

Analysis of reported animal abuse in Campo Magro, Paraná, Brazil

Análise de denúncias de maus-tratos aos animais no município de Campo Magro, Paraná

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ABSTRACT

Animal abuse is a criminal offense in Brazil and can be dealt with by several government agencies, including municipal ones. Cases of animal abuse reported to the Department of Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March of 2019 and December of 2020 were analyzed to assess the most common forms of abuse and animals involved. A total of 140 complaints were received in this period; 132 were investigated, of which 81 were considered authentic. The most common form of abuse was neglect 64.2% (52/81). Cases of neglect were further classified into four types (although cases may be classified with more than one type), resulting in 106 classifications of neglect. Behavioral neglect was the most common form of neglect 33.9% (36/106). As more than one animal could be involved in each report, the 81 authentic cases involved a total of 471 animals. Dogs were the species most commonly affected 78.5% (370/471). The vast majority of animal abuse was perpetrated against adult animals. Statistically significant correlations were found between the sex and age of dogs and abuse and between species and the different forms of abuse for dogs and cats.

Keywords: Animal welfare. Legal veterinary medicine. Report. Neglect. Federal crime.

RESUMO

Os maus-tratos aos animais são considerados crime no Brasil e o atendimento desse tipo de ocorrência pode ser realizado por diferentes órgãos governamentais, incluindo os municipais. O presente trabalho analisa denúncias atendidas pelo Departamento de Vigilância em Saúde, da Secretaria Municipal de Saúde de Campo Magro, Paraná, Brasil, entre março de 2019 e dezembro de 2020 e avalia os tipos mais comuns de maus-tratos a animais e os animais envolvidos. Um total de 140 denúncias foram recebidas e 132 foram fiscalizadas, destas, 81 foram consideradas procedentes. A forma mais prevalente de maus-tratos foi a negligência com 64,2% (52/81). Os casos de negligência foram classificados em quatro diferentes tipos (cada caso pode ser classificado em mais de um tipo de negligência). O tipo mais frequente foi a negligência comportamental com 33,9% (36/106). Como mais de um animal podia estar envolvido em cada caso de maus-tratos, os 81 casos procedentes contabilizaram 471 animais envolvidos. A espécie canina foi a mais afetada, sendo 78,5% (370/471). A maior parte dos casos de maus-tratos foram cometidos contra animais adultos. Correlações estatísticas significativas foram encontradas entre o sexo e faixa etária dos cães em relação à ocorrência de maus-tratos e, também, entre a espécie e os diferentes tipos de maus-tratos para cães e gatos.

Palavras-chave: Bem-estar animal. Medicina veterinária legal. Denúncias. Negligência. Crime federal.

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Introduction

Companion animals increasingly form part of family life, bringing mutual benefits to both pets and owners (Faraco, 2008; Friedmann & Son, 2009). A positive relationship between people and animals improves the mental, social, and psychological health of people, and can improve the quality of life of the animals if they receive good care (Friedmann & Son, 2009). But if the human-animal bond is weak, animals may be neglected or subjected to violence or cruelty (Hammerschmidt & Molento, 2012, 2014; Nathanson, 2009).

Violence against animals is of increasing concern in Brazil. It may be influenced by cultural, moral, socioeconomic, and psychological factors of the perpetrators (Monsalve et al., 2017). Violence against animals has been reported around the globe and cases are complex, multifaceted, and underreported. The scarcity of research publications reflects the ignorance of its real prevalence (McMillan et al., 2015).

Abuse can be divided into four basic types: physical abuse (non-accidental trauma), which includes physical actions such as kicking, punching, throwing, beating, burning, drowning, choking, administering drugs or poisons; sexual abuse (characterized by any use of an animal for sexual gratification); emotional abuse (characterized by threats or threatening behavior, such as verbal harassment); and neglect (characterized by failure to provide the basic needs of life, physical and/or emotional, for example, food, shelter, medical or veterinary care, and affection) (Munro and Munro, 2008). Neglect is the most commonly reported form of mistreatment of animals worldwide (Hammerschmidt & Molento, 2012; Monsalve et al., 2017).

