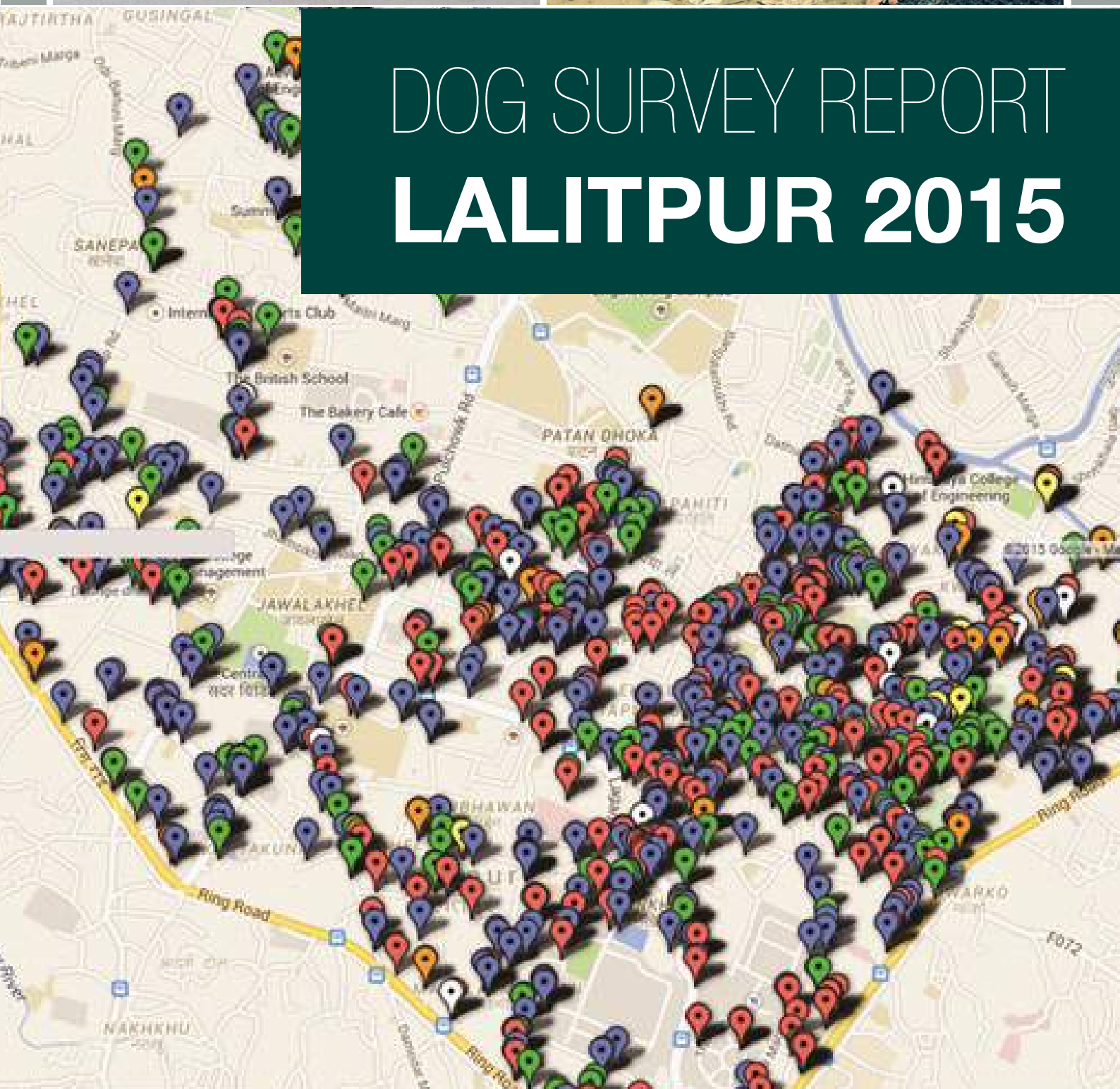




# DOG SURVEY REPORT

## LALITPUR 2015



# ACKNOWLEDGEMENTS

This survey report is prepared to obtain detailed information about the status of stray dog population and their general conditions in Lalitpur district, the main working area of Animal Nepal's Humane Dog Management Programme. We like to take this opportunity to thank our staff and volunteers for preparing the survey.

Sincere thanks and appreciation goes to Animal Nepal staff Santosh Gautam, Suman Khadka, Mohan Maharjan, Sunil Thapa and Suraj Thapa. Also a big thank you to committed volunteers Raghu Aditya, Pushpa Dhungana, Ajeeta Pandey and Ravee Tandukar and to Animal Nepal's supportive board under the leadership of Pramada Shah. Last but not least kudos to Chadani Lama for her writing and design skills and to Volunteer Director Lucia de Vries, whose direction and advice made this work possible.

Jim Pearson and Khageshwor Sharma from the Himalayan Animal Rescue Trust (HART) deserve a big hand for sharing the survey app which allowed us to conduct the research in an accountable, detailed and relatively easy manner. Likewise, we would like to thank all the respondents and community members who took time off their busy schedule to help us by providing information and support.

Lastly, we would like to take this opportunity to thank all our donors and supporters, and the Animal Nepal community at large, who encourage us to be a true Voice for the Voiceless.

We are confident that this survey will enable us to make our Humane Dog Management Programme even more effective.

**Uttam Kafle,**  
*Director Animal Nepal*

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**TOTAL DOG  
POPULATION OF  
LSMC (INSIDE  
OF RIND ROAD)**

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**2,793**

**1,476**



**1,267**



# 1. INTRODUCTION

## 1.1. EXECUTIVE SUMMARY

1

Animal Nepal formally introduced Animal Birth Control in December 2009. In the period 2009-2014 the organization spayed and neutered a total of 2871 dogs, the vast majority of them female Animal Nepal during this period not only focused on Lalitpur's urban area inside Ring Road but also on areas nearby its Chobar Centre and villages outside the Ring Road.

