



Arnja Dale

BSc, GDipHE, MSc, MSc (Hons.), PhD
Chief Scientific Officer & Head of Animal
Welfare Science and Education
SPCA New Zealand

Dr Arnja Dale is the Chief Scientific Officer & Head of Animal Welfare Science and Education at the SPCA New Zealand. She is also the Chair of the Executive Board of the New Zealand Companion Animal Council and Chair of The Link New Zealand.

Abstract

The comparative welfare status of owned, managed stray and unmanaged strays cats

Stray cats are an extremely polarising issue in New Zealand drawing regular media attention often with reports of reduced welfare. With the aim of collecting empirical data to investigate this, we developed and validated a 5-point objective visual welfare scale comprising of a body condition score (BCS, Purinatm); coat condition; nasal &/ocular discharge; ear crusting; and injury score. This welfare scale was used in combination with a subjective Quality of Life (QoL) score to assess: managed stray cats (n=210); unmanaged stray cats (n=253); and owned cats (n=213). The BCS did not differ between owned and managed cats ($p=0.68$) (BSC5), but was lower (BSC3-4) for unmanaged cats ($p<0.0001$). Managed and unmanaged cats showed increased nasal &/or ocular discharge and ear crusting ($p<0.0001$), but of a mild nature. 7% of cats were recorded to have injuries ranging from mild (4.1%) to severe (0.6%) with no difference in prevalence amongst the groups ($p=0.06$). Coat condition and QoL scores were highest for owned (excellent-good), followed by managed (good), and lastly unmanaged (fair-good) cats ($p<0.0001$). Comparatively, unmanaged cats had slightly lower welfare, whilst managed and owned cats showed relatively similar welfare states.

Full Presentation

Introduction

New Zealand has the highest rate of cat ownership in the world with almost half of all households (48%) owning an average of two cats with an estimated owned cat population of 1,419 million (Mackay, 2011). This is considerably higher than America (33%; American Pet Products Association, 2011), Australia (23%; Australian Companion Animal Council, 2010) and the United Kingdom (19%, Pet Food Manufacturers Association, 2011).



REACHING OUT TO THE Community

6TH NATIONAL G2Z SUMMIT & WORKSHOPS
14-19 SEPTEMBER 2015, MANTRA ON VIEW HOTEL, GOLD COAST

In New Zealand, the Code of Welfare for Companion Cats (NAWAC, 2007) defines cats as belonging to one of three categories:

- (a) Companion cats live with humans as “companions” and are dependent on humans for their welfare.
- (b) Stray cats are companion cats which are lost or abandoned and which are living individually or in a group (colony). Stray cats have many of their needs indirectly supplied by humans, and live around centres of human habitation. Stray cats are likely to interbreed with the unneutered companion cat population.
- (c) Feral cats are not stray cats and have none of their needs provided by humans. Feral cats generally do not live around centres of human habitation. Feral cat population size fluctuates largely independently of humans, is self-sustaining and is not dependent on input from the companion cat population.

It has been suggested by some researchers that the welfare state of stray cats, when compared with companion cats, is likely to be compromised (e.g. Farnworth et al., 2010; Farnworth et al., 2011; Slater et al., 2008). However, this has not been subject to empirical investigation. There is some evidence in the literature to support the fact that stray cats without carers suffer poorer welfare than managed colony cats, however the extent isn't known (ICAMC, 2011). To date, a systematic comparative welfare assessment of companion cats with stray cats (managed cats living in a colony and unmanaged stray cats) has not been undertaken. The aim of this research was to collect empirical data on the welfare states of the following three groups of cats: companion, managed stray and unmanaged stray cats.

Methods

The welfare assessments were conducted over a 12 month period from November 2013 to November 2014 on 676 cats in Auckland, New Zealand by a team of ten researchers. The cats comprised of managed (colony) stray cats (n=210); unmanaged stray cats (n=253); and owned companion cats (n=213). The welfare assessment protocol was developed and validated and used a 5-point objective visual welfare scale comprising of a body condition score (BCS, Purinatm); coat condition; nasal and/or ocular discharge; ear crusting; and injury score. This welfare scale was used in combination with a subjective Quality of Life (QoL) score. Demographic variables (e.g. colour, coat length, age, sex and ear tipping) were also recorded. Data was analysed using the Statistical Package for the Social Science (SPSS) version 22. Figures 1 and 2 show cats being assessed during the welfare assessment.



