



# BOOK OF ABSTRACTS

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ICAM Virtual International Conference 2023

**ICAM**  
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ANIMAL MANAGEMENT COALITION



# ICAM Virtual International Conference 2023

## HUMANE DOG AND CAT POPULATION MANAGEMENT

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# Day 1 - Monday, June 19

## Evolving Population Management

### SPECIES DISTRIBUTION MODELS FOR DOG AND CAT MANAGEMENT

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Many of the tools and techniques now routinely used by animal welfare organizations to collect and analyse dog and cat population data were initially developed for use in wildlife and environmental studies or in other scientific undertakings. Examples include stratified survey design, population estimation techniques, and geographic information systems (GIS). Species distribution models (SDMs) are widely used by conservation and population ecologists to generate maps showing the estimated likelihood of occurrence or population density of a given species over space.

Conceptually, SDMs combine survey data for the species of interest with multiple GIS layers describing how various predictors vary over space to generate spatially-explicit population density or occurrence estimates in the form of a map. SDMs are a core tool for conservation, where they are uniquely well-suited for investigating and communicating large-scale patterns of population distribution. More specifically, they are often the primary basis for developing management plans and priorities. However, SDMs remain mostly unfamiliar within the dog and cat management sphere.

The purpose of this talk is to introduce SDMs to groups undertaking dog and cat management projects. Topics to be covered include the prerequisites of SDM, potential applications for dogs and cats, and specific techniques and workflows. These will be presented using multiple examples from wildlife studies.

### THE GOA DOGPOP PROJECT: A MULTISITE RANDOMISED CONTROLLED TRIAL MEASURING THE IMPACTS OF STERILISATION ON FREE-ROAMING DOG POPULATIONS

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Sterilisation is a common dog population management strategy that primarily aims to reduce population turnover and size and is reported to have health and welfare benefits for individual dogs. Whilst studies have demonstrated trends in population after sterilisation campaigns, most do not measure impacts in comparable non-sterilised populations, which allows better understanding of the specific impact of the intervention.

To assess the impact of sterilisation campaigns in populations of free-roaming dogs,

the DogPop project identified 10 study sites in Goa, India. Five sites were randomly allocated to intensive sterilisation campaigns over a short period (November 2020 – June 2021), and five sites had no sterilisation intervention. Dog observations (n = 6-8) were completed in all sites along specified routes at 14 time points, from 6 months before and up to 2 years after the intervention to assess free-roaming dog population structure, abundance and health. Using a smartphone app, the team documented dog sight surveys, capture locations for sterilisation, surgical and clinical notes, dog deaths, pet dogs and community perceptions of dog sterilisation.

In this presentation, I will discuss the approach of the study and reflect on what we have learnt from the experience and the data we have collected. I will introduce how we plan to integrate empirical field data into demographic modelling to improve simulations and assist in the planning of management interventions. This study has gathered a wealth of data on a range of impacts and will be useful to increase our understanding of how intense neutering in discrete areas can impact free-roaming dog populations and their human communities.

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## **BANGKOK CNVR PROGRAMME – EFFECTIVE PLANNING, MONITORING, EVALUATING**

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The Greater Bangkok area of Thailand is home to an overwhelming number of free-roaming dogs, creating an environment for increased human-dog conflict, a risk of rabies transmission and significant dog health and welfare issues.

Soi Dog Foundation, in partnership with Dogs Trust Worldwide, has been running a large scale CNVR (Catch-Neuter-Vaccinate-Return) programme in Greater Bangkok since mid-2016 in order to tackle these issues. Starting with only 1 Mobile Team in 2016, presently there are 9 Mobile Teams working in the Greater Bangkok area, with a 10th currently in training.

Thorough planning and intensive vet training have made the programme efficient, while detailed data collection, including base-line surveys, have allowed for robust and effective monitoring and evaluation, providing the basis to adjust and improve the programme and demonstrate its impact. Over 270 000 free-roaming dogs have been sterilised and vaccinated so far. Dog density has reduced significantly over time, with an average decline of 43.2% over a 6-year period; there has been marked improvement in animal welfare, a reduction in the incidence of rabies and an improvement in the human-dog relationship.

This presentation aims to introduce our team structure and work and encourage and guide others in the field on how to collect data via dog population surveys, attitude questionnaires and secondary sources to be able to monitor the impact of their programmes.

