

Article

Perceptions of community cats and preferences for their management in Guelph, Ontario. Part II: A qualitative analysis

Lauren Van Patter, Tyler Flockhart, Jason Coe, Olaf Berke, Rodrigo Goller, Alice Hovorka, Shane Bateman

Abstract – Implementation of cat population management strategies that are effective and supported by the community requires knowledge of local contexts, public values, and preferences. From 2014 to 2015 the Guelph Cat Population Taskforce surveyed Guelph, Ontario residents to investigate attitudes and values concerning community cats and preferences for cat population management. Responses from 449 individuals were received through a combination of paper and online surveys. The results of a qualitative analysis of 7 open-ended survey questions are reported herein. Results indicate that community cat issues are largely attributed to perceptions of irresponsible pet ownership practices, highlighting the opportunity for public education. Participants identified the whole community as responsible for addressing the problem, suggesting the value of collaborative management approaches. This analysis also illuminated opportunities for combining well-supported strategies such as accessible or low-cost spay/neuter and trap-neuter-return (TNR) to implement a multifaceted approach. Overall, Guelph residents who responded to the survey gave a high priority to proactive, humane management of community cats.

Résumé – **Perceptions à l'égard des chats communautaires et préférences pour leur gestion à Guelph, en Ontario. Partie II : analyse qualitative.** La mise en œuvre de stratégies de gestion de la population de chats qui sont efficaces et appuyées par la collectivité exige la connaissance des contextes locaux ainsi que des valeurs et des préférences du public. De 2014 à 2015, le Groupe de travail sur la population de chats de Guelph a effectué une enquête auprès des résidents de Guelph, en Ontario, afin de connaître leurs attitudes et leurs valeurs à propos des chats communautaires et de leurs préférences pour la gestion de la population de chats. Des réponses ont été reçues de la part de 449 personnes sous forme d'une combinaison de sondages en format papier et en ligne. Les résultats de l'analyse qualitative de sept questions à développement sont présentés dans le présent article. Les résultats indiquent que les problèmes liés aux chats communautaires sont attribués en grande partie à des perceptions de pratiques de possession irresponsable d'animaux de compagnie, ce qui souligne une occasion d'éducation publique. Les participants ont identifié l'ensemble de la collectivité comme étant responsable de la résolution du problème, ce qui suggère la valeur d'approches de gestion concertée. Cette analyse a aussi mis en lumière des occasions de combiner des stratégies bien soutenues, comme la stérilisation accessible ou à faible coût et la capture-stérilisation-mise en liberté, afin de mettre en œuvre une approche à facettes multiples. Dans l'ensemble, les résidents de Guelph qui ont répondu à l'enquête ont accordé une priorité élevée à la gestion proactive et non cruelle des chats communautaires.

(Traduit par Isabelle Vallières)

Can Vet J 2019;60:48–54

Introduction

The management of free-living, stray, and feral — henceforth referred to as “community” cats (*Felis catus*) has implications for the veterinary and animal welfare community. Two-thirds of stakeholders in a recent national survey felt that

there was a cat overpopulation crisis in their community (1). Diverse cat population management approaches such as trap-neuter-return (TNR) and euthanasia can be met with both strong support and opposition in any given community. In order to implement cat population management tools that are both

Department of Clinical Sciences (Bateman), Department of Population Medicine (Coe, Berke), Ontario Veterinary College, Department of Geography (Van Patter), University of Guelph, Guelph, Ontario N1G 2W1; University of Maryland Center for Environmental Science Ringgold standard institution — Appalachian Laboratory, 301 Braddock Road, Cambridge, Maryland 21613, USA (Flockhart); City of Guelph — Intergovernmental Relations, Policy & Open Government, Guelph, Ontario (Goller); Queen's University — Geography & Planning, Kingston, Ontario (Hovorka).

Address all correspondence to Dr. Shane Bateman; e-mail: sbateman@uoguelph.ca

Use of this article is limited to a single copy for personal study. Anyone interested in obtaining reprints should contact the CVMA office (hbroughton@cvma-acmv.org) for additional copies or permission to use this material elsewhere.

effective and supported by the community, greater knowledge of local contexts and public values is necessary (2). The current dearth of information from Canadian contexts prevents municipalities from creating effective and sustainable urban animal strategies (3).

