage, Alaska 99524

I favor proposal 63. All cat kill epic numbers of song birds. They also carry very serious dieases humans can aquire from cat droppings.

Cats are a very invasive species and we do not need them lose to destroy our wildlife.

Thank you,

Submitted By
Karen Coady
Submitted On
10/26/2017 8:30:17 PM
Affiliation

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Address
6521 Bridget Circle
Anchorage, Alaska 99502

I have volunteered to help wild birds for over 18 years and during that time have seen too many baby and adult songbirds die in my hands due to injuries from cats. Even a small scratch is a death sentence for songbirds. Many of those migrate thousands of miles to breed and raise their young in the perceived safety of Alaska. Allowing feral cats to remain in the wild without restriction will further decimate populations already struggling with survival issues due to human development and natural dangers. Cats are an invasive species and should not be allowed to roam freely. Irresponsible pet ownership shouldn't be rewarded or supported on any level. Further, they can spread diseases which affect many other species of wildlife. Those who propose allwoing feral cats to form a community should come and hold a small bird that has tried so hard to live but was victimized by a cat and dies slowly.

Submitted By
Anthony DeGange
Submitted On
10/27/2017 1:45:00 PM
Affiliation

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Address
PO Box 671264
Chugiak, Alaska 99567

I am writing to voice my opposition to Proposal 62 that would allow the release of neutered cats into the wild. Trap, Neuter and Release programs for domestic cats, feral or otherwise, are misguided and have no place in Alaska. Domestic cats are effective predators and are important sources of mortality for small birds and mammals. They also have the potential to vector disease as noted in Proposal 63. I suggest you vote in the affirmative for Proposal 63. The only place for domestic cats are in the home, inside. Please do the right thing on this one. Thanks

Anthony DeGange

Submitted By
Dave Dorsey
Submitted On
10/26/2017 3:26:30 PM
Affiliation
Alaskan

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Address
1161 E Dan Street
Wasilla, Alaska 99654

I am in support a proposal number 63 and against number 62. Feral cats are invasive species that are a danger to the natural wildlife in Alaska. Feral cats are the main cause of death for songbirds. Catch neutering and re-releasing back to the wild this invasive species he will continue to devastate The song bird population specifically in the urban areas. I care not of the commercial businesses in favor of proposition 62 for they are supporting that proposal for their own gain. Proposition 63 will continue to support the wildlife in Alaska as it should be.

Submitted By
Louis J Dupree
Submitted On
10/25/2017 9:52:20 AM
Affiliation

I'm totally against releasing cats into the wild. They kill millions of song birds every year along with thousands of small animals.

Submitted By
MaryAnn Dyke
Submitted On
10/25/2017 3:29:22 PM
Affiliation

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Address
POB 408
Clam Gulch , Alaska 99568

Feral cats have been disastrous to small mammal and bird populations around the world. Cats have contributed to the extinction of 33 species of birds worldwide. To protect the wildlife, I am in favor of proposal #63 and against proposal #62.

Dear Board of Fish and Game, October 25, 2017 Homer, Alaska

I am opposed to Proposal 62 that seeks to allow the release of feral cats into the wild, which is now illegal., and to have them considered community cats.

Roaming feral cats would be the demise of many songbirds. %

I support Proposal 63 that emphasizes that feral cats would be a considerable health risk. %

Please be kind to all animals and don't allow the release of feral cats. Please don't support Proposal 62. %

Thank you, %

Wendy Erd %

Submitted By
Joan
Submitted On
10/25/2017 12:15:30 PM
Affiliation

Phone
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dkrajdp@aol.com
Address
2765 Golden Plover Court
Homer, Alaska 99603

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Hello,
Please do not allow the release of domesticated cats into our wilderness. Feral cats prey on indigenous species, especially birds. Many cat owners brag about the successful hunts of their house/outdoor cats, and this already creates problems.
Humans have created the problem of surplus domesticated cats, and we should not force other species to bear the ravages of our actions.
Joan Frederick
Homer, AK

October 26, 2017

To the Board of Game - Regarding Proposals 62 & 63

AGAINST Proposal 62:

It is widely acknowledged in scientific, ornithology and conservation circles, that both domestic and feral cats are the largest predator of song birds **world wide**.
Cats have contributed to the extinction of 33 species and continue to adversely impact a wide variety of other species, including those at risk of extinction.

This from Migratory Bird Center, Smithsonian Conservation Biology Institute:

“We estimate that free-ranging domestic cats kill 1.4-3.7 billion birds and 6.9-20.7 billion mammals annually. Un-owned cats, as opposed to owned pets, cause the majority of this mortality. Our findings suggest that free-ranging cats cause substantially greater wildlife mortality than previously thought and are likely the single greatest source of anthropogenic mortality for US birds and mammals.”

Cats do not just hunt adult birds; many birds are ground nesters, and the eggs and chicks are exceptionally vulnerable to predation. Plus, all birds are vulnerable when they first fledge from their nests.

Being ***non-native*** animals, these are invasive animals in the wild. Many municipalities in Canada already have bylaws that obligate residents to keep their pets indoors.

If anything, there is a good case for obliging all cat-owners to keep their pets inside at all times.

FOR Proposal 63:

For all the reasons stated above, coupled with the significant health hazards presented by cats, domestic and feral, I am favor of Proposal 63.

Thank you for your time.

Charles Graham,
Fritz Creek, AK 99603

Submitted By
Matthew Hardwig
Submitted On
10/25/2017 1:27:36 PM
Affiliation

My name is Matthew Hardwig and I am writing this comment in opposition of PROPOSAL 62 – 5 AAC 92.029. Permit for possessing live game. This proposal will allow the release of sterilized, feral cats into the wild.

I have seen the direct harm loose/feral cats cause the enviroment. From the destruction of property to the effect they have on the wildlife. One example was a lady that was allowing numerous cats to run loose (and breed), while I was working as a Village Public Saftey Officer, in Pilot Point. The amount of song birds that were killed was beyond my imagine. Once I addressed the problem with the person, the song birds started to return. If you've ever gardened and found a "present" in your carrots.

There is no benefit to a community or the state, to allow a new species, such as a domestic cat, to take root in Alaska.

Submitted By
Matthew Hardwig
Submitted On
10/25/2017 2:22:26 PM
Affiliation

My name is Matthew Hardwig and I am in FULL support of PROPOSAL 63– 5 AAC 92.029. Permit for possessing live game. Prohibit the release of feral or stray domesticated cats into the wild.

Alaska can not support the introduction of this species, in its ecosystem. Allowing feral/stray/domestic cats into the wild has no benefit to individual communities or the state of Alaska.

Submitted By
Nancy Hillstrand
Submitted On
10/25/2017 9:09:50 PM
Affiliation

Phone
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Address
P.O. Box 674
Homer, Alaska 99603

Greetings,

OPPOSE Proposal 62 All cats, including sterilized feral cats must remain on the list of species " that may not be released into the wild". Cats unfortunately have become a human induced invasive species killing billions of wild birds and mammals each year. Alaska is a critical nesting habitat for a diversity of migratory birds and the resident birds have enough to contend with during harsh winters. Many of these migratory species are having conservation concerns and are in declines. Our diverse wildlife must not be subjected to a human introduced invasive predator, especially cats/Felis catus a known very very destructive predator.

SUPPORT Proposal 63

Supporting 63 supports our diversity of birds and wildlife from a human introduced predator.

Thank-you kindly

Submitted By
Suzan Huber
Submitted On
10/25/2017 2:04:32 PM
Affiliation

Please reject Proposals #62 and 63, Feral cats should not be released into the wild. Feral cats and

TNR programs are disastrous small mammal and bird populations. Cats are non-native animals and introducing them to the wild in Alaska is irresponsible. Alaska has had to deal with invasive predators that were introducted by man, you would think we had learned something from that.

I would favor passing laws making it illegal to allow any cats to roam freely outdoors.

Thank you,

Susan Huber

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October 7, 2017

Alaska Board of Game
Alaska Department of Fish and Game
P.O. Box 115526
Juneau AK 99811-5526

Re: Feral cats, a menace to Alaska
Meeting of November 10 - 17, 2017
Proposals 62 and 63

Dear Board Members,

Proposal 62 suggests that cats be allowed to be turned loose in the State of Alaska to establish feral cat colonies. This is a truly terrible idea.

Cats, particularly feral cats, are disease and parasite ridden, with diseases and parasites that are dangerous to human beings. They pass these parasites through their feces, making them particularly dangerous to children who play outdoors in locations where cats deposit their feces. This issue is addressed in detail in the published comment to Proposal 63, with which I totally agree. In addition, we need to recall that some years ago our beloved polar bears at the Alaska Zoo in Anchorage were killed by disease after catching and eating a cat or cats that had found their way into the polar bear cage.

In addition, cats decimate bird populations. Native birds are much more desirable to have in Alaska than disease-ridden useless felines, which are not a native species to Alaska in any event. Mice, shrews and voles, which are also destroyed by feral cats, should be allowed to proliferate to provide food for our native species, such as foxes and owls.

Please reject the idea of making the cat problem in Alaska worse. People should not be allowed to turn their house cats loose whenever they want to do so. It would also seem to be cruel to expect a cat that has spent its entire life eating Fancy Feast from crystal dishes to have to fend for itself. Cats should be kept confined in the houses of their owners.

In my own neighborhood, we have two scofflaw cat owners who let their cats run loose. These cats kill native birds whenever they can get them, for no purpose other than to kill the birds.

The most useful thing to do would be for the Board to authorize the hunting and trapping of cats, utilizing any and all methods and means, including poison, and having unlimited open seasons and no bag limits. A reasonable bounty should be paid, if the State can afford it. The goal should be extermination of feral cats and their colonies. Feral cats are vermin, with no redeeming value whatsoever.

Don't make the problem worse. Reject Proposal 62 and adopt proposal 63. Thank you.

Sincerely,

Ken Jacobus

Submitted By
Barbara Johnson
Submitted On
10/26/2017 1:15:25 PM
Affiliation
None

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Chugiak, Alaska 99567

To whom it may concern,

I am horrified that the Board of Game would consider proposal #62 given all of the research showing how destructive feral cats are to birds. I cannot understand why this proposal could ever be even considered by a board designed to care for native wildlife. We already have so many impacts to birds from habitat loss and other impacts, why would introducing a known predator that is not a natural part of the ecosystem be discussed? I am strongly opposed to this proposal and hope it is voted down. I hope on the other hand, that proposal # 63 be unanimously supported. Feral cats are already a huge problem in this state and we do not need to make it a bigger problem.

Thank you for considering my comments and the welfare of Alaska's native wildlife.

Submitted By
Amy Kilshaw
Submitted On
10/26/2017 1:23:49 PM
Affiliation

Ludicrous to even consider releasing invasive species into the wild.

Cats are the most harmful invasive species. Cats are recognized as the top source of direct, human-associated mortality to birds in the United States. Each year, cats kill approximately 2.4 billion birds.

Yes to 63

No to 62

Submitted By
Eric Knudtson
Submitted On
10/25/2017 8:15:19 AM
Affiliation
Mr.

Phone
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Address
PO Box 3528
Homer, Alaska 99603

I strongly oppose proposal #62 and support for #63 because of the impacts that feral cats have on wildlife. Cats are the primary cause of mortality in songbirds.

Submitted By
Christine Maack
Submitted On
10/26/2017 11:37:45 AM
Affiliation
Bird Treatment & Learning Center

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cmaack@gci.net
Address
3522 Alexander Ave
Anchorage, Alaska 99508

I wish to speak out in opposition to Proposal #62 and in favor Proposal #63 regarding feral cats. Having volunteered for 27 years at the Bird Treatment & Learning Center, I have seen the damage inflicted on songbirds by cats, both feral and domestic. Rescuers often bring us birds that appear to have hardly a mark on them, but were rescued from a cat. Despite different antibiotic treatments tried over the years, they die. The bacteria in a cat's mouth is the kiss of death for any bird that comes in contact with it, usually taking 3-4 days to do the job.

Birds are wildlife, and it is up to the Board of Game to guard against avoidable courses of action that will harm them. The cat issue is notorious nationwide, since it is estimated that just free ranging domestic cats bring about the death of over a billion (with a B) songbirds a year in North America. No one knows how many more fall prey to feral cats which must hunt to live. The steep decline in songbird populations should tell us that they need all the help they can get.

Christopher Mannix
Box 401
Talkeetna, Alaska 99676
cmannix@mtaonline.net

October 25, 2017

To: Alaska Board of Game

RE.: Proposal #62- Allow the release of sterilized, feral cats into the wild.; Proposal#63- Prohibit the release of feral or stray domesticated cats into the wild.

Members of the Board of Game,

Thank you for the opportunity to comment on these proposals. I will keep it short. I am totally opposed to Proposal #62 which would allow for the release of feral cats into the wild. Feral cats pose an extremely high threat to wildlife populations through both predation and as vectors of disease. To allow for their release into the wild, despite the good intentions of the Proposal's authors, is to invite disaster. No on Proposal #62.

I support Proposal #63 which would prohibit the release of feral or stray domesticated cats into the wild. The State of Alaska does not need to encourage predation of wildlife populations, both game and non-game, by enabling the release of these animals into the wild. Nor does the State need to aid and abet the spread of disease into the wild or into humans. Prohibit Trap, Nueter, Release.

Sincerely,
Christopher Mannix

MUNICIPALITY OF ANCHORAGE

Planning Department
Long-Range Planning Division

(907) 343-7921

Mayor Ethan Berkowitz

October 11, 2017

Ms. Kristy Tibbles, Executive Director
Alaska Board of Game
SOA Department of Fish and Game
P.O. Box 115526
Juneau, AK 99811-5526

Dear Ms. Tibbles:

As staff to the Municipality of Anchorage's Watershed & Natural Resources Advisory Commission, I offer the enclosed resolution that addresses two proposals before the Alaska Board of Game concerning feral cats.

The Anchorage Watershed & Natural Resources Advisory Commission deliberated at five meetings between April and September on the proposal that is before the Alaska Board of Game. The Commission adopted Resolution No. 2017-01 on September 13, 2017.

Please add the enclosed resolution to the record of public input for these feral cat proposals.

Thank you.

Sincerely,

Thede Tobish
Senior Planner

Enclosure: WNRC Resolution No. 2017-01

MUNICIPALITY OF ANCHORAGE
WATERSHED & NATURAL RESOURCES ADVISORY COMMISSION
RESOLUTION NO. 2017-01

A RESOLUTION RECOMMENDING AGAINST A PROPOSAL TO ALLOW THE RELEASE OF STERILIZED FERAL CATS INTO THE WILD.

(WNRC Case No. 2017-02)

WHEREAS, the State of Alaska is considering a proposal submitted by Mojo's Hope and Alaska's KAAATs, both Anchorage-based cat advocacy organizations, to allow individuals to release sterilized feral cats into the wild, so that they may establish and maintain outdoor feral cat colonies; and

WHEREAS, based on American Veterinary Medical Association and Humane Society of the United States estimates, there are a projected 103,000 cats already inhabiting the Municipality of Anchorage, including about 30,000 feral cats; and

WHEREAS, cats can exist in densities many times higher than native predators, and are believed to be more abundant than any native predator because they are fed by humans; and

WHEREAS, even well-fed cats hunt and kill wild animals; and

WHEREAS, Anchorage's cats may kill at least 1,148,000 birds and 5,975,000 mammals annually, based on conservative national estimates in a peer-reviewed journal (Loss, Scott R., Tom Will, and Peter P. Mara. 2013. The impact of free-ranging domestic cats on wildlife in the United States. Nature Communications 4. http://www.nature.com/articles/ncomms2380); and

WHEREAS, cats are considered one of the world's 100 worst invasive species by the Invasive Species Specialist Group of the International Union for the Conservation of Nature; and

WHEREAS, cats are the primary source of all *Toxoplasma gundi* oocysts in soil, water, and human foods, and cats are the leading cause of rabies infections in humans from domestic animals; and

WHEREAS, trap-neuter-return (TNR) programs for feral cats, such as those advocated by Mojo's Hope, have been established in hundreds of other communities; and

WHEREAS, no TNR program has ever successfully eradicated feral cats from a large area like the Municipality because 71% to 94% of the cats must be sterilized to reduce population growth; and

WHEREAS, in fact, cities like Chicago that have hundreds of designated feral cat colonies appear to have more cats, and rats, now than ever before; and

WHEREAS, outdoor cat-feeding stations, which are prohibited by state law, attract other invasive species—house mice, rats, and pigeons—as well as wildlife such as foxes, coyotes, and bears; and

WHEREAS, the presence of maintained cat colonies encourages release of cats into the wild because the owners believe the abandoned cats will be cared for.

NOW, THEREFORE, BE IT RESOLVED that the Anchorage Watershed & Natural Resources Advisory Commission:

A. Opposes the proposal before the State of Alaska Board of Game (#62) to allow the release of feral cats into the wild; and

B. Opposes any efforts to establish a Track, Neuter, Release program in the Municipality of Anchorage.

PASSED AND APPROVED by the Anchorage Watershed & Natural Resources Advisory Commission on this 13th day of September, 2017.

Hal H. Hart
Secretary

Tamás Deák
Chair

WNRC Case No. 2017-02

Submitted By
Megan O'Neill
Submitted On
10/25/2017 11:05:48 AM
Affiliation

I urge the Board of Game to vote against proposal 62 and vote for proposal 63. feral cats are a danger to Alaska's wildlife, birds and human populations. There are over 70 million feral cats worldwide. One study estimates feral cats kill up to 24 billion wild animals and birds every year. The greatest toll is on small birds. Furthermore the Center for Disease Control and Prevention warns feral cats can lead to an increase in rabies transmisions to humans. Feral cats also transmit other diseases to humans including typhus (cases in CA), bubonic plague (case in OR) and toxoplasmosis.

For the safety of all Alaskans, our wildlife and bird populations, vote NO on proposal 62 and YES on proposal 63.

Submitted By
Jill Parson
Submitted On
10/26/2017 4:20:28 PM
Affiliation

Phone
907-892-4404
Email
jparson@mtaonline.net
Address
PO Box 521315
Big Lake, Alaska 99652

I adamantly oppose proposal 62, for reasons including that feral cats kill many birds and are proven carriers of disease. I know you have other documentation about these concerns. But I wish to add my personal concerns:

I'm a cat person. I have had cats for pets for many years. A few years ago an unfamiliar cat came up to me in my yard and started rubbing my ankles and acted very friendly. I reached down to pet the cat and it clamped onto my hand such that I had to pry its mouth open with my other hand to get free. It ran off, my hand swelled, and I ended up in the emergency room having antibiotics via IV every 8 hours for 24 hours, then antibiotic pills for an additional week. The doctor said that cat bites are almost always infectious, needing immediate antibiotics to prevent serious illness, even life-threatening infections. The doctor and I also discussed rabies shots but at that time the MatSu Valley had not had any incidence of rabies, confirmed by a couple calls I made, so I did not have the shots. I'm not sure that is still the case in the Valley now and I know rabies is an issue elsewhere in the state.