Figure 1: Male adult cat from a managed cat colony being hand fed



Figure 2: Female adult cat from a managed cat colony being fed



Results

Table 1 shows the demographic variables of the 676 cats in this study. The majority of companion cats were desexed (n=195; 92%), compared with 53% of managed stray cats (n=111), and 45% of unmanaged stray cats (n=114). Most cats in the study were short haired (n=535; 79%). Only a small number of cats were ear-tipped which is considered to be the universal symbol of a desexed stray cat (n=72, 34%). Most of the cats were adult (n=557; 82%).

Table 1: Demographic variables of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=676).

		Companion Cats (n _{tot} = 213)	Managed Stray Cats (n _{tot} = 210)	Unmanaged Stray Cats (n _{tot} = 253)
Sex	Female Desexed	103 (48.4%)	55 (26.2%)	100 (39.5%)
	Female Entire	7 (3.3%)	4 (1.9%)	83 (32.8%)
	Male Desexed	92 (43.2%)	56 (26.7%)	14 (5.5%)
	Male Entire	11 (5.2%)	8 (3.8%)	49 (19.4%)
	Unknown	0	87 (41.4%)	7 (2.8%)
Coat length	Short	154 (72.3%)	172 (81.9%)	209 (82.6%)
	Medium	36 (16.9%)	25 (11.9%)	38 (15.0%)
	Long	23 (10.8%)	12 (5.7%)	4 (1.6%)
	Unknown	0	1 (0.5%)	2 (0.8%)
Ear Tipped	Yes	1 (0.5%)	71 (33.8%)	0
	No	212 (99.5%)	121 (57.6%)	253 (100%)
	Unknown	0	18 (8.6%)	0
Age	Kitten	26 (12.2%)	17 (8.1%)	19 (7.5%)
	Adult	167 (78.4%)	193 (91.9%)	197 (77.9%)
	Senior	20 (9.4%)	0	36 (14.2%)
	Unknown	0	0	1 (0.4%)

The majority of cats were found to have an 'ideal' Body Condition Score (BCS) (n=458; 69%), compared with 'over-conditioned' (n=74; 11%), 'thin' (n=118; 18%) or 'emaciated' (n=15; 2%) (Figure 3). Cat group significantly influenced BCS (H=32.7, P <0.0001). Pairwise comparisons with adjusted p-values showed that the BCS of companion cats and managed strays did not differ (P=1.0), however the BCS of unmanaged stray differed in comparison to both managed strays (P<0.0001) and companion cats (P<0.0001).