Little research has been conducted on community cats in the Canadian context (notable exceptions: 3–8). In the United States, surveys have been used to investigate public interactions with, perceptions of, and preferences concerning free-roaming cats in Texas (9), California (10), Ohio (11), Illinois (2), Georgia (12), and Hawaii (13). These studies use quantitative approaches to generalize results to the broader population. Quantitative analyses of human-animal relationships can oversimplify complex perceptions and values (14). While there are strengths to quantitative methods, qualitative approaches are particularly advantageous for understanding complex phenomena, personal experiences, and local contexts (15). By combining qualitative and quantitative methods using a mixed-method approach, research can attain both depth and breadth, generating a more holistic understanding of the research topic (15,16).

This research was undertaken from 2014 to 2015 in the city of Guelph by the Guelph Cat Population Taskforce (GCPT). Guelph is a medium-sized city in southwestern Ontario with a population of 131 794 (17). The climate is a challenge to the survival of community cats, with average winter (December–March, 1981 to 2010) temperatures of -4.1°C , and daily lows of up to -31.9°C (18). There is a strong veterinary infrastructure, with the Ontario Veterinary College, a well-organized local veterinary community, the Guelph Humane Society, and several smaller animal rescue/welfare organizations in the area.

The primary objective of our study was to gather data on perceptions and preferences concerning community cats, using the city of Guelph, Canada in order to inform cat management strategies and guide outreach and public education efforts. Additionally, our study sought to address gaps in the literature on public values and management priorities for community cats in Canada. A quantitative analysis of study findings are presented in our companion article in this issue, and report: an estimated 29 579 owned cats in Guelph and 8054 households feeding community cats; 41% of respondents believe community cats are a problem in the city; and high levels of support for responsible pet ownership education (90%), accessible or low-cost spay/neuter (86%), and trap-neuter-return (TNR) (78%), and low levels of support for inaction (4%) and euthanasia (20%) (8). This report adds nuance to our quantitative findings by providing a qualitative analysis of participants' written responses to 7 open-ended questions. The findings of this report both complement and extend the quantitative results, illuminating potential challenges and opportunities associated with diverse community cat management strategies.

Materials and methods

A pilot survey of 10 respondents was initiated in August, 2014. The final survey had 4 parts: Part A investigated opinions on community cats, such as if they are a problem in the city/neighborhood, and the number of cats around participants' homes. Part B explored perceptions of community cats, and

Table 1. Coding nodes employed during qualitative analysis in NVivo 11.

Questions/Themes	Coding nodes
Are community cats a problem?	Yes a problem Not a problem
Who is responsible for causing the community cat problem?	<i>City, GHS^a</i> <i>Owners</i> <i>Other</i>
Who is responsible for solving the community cat problem?	<i>City</i> <i>Community, everyone</i> <i>GHS^a, SPCA^b, etc.</i> <i>Owners</i> <i>Other</i>
Community cat management preferences:	Education Euthanasia <i>Implementation, resources</i> Licensing, bylaws <i>OVC^c, veterinarians</i> Owner regulation Owned cat spay, neuter TNR ^d <i>Trap neuter adopt</i>
Other themes:	Bird, wildlife concerns Nuisance Welfare

^a Guelph Humane Society.

^b Society for the Prevention of Cruelty to Animals.

^c Ontario Veterinary College.

^d Trap-neuter-return.

Emergent coding nodes in italics.

concerns surrounding: nuisance; public health; cat welfare; and wildlife. Part C investigated perceived effectiveness and level of support for management strategies, and whether participants wanted the GCPT to increase, decrease, stabilize, or eliminate the community cat population. Part D collected details on participants' pets and community cat feeding practices. Ethics approval was obtained from the University of Guelph Research Ethics Board (REB# 14JN012).

The survey was implemented in the city of Guelph using 2 strategies: in-person and online. The in-person survey was administered in November 2014. Seven volunteers recruited survey participants at 6 locations throughout the city. The in-person survey was completed by 116 respondents. The online survey was open between December 2014 and May 2015 through The City of Guelph online poll administration software service (19). Participants were recruited through press releases in the news publications *At Guelph* (20) and the *Guelph Mercury* (21). A GCPT pamphlet containing the survey link was distributed throughout the city to pet stores, veterinary offices, and cafés. Survey links were available through the GCPT website and were circulated using social media. The online survey was completed by 333 respondents, for a total of 449 participants.

