

Eliminate Culling

1. Motivation behind Research Paper

394,799 and 23,764. These two numbers are destroyed dogs and cats. 394,799 is the number of animals killed in 2004. 23,764 is the number of animals killed in 2021. Even today, there is so much coverage on TV and other media about killing and shelters. But more than 20,000 animals are still being killed. We thought that we could do something and we could find out information. The motivation for choosing this topic was that we couldn't turn away from the reality that tens of thousands of dogs and cats are killed. Killing defines death of animals taken by animal health centers. Health centers may take animals from their homes for good reason or temporarily protect the animals they have captured. In addition, more than 80% of shelter dogs and cats have not known owners. I wondered if there was really no solution to this current situation.

2. Introduction

The data collected for study will include the Ministry of the Environment. On the website of the Ministry of the Environment, which maintains data on the number of animals killed, there was a graph showing that the number of animals killed was decreasing every year. We looked into it, thinking that if we could find the way to reduce the number of animals killed, we could use areas where the number of animals killed was high, but we could not find a specific example.

3. Results and Analysis

1. National Killing Rate and Transfers

First, we calculated the kill rate for each region to determine which areas had high kill rates and low kill rates. From the data presented to the Ministry of the Environment, we calculated $(\text{Number of items disposed of})/(\text{Number of items picked up}) \times 100$. We were able to produce data on the national kill rate but we noticed that even with the same zero kill rate, there is a difference in the amount of activity in the area where the number of take-backs is a large area and small area. Figure 11 shows that Yao City has a 0% kill rate because it has taken in one animal and killed zero and given away one. Next, Takamatsu City took in 481 pets, of which 360 were killed and 173 were given away, for a kill rate of 75%. This shows that the number of transfers is higher than this, it does not necessarily mean that the number of kills is lower. Furthermore, even if the kill rate was zero, the number of dogs taken in may be low to begin with. From this we realized that a zero kill rate is not always a good thing. Based on the idea that "the amount of activity may differ between areas with a high transfer rate and areas with a low kill rate of 0," and the idea that "if transfer meetings become more active, all shelter dogs in the care of shelters will be transferred and will no longer be killed," the measures taken to achieve a zero kill rate in the region are reflected in the numbers we speculated that the transfer rate would be the key factor that would contribute to increase the transfer rate. Based on this hypothesis, we decided to examine the regularity of regions with high transfer rates. (In figure 2, the red indicates regions with high transfer rates and the blue indicates regions with low transfer rates) Figure 2 shows that Niigata and Ehime prefectures have big differences in transfer rates: Niigata Prefecture has a transfer rate of 114% and Ehime Prefecture has a transfer rate of 33%. However, a

comparison of the number, frequency, and dates of transfer meetings held in a year from the website (https://www.pet-home.jp/event/ecg_1/), which is summarised transfer meetings throughout Japan, shows that the transfer rate is not necessarily higher because the frequency of the meetings nor is the transfer rate higher because of the method of application or location of the meeting. Comparisons did not reveal any significant differences. Furthermore, details of specific measures and initiatives were rarely posted on their websites, and it was not possible to find any significant differences in their initiatives between areas with high transfer rates and low transfer rates.

	Number of fostered(dogs)	Number of culls	Culling rate	Number of transfers	Transfer rate
Yao	1	0	0	1	100
Takamatsu	481	360	75	173	36

Figure 11: Transfer Rate vs. Killing Rate

Name of municipality	Number of fostered (Dogs)	number of transfers	number of culled	transfer rate	culling rate
Sendai	51	47	0	92.2	0
Sagamihara	84	82	0	97.6	0
Shizuoka	52	44	0	84.6	0
Morioka	22	23	0	104.5	0
Yamagata	19	28	0	147.4	0
Koshigaya	32	24	0	75	0
Kanazawa	9	11	0	122.2	0
Fukui	20	30	0	150	0
Toyonaka	7	7	0	100	0
Yao	1	1	0	100	0
Neyagawa	12	12	0	100	0
Akashi	12	12	0	100	0
Matsuyama	137	144	0	105.1	0
Nagasaki	55	82	0	149.1	0
Chiba	118	114	1	96.6	0.8
Miyazaki	202	206	2	102	1
Hamamatsu	263	257	3	97.7	1.1
Gifu	95	95	1	100	1.1
Okayama	161	291	2	180.7	1.2
Sapporo	151	150	2	99.3	1.3
Toyohashi	77	81	1	105.2	1.3
Kashiwa	67	75	1	111.9	1.5
Kure	188	188	3	100	1.6
Nagoya	156	164	3	105.1	1.9