In short, the cat was a stray sleeping under my neighbor's shed. My experience was likely not unusual, and I've heard of a number of other friends' experiences with stray cats that reinforce my concerns about strays, not just feral cats but also cats that have escaped from their owners.

To me, releasing cats intentionally into the wild is irresponsible, potentially injurious to others, and inhumane for the cat. Let me expand on why this is inhumane.

Once trapped and released, capturing that cat again is unlikely, if necessary. Thus, if the cat is injured from a cat or dog fight, how will it get proper medical care? Even if you can catch the cat, who will pay its medical bills? How often do you see a pile of flat fur in the road? Did the cat die immediately when hit by a car or did it take several cars, and time, to finally die? Have you had a cat disappear in the talons of an eagle or owl, possibly to be ripped apart still alive to be fed to its nestlings? Have you ever seen a cat with frost bitten ears and toes? When injuries or age prevents it from getting food, how humane is it to slowly starve to death? Have you ever had a cat in your neighborhood shot or poisoned because someone just got tired of its destructive presence on their property?

Cats are meant to be pets with regular food, veterinarian care, and a warm lap to curl up on. If a cat is antisocial or some other reason prevents it from having a safe, healthy home, then the kindest step is to euthanize the cat, not simply neuter it and let it fend for itself. Proposal 62 just does not make sense. Please vote NO on this proposal.

Thank you for your consideration. Jill Parson

October 26, 2017

Ted Spraker, Chair
Members of the Alaska Board of Game

Via e-mail: dfg.bog.comments@alaska.gov

Dear Mr. Spraker and Members of the Alaska Board of Game,

We hope you're well. PETA is the world's largest animal rights organization, with more than 6.5 million members and supporters worldwide, including nearly 14,000 Alaska residents. We hereby submit the following comments **opposing Proposal 62-5 AAC 92.029. Permit for Possessing Live Game**, which would allow for the abandonment of domestic cats in trap-neuter-return (TNR) programs, and **supporting Proposal 63-5 AAC 92.029. Permit for Possessing Live Game**, which would prohibit this practice.

PETA is an animal-protection organization, so our opposition to TNR arises from animal-welfare concerns. Public officials should be concerned about the practice for a number of reasons, in addition to those related to animal welfare—e.g., the spread of rabies and other zoonotic diseases, the impact on wildlife populations, and more. According to the **National Association of State Public Health Veterinarians (NASPHV)**, "[N]o evidence exists that maintained cat colonies adequately reduce human public health risks or appropriately address their impact on pets or native wildlife. Several reports suggest that support of 'managed cat colonies' may increase the public's likelihood of abandoning unwanted pets in lieu of more responsible options."[1] In its "Compendium of Animal Rabies Prevention and Control, 2016," the NASPHV states that "[s]tray dogs, cats, and ferrets should be removed from the community, and mechanisms should be put in place to facilitate voluntary surrender of animals to prevent abandonment."[2]

The Centers for Disease Control and Prevention reports that cats are the main domestic animal linked to human exposure to rabies.[3] Recently, a cat who'd been sterilized, **vaccinated**, and abandoned as part of a TNR program in Florida bit a resident who was trying to help the suffering animal. **The cat tested positive for rabies**, and the resident required post-exposure treatment for the fatal virus.[4]

PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALS

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- PETA Australia
- PETA Germany
- PETA Netherlands
- PETA Foundation (U.K.)

[1]National Association of State Public Health Veterinarians, "Free-Roaming/Unowned/Feral Cats," Position Statement, Sept. 1996 <http://www.tnrrealitycheck.com/media/NASPHV.pdf>.
[2]National Association of State Public Health Veterinarians, "Compendium of Animal Rabies Prevention and Control, 2016," *JAVMA*, 248.5 (2016): 505–17 <http://www.nasphv.org/Documents/NASPHVRabiesCompendium.pdf>.
[3]A.D. Roebling *et al*., "Rabies Prevention and Management of Cats in the Context of Trap–Neuter–Vaccinate–Release Programmes," *Zoonoses and Public Health* 61.4 (2014): 290–96 <http://www.coloradonativebird.org/uploads/3/3/7/5/3375180/catsrabiestnvr-article.pdf>.
[4]Steve Andrews, "Target 8: Trapped, Neutered, Vaccinated and Released Rabid Cat Bites Victim in Hillsborough County," 7 June 2017, WFLA.com <http://wfla.com/2017/06/07/target-8-trapped-neutered-vaccinated-and-released-rabid-cat-bites-victim-in-hillsborough-county/>.

Feces deposited by cats in children's sandboxes, along creeks and streams, in gardens and parks, and in other areas carry parasites that are dangerous to humans, their animal companions and livestock, and native wildlife. Common diseases that are more rampant in the excrement of cats allowed to roam than in that of cats kept indoors include toxoplasmosis, hookworms, and roundworms. Outdoor cat colonies have also led to flea infestations, spreading typhus[5] and even the plague.[6] And feeding stations set up for cats attract wildlife—including coyotes, skunks, raccoons, and bears—which increases the risk of disease and parasite transmission among these animals and to human residents and companion animals.

Cats who are abandoned on the streets face daily battles against parasites, deadly contagious diseases, extreme temperatures, speeding cars, predators, and more—battles that they'll inevitably lose. The average life expectancy of an outdoor cat is just 2 to 5 years, compared to 12 to 15 years for a cat who lives indoors. We receive countless reports of incidents in which cats—"managed" or not—have suffered and died horribly because they were forced to fend for themselves outdoors. PETA's caseworkers routinely handle cruelty cases involving "outdoor cats" who have been poisoned, shot, mutilated, tortured, set on fire, skinned alive, or killed or injured in other cruel ways, often by property owners or neighbors who just didn't want them there, **regardless of their reproductive or vaccination status**.

It's cruel even to propose trapping, neutering, and re-abandoning cats on the streets and natural areas of Alaska, where winter temperatures can fall below minus-50 degrees. Every winter, we receive reports about cats suffering in the cold, including those who lose ears, tails, and feet to frostbite. Others are found frozen to the ground or with their eyes frozen open, are slashed to ribbons when they crawl into car engines seeking warmth, or endure other such horrors. Last year, a cat who had escaped from her home in Anchorage was found 18 hours later frozen to a sidewalk. She was unresponsive, severely hypothermic, and covered with her own feces and urine, and her tail (which may have required amputation) was frozen nearly solid.

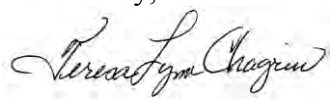
It's also of serious concern that roaming cats terrorize and kill countless birds and other wildlife who aren't equipped to deal with such predators. A 2013 *New York Times* article reports that feral cats account for the majority of human-caused wildlife deaths in the U.S., an astounding "2.4 billion birds and 12.3 billion mammals a year, most of them native mammals."[7] The American Bird Conservancy reports that "cat predation is one of the reasons why one in three American bird species are in decline."[8] We agree with the Alaska Department of Fish and Game that **cats should be kept indoors**: "The average number of small animals each cat kills annually has been variously estimated at between a dozen, to as many as 1,000. Multiply this by the number of households and farms with such cats, and you see the magnitude of the concern for wildlife

[5]Ron Gonzales, "Santa Ana Announces Flea-Borne Typhus Alert," *The Orange County Register*, 25 May 2012 <http://www.ocregister.com/articles/santa-356066-control-typhus.html>.
[6]The Associated Press, "Stray Cat Found Near Albuquerque Died of Plague," 10 Apr. 2017, LCSun-News.com <http://www.lcsun-news.com/story/news/local/new-mexico/2017/04/10/stray-cat-found-near-albuquerque-died-plague/100311036/>.
[7]Natalie Angier, "That Cuddly Kitty Is Deadlier Than You Think," *The New York Times*, 29 Jan. 2013 <http://www.nytimes.com/2013/01/30/science/that-cuddly-kitty-of-yours-is-a-killer.html?_r=4&>.
[8]Elizabeth Weise, "House Cats Kill More Critters Than Thought," *USA Today*, 7 Aug. 2012 <http://usatoday30.usatoday.com/news/nation/story/2012-08-06/house-cats-kill/56831262/1>.

conservation. …The single most effective action a cat owner can take to help protect wildlife is to keep their cat indoors."[9]

Please let me know if PETA can provide additional information or assistance. Meanwhile, thank you for your consideration and all your hard work for the citizens of Alaska.

Yours truly,



Teresa Chagrin
Animal Care and Control Specialist
Cruelty Investigations Department

Attachment
PETA Flier: "Homeless Cats Are Not Super-Felines"

[9]Alaska Department of Fish and Game, "Pets and Livestock: Wildlife Interactions," ADFG.Alaska.gov <http://www.adfg.alaska.gov/index.cfm?adfg=pets.interactions>.

HOMELESS CATS ARE NOT SUPER-FELINES

Cats who have been abandoned to fend for themselves are biologically identical to the cats who share our homes, and they deserve—and require—the same care.

Trap-neuter-release (TNR) involves sterilizing and then abandoning homeless cats instead of sheltering them. Rather than reducing homeless cat populations, TNR actually causes populations to increase. More people are likely to abandon cats if they think the cats will be "cared for," and food set out for "managed" colonies makes untrapped cats better able to reproduce. Additionally, it attracts more cats (as well as wildlife, including foxes, raccoons, and rats).

TNR also fails to protect cats from the many dangers they face on the streets, including extreme temperatures, deadly diseases, parasites, speeding cars, and attacks by dogs, wildlife, and cruel people.

PETA PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALS

DFG,

I have a comment on Proposals 61 and 63. I have lived for 22 years on the Beluga Lake Critical Habitat area in Homer, on the north side of the lake. I have a boardwalk from the driveway, gravel pad around the house, deck on the south side, and a narrow boardwalk to the south. So I can see cats using this handy facility and watch them hunt and catch small mammals and birds successfully. Of the many colors of cats, I have seen one with a collar. I use binoculars and have often clapped and yelled to scare them away.

I believe free-roaming cats take a toll on the food chain, taking prey from raptors and coyotes, and threatening the abundance of song birds.

I support Proposal 63 and hope it becomes a law. Public education is needed to make it successful. I believe that most cat owners are unaware of the issues and of the law. Perhaps notices in the newspapers.

Thank you,

Alice Porter
1318 Iris Court

Submitted By
David & Sandra Porter
Submitted On
10/25/2017 4:31:03 PM
Affiliation

Sirs: We are strongly opposed to Proposal #62 and very much in favor of Proposal #63.

Peer-reviewed studies published in accredited scientific journals show that loose cats (feral and owned) are the single largest mortaility factor for songbirds in North America, north of Mexico. Best estimates are that between 1.5 - 3.2 BILLION birds a year are killed. Loose cats are an exotic that should be eiiminated, not fostered. Trap-Neuter-Release do not work and are just a balm for those who support it.

Do the right thing for wildlife in Alaska and adopt Proposal #63. Thanks.

I object to proposals #62 and 63, and urge the Board to reject them. Releasing feral cats into the Alaskan environment is a ridiculous and cruel idea. Cruel because of our weather conditions, and ridiculous for a number of reasons.

Cats are predatory and kill small mammals and birds. Last summer I watched as my neighbor's cat, a fat, well-fed pet, raided a squirrel nest, killing one of the three babies. The cat did not eat it, nor did it go after the other two. It was entirely a sporting thing. A feral cat would have killed and eaten them. At that time I asked my neighbor to put a collar and bell on the cat, explaining that there would be nesting birds in the neighborhood and the cat would be stalking them. I even provided the collar. Two weeks later the cat was back, without a collar, with a sparrow in its mouth. Quite a few of our birds next on the ground and cats are their number one predator. I cannot even imagine why it makes sense to promote releasing wild cats. You would be releasing an INVASIVE animal into our environment. Cats carry diseases. I already have to cover my grandchildren's sandbox to keep domestic cats out of it, I will not put up with feral cats.

It should be illegal for domestic cats to roam freely as well, but entertaining the idea of releasing feral cats makes my blood boil. By the way, after watching my neighbor's cat stalking and killing another bird last summer, it seems to have disappeared. If you do pass these proposals I hope the punishment for destroying said cats is not too harsh, there are plenty of people who would find great sport in getting rid of 'community' cats.

Thank you for your time and service,

Tamara Reiser

Submitted By
Tamara Reiser
Submitted On
10/25/2017 2:07:58 PM
Affiliation

In regard to the proposals about releasing feral cats and allowing them to become 'community cats' - NO! Please reject these proposals. Cats kill small mammals and birds. They carry diseases and poop everywhere. We do not need community cats. Feral cats should be humanely disposed of.

Thank you,

Tami Reiser

Dear Board of Game members,

I am concerned about the release of feral cats (Felis catus) into the environment. I cannot think of a more devastating thing to do for our native as well as migratory songbirds that come from all over the world to nest in Alaska. Many of these birds are ground nesters and cats are top-of-the-line predators on small creatures. Cats are well-documented predators of birds and small animals, having contributed to the extinction of at least 33 species of birds. Birds in particular are a group of animals that are under duress in the environment and adding feral cats to the mix just causes more stress on the populations.

When you are tasked with protecting the many animals of Alaska, to add a creature that is not indigenous to the environment makes no sense. Alaska cannot and should not release non-native animals into the wild. If anything, it should become illegal to allow ANY cats (Felis catus) to roam freely in our natural environment.

Thank you for your service to the State of Alaska.

Francie Roberts

Homer, Alaska

Submitted By
Charlotte Sartor
Submitted On
10/25/2017 6:36:03 PM
Affiliation

Phone
907-355-4578
Email
Cbsartor@gmail.com
Address
5900 S. Our Rd
Palmer, Alaska 99645

I support proposal 63 & stringlu oppose proposal 62. Cats are the leading killer of birds in the US. Releasing feral cats into the wild increases the danger to wild birds

October 22, 2017

Attn: Board of Game Comments
Alaska Department of Fish and Game
Board Support Section
P.O. Box 115526
Juneau, Alaska 99811-5526

Board of Game members:

These are my recommendations for two proposals to be considered at the November 2017 Board of Game meeting in Anchorage: Proposals 62 and 63.

My comments are guided and supported by The Wildlife Society's (2011) position statement on feral and free-ranging domestic cats, particularly the following two policies:

- "Support the passage and enforcement of local and state ordinances prohibiting the feeding of feral cats, especially on public lands, and the release of unwanted pet or feral cats into the wild."

- "Oppose the passage of any local or state ordinances that legalize the maintenance of "managed" (trap/neuter/release) free-ranging cat colonies."

Proposal 62 – Oppose. This proposal would allow the release of sterilized feral cats into the wild by excepting them from 5 AAC 92.029 "Permit for Possessing Live Game."

Proposal 62 is focused on humane treatment of domestic cats illegally released into the wild. The proponent wants to legalize this practice to establish and maintain colonies of feral cats outdoors. Nowhere does the proponent acknowledge the environmental impacts of feral and free-ranging cats on Alaska's wildlife.

The "case studies" and scientific papers cited in Proposal 62 (including its appendix) do not support the multiple assertions that trap-neuter-return (TNR) programs are effective at reducing feral cat populations. More to the point, feral cats are considered one of the world's 100 worst invasive species by the Invasive Species Specialist Group of the International Union for Conservation of Nature (IUCN); feeding, vaccinating and releasing cats into the wild will only exacerbate an already serious environmental and human health problem by increasing numbers and longevity of feral cats; and food left outdoors at feral cat colonies will attract moose, wild predators like coyotes and foxes, and deleterious exotic wildlife like mice and pigeons, which is prohibited by state law.

I will address some of Proposal 62's mischaracterizations below.

- *Trap-Neuter-Return (TNR)*

TNR programs live-trap feral and free-ranging cats, which are then spayed or neutered and vaccinated. Any cats not adopted – and the proposal acknowledges that feral cats are largely "unadoptable" – are returned to the wild.

The proposal claims that "TNR stabilizes or reduces community cat populations by increasing the number of cats who are spayed or neutered and by decreasing the number

of unwanted litters" and "is recognized worldwide as the most effective, sustainable, and humane approach to community cat management." These assertions are false.

None of the "case studies" cited in Proposal 62 conducted an objective, scientific estimate of feral cat numbers before, during or after TNR was implemented. Reducing the number of complaints, or cats brought in to shelters, or cats euthanized is not evidence of a population reduction. Feral cat advocates compile and report cat numbers for these programs, which is a potential source of bias. Contrary to what Proposal 62 claims, TNR has never been shown to work on a scale larger than a single, small, isolated colony.

For instance, the densities of rats in Baltimore alleys prowled by feral cats is "remarkably stable," according to research conducted in 2004 which compared rat and cat population estimates from a half century earlier (Glass et al. 2009). The researchers found that cats did not rely on rats as their primary food source, but scavenged on many of the same food resources as the rats. In other words, the cats were eating garbage.

With an estimated 187,000 feral cats (Mead 2007), Baltimore passed an ordinance legalizing TNR in 2007 (Alley Cat Allies 2017). By 2013 the feral cat population had increased to an estimated 200,000 cats (Bell et al. 2013). In 2016, with 1,100 feral cat colonies established, residents were still complaining about too many cats (Simms 2016).

Chicago, which has some 650 managed feral cat colonies (Danner 2016), was named "the rattiest city in the nation" by Orkin, the pest control company, in 2013 and 2014 (Braff 2016). In 2015, the city allowed a local TNR organization to release 3,500 more feral cats. Subsequently, the estimated rat population climbed from 33,000 in 2014 to an anticipated 50,000 rats in 2016, leading Orkin to name Chicago the rattiest city once again (DeBat 2017).

According to the American Veterinary Medical Association and the Humane Society of the U.S. estimators (AVMA 2017, Levy et al. 2014), Chicago is home to 660,000 pet and at least 270,000 feral cats. So the Windy City has 20 times as many cats as rats. Undoubtedly, these cats do far more harm to the environment than the rats.

European cities like London and Rome that have practiced TNR for five decades have documented no declines in their free-ranging cat populations.

Here's a more typical scenario. In 1996 the Chico Cat Coalition was formed to trap and adopt an estimated 12 feral cats in Bidwell Park, an area of less than six square miles (Urseny 2010). According to Levy and Crawford (2004) "the high visibility of the project encouraged more abandonment, and new cats and kittens are found regularly." By 2012 about 1,000 cats had been removed, with more than 700 adopted (Urseny 2012). People keep abandoning cats in the park because owners believe it is a "cat-friendly place" with lots of birds to eat and places to hide. This was a trap-remove program, not TNR. Nevertheless, it demonstrates the kind of problems that arise when well-meaning volunteers attempt to avoid simply eradicating the feral cats.

The appendix to Proposal 62 cited five scientific articles in support of TNR. Two of the studies cited (Finkler et al. 2011, Neville and Remfry 1984) were not designed to measure population effects of TNR. Instead, the researchers were studying cat aggression.