In Brazil, there is specific legislation to protect animals from mistreatment (Brasil, 1998). Federal Law 9.605/98

provides criminal and administrative sanctions for harmful conduct and activities detrimental to the environment and makes other provisions, in Chapter V, for “Crimes Against the Environment”, in Section I, which defines “Crimes Against Fauna”, Article 32, as: “*Practicing an act of abuse, mistreatment, injury or mutilation of wild, domestic or domesticated, native or exotic animals: Penalty - detention, from three months to a year, and a fine*”.

Professionals trained in animal welfare play an important role in the identification of situations that characterize abuse against animals (Hammerschmidt & Molento, 2012). Studies have shown the importance of teaching veterinary students about veterinary forensics and animal welfare and training them to understand and identify the connection between animal abuse and interpersonal violence (Monsalve et al., 2019). Professionals who investigate animal abuse also have the opportunity to detect vulnerability in families and so enable interventions (Monsalve et al., 2017). Through the education and guidance of owners, further problems may be prevented (Sherman & Serpell, 2008), reducing the consequences of damage to physical and psychological health in people and animals, and the levels of violence in society (Benetato et al., 2011).

Investigation of reports of animal abuse varies around the world. In many countries, these investigations are not necessarily carried out by veterinarians. Expertise in animal welfare is needed to make a technical assessment of welfare in cases of abuse, which is important when making decisions concerning crimes against animals, especially when an expert report is required (Hammerschmidt & Molento, 2012).

Recent Brazilian studies in the area of law classify animals as subject holders of legal rights (Ataide, 2018; Dias, 2006). In that sense, public policies legitimize new ethical and political configurations in which animals demand protection and have their rights guaranteed as part of the State’s responsibility (Menezes, 2015). More studies of animal abuse are required to guide public policies for animal protection.

This study aims to evaluate and classify cases of animal abuse in the municipality of Campo Magro, Paraná, and to identify which species are most at risk from abuse.

Materials and Methods

The study was a retrospective analysis of reports of animal abuse, received and considered by the Department of Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March 2019 and December 2020.

Campo Magro is a municipality in Paraná, located northwest of the Metropolitan Region of Curitiba, situated 19 km from the capital. Its population was estimated for the year 2021 at 30,151 inhabitants (Instituto Brasileiro de Geografia e Estatística, 2021), while the population of dogs and cats in the municipality has never been estimated by the census. Its demographic density is 90.22 hab/km² (Instituto Brasileiro de Geografia e Estatística, 2010), being a predominantly rural municipality, with 263 km² of area, of which, 28 km² is an urban area and 230 km² rural area.

All reports were analyzed and classified as authentic, inconclusive, or non-authentic. They were further classified, according to the “Protocol for Expert Report on Animal Welfare in Case of Companion Animal Cruelty Suspicion” (Hammerschmidt & Molento, 2014) as neglect, abandonment (on public roads or in uninhabited property), non-accidental injury, hoarding, and unsupervised access to the street. The cases of neglect were also classified as nutritional, comfort, health, or behavioral neglect and each case could have more than one classification.

Data from the abused animals were also analyzed according to species, sex, and age group. Species were classified as: dogs (*Canis lupus familiaris*), cats (*Felis catus*), horses (*Equus ferus caballus*), birds – chickens, ducks, geese, and turkeys (*Gallus gallus domesticus*, *Anas platyrhynchos domesticus*, *Anser anser domesticus*, and *Meleagris gallopavo*), wild animals - cockatiels, guinea pigs and budgerigars (*Nymphicus hollandicus*, *Cavia porcellus*, and *Melopsittacus undulatus*), and others (animals in small numbers) - sheep, cattle, pigs and rabbits (*Ovis aries*, *Bos taurus*, *Sus scrofa domesticus*, and *Oryctolagus cuniculus domesticus*). Age groups were defined as young animals (< 1 year old), adults (between 1 and 8 years), and elderly (> 8 years) (Baranyiová et al., 2004).