Name of municipality	Number of fostered (dogs)	Number of transfers	Number of culls	Number of transfers	Culling rate
Hakodate	51	53	1	103.9	2
Kawagoe	50	57	1	114	2
Kofu	51	58	1	113.7	2
Kawaguchi	47	46	1	97.9	2.1
Yokosuka	46	46	1	100	2.2
Utsunomiya	170	175	4	102.9	2.4
Nagano	82	85	2	103.7	2.4
Osaka	72	68	2	94.4	2.8
Hiroshima	104	99	3	95.2	2.9
Kawasaki	64	55	2	85.9	3.1
Niigata	97	97	3	100	3.1
Asahikawa	95	94	3	98.9	3.2
Nara	30	29	1	96.7	3.3
Naha	83	80	3	96.4	3.6
Sasebo	81	78	3	96.3	3.7
Iaki	102	101	4	99	3.9
Kurashiki	316	525	13	166.1	4.1
Fukuyama	393	369	17	93.9	4.3
Kochi	66	70	3	106.1	4.5
Kitakyushu	365	482	18	132.1	4.9
Saitama	80	75	4	93.8	5
Otsu	20	17	1	85	5
Matsue	153	130	8	85	5.2
Maebashi	200	241	15	120.5	7.5
Toyota	67	64	5	95.5	7.5

Name of municipality	Number of fostered (Dogs)	Number of transfers	Number of culled	Transfer rate	Culling rate
Tottori	37	7	3	18.9	8.1
Hirakata	12	11	1	91.7	8.3
Hachioji	23	22	2	95.7	8.7
Higashiosaka	11	12	1	109.1	9.1
Amagasaki	11	9	1	81.8	9.1
Kumamoto	211	196	20	92.9	9.5
Nishinomiya	20	18	2	90	10
Okazaki	83	83	9	100	10.8
Kagoshima	123	112	14	91.1	11.4
Kobe	78	89	9	114.1	11.5
Oita	199	174	23	87.4	11.6
Fukushima	58	53	7	91.4	12.1
Shimonoseki	119	132	16	110.9	13.4
Koriyama	115	108	16	93.9	13.9
Akita	26	21	4	80.8	15.4
Funabashi	45	38	7	84.4	15.6
Toyama	24	21	4	87.5	16.7
Fukuoka	158	146	30	92.4	19
Takatsuki	21	21	4	100	19
Kurume	120	94	24	78.3	20
Yokohama	144	121	31	84	21.5
Hachinohe	65	52	14	80	21.5
Wakayama	168	165	39	98.2	23.2
Takasaki	120	138	42	115	35
Kyoto	68	66	16	97.1	23.5
Aomori	40	31	10	77.5	25
Sakai	20	12	8	60	40
Himeji	90	91	46	101.1	51.1
Takamatsu	481	222	284	46.2	59

Figure 1②: Overall Transfer Rate vs. Killing Rate

2. Current Situation of Shelters

We volunteered at a shelter (World Love Heart) in Nara Prefecture on four occasions in order to learn about the actual activities of the shelter, to learn about the current situation from the people working there, and to gain new information. What we learned at the shelter was that each individual dog has a different personality, and that Shiba and Japanese dogs in particular will stop listening to their owners if they are not taken care of carefully. This causes many people to feel that "it is harder to take care of them than I expected" or "they do not have the personality I expected," as a result, they stop keeping them.

Furthermore, new information was obtained on transfer rates, which had been stagnant due to the lack of regularity found. The reason why we could not find any regularity in our research on transfers and could not find any difference in the efforts in each city was because there were deficiencies in the management of the transfer activities, which are largely responsible for the transfer rate. We thought that if data on the number of volunteers and specific management methods were managed by each shelter, it would be possible to increase the transfer rate in all areas by activities in cities with high transfer rates, but in transfer meetings, the results depend on people's efforts, and shelters and other facilities are run by individuals and in addition, since most shelters are running by individuals or volunteers, detailed information and data are not managed and records are not kept. Therefore, we could not find any differences in transfer rates and proportional efforts when we checked the prefectural government's website. This led us to believe that it would look for a solution based on the two initial objectives of "eliminating the killing of pets" by dividing the difference in each city's activities based on the killing rate and the difference in activities based on the transfer rate, because the data is not accurate.

