

 The Need for Mythbusting

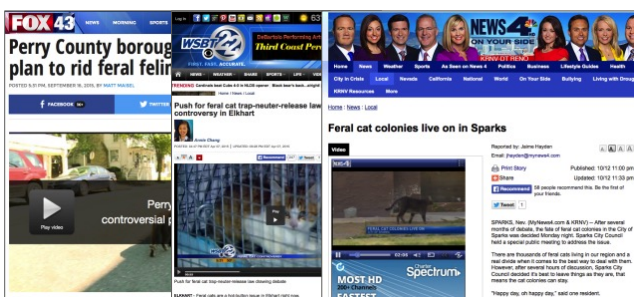
- Legitimate policy discussions begin with facts
 - Much of the science being reported is
 - Badly flawed
 - Produced by individuals and organizations openly opposed to TNR
 - Hardly the objective “search for truth” one might imagine
 - (Also: often funded with our tax dollars)

 The Need for Mythbusting

- Minimize conflict for individuals and organization conducting or supporting TNR
 - Supporting TNR does **not** put you at odds with
 - Wildlife conservation
 - Public health
 - Etc.

 The Need for Mythbusting

- Minimize conflict for individuals and organization conducting or supporting TNR



 **The Need for Mythbusting**


- Advocates need to be able to respond thoughtfully to TNR opposition
 - Ordinance changes
 - Media accounts
 - Etc.




George Cruikshank (1792–1878), "The Cat Did It," from *The Greatest Plague of Life*.




Big picture: TNR as public policy


 **TNR as Public Policy**

- Sound public policy must reflect sound science
 - There are only **two** approaches known to reduce the population of community cats
 - Intensive TNR efforts
 - Targeted (zip codes, neighborhoods, colonies, etc.)
 - Shelter-based return-to-field


 **TNR as Public Policy**

- Examples
 - Marion Island



 **TNR as Public Policy**

- Examples
 - Ascension Island
 - South Atlantic Ocean, sparsely populated
 - About 34 square miles in size
 - Roughly the size of Miami, FL

 **TNR as Public Policy**

- Examples
 - Ascension Island
 - Four-year restoration project
 - "...including eradication effort [resulting in the deaths of 635 cats] and monitoring of cats and seabirds"³
 - Taxpayers: nearly \$1.3M (in 2013 dollars)

3. Ratcliffe, N. et al. The eradication of feral cats from Ascension Island and its subsequent recolonization by seabirds. *Oryx* 44, 20–29 (2009).



Options and Feasibility

- What about the “traditional” approach?
 - Complaint-driven impoundment typically resulting in death
 - Not stabilizing or reducing the population of community cats



Options and Feasibility

- “Low-level ad hoc culling of feral cats”
 - Ineffective at reducing their numbers
 - And might actually lead to their increase⁴




4. Lazenby, B. T., Mooney, N. J. & Dickman, C. R. Effects of low-level culling of feral cats in open populations: a case study from the forests of southern Tasmania. *Wildlife Research* 41, 407–420 (2014).



TNR as Public Policy

- Sound public policy must reflect sound science
 - Eradication efforts are unlikely to attract much support anywhere in the U.S.
 - Horrendous methods employed
 - Astronomical expense
 - The only feasible option, then, is TNR



Mythbusting: Getting past the hype




Mythbusting

- Alleged wildlife impacts



The collage includes: 'Tweety Was Right' from The New York Times; 'House cats kill more' from USA Today; 'That Cuddly Kitty Is Dead' from Reuters; and 'Must Cats Die So Birds Can Live?' from the New York News & Politics. It also features a red cartoon bird character.




Mythbusting

- Alleged wildlife impacts
 - A brief history
 - "The cat, of all animals, is in some respects the most intimate companion of man... Nevertheless, it leads a dual existence..."




The document is titled 'THE DOMESTIC CAT' and discusses its impact on wildlife. It is from the 'BULLETIN No. 1' of the 'ECONOMIC BIOLOGY' series.

 **Mythbusting**


- Alleged wildlife impacts
 - A brief history
 - “The fireside sphinx,’ the pet of the children, the admired habitu  of the drawing-room or the salon by day, may become at night a wild animal... No animal that it can reach and master is safe from its ravenous clutches.”⁵

5. Forbush, Edward Howe. (1916). *The Domestic Cat: Bird Killer, Mouser and Destroyer of Wild Life; Means of Utilizing and Controlling It*. Wright and Potter Printing Company.