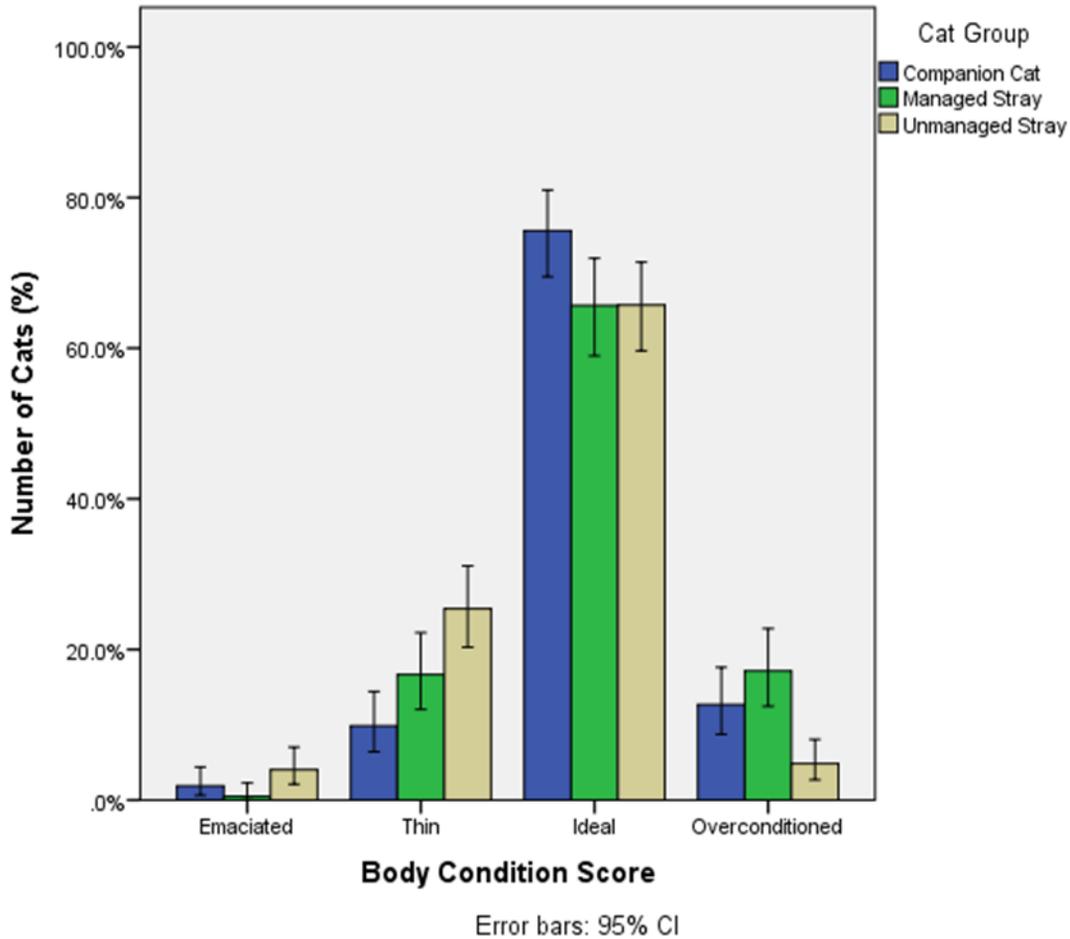


Figure 3: Body condition scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=665).

The majority of cats had a 'good' or 'excellent' coat condition score (n=528; 80%), compared with 'fair' or 'poor' (n=133; 20%) (Figure 4). Most of the cats with 'poor' coat condition were unmanaged stray cats. Cat group had an effect on coat condition (H=195, $P < 0.0001$). Pairwise comparisons with adjusted p-values showed that there were significant differences between all three groups of cats: unmanaged and managed ($P < 0.0001$); unmanaged and companion ($P < 0.0001$); and managed and companion ($P < 0.0001$). Additionally, a significant positive correlation ($r = 0.34$, $P < 0.0001$) between BCS and coat condition revealed that as the body condition increased so did the condition of the coat.



