

## Merchants of doubt in the free-ranging cat conflict

**Article impact statement:** Misinformation campaigns create false doubt about free-ranging cat impacts, hinder efforts to manage cat numbers and conserve biodiversity.

**Running head:** Free-ranging cats

Separating fact from misinformation is a major barrier to public understanding of science and institutional adoption of evidence-based policy (UCS 2017). As described in *Merchants of Doubt* (Oreskes & Conway 2010), there are myriad examples of industry and special interests manufacturing doubt about scientific consensus to keep controversies alive and hinder policy changes regarding environmental and public health issues such as DDT, cigarette smoking, and climate change.

Another issue for which organized misinformation has clouded consensus and misled policies affecting human health and biodiversity conservation is free-ranging domestic cats. Free-ranging cats unquestionably threaten humans as hosts of zoonotic disease (CDC 2016), threaten biodiversity by causing tremendous wildlife mortality (Loss et al. 2013), have contributed to at least 63 extinctions (Doherty et al. 2016), and negatively affect vertebrate populations globally (Loss & Marra 2017). Yet, campaigns to fabricate doubt about cat impacts have entered conservation science (Wolf 2017) and policy arenas (CODC 2015) due to no-kill agendas of animal-rights advocates who support nonlethal management (e.g., trap-neuter-return [TNR]).

Misinformation strategies of free-ranging cat advocates strikingly duplicate past approaches of cigarette and climate-change fact fighters. Evidence-based conclusions about cat impacts are labeled junk science, and putative independent reports are commissioned that attack peer-reviewed science and support custom-tailored conclusions (ACA 2017a).

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Attention is diverted toward other threats to downplay cat impacts (BFAS 2017). To discredit science and incite followers, TNR advocates distort phrases from peer-reviewed papers and books in high-profile media outlets (Bekoff 2016; King 2016). Cat advocates advance propaganda that blatantly contradicts scientific evidence. One organization states “people are probably more likely to get toxoplasmosis from gardening or eating raw meat” (BFAS 2017) but fails to mention that free-ranging cats are the source of *Toxoplasma* oocysts in these infection pathways. Another claims cat predation helps balance ecosystems (ACA 2017a). Perhaps most commonly, cat advocates exaggerate TNR’s ability to reduce cat populations (Million Cat Challenge 2017; Marra & Santella 2016).

These misinformation efforts are well-organized and influence conservation policy. Alley Cat Allies, an organization with  $\geq 650,000$  members, encourages supporters to share falsehoods about cats through social media and hosts webinars on working with elected officials to influence policy (ACA 2017b). Vox Felina, a popular blog backed by Best Friends Animal Society, attacks studies illustrating negative effects of cats while touting anecdotes and the few studies contradicting the overwhelming consensus on cat impacts and the ineffectiveness of TNR. As a result, misinformation is echoed at policy hearings across the United States (CODC 2015).

Although conflicts abound in invasive species management (Crowley et al. 2017), few are as polarizing as the conflict surrounding cats. This conflict is like others in that it arises from differences in values that influence risk perceptions (Estevez et al. 2014). Conservation professionals generally view free-ranging cats as invasive species, whereas TNR advocates view them as individuals with a right to roam free. Unlike many conflicts, the cat conflict does not stem from underrepresentation of nonscientific viewpoints. Instead, science and scientists are underrepresented (Lepczyk et al. 2010), and the policy discourse is dominated

by special interests using misinformation to minimize cat impacts and overplay TNR's effectiveness.

The end game for these merchants of doubt is protected status and a continued free-ranging existence for this globally harmful invasive species. How can such an outcome be avoided? Invasive-species conflict resolution provides a start (Estevez et al. 2014; Crowley et al. 2017): consider the sociological context of the issue, engage early with TNR advocates, and include conservation professionals in policy discussions. Additional steps to counter misinformation campaigns, which hinder fair and balanced incorporation of scientific evidence into public policy, include raising awareness among scientists, policy makers, and the public about efforts to cloud the science on cats and equipping these groups with evidence-based information. These steps will help settle contentious discussions and point to evidence-driven solutions. Misinformation on social media (Howell 2013) can be countered by using digital platforms to disseminate evidence-based facts about cats. Investigative journalists can expose misinformation efforts, and respected media outlets can avoid manufactured debates (King 2016) and instead accurately represent scientific consensus. These steps will all help turn the tide in the broader effort to fight misinformation in science.

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