	Number of transfers + Number of returns	Number of fostered	transfer rate	round off
Aomori	171	267	64.04494382	64
Miyagi	356	325	109.5384615	110
Yamagata	267	386	69.17098446	69
Fukushima	97	91	106.5934066	107
Ibaragi	1018	1019	99.90186457	100
Tokyo	142	141	100.7092199	100
Kanagawa	203	198	102.5252525	102
Niigata	180	158	113.9240506	114
Fukui	92	85	108.2352941	108
Kyouto	62	62	100	100
Hyogo	79	152	51.97368421	52
Nara	51	76	67.10526316	67
Okayama	200	197	101.5228426	102
Hiroshima	1200	1172	102.3890785	102
Yamaguti	1298	1349	96.21942179	96
Yamaguchi	528	831	63.53790614	64
Kagawa	1125	1493	75.35164099	75
Ehime	222	669	33.1838565	33
Nagasaki	367	789	46.51457541	47

Figure 2: Transfer rate ※Reference from Ministry of the Environment

3. Current Status of Microchip Implantation

Next, we decided to focus on microchips, which became mandatory on June 1, 2022. A microchip is like a lost child tag that is implanted in an animal's body, and it is harmless and does not need to be replaced once implanted. The size of a microchip is 2mm and 11mm in length. Since the act of implanting a microchip is almost the same as giving an ordinary injection, there is little burden or stress on the animal, and its safety has been confirmed through a variety of tests. If an animal is microchipped and its identity is known, it is more likely to be returned to its family if it

disappears or gets lost in a disaster. In addition, microchips can also be used to help people to find their loved ones. In addition, microchipping will make people more aware that they are the owner of the dog, and will reduce the number of people who abandon their dogs.