A qualitative analysis of questions 4, 8, 10, 11, 12, 14, and 22 (Appendix I) was undertaken using NVivo 11 (22). A thematic analysis (23) was performed to evaluate participants' perceptions, values, and preferences concerning community cats. A combination of manifest and latent coding was employed, with some nodes (themes) established *a priori* and others emergent or developed as the data were analyzed (24) (Table 1).

Results

Participant demographics

Most participants were female (66.4%; male: 26.7%; prefer not to indicate: 2.4%; other: 0.9%; no response: 3.6%; $N = 449$). Participants' ages encompassed a broad range (under 20: 1.8%; 20 to 30: 24.1%; 31 to 40: 16.9%; 41 to 50: 18.7%; 51 to 60: 19.2%; 61 to 70: 11.8%; over 70: 4.9%; no response: 2.7%; $N = 449$). The highest level of education attained by most participants was post-secondary education (84.0% — elementary: 0.2% — high school: 12.2% — no response: 3.6%; $N = 449$).

Perceptions of community cats in Guelph

Are community cats a problem in Guelph? In my neighborhood?

Most participants did not perceive community cats as a problem in the city or their neighborhoods for 2 reasons. Firstly, participants explained that they weren't aware of community cats in the area: "I've never even seen a stray cat in any of my home neighborhoods... so I had no idea that feral cats were any sort of problem in Guelph;" "I've been living in Guelph nearly 10 years, spend a lot of time outdoors, and cannot once recall having an issue with community cats." Secondly, some people indicated that there were community cats in the area but they did not view this as problematic: "I don't mind them. There aren't large numbers in my area and those that there are seem well-fed;" "A few that hang around, they don't really bother us." Participants who did believe community cats were a problem explained: "The amount of roaming cats throughout this city is unacceptable;" and "Both community cats and owned outdoor cats are a big problem in my neighborhood."

Who is responsible for causing/solving community cat problems?

The majority of participants who considered community cats to be a problem felt that irresponsible cat owners were the primary cause. Lack of responsible pet ownership was generally characterized as: not spaying/neutering cats, letting cats roam outdoors, or abandoning them. For example, respondents wrote that community cat problems were caused by: "People who do not spay/neuter their cats and/or abandon them;" and "People who acquire cats without thinking it through beforehand." One participant further explained: "there will always exist a segment of pet owners within the population who is ignorant, immature, apathetic, or a poor decision maker," who will "continue to let their cats roam the neighborhood unfixed." A number of participants identified the community as a whole as responsible, for instance writing: "We all are. Ignoring a problem is as bad as creating it."

In terms of who is responsible for solving community cat problems, 4 main answer or opinion categories emerged: cat owners, the City of Guelph, animal organizations, and the community as a whole. In terms of cat owner responsibility, respondents explained: "Owners should be spaying/neutering their cats, and not letting them outside;" and "Owners but not all owners are responsible or concerned or think this is an issue. So then it falls onto the municipality to incorporate cats into the Nuisance Animal By-Law and enforcement." As demonstrated by the latter statement, many

participants who identified irresponsible cat owners as the cause of the problem identified the City of Guelph as responsible for solving it: "Pet owners won't therefore city?" "I think the city needs to provide the resources to solve the problem, including engaging caregivers, rescue groups, shelters, vets, local businesses, the University of Guelph and the Veterinary College." In terms of animal organizations, participants included "Animal control/animal shelters" and the "pet care community," although the majority specifically identified the Guelph Humane Society. Finally, a great number of participants identified the entire community as responsible for solving the problem: "We all should be i.e., the community;" "Community of Guelph; needs to be a group effort."

Wildlife concerns

A collection of survey respondents had concerns about the impacts of community cats on wildlife populations, especially songbirds: "These community cats are very good hunters and are disrupting the natural ecosystem by killing small game that could be food for natural predators such as foxes and owls;" "they are NOT a part of the local ecosystem and wildlife should not be subjected to their predatory behavior."