 **Mythbusting**

- Alleged wildlife impacts
 - A brief history
 - The “Wisconsin Study”
 - “birds killed annually by free-ranging cats in rural Wisconsin... 7.8–219 million”⁶


6. Coleman, John S., & Temple, Stanley A. (1995). How Many Birds Do Cats Kill? *Wildlife Control Technology*, 44.


 **Mythbusting**

- Alleged wildlife impacts
 - Grossly inflated estimates in three easy steps
 - Inflated estimates of outdoor cats
 - Various factors involved
 - For example: ignore surveys showing that two thirds of pet cats are indoor only
 - Inflated predation estimates
 - Various factors involved
 - For example: overestimate number of successful hunters
 - Errors compounded via multiplication


 Mythbusting

- Alleged wildlife impacts
 - A closer look at one high-profile paper
 - Cited in about 60 academic papers
 - Picked up by 38 news outlets



 Mythbusting


- Alleged wildlife impacts
 - 1.3–4.0 billion bird deaths per year attributed to domestic cats in the U.S.⁷



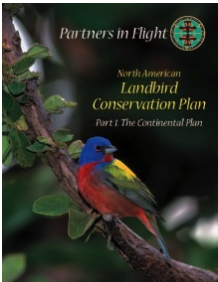
7. Loss, S. R., Will, T. & Marra, P. P. The impact of free-ranging domestic cats on wildlife of the United States. *Nature Communications* 4 (2013).

 Mythbusting




 Mythbusting

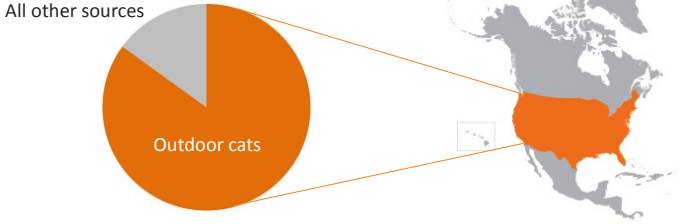
- Alleged wildlife impacts
 - Reality check
 - Partners in Flight Population Estimates Database: total number of landbirds in North America is about 4.7 billion⁸




8. Rich, T. D. et al. *Partners in Flight North American Landbird Conservation Plan*. (Cornell Lab of Ornithology, Ithaca, NY, 2004).

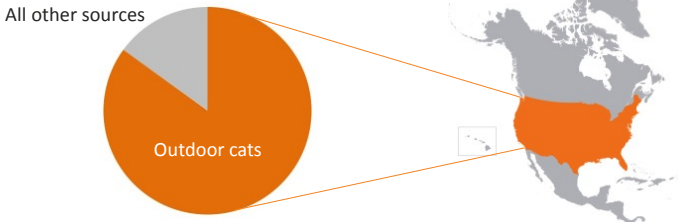
 Mythbusting

- Alleged wildlife impacts
 - Reality check
 - How can free-roaming cats in the U.S. alone be killing up to 85% of North America's birds each year?



 Mythbusting

- Alleged wildlife impacts
 - Reality check
 - Were this even close to accurate, there would be no birds left!




 **Mythbusting**

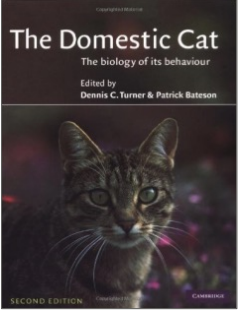
- Alleged wildlife impacts
 - Reality check
 - 2014 State of the Birds report
 - “Habitat loss is by far the Greatest cause of bird population declines”⁹




9. North American Bird Conservation Initiative, U.S. Committee. *The State of the Birds 2014 Report*. (U.S. Department of Interior, Washington, D.C., 2014).

 **Mythbusting**

- Alleged wildlife impacts
 - Reality check
 - Review of more than 80 predation studies
 - “There are few, if any studies apart from island ones, that actually demonstrate that cats have reduced bird populations.”¹⁰



10. Fitzgerald, B.M. and D.C. Turner, *Hunting Behaviour of domestic cats and their impact on prey populations*, in *The Domestic Cat: The biology of its behaviour*, D.C. Turner and P.P.G. Bateson, Editors. 2000, Cambridge University Press. p. 151–175.

 **Mythbusting**

- Alleged wildlife impacts
 - Reality check
 - Birds killed by cats are, on average, significantly less healthy than birds killed through non-predatory events (e.g., collisions with windows or cars)¹¹


11. Møller, A.P. and J. Erritzøe, Predation against birds with low immunocompetence. *Oecologia*, 2000. 122(4): p. 500–504.



 Mythbusting


- Rabies
 - Reality check
 - “The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.”¹⁷

17. Roebeling, A. D., Johnson, D., Blanton, J. D., Levin, M., Slate, D., Fenwick, G., & Rupprecht, C. E. (2013). Rabies Prevention and Management of Cats in the Context of Trap-Neuter-Vaccinate-Release Programmes. *Zoonoses and Public Health*, 61(4), 290–296.

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 Mythbusting


- Rabies
 - Reality check
 - Only one study has investigated human exposures nationally
 - Dogs were six times more likely than cats to send a person to the emergency room for post exposure treatment²²

22. Moran, G.J., et al., Appropriateness of rabies postexposure prophylaxis treatment for animal exposures. Emergency ID Net Study Group. *Journal of the American Medical Association*, 2000. 284(8): p. 1001–1007.