REACHING OUT TO THE Community

6TH NATIONAL G2Z SUMMIT & WORKSHOPS
14-19 SEPTEMBER 2015, MANTRA ON VIEW HOTEL, GOLD COAST

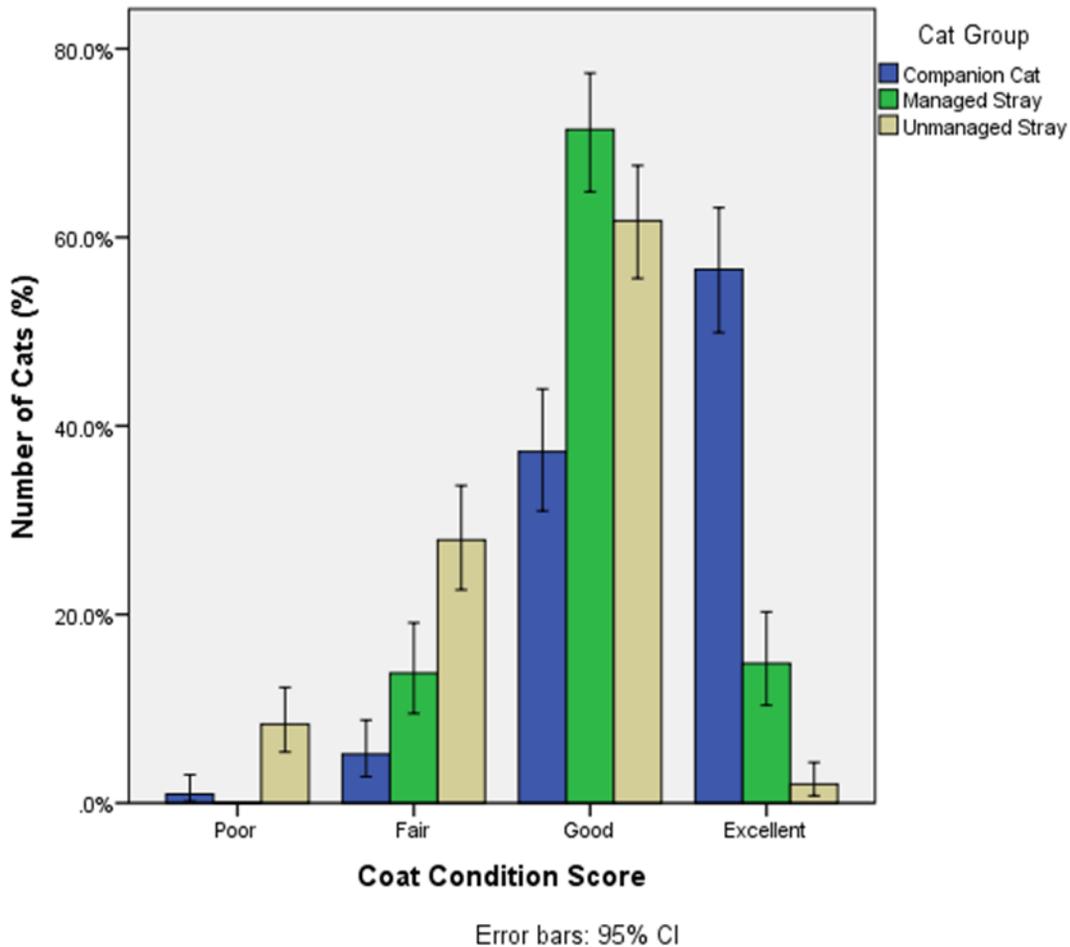


Figure 4: Coat condition scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=659).

The vast majority of cats had no Nasal and/or Ocular Discharge (NOD) (n =588; 88%), the remaining cats had 'mild' (n=56; 8%), 'moderate' (n=18; 3%) or 'severe' NOD (n=3; 1%) (Figure 5). Most of the cats that had either 'mild', 'moderate' or 'severe' NOD were unmanaged stray cats. Cat group affected NOD (H=23.5, P<0.0001). Pairwise comparisons with adjusted p-values showed that there were no significant differences between the NOD of companion cats and managed strays (P=0.26), however there was a significance between the NOD of unmanaged stray and both managed strays (P=0.011) and companion cats (P<0.0001). Additionally we found a significant negative correlation between BCS and NOD (r=-1.7, P<0.0001) suggesting that as the body condition decreased eye and nose discharge increased.