The chi-square test for homogeneity was performed to compare the groups: species and sex and species and age, concerning the incidence of abuse, and to compare the group species and type of abuse. Analyses were conducted using R (R Core Team, 2021), considering $p < 0.05$ as significant.

Results and Discussion

During the study period, the Department of Health Surveillance of Campo Magro received 140 reports. Of these, 132 were investigated. The program for monitoring complaints of animal abuse was only recently introduced, at the beginning of 2019, so its existence is not yet widely known by the population in the municipality.

Of the reports, 60% (84/140) were investigated and concluded, 27.1% (38/140) were investigated and required

reinspection, 7.1% (10/140) required continuous monitoring, and 5.7% (8/140) had not yet been investigated (Table 1). Of the 132 reports inspected, 61.4% (81/132) were considered authentic, 18.2% (24/132) inconclusive, and 20.4% (27/132) non-authentic. Most of the cases classified as inconclusive were those in which the inspection team went to the reported address on more than one occasion but could not find the person responsible for the animal, so they were unable to investigate the claim. The cases classified as non-authentic were those where no evidence of abuse was found.

As more than one animal could be involved in each report of abuse, the 81 authentic cases included a total of 471 animals. The distribution of animals by species group, sex, and age group are shown in Table 2.

Dogs were by far the most common victim of abuse, 78.5% (370/471) of all animals, followed by cats (60/471). This confirms the findings of a previous study that identified dogs as the most commonly abused animal, followed by cats, and other animals (birds, wildlife, horses, farm animals) (Luke & Arluke, 1997). But other studies have suggested that cats are the animals of choice for abuse practices, finding a higher occurrence of mistreatment in cats, proportional to population size, than in dogs (Marlet & Maiorka, 2010). The higher number of dogs involved in abuse cases in the present study can be explained by the fact that they are the most popular companion animals in Brazil. Unfortunately, there is no information on the size of the animal population in the municipality of Campo Magro, so this was not considered in the analysis. In addition, since cats exhibit nocturnal and roaming behavior, have easy street access, and tend to

Table 1 – Distribution of reports investigated by the Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March 2019 and December 2020, by status and authenticity – Campo Magro, PR (March 2021)

Report status/ authenticity	N	N%
Concluded	84	60.00%
Inconclusive	16	11.42%
Non authentic	27	19.28%
Authentic	41	29.28%
Waiting for reinspection	38	27.14%
Inconclusive	7	5.00%
Authentic	31	22.14%
Continuous monitoring	10	7.14%
Inconclusive	1	0.71%
Authentic	9	6.43%
Waiting for inspection	8	5.71%
Total	140	100%

isolate when sick, the true figures for abuse in this species may be much higher (Garcia, 2017; Machado et al., 2019; Marlet & Maiorka, 2010).

In the municipalities of Curitiba and Campo Largo, Paraná, more abuse cases were found in dogs than other evaluated species, but estimations of the relative size of the animal populations were not made (Costa et al., 2017; Hammerschmidt & Molento, 2012). Studies have pointed out the need to include the estimation of animal populations in the Brazilian Institute of Geography and Statistics (IBGE) censuses because only with a broad, general, and simultaneous study can real and comparative data from each municipality, state, and Brazilian region be used to control

Table 2 – Distribution of the animal victims of abuse cases investigated by the Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March 2019 and December 2020 by species, sex, and age group – Campo Magro, PR (March 2021)

Species	Gender	Age group	N
Dogs			370
	Female	Adult	26
		Young	10
		Elderly	3
	Male	Adult	59
		Young	9
		Elderly	6
	Not recorded	Adult	79
		Young	23
		Not recorded	155
Cats			60
	Female	Adult	9
		Young	5
		Not recorded	8
	Male	Adult	3
		Young	5
		Not recorded	7
	Not recorded	Adult	16
		Young	6
		Not recorded	1
Birds			14
	Female	Adult	8
	Male	Adult	2
	Not recorded	Adult	4
Horses			12
	Female	Adult	5
	Male	Adult	5
	Not recorded	Not recorded	2
Wild animals			9
	Female	-	0
	Male	Adult	2
	Not recorded	Adult	7
Others			6
	Female	-	0
	Male	-	0
	Not recorded	Adult	6
Total			471

the animal populations effectively and allocate resources as required by each region. Several Brazilian organizations and institutions have supported this proposal, including the ministry of health (Guimarães et al., 2018).