Hughes and Slater (2002) assessed a TNR program on a Texas campus during a two-year period. The researchers, who did not estimate cat population size before or after the test,

concluded “It cannot be stated definitively that the total number of cats on campus has decreased because the study was not designed to determine this.”

Levy et al. (2003) investigated a TNR program on a Florida campus and found a significant decrease in the number of cats after 11 years. However, the first population estimate didn’t occur until halfway through the study, and of 155 identifiable cats 47% were adopted, 15% had disappeared, 11% were euthanized, and 6% had moved into a nearby wooded area. In other words, at least 74% of the cats removed from the study did not benefit from TNR, and additional stray and abandoned cats continued to turn up. In a subsequent study (Foley et al. 2005) of which Levy was a co-author, the researchers concluded that the TNR program she studied would have had to remove, spay or neuter at least 94% of all cats to reduce population growth, a rate that was never achieved.

Levy et al. (2014) evaluated another TNR program in a Florida county over a two-year period. Feral cat population estimates were based on surveys of residents, which is not an objective metric. In a subsequent modeling exercise (Miller et al. 2014; Levy was once again a co-author) that incorporated immigration from adjacent areas and newly abandoned cats, the researchers concluded that trapping and removing cats would be more effective than TNR at reducing feral cat populations. In their words, “Successful population management under conditions of demographic connectivity would require removing 20% of the population, or sterilizing 30% of the untreated segment of the population, every six months, on a sustained basis.”

Thus, the five scientific articles cited by Proposal 62 do not support the assertion that TNR works. To the contrary, many scientific articles have come to the opposite conclusion. I will cite a few.

Natoli et al. (2006), who studied decades of TNR efforts in Rome, Italy, concluded that “all these efforts without an effective education of people to control the reproduction of house cats (as a prevention for abandonment) are a waste of money, time and energy.”

Castillo and Clarke (2003) found that TNR programs in two parks in Miami, Florida, didn’t reduce feral cat populations during a one-year period. The number of original cats decreased due to adoption and mortalities; however, the cat populations in both parks increased due to immigration or illegal abandonment. The authors believed that the existence of TNR programs encouraged local cat owners to abandon their cats.

Anderson et al. (2004) showed control strategies that target survival are more effective at reducing cat populations than those that target fecundity (i.e., TNR). Spaying 75% of reproductive females yielded a lamda of 1.08. Thus, 88% must be spayed to stabilize the population. However, removing 50% of female cats yielded a lambda less than 1.0 while a 75% reduction resulted in a lambda of 0.47, meaning the population could be halved each year, absent immigration or abandonment of new cats.

Schmidt et al. (2009) also modeled feral cat populations, but factored in immigration. Euthanasia was comparable or more effective than TNR or a combination of euthanasia and TNR at reducing population size at all treatment rates (25%, 50%, 75%) and immigration rates (0%, 25%, 50%), except the 25% treatment rate with 50% immigration. Euthanasia resulted in greater total population decreases than did TNR and a combination of euthanasia and TNR; however, the total effort required to reduce each population by 1% was highest for euthanasia.

Lohr et al. (2013) compared TNR with euthanasia over a 30-year period for cat populations on Oahu, Hawaii. Abandonment reduced effectiveness of both methods; however, without abandonment, euthanasia extirpated colonies in at least 75% of the model's simulations within the second year, whereas it took 30 years for TNR. Including a 10% annual increment from abandoned cats, the colony returned to carrying capacity within 6 years and the euthanasia program had to be repeated, whereas TNR never reduced the population to zero within the 30-year time frame. TNR was approximately twice as expensive as euthanasia, weighing the TNR-related costs of food, veterinary care, and microchips (with all other activities done by volunteers) versus euthanasia-related costs of drugs, wages of professional trappers, and trapping equipment.

McCarthy et al. (2013) also employed a population simulation model and found that TNR was always less effective than lethal control. The authors found that "multiple studies have suggested that decreased survival rate is more effective than decreased fecundity at reducing population size."

Loyd and DeVore (2010) compared feral cat management options using a decision analysis network. Their model predicted that "TNR strategies [with kitten adoption] would be the optimal management decision for populations of less than 50 cats while trap-euthanize would be the optimal management decision for populations greater than 50 cats." According to the authors, "removal is predicted to reduce feral cat populations quickly and prevent cats from taking a large number of wildlife prey." They also concluded that "TNR programs alone have never been shown to stabilize a feral cat population in the scientific literature" and "TNR programs increase adverse effects on native wildlife."

Longcore et al. (2009) compared the arguments in support of TNR by many feral cat advocates with the scientific literature. Advocates promoting TNR often claim that feral cats harm wildlife only on islands and not on continents; fill a natural or realized niche; do not contribute to the decline of native species; and are insignificant vectors or reservoirs of disease. Advocates also frequently make claims about the effectiveness of TNR, including claims that colonies of feral cats are eventually eliminated by TNR and that managed colonies resist invasion by other cats. The authors found that scientific literature contradicts each of these claims.

- *"Vacuum effect"*

Proposal 62 places a great deal of emphasis on the "vacuum effect," by which the proposer believes that removing feral cats won't work because "Sooner or later, the empty habitat attracts other members of the species from neighboring areas, who move in to take advantage of the same resources that attracted the first group (like shelter, food, and water)."

Proposal 62 is written from the perspective of a person who wants to maintain a small feral cat colony in an area surrounded by other feral cats. It fails to account for the big picture.

Applying the concept of a vacuum effect to feral cats is problematic. First, feral cats are invasive exotic species – they aren't supposed to be there in the first place. Second, in Alaska feral cat populations are largely confined to limited areas inhabited by humans.

Thus, the habitat in question is not and never was "empty." Even in and near Alaska communities, habitats support, or should support, native predators – like lynx, foxes, and marten – with which cats compete and infect with diseases like rabies and toxoplasmosis.

The vacuum effect requires the presence of a contiguous population adjacent to the treated area. Unlike a native species like lynx, which are widespread in suitable habitat, once a feral cat population is reduced or eradicated in a community in Alaska, immigration from surrounding natural areas is often unlikely.

- *Large numbers of feral cats kill and compete with native species*

Proposal 62 repeatedly fails to acknowledge that cats are an exotic, invasive species that competes with native furbearers and fur animals by killing millions of small birds and mammals. This is the crux of the issue and the reason why cats should never be released into the wild.

Cats have become the most popular pet in North America, with an estimated 84 million in homes. Credible national estimates of feral and other unowned cats range from 30 million to 80 million.

Hundreds of scientific studies have documented numbers of birds and mammals killed by cats. A meta-study conducted by Loss et al. (2013) and summarized by Marra and Santella (2016) combined the best of these studies into an estimate of the total number killed by cats in the Lower 48 states. According to their analysis, cats kill an estimated 1.3 to 4 billion birds and 6.3 to 22.3 billion mammals annually. Most of the species are native to the area, not pests like rats or house mice. Free-ranging cats kill more birds than wind turbines, automobiles, windows, pesticides, poisons and all other human causes combined.

Anchorage residents own more cats than dogs, more than 73,000 pet cats based on an estimate provided by Anchorage Animal Control, which uses the American Veterinary Medical Association pet calculation tool (AVMA 2017).

That figure does not include feral or unowned cats. Two veterinarians who co-authored a scientific paper entitled “Humane Strategies for Controlling Feral Cat Populations”, found it reasonable to estimate a community’s feral cat population at one cat for every two households, or about 50,000 feral cats for a city the size of Anchorage (Levy and Crawford 2004). The Humane Society of the United States and several scientific studies (Levy et al. 2014) estimate a community’s feral cat population at one-tenth the human population, which suggests approximately 30,000 feral cats in Anchorage. I’ll use the lower number.

Thus, Anchorage alone has an estimated 103,000 cats.

I’ve estimated the number of birds and mammals killed by cats in Anchorage based on the national data and formulas used by Loss et al. (2013). **Owned** cats killed an average of 3.4-13.2 birds and 8.7-21.8 mammals, while **unowned** cats killed an average of 30-47.6 birds and 177.3-299.5 mammals annually. **Owned** cats were allowed outside, on average, by 40-70% of households and an estimated 50-80% of these cats hunted while outside. **Unowned** cats were all outside, by definition, and an estimated 80-100% hunted. Using only the lowest figures in each range above, Anchorage cats kill at least 1,148,000 birds and 5,975,000 mammals annually. If that figure seems high, consider this: that’s less than 1 bird per month per cat. I suspect the actual predation rate is higher.

The high levels of predation are primarily due to unnaturally large populations of cats. Feral and free-ranging cats are often subsidized by garbage and other foods provided by humans; therefore, they can survive at much higher densities than native predators. Estimates of feral cat populations in and near large cities are 100 to 1,000 times higher than

estimates of populations of native predators like foxes, marten, lynx, ermine, river otters, and mink in suitable habitat (Turner and Bateson [2000], Feldhamer et al. 2003), and feral cats are also much more numerous than native predators in many rural areas. Crooks and Soule (1999) have observed numbers of hunting, outdoor cats 10-15 times more abundant in California natural areas than wild predators like foxes and coyotes. Obviously, any bird or small mammal consumed by a cat is not available to a native predator.

There is an indirect cause of bird mortality attributable to free-roaming cats. Seeing a cat near its nest decreased parental feeding rates of songbirds, which has been linked to significantly lower nestling survival and increased nest predation during the following 24 hours. Indirect losses generated by fear or avoidance of an overabundant predator have not been factored into cat-caused mortality estimates (Bonnington et al. 2013).

- *Feral cat diseases infect wildlife and humans*

Proposal 62 states “Opponents of TNR argue free-roaming cats are a threat to public health, but there is a lot of misinformation in their claims.” Once again, the misinformation is being propagated by the proposal.

According to Gerhold and Jessup (2013) and the Cornell University College of Veterinary Medicine (2014), people are infected by cat-borne diseases. These include bacterial infections (e.g., cat scratch disease, salmonella), parasites (e.g., fleas, scabies, roundworms, hookworms), fungal infections (e.g., ringworm), protozoal infections (e.g., cryptosporidiosis, giardiasis, toxoplasmosis), and viral infections (e.g., rabies).

Proposal 62 doesn’t consider it significant that cats accounted for 61% of the rabid domestic animals reported in 2014. Feral cats are less likely than domestic cats to be vaccinated for rabies (Gerhold and Jessup 2013). Since 1988 cats have been the leading cause of rabies infections in humans from domestic animals. Feral cat feeding stations attract native species that are infected by rabid cats. Bites and scratches from free-ranging cats result in approximately one-third of rabies post-exposure prophylaxis treatments in humans in the United States, and “cases of rabies exposure owing to free-roaming cats are likely underestimated.”

The proposal also claims “the last documented case of human rabies from exposure to a rabid cat was in 1975.” Gerhold and Jessup (2013) describe a case of rabies in an 8-year-old girl from California who had multiple cat bites from free-roaming cat colonies near her home in 2010.

Proposal 62 also claims that ingestion or contact with raw or undercooked meat is the most common source of toxoplasmosis in humans. This is correct; however, the source of infection in the meat is ultimately due to oocysts shed in cat feces.

It’s important to note that, while there are many intermediate hosts, the only creature in which *Toxoplasma gondii* can reproduce sexually – the definitive host – is a member of the cat family. Cats are largely unaffected by toxoplasmosis; they transmit the parasite to the rest of us.

Toxoplasma oocysts are extremely persistent in the environment and can exist for months or years in soil or water, even in saltwater. Toxoplasmosis infects and kills river otters, sea otters, seals, sea lions, walruses, and beluga whales.

Cats can infect moose and other game animals, and humans may acquire toxoplasmosis from eating undercooked moose meat (Siepierski et al. 1990). In 2011 an Alaskan woman, Lauren Hamm, ate a medium-rare steak from a moose shot by her husband on Joint Base Elmendorf-Richardson when she was 24 months pregnant (Brasch 2013). Her son was born prematurely 8 weeks later with an irregular heart rate, fluid around his organs and lesions on his eyes and brain. The moose was infected with *Toxoplasma gondii* excreted in cat feces.

Up to 22 million Americans are infected with *Toxoplasma gondii*, a little less than half of them from swallowing oocysts excreted into the environment by cats. In most healthy adults, physical symptoms are similar to the flu. However, if infected with toxoplasmosis in the first trimester, one in ten human fetuses will be aborted or become malformed.

Toxoplasmosis also changes human behavior, and individuals with latent toxoplasmosis are susceptible to an array of mental illnesses, including severe depression, bipolar disorder, obsessive-compulsive disorder, and schizophrenia. Women infected with toxoplasmosis are twice as likely to commit suicide than women without the infection.

Allowing cats to be released into the wild and encouraging the establishment of outdoor cat colonies will inevitably increase the number of free-ranging cats in Alaska. We need fewer, not more feral cats. Therefore, I strongly oppose adoption of Proposal 62.

Proposal 63 – Support with amendment. This proposal seeks to maintain the status quo with regard to the release of domesticated cats into the wild. However, it also states that "The alternative solution I propose would be to reclassify feral cats as 'vermin' and allow unlimited take, year round."

I support the intent of this proposal; however, because Alaska does not have a classification for "vermin," the board should amend the proposal to **add feral and free-ranging cats to the state's list of deleterious exotic wildlife (5 AAC 92.990[a][52]).** This would automatically add feral and free-ranging cats to the list of animals that may not be intentionally or negligently fed by a person per 5 AAC 92.230.

Unconfined or unrestrained feral cats are listed by the Invasive Species Specialist Group of the International Union for Conservation of Nature (IUCN) as one of the world's 100 worst invasive species along with rats, starlings, and rabbits, which are already listed as deleterious exotic species in Alaska. Another meta-analysis – comparing past and present impacts of invasive predators on worldwide bird, mammal and reptile populations – placed feral cats at the top of a list which included rats and mice, dogs, red foxes, pigs, mongooses and stoats (Doherty et al. 2016).

Domestic cats, primarily feral and free-ranging cats, kill an estimated 1.3 to 4 billion birds and 6.3 to 22.3 billion mammals annually in the contiguous United States. Food left outdoors for feral cats – a necessary component of maintaining outdoor cat colonies for trap-neuter-release programs – would also attract bears, foxes, coyotes, and deleterious exotic wildlife such as rats, rock doves (pigeons), and starlings. This, of course, is already prohibited by state law.

Feral cat-feeding stations attract more than cats. A trail camera monitoring a cat-feeding station for 11 days in California documented only 4% of visits by feral cats (Urban Wildlife Research Project 2013). Wildlife, including foxes, made up 96% of the visits.

Another study in California found native rodents and birds were less abundant and invasive house mice were more abundant in parks where people fed cats (Hawkins et al. 2004). Cat-feeding stations also attracted birds and mammalian omnivores such as foxes. However, almost twice as many native birds were observed in parks without cat-feeding stations.

Cats infect moose, deer, and other game animals with toxoplasmosis (The Wildlife Society 2014). Humans are also infected by *Toxoplasma* by consuming raw or undercooked meat that is infected by oocysts shed in cat feces. Infection has been linked to schizophrenia and can lead to miscarriages, blindness, memory loss, and death.

In summary, feral cats are an invasive species not native to North America. Feral cats now kill billions of wild animals annually in North America, and by killing these animals cats compete with native furbearers and fur animals. Cats pose a serious risk of disease to wildlife and humans. Feeding outdoor cats will inevitably attract and feed wild animals, including deleterious exotic wildlife like pigeons, starlings and house mice. The Wildlife Society recommends that feral cats not be released into the wild or fed outdoors. Two feral animals – ferrets and swine – are already classified as deleterious exotic wildlife in Alaska. Feral cats are arguably the most deleterious exotic species found in Alaska. For all of these reasons, feral cats should be added to the list of deleterious exotic wildlife.

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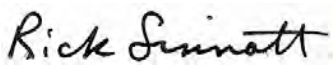
Sincerely,



Rick Sinnott
Certified Wildlife Biologist
Chugiak, Alaska

Submitted By
Carla Stanley
Submitted On
10/25/2017 11:50:18 AM
Affiliation

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My concern is about the release of Feral Cats (Felis catus) into the environment. I cannot think of a more devastating thing to do for our migratory as well as native song birds which come from all over the world to nest in Alaska. It seems like an idiotic thing to do in a place like Alaska! Many of these birds are ground nesters and cats are top of the line predators on small creatures.

It should be noted that cats (domestic and feral) are the largest predator on song birds world wide.Cats have contributed to the extinction of 33 species and continue to adversely impact a wide variety of other species, including those at risk of extinction. Globally, the number of at-risk bird species has increased from 47 to 87 between 2001 and 2015

Studies in the US have reallized that cats kill between 1.4 & 3.7 billion birds every year, more than window strikes (a distant 2nd), wire strikes, road kill, and wild animal predation.

Being ***non-native*** animals, it would be introducing an INVASIVE animal into the wild. That is totally against logic and the law. Many municipalities in Canada already have bylaws that obligate residents to keep their pets indoors,

USFW has spent millions of dollars in Alaska ridding islands of the Aleutians from invasive predators introduced in the last few centuries, including marmots, foxes, reindeer, and rats. It is far easier and cheaper to PREVENT invasive predators from disrupting nature than to try to correct after the fact

Alaska cannot and should not do that. If anything, it should become illegal to allow ANY to roam freely in our natural environment.

Thanks for listening

Carla Stanley

Homer, Alaska

October 25, 2017
3833 Aprill Pl.
Homer, AK 99603

To Whom It May Concern:

I would like to address my great concern regarding the release of feral cats (Felis catus) into the environment. I cannot think of a more devastating thing to do for our native as well as migratory song birds, which come from all over the world to nest in Alaska. It seems like an unwise and foolish thing to do in a place like Alaska! Many of these birds are ground nesters and cats are top-of-the-line predators on small creatures.

The numbers of birds killed by feral cats is truly astounding. Studies in the US have realized that cats kill between 1.4 and 3.7 billion birds every year, more than window strikes (a distant 2nd), wire strikes, road kill, and wild animal predation!

It should be noted that cats (domestic and feral) are the largest predator on song birds worldwide. Cats have also contributed to the extinction of 33 species and continue to adversely impact a wide variety of other species, including those at risk of extinction. Globally the number of at-risk bird species has increased from 47 to 87 between 2001 and 2015

Being ***non-native*** animals, it would be introducing an INVASIVE animal into the wild. That is totally against logic and the law. Many municipalities in Canada already have laws that obligate residents to keep their pets indoors,

USFW has spent millions of dollars in Alaska ridding islands of the Aleutians from invasive predators introduced in the last few centuries, including marmots, foxes, reindeer, and rats. It is far easier and cheaper to PREVENT invasive predators from disrupting nature than to try to correct the problem after the fact.

Alaska cannot and should not do that. If anything, it should become illegal to allow ANY cats (felis catus) to roam freely in our natural environment.

Thank you for your time and consideration of the above information.

