



Effect of a provincial feline onychectomy ban on cat intake and euthanasia in a British Columbia animal shelter system

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Abstract

Objectives The aim of this study was to determine whether there was an increase in cat relinquishment for destructive scratching behavior, a change in overall feline surrender intake and euthanasia, or a change in average length of stay in a British Columbia shelter system after provincial legislation banning elective onychectomy.

Methods Records of cats admitted to the British Columbia Society for the Prevention of Cruelty to Animals in the 36 months prior to (1 May 2015–30 April 2018, $n = 41,157$) and after (1 May 2018–30 April 2021, $n = 33,430$) the provincial ban on elective onychectomy were reviewed. Total intake numbers, euthanasia and length of stay were descriptively compared between periods. Proportions of cats and kittens surrendered for destructive scratching, as well as the proportion of cats and kittens surrendered with an owner request for euthanasia, were compared using two-sample z-tests of proportions.

Results Destructive behavior was found to be an uncommon reason for surrender (0.18% of surrendered cats) during the study period. There was no statistically significant difference in the number of cats surrendered for destructive scratching behavior ($z = -1.89$, $P > 0.05$) after the provincial ban on elective onychectomy. On the contrary, the proportion of owner-requested euthanasias decreased after the ban ($z = 3.90$, $P < 0.001$). The total number of cats surrendered, the shelter live release rate and average length of stay all remained stable or improved following the ban, though causation could not be determined.

Conclusions and relevance The findings in this study suggest that legislation banning elective onychectomy does not increase the risk of feline shelter relinquishment – for destructive behavior or overall – and is unlikely to have a significant effect on shelter euthanasia or length of stay.

Keywords: Onychectomy; declaw; shelter; relinquishment; surrender; intake; euthanasia; welfare; destructive behavior; length of stay

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Introduction

Elective onychectomy (declaw) is a procedure that consists of the amputation of the third phalanx (P3) of each digit. The procedure is generally requested by cat owners with the intention of avoiding damage to their property or personal injury from cat scratches.^{1–3} However, evidence suggests elective onychectomy can be associated with lameness, acute and chronic pain, as well as an increased risk of back pain, house-soiling, increased biting behavior and barbering in cats.^{2,4–6} Pain, lameness and changes in behavior can also be present in cats regardless of the method of amputation or anesthetic and

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analgesic protocols.^{7,8} Scratching is a natural behavior that is inherited and learned in cats that allows them to deposit pheromones, stretch and sharpen their claws.^{9,10} Because scratching is a natural behavior that cannot be eliminated, treatment recommendations focus on redirecting scratching behavior to more desirable surfaces, such as scratching posts.

The number of declawed cats in Canada is difficult to estimate, but the veterinary profession is gradually moving away from the procedure. A 2001 survey of Atlantic Canada veterinarians reported an average caseload of 7.8 onychectomy procedures per month.¹¹ However in a 2015 survey of Ontario veterinarians, 24% reported not performing onychectomy, and 60% of those who did perform the procedure reported doing so less than monthly.¹² In a similar 2018 survey of British Columbia veterinarians, 90.9% of responding veterinarians reported not performing routine onychectomy and 90.9% of those who did perform the procedure reported doing so 1–5 times per year.¹³ In this same survey, 53.8% of veterinarians reported performing onychectomy for ‘non-routine/non-therapeutic’ reasons, with 95.7% who did report it carrying out the procedure 1–5 times per year.¹³ The three main rationales given for ‘non-routine/non-therapeutic’ onychectomy were fear of owner-requested euthanasia (ORE; 38.3%), surrender (26.7%) or abandonment (25.1%).¹³

In an effort to promote animal welfare, multiple veterinary associations and legislative bodies have banned this procedure in domestic cats. At the time of writing, elective onychectomy is banned in seven Canadian provinces (starting with Nova Scotia and British Columbia in 2018), the state of New York in the USA (2019) and multiple American municipalities.^{14,15} Elective onychectomy has also been banned in several countries, including Brazil, Australia, New Zealand and many European countries. In 2020, the Mars Inc corporate practices of Banfield Pet Hospitals, VCA and Blue Pearl Pet Hospitals announced that elective onychectomy procedures would no longer be performed at their hospitals, totalling more than 2000 veterinary clinics in the USA.¹⁶ In 2017, the American Association of Feline Practitioners updated its position statement and now ‘strongly opposes declawing (onychectomy) as an elective procedure’.¹⁰ The Canadian and American Veterinary Medical Associations have recently updated their position statements on elective onychectomy, outlining welfare and behavior risks, encouraging veterinarians to counsel owners carefully about these risks, and emphasizing that scratching is a normal feline behavior.^{17,18} However, in North America many veterinary organizations have stopped short of completely condemning the practice, and consensus on the topic of onychectomy remains controversial both within and outside the veterinary community.¹⁹

One argument that is commonly used to defend elective onychectomy is that banning the procedure could lead to an increase in cat relinquishment to animal shelters

as some owners might find themselves faced with no other options.^{20–23} However, there is no peer-reviewed study that examines the effect on shelter admissions or outcomes in communities where a ban has been enacted.