Nuisance concerns

Some participants expressed concerns with the nuisance posed by community cats: "They pee/spray on our house, they fight at night, they get into garbage, they sleep on my porch furniture;" "They damage my property by spraying defecating in my gardens and on my house. They are loud when fighting and mating." Despite these concerns, other participants felt that owned outdoor cats were responsible for such nuisance behavior rather than community cats: "I have more of an issue with cats owned but let out to roam free." Additionally, several participants specifically wrote that cats were not a nuisance: "They don't seem to be a nuisance in my neighborhood;" "They are hungry and living on our property. They are respectful and no trouble."

Welfare concerns

Most participants expressed concern about the welfare of community cats: "Cats are not equipped to handle the risks associated with a life outdoors and nor should they have to. As a community we should be responsible for these animals and want to improve their welfare;" "I worry about these cats suffering particularly in the winter months." Participants who fed community cats often explained that their behavior was fueled by compassion and the desire to alleviate suffering: "I feel sorry for them. I can't see an animal outside cold and hungry and not do anything;" "They are hungry. They also deserve the best chance in life they can get." Finally, participants emphasized humane population control measures: "Whatever methods are used for decreasing the population of Community Cats, consideration must be given to the humane treatment of all animals;" "All they know is that they would like to survive so I think the solution should be to put the cat welfare first priority."

Cats as victims

A discursive construction that emerged from the survey was that of cats as blameless victims: "we should remember that it

is not the cats' fault, they are victims of poor pet ownership," "the cats are unfortunate victims of the people's stupidity!" Participants clarified that humans have caused this situation, and it is therefore our responsibility to solve community cat issues by caring for them: "It's also not their fault, as ignorant humans have caused this problem by their selfishness;" "They are our responsibility. We put them there, we need to care for them."

Preferences for community cat management in Guelph

Pet-owner education

Participants often advocated for greater education in terms of the importance of spaying/neutering and the risks associated with allowing cats to roam freely outdoors: "Please educate the public about responsible pet ownership and the plight of community cats;" "Education in the community is most important." The following education strategies were suggested by 2 participants: "Free seminars at the library? Pamphlets in grocery bags? Talking to young children about animal care?" and

Directed extension: people (e.g., students during the summer) trained to visit homes and talk with those people who have pets about the issues surrounding loose cats in the city... Just blanket education through flyers or news articles will do almost nothing."

Despite the large number of participants who wrote about the need for education, a number identified that relying on education alone would not be effective: "Educating people about responsible pet ownership is a huge waste of resources. Pet owners who are responsible already know and those who aren't don't care;" "I do not believe "education" is the key here as this information has been available for a long time and owners just don't believe it."

Bylaws

Many participants wanted to see bylaws enforced that would prevent owned cats from contributing to community cat populations. Some individuals suggested bylaws against free-roaming, for instance advocating for: "City bylaws to stop cats from running at large;" and "fines on owners of cats that are repeatedly found to be roaming free." Several people felt that cats should be "licensed and leashed, just like dogs." Others suggested "a community bylaw for spaying or neutering owned outdoor free running cats." Some participants wrote that a licensing scheme would have the added benefit of providing funds for other aspects of community cat management: "Require cats to be registered, like dogs, with a fee. The fee could go to help offset costs of problems related to feral cats;" "fine income can be used to fund other necessary animal services." Other respondents were concerned that implementing licensing schemes could result in increased abandonment. As 2 participants explained: "My concern with some initiatives (identification, for example) is that the responsible pet owners will do it and end up paying more, and the irresponsible owners will simply abandon more pets;" "I would be concerned that simply creating a restrictive bylaw could cause a hostile backlash and result in more cats being brought to shelters where they would have to be euthanized."

Finally, several participants mentioned restricting animal sales in pet stores: "Enforcing policies at a federal level that deter sales of pets in pet stores"; "reducing/regulating non-home-based kitten sources, e.g., Pet stores not buying from "kitten mills," not selling cats at all, barn cats being monitored."