Sincerely,

Joanne Thordarson

Board of Game Proposal

I understand you are thinking of allowing feral cats to be released into the wild to be community cats. I am very much opposed to this. Cats are a very real threat to the lives of wild birds. They are the cause of the death of more birds than anything other thing. I have worked with bird rehabilitation organizations and have seen birds come in who have been attacked by cats – they do not live even with the best of care. Please do not pass #62.

Joanna Walch.

Submitted By
Jack Wiles
Submitted On
10/25/2017 12:41:36 PM
Affiliation

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I am writing in opposition to Proposal 62 to allow the release of feral cats (domestic) into the wild. I support Proposal 63 to prohibit the introduction of a feral predator like a feral cat into the wild.

The best available science strongly shows that feral domestic cats, even if sterilized, belled, or declawed, are major predators to birds and small mammals. Respect the 'wild' of wildlife by preventing the introduction of this invasive predator.

Date: October 18, 2017

To: Alaska Board of Game:
Ted Spraker, Chair
Nathan Turner, Vice Chair
Stosh Hoffman
Teresa Sager Albaugh
Karen Linnell
Larry Van Daele
Tom Lamal

Re: Opposition comments to Proposal 62 to allow Trap/Neuter/Re-abandonment of feral cats.

From: (Ms.) Page S. Williams, 2234 Ashford Hollow Lane, Houston TX 77077

Ladies and Gentlemen, I understand that you prefer comments from Alaskans, but when I saw the enclosed posting on the Alley Cat Allies website, claiming that trap/neuter/re-abandonment (releasing sterilized feral cats into the wild) would be a humane and effective approach to community cat populations, I had to speak out. I have owned and loved both dogs and cats for 78 years, and there is nothing humane about abandoning them on the streets - not in Texas, and certainly not in an Alaskan winter. Those re-abandoned cats will continue maiming and killing your wildlife for the short duration of their brutal lives. They will continue spreading zoonotic diseases to your wildlife and to your citizens, suffering from lack of routine veterinary care.

I enclose information from the Centers for Disease Control about the dangers of both rabies and toxoplasmosis from feral cats. The CDC states that four times as many cats are reported rabid than are dogs, thus pose a greater threat to the health of people and wildlife than dogs. The reason? We do not maintain "community colonies" of feral dogs that lack the requisite booster shots for rabies. Ask any veterinarian how often rabies shots are needed. (Nor do Texans maintain colonies of feral hogs to control their populations.)

Felids are the only vector for toxoplasmosis; it can only reproduce in their intestines. The oocysts which are shed in their feces can live for 18 months and infect any warm-blooded animal, from humans to eagles to walruses. They are implicated in miscarriage, fetal deformity, blindness, deafness, dementia, schizophrenia, suicide - and death for the immunocompromised (AIDS/organ transplant/chemo patients). Therefore TNR is cruel to both wildlife and humans, while humane euthanasia is a gift we give to our beloved pets and to our wounded wildlife.

I enclose more information about toxoplasmosis dangers to wildlife by USGS's National Wildlife Health Center, from the Wildlife Society, and from Field and Stream. I also enclose some information from Texas Parks and Wildlife Department and Georgia Department of Natural Resources as examples of state biologists who have studied, and who cite, the peer-reviewed research proving that TNR of non-native predators is not effective or humane, as the Proposal 62 supporters claim. Their major financial support is from Petco and Petsmart, the companies that want to sell more cat food, which should give a strong clue to their true goals.

The goal of animal control should be to remove strays, as per CDC recommendations, in order to protect public health. The goal of a Board of Game should not be to "save (domestic) cats' lives", which is the goal of Alley Cat Allies. Their goal is to have more cats on the street. For the sake of Alaska's wildlife, people and pets, I hope that you will not support Proposal 62, and enter my comments in the public record.

#

FYI, I list my enclosures sent to individual board members on the back of this statement

ENCLOSURES FROM PAGE WILLAIMS ON PROPOSAL 62
TO ALASKA BOARD OF GAME, 2017

1. Copy of alert from Alley Cat Allies website, claiming TNR is humane and effective.
   Reverse side: Queensland, Australia's cheaper, permanent AND humane solution.

2. Field Notes from Field and Stream: feral cats cause toxoplasmosis in Ohio deer.

3. Centers for Disease Control: toxoplasmosis infection cycle showing cats are only vector.

4. Centers for Disease Control: Burden of rabies recommends cat kept indoors.

5. Pertinent excerpts from USGS's National Wildlife Health Center Circular 1389, Toxoplasmosis

6. Texas Parks and Wildlife Department issue briefing paper on feral cats and TNR

7. Georgia Department of Natural Resources letter against feral house cats roaming freely.

8. The Wildlife Society issue statement on feral and free-ranging domestic cats.

9. PLOS ONE excerpts on opinions and goals of cat colony caretakers.

Posted on Alley Cat Allies website

Alaska Board of Game Considers Proposal to Allow Trap-Neuter-Return

October 12, 2017

Alaska could soon allow communities across the state to implement Trap-Neuter-Return (TNR) programs to save cats' lives. If the Alaska Board of Game passes Proposal 62, communities statewide will be allowed to practice TNR, the only humane and effective approach to community cat populations. With such an important proposal at stake, Alley Cat Allies is asking residents to submit comments to the Board in support of Proposal 62.

Under current state regulations, cats are one of many species prohibited from being "released into the wild." Consequently, TNR programs—through which community cats are humanely trapped, spayed or neutered, vaccinated, eartipped (the universal sign that a cat has gone through TNR), and returned to their outdoor homes—are also prohibited.

Proposal 62 has been introduced to revise this regulation to allow TNR. If the Board of Game passes the proposal, "sterilized feral cats" will be allowed to be "released into the wild." That means Alaskan communities that want a humane and effective approach to community cats will finally be able to start TNR programs.

This is a rare opportunity to make TNR legal throughout an entire state, and we need Alaska residents to raise their voices to help ensure the proposal's passage. Alaskan communities deserve the choice to do TNR.

If you live in Alaska, please submit a comment in support of Proposal 62 by Friday, October 27, and ask other animal advocates to do the same.

Queensland's Banana Shire Council introduces $10 feral cat bounty

Cameron McCrohon, Rockhampton Morning Bulletin, October 12, 2017 10:14pm

FERAL cats are now a hunted species after Banana Shire introduced a bounty on the pest.

The council will pay $10 for an adult cat's scalp and $5 for a kitten.

The bounty is designed to stop the growing population of feral cats in rural areas of the central Queensland shire, where they are having a devastating effect on the native bird and mammal populations, The Morning Bulletin reports.

The council has allocated $25,000 in its Land Protection budget to cover the cost of the bounty and will continue the program until this funding is exhausted.

Environment and planning manager Chris Welch said a similar program recently introduced in the McKinlay Shire had a significant impact on the feral cat population.

"An increase in feral cat numbers has been observed, particularly though the rural areas of the shire, and council has received information from the Upper Dawson branch of the Queensland Wildlife Preservation Society raising the issue of impacts from feral and uncontrolled cats," he said.

Mr Welch said the bounty would be restricted to feral animals destroyed on rural properties.

He said a property owner didn't need to be the party destroying the animal and requesting payment, but must sign the payment request form giving a hunter permission to be on their property.

A recent study carried out by the Threatened Species Recovery Hub of the National Environmental Science Program found feral cats kill 316 million birds every year, while pet cats kill 61 million birds.

Lead researcher Professor John Woinarski said everybody knew cats killed birds, but this study showed the amount of predation was staggering at a national level.

"We found that the birds most likely to be killed by cats are medium-sized birds; birds that nest and feed on the ground, and birds that occur on islands or in woodlands, grassland and shrub lands," he said.

"For Australian birds, cats are a longstanding, broadscale and deeply entrenched problem that needs to be tackled more effectively.

"Our knowledge of the impacts of cats on threatened mammals was a major stimulus for our first-ever national Threatened Species Strategy, which prioritised actions to control feral cats."

FIELD NOTES
DAILY DISPATCHES FROM THE SPORTING WORLD

January 6, 2015

More Than Half of Deer in NE Ohio Infected by Feral Cats

by Phil Bourjaily

Deer hunters in areas with large feral cat populations are being encouraged to thoroughly cook their venison to avoid danger of infection from a parasite. According to an Ohio State University study published in the journal EcoHealth, researchers took tissue samples from 444 deer and 200 free-roaming cats in the greater Cleveland area. Sixty percent of the deer and more than 65 percent of the cats tested positive for *Toxoplasma gondii*, the parasite that can infect humans with toxoplasmosis. This disease causes flu-like symptoms, brain or eye damage, and possibly schizophrenia and suicidal behavior in humans, according to Cleveland.com.

The parasite can infect all warm-blooded animals, but members of the felid (cat) family are its primary hosts. It is deposited on the ground along with cat feces and can remain infectious for up to 18 months.

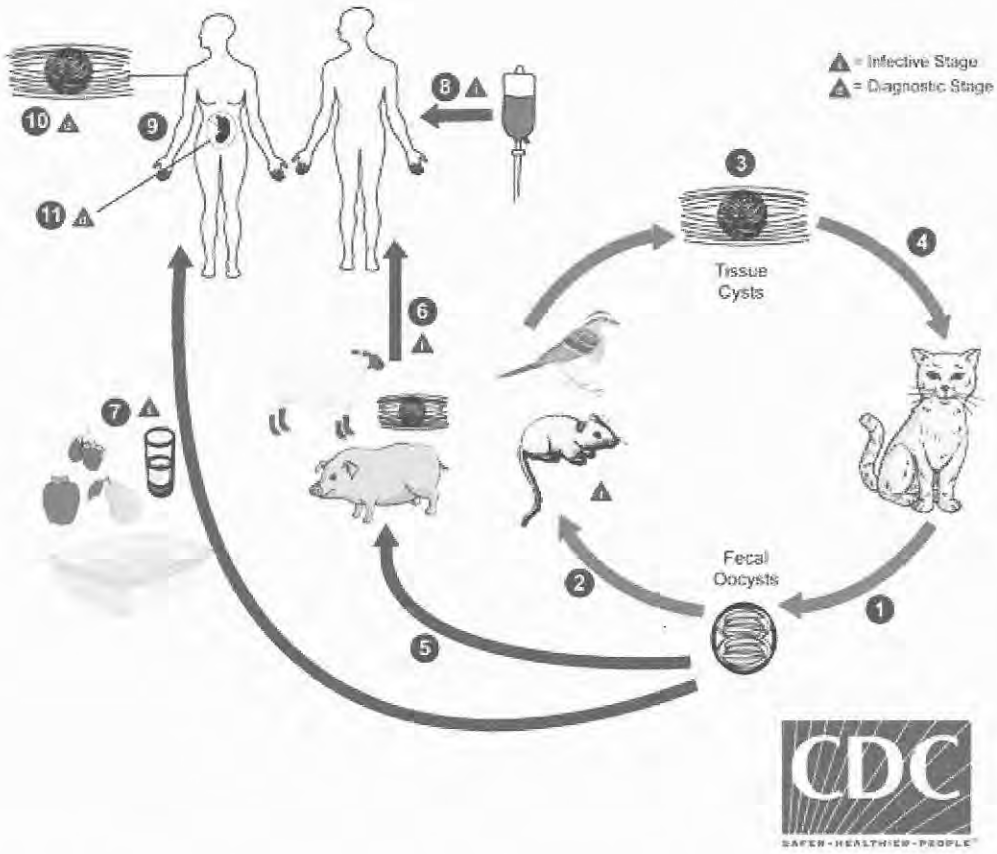
Other studies have shown whitetails in Iowa, Pennsylvania, and Mississippi to be infected with *toxoplasma gondii*. Urban deer have been shown to have three times the odds of being infected as deer in suburban areas, probably because of the greater density of free-roaming domestic cats around cities.

https://www.cdc.gov/parasites/toxoplasmosis/biology. html

Causal Agent:

Toxoplasma gondii is a protozoan parasite that infects most species of warm blooded animals, including humans, and can cause the disease toxoplasmosis.

Life Cycle:



The only known definitive hosts for *Toxoplasma gondii* are members of family Felidae (domestic cats and their relatives). Unsporulated oocysts are shed in the cat's feces ❶. Although oocysts are usually only shed for 1-2 weeks, large numbers may be shed. Oocysts take 1-5 days to sporulate in the environment and become infective. Intermediate hosts in nature (including birds and rodents) become infected after ingesting soil, water or plant material contaminated with oocysts ❷. Oocysts transform into tachyzoites shortly after ingestion. These tachyzoites localize in neural and muscle tissue and develop into tissue cyst bradyzoites ❸. Cats become infected after consuming intermediate hosts harboring tissue cysts ❹. Cats may also become infected directly by ingestion of sporulated oocysts. Animals bred for human consumption and wild game may also become infected with tissue cysts after ingestion of sporulated oocysts in the environment ❺. Humans can become infected by any of several routes:

- eating undercooked meat of animals harboring tissue cysts ❻.
- consuming food or water contaminated with cat feces or by contaminated environmental samples (such as fecal-contaminated soil or changing the litter box of a pet cat) ❼.
- blood transfusion or organ transplantation ❽.
- transplacentally from mother to fetus ❾.

In the human host, the parasites form tissue cysts, most commonly in skeletal muscle, myocardium, brain, and eyes; these cysts may remain throughout the life of the host. Diagnosis is usually achieved by serology, although tissue cysts may be observed in stained biopsy specimens ❿. Diagnosis of congenital infections can be achieved by detecting *T. gondii* DNA in amniotic fluid using molecular methods such as PCR ⓫.

CDC 24/7
Saving Lives. Protecting People.™
LEARN MORE ABOUT HOW CDC WORKS FOR YOU.

The Burden of Rabies (2014)

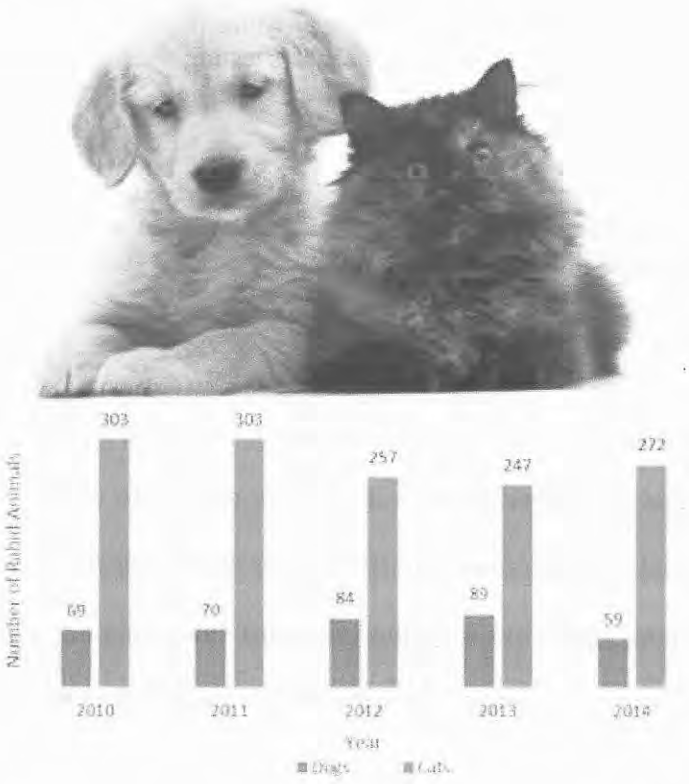
Learn how to help prevent rabies, a deadly virus that threatens the health of people and animals.

Rabies is a dangerous virus that is spread through the saliva of animals sick with rabies. Anyone can get it if they handle or get bitten by an animal that has the disease.

Rabies in the U.S.

Rabies continues to be a serious threat to the health of people and animals. Every year, about 40,000 people receive a rabies prevention treatment called **post-exposure prophylaxis (PEP)** because they had contact with potentially rabid animal.

More than 90% of all rabid animals reported to CDC each year occur in wildlife. The animals that get rabies the most are raccoons, skunks, foxes, and bats. However, most people in the U.S. get PEP due to close contact with domestic animals such as cats or dogs.



Rabies cases among dogs and cats reported in the U.S. from 2010 to 2014 gradually decreased.

Rabies in Cats

While dogs have historically been associated with spreading rabies to people, more cats than dogs are reported rabid in the U.S. each year. Cats are often in close contact with both people and wild animals, including those that primarily spread rabies, like raccoons and bats. Thus rabies may be more easily spread to people from cats.

Over the past few years, public health officials saw a small decrease in the number of reported cases of rabid cats. **However, in 2014, over four times more rabid cats were reported than rabid dogs.** Importantly, cat owners are less likely to visit a veterinarian's office, where they can get their cat shots that can keep it safe from rabies. According to the American Veterinary Medical Association (AVMA), only 55 percent of U.S. cat owners visited a veterinarian in 2011, a significant decrease compared with 64 percent in 2006. This is much less compared to dog owners (81 percent in 2011 and 83 percent in 2006).

Protecting You and Your Family

The best ways to protect yourself and your family from rabies is to:

- **Vaccinate your pets and other domestic animals** (like cows, goats, sheep, and horses)
- **Avoid contact with wild animals** – do not feed or handle them, even if they seem friendly. If you see a wild animal acting strangely, report it to animal control.

If you or someone in your family is exposed to a rabid animal, rabies can be prevented through a series of shots called **rabies post-exposure prophylaxis (PEP).**

If you are bitten by any animal (domestic or wild):

- Immediately wash the wound well with soap and water and see a healthcare provider
- Contact animal control to assist in capturing the animal for observation or rabies testing

Family pets can get rabies if they are bitten by rabid wild animals.

Cats, dogs, and ferrets that have not gotten their rabies shots and are bitten by an animal may have to be quarantined for six months or euthanized. In general, pets have a higher risk of coming into contact with wild animals that may have rabies than people do. This increases the risk of rabies to us because of our close contact with our pets.