The sex of the animal was not recorded in 299 cases, most often when a large number of animals were considered in hoarding cases, in which the guardians did not know the sex or age of the animals. In the 172 animals where sex was known, 56.9% (98/172) were male and 43.0% (74/172) were female.

There was information about the age of 298 animals. Most, 77.5% (231/298) of the affected animals were adults, probably because of the higher proportion of adult animals in the Campo Magro animal population.

The 81 cases considered as authentic were classified according to the type of abuse (Figure 1) and the most common cause was neglect totaling 64.2% (52/81) of the classifications, confirming the findings of previous studies that indicated neglect as the most prevalent form of animal abuse (Crook, 2000; Hammerschmidt & Molento, 2012).

Excluding the cases in which only unsupervised street access was found (10 cases), indicating the absence of a responsible guardian, the other 71 cases (87.6%) were considered animal abuse cases. Unsupervised access to the street and abandonment were the most commonly identified causes after neglect, 12.3% (10/81) each. Unsupervised access of pets to the street is prohibited according to Municipal Law 226/2002. It is also a public nuisance, allowing uncontrolled reproduction rates, increasing the risk of animals contracting and transmitting diseases (including zoonosis), increasing the risk of traffic accidents and other fatal incidents that contribute to increased animal suffering, and risking aggression to both people and other animals. (Catapan et al., 2015; Garcia et al., 2012; Santana & Oliveira, 2006).

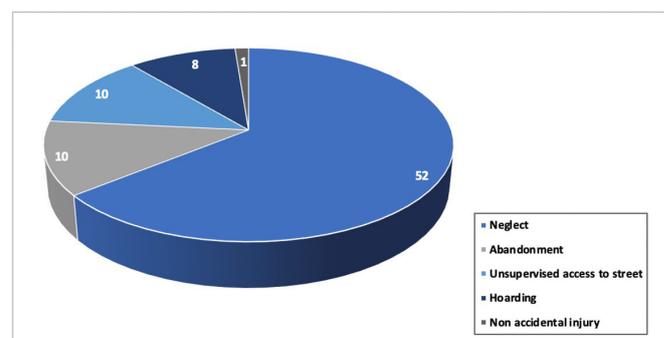


Figure 1 – Distribution of Authentic Reports investigated by the Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March 2019 and December 2020, classified by type.

The 52 cases of neglect were further classified (Figure 2), and since each case could have more than one classification, a total of 106 neglect classifications were made. The most common form of neglect was behavioral neglect (33.9%, 36/106), followed by comfort neglect (25.5%, 27/106). One of the primary reasons for reporting abuse was situations where animals were tied to short chains with insufficient space to perform their natural behavior and, in some cases, without shelter.

When comparing species and sex, concerning the occurrence of abuse, the p -value < 0.001 indicates non-homogeneity in the sex group for dogs (Table 3), showing that the sex of the dogs influences the occurrence of abuse. Other p -values were not significant.

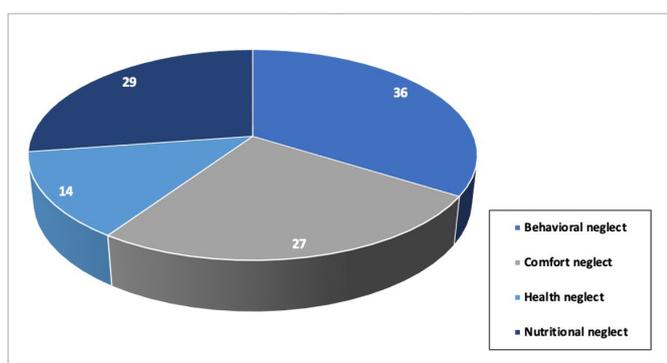


Figure 2 – Distribution of neglect cases investigated by the Health Surveillance, of the Municipal Health Secretariat of Campo Magro, Paraná, Brazil, between March 2019 and December 2020 classified by type.