Accessible or low-cost spay/neuter

A number of participants noted the importance of accessible or low cost spay/neuter options, especially for lower income households: "We need a CHEAP spay/neuter clinic or mobile clinic in town such as what other cities have. Most people cannot afford vet fees which are going up at an ever-increasing rate per year;" "There is no low cost spay/neuter facility near Guelph, which would assist low income people in reducing the number of reproducing cats." Several respondents noted the availability of low-cost spay/neuter options in other communities in Ontario: "Newmarket and Barrie have \$60 neuter plan subsidized by taxes." In terms of the logistics for implementing such a strategy, 1 participant suggested: "Three-way funding for spay/neuter divided between the municipality, pet owners, and veterinarians."

Trap-neuter-return (TNR)

Some participants felt that TNR would not be an effective solution or were concerned with the resources required: "Spay or neutering is not only a financial burden it doesn't cure the problem for years to come;" "neuter/spay and return seems less cruel [than euthanasia], but I doubt its overall effectiveness." Others were concerned about the impacts of colony cats on wildlife, especially songbirds: "I like the concept of TNR but am also concerned about the impact those colonies have on bird populations."

In terms of support for TNR, it was advanced as an effective means of reducing the community cat population: "Trap-neuter-return is important ... this will hopefully decrease their numbers;" "by stabilizing their current population (trap, neuter, and return is awesome) within a few years numbers would go down naturally." Many participants were also supportive of TNR because they saw it as a humane alternative to euthanasia. As 2 participants explained: "I think focus should be doing TNR to reduce stray/feral populations so the humane society can cope and eliminate the need to euthanize;" "start a county group to help pay for TNR and stop shelters from killing." Others did not see TNR and euthanasia as mutually exclusive, suggesting both: "Euthanization and education and neutering/spaying seems to be the best;" "I think a combined Integrated Pest Management system should be put into place using Trap-Neuter/Spay-Release, habitat modification to deter feral cats, euthanasia to reduce over population." Other multi-faceted approaches were suggested: "I would like to see TNR programs in Guelph and low cost spay/neuter clinics;" "I see combination of education, accessible spay/neuter, and TNR as all important and necessary."

Euthanasia

A small number of participants argued that euthanasia would be the best measure, for several reasons: "Though harsh and unpleasant to think about, I believe euthanasia would certainly

be an effective solution;" "There is only one way to keep the population down and that is to capture and humanely euthanize them." Others argued that euthanasia was not a welfare issue: "Feral cats should be euthanized. There is nothing inhumane in this, if it is done in the standard, accepted way by a veterinarian;" "if deer can be culled because they get too numerous and they are beautiful creatures why can't cats be captured and humanely put down." Most participants indicated they were not supportive of lethal management of feral cats, for instance writing: "Please do not euthanize feral cat populations unless they are very sick!" and "I don't want to see community cats being euthanized in order to reduce their numbers." Some participants doubted the efficacy of euthanasia, for instance: "Euthanasia... is the same as doing nothing, because it will result in the *status quo* being perpetuated which means no change in the inherent attitudes that result in high levels of stray cats;" "Removing cats has never proven to help. Other cats move in when you take a colony out of its area." Others believed that euthanasia would be effective but did not support it: "I want to clarify the above part about euthanasia. Obviously, it would be 'extremely effective' at curbing community cat problems; however, I do not want to see that as an option, that would be my last option." Other participants echoed that euthanasia should only be used as a last resort: "I do not agree with euthanasia unless there is no other hope;"

"My strategy would be to spay/neuter/release as many feral cats as possible and trap and adopt as many as possible, while changing the cat bylaws and educating the public... If these ideas were not successful (i.e., could not spay/neuter enough of them, people kept releasing them, etc.) I think it would make sense to consider more drastic measures (i.e., euthanasia)."

Discussion

This report complements and extends the quantitative findings of our survey (8) by presenting a qualitative analysis of participants' responses to 7 open-ended questions. Key findings provide a more nuanced, in-depth understanding of how participants perceive community cats, as well as key opportunities for implementing community cat management strategies in the city of Guelph.