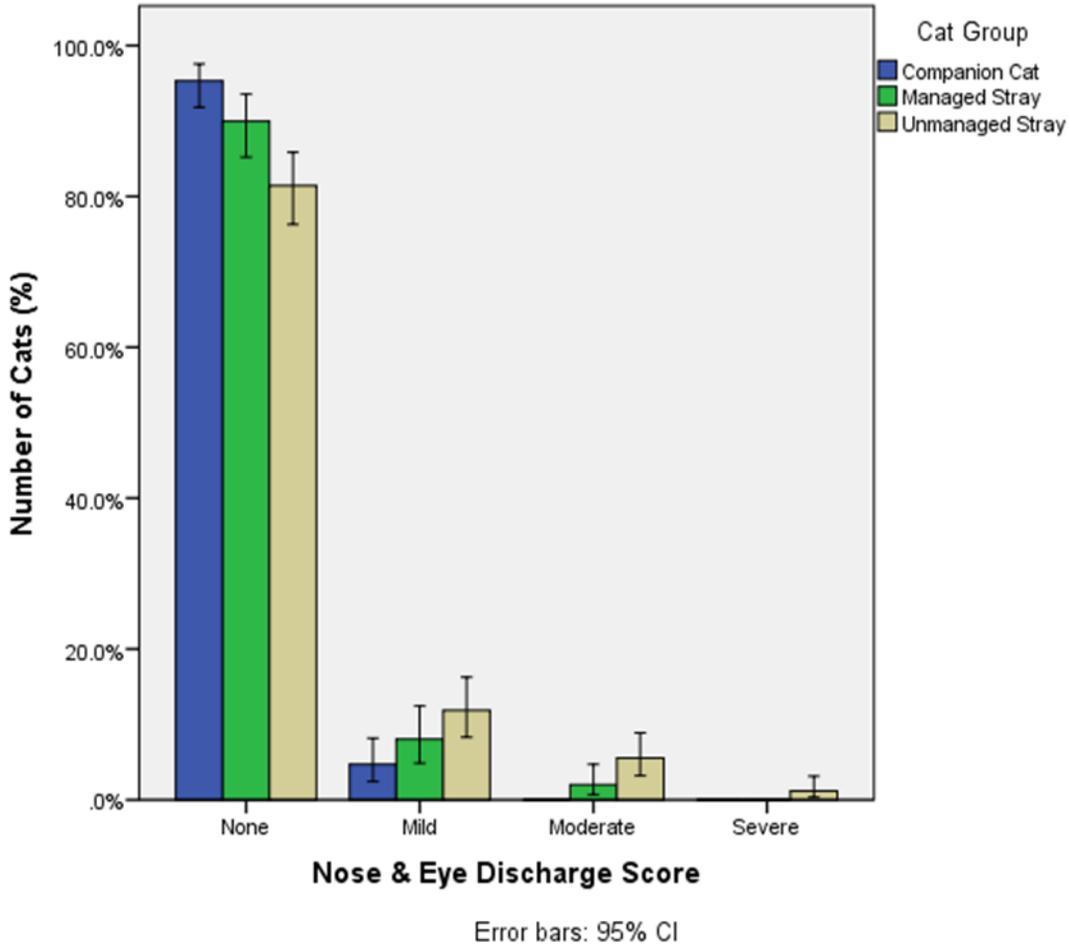


Figure 5: Nasal and/or Ocular Discharge scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=665).

The vast majority of cats had no Ear Crusting (EC) (n=623; 94 %), the remaining cats had 'mild' (n=32; 5%), 'moderate' (n=6; 0.7%) or 'severe' EC (n=2; 0.3%) (Figure 6). Most of the cats that had either 'mild', 'moderate' or 'severe' EC were unmanaged stray cats. EC was significantly affected by cat group (H=29.2, P<0.0001). Pairwise comparisons with adjusted p-values showed that there were no significant differences between the EC of companion cats and managed strays (P=0.097), however there was a significance between the EC of unmanaged stray and both managed strays (P=0.008) and companion cats (P<0.0001). Additionally, there was a significant negative correlation between BCS and EC (r=-0.13, P=0.001) suggesting that as body condition decreased ear crusting increased.