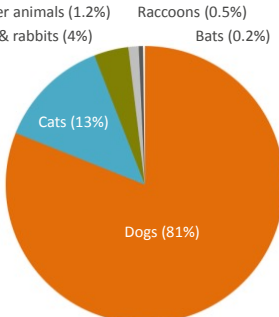
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 Mythbusting

- Rabies
 - Reality check




Animal Type	Percentage
Dogs	81%
Cats	13%
Rodents & rabbits	4%
Other animals	1.2%
Raccoons	0.5%
Bats	0.2%


22. Moran, G.J., et al., Appropriateness of rabies postexposure prophylaxis treatment for animal exposures. Emergency ID Net Study Group. *Journal of the American Medical Association*, 2000. 284(8): p. 1001–1007.

 Mythbusting


- Toxoplasmosis
 - Reality check
 - Links between *T. gondii* infection and mental illness, memory loss, etc. little more than correlation
 - Correlation ≠ causation

 Mythbusting

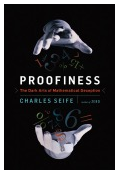
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 - Reality check
 - Links between *T. gondii* infection and mental illness, memory loss, etc. little more than correlation
 - Example: mid-1990s NutraSweet scare
 - » “These scientists noticed that there was an alarming rise in brain tumor rates about three or four years after NutraSweet was introduced in the market...”


 Mythbusting

- Toxoplasmosis
 - Reality check
 - Links between *T. gondii* infection and mental illness, memory loss, etc. little more than correlation
 - Example: mid-1990s NutraSweet scare
 - » NutraSweet consumption **was** going up at the same time brain tumor rates were — but a lot of other things were on the rise, too
 - Cable TV
 - Sony Walkmen
 - Tom Cruise’s career

 **Mythbusting**


- Toxoplasmosis
 - Reality check
 - Links between *T. gondii* infection and mental illness, memory loss, etc. little more than correlation
 - Example: mid-1990s NutraSweet scare
 - » “When Ronald Reagan took office in 1981, government spending increased just as dramatically as brain tumor rates...”
 - » The correlation between government over-spending and brain cancer is just as solid as the link between NutraSweet and brain cancer.”²⁵

 25. Seife, C., *Proofiness: The Dark Arts of Mathematical Deception*. 2010: Viking Adult.

 **Mythbusting**


- Toxoplasmosis
 - Reality check
 - Toxoplasmosis is a legitimate public health concern
 - However, “epidemiological studies often disagree on important risk factors for infection and disease, making health recommendations difficult to uniformly advocate”²⁶

26. Miller, N. J. *Toxoplasma gondii diversity: From seroprevalence in multiple host species to genotypic analysis of field isolates*. Doctor of Philosophy, University of Pennsylvania, (2013).

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 **Mythbusting**

- Toxoplasmosis
 - Reality check
 - Data from the large-scale National Health and Nutrition Examination Survey reveal significant decreases among people 12–49 years of age born in the U.S.²⁷
 - 1988–1994: 14.1%
 - 1999–2004: 9.0%
 - 2009–2010: 6.6%


27. Krueger, W., Hilborn, E., Converse, R. & Wade, T. Drinking water source and human *Toxoplasma gondii* infection in the United States: a cross-sectional analysis of NHANES data. *BMC Public Health* 14, 711 (2014).

 **Mythbusting**

- Toxoplasmosis
 - Reality check
 - Data from the large-scale National Health and Nutrition Examination Survey reveal significant decreases among people 12–49 years of age born in the U.S.²⁷
 - Over this same period (1988–2010), the popularity of TNR increased dramatically²⁸
 - » Raises doubts that community cats pose a serious threat

27. Krueger, W., Hilborn, E., Converse, R. & Wade, T. Drinking water source and human *Toxoplasma gondii* infection in the United States: a cross-sectional analysis of NHANES data. *BMC Public Health* 14, 711 (2014).

28. Holtz, E. *Trap-Neuter-Return Ordinances and Policies in the United States: The Future of Animal Control*. (Alley Cat Allies, Bethesda, MD, 2013).


 **Mythbusting**

- Toxoplasmosis
 - Reality check
 - “Unmanaged feral cats” are 4.8 times more likely to be exposed to *T. gondii* than managed colony cats
 - And 11.8 times more likely to shed oocysts in their feces²⁹
 - Feeding community cats would seem to be an effective measure for reducing the likelihood of *T. gondii* exposure in cats
 - » And, by extension, in humans

29. VanWormer, E., et al., *Toxoplasma gondii*, Source to Sea: Higher Contribution of Domestic Felids to Terrestrial Parasite Loading Despite Lower Infection Prevalence. *EcoHealth*, 2013: p. 1–13.




Summary



Mythbusting

- A careful review of the science
 - Sensational headlines driven largely by flawed science
 - Often by researchers with a clear agenda
 - (And reported by a media driven too much by sensationalism)
 - Few of the studies stand up to scrutiny
 - Flawed study design
 - Invalid results and conclusions



Mythbusting

- Remember: this is a **public policy** issue
 - What would we have if the pseudoscience and sensational claims were taken seriously?
 - Restrictions and/or prohibitions on TNR
 - The irony of it all
 - The very risks opponents about which opponents claim to be concerned actually **increase**, not decrease
 - More unvaccinated, unsterilized cats
 - More predation
 - Etc.