In terms of perceptions of community cats, written responses suggest that many participants did not see community cats as a problem in their neighborhood either because they were unaware of community cats around their homes, or they were aware of a small number of cats and did not view them as problematic. This suggests that some individuals may be tolerant to the presence of community cats. This further explains why only 10% of respondents wanted to see the community cat population eliminated (8). Written responses reinforced that, although there are some concerns about the impact of community cats on wildlife and the cats' nuisance behaviors, there appeared to be greater concern among participants for cat welfare. In line with this, compassion and the desire to alleviate suffering were most frequently noted as the motivation for feeding community cats, and participants emphasized that humane population control measures were of high priority. Furthermore, a discour-

sive construction that emerged was cats as blameless victims of human negligence in need of care. This echoes interview findings from southern Ontario where feral cats were frequently characterized as "suffering abandoned pets in need of rescue" (7, p. 10).

In terms of the source of community cat issues, participants primarily identified irresponsible pet ownership as the root cause (including not spaying/neutering cats, letting them roam outdoors, and abandoning them). This may explain why responsible pet ownership education received high levels of support on the survey (90%; 8). According to a national survey conducted in 2008, less than 24% of cats in Canada are purchased from "reputable" sources, limiting owners' access to pet care information, which could contribute to cat overpopulation issues (3). Interestingly, rather than indicating that cat owners alone were responsible for solving community cat problems, many participants wrote that owners, the city, and the community have a responsibility for managing the issue together.

In terms of management strategies, although they were not listed as tools on the survey, a number of participants suggested bylaws such as mandatory cat licensing and a prohibition against free-roaming. These responses may have been influenced by discussions concerning the Guelph Animal Control Bylaw review, which engaged the public in consultation during 2014 to 2015. As a result of the review, mandatory cat licensing will be implemented in 2018 (25). It has been suggested that uneven companion animal legislation, such as requiring dogs to be licensed but not cats, may arise because dogs and cats are valued differently in our society (3). Future studies could investigate if the implementation of licensing or other bylaws result in altered cat ownership practices reflecting an increase in value, or in increased abandonment as some participants of this study feared.

While some participants were supportive of euthanasia because it was perceived as effective, others emphasized that while it may be effective, they would not support it, presumably for ethical reasons. Other respondents expressed that euthanasia was a drastic measure, which should only be considered as a last resort if other management strategies proved insufficient. This aligns with a broader trend in society towards reduced acceptance for the euthanasia of surplus companion animals (5). Furthermore, participants purported that euthanasia was not proactive or preventative. This opinion stemmed from the belief that new cats would move into the area (the vacuum effect) (5), or that it would perpetuate the *status quo* rather than change human attitudes and behaviors that result in owned cat abandonment and breeding, ultimately contributing to community cat populations. A survey of Canadians in 2008 found that 66% of participants obtained their cat for free, possibly contributing to the lower value placed on companion cats and their care (3). It has been suggested that TNR campaigns that include articles and flyers may provide educational opportunities to cat owners in the community, possibly contributing to improved responsible pet ownership practices over time (5). Our findings demonstrate that participants may not support TNR due to perceived ineffectiveness, cost, or possible impacts on wildlife. Reasons for supporting TNR included the belief

that it was a humane alternative to euthanasia, and perceived long-term effectiveness. Trap-neuter-return was also often suggested to be used in combination with other strategies, including accessible or low-cost spay/neuter, education, and euthanasia, demonstrating support for a multifaceted management approach.

As with many surveys, especially those conducted online, our sample is subject to self-selection bias (26,27). This is reflected in participant demographics, which are not representative of the population of Guelph. This is a limitation, in that the results of this analysis may not be generalizable to the broader community. However, the aim of this article was not to provide generalizable results, but to provide a more in-depth, nuanced understanding of participants' perceptions and preferences to guide the future management of community cats in Guelph. Cat management efforts in Canada would benefit from future studies investigating the views and values of citizens towards community cats in other regions. Future studies could also explore public perceptions and preferences before and after the implementation of cat population management strategies such as education campaigns, accessible or low cost spay/neuter, or TNR.

Overall, this qualitative analysis highlights that participating Guelph residents give a high priority to proactive, humane management of community cats, and identifies opportunities for collaborative, multifaceted approaches. In terms of collaborative approaches, respondents expressed that the community needs to come together to solve the issue rather than relying on individualistic measures alone, such as pet owner actions and education. Furthermore, participants illuminated the opportunity for combining strategies to design a multifaceted approach. The city has already implemented cat licensing, which could be integrated with other well-supported measures such as accessible or low-cost spay/neuter and TNR. Collaborative, multifaceted approaches have been successful elsewhere, such as that developed by the Toronto Feral Cat TNR Coalition. The Coalition has brought together municipal animal control with humane and rescue groups to implement accessible spay/neuter clinics, education and training, and a centralized TNR program (28). The findings of this study will be used by the GCPT to continue advocating for research and action concerning community cat issues in Guelph. CVJ

Appendix I. Open-ended survey questions.