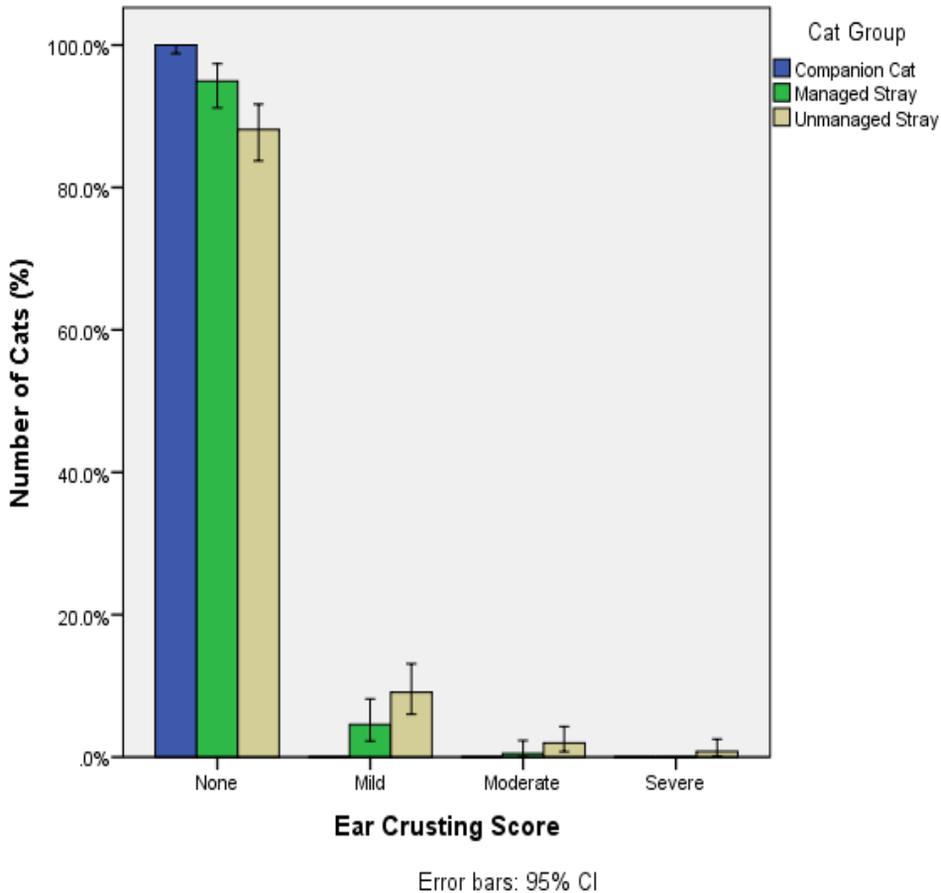


Figure 6: Ear Crusting Scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=663).

The vast majority of cats did not have any visual injuries (Injury Score, IS) (n=623; 93%). A small number of cats had a 'mild' (n=28; 4%), 'moderate' (n=12; 2%) or 'severe' injury score (n=4; 1%) (Figure 7). No companion cats had a 'severe' IS. The IS was not significantly different between the cat groups (H=0.54, P=0.8).