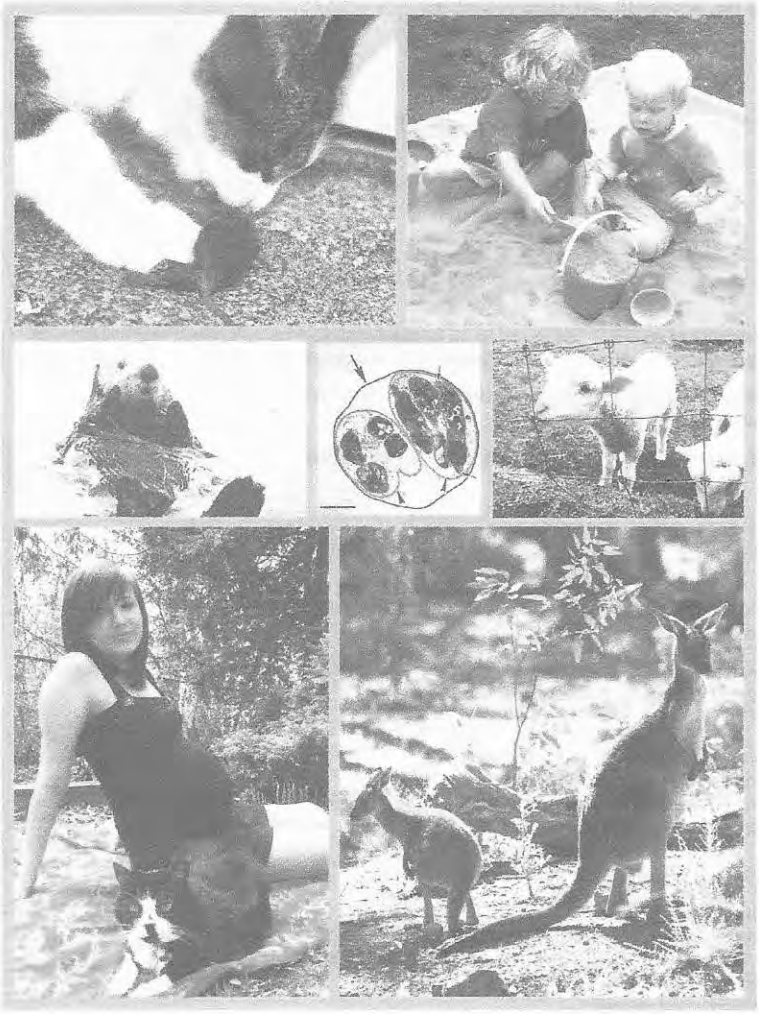
To help reduce this risk:

- Visit your veterinarian with your pet on a regular basis and keep rabies vaccinations up-to-date for all cats, ferrets, and dogs.
- **Maintain control of your pets by keeping cats and ferrets indoors** and keeping dogs under direct supervision when outdoors.
- Spay or neuter your pets to help reduce the number of unwanted animals that may not be properly cared for or vaccinated regularly.
- **Call animal control to remove all stray animals from your neighborhood since these animals may be unvaccinated.**
- **Do not feed or water your pets outside** and keep your garbage securely covered. These items may attract wild or stray animals.

USGS
science for a changing world

National Wildlife Health Center

Toxoplasmosis



Circular 1389

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
SALLY JEWELL, Secretary

U.S. Geological Survey
Suzette M. Kimball, Acting Director

U.S. Geological Survey, Reston, Virginia: 2014

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Toxoplasmosis

By Dolores E. Hill[1] and J.P. Dubey[1]

"Before the discovery of the oocyst in 1970, who would have thought that we would be living in a universe of *Toxoplasma*." (Dubey, 2010)

Synonyms

Litter box disease

Overview

Toxoplasmosis is a **zoonotic** protozoal **disease** of humans and animals caused by the **coccidian parasite**, *Toxoplasma gondii* (Nicole and Manceaux, 1909). Infection by *T. gondii* is widely **prevalent** in humans, and nearly one-third of humanity has been exposed to this parasite (Dubey and Beattie, 1988; Montoya and Liesenfeld, 2004; Dubey, 2010). Although *T. gondii* usually causes only mild disease or **asymptomatic infection** in **immune**-competent adults, it can cause devastating disease in congenitally infected children and in adults and children with depressed immunity. *T. gondii* utilizes **felids** as **definitive hosts** and has an unusually wide **intermediate host** range. Many species of **domestic** and wild animals, including **birds**, can be infected (table 1). This broad spectrum of intermediate hosts contributes to *T. gondii* being one of the most common **parasitic** infections of humans and other **warm-blooded** animals (Dubey and Beattie, 1988). *T. gondii* has been found worldwide from Alaska to Australia. Serologic surveys indicate that infections are common in wild pigs and **carnivores**, including bears, felids, foxes, raccoons, and skunks. **Clinical** and **subclinical** forms of toxoplasmosis have been reported in wild **cervids**, **ungulates**, **marsupials**, monkeys, and marine **mammals**. **Mortality** from toxoplasmosis has recently been reported in sea otter populations, and the disease is of growing concern as a sea otter mortality factor (Cole and others, 2000; Miller, Gardner, Kreuder, and others, 2000; Kreuder and others, 2003; Jessup and others, 2007; Thomas and others, 2007). Toxoplasmosis is a common cause of fetal death and abortion in sheep and goats. Adult goats and **swine** also are subject to serious illness. **Central nervous system** signs are common manifestations of *T. gondii* infection in cats and dogs (Dubey and Beattie, 1988).

Background

T. gondii is transmitted via the **fecal-oral route**, as well as through consumption of infected meat and by **transplacental** transfer from mother to fetus (Frenkel and others, 1970; Dubey and Beattie, 1988). Although cats are the definitive host for *T. gondii*, a wide range of other warm-blooded animals serves as intermediate hosts (Frenkel and others, 1970). These hosts often have **infective** stages of *T. gondii* in their tissues, thereby serving as sources for infection when their flesh is consumed raw or undercooked. Because *T. gondii* is one of the most common parasites of animals, consumption of infected meat contributes to the growing importance of toxoplasmosis as a zoonotic disease. For example, a recent study in the Slovak Republic found *T. gondii* infection to be common in wild boars, emphasizing the need to maintain high standards of hygiene during the handling of this important game species when it is prepared as food (Antolová and others, 2007).

T. gondii was initially discovered in the gundi (Nicolle and Manceaux, 1908), a small **rodent** that inhabits rocky areas on hills and mountains of the northern part of the African continent (Walker, 1964). About the same time, independent discovery of this parasite was made in a laboratory rabbit in São Paolo, Brazil (Splendore, 1908; Dubey, 2008). In retrospect, these widely geographically separated discoveries were somewhat of a bellwether relative to the broad geographic distribution of *T. gondii* and the variety of species it would be found to infect. It was another 30 years before *T. gondii* was found to cause disease in humans and an additional 47 years after that discovery before the full life cycle for this parasite was determined (box 1).

[1]U.S. Department of Agriculture, Agricultural Research Services, Animal Parasitic Diseases Laboratory.

Table 1. General summary of nonhuman species naturally infected with *T. gondii*.

Species type	Minimum number of species[1]
Domestic animals	
Livestock	8
Poultry	3
Cats	1
Dogs	1
Wild animals	
Ungulates	25
Carnivores	8
Felids	10
Marsupials	20
Marine mammals	10
Birds	11
Small mammals (rodents/lagomorphs)	9
Monkeys	18
Bears	3

[1]The number of species indicated is merely a minimum; more species may have been infected but have not been reported. The numbers should not be interpreted relative to each other, because some groups may be overrepresented due to higher susceptibility to clinical or fatal disease or both.

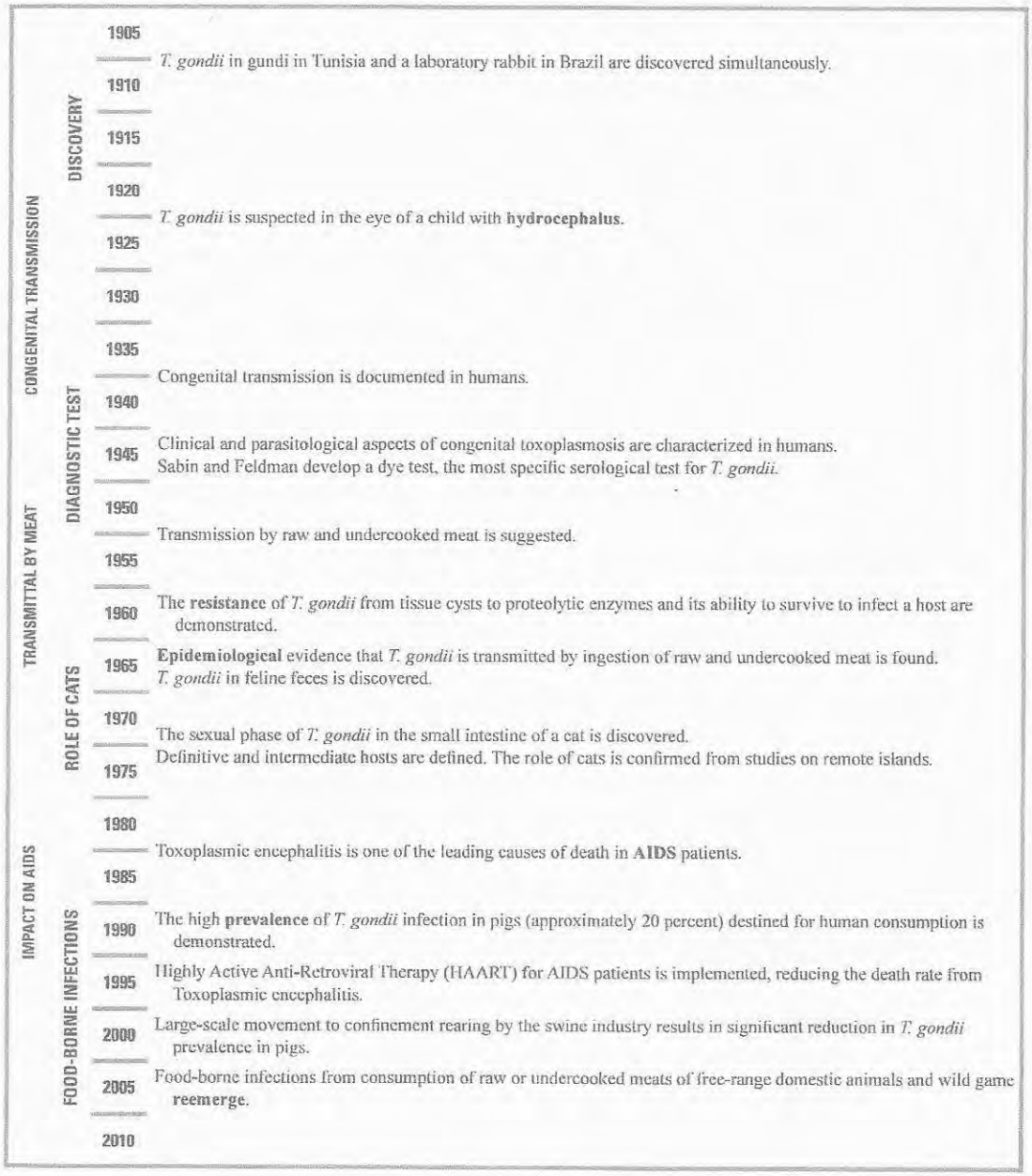
The name *Toxoplasma* (toxon = arc, plasma = form) is derived from the crescent shape of one of the three **infectious** stages of the parasite, the tachyzoite stage (fig. 1*A*). This stage rapidly multiplies in intermediate host cells and in nonintestinal **epithelial** cells of the definitive host. Bradyzoites (fig. 1*B*) and sporozoites (fig. 1*C*) are the other infectious stages. In contrast to tachyzoites, bradyzoites multiply slowly within a tissue **cyst**, while sporozoites are generated by sexual processes in the definitive host intestine and develop to maturity within oocysts released into the environment in cat feces (Dubey, 2008).

Past scientific literature suggests that different species of *Toxoplasma* have been identified over time (Keymer, 1981; Levine, 1985). However, modern technology has clarified the speciation of **protozoans** by replacing **morphology** and other physical characteristics with molecular descriptions. It is now generally accepted that there is only one species of *Toxoplasma*, *T. gondii*.

Strain differences exist that may affect the **pathogenicity** of the parasite in a given host (Dubey, 2010). Prior to the development of genetic markers, *T. gondii* **isolates** were grouped by their **virulence** to outbred mice. During the 1980s and 1990s, methods were developed to recognize genetic differences among *T. gondii* isolates from humans and animals (Pfefferkorn and Pfefferkorn, 1980; Dardé and others, 1988; Tibayrenc and others, 1991; Sibley and others,1992; Howe and Sibley, 1995; Dardé, 2008). Based on deoxyribonucleic acid (**DNA**) restriction fragment length polymorphisms (**RFLP**), Howe and Sibley (1995) classified *T. gondii* into three genetic Types (I, II, III) and linked virulence in mice to genetic type. They proposed that Type I isolates were 100 percent lethal to mice, irrespective of the dose, and that Types II and III generally were avirulent for mice (Howe and others, 1996). Circumstantial evidence suggests that certain genetic types of *T. gondii* may be associated with clinical **ocular** toxoplasmosis in humans (Khan and others, 2006). It has been suggested that Type I isolates or **recombinants** of Types I and III are more likely than Type II isolates to result in clinical toxoplasmosis, but genetic characterization has been limited essentially to isolates from patients ill with toxoplasmosis (Khan and others, 2005). There is very little information regarding the genetic diversity of *T. gondii* isolates circulating in the general human population. Therefore, we must be cautious in claiming a linkage between parasite **genotypes** and disease presentations without clear and discerning information regarding the parasite's biology in the human population and environment.

Acquisition of direct oral transmission by *T. gondii* appears to be a recent evolutionary change achieved by **recombination** between competing, distinct clonal lines of the parasite. This route of transmission has facilitated widespread distribution of *T. gondii* (Montoya and Liesenfeld, 2004).

Box 1 100 Years of *Toxoplasma gondii*



Causative Agent

T. gondii is a protozoan parasite belonging to the subclass Coccidiasina (Leuckart, 1879) (table 2). Coccidia, in general, have complicated life cycles (fig. 2), and *T. gondii* is no exception (box 2). As noted above, *T. gondii* has three infectious stages (fig. 3): the tachyzoites (in groups; fig. 3*A*), the bradyzoites (in tissue cysts; fig. 3*B*), and the sporozoites (in oocysts; fig. 3*C*).

The tachyzoite is often crescent shaped and is approximately the size of a red blood cell (fig. 4). The anterior end of the tachyzoite is pointed, and the posterior end is round. It has an outer covering, or pellicle, enclosing various **organelles**. Bradyzoites differ structurally only slightly from tachyzoites. They have a nucleus situated toward the posterior end, whereas the nucleus in tachyzoites is more centrally located. Bradyzoites are more slender than are tachyzoites and are less **susceptible** to destruction by **proteolytic enzymes** than are tachyzoites. Intact tissue cysts containing bradyzoites probably do not cause any harm and can persist for the life of the host.

Table 2. Taxonomic classification of the parasite causing toxoplasmosis.

Classification	Designation
Kingdom	Protista
Phylum	Apicomplexa
Class	Sporozoasida
Subclass	Coccidiasina
Order	Eucoccidioridia
Suborder	Eimeriorina
Family	Toxoplasmatidae
Genus	*Toxoplasma*
Species	*gondii*

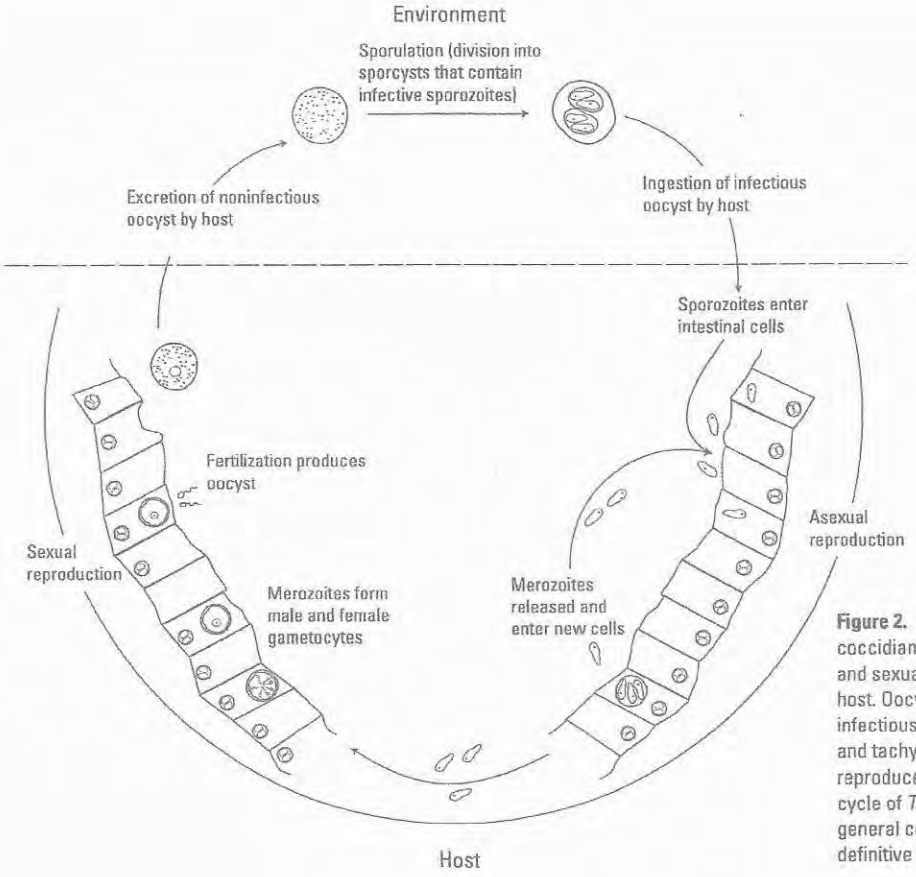
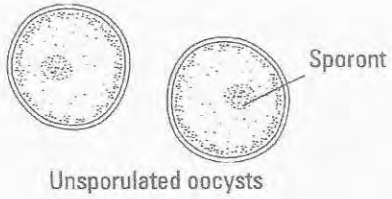


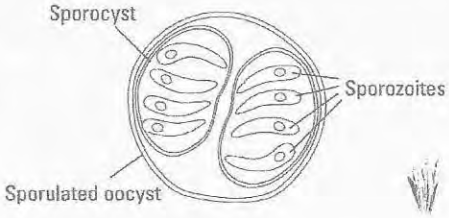
Figure 2. The life cycle of a typical coccidian parasite involves asexual and sexual reproduction within the host. Oocysts sporulate and become infectious in the environment, and tachyzoites and bradyzoites reproduce within the host. The life cycle of *T. gondii* is similar to this general coccidian life cycle in its definitive host, the cat.

Box 2 Life Cycle of *T. gondii*

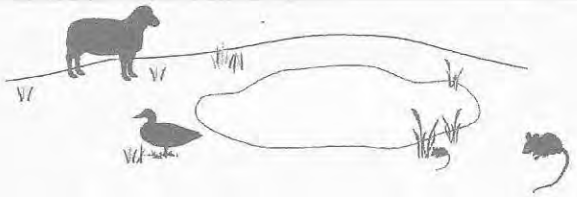
1.
Noninfective parasite oocysts (eggs) containing a single cell referred to as the sporont are passed by cats in their feces into the environment.



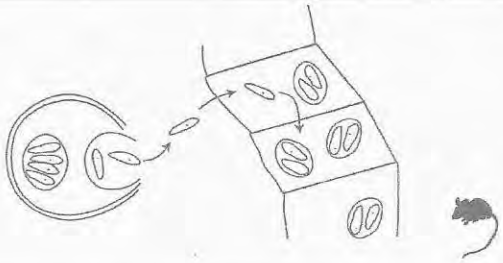
2.
Oocysts become infective within 1 to 5 days in the environment through sporulation (sporogony), which is a developmental process that results in the sporont dividing and forming two sporocysts, each containing four infective sporozoites.