Open-ended Survey Questions

4. Please feel free to provide any other comments about your experience with Community Cats in Guelph
8. Are there other options that you believe would be effective to manage Guelph's Community Cat Population?
10. Are there other management options that you would support?
11. Who do you think is responsible for causing Community Cat problems?
12. Who do you think should be responsible for solving Community Cat problems?
14. Please feel free to provide any other comments about your values or preferences concerning the management of Community Cats in Guelph.
22. Why do you feed Community Cats?

For the full survey please contact the corresponding author.

References

1. Canadian Federation of Humane Societies. Cats in Canada 2017: A Five-Year Review of Cat Overpopulation. 2017. Available from: https://www.cfhs.ca/cats_in_canada_2017 Last accessed October 4, 2018.
2. Loyd KAT, Miller CA. Influence of demographics, experience and value orientations on preferences for lethal management of feral cats. *Hum Dimens Wildl* 2010;15:262–273.
3. Perrin T. The business of urban animals survey: The facts and statistics on companion animals in Canada. *Can Vet J* 2009;50:48–52.
4. Blancher P. Estimated number of birds killed by house cats (*Felis catus*) in Canada. *Avian Conserv Ecol* 2013;8:3.
5. Gibson KL, Keizer K, Golding C. A trap, neuter, and release program for feral cats on Prince Edward Island. *Can Vet J* 2002;43:695–698.
6. Flockhart DTT, Norris DR, Coe JB. Predicting free-roaming cat population densities in urban areas. *Anim Conserv* 2016;19:472–483.
7. Van Patter LE, Hovorka AJ. 'Of place' or 'of people': Exploring the animal spaces and beastly places of feral cats in southern Ontario. *Soc Cult Geogr* 2017;19:275–295.
8. Van Patter L, Flockhart T, Coe J, et al. Perceptions of community cats and preferences for their management in Guelph, Ontario. Part I: A quantitative analysis. *Can Vet J* 2019;60:41–47.
9. Ash SJ, Adams CE. Public preferences for free-ranging domestic cat (*Felis catus*) management options. *Wildl Soc B* 2003;31:334–339.
10. Dabritz HA, Atwill ER, Gardner IA, Miller MA, Conrad PA. Outdoor fecal deposition by free-roaming cats and attitudes of cat owners and nonowners toward stray pets, wildlife, and water pollution. *J Am Vet Med Assoc* 2006;229:74–81.
11. Lord LK. Attitudes toward and perceptions of free-roaming cats among individuals living in Ohio. *J Am Vet Med Assoc* 2008;232:1159–1167.
12. Loyd KAT, Hernandez SM. Public perceptions of domestic cats and preferences for feral cat management in the southeastern United States. *Anthrozoös* 2012;25:337–351.
13. Lohr CA, Lepczyk CA. Desires and management preferences of stakeholders regarding feral cats in the Hawaiian Islands. *Conserv Biol* 2014;28:392–403.
14. Seymour M, Wolch J. "A little bird told me...": Approaching animals through qualitative methods. In: DeLyser D, Herbert S, Aitken S, Crang M, McDowell L, eds. *The SAGE Handbook of Qualitative Geography*. Thousand Oaks, California: Sage, 2010:305–320.
15. Johnson RB, Onwuegbuzie AJ. Mixed methods research: A research paradigm whose time has come. *Educ Researcher* 2004;33:14–26.
16. Creswell JW, Plano Clark VL. *Designing and conducting mixed methods research*. Thousand Oaks, California: Sage, 2007.
17. Statistics Canada. Census Profile, 2016 Census, Guelph, City [Census subdivision], Ontario and Wellington, County [Census division], Ontario, 2017. Available from: <http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3523008&Geo2=CD&Code2=3523&Data=Count&SearchText=guelph&SearchType=Begins&SearchPR=01&B1=All&TABID=1> Last accessed October 4, 2018.
18. Environment Canada. Canadian Climate Normals 1981–2010 Station Data, Waterloo Wellington A Ontario. 2017. Available from: http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProx&txtRadius=25&optProxType=city&selCity=43%7C27%7C80%7C29%7CKitchener&selPark=&txtCentralLatDeg=&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongDeg=&txtCentralLongMin=0&txtCentralLongSec=0&stnID=4832&dispBack=0 Last accessed October 4, 2018.
19. Polldaddy Ltd., Sligo, Ireland. <https://polldaddy.com/> Last accessed October 4, 2018.
20. Pitman T. A Community Approach to Feral Cats. At Guelph 2015, Available from: <http://news.uoguelph.ca/2015/04/a-community-approach-to-feral-cats-2/> Last accessed October 4, 2018.
21. Kirsch V. Officials researching Guelph's population of stray cats. *Guelph Mercury* 2015. Available from: <http://www.guelphmercury.com/news-story/5260872-officials-researching-guelph-s-population-of-stray-cats/> Last accessed October 4, 2018.
22. NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 10, 2012.
23. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
24. Babbie ER, Benaquisto L. *Fundamentals of social research*. 3rd ed. Toronto, Ontario: Nelson Education, 2014.