The organization in 2014 signed an MOU with the Lalitpur Sub-Metropolitan City (LSMC) authorities and committed itself to reach at least 75% coverage of female dogs spayed and neutered in LSMC's 22 wards.

To support this goal, Animal Nepal in March 2015 conducted a population survey of the roaming street dog population of 22 wards of LSMC. The total population count from survey was corrected by using Chapman method ( $p=1.78$ ) derived from Mark-Resight experiments. The total number of dogs counted was 1569. Using the Chapman method the number was adjusted to 2793.

It was found that Ward no. 15 with 316 dogs has the highest dog population (counting owned, community and street dogs) while Ward no.6 with 12 dogs has the lowest dog population. According to the findings, Ward number 8 had the highest number of Free Roaming Street Dogs.

Of the counted dogs 53% were female and 45% were male. Of 2% the sex could not be confirmed. Among the female dog population 9.4% was found to be lactating females whereas 2.6% was pregnant. 28.9% of female dogs were

spayed with an identified ear notch and 44.7% remained unsplayed. Among the male dogs 0.5% was found to be castrated.

Out of total dog population 42% were marked as an adult male dogs while 47% were an adult female dogs. 4% of them were male puppies and 6% of them were noted as female puppies. In the adult dog population 0.7% remained unidentified and similarly 1.2% puppies remained unidentified. Among the surveyed dogs, 49% dogs were Free Roaming Street dogs of city whereas 43% were Free Roaming Community Dogs and 7% Free Roaming Owned Dogs.

Animal Nepal believes this survey will be instrumental to carefully measure the outcomes of its ongoing Humane Dog Management Programme.

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Animal Nepal humane dog management programme aims at evaluating the following strategies:

- Implement community based Animal Birth Control/Anti-Rabies programmes
  - Treat and rehabilitate sick and injured dogs
  - Help line
  - Provide education and preventive health care within the community
  - Promote stray dog adoption
-

## ABOUT ANIMAL NEPAL



*Photo 1. Animal Nepal team (Humane Dog Management Programme)*

Animal Nepal (AN), is an innovative NGO based in Lalitpur District, and run by an enthusiastic team of members and volunteers, who are both local and overseas animal welfare campaigners and educators. AN was established as a non-profit company in 2004 and was registered as an NGO in 2009.

AN believes that through awareness-raising and practical interventions, widespread animal cruelty can be gradually reduced, and that Nepal can ultimately become a model country for animal welfare in the region.

Animal Nepal conducts three outreach programmes, focusing on stray and community

dogs, working equines and working elephants. The organisation manages two rehabilitation centers cum sanctuaries: Chobar Animal Hospital in Chobar village for dogs and the Donkey Hospital/ Donkey Sanctuary, based in Badhikhel village.

Animal Nepal believes education plays a vital role to improve the lives of Nepal's animals in a lasting manner. This is why it organizes awareness camps in schools and local communities. Animal Nepal is well known for its national campaigns in the areas of companion and working animals, livestock transport and slaughter, elephant abuse, dog poisoning, humane zoo conditions and urban

greenery.

3

Animal Nepal has been rescuing injured dogs with the help of volunteers since 2003. In 2009 Animal Nepal launched a Community-Based Stray Dog Rescue & Release Programme called Kathmandu Rescue. The programme's main objective is to create a healthy, reduced stray dog population in Kathmandu Valley through community based education and rehabilitation care. The organization in March 2012 piloted Catch Neuter Vaccinate Release (CVNR) camps in rural communities outside the Ring Road. The approach proved successful and camps were organized in Pharping, Harisiddhi, Kirtipur and Godavari/Badikhel. Together with Himalayan Animal Rescue Trust (HART) more camps were

held in various districts outside Kathmandu Valley. A brief survey on the impact of CNVR on community perceptions of street dogs showed highly encouraging results. (See <https://animalnepal.org/2013/01/19/survey-shows-major-impact-on-communities-perceptions/>)

In the period 2009-2014 a total of 2871 dogs were spayed or neutered. Apart from covering wards of Lalitpur Sub-Metropolitan City the organization focused on areas nearby its shelter (Chobar, Kirtipur, Balkhu, Baisepti, Pharping, Taudaha, Bagdol, Nakkhu) and villages outside Ring Road (Godavari, Badhikhel, Harisiddi). The organization in 2015 signed an MOU with the Lalitpur Sub-Metropolitan City and committed itself to reach at least 75% coverage of dogs spayed and neutered in its 22 wards.



*Photo 2. Team Animal Nepal distributing brochures and information leaflets to the locals at Patan*

## 1.2. GENERAL BACKGROUND OF STREET DOGS CONDITION IN NEPAL

An estimated 22,500 stray dogs live inside the Ring Road of the Kathmandu Valley. (2012 WSPA Street Dog Population Survey Kathmandu, see <https://animalnepal.files.wordpress.com/2013/09/dog-survey-kathmandu-valley-2012.pdf>) Most of urban stray dogs are discarded pets, which have become sick, pregnant or developed aggressive behavior, or the offspring of such animals. All these factors and more have fed a complex serious stray dog problem for Nepal, which is more than ready for a humane, efficient and long-term solution.



Photo 3. AN caretaker Mohan trying to get hold of an aggressive stray dog

## 1.3. STATEMENT OF PROBLEM

Most of urban stray dogs are discarded pets which have become sick, pregnant or developed aggressive behaviour, or the offspring of such animals. Fear of rabies has also bred short-term, misinformed responses to the dilemma faced by the government that through some municipalities conducts unscientific strychnine poisoning programmes. All these factors and more have fed a complex serious stray dog problem for Nepal, which is more than ready for a humane, efficient and long-term solution.