On 4 May 2018, the College of Veterinarians of British Columbia (BC) banned elective feline onychectomy after a survey of registered BC veterinarians demonstrated majority support for a ban.¹³ The objectives of this study were to determine whether following the implementation of a ban on elective feline onychectomy there was (1) an increase in number or percentage of cats surrendered for destructive scratching behavior; (2) a change in overall shelter feline intake and/or euthanasia; and (3) an increase in cat or kitten length of stay (LOS) in the shelter system.

Materials and methods

Shelter system

The BC Society for the Prevention of Cruelty to Animals (SPCA) operates 34 animal shelters and two foster-based locations across the Western Canadian province of BC, representing a majority of animal shelters in the province. All locations accept cats, generally using managed intake procedures with intake policies varying from open to limited admission depending on location. The study protocol was approved by the BC SPCA Animal Welfare Committee and permission was given to access shelter data.

Data collection

Data were recorded from all BC SPCA locations from 1 January 2012 to 30 April 2021 in a centralized shelter-management software system (Shelter Buddy).

Annual records were analyzed to describe the context of broader trends in metrics over the decade surrounding the implementation of the ban. Records were also separated into two 36-month periods immediately preceding and succeeding the implementation of the provincial ban on 4 May 2018: period 1 (1 May 2015–30 April 2018 inclusive); and period 2 (1 May 2018 to 30 April 2021 inclusive).

Data reviewed included cat and kitten intake numbers and intake type (including owner surrender and ORE); outcomes, including euthanasia; and LOS in the shelter system. In the software system, cats <6 months of age were defined as kittens and cats >6 months of age were defined as adults. Live release rate (LRR) was calculated as recommended in the Asilomar Accords²⁴ by dividing total live outcomes (the sum of adoptions, outgoing transfers and cats returned to their owners) by the total outcomes (the sum of the total live outcomes plus total euthanized cats with the ORE subtracted).

LOS was calculated from the date of intake to outcome, subtracting days spent in foster care, legal hold and emergency boarding, but including the mandatory stray holding period. ORE was recorded as both an intake type

(based upon owner requests) and an outcome type. Data related to onychectomy status at shelter intake were not recorded consistently and could not be retrieved.

A primary surrender reason was recorded for each cat. The list of possible available surrender reasons in the shelter management software was edited on 1 January 2018, resulting in a limited data set for comparison between both periods. However, the category for destructive scratching behavior was preserved, so these data were compared for period 1 and period 2.

Statistical analysis

Shelter intake, LOS and outcome numbers are affected by many factors, and correlation would unlikely be owing to ban-related causation; therefore, these analyses were limited to describing data trends. The data set that was most likely to be primarily affected by an onychectomy ban with fewer confounding variables was the data relating to owner surrender for destructive scratching. The proportion of cats and kittens surrendered for destructive scratching was calculated for period 1 and period 2, and compared using a two-sample z-test of proportions. Likewise, the proportion of cats and kittens surrendered by their owners with a request for euthanasia was calculated for periods 1 and 2, and compared using a two-sample z-test of proportions. The alpha level for determination of statistical significance was set at 0.05. All statistical tests were performed using Stata Statistical Software release 14 (StataCorp).

Results

The records for 41,157 cats admitted during period 1 and 33,430 cats admitted during period 2 were reviewed. Table 1 describes the characteristics of both cat populations during their respective study period. A total of 16,223 cats were surrendered during period 1 and 12,147 were surrendered during period 2, representing a decline of 25%. Surrender primarily for destructive scratching behavior was infrequent during both study periods, with 22 cats (0.14% of total feline surrenders) surrendered during period 1 and 28 cats (0.23%) surrendered during period 2. The proportion of cats and kittens surrendered for destructive scratching before the ban (period 1) was not statistically significantly different compared with after the ban (period 2; $z = -1.89$, $P > 0.05$, mean difference -0.0009 , 95% confidence