25. City of Guelph. Minutes of the Guelph City Council meeting 19 December, 2016, Guelph City Hall, Guelph, Ontario, Canada. Available from: http://guelph.ca/wp-content/uploads/council_minutes_121916.pdf Last accessed October 4, 2018.
26. Bethlehem J. Selection bias in web surveys. *Int Stat Rev* 2010;78: 161–188.
27. Khazaal Y, Van Singer M, Chatton A, et al. Does self-selection affect samples' representativeness in online surveys? An investigation in online video game research. *J Med Internet Res* 2014;16:e164.
28. Toronto Feral Cat TNR Coalition. About Us. 2014. Available from: <https://torontoferalcatcoalition.ca/about-us/> Last accessed October 4, 2018.

Book Review Compte rendu de livre

Exotic Animal Formulary, 5th edition

Carpenter JW. Elsevier. St. Louis, Missouri, USA. 2018. 701 pp. ISBN: 9780-3234-4450-7.

This formulary is an absolute necessity for any practitioner delving into the complex and still often poorly understood areas of exotic animal medicine. Regardless of whether you are working on rabbits, rodents, birds, or invertebrates, this book is an essential tool to practice medicine on these finicky creatures.

The main part of this book comprises the traditional formulary references for doses of common medications, hormones, and various supplements. There are also extensive sections with additional information including hematological and biochemical values, disinfectant choices, venipuncture sites, fluid therapy recommendations, suggested diets, cardiac measurements, and more. The book is organized by phylogenetic chapters and then each chapter is broken down into tables of references.

This updated edition has more current recommendations and a larger list of specialist contributors. A section on backyard poultry and waterfowl and an expanded “selected topics for the exotic animal veterinarian” section have also been added.

While this reference is very reliable, all suggestions need to be taken into consideration with sound medical judgment and background knowledge of the species. The book provides doses found in primary literature rather than a single dosage option.

For example, doxycycline has 20 suggested doses for birds. This encompasses multiple routes of administration and many different species and groups of birds with unique requirements. Sometimes for a particular species and medication there simply may not be an established dose and the suggestion may include a wide reference range, a greater than or equal to sign, and even anecdotal advice. Always be careful to read the comments section for a particular dosage, as they can include important notes such as “did not achieve adequate plasma concentrations for analgesia,” an important factor to consider. In these cases, current knowledge of the species and clinical judgment of your patient is critical in deciding what to do. When there are doubts of a recommendation given or more information is necessary, every dosage is referenced in a section included at the end of each chapter.

The field of veterinary medicine is changing rapidly, especially in a world with increased exchange of information. The same can be said for the field of exotic animal medicine. It is near impossible for a practitioner to stay current on a few species alone, never mind the seemingly endless field of exotic animal medicine. This resource provides an up-to-date quick reference and, when in doubt, excellent references to primary literature.

Reviewed by Daren Mandrusiak, DVM, Park Veterinary Centre, Sherwood Park, Alberta.