Table 3 – Comparison between species of the animal victims and sex – Campo Magro, PR (March 2021)

Species	N	%	p-value
Dogs			
Male	74	43.02%	< 0.001
Female	39	22.67%	
Cats			
Male	15	8.72%	0.249
Female	22	12.79%	
Birds			
Male	2	1.16%	0.057
Female	8	4.65%	
Horses			
Male	5	2.91%	1
Female	5	2.91%	
Wild animals			
Male	2	1.16%	-
Female	-	-	
Other			
Male	-	-	-
Female	-	-	
Total			
Male	98	56.97%	0.067
Female	74	43.03%	

Munro & Munro (2008) obtained similar results, finding a predominance of male dogs affected by mistreatment (70%) in a population in which male dogs represented 50% of the total. This suggests that violent owners may prefer to own male dogs and since male dogs can be more difficult to control, or more aggressive than females, this may also trigger violence. Another study (Marlet & Maiorka, 2010) observed a slight predominance of males in a necroscopic examination of abused dogs, but they reported that sex was not a relevant factor in the choice of animals for abuse, since the levels were compatible with the predominance of male dogs in the region studied.

Table 4 shows the correlation between age and incidence of abuse for dogs ($p < 0.001$). A previous study showed significant differences in levels of non-accidental trauma in dogs less than two years of age, compared to the proportion of similarly aged animals in the general population (Munro & Thrusfield, 2001). According to the authors, young animals may be less manageable than older animals and therefore provoke the potentially aggressive owner into violence. Marlet & Maiorka (2010) found evidence of younger animals up to one year old being mistreated in the studied population proportional to population size.

There were significant correlations ($p < 0.001$) between the species and the different forms of abuse for dogs and cats (Table 5).

Understanding the most frequent types of animal abuse in a locality and which groups of animals are more vulnerable is fundamental to combat those crimes. Although there are laws and constitutional principles that provide

Table 4 – Comparison between species of the animal victims and age group – Campo Magro, PR (March 2021)

Species	N	%	p-value
Dogs			
Adult	164	76.28%	< 0.001
Young	42	19.53%	
Elderly	9	4.19%	
Cats			
Adult	28	63.64%	0,07
Young	16	36.36%	
Birds			
Adult	14	100%	-
Horses			
Adult	10	100%	-
Wild animals			
Adult	9	100%	-
Other			
Adult	6	100%	-
Total			
Adult	231	77.52%	< 0.001
Young	58	19.46%	
Elderly	9	3.02%	

Table 5 – Comparison between species of the animal victims and type of abuse – Campo Magro, PR (March 2021)

Species	N	%	p-value
Dogs			
Neglect	144	38.91%	< 0.001
Hoarding	166	44.86%	
Unsupervised access to street	30	8.11%	
Abandonment	29	7.88%	
Non accidental injury	1	0.27%	
Cats			
Neglect	19	31.68%	< 0.001
Hoarding	30	50.00%	
Unsupervised access to street	10	16.66%	
Abandonment	1	1.66%	
Birds			
Neglect	7	50%	-
Hoarding	7	50%	
Horses			
Neglect	2	16.66%	-
Unsupervised access to street	10	83.34%	
Wild animals			
Neglect	2	22.22%	-
Hoarding	7	77.78%	
Other			
Neglect	6	100%	-

for administrative, civil, and criminal penalties for people who practice animal cruelty, the problem is complex and faces many obstacles (Lemos, 2008).

To reduce neglect and other forms of animal abuse, the municipal programs play a fundamental role, especially helping other agencies that are active in fighting crimes against the fauna such as state agencies, since these bodies are not able to meet the report demand generated. To effectively monitor crimes involving animals, it is necessary to implement programs to respond to animal abuse reports throughout the Brazilian territory, establishing

References

Ataide VA Jr. Introdução ao direito animal brasileiro. *Rev Bras Direito Anim.* 2018;13(3):48-76.

Baranyiová E, Holub A, Tyrlík M, Janáčková B, Ernstová M. Behavioural differences of dogs of various ages in Czech households. *Acta Vet Brno.* 2004;73(2):229-33. <http://dx.doi.org/10.2754/avb200473020229>.