Table 1 Comparison of shelter metrics between the 36 months preceding and following the ban on elective onychectomy

	Period 1 (1 May 2015– 30 April 2018)	Period 2 (1 May 2018– 30 April 2021)
Total cat intake	41,157	33,430
Adults	23,244	19,247
Kittens	17,913	14,183
Total surrender intake	16,223	12,147
Adults	8240	6277
Kittens	7983	5870
Surrendered for destructive scratching*	22 (0.14)	28 (0.23)
Adults	20 (0.24)	26 (0.41)
Kittens	2 (0.03)	2 (0.03)
ORE†		
Total intake	353 (0.86)	204 (0.61)
Total euthanized	321 (0.78)	193 (0.58)
Average LOS (days)		
Adults	17.5	13.3
Kittens	10.6	9.2
LRR (%)	89.84	90.23

*Data are n (% of surrendered)

†Data are n (% of total intake)

ORE = owner-requested euthanasia; LOS = length of stay;

LRR = live release rate: total live outcomes/total

outcomes = (adoptions + outgoing transfers + return to owners)/

(adoptions + outgoing transfers + return to owners + [total euthanasia – owner requested euthanasia])

interval [CI] -0.00197 to 0.0000747 ; Table 2). LRRs for cats surrendered for destructive behavior were 91% ($n = 20/22$) and 89% ($n = 25/28$) in periods 1 and 2, respectively.

LRR and average LOS for cats in this study is represented in Table 1, and yearly LRR over time for all cats admitted in the shelter during the study period is shown in Figure 1. Yearly data on average LOS for cats and kittens can be seen in Figure 2. Yearly data on cat intake and outcome in the shelter is available in the table in the supplementary material.

The proportion of cats and kittens surrendered by the owner with a request for euthanasia before the ban (period 1) was higher than after the ban (period 2; $z = 3.90$, $P < 0.001$, mean difference 0.002 , 95% CI 0.00125 – 0.00370

Table 2 Two-sample z-test of proportions of owner-surrendered cats and kittens owing to destructive scratching by period 1 (pre-ban) and period 2 (post-ban)

Variable	Mean	SE	z	P value	95% CI
Period 1	0.00136	0.000289			0.000790–0.00192
Period 2	0.00231	0.000435			0.00145–0.00316
Difference	-0.000949	0.000522	-1.89	0.059	-0.00197 to 0.0000747