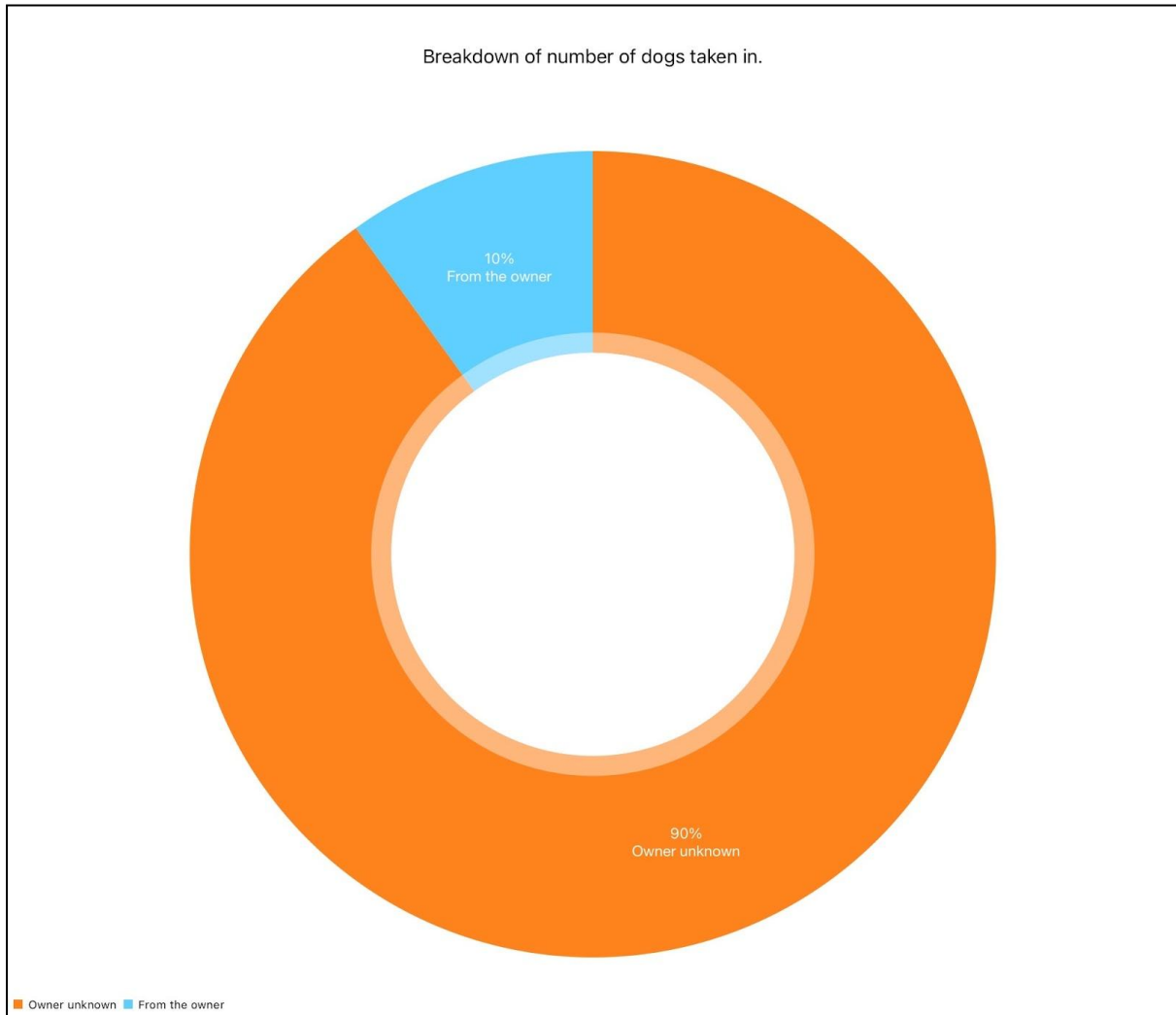


Figure 3: Breakdown of the number of dogs taken in

Source: Animal Protection and Management Office, General Affairs Division, Nature Conservation Bureau, Ministry of the Environment. In some places, the transfer rate is low even though the number of dogs killed is zero; in other places, the transfer rate is high even though the number of dogs killed is high. →No relationship

4. Conclusion and Future Problems

Figure 4 shows that until the introduction of microchipping, approximately 70% of new dogs were purchased from breeders and pet stores. When dogs are taken in from breeders or pet stores after June 1, 2022, about 70% of the dogs will be identified because dogs with microchips are sold. From Figure 3, we hypothesized 90% of the dogs taken in by shelters are unidentified, but that decades after the introduction of the microchip, the identities of 90% of these dogs will be determined, and the number of dogs being killed will decrease. Based on these facts, we believe that the microchip will reduce the number of dogs taken in by shelters due to unidentification, and that the microchip will lead to a decrease in the number of dogs killed. However, it is inevitable that there are dogs that cannot be transferred due to various reasons, such as harm to humans or untreatable diseases. Since we do not know how much effect the microchip will actually have, we will continue to progress on a project.

5. Reflection

Figure 4 shows that until the introduction of microchipping, approximately 70% of new dogs were purchased from breeders and pet stores. When dogs are taken in from breeders or pet stores after June 1, 2022, about 70% of the dogs will be identified because dogs with microchips are sold. From Figure 3, we hypothesized 90% of the dogs taken in by shelters are unidentified, but that decades after the introduction of the microchip, the identities of 90% of these dogs will be determined, and the number of dogs being killed will decrease. Based on these facts, we believe

that the microchip will reduce the number of dogs taken in by shelters due to unidentification, and that the microchip will lead to a decrease in the number of dogs killed. However, it is inevitable that there are dogs that cannot be transferred due to various reasons, such as harm to humans or untreatable diseases. Since we do not know how much effect the microchip will actually have, we will continue to progress of a project.

6. Work Cited

Administrative affairs for animal welfare management. "Collection of dogs and cats and Conditions of Detention and Disposition of Injured Animals." Environment ministry. Web. 18 Jun 2021.

https://www.env.go.jp/nature/dobutsu/aigo/2_data/statistics/dog-cat.html

(Ministry of the Environment: Statistical data, "Status of dogs and cats taken in and injured animals housed and disposed of")

<https://elaws.e-gov.go.jp/document?lawid=348AC1000000105>

(Ministry of the Environment: Act No. 105 of 1973, Act on Welfare and Management of Animals)