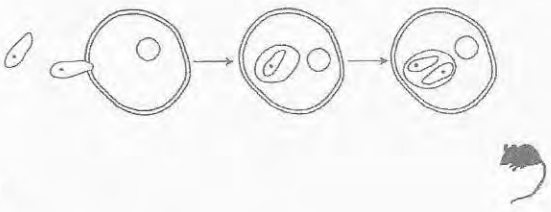
3.
Infective oocysts are ingested by intermediate hosts or humans in contaminated feed, water, soil, or other ingesta.



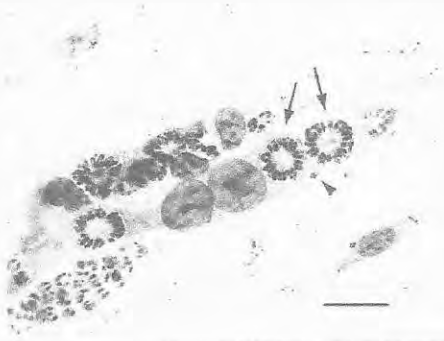
4.
In the small intestine, the sporozoites escape from the sporocysts and oocysts and enter the epithelial cells lining the internal surfaces of the intestine. The sporozoites multiply asexually by endodyogeny, resulting in the formation of tachyzoites.



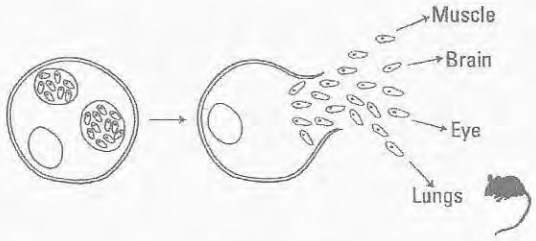
5.
Tachyzoites can tilt, extend, and retract as they search for host cells, and they then enter the host cells by active penetration of the host cell membrane. After entering the host cell, the tachyzoite becomes ovoid in shape (*A*) and becomes surrounded by a **parasitophorous vacuole** in which it is protected from host defense mechanisms. Tachyzoites multiply asexually within the host cell by repeated divisions in which two progeny form within the parent parasite, consuming it.



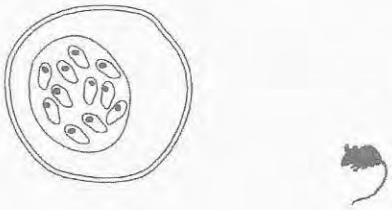
A. This photograph shows tachyzoites grown in cell culture in human foreskin fibroblasts. An ovoid tachyzoite can be seen surrounded by a vacuole (arrowhead). Also seen are groups of tachyzoites arranged in rosettes (arrows). Contrast was enhanced by the use of an immunohistochemical stain with a tachyzoite-specific polyclonal antibody. The scale bar is 20 micrometers (µm) in length. (Photo by Dr. J.P. Dubey)



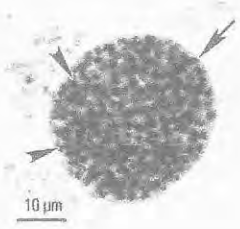
6.
Tachyzoites continue to divide until the host cell is filled with parasites. Tachyzoites accumulate in groups of 8 to 32 within the host cells and then break out of the host cell. The tachyzoites enter new host cells and undergo further divisions.



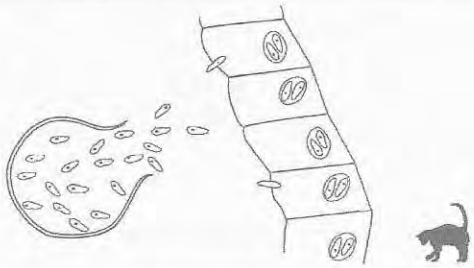
7.
As infection becomes **chronic**, immunity builds up, and multiplication of tachyzoites slows. Bradyzoites, as they are now called, accumulate in large numbers within a host cell and become surrounded by a thin, elastic wall to form tissue cysts, which vary in size from 5 to 70 µm and remain **intracellular** (*B*). A tissue cyst may enclose hundreds of bradyzoites. Tissue cysts are most prevalent in muscular and neural tissues, including the brain, eye, skeletal, and cardiac muscle, but they may also occur in **visceral** organs, including lungs, liver, and kidneys.



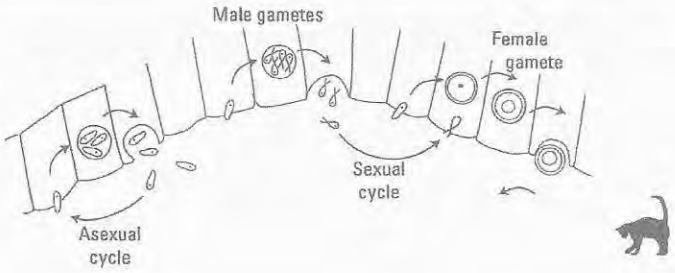
B. Tissue cyst in a section of mouse brain. Numerous bradyzoites (arrowheads) are surrounded by cyst wall (arrow). Contrast was enhanced by the use of periodic acid Schiff hematoxylin (PASH). The bradyzoites stain bright red with PAS but appear black in this photograph. The scale bar is 10 micrometers (µm) in length. (Photo from Dubey and others, 1998)



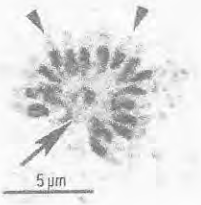
8.
After a cat ingests tissue cysts in meat, the tissue cyst wall is dissolved by proteolytic enzymes in the stomach and small intestine, thus releasing the bradyzoites. The bradyzoites then penetrate the epithelial cells of the small intestine and initiate development of numerous generations of asexual and sexual cycles of *T. gondii* (Dubey and Frenkel, 1972).



9.
Within cats, the bradyzoites multiply profusely in intestinal epithelial cells; this is known as the entero-epithelial cycle, and these stages are known as schizonts (*C*). Merozoites are released from schizonts and form male and female gametes. The male gamete (*D*) uses its two flagella to swim to the female gamete, which it then enters. After the female gamete is fertilized, oocyst wall formation begins. Three to 10 days after ingesting tissue cysts, oocysts are discharged into the intestinal lumen by the rupture of intestinal epithelial cells and released into the environment with the feces.

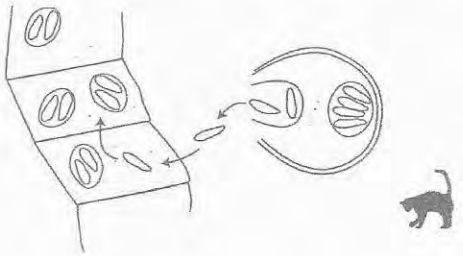


C. This image of an impression smear of infected cat intestine shows a schizont (arrow) with several merozoites (arrowheads) separating from the main mass. Contrast was enhanced by use of Giemsa stain. The scale bar is 5 micrometers (µm) in length. (Photo from Hill and others, 2005)



D. This image of an impression smear of infected cat intestine shows a male gamete with two flagella (arrows). Contrast was enhanced by use of Giemsa stain. The scale bar is 10 micrometers (µm) in length. (Photo from Hill and others, 2005)

10.
As the entero-epithelial cycle progresses, bradyzoites penetrate the lamina propria of the feline intestine and multiply as tachyzoites. Within a few hours after infection of cats, *T. gondii* may disseminate to extraintestinal tissues. *T. gondii* can persist in intestinal and extraintestinal tissues of cats for at least several months, and possibly for the life of the cat.



Marine Mammals

A variety of marine mammals have been found to be infected by *T. gondii* (tables 16–17), suggesting contamination of coastal waters and survival of *T. gondii* oocysts in seawater on the Atlantic and Pacific coasts of North America (Lindsay and others, 2001; Miller, Gardner, Kreuder, and others, 2002; Conrad and others, 2005). *T. gondii* is considered a significant cause of encephalitis in sea otters (Cole and others, 2000; Lindsay and others, 2001; Conrad and others, 2005) (box 6). Two new *T. gondii* genotypes (Types A and X) have been characterized from sea otters collected in California and Washington States (Miller and others, 2004; Conrad and others, 2005; Sundar and others, 2008).

Table 16. Examples of clinical toxoplasmosis in marine mammals.

[From Dubey, 2010. Confirmed by histology, tachyzoites, or cysts]

Species	Location	Living condition	Remarks
Elephant seal	California	Wild	Encephalitis.
Northern fur seal	California	Wild	Encephalitis.
Pacific harbor seal	Cold Bay, Alaska	Wild	1 day old, 11.5 kilograms, hepatitis.
Monk seal	Hawaii	Wild	1 adult male, good nutritional condition, lymphadenitis.
Sea lion	Pennsylvania	Captive	10 days old, disseminated.
	California	Captive	Adult, myocarditis.
	Florida	Captive	9-year-old male, disseminated, myocarditis.
Atlantic bottlenose dolphin	Florida	Wild	1 adult and her calf, disseminated.
	Florida	Wild	Young male, hepatitis, adrenalitis.
	Tuscany	Wild	2 adults.
	United States	Wild	1 of 97 stranded adults.
	Canada	Captive	2 with encephalitis.
Striped dolphin	Spain	Wild	Lymphadenitis, encephalitis, 4 of 110 stranded animals.
	Tuscany	Wild	4 wild adults, encephalitis with coinfection with morbillivirus.
Indo-Pacific bottlenose dolphin	United States	Wild	Late term fetus, myocarditis, encephalitis.
Spinner dolphin	Hawaii	Wild	Adrenalitis.
Risso's dolphin	Spain	Wild	Adult and her fetus, disseminated.
	Italy	Wild	1 adult.
Tucuxi dolphin	Rio de Janeiro	Wild	1 adult, lymphadenitis.
Indo-Pacific humpbacked dolphin	Queensland	Wild	4 of 4 stranded adults.
Walrus	Canada	Wild	Seizure.[1]
West Indian manatee	Florida	Wild	Encephalitis.
	Georgetown, Guyana	Wild	Myocarditis.
Beluga whale	Quebec	Wild	6 months old, encephalitis.
	Spain	Wild	31 years old, disseminated.

[1] *T. gondii* found by polymerase chain reaction.

Table 17. Serologic prevalence of *T. gondii* antibodies in marine mammals.

[From Dubey, 2010. DT, dye test: ELISA, enzyme-linked immunosorbent assay; IFAT, indirect fluorescent antibody test; IHAT, indirect hemagglutination test; LAT, latex agglutination test; MAT, modified agglutination test]

Species	Location	Test	Number of animals tested	Animals tested positive, in percent
Sea otter	California; live	IFAT	80	36
	Dead	IFAT	77	61
	Dead	MAT	100	82
	Dead	MAT	25	52
	Washington; live	IFAT	21	38
	Dead	MAT	10	100
Walrus	Alaska	MAT	53	5.6
Monk seal	Hawaii	MAT	117	1.7
Sea lion	Alaska	MAT	27	29.6
	California	MAT	18	61.1
Harbor seal	Washington	MAT	380	7.6
	Alaska	MAT	311	16.4
	Canada	MAT	34	9
Grey seal	Canada	MAT	122	9
Hooded seal	Canada	MAT	60	1.6
Ringed seal	Alaska	MAT	32	15.6
Bearded seal	Alaska	MAT	8	50
Spotted seal	Alaska	MAT	9	11.1
Bottlenose dolphin	California	MAT	94	96.8
	Florida	MAT	47	100
	Florida; South Carolina	MAT	146	100
	South Carolina	MAT	49	53
	Canada	MAT	8	100
	Japan; Solomon Island	LAT	[1] 58	13.7
	Japan	IHAT	59	10.1
	Spain	MAT	7	57.1
Common dolphin	United Kingdom	DT	21	28.6
	Spain	MAT	4	50
Striped dolphin	Spain	MAT	36	11.1
Humpback whale	United Kingdom	DT	1	100
Harbor porpoise	United Kingdom	DT	70	1.4
	Spain	MAT	1	100
Steller sea lion	Russia	ELISA	189	13.8

[1] Pacific bottlenose dolphin (*Tursiops aduncus*).

Box 6 Toxoplasmosis and Sea Otters

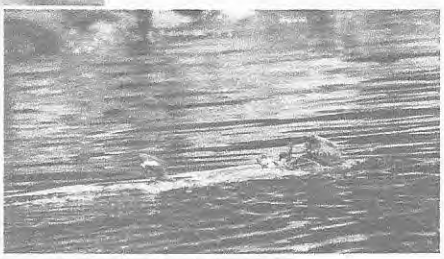
Most people who sit on the California coastline watching sea otters frolicking in the water or floating lazily on the surface don't realize how interconnected their lives are. Southern sea otters make their homes in the nearshore marine habitat alongside more than one-half of the population of Californians who reside in coastal communities (Conrad and others, 2005). The coastal waters have become the collection point of runoff from human activities containing various types of pollutants, including bacterial and protozoal organisms that are having a serious impact on the health of southern sea otters and their ability to survive as a species.

Photo courtesy of Milton Friend, U.S. Geological Survey

In the late 1800s, the southern sea otter was hunted to near extinction by the fur industry. After gaining federal protection in 1911, their numbers began to recover. However, the species was listed as "threatened" in 1977 under the U.S. Endangered Species Act, and in the 1990s, the recovery appeared to be much slower than expected. Research determined that an increased mortality rate was responsible for this slow recovery rather than a decreased birth rate or migration (Estes and others, 2003; Kreuder and others, 2003; Gerber and others, 2004). In 1992, **pathologist**s at the U.S. Geological Survey's National Wildlife Health Center in Madison, Wis., determined that infectious diseases were responsible for 38.5 percent of sea otter deaths (Thomas and Cole, 1996). Since then, protozoal **meningoencephalitis** (inflammation of the brain and membranes covering the spinal cord and brain) caused by *T. gondii* has been shown to be a primary cause of 16.2 percent of otter deaths and a contributing factor in 11.4 percent of deaths (Kreuder and others, 2003). Encephalitis caused by *T. gondii* may cause abnormal behavior of otters, making them more susceptible to shark attacks (Kreuder and others, 2003). Most of these mortalities have been subadults and prime-age adults, thus these deaths have a direct impact on potential population growth and recovery. In addition to their value as a tourist attraction, sea otters play a crucial role in the health of the nearcoastal ecosystem. They act as a "**keystone**" species to help maintain the health of coastal kelp forests by feeding on sea urchins, which can destroy kelp forests by their herbivorous behavior if left unchecked. Kelp forests are important habitats for many marine species and also act to protect the coastline from erosion.

Center and bottom photos courtesy of Tania Larson, U.S. Geological Survey

Studies have revealed an important connection between the land environment adjacent to marine coastal habitats and the high mortality rate among sea otters (Miller, Gardner, Kreuder, and others, 2002; Fayer and others, 2004). Coastal freshwater runoff contaminated with *T. gondii* oocysts has been strongly associ-



ated with infections of *T. gondii* in southern sea otters; 42–62 percent of southern sea otters in areas along the Pacific coast have been shown to be infected by *T. gondii* (Miller, Gardner, Kreuder, and others, 2002; Miller, and others, 2008). Because felines are the only definitive host for this parasite, infective oocysts must have come from terrestrial habitats. Sea otters may ingest these oocysts directly from contaminated water or indirectly by feeding on mussels, snails, and other shellfish, which can concentrate protozoans during filter-feeding (Cole and others, 2000; Arkush and others, 2003; Lindsay and others, 2003; Miller and others, 2008; Johnson and others, 2009). Northern anchovies may also serve as a source of infection for marine mammals (American Society for Microbiology, 2008). Because toxoplasmosis is a zoonotic disease, humans recreating in these waters or eating uncooked shellfish harvested in these areas are also at risk of becoming infected by *T. gondii*.

Southern sea otters are acting as a sentinel species for the detection of the presence of *T. gondii* in the marine environment. This contamination is a reflection of the level of contamination in the terrestrial environment. Although the proportion of infected cats that shed oocysts is generally low (Dabritz and others, 2007), each infected cat may shed 1 million oocysts after initial infection. Because of the large number of outdoor cats, both owned and feral, this level of shedding could lead to substantial environmental contamination and a high risk for both human and animal infection (Dabritz and others, 2006).

Cat owners may be unaware of the consequences of allowing their cats to defecate outdoors and their role in maintaining the health of their immediate environment as well as more distant habitats that may be connected by water runoff patterns. Disposing of feline feces by flushing them down the toilet may not be a safe method of disposal, because water treatment methods may not totally inactivate *T. gondii* oocysts, thus making sewage discharges into ocean waters a possible source of contamination and subsequent infection for sea otters. Where precautions exist to prevent environmental contamination from landfills, bagging cat feces and disposing of them in landfills may be preferable to flushing them down the toilet. By becoming aware of the interconnectedness of the habitats of humans, domestic animals, and wildlife, people can alter their behaviors in simple ways that can have much larger impacts on the health of both animals and humans.

Obtaining a Diagnosis

Clinical signs of toxoplasmosis are nonspecific and are not sufficiently characteristic for a definite diagnosis. Toxoplasmosis, in fact, mimics several other infectious diseases. Thus, biologic, serologic, or **histologic** methods, or some combination of these methods, are used to obtain a diagnosis (Dubey, Thulliez, and Powell, 1995). Detection of *T. gondii* antibody in patients may aid diagnosis. Numerous serologic procedures are available for detection of **humoral** antibodies; these include the Sabin-Feldman dye test, the indirect hemagglutination assay, the indirect fluorescent antibody test (IFAT), the direct agglutination test, the latex agglutination test, ELISA, and the immunoabsorbent agglutination test (IAAT). The IFAT, IAAT, and ELISA have been modified to detect immunoglobulin (Ig) M antibodies (Frenkel and others, 1970; Remington and others, 1995), which appear sooner after infection than the IgG antibodies and disappear faster than IgG antibodies after recovery (Remington and others, 1995).

Disease Ecology

The environmentally resistant stage (oocyst) is part of the life cycle of all coccidian parasites. Oocysts of *T. gondii* are formed only in cats, probably in all members of the family Felidae (fig. 11). Cats shed oocysts after ingesting any of the three infectious stages of *T. gondii*, that is, tachyzoites, bradyzoites, and sporozoites (Dubey and Frenkel, 1972, 1976; Dubey, 1996). The time to the shedding of oocysts after initial infection (prepatent period) and the frequency of oocyst shedding vary according to the stage of *T. gondii* ingested. This time period ranges from 3 to 10 days after ingestion of tissue cysts and 18 days or more after ingestion of tachyzoites or oocysts (Dubey and Frenkel, 1972, 1976; Dubey, 1996; Dubey, 2010). Less than 50 percent of cats shed oocysts after ingesting tachyzoites or oocysts, whereas nearly all cats shed oocysts after ingesting tissue cysts (Dubey and Frenkel, 1976). In freshly passed feces, oocysts are noninfective subspherical to spherical forms (fig. 11). These oocysts become infectious (sporulate) outside the cat within 1–5 days depending upon aeration and temperature. Sporulated oocysts contain two ellipsoidal sporocysts (fig. 11), each of which contains four sporozoites (box 7).