CI = confidence interval

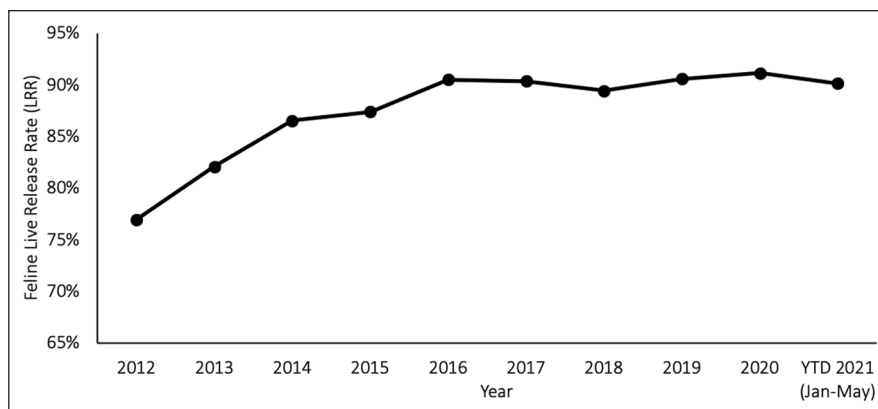


Figure 1 Feline live release rate per year. YTD = year to date

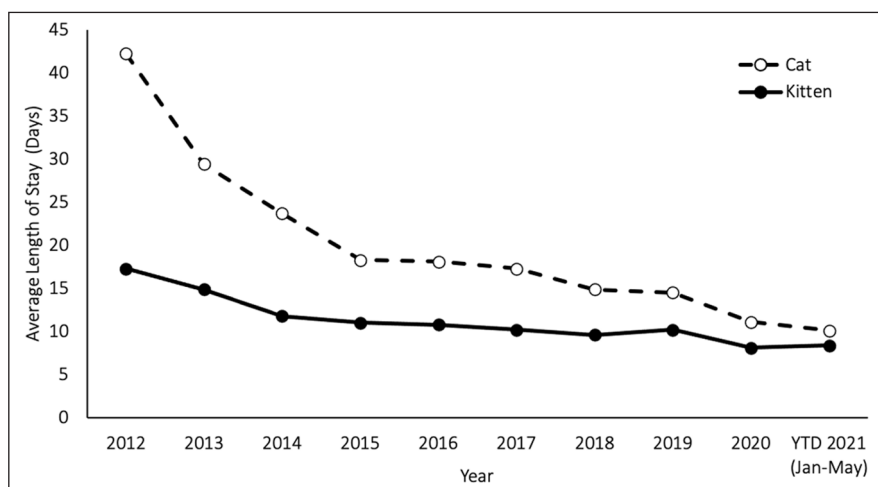


Figure 2 Average feline length of stay (LOS) in the shelter in days. YTD = year to date

Table 3 Two-sample z-test of proportions of cats and kittens surrendered for owner-requested euthanasia by period 1 (pre-ban) and period 2 (post-ban)

Variable	Mean	SE	z	P value	95% CI
Period 1	0.00858	0.000455			0.00769–0.00947
Period 2	0.00610	0.000426			0.00527–0.00694
Difference	0.00247	0.000623	3.90	<0.001	0.00125–0.00370

CI = confidence interval

[Table 3]). There were 353 cats (0.86% of total cat intake) and 204 cats (0.61% of total cat intake) admitted for ORE during period 1 and period 2, respectively. ORE numbers for both study periods were tracked and compiled; however, the primary reason for euthanasia was not tracked for the purposes of this study. Cats with a good adoption prognosis were redirected toward a relinquishment when possible. Occasionally, conditions were only identified as treatable after intake, so not all cats surrendered for ORE were euthanized.

Discussion

This is the first study to evaluate the potential impact of a ban on elective onychectomy on shelter intake. In our study population, there was no statistically significant increase in cats relinquished to the provincial shelter system for destructive scratching behavior following the implementation of the ban. These findings support those by Wilson et al,³ who reported that most owners who declawed their cat did so for prevention of, rather than in response to, destructive scratching behavior. If owners

were resorting to onychectomy mostly in response to unmanageable scratching behavior, or if it were the only viable alternative to relinquishment, an increase in surrenders could have been expected following the ban on the elective procedure. Destructive scratching behavior was also shown to be an infrequent reason for surrender in our study, with only 50 cats in total (0.18% total; 0.14% and 0.23% for periods 1 and 2, respectively) surrendered for this reason during the 6-year study period. Our findings suggest that owners are able to manage normal scratching behavior and retain cats in their homes without needing to resort to onychectomy. Overall LRR for cats surrendered for destructive behavior was 90% ($n = 45/50$), which is in line with the individual LRR of both study periods, as reported in Table 1. These results suggest that, even in the rare cases where cats are relinquished primarily due to destructive behavior, this is not a significant barrier for rehoming purposes.

These findings are also consistent with studies showing that, in general, owner-related reasons for surrender are more common than reasons related to the individual animal.^{25,26} A recent 10-year analysis of BC SPCA surrender reasons found that 83% ($n = 55,128/66,694$) of feline owner surrenders were for owner-related reasons such as housing and financial challenges.²⁷ Many owners facing a surrender decision (88% in one study) would prefer to keep their animal if offered support.²⁸ While preventing shelter intake is the main objective for all animal welfare organizations, focusing veterinary resources on access to care, outreach services and preventative care is likely to have a much greater impact on preserving the human-animal bond within communities than maintaining elective onychectomy.

Both the shelter LRR (89.9% vs 90.2%) and the average LOS (10.6 days vs 9.2 days) in cats improved from period 1 to period 2. Correlations between the implementation of the onychectomy ban and the decrease in both LOS and LRR were not evaluated in this instance, as we could not establish a direct causative relationship between the implementation of the ban and this effect on shelter metrics, which might therefore be misleading. The decrease in overall cat intake starting in the spring of 2020 can be attributed, in part, to the COVID-19 pandemic, but these improvements overall are part of a trend that preceded the study period and can be seen in Figure 1, as well as the table provided in the supplementary material. This trend was driven largely by changes to shelter flow and population management initiated in 2012–2015 with the specific aim of reducing LOS and increasing LRR. These data suggest that banning elective onychectomy does not negatively affect cat adoptability.

Metrics regarding ORE were examined owing to the reported fear of an increase in euthanasia following the implementation of an onychectomy ban.^{21,23} We found that, contrary to the fears, ORE decreased following the ban. However, these data must be interpreted with

caution as confounding variables, including diversion of adoptable cats admitted as OREs to an adoption pathway, existence of community programs to support cat retention in homes, increased medical and behavioral treatment resources for shelter cats, access to veterinary care and human-related factors, all likely affected ORE numbers.