REACHING OUT TO THE Community

6TH NATIONAL G2Z SUMMIT & WORKSHOPS
14-19 SEPTEMBER 2015, MANTRA ON VIEW HOTEL, GOLD COAST

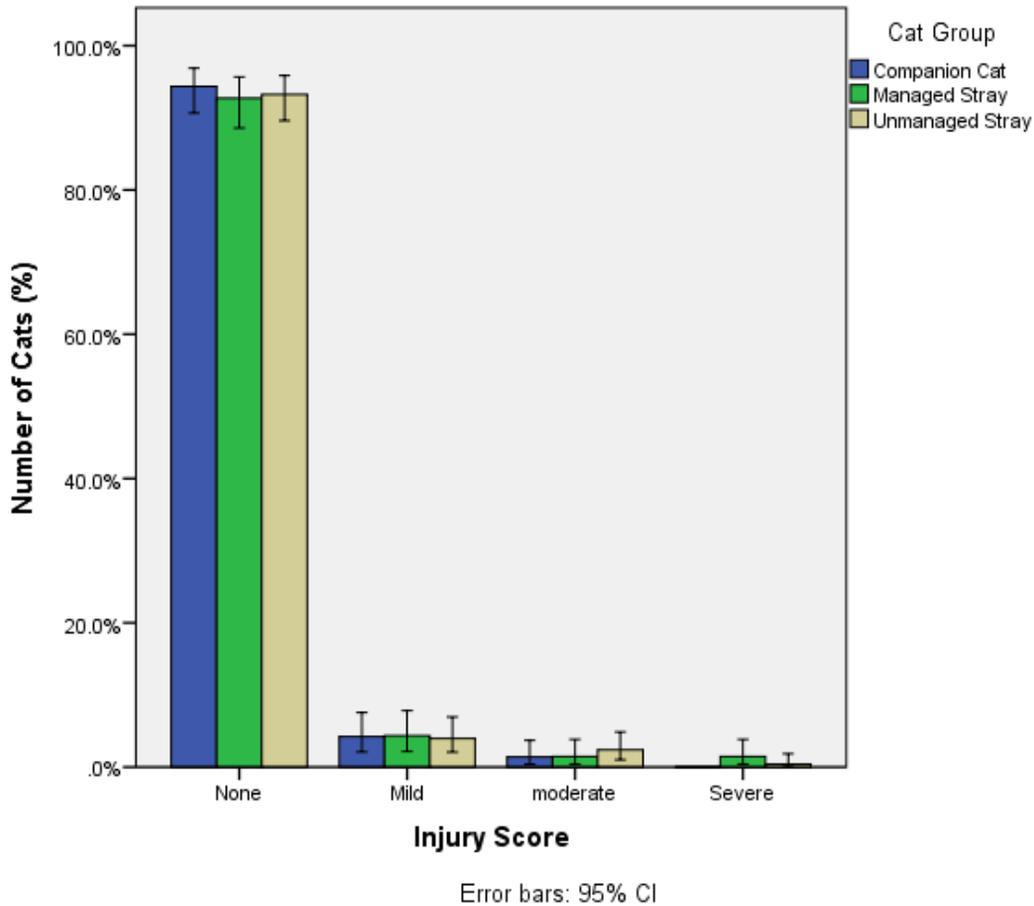


Figure 7: Injury Scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=670).

The majority of cats had a 'good' or 'excellent' Quality of Life score (QoL) (n=478; 71%), the remaining cats had a 'fair' (n=129; 19%), or 'poor' (n=49; 7%), or 'very poor' QoL score (n=16; 2%) (Figure 8). No unmanaged stray cat had an 'excellent' QoL score and no companion cat had a 'very poor' QoL score. Cat group has a significant effect on QoL score (H=253, P <0.0001). Pairwise comparisons with adjusted p-values showed that there were significant differences between all 3 categories of cats unmanaged and managed (P<0.0001); unmanaged and companion (P<0.0001) and managed and companion (P<0.0001).