Toxoplasmosis may be acquired by **congenital** infection, by ingestion of tissue-inhabiting stages of the parasite, or by ingestion of oocysts in the environment (fig. 12). Most natural infections are probably acquired by ingestion of tissue cysts in infected meat or ingestion of oocysts in food or water contaminated by cat feces (fig. 13). Oocysts of *T. gondii* have been reported from the feces of naturally infected Iriomote cats (Akuzawa and others, 1987), jaguar and ocelots (Patton, Rabinowitz, and others, 1986), cheetah and bobcats, (Marchiondo and others, 1976), and Canadian cougars (Aramini and others, 1998). An outbreak of acute toxoplasmosis in humans was attributed to contamination of a Canadian water reservoir by oocysts shed by domestic and feral cats, as well as cougars (Bell and others, 1995; Bowie and others, 1997).

The bradyzoites from the tissue cysts or the sporozoites from the oocyst penetrate host intestinal epithelial cells and multiply in the intestine as tachyzoites within 24 hours of infection. *T. gondii* may spread first to mesenteric lymph nodes and then to distant organs by invasion of **lymphatics** and blood. *T. gondii* can multiply in virtually any cell in the body. All extracellular forms of the parasite are directly affected by antibody, but intracellular forms are not. It is believed that the cellular **immune system**, including **lymphocytes** and **macrophages**, is more important than humoral factors, such as antibodies, in immune-mediated destruction of *T. gondii* (Renold and others, 1992). However, how *T. gondii* is destroyed in immune cells is not completely known (Renold and others, 1992).

Immunity does not **eradicate** infection. *T. gondii* tissue cysts persist several years after acute infection. The fate of tissue cysts is not fully known. For example, it is not known whether or not bradyzoites can form new tissue cysts directly without transforming into tachyzoites. It has been proposed that tissue cysts may at times rupture during the life of the host. The released bradyzoites may be destroyed by the host's immune responses, or there may be formation of new tissue cysts.

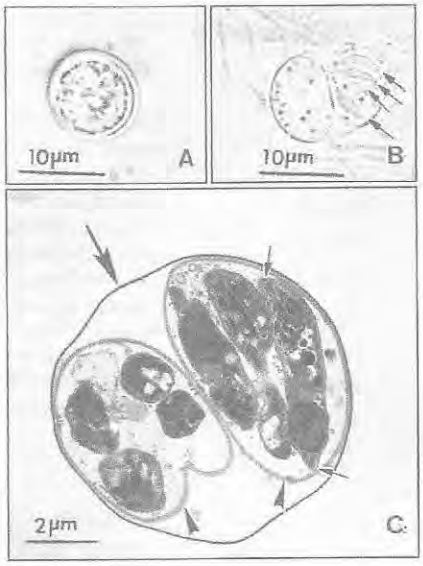


Figure 11. Oocysts of *T. gondii*. *A*, Unsporulated oocyst. Note the central mass (sporont) occupying most of the oocyst. *B*, Sporulated oocyst with two sporocysts. Four sporozoites (arrows) are visible in one of the sporocysts. *C*, Transmission electron micrograph of a sporulated oocyst. Note the thin oocyst wall (large arrow), two sporocysts (arrowheads), and sporozoites, one of which is cut longitudinally (small arrows). (From Hill and others, 2005. µm, micrometer)

In immunosuppressed patients, such as those given large doses of immunosuppressive agents in preparation for organ transplants and in those with acquired immunodeficiency syndrome (AIDS), rupture of a tissue cyst may result in transformation of bradyzoites into tachyzoites and renewed multiplication. The immunosuppressed host may die from toxoplasmosis unless treated. It is not known how **corticosteroids** cause relapse, but it is unlikely that they directly cause rupture of the tissue cysts.

Domestic cats, rather than wild felids, probably act as the primary source of infective oocysts in the environment, leading to infections in humans and animals, both domestic and wild. Food-borne transmission of the parasite is an important route of infection, particularly for people eating undercooked meat (box 8). Numerous wild species of animals may be infected with *T. gondii* (see Species Susceptibility) without showing clinical signs, thus presenting risks to humans who eat wild game or who skin animals for their fur. Because of the presence of viable organisms in subclinically infected animals (Dubey, 1982, 1983b; Dietz and others, 1993), careful and hygienic pelting practices may mitigate the risk of infection with *T. gondii*. In Texas, discussions are underway to regulate the translocation of feral hogs for hunting purposes because of the possible spread of porcine diseases (Leggett, 2008). If the hogs are also infected with *T. gondii*, they may spread the parasite to new areas and present a risk to the hunters consuming them.

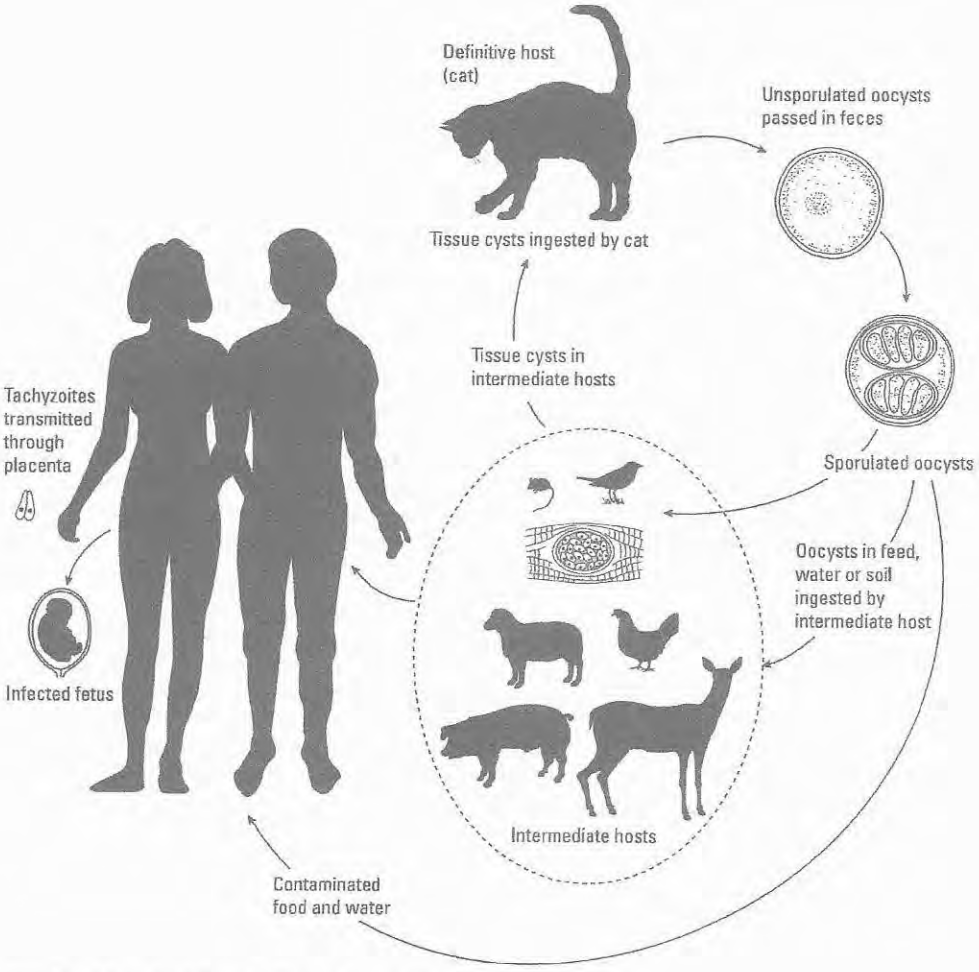


Figure 12. Life cycle of *T. gondii*. (From Dubey and Beattie, 1988)

Box 7 Cats and Toxoplasmosis

Fact or fiction: "The most efficient way to get toxoplasmosis from a cat is to eat the cat undercooked!" (Colville and Berryhill, 2007)

Cats are the most common pet in the United States according to the American Veterinary Medical Association (2007). Thirty-three percent of U.S. households own at least 1 cat, totaling 81 million owned cats (Conrad and others, 2005; Robertson, 2008). Large numbers of pet cats also exist in other countries. There are nearly as many feral cats (approximately 73 million) as there are household cats in the United States; both populations contribute to contamination of the environment with oocysts of *T. gondii* (Dabritz and others, 2006, 2007). Domestic cats, rather than wild species, are probably the major source of contamination because of the large number of owned and feral cats and because oocyst formation is greatest in domestic cats. Cats may excrete millions of oocysts after ingesting as few as one bradyzoite or one tissue cyst, resulting in widespread contamination of the environment (Frenkel and others, 1970; Dubey, 2001).

Countries with the largest numbers of pet cats.

[From Maps of World]

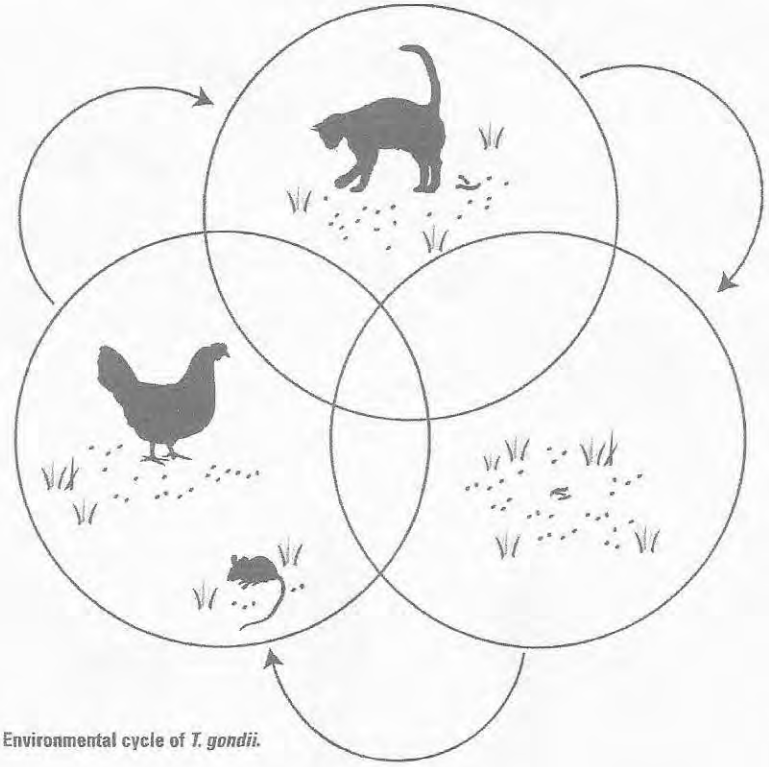
Country	Number of pet cats
United States	76,430,000
China	53,100,000
Russia	12,700,000
Brazil	12,466,000
France	9,600,000
Italy	9,400,000
United Kingdom	7,700,000
Germany	7,700,000
Ukraine	7,350,000
Japan	7,300,000

There are some who feel that the domestic cat is unjustly maligned relative to its role in the **maintenance** and spread of toxoplasmosis in humans (Colville and Berryhill, 2007). That feeling is reflected by the quotation highlighting this highlight box, yet the quotation and the belief are, in fact, untrue. Transmission by oocysts in cat feces is the most efficient means of transmission. Because felids are the only definitive host for *T. gondii*, this parasite could not complete its life cycle without cat species, and, thus, would cease to exist. Sporulated oocysts survive for long periods under most ordinary environmental conditions and for months even in harsh environments. They can survive in moist soil, for example, for months and even years (Dubey and Beattie, 1988). Oocysts in soil can be mechanically transmitted by **invertebrates** such as flies, cockroaches, dung beetles, and earthworms, which can spread oocysts onto human food and animal feeds.

Infection rates in cats are determined by the rate of infection in local avian and rodent populations, because cats are thought to become infected by eating these animals. The more oocysts there are in the environment, the more likely it is that prey animals will be infected, and this in turn will increase the infection rate in cats. Infection among food animals increases the risk of transmission to humans.

In certain areas of Brazil, approximately 60 percent of 6–8-year-old children have antibodies to *T. gondii* linked to the ingestion of oocysts from the environment, which is heavily contaminated with *T. gondii* oocysts (Bahia-Oliveira and others, 2003). The largest recorded outbreak of clinical toxoplasmosis in humans was epidemiologically linked to drinking water from a municipal water reservoir in British Columbia, Canada (Aramini and others, 1998; 1999). This water reservoir was thought to be contaminated with *T. gondii* oocysts excreted by cougars. Although attempts to recover *T. gondii* oocysts from water samples in the British Columbia outbreak were unsuccessful, methods to detect oocysts were reported (Isaac-Renton and others, 1998). An outbreak of toxoplasmosis at a riding stable in Atlanta, Ga., was attributed to either ingestion or inhalation of oocysts from dust in the stable contaminated with cat feces (Teutsch, and others, 1979).

Cat feces contaminated with oocysts are not only an outdoor risk—they are an indoor risk to cat owners who are unaware of the risk of acquiring toxoplasmosis from indoor cats. A diet of only high quality commercial pet food—never raw or undercooked meats—and clean, fresh drinking water will decrease the chance of a pet cat becoming infected. Hunting by pet cats, and their ingestion of infected prey, can be limited by keeping them indoors. Daily cleaning of litter boxes limits the time for newly defecated oocysts to become infectious. Pregnant women and immunocompromised people can decrease their risk of infection by asking other, immunocompetent people to clean litter boxes. Basic rules of hygiene, including washing hands after emptying litter boxes, after handling cats, and before eating can decrease the risk of infection. With proper precautions and education, cat ownership need not be detrimental to one's health or to the environment.



Environmental cycle of *T. gondii*.

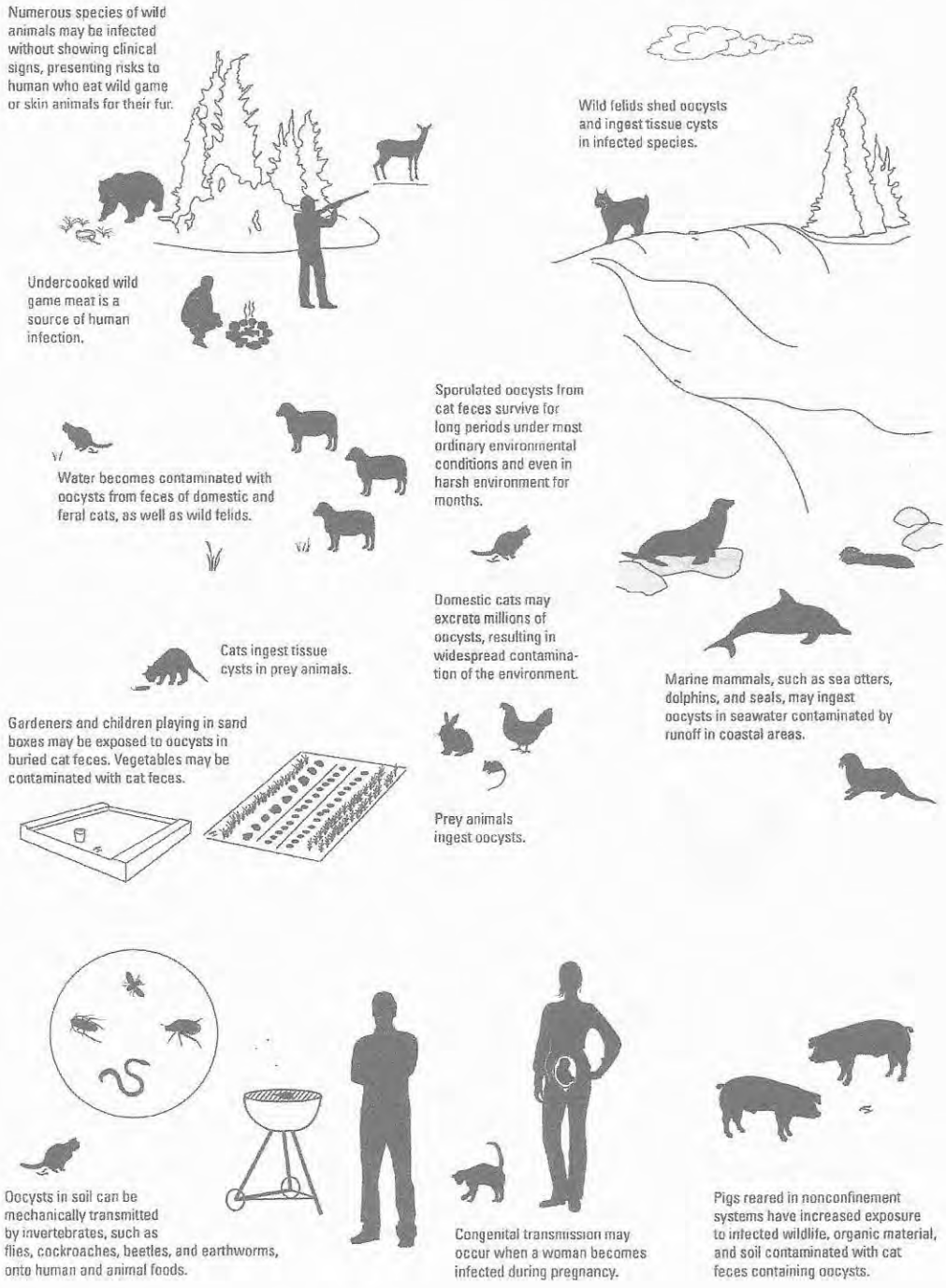


Figure 13. General pathways for infection with *T. gondii*.

ISSUE BRIEFING PAPER
ISSUE: Management of feral cat colonies & Trap, Neuter, and Release (TNR) Programs
Last updated: June 2014

STAFF CONTACT: Richard Heilbrun, TPWD Conservation Outreach Program Coordinator, Richard.Heilbrun@tpwd.texas.gov

COMMUNICATION GUIDANCE: This document is intended to provide information to the public, municipal or governing organizations, and Texas Parks and Wildlife Department (TPWD) staff regarding the management of local feral cat populations and the efficacy of Trap, Neuter, and Release (TNR) programs.

BACKGROUND: Municipalities are often asked to mediate public debate on the issue of managing feral cat populations and provide solutions to address the conflicting priorities of different stakeholders within a community. TNR programs are sometimes suggested as a humane way to address public concerns about the threats feral and free-roaming cats pose. TPWD provides this objective, science-based statement to organizations and governments tasked with balancing the needs of feral and free-roaming cats, public health, and local ecosystem health.