Benetato MA, Reisman R, McCobb E. The veterinarian's role in animal cruelty cases. *J Am Vet Med Assoc.* 2011;238(1):31-4. <http://dx.doi.org/10.2460/javma.238.1.31>. PMID:21194315.

well-defined protocols for the diagnosis of animal abuse. It is also necessary to educate the population regarding animal welfare so that there is awareness of the owners about animal abuse. Thus, public policies and humanitarian education projects are needed to reduce rates of animal abuse and prevent new cases.

Conclusion

Our data shows that most reports of animal abuse investigated by the Department of Health Surveillance were considered authentic. Neglect was the most frequent type of animal abuse and behavioral neglect was the most prevalent form. Statistically significant correlations were found between the sex of dogs and the occurrence of abuse and also between the age of dogs and abuse. Thus, public policies and projects promoting humane education should be implemented in the municipality to reduce cases of animal abuse.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

Ethics Statement

This study was approved by the Ethics Committee on Research in Human Beings of the Setor de Ciências da Saúde, Universidade Federal do Paraná (CEP/SD 3.934.014 and CAAE: 29674920.3.0000.0102).

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Brasil. Lei n. 9.605, de 12 de fevereiro de 1998. Dispõe sobre as sanções penais e administrativas derivadas de condutas e atividades lesivas ao meio ambiente, e dá outras providências [Internet]. *Diário Oficial da União*; Brasília; 1998 Feb 12 [cited 2021 Mar 21], nº 128:1. Available from: http://www.planalto.gov.br/ccivil_03/leis/l9605.htm.

Catapan DC, Villanova JA Jr, Weber SH, Mangrich RMV, Szczypkowski AD, Catapan A, Pimpão CT. Percepção e atitudes de amostra populacional sobre guarda responsável,