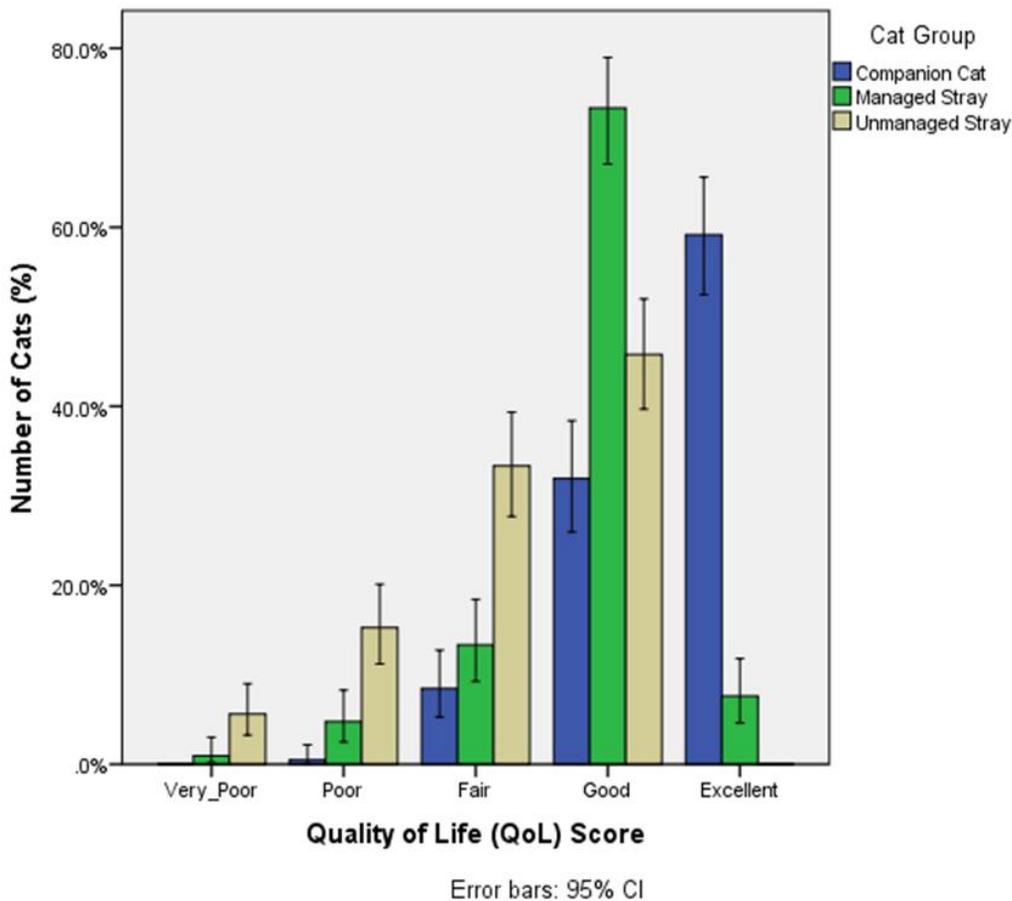


Figure 8: Quality of Life Scores of 'Companion', 'Managed Stray' and 'Unmanaged Stray' cats (n=672).

Summary

Using a 5-point objective visual welfare scale, this research aimed to investigate the welfare status and QoL of three groups of cats: companion, managed stray and unmanaged stray cats in Auckland, New Zealand. For all five indicators of welfare, the results demonstrate that the majority of cats (69% - 93%), across all three groups, were in an 'ideal' welfare state. This comprised of an 'ideal' BCS (69%), 'good' to 'excellent' coat condition (80%), no NOD (88%), no EC (94%), and no injuries (94%). Additionally, the majority of cats across all three groups obtained a 'good' or 'excellent' QoL score (71%). Although, significant differences were observed between the cat groups on four of the five welfare indicators (all except injury score), the majority of differences occurred between the unmanaged stray cat group and the other two cat groups (unmanaged stray cats & companion cats). Overall, the welfare status of managed stray cats was relatively comparable to companion cats, with both groups having a higher welfare status than unmanaged stray cats. These results suggest that human assistance benefits the welfare status of cats.

References:

Farnworth, M.J., Dye, N.G., Keown, N. 2010. The Legal Status of Cats in New Zealand: A Perspective on the Welfare of Companion, Stray and Feral Domestic Cats (*Felis catus*). *Journal of Applied Animal Welfare Science*, 13, 180 – 188.

Farnworth, M.J., Campbell, J., Adams, N.J. 2011. What's in a Name? Perceptions of Stray and Feral Cat Welfare and Control in Aotearoa, New Zealand. *Journal of Applied Animal Welfare Science*, 14, 49-74.



REACHING OUT TO THE *Community*

6TH NATIONAL G2Z SUMMIT & WORKSHOPS
14-19 SEPTEMBER 2015, MANTRA ON VIEW HOTEL, GOLD COAST

References:

International Companion Animal Management Coalition (ICAMC). 2011. Humane Cat Population Management Guidance. Retrieved from <http://www.ifaw.org/sites/default/files/ICAM-Humane%20cat%20population.pdf>

Mackay, J. 2011. Companion animals in New Zealand July 2011. Auckland, New Zealand: New Zealand Companion Animal Council Inc. Retrieved from <http://nzcac.org.nz/images/publications/nzcac-canz2011.pdf>

National Animal Welfare Advisory Committee (NAWAC). 2007. Animal Welfare (Companion Cats) Code of Welfare 2007. Wellington, NZ. Retrieved from <http://www.biosecurity.govt.nz/files/regs/animal-welfare/req/codes/companion-cats/companion-cats.pdf>

Slater, M.R., Nardo, A.D., Pediconi, O., Villa, P., Candeloro, L., Alessandrini, B., Papa, S.D. 2008. Free-roaming dogs and cats in central Italy: Public perceptions of the problem. *Journal of Preventive Veterinary Medicine*, 84, 27–47.