The overhaul of the primary relinquishment reasons in the shelter software at the time of the ban limited the analysis of some useful categories for relinquishment, such as inappropriate elimination or aggression toward the owners or other pets, and thus limited the scope of the study. House-soiling and aggressive behavior have been reported as two of the most common behavioral surrender reasons in cats,²⁹ and in a 2018 cohort study onychectomy was associated with a 7.2-times higher odds of periuria/perichezia and 4.5-times higher odds of biting behaviors.⁴ However, even with this information, it would be difficult to infer a direct causative relationship owing to the multifactorial etiology of both conditions. Systematic tracking of the onychectomy status of individual cats could have helped narrow down this population and determine if the ban could have had a protective or negative effect on relinquishment for these different subsets of cats. While this study does not account for cats rehomed directly by their owner or through other animal welfare organizations, the data analyzed do represent the majority of the animal shelters within the province and the study is, at the time of writing, the largest analysis of the effect of this legislation on shelter intake. While the province of BC is geographically and demographically diverse, it may not be possible to extrapolate this trend in all communities.

Shelters should consider consistently tracking data on incoming cats such as declaw status, surrender reason(s), outcome and LOS, which could allow comparison of shelter metrics and outcomes in different regions and demographics. Further studies analyzing relinquishment of cats or ORE due to inappropriate elimination or aggressive behavior toward their owners or other pets in jurisdictions where elective onychectomy is banned could provide further evidence regarding the overall impact of this legislation.

Conclusions

This study found that a provincial ban on elective onychectomy in cats had no statistically significant impact on the number of cats surrendered for destructive scratching behavior to a province-wide shelter system. Additionally, ORE decreased following the ban, albeit a direct causative relationship could not be determined. Destructive scratching behavior was also noted to be an infrequent reason for cat relinquishment in the shelter. Overall, cat intake, LRR and average LOS all improved or remained stable after the ban, though causation could not be determined. These findings do not support concerns that an

elective onychectomy ban could lead to increased feline shelter relinquishment or euthanasia.

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Supplementary material The following file is available online:

Table: Total feline intake and live release rate by year.

Conflict of interest The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical approval This work involved the use of non-experimental animals only (including owned or unowned animals and data from prospective or retrospective studies). Established internationally recognized high standards ('best practice') of individual veterinary clinical patient care were followed. Ethical approval from a committee, while not specifically required for publication in *JFMS*, was nonetheless obtained, as stated in the manuscript.

Informed consent Informed consent (verbal or written) was obtained from the owner or legal custodian of all animal(s) described in this work (experimental or non-experimental animals, including cadavers) for all procedure(s) undertaken (prospective or retrospective studies). No animals or people are identifiable within this publication, and therefore additional informed consent for publication was not required.