- zoonoses e cães em vias públicas. *Rev Bras Cienc Vet.* 2015;22(2):92-8. <http://dx.doi.org/10.4322/rbcv.2015.358>.
- Costa ED, Martins CM, Cunha GR, Ferreira F, Garcia RCM, Biondo AW. Análise de denúncias de maus-tratos contra animais em Curitiba, Paraná, e correlação com renda mensal e homicídios. *Rev Educ Contin Med Vet Zootec CRMV-SP.* 2017;15(1):75-6.
- Crook A. The CVMA animal abuse position: how we got here. *Can Vet J.* 2000;41(8):631-5. PMID:10945130.
- Dias EC. Os animais como sujeitos de direito. *Rev Bras Direito Anim.* 2006;1(1):119-21.
- Faraco CB. Human-animal interaction. *Ciênc Vet Tróp.* 2008;11(1):31-5.
- Friedmann R, Son H. The human-companion animal bond: how humans benefit. *Vet Clin North Am Small Anim Pract.* 2009;39(2):293-326. <http://dx.doi.org/10.1016/j.cvsm.2008.10.015>. PMID:19185195.
- Garcia RCM, Calderón N, Ferreira F. Consolidation of international guidelines for the management of canine populations in urban areas and proposal of performance indicators. *Rev Panam Salud Publica.* 2012;32(2):140-4. <http://dx.doi.org/10.1590/S1020-49892012000800008>. PMID:23099875.
- Garcia RCM. Desafios para o enfrentamento da negligência. In: Tostes RA, Reis STJ, Castilho VV, editors. *Tratado de medicina veterinária legal.* 1ª ed. Curitiba: Medvep; 2017. p. 317-33.
- Guimarães CF, Martins C, Baquero OS, Biondo AW. Inclusão de cães e gatos no censo IBGE 2020. *Clin Vet.* 2018;23(132):26-30.
- Hammerschmidt J, Molento CFM. Retrospective analysis of animal abuse in the region of Curitiba, State of Paraná, Southern Brazil, using animal welfare criteria. *Braz J Vet Res Anim Sci.* 2012;49(6):431-41.
- Hammerschmidt J, Molento CFM. Protocol for expert report on animal welfare in case of companion animal cruelty suspicion. *Braz J Vet Res Anim Sci.* 2014;51(4):282-96. <http://dx.doi.org/10.11606/issn.1678-4456.v51i4p282-296>.
- Instituto Brasileiro de Geografia e Estatística – IBGE [Internet]. Cidades e Estados; 2021 [cited 2022 Feb 22]. Available from: <https://www.ibge.gov.br/cidades-e-estados/pr/campo-magro.html>
- Instituto Brasileiro de Geografia e Estatística – IBGE [Internet]. Cidades e Estados; 2010 [cited 2022 Feb 22]. Available from: <https://www.ibge.gov.br/cidades-e-estados/pr/campo-magro.html>
- Lemos KC. Análise da legislação aplicável na proteção do bem-estar animal. *Cienc Vet Tróp.* 2008;11(1):80-3.
- Luke C, Arluke A. Physical cruelty toward animals in Massachusetts, 1975-1996. *Soc Anim.* 1997;5(3):195-204. <http://dx.doi.org/10.1163/156853097X00123>.
- Machado DS, Machado JC, Souza JOT, Sant'Anna AC. The importance of responsible cat ownership: practical aspects and connections with animal welfare. *Rev Acad Cienc Anim.* 2019;17:1-13. <http://dx.doi.org/10.7213/1981-4178.2019.17103>.
- Marlet EF, Maiorka PC. Retrospective analyzes of cruelty toward dogs and cats in the city of São Paulo. *Braz J Vet Res Anim Sci.* 2010;41(5):385-94. <http://dx.doi.org/10.11606/issn.1678-4456.bjvras.2010.26820>.
- McMillan DF, Duffy DL, Zawistowski SL, Serpell JA. Behavioral and psychological characteristics of canine victims of abuse. *J Appl Anim Welf Sci.* 2015;18(1):92-111. <http://dx.doi.org/10.1080/10888705.2014.962230>. PMID:25257564.
- Menezes ADS Fo. The Polices Public Construction of Animal Protection in Brazil: an analysis of the animal rights from the ethical, legal and social point of view [dissertação]. São Luis: Universidade Federal do Maranhão; 2015. 114 f.
- Monsalve S, Ferreira F, Garcia RCM. The connection between animal abuse and interpersonal violence: a review from the veterinary perspective. *Res Vet Sci.* 2017;114:18-26. <http://dx.doi.org/10.1016/j.rvsc.2017.02.025>. PMID:28279899.
- Monsalve S, Pereira EL, Leite LO, Polo G, Garcia RCM. Perception, knowledge and attitudes of small animal practitioners regarding animal abuse and interpersonal violence in Brazil and Colombia. *Res Vet Sci.* 2019;124:61-9. <http://dx.doi.org/10.1016/j.rvsc.2019.03.002>. PMID:30852356.
- Nathanson JN. Animal hoarding: slipping into the darkness of comorbid animal and self-neglect. *J Elder Abuse Negl.* 2009;21(4):307-24. <http://dx.doi.org/10.1080/08946560903004839>. PMID:20183137.

Munro R, Munro HMC. Animal abuse and unlawful killing: forensic veterinary pathology. China: Saunders; 2008. p. 17-29. <http://dx.doi.org/10.1016/B978-0-7020-2878-6.50014-3>.

Munro HMC, Thrusfield MV. Battered pets ‘: non-accidental physical injuries found in dogs and cats. *J Small Anim Pract*. 2001;42(6):279-90. <http://dx.doi.org/10.1111/j.1748-5827.2001.tb02041.x>. PMID:11440397.

R Core Team. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria; 2021 [cited 2022 Feb 22]. Available from: <http://www.R-project.org>

Santana LR, Oliveira TP. Guarda responsável e dignidade dos animais. *Rev Bras Direito Anim*. 2006;1(1):67-105.

Sherman BL, Serpell JA. Training veterinary students in animal behavior to preserve the human-animal bond. *J Vet Med Educ*. 2008;35(4):496-502. <http://dx.doi.org/10.3138/jvme.35.4.496>. PMID:19228899.

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