TPWD POSITION: Feral (non-owned) and free-roaming cats pose a direct threat to the health of our natural resources. Feral cat colonies negatively impact songbirds, small mammals, amphibians, and other native wildlife populations. Feeding programs are not recommended because they concentrate cats and wild animals into single areas, which can increase disease transmission and pose greater threats to native wildlife in the area. Neither intentional feeding of free-roaming cats or the sanctioning of managed cat colonies addresses ecological, animal health, or public health concerns, nor does it address population control.[1,2] Additionally, TNR programs are not effective at alleviating the threats of feral and free-roaming cat colonies on feline health, human health or native wildlife populations. Sterilization programs are ineffective in managing feral and free-roaming cat populations,[3] and do not address the ecological impacts that these cat populations can have on our natural resources.[4,1] For these reasons, which are explained in detail below, TPWD does not support the creation or perpetuation of feral or free-roaming cat colonies or feeding, sterilization, or Trap, Neuter, and Release programs.

KEY INFORMATION:

- **ECOLOGICAL EFFECTS ON WILDLIFE:** Because hunting is a deeply instinctive behavior of cats, even well-fed cats will prey on native wildlife.[5] They prey on native species, especially impacting declining, rare, or sensitive populations, including birds, reptiles, and mammals. Domestic and feral cats are not native predators in Texas, and their hunting behaviors disrupt natural ecological processes. Feral and free-roaming cats alter the ecological balance of a region, as does any other feral non-native (exotic) animal. Feral cats' diets have been shown to consist of 69 percent mammal (including native voles, rabbits, and mice), 24 percent birds, and around 5 percent reptiles/amphibians.[6] Scientific research shows that free-roaming domestic cats kill between 1.4–3.7 billion birds and 6.9–20.7 billion mammals

annually and that free-roaming cats are likely the single greatest source of anthropogenic (human caused) mortality for US birds and mammals.[7,8] Studies have also shown that food provisions from colonies attract immigrating cats and other wildlife species,[9,10] and that native wildlife closest to feeding stations are at the greatest risk of depredation by feral cats.[11] This is of particular concern when managed cat colonies are located in sensitive or particularly diverse natural areas.

- **PUBLIC HEALTH EFFECTS.** Rabies in cats is more than twice as common as in dogs or cattle,[12] and cats are the domestic animal most commonly reported rabid.[10] Zoonotic diseases and their agents known to be associated with cats include rabies, toxoplasmosis (*Toxoplasma gondii*), cat scratch disease (*Bartonella spp.*), roundworm (*Toxocara cati*), ringworm (*Microsporum canis*), cryptosporidiosis (*Cryptosporidium spp.*), campylobacteriosis (*Campylobacter spp.*), plague (*Yersina pestis*), *Cheyletiella* mites, and tularemia (*Francisella tularensis*).[13] Feeding stations intended for cats actually attract a variety of animals such as rats, raccoons, skunks, opossums, and foxes, putting these animals in unusually close contact with humans, cats, and each other. This close contact increases the risk of contracting and spreading diseases, including rabies, to other wildlife, cats, and humans.[14,2]

- **HEALTH OF INDIVIDUAL CATS.** Wild and free-roaming cats lead a stressful life. Diseases, depredation, and accidental or intentional injuries significantly decrease the quality of life for feral and free-roaming cats, even if municipal staff or volunteers have the resources to intensively manage a colony. In addition to the zoonotic diseases listed above, several diseases commonly found in cat colonies impact the health of cats, including rabies, feline leukemia, feline immunodeficiency virus, roundworm, ringworm, fleas, ticks, ear mites, abscesses, respiratory infections, urinary tract infections, and eye infections. Some of these maladies are incurable, and others require multiple treatments or vaccinations. Cats that have been previously trapped to administer medical treatment often become shy of traps and are difficult to trap again for immunization or continued treatment for illness or injury. Feral cats are also particularly vulnerable to vehicle impacts, injury, and depredation by native wildlife.[2] Cat colonies lead to a stressful, painful and unhealthy existence for individual cats within a colony.

- **EFFICACY OF TNR PROGRAMS.** TNR programs are ineffective. Managers of these programs cannot prevent new cats from being added to a population, and they cannot neuter the vast majority (70% to 90%) of the population, both of which are required assumptions for population reduction.[9,15,] TNR programs repeatedly fail to eliminate or control cat colonies due to ongoing cat immigration from surrounding areas.[9] Scientifically vetted studies have demonstrated that TNR programs do not prevent overpopulation of feral cats, reduce population size over time, prevent losses to native wildlife, or prevent disease transmission.[15,16,17,18,19,20, ,21,22]

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GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

January 2, 2015

Columbus Council
3111 Citizens Way
Columbus, Georgia 31906

Dear Councilors:

On behalf of the Nongame Conservation Section of the Wildlife Resources Division, Georgia Department of Natural Resources, I am writing to express concern about the establishment of Trap-Neuter-Release (TNR) colonies as a means of dealing with feral house cats in Columbus, Georgia. We strongly recommend against the practice of allowing domestic or feral house cats (*Felis catus*) to roam freely because of the significant adverse impacts these cats can have on native wildlife, including federally protected birds and other rare species.

House cats are non-native predators that are responsible for killing hundreds of millions of birds annually in the United States[1]. Many free-ranging cats are fed by people directly or use human-generated food sources such as garbage. This food subsidy can allow large numbers of cats to live in an area and often results in excessive predation of native wildlife. Research has shown that predation by house cats can lead to locally depressed populations of birds and other wildlife, and in extreme cases some wildlife species can be extirpated from an area or driven to extinction[2].

While spaying and neutering cats at colonies will reduce their reproductive output, it does not eliminate those individuals as a source of mortality on wildlife while they roam freely at the site and in surrounding areas. In addition, studies have shown that there are often significant numbers of cats at colonies that never get spayed or neutered because they elude capture[3]. The house cat's instinct to hunt is not driven solely by hunger, so feeding cats at TNR sites will not stop them from hunting and killing wildlife[4]. Supplemental feeding will allow survival of larger

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numbers of cats at colonies and exacerbate the predation problem. Studies have shown that TNR colonies often experience a significant influx of new cats that are abandoned by people at these sites because they know the cats will be fed. Other feral cats are commonly drawn to the colony site from surrounding areas by the supplemental feeding. In fact, many colonies have been found to increase substantially in size over time rather than remain stable or decline[5].

Feral house cats are subjected to virulent and pathogenic diseases and internal and external parasites, particularly when living in high densities, such as at a colony site. These diseases and parasites often lead to poor health and reduced life expectancy in feral individuals. House cats have also been documented as vectors in the spread of virulent diseases among native wildlife populations[6]. In some cases, these diseases have caused significant negative impacts to populations of native wildlife species[7]. This is a particularly important concern when rare or endangered species are involved.

There are also human health risks associated with TNR colonies and feral cats. Cats can carry and transmit the rabies virus, and in fact have been identified as a significant source of human infection[8]. Even when TNR cats are vaccinated, the vaccination only lasts a few years, and unless that particular cat is captured and vaccinated again it could contract rabies. Other zoonotic diseases transmitted by cats include salmonellosis, bartonellosis, and toxoplasmosis[9].

Cats from TNR colonies, as well as other feral and free-ranging cats, can directly conflict with the rights of property owners who want to maintain, encourage, and enhance native wildlife populations on their property. They can also infringe on the rights of citizens who want native wildlife populations maintained on public properties such as parks, natural areas, and other sites.

In summary, we support control and management of feral and free-ranging cats and recommend against the use of TNR programs. Numerous studies have shown that TNR is not an effective mechanism to control feral cat populations and is not a responsible approach to dealing with feral cat issues. Additionally, TNR contributes to poor health in these cats, can increase health risks for wildlife and humans, and can facilitate excessive predation on native wildlife species that are valued by many citizens[10].

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We offer the following recommendations for control and management of feral and free-ranging house cats:

1) Control populations of feral cats through humane capture, medical evaluation, neutering, vaccination, and adoption, if possible. Humane euthanasia of diseased or otherwise unadoptable cats will be a necessary component of this program.

2) Prioritize removal of cat colonies and free-ranging cats in natural areas, sites with rare species, areas managed for wildlife, and public parks.

3) Require that cats trapped, neutered, vaccinated, and adopted by individuals or organizations be kept indoors or in an enclosed or fenced facility that prevents the cats from roaming outside of these areas.

4) Support the American Bird Conservancy's "Cats Indoors" educational program.

5) Encourage micro-chipping of all cats held as pets. Require micro-chipping of all cats sold commercially, adopted through animal welfare or control facilities, or released into managed enclosures or fenced areas. This will help identify owners of lost cats or the facilities from which these stray cats came.

Thank you for the opportunity to provide comments on this issue. If you have any questions or need additional information on the impacts of feral and free-roaming cats on native wildlife, please contact Todd Schneider at 478-994-1438 or todd.schneider@dnr.state.ga.us

Sincerely,

Jonathan Ambrose, Ph.D.
Chief, Nongame Conservation

C: Todd Schneider

THE WILDLIFE SOCIETY
Leaders in Wildlife Science, Management and Conservation

Issue Statement

Feral and Free-Ranging Domestic Cats

Feral and free-ranging domestic cats are exotic species to North America. Exotic species are recognized as one of the most widespread and serious threats to the integrity of native wildlife populations and natural ecosystems. Exotic species present special challenges for wildlife managers because their negative impacts on native species are poorly understood by the public to the point that many exotic species are perceived as a natural component of the environment. Some exotic species have advocacy groups that promote their continued presence, and few policies and laws deal directly with their control. Perhaps no issue has captured more of the challenges for contemporary wildlife management than the impacts of feral or free-ranging domestic cats and their impacts on native wildlife.

Domestic cats originated from an ancestral wild species, the European and African wild cat (*Felis silvestris*). The domestic cat (*Felis catus*) is now considered a separate species, and is found on all 7 continents, with 600 million cats worldwide and 148-188 million within the U.S.. Domestic cats have great reproductive potential. Individuals become sexually mature as early as 6 months of age, and reproduction can occur throughout the year. A single female may produce as many as 3 litters each year with 2 to 4 kittens per litter, with the capacity to successfully raise as many as 12 offspring in any given year.

A growing body of literature strongly suggests that domestic cats are significant predators on small mammals, birds, reptiles, and amphibians. Feral and free-ranging cats also serve as reservoirs for several diseases, including rabies, toxoplasmosis, bartonellosis, typhus, and feline immunodeficiency virus, that can have significant effects on the health of humans, wildlife, and other domestic animals. Because humans often feed free-ranging cats, they can reach population levels that may result in abnormally high predation rates on wildlife and increase the spread of diseases. Domestic cats have tremendous impacts on wildlife and are responsible for the extinction of numerous mammals, reptiles, and at least 33 bird species globally. Effects of cat predation and disease spread are most pronounced in island settings (both actual islands and islands of habitat), where populations of wildlife are already low or stressed by other factors. Effects are also significant in natural areas where cat colonies become established. Competition with native predators, disease implications for native wildlife populations, and pet owners' attitudes toward wildlife and wildlife management also are important issues.

Extensive popular debate over absolute numbers or types of prey taken by feral and free-ranging cats is not productive. The number of cats is undeniably large. Even if conservative estimates of prey taken are considered, the number of prey animals killed is immense. The supplemental feeding of cats does not deter them from killing wildlife; often they do not eat what they kill. Likewise, population-level impacts of diseases associated with cats have only been established in a few wildlife species, such as southern sea otters (*Enhydra lutris nereis*), but negative individual impacts clearly occur in an extremely wide range of species. Humans introduced cats to North America, and humans are ultimately responsible for the effects these animals have on native wildlife species.

The policy of The Wildlife Society regarding feral and free-ranging domestic cats is to:

1. Support and encourage the humane elimination of feral cat populations, including feral cat colonies, through adoption into indoor-only homes of eligible cats and humane euthanasia of unadoptable cats.

2. Support the passage and enforcement of local and state ordinances prohibiting the feeding of feral cats, especially on public lands, and the release of unwanted pet or feral cats into the wild.

3. Oppose the passage of any local or state ordinances that legalize the maintenance of "managed" (trap/neuter/release) free-ranging cat colonies.

4. Support educational programs and materials that provide scientific information on feral cats and the negative effects on cats from living outdoors, and call on pet owners to keep cats indoors, in outdoor enclosures, or on a leash.

5. Support programs to educate and encourage pet owners to neuter or spay their cats, and encourage all pet adoption programs to require potential owners to spay or neuter their pet.

6. Support the development and dissemination of information on what individual cat owners can do to minimize predation by free-ranging cats, and to minimize potential disease transmission to humans, wildlife, cats, and other domestic animals.

7. Pledge to work with the conservation and animal welfare communities to educate the public about the effects of free-ranging and feral cats on native wildlife, including birds, small mammals, reptiles, amphibians, and endangered species.

8. Support educational efforts to encourage the agricultural community to keep farm-cat numbers at low, manageable levels and use alternative, environmentally safe rodent control methods.

9. Support efforts to reduce risks to the health of humans and other animals posed by diseases and parasites of feral cats, including but not limited to removal of free-ranging cats and elimination of feral cat colonies. Encourage researchers to develop, obtain, and disseminate information on the impacts of feral and free-ranging cats on native wildlife populations, relative to predation, competition, and diseases.

10. Recognize that cats as pets have a long association with humans, and that responsible cat owners are to be encouraged to continue caring for the animals under their control.

*The Wildlife Society's **Position Statement on Invasive and Feral Species** states that the Society opposes "introduction or maintenance of invasive species and feral species that threaten the survival of indigenous species" (TWS 2016).*

Opinions from the Front Lines of Cat Colony Management Conflict

M. Nils Peterson[1*], Brett Hartis[1], Shari Rodriguez[1], Matthew Green[2], Christopher A. Lepczyk[3]

1 Fisheries, Wildlife, and Conservation Biology Program, Department of Forestry & Environmental Resources, North Carolina State University, Raleigh, North Carolina, United States of America, **2** Department of Entomology, North Carolina State University, Raleigh, North Carolina, United States of America, **3** Department of Natural Resources and Environmental Management, University of Hawai'i at Mānoa, Honolulu, United States of America

Abstract

Outdoor cats represent a global threat to terrestrial vertebrate conservation, but management has been rife with conflict due to differences in views of the problem and appropriate responses to it. To evaluate these differences we conducted a survey of opinions about outdoor cats and their management with two contrasting stakeholder groups, cat colony caretakers (CCCs) and bird conservation professionals (BCPs) across the United States. Group opinions were polarized, for both normative statements (CCCs supported treating feral cats as protected wildlife and using trap neuter and release [TNR] and BCPs supported treating feral cats as pests and using euthanasia) and empirical statements. Opinions also were related to gender, age, and education, with females and older respondents being less likely than their counterparts to support treating feral cats as pests, and females being less likely than males to support euthanasia. Most CCCs held false beliefs about the impacts of feral cats on wildlife and the impacts of TNR (e.g., 9% believed feral cats harmed bird populations, 70% believed TNR eliminates cat colonies, and 18% disagreed with the statement that feral cats filled the role of native predators). Only 6% of CCCs believed feral cats carried diseases. To the extent the beliefs held by CCCs are rooted in lack of knowledge and mistrust, rather than denial of directly observable phenomenon, the conservation community can manage these conflicts more productively by bringing CCCs into the process of defining data collection methods, defining study/management locations, and identifying common goals related to caring for animals.

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Table 2. Response distributions for opinions about feral cats and feral cat colony management among cat colony caretaker (CCC, n = 338) and bird conservation professional (BCP, n = 239) respondents from across the United States during 2011.

Question	Group	Agreement level (%)				
		Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1. Feral cats should be treated as protected wildlife	CCC	3	5	14	20	59
	BCP	94	4	1	1	0
2. Feral cats should be treated as pests	CCC	96	3	1	0	1
	BCP	11	8	4	17	61
3. Feral cats fill a natural role as predators	CCC	5	13	23	32	27
	BCP	88	6	3	2	1
4. Feral cats are a reservoir for disease	CCC	72	14	8	5	1
	BCP	4	8	26	28	35
5. Feral cats ONLY harm wildlife on islands	CCC	39	20	39	2	1
	BCP	90	5	2	0	3
6. Feral cats contribute to decline of native birds	CCC	41	19	19	16	4
	BCP	8	1	5	12	75
7. Feral cats are eventually eliminated by TNR	CCC	12	11	9	29	40
	BCP	61	16	15	6	3
8. Feral cat colonies should be managed using euthanasia	CCC	96	3	0	1	0
	BCP	5	7	13	30	45
9. Feral cat colonies should be managed using TNR	CCC	1	1	1	3	95
	BCP	54	14	9	13	9

doi:10.1371/journal.pone.0044616.t002

Peterson MN, Hartis B, Rodriguez S, Green M, Lepczyk CA (2012) Opinions from the Front Lines of Cat Colony Management Conflict. PLoS ONE 7(9): e44616. doi:10.1371/journal.pone.0044616
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Submitted By
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P.O. Box 87738
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I am strongly opposed to Proposal 62 (5 AAC 92.029), that would allow the release of sterilized, feral cats into the wild.

I am strongly in favor of Proposal 63 (5 AAC 92.029), that would prohibit the release of feral or stray domesticated cats into the wild. Cats are not native to the wild in North America, yet they are the number one predator of wild birds. Under no circumstances should cats be released into the wild.

October 25, 2017

To the Board of Game - Regarding Proposals 62 & 63

AGAINST Proposal 62:

It is widely acknowledged in scientific, ornithology and conservation circles, that both domestic and feral cats are the largest predator of song birds **world wide**.
Cats have contributed to the extinction of 33 species and continue to adversely impact a wide variety of other species, including those at risk of extinction.

This from Migratory Bird Center, Smithsonian Conservation Biology Institute:

“We estimate that free-ranging domestic cats kill 1.4-3.7 billion birds and 6.9-20.7 billion mammals annually. Un-owned cats, as opposed to owned pets, cause the majority of this mortality. Our findings suggest that free-ranging cats cause substantially greater wildlife mortality than previously thought and are likely the single greatest source of anthropogenic mortality for US birds and mammals.”

Cats do not just hunt adult birds; many birds are ground nesters, and the eggs and chicks are exceptionally vulnerable to predation. Plus, all birds are vulnerable when they first fledge from their nests.

Being ***non-native*** animals, these are invasive animals in the wild. Many municipalities in Canada already have bylaws that obligate residents to keep their pets indoors.

If anything, there is a good case for obliging all cat-owners to keep their pets inside at all times.

FOR Proposal 63:

For all the reasons stated above, coupled with the significant health hazards presented by cats, domestic and feral, I am favor of Proposal 63.

Thank you for your time.

Clark T Winne,
P.O.Box 15112, Fritz Creek, AK 99603

October 25, 2017

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FOR Proposal 63:

For all the reasons stated above, coupled with the significant health hazards presented by cats, domestic and feral, I am favor of Proposal 63.

Thank you for your time.

Victoria Wilson Winne,
P.O.Box 15112, Fritz Creek, AK 99603

Submitted By
Kathy
Submitted On
10/13/2017 9:04:58 AM
Affiliation

Please Do Not do this.

You will spread disease to your game (Toxoplasmosis) and also the children are vulnerable to this parasite. Your gamebird chicks will be at risk Look at Australia You do not want your beautiful ecosystem to end up with cats.,