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References

- Bennet M, Houpt KA and Erb NH. **Effects of declawing on feline behavior.** *Comp Anim Pract* 1988; 2: 7–12.
- Yeon SC, Flanders JA, Scarlett JM, et al. **Attitudes of owners regarding tendonectomy and onychectomy in cats.** *J Am Vet Med Assoc* 2001; 218: 43–47.
- Wilson C, Bain M, DePorter T, et al. **Owner observations regarding cat scratching behavior: an internet-based survey.** *J Feline Med Surg* 2016; 18: 791–797.
- Martell-Moran NK, Solano M and Townsend HGG. **Pain and adverse behavior in declawed cats.** *J Feline Med Surg* 2018; 20: 280–288.
- Holmberg DL and Brisson BA. **A prospective comparison of postoperative morbidity associated with the use of scalpel blades and lasers for onychectomy in cats.** *Can Vet J* 2006; 47: 162–163.
- Tobias KS. **Feline onychectomy at a teaching institution: a retrospective study of 163 cases.** *Vet Surg* 1994; 23: 274–280.
- Clark K, Bailey T, Rist P, et al. **Comparison of 3 methods of onychectomy.** *Can Vet J* 2014; 55: 255–262.
- Wilson DV and Pascoe PJ. **Pain and analgesia following onychectomy in cats: a systematic review.** *Vet Anaesth Analg* 2016; 43: 5–17.
- Overall KL, Rodan I, Beaver BV, et al. **Feline behavior guidelines from the American Association of Feline Practitioners.** *J Am Vet Med Assoc* 2005; 227: 70–84.
- American Association of Feline Practitioners. **AAFP position statement: declawing.** *J Feline Med Surg* 2017; 19: NP1–NP3.
- Hewson CJ, Dohoo IR and Lemke KA. **Perioperative use of analgesics in dogs and cats by Canadian veterinarians in 2001.** *Can Vet J* 2006; 47: 352–359.
- Kogan LR, Little SE, Hellyer PW, et al. **Feline onychectomy: current practices and perceptions of veterinarians in Ontario, Canada.** *Can Vet J* 2016; 57: 969–975.
- College of Veterinarians of British Columbia. **New survey: feline declaw.** <http://files.constantcontact.com/03b45b1b501/f8c791ff-a6f6-4300-8549-46e83e7b58f7.pdf> (2018, accessed August 2, 2021).
- American Veterinary Medical Association. **State laws governing elective surgical procedures.** <https://www.avma.org/advocacy/state-local-issues/state-laws-governing-elective-surgical-procedures> (2019, accessed June 18, 2021).
- Canadian Veterinary Medical Association. **Two more provincial veterinary regulatory bodies ban declawing cats.** <https://www.canadianveterinarians.net/news-events/news/two-more-provincial-veterinary-regulatory-bodies-ban-declawing-cats> (2018, accessed June 18, 2021).
- Wogan L. **Banfield, VCA, BluePearl end elective declawing of cats.** <https://news.vin.com/default.aspx?pid=210&Id=9529206> (2020, accessed June 23, 2021).
- Canadian Veterinary Medical Association. **Partial digital amputation (onychectomy or declawing) of the domestic felid – position statement.** <https://www.canadianveterinarians.net/documents/partial-digital-amputation-of-non-domestic-felids-carnivores> (2021, accessed June 23, 2021).
- American Veterinary Medical Association. **Declawing of domestic cats.** <https://www.avma.org/resources-tools/avma-policies/declawing-domestic-cats> (2020, accessed August 2, 2021).
- Ruch-Gallie R, Hellyer PW, Schoenfeld-Tacher R, et al. **Survey of practices and perceptions regarding feline onychectomy among private practitioners.** *J Am Vet Med Assoc* 2016; 249: 291–298.
- American Veterinary Medical Association. **Welfare implications of declawing of domestic cats.** <https://www.avma.org/resources-tools/literature-reviews/welfare-implications-declawing-domestic-cats> (2019, accessed June 18, 2021).
- California Veterinary Medical Association. **Cat declaw.** <https://cvma.net/government/legislative-issues/legislative-archives/cat-declaw/> (accessed June 18, 2021).
- Hawaii State Legislature. **Testimony for HB 466 – relating to cruelty to animals.** https://www.capitol.hawaii.gov/Session2016/Testimony/HB466_TESTIMONY_CPC_02-02-15_.PDF (2015, accessed June 18, 2021).
- New York State Veterinary Medical Society. **Declawing (onychectomy) NYSVMS position statement.** <https://vets.nysvms.org/viewdocument/declaw-position-paper> (2019, accessed June 18, 2021).

- 24 Armstrong M, Avanzino R, Burns P, et al. **Asilomar accords.** https://shelteranimalscount.s3.us-east-2.amazonaws.com/2004aaccords5_c97fa2dafd.pdf (2004, accessed June 18, 2021).
- 25 Jensen JBH, Sandøe P and Nielsen SS. **Owner-related reasons matter more than behavioural problems – a study of why owners relinquished dogs and cats to a Danish animal shelter from 1996 to 2017.** *Animals* 2020; 10: 1064. DOI: 10.3390/ani10061064.
- 26 Coe JB, Young I, Lambert K, et al. **A scoping review of published research on the relinquishment of companion animals.** *J Appl Anim Welf Sci* 2014; 17: 253–273.
- 27 Eagan BH, Gordon W and Fraser D. **Reasons for guardian-surrender of cats to animal shelters in British Columbia, Canada.** 7th National Animal Welfare Conference, 2020 May 20–21; <https://www.youtube.com/watch?v=HKb9de8Wp4> (2020, accessed August 1, 2021).
- 28 Dolan ED, Scotto J, Slater M, et al. **Risk factors for dog relinquishment to a Los Angeles municipal animal shelter.** *Animals* 2015; 5: 1311–1328.
- 29 Salman MD, Hutchison J, Ruch-Gallie R, et al. **Behavioral reasons for relinquishment of dogs and cats to 12 shelters.** *J Appl Anim Welf Sci* 2000; 3: 93–106.