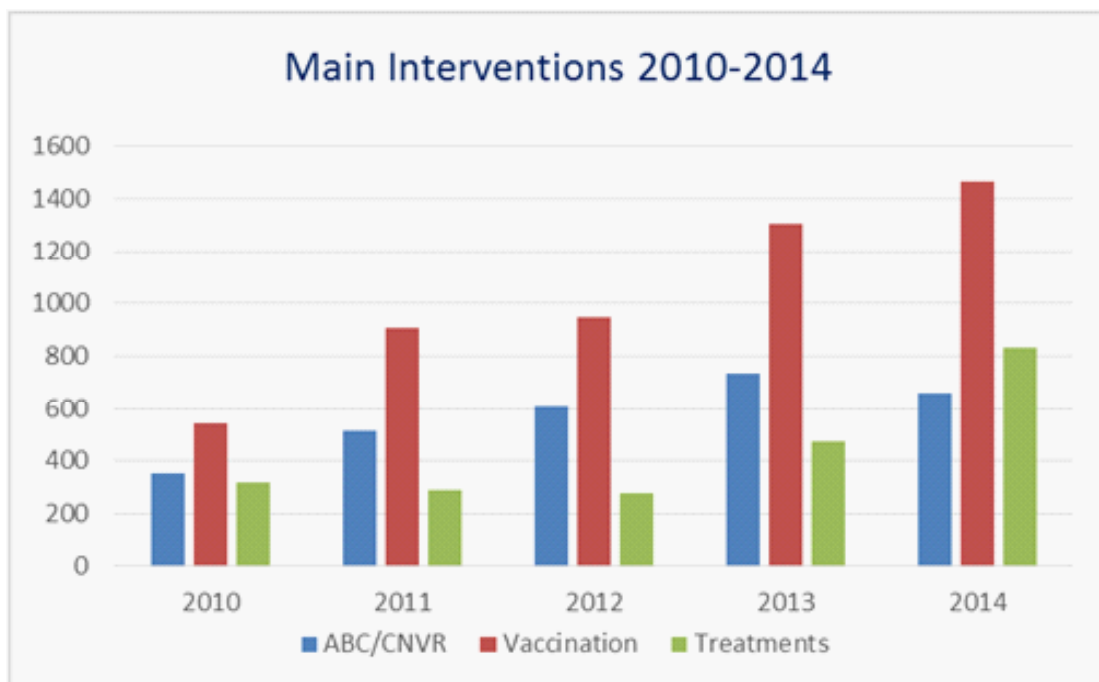


Figure 1. Major interventions of AN Dog Rescue Programme (2010- 2014)

Animal Birth Control was formally introduced by Kathmandu Animal Treatment Centre in the northern part of Kathmandu Valley in 2004. Animal Nepal followed in 2009, with a special focus on the southern part of the valley.

WSPA, with the support of local volunteers, conducted detailed population surveys in 2006, 2010 and 2012. The final 2012 survey shows that the dog population in Kathmandu district is no longer increasing and has become stable. The population in the surveyed area of Lalitpur District decreased with 64% in 6 years' time. The sharp reduction cannot only be attributed to Animal Nepal's work; although the other reasons remain unclear factors such as a relatively high presence of animal loving community members and the removal of puppies from the streets by India smugglers are believed to play a role.

Positive results in humane dog population management can be quickly undone when an insufficient number of female dog are being spayed, the wrong dogs are being targeted or other factors increase the population. This is why Animal Nepal considers it important to conduct regular surveys to measure its impact.



*Photo 4. Animal Nepal team conducts regular spaying surgery at the Chobar Animal Hospital*

## 1.4. DOG SURVEY 2015

### *Objectives of the study:*

- To know the present status of dogs in Animal Nepal's working area
- To educate community members about Animal Nepal's work and the importance of humane dog management

## 1.5. LIMITATIONS

- To know the present status of dogs in Animal Nepal's working area
- To educate community members about Animal Nepal's work and the importance of humane dog management

## 2. METHODS

### 2.1. SURVEY METHODOLOGY

Building on data obtained in earlier dog surveys in Kathmandu Valley, Animal Nepal in March 2015 conducted a baseline survey for the population of stray dogs in the area of the Sub-Metropolitan Lalitpur City.

Animal Nepal team together with volunteers were mobilized to count the number of dogs in different wards of Lalitpur Sub-Metropolitan City. The study has covered all 22 wards of LSMC.

The survey was conducted with the help of a mobile app which was provided by Himalayan Animal Rescue Trust (HART). The app enabled the teams to register various details of the dogs

including their sex, health status, sterilization record, age and location using GPS. Each day the group was divided into teams of two or three and sent to their designated wards for the survey. The dogs whose details were recorded were marked by spray paint so that the other team would not recount them. The census was completed within the period of one month. Total number of dogs counted during the survey were re-adjusted using mark resight model.

The teams recorded 1569 dogs, out of which 829 are female, 712 are male and 28 unidentified. The adjusted number using mark resight calculator are  $1569 \times 1.78 = 2793$  using Chapman Method, or 2949 using Baysian Method.

### 2.2. SURVEY MAP

The following survey map covers the areas of survey and are marked by Green, Red, Blue, White and Yellow. The colours represent Spayed Female, Unspayed Female, Uncastrated Male, Castrated Male and Unidentified Sex respectively.

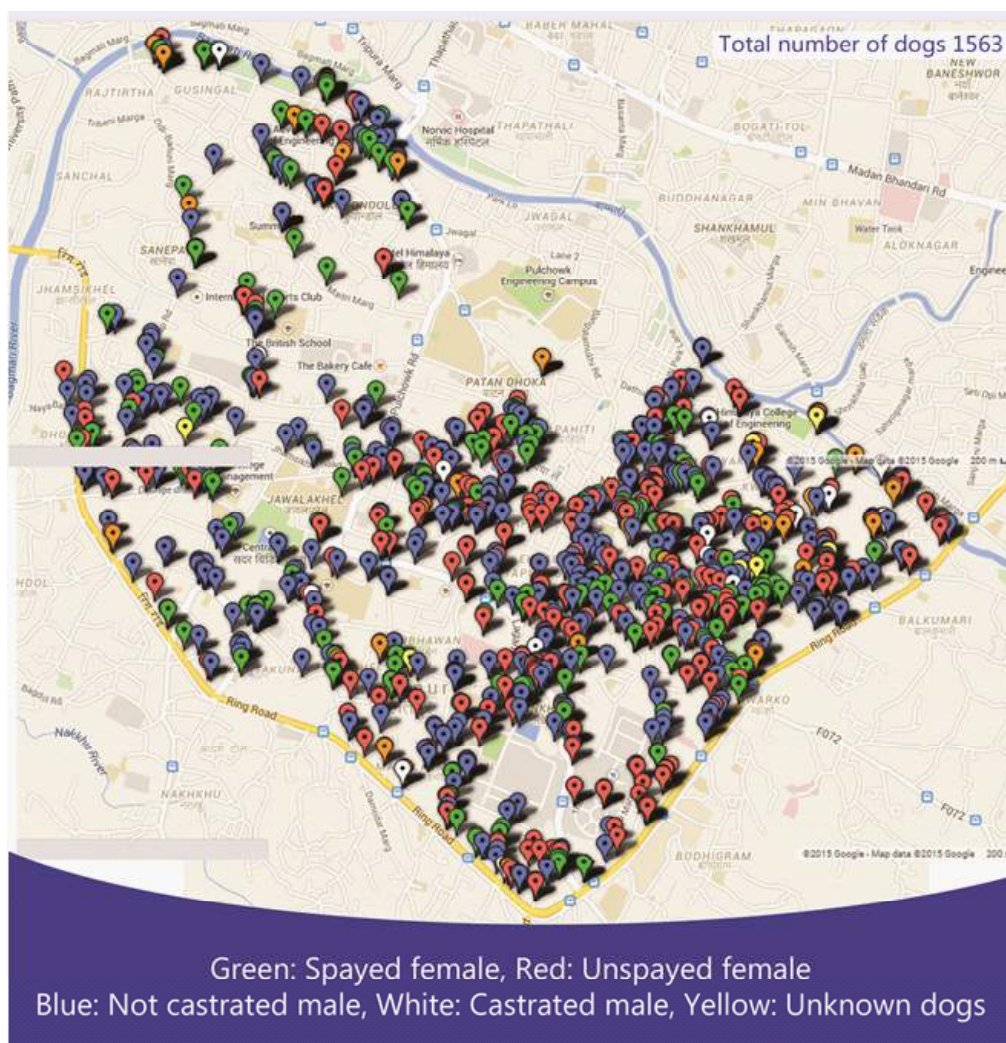


Photo 5. A survey map covering 22 wards of LSMC

## 2.3. DATA COLLECTION PROCEDURE AND TIME FRAME

- Only roaming dogs were counted. Those confined within property (e.g. behind closed doors or gates) were not counted. Owned dogs i.e. those with their owners were noted as such, dogs wearing collars but roaming free were recorded as free roaming owned dogs while all others were categorized as free roaming street dogs.
- The data collection method used was the Census Method. A mobile application was prepared and distributed to each member who they filled out the information of each dogs following the process instructions given in the app.
- The application helped the members to track the location of each dog and record detailed data. Thanks to ward wise maps, the survey teams were enabled to return to the same ward and continue the survey during various visits.
- The survey was carried out each day from 7-10 am or from 5 -7 pm as there are high chances of dogs being there in the streets in the morning and evening rather than in the afternoon.
- We were successful in completing the census within the period of one month.



*Photo 6. A green spray paint sprayed on the back of a dog to mark it as counted.*



*Photo 7. Animal Nepal team during the dog survey 2015*

## 2.4. MARK-RESIGHT

In any survey of animal populations, a proportion of the total is likely to be missed. A method called Capture-Recapture or Mark-Resight/Recapture (MR) can be used to estimate this missing proportion. This involves calculating the detection or sighting probability of the target species in its particular habitat, which can then be used to correct the population estimate arrived at through other counting methods such as line transects or block counts. Individual identification of the target animal(s) is essential for MR experiments. A portion of the population is captured, marked, and released. Later,

another portion is captured and the number of marked individuals within the sample is counted. Since the number of marked individuals within the second sample should be proportional to the number of marked individuals in the whole population, an estimate of the total population size can be obtained by dividing the number of marked individuals by the proportion of marked individuals in the second sample. The method is most useful when it is not practical to count all the individuals in the population. ([https://en.wikipedia.org/wiki/Mark\\_and\\_recapture](https://en.wikipedia.org/wiki/Mark_and_recapture))

## 2.5. CORRECTION FACTOR

Mark Resight of individually identified dogs was conducted in a randomly selected sub-sample (n=8) of total surveyed blocks (n=79) in order to estimate the average detection probability of dogs in Kathmandu. The correction factor thus derived was used to correct the block count estimate.

An alternative less biased estimator of population size is given by the Chapman estimator which we used to derive N (Sighting Probability) in our population count.

$$N \approx \frac{(K+1)(n+1)}{k+1} - 1$$

- (N) Number of animals in the population  
 (K) Number of animals marked on the first visit  
 (n) Number of animals captured on the second visit  
 (k) Number of recaptured animals that were marked

8

## 2.6. PROGRAMME APPLICATION USED

The mobile app "AN\_MARV04" was provided by Himalayan Animal Rescue Trust (HART). The app enabled the teams to register various details of the dogs including their location, sex, health status, sterilization record and age.

As shown in the picture the app required a phone ID and Operator name and when given it will allow the surveyor to choose the city and ward and make the entry.

Regarding ownership status the app provides an option for FRO Free Roaming Owned), FRC (Free Roaming Community), FRS (Free Roaming Street) and CM (Confined Mongrels).

Similarly, the app provided the option for Castrated/ Not Castrated Male, Spayed/ unspayed female, Lactating and Pregnant female and male and female puppies. The app also allows further entry of vaccinations and treatment details.



Photo 8 Screen shots of the mobile app used to record the survey data.



*Photo 9. A female stray dog with 1 i.e. emaciated body score condition.*



*Photo 10. A male stray dog with moderate skin condition and moderate body score condition.*



*Photo 11. Lactating Unspayed female dog with her puppies.*



*Photo 12. Stray puppies*

On the body score condition surveyors rated dogs from 1-5 i.e. 1-Emaciated, 2-Thin, 3- Moderate, 4- Stout and 5-Obese. The skin condition was entered as normal, mild, moderate or severe.

## 3. METHODS

### 3.1. MARK RESIGHT CALCULATOR USING CHAPMAN AND BAYSIAN METHOD

Mark Resight and recapture was carried out in a total of 3 wards randomly chosen from among the survey areas. Each Mark Resight area was visited for 2 consecutive days by the survey team and the following results were found:

Number of animals marked on the first visit (K) = 51  
 Number of animals captured on the second visit (n) = 49  
 Number of recaptured animals that were marked (k) = 27

By using Chapman method,

$$\text{Number of animals in the population (N)} = \frac{(K+1)(n+1)}{k+1} - 1$$

$$= 91$$

Hence, Sighting Probability (p) = N/K = 91/ 51 = 1.78

Table 1. Mark Resight Calculator showing Chapman and Baysian method

Chapman Method		Baysian Method
51	K	51
49	N	49
27	k	27
91	N	96.0 +/- 9.6
1.78		1.88

So total number of dogs are 1569x1.78=2793 using Chapman Method, and 1569x1.88=2949 using Baysian method.

Table 2. Population after MR Correction

Attributes	M	F	PM	PF	PU	FRS	FRC	FRO	Total
Total	712	829	61	83	28	774	673	102	1569
MR Corrected	1267	1476	109	148	50	1378	1198	182	2793

M: Male  
 F: Female  
 PM: Puppy Male  
 PF: Puppy Female

PU: Puppy Unidentified  
 FRS: Free roaming Street  
 FRC: Free Roaming Community  
 FRO: Free Roaming Owned

### 3.2. DISTRIBUTION ON THE BASIS OF AREA/ WARDS

11

A total of 1569 dogs were counted during the survey within LSMC area which after Mark Resight correction using Chapman method as calculated as 2793.

Among the 22 wards, ward no. 15 has the highest dog population  $177 \times 1.78 = 315$  which covered 11% of the total population while ward no.6 has the lowest population  $7 \times 1.78 = 12$  that covered only 0.4% of total population.

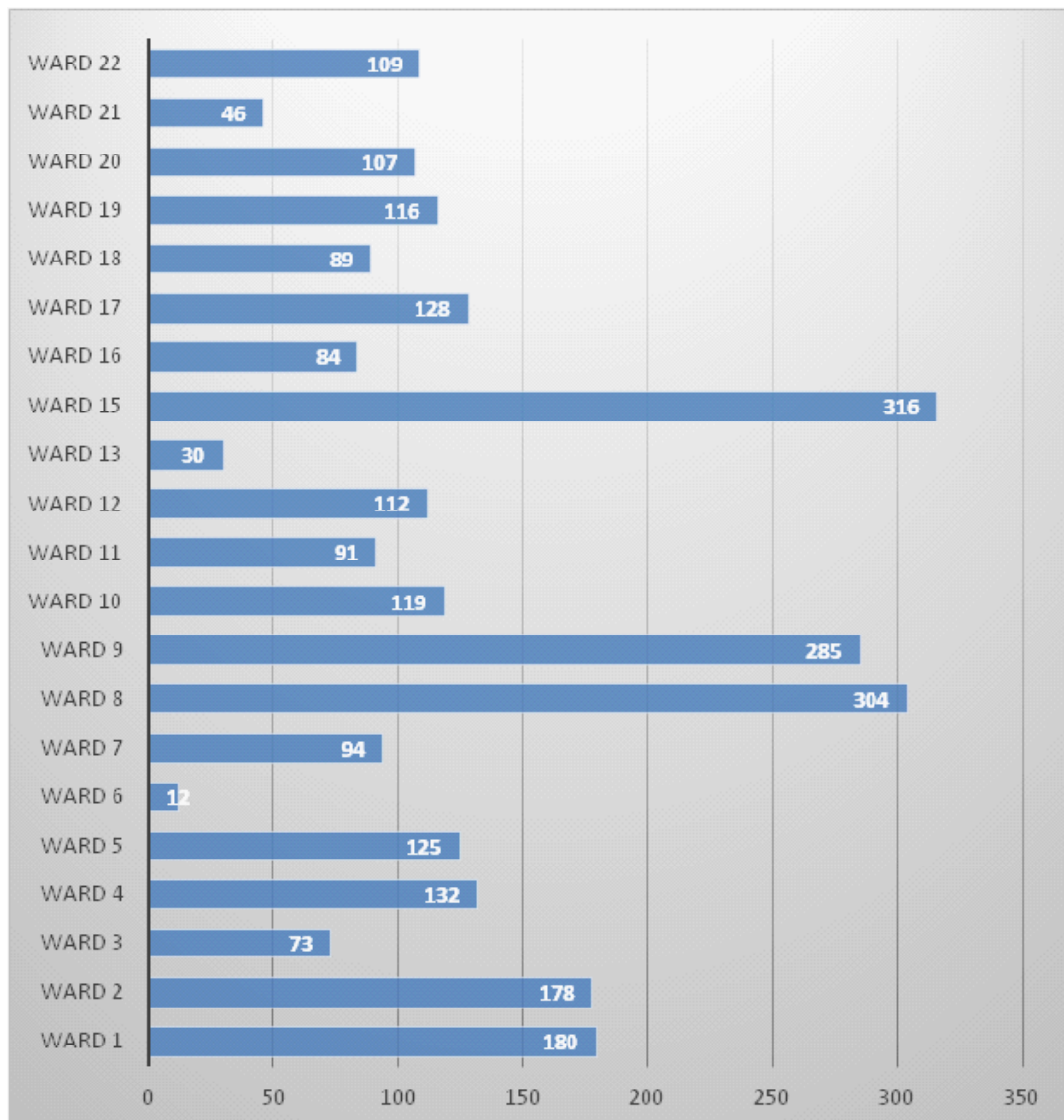


Figure 2. Total number of dogs in each ward of LSMC

### 3.3. SEX RATIO

Among the 2793 dogs, 1267 (45%) are male and 1476 (53%) are female while 50 (2%) remain unidentified in the total population. The sex ratio of male to female dogs is 1.17

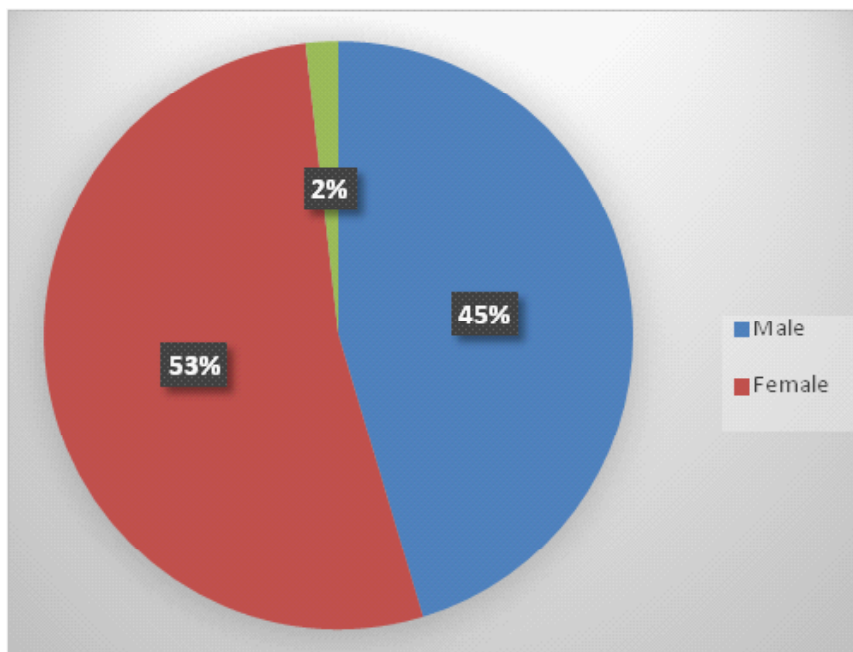


Figure 3. Distribution of dog population on the basis of sex

Table 3. Distribution of dog population on the basis of sex

Total number of wards in Lalitpur	Total Male dogs	Total Female dogs	Total Unidentified
22	1267 (45%)	1476 (53%)	50 (2%)

### 3.4. ASSESSMENT ON THE BASIS OF ANIMAL BIRTH CONTROL (ABC)

- Out of 1476 female dog population, 139 (9%) were lactating females whereas 39 (3%) were pregnant.
- 481 (29%) female dogs were spayed showing an identified ear notch and 660 (45%) adult females were unspayed
- Among 1267 male dogs, 7 (0.5%) were castrated and 1157 (91%) uncastrated. (This is not surprising as Animal Nepal till late 2015 focused on spaying of females; in December 2015 the organization sets out to conduct birth control on both females and males)

Table 4. Assessment on the basis of Animal Birth Control

Total number of Male dogs		Total number of Female dogs			
Castrated (% of males)	Not Castrated (% of males)	No. of Female Lactating (% of females)	No. of Females spayed (% of females)	No. of Females unspayed (% of females)	No. of Female pregnant
7 (0.5%)	1157(91%)	139 (9%)	148 (29%)	660 (45%)	39 (3%)
1267		1476			

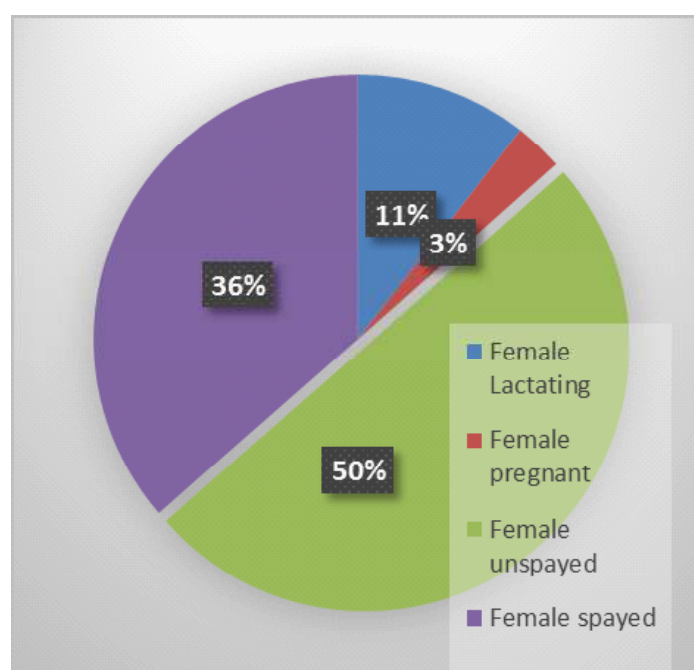


Figure 4. Distribution of female dog population

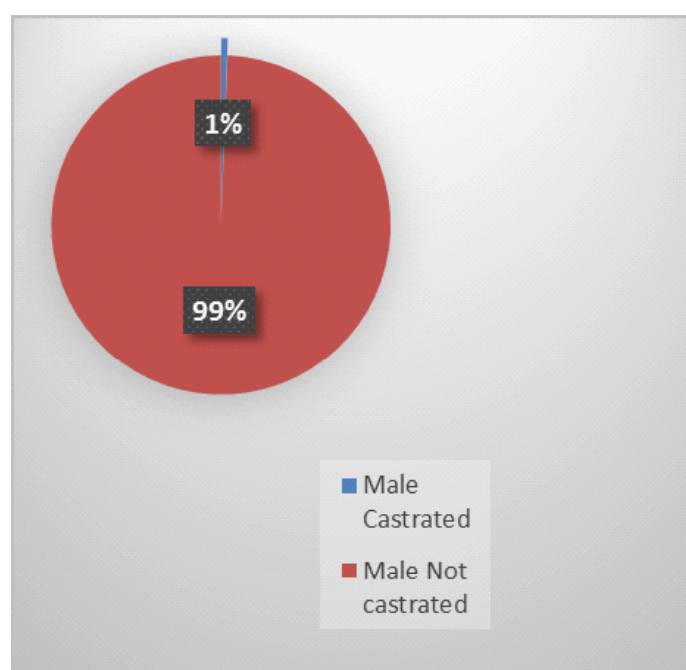


Figure 5. Distribution of male dog population.



3.5. ASSESSMENT ON THE BASIS OF AGE

13

- Out of 1476 female dog population, 139 (9%) were lactating females whereas 39 (3%) were pregnant.
- 481 (29%) female dogs were spayed showing an identified ear notch and 660 (45%) adult females were unspayed
- Among 1267 male dogs, 7 (0.5%) were castrated and 1157 (91%) uncastrated

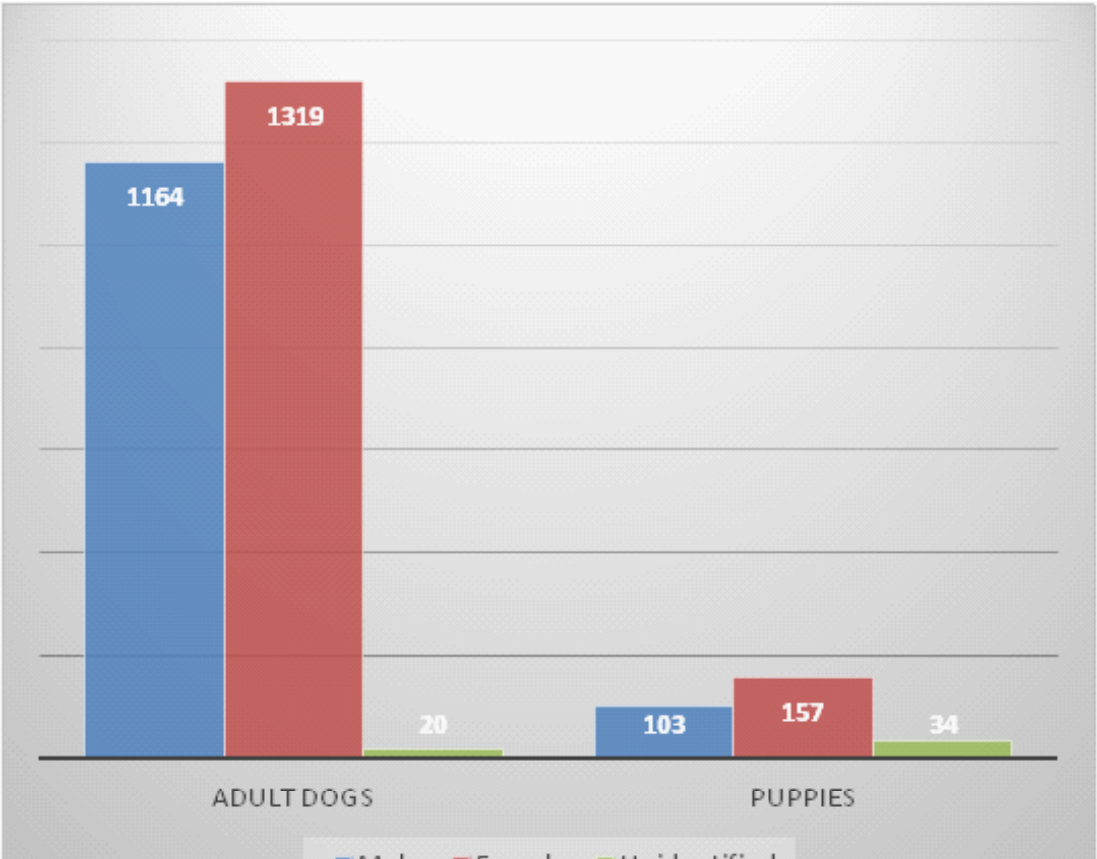


Figure 6. Distribution of dog population on the basis of age.

Table 5. Distribution of dog population on the basis of age

Total no. of Adult dogs			No. of Puppies (No. of Litters)		
Male	Female	Unidentified	Male	Female	Unidentified
1164 (42%)	1319 (47%)	20 (1%)	103 (4%)	157 (6%)	34 (1%)

## 3.6. OWNERSHIP STATUS OF DOGS

Table 6. Distribution of dog population on the basis of ownership.

Survey Location (Ward)	Free Roaming Street (FRS)	Free Roaming Community (FRC)	Free Roaming Ownership (FRO)
1	43	50	7
2	64	30	6
3	13	26	1
4	31	63	13
5	21	42	3
6	-	6	1
7	8	39	5
8	152	19	-
9	144	9	6
10	54	11	1
11	34	17	-
12	5	48	10
13	8	7	2
15	78	82	16
16	-	43	4
17	39	31	1
18	4	29	11
19	32	31	2
20	18	34	8
21	5	16	5
22	21	40	-
Total:	774	673	102
MR corrected population:	1378	1198	186

1378 (49%) dogs are Free Roaming Street Dogs, 1198 (43%) Free Roaming Community Dogs and 186 (7%) Free Roaming Owned Dogs. Ward number 8 has the highest number of free roaming street dogs.

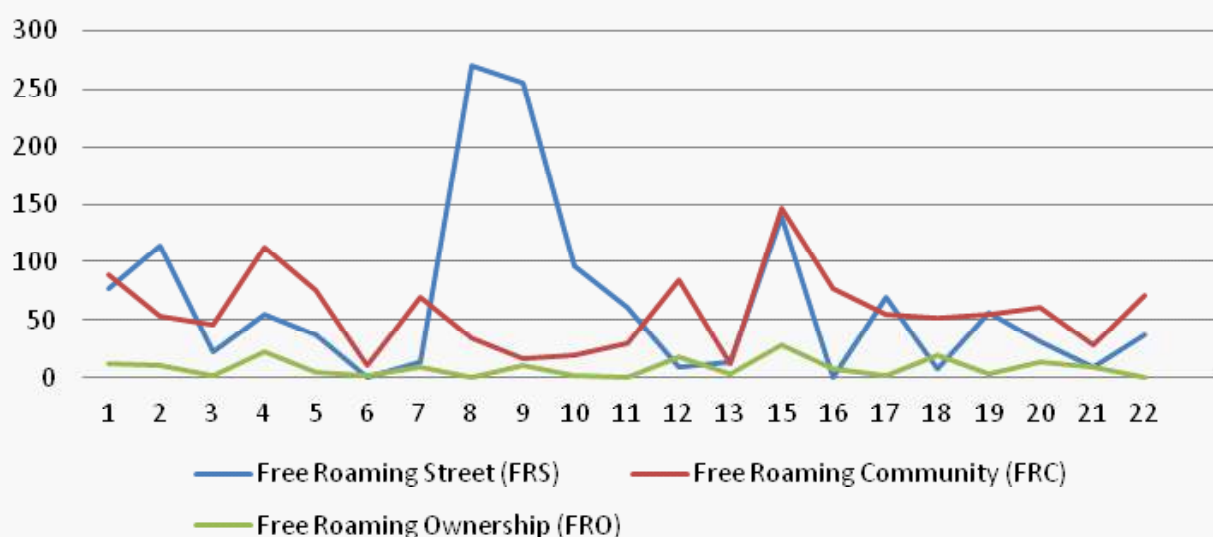


Figure 7. Distribution of dog population on the basis of ownership status

## 4. SUMMARY AND CONCLUSION

### 4.1. SUMMARY OF FINDINGS

15

The Lalitpur Dog Survey 2015 was carried out to know the present status of dogs in Animal Nepal's working area, including the present status of spayed and unspayed dogs and their overall welfare condition, and to create awareness about the importance of humane dog management within the community.

- A total of 1569 dogs were recorded. In order to address the issue of underreporting the Chapman method was used to adjust the total number. The calculations established the total number at 2793.
- Among the surveyed population 53% is female and 45% male. The gender of 2% of surveyed dogs could not be established.
- Among the female dog population 9.4% was found to be lactating female whereas 2.6% was pregnant. 28.9% of female dogs were spayed with an identified ear notch and 44.7% remained unspayed.
- Among the male dogs only 0.5% was found to be castrated, the result of Animal Nepal's focus on females. 91% male population was identified as not-neutered. As per the survey result, birth control interventions will focus on areas with the largest numbers of female puppies and unspayed and pregnant adult females.
- Among the 2793 dogs (Mark resight corrected data), 1267 were found to be male and 1476 female. As per the following calculations:  $1267 / 1476 \times 100 = 85.8$ , 86:100 is the male:female sex ratio.
- 10% of the population consists of puppies whereas almost 85% of the population was found to be adult dogs.
- Ward no.8 had the largest number of free roaming street dog population i.e. 315. Animal Nepal's forth coming programmes will give special focus to this area.

## 4.2. RECOMMENDATIONS

- **Animal Welfare Act:** The Ministry of Agriculture and Cooperatives should submit an Animal Welfare Act regulating the welfare of all animals to the Parliament as soon as possible.
- **Exposure by the media:** The media (both national and local) should expose the suffering of dogs and continue to do so until conditions have improved.
- **Lobbying:** Civil society should not be afraid to take up animal rights issues; together with animal welfare organizations, civil society should be a voice for the voiceless and lobby for rights and improved welfare.
- **Introduce animal registration and welfare standards at municipality level:** Municipalities should introduce the registration of all animals enabling the authorities a degree of control. Minimum welfare standards with fine system and monitoring for animal owners must be introduced.
- **Awareness raising:** Educational campaign should be introduced to inform the public at large and pet owners specifically about animal rights and welfare.
- **Manage stray dogs:** Authorities together with civil society should find solutions and assign locations for shelters. Animal Birth Control/Anti Rabies should be introduced as a long term solution to overpopulation and zoonotic diseases.
- **Improvement of (access to) medical care:** Affordable quality medical treatment of stray animals is hard to find. Community based medical care should be introduced by local authorities together with NGOs, in which maximum responsibility is given to community members.



**ANIMAL NEPAL**  
**DOG SURVEY REPORT**  
**LALITPUR 2015**