## **STREETDOGSIM: USING COMPUTER MODELING TO HELP PLAN FREE ROAMING DOG INTERVENTIONS**

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Free-roaming dogs pose a difficult management problem because of the threat of pathogens like rabies and as well as predatory behaviours towards humans, wildlife, and livestock. The historical trend of lethal removal as the primary management tool is giving way to more scientifically informed and humane sterilization and vaccination schemes but these strategies can vary wildly in their use between locations. This work describes an agent-based stochastic model, 'StreetDogSim' that can be used by dog population managers as a planning tool to investigate various interventions using parameters that match their particular local conditions. Here, we explore the effects of different management strategies including both lethal, vaccine-only, and vaccinate and neuter on important population dynamics such as overall size, demographics, vaccination coverage, time until effective population suppression and duration of suppression. Under most model parameterizations, a strategy that targets females for sterilization and vaccination outperforms all other options.

## **HIGH-RESOLUTION SETTLEMENT LAYER (HRSL) TO ESTIMATE DOG POPULATIONS AND DERIVE VACCINATION COVERAGE AFTER PARENTERAL AND ORAL RABIES VACCINATION –AN EXAMPLE FROM NAMIBIA**

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Despite being vaccine preventable, dog-mediated rabies continues unabated in low-resourced countries in Africa and Asia. For interventions into dog rabies control, an estimate of the dog population is a prerequisite. Here we used an Open Source High-Resolution Settlement Layer (HRSL) with an unprecedented resolution of 30m grid length for dog populations estimates and studies on vaccination coverages, with the Oshana region of Namibia as an example. Based on a previous KAP study our analyses show that the average dog density per km<sup>2</sup> is 8.15 but ranges between 0 and 40 per constituency. With the example of Namibia, spatial analyses for different settings of static vaccination points indicate that the previously used vaccination points during the pilot phase and cattle crush-pens are insufficient for reaching a 70% vaccination level in the Oshana region. Cost estimates to parenterally vaccinate dogs in this region ranged between US\$5.29 and US\$7.77, suggesting that oral rabies vaccination (ORV) may be a cost-effective supplement or even replacement. In fact, in an emergency response vaccination in Namibia's Zambezi region using ORV only, a high efficiency of this method was demonstrated by vaccinating almost 3,300 dogs with four teams in four days. With the high spatial resolution of dog populations, an estimate of vaccination coverage was derived without the need for subsequent monitoring or surveys. The high-resolution

spatial analyses are exemplified for rabies, but any other dog population management or One Health intervention, particularly in highly heterogenous and remote areas could use our approach as a template.

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## **HOLISTIC AND SCIENTIFIC: MAKING DATA-DRIVEN APPROACHES ACCESSIBLE TO ANYONE.**

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While animal welfare organizations typically focus on dog population management (DPM), rabies elimination plays a vital role in DPM and can often better enable animal welfare organizations to engage with government authorities and other stakeholders. Education and surveillance are key to driving both effective rabies elimination efforts and DPM programs. However, many local stakeholders lack the capacity, resources, and skills to create and deliver effective programs that address rabies education and surveillance.

To address these challenges, the Global Alliance for Rabies Control (GARC) has developed a set of free tools and resources available to any stakeholder (individual, local organization, government, etc) to help them effectively and efficiently deliver rabies elimination programs by building education capacity and implementing easy-to-use tools for data collection, analysis, and reporting. The surveillance tools provide users with user-friendly maps, graphs and other visuals that are ideal for stakeholders to use in reports and on websites and have been effectively used to help gain further donor support and engagement.

Case studies highlighting these benefits will be presented as evidence that these freely available tools and resources are the ideal means to support local stakeholders.



## Day 2 – Tuesday, June 20

# Population Management in One Health

## A ONE HEALTH APPROACH THROUGH “HEALTHY PETS, HEALTHIER COMMUNITY” PROGRAM IN LOW-INCOME COMMUNITIES OF SOUTH AFRICA

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Many pet owners around the world struggle to gain access to veterinary care services, while others are unable to afford the cost of the veterinary services they do have access to. Current challenges, including global inflation, shortages of supplies, and as urge in the cost of veterinary products due to the pandemic’s ripple effects in the global supply chain, surging energy prices, and the ongoing COVID-19 pandemic, have exacerbated pre-existing companion animal welfare issues and created new ones. The challenges faced in recent years have highlighted the fact that locally relevant solutions are needed more than ever to create sustainable change for animal welfare, and never has there been a more important time to consider how we innovate and refocus our approach to ensure we can be as effective as possible for the animals and communities we serve.

In late 2022, Humane Society International launched “Healthy Pets, Healthier Community” a data driven robust one health program in Cape Agulhas Municipality, South Africa, after a comprehensive dog population and KAP survey. The multifaceted initiative aims to benefit low-income communities and their animals by improving spay/neuter accessibility, promoting responsible pet ownership through humane education, and strengthening municipal bylaws to protect companion animals. The community outreach program provides local pet owners with the knowledge to help families maintain a healthy and humane lifestyle for their pets. One health approach has grown in recent years, specifically post-COVID, with the unified understanding that animal health and human health fall under one umbrella. As we share the same planet, often the same localities, and the same house when it comes to dogs and cats, it only makes sense that we take a unified approach to health as “one health.” The steps taken to develop this program, the methods of stakeholder engagement, and the use of this initiative as a model for other South African communities will be discussed.

## BARRIERS TO HUMANE DOG POPULATION MANAGEMENT AND IMPACT ON HUMAN HEALTH IN JORDAN

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There have been significant steps in preventing and stopping the previous inhumane and ineffective stray dog control approaches legally in Jordan. The most important one is that the killing of these animals has been banned by the Ministry of local administration.



The Capture Neuter Vaccinate Release (CNVR) programme is the only official approach which is approved to manage stray dog populations. It's been applied through several municipalities including the Greater Municipality of Amman. However, the absence of appropriate legislation and enforcement mainly involving the management of farm animals and the inappropriate disposal of their carcasses, as well as other solid waste such as rubbish tips is one of the main causes for the increase in roaming dog and cat populations. It is also contributing largely -especially in the case of farm animal carcasses- towards disease transfer and it's a major public health and economic problem.

The lack of commitment on the part of the government to the proper appropriation of the CNVR programme has also been a great hindrance mainly because it's a programme that takes a reasonable amount of time to apply and show results. Additionally, some of the key elements of the programme such as documenting where each dog comes from and placing it in the same place are not always applied. Dogs are removed and put either in rubbish tips where they fight with the local population and become even more aggressive and/ or are killed. All of this affects the natural dynamics of dog populations which causes human-dog conflicts and gives the impression that the programme doesn't work. It actually would work where it's properly applied.

This presentation will provide an overview of dog population management projects in Jordan and outline associated challenges.

## ALL IN ONE PROGRAMME, KABUL, AFGHANISTAN

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Despite a regime change in Afghanistan in August 2021, Mayhew continues to deliver on a 5-year strategy Vaccination and TNR strategy in Kabul. In conjunction with a Rabies control and Dog Population Management programme it is possible to manage other common canine and other zoonotic diseases such as leishmaniosis, distemper, mammary gland tumours, TVT, skin diseases as well as seeing a decline in road traffic accident cases which can cause severe injuries in dogs.

Previously Kabul Municipality was killing over 20,000 dogs/year with strychnine poison which caused very painful deaths for the dogs. Their culling programme was never effective and rather worsened the situation for both the dogs and residents of the city. The culling programme caused dog migration which led to consequences such as increased dog bites on humans and the spreading of rabies from one area to other.

Mayhew developed a 5-year strategy with an MoU signed with Kabul Municipality, the Ministry of Agriculture and the Kabul University Vet Faculty to stop the culling programme. Mayhew replaced it with a Mass Canine Rabies Vaccination programme to control rabies and later established a concurrent ABC programme to manage the dog population which improved the lives of both dogs and humans in Kabul City

# LONG-TERM SUBSIDIZED VETERINARY SERVICE PROVISION IN INDIGENOUS COMMUNITIES IN NORTHERN CANADA: A ONE HEALTH APPROACH TO SERVICE DELIVERY AND PROGRAM EVALUATION

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Dogs have been a part of daily life for Indigenous people in Canada for thousands of years, with roles in transportation, and as hunting partners, protectors, and companions. Dogs continue to play important and evolving roles; however, they can have negative social and ecological impacts and pose human health risks. The health of dogs is impacted by social determinants of health within communities, including limited access to veterinary services, a limitation common in the Canadian North. These are all concerns that require a One Health approach. We used household questionnaires, a dog census, and a veterinary medical record chart review to evaluate a decade-long annual veterinary program in four Indigenous communities in northern Canada. We also surveyed past veterinary service provider (VSP) participants (veterinary students, veterinarians, and animal nurses) of these annual clinics.

Our aims were to understand if there were changes in dog husbandry and community perceptions of/experiences with, dogs since the initial needs assessment in 2008, as well as to evaluate how program reach and uptake, and dog population demographics, health and welfare measures changed over time. We also aimed to understand VSP experiences delivering services in the context of the program. We documented significant changes in the described purpose of dogs, husbandry practices, experiences with dogs, and attitudes towards dogs and veterinary services. Program reach, service uptake, and dog demographic, health and welfare measures (like age, body condition, and vaccination, deworming, and sterilization status) also improved over time. Our results indicated inter-community differences in dog husbandry and attitudes towards dogs, as well as the uptake of veterinary services. We found high rabies vaccination coverage in some communities and moderate overall sterilization status with female dog sterilization more common than male. For veterinary students, in particular, the experience increased their confidence working with people from diverse cultures, offered them opportunities to implement a client-centered approach, and advanced their capacity to challenge preconceived biases about Indigenous cultures and animal ownership; all experiences important to the development of cultural humility.

Overall, our study findings demonstrate that subsidized veterinary services provided annually over the long-term can benefit animal population demographics, health and welfare, and can have positive impacts on community health and well-being. The program framework of community collaboration and long-term commitment serves as a model for achieving common health goals among underserved communities and VSP.

# BEYOND DOG MANAGEMENT: ONE HEALTH CONSIDERATIONS IN THE CHANGING LANDSCAPE OF PARASITE TREATMENT AND PROPHYLAXIS IN AUSTRALIAN INDIGENOUS COMMUNITY DOG HEALTH AND MANAGEMENT PROGRAMS

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Dogs play an important and versatile role in Australian Aboriginal and Torres Strait Islander communities. Given their close association with people, the health of dogs is intrinsically linked to the health of people and the broader community. In rural and remote areas, barriers to accessing animal health and veterinary services can contribute to overpopulation, high rates of infectious disease and poor dog health status. Beyond concerns for animal health and welfare, these factors also increase the risk of negative public health impacts, such as the transmission of zoonotic diseases, particularly parasitic zoonoses. Despite limited published evidence on the prevalence of parasites in dogs in Australian Aboriginal and Torres Strait Islander communities, parasitism by internal and external parasites has been widely acknowledged as a primary dog health concern. As such, parasite prevention has become a fundamental component of community animal health and management programs, with the aim of improving dog and reducing the risk of zoonotic disease transmission.

While potential health benefits from parasite treatment and control programs are broadly acknowledged, the potential for ongoing negative impacts related to the administration of antiparasitic agents such as resistance development, human exposure, environmental contamination and ecotoxicity are seldom considered. Although dog parasite treatment guidelines exist, there are challenges in their application at the population level in the context of rural and remote dog management programs. In a recent study, we looked at patterns of antiparasitic use in Australian Aboriginal and Torres Strait Islander community animal health and management programs, with the aim of gaining an improved understanding of the potential impacts of these treatments on the health of humans, animals, and their shared environment. The study includes parasite treatments administered in programs across 123 Australian Aboriginal and Torres Strait Islander communities between October 2013 and June 2022. Data from this study can be used to help inform and develop population-level canine antiparasitic stewardship guidelines. Such guidelines can be regarded as a key foundational tool for reducing the transmission of parasitic zoonoses in Australian Indigenous communities.

## THE IMPACTS OF THE EHRlichia CANIS OUTBREAK FOR REMOTE AUSTRALIAN INDIGENOUS COMMUNITIES, THEIR DOG POPULATIONS AND DOG POPULATION MANAGEMENT PROGRAMS

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While previously not known to occur in Australia, in 2020, the canine vector borne pathogen Ehrlichia canis was first detected in a remote region of northern Australia. Subsequent surveillance efforts – largely undertaken as part of dog population management programs – soon demonstrated the bacterium was already wide-spread over northern and central Australia. While further research is required, mounting case reports of severe and often fatal clinical outcomes suggest that the Australian strain is potentially more virulent than overseas strains and/or the impacts are more severe due to the naivety of the Australian dog population. Three years on from the initial detection, the pathogen is now considered endemic in northern and central Australia, and continues to cause significant morbidity and mortality among dogs, has had considerable social and cultural ramifications for communities, and is raising new challenges for dog population management programs in these regions.

AMRRIC (Animal Management in Rural and Remote Indigenous Communities) is an established not-for-profit organisation that uses a One Health approach, coordinating veterinary and education programs in partnership with remote Australian Indigenous communities nationally. Given our extensive networks with the diverse range of stakeholders involved with companion animal health and management in remote Australian communities, despite being a non-government organisation, AMRRIC have played a pivotal role in the government-led Ehrlichia canis responses. AMRRIC's involvement has included:

- sampling for surveillance,
- use of the AMRRIC App for population data collection and analysis to determine population-level impacts,
- high-level advocacy around the need for improved support for response efforts, and,
- developing a range of culturally, linguistically, and contextually relevant community education resources about this new disease.

While the impacts of the E canis outbreak have been wide-ranging, there are silver linings to come from the experience, including an increased awareness among government and corporate supporters of the importance of effective dog population management programs and need for ongoing resourcing to support improvements in local biosecurity and animal health capacity.

# DOG POPULATION FINDINGS FROM THE AU-IBAR 2021-2022 SURVEY TO DETERMINE THE 'INSTITUTIONAL PREPAREDNESS OF AFRICAN COUNTRIES TO ELIMINATE RABIES BY 2030'

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All authors: Dr Kavosa Mudoga, Dr Judy Kimaru, Dr Emily Kathambi, Paul Mutembei, Amos Bationo, Thomas Tamalgo

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## Objective

APAA carried out this study on behalf of the AU-IBAR between December 2021 and April 2022 starting with detailed literature review. The study used purposeful sampling to select respondents from government and partner organisations carrying out rabies programs in Africa. The study team administered an online questionnaire to 47 Chief Veterinary Officers (CVOs) and Chief Public Health Officers (CPHOs) country teams, and 16 senior staff drawn from partners supporting programs for rabies control and elimination in Africa namely: Regional Economic Communities (RECs), United Against Rabies (UAR), Wildlife authorities, NGOs, and the One-Health (OH) Network.

## Findings

Majority (62%) of the CVOs perceived that the current legal instruments in their countries did not adequately support rabies control, elimination and DPM. Nearly all the countries had weak enforcement practices of the laws to manage dog populations, and there was poor cross-border rabies surveillance. The study also found that both technical and coordination of the One-Health partners (AU-IBAR, AU-CDC, WOAHA (formerly OIE), WHO, FAO and RECS) were weak at the national, regional and continental levels. This was attributed to poor leadership, inadequate rabies vaccines, limited technical support, unreliable rabies data, lack of geo-referenced census of dogs, livestock, and wildlife and the absence of a rabies elimination strategy. Majority (87%) of the CVOs believed that both dog vaccinations and dog population management (DPM) are crucial in delivering rabies control. They appreciated that dog vaccinations alone cannot eliminate rabies. Furthermore, 56% of the CVOs reported that rabies in wildlife was indirectly managed through dog vaccination and dog population management in communities around wildlife zones. Surprisingly, 50% of NGOs supporting wildlife programs were not aware of the role of DPM in the control of rabies in wildlife.

## Conclusions

The study confirmed there is good understanding among the CVOs and OH partners in many countries, of the eradication initiative, with some appreciation of the urgency to implement the Rabies Eradication Strategy. However, some intervention priorities found to affect DPM were 1) improving the regional and transboundary coordination between neighbouring countries and economic blocks; 2) upscaling the management of dog populations in countries; 3) Conducting geo-referenced census for dogs, livestock, and wild canine species to improve planning 4) undertaking studies on dog population and epidemiology to design evidence-based programs.

## Day 3 - Wednesday, June 21

# Government Leadership in Population Management

### PAWS FOR PROGRESS: THE IMPORTANCE OF DOG POPULATION MANAGEMENT IN SUSTAINABLE DEVELOPMENT

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This presentation focuses on the important role DPM plays in sustainable development and emphasizes the need to raise the political profile of DPM among government stakeholders. It highlights the role that DPM can play in progressing communities, cities and nation states. Specifically, the presentation will shed light on the crucial linkages between DPM and various Sustainable Development Goals (SDGs) – goals adopted by all UN member states in 2015 and provide a blueprint for achieving prosperity and peace for people and the planet, now and into the future.

### COLLABORATION BETWEEN DIFFERENT DOG POPULATION MANAGEMENT ACTORS AS KEY TO A SUCCESSFUL PROGRAM

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Over the last decades dog population control in Romania has, sadly, been dominated by an extremely inhumane and inefficient catch and kill approach, costing the taxpayers millions of euros, causing extreme suffering to hundreds of thousands of dogs and failing to reduce the numbers of strays in the streets, but times are changing. This presentation will discuss current barriers to establishing humane and effective programs in Romania, and how these can be overcome through collaborations between several DPM actors - governmental bodies on different levels, local and international animal welfare NGOs and the community.

### GOVERNMENT LEADERSHIP IN POPULATION MANAGEMENT: CASE STUDY ZERO STRAY PAWJECT

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Local governments play a central role in animal welfare. Most, however, do it poorly. Often, because they lack the knowledge, or are discouraged by their past failures. Many believe building a shelter is the solution, but with an oversupply of stray animals, no shelter will ever be big enough to accommodate every stray, and there will never



be enough families in the world to adopt all the “excess” dogs and cats. Even if we had a magic wand and could get all strays off the street and into loving homes TODAY, TOMORROW there will be newly abandoned pets. This vicious circle will not break unless the root-causes of abandonment and overpopulation are addressed. Greece (pop. 11 million) is home to 2.8 million stray and homeless pets (Source: Mars End Pet homelessness index 2021) and suffers from a supply and demand mismatch. Every stray pet was once someone’s pet or –if born to an already stray pet –is a descendant of such a previously owned pet. The sustainable solution is to: (a) address the supply and demand mismatch by reducing pet birth rates, and (b) take preventative measures such as microchipping and registering DNA (newly legislated--Law 4830/2021) that make abandonment of unwanted pets (including puppies and kittens that can be traced to the female parent based on DNA) next to impossible. In our model island Aegina, we collaborated with the municipality and Police and implemented a 360-prevention program that resulted in reducing stray dogs from around 300 in 2018 to around 30 by 2021 by focusing on intervening BEFORE a dog ends up stray (i.e., strategy and tactics with owned dogs and their owners). To scale across the remaining 330 municipalities, we founded Zero Stray Academy, the first academy that trains municipalities, the police, and judiciary, how to fulfil their respective roles to ultimately end pet homelessness. Zero Stray Academy has attracted some of the best subject matter experts across government, veterinary science, lawmakers, municipal association, law enforcement, and animal welfare to work together towards a common goal: educate institutions (local governments, police, judiciary) to trigger systematic and sustainable change. Post graduation, we provide “account managers” to municipalities who help execute the learnings. We now work with 105 municipalities and have signed an MoU with the Ministry of Civil Protection to train 25,000 police officers. More actions are in planning stages.

## THE ISRAELI GOVERNMENTAL DOG POPULATION MANAGEMENT (DPM) PROGRAM AS A SOLUTION FOR A WESTERN COUNTRY

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All authors: Liat Morgan<sup>1,2</sup>, Naama Shir-Nissan<sup>3</sup>, Rune Birkler<sup>4</sup>, John D Boone<sup>5</sup>, Andrew Rowan<sup>6</sup>, Wiessam Abu Ahmed<sup>3</sup>, Chen Sharer-Gibstein<sup>3</sup>, Gila Sutton<sup>3</sup>, Amir Steinman<sup>3</sup>, Melissa Bateson<sup>2</sup>, Ehud gazit<sup>1,4</sup> and Boris Yakobson<sup>7</sup>

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Dog overpopulation and dog relinquishment are worldwide problems with consequences that include shelter euthanasia, free-roaming populations, culling, and impaired animal welfare. Overpopulation and abandonment can be reduced and eliminated through increased responsible ownership, adoption, neutering and improved veterinary care. In Israel, there are governmental initiatives since 2018, as part of a Dog Population Management (DPM) program. Out of 104 municipal veterinary services, 34 applied and received incentives for: 1) free neutering for owners that kept mature intact dogs; 2) removing free-roaming dogs from the streets, neutering them and responsibly rehoming them; 3) funding adoption days; 4) communication with the general public regarding the importance of responsible dog ownership, and 5) since 2022, there is also a training program for the dogs at the shelter and assistance to the new families. The overall objective of this research was to examine the impacts of these governmental initiatives on dog welfare in Israel. Records of 545,564 dogs registered on the Israeli governmental dog database from 2016-2022 were included in the analyses; 2016-2017 was the period



before the initiatives and 2018-2022 was when 34 of the municipalities received the incentives. Common parameters for DPM program as recommended by the ICAM Coalition for evaluation indicated positive impacts of the initiatives on reducing dog overpopulation and improving dog welfare in Israel. For example, mixed effects linear regression models revealed that dog neutering rate was higher by 3.44% [2.12,4.7]; (coefficient; [95% Confidence interval]) in recipient municipalities as compared to non-recipient municipalities. 31% of the municipalities stated their adoption rate increased and the length of stay at the shelter was shortened, 19% decreased euthanasia rate and 52% had higher motivation to improve dog welfare among the shelters' team. More than 2,500 dogs were removed from the streets and successfully rehomed every year. Of which, about 80% were re-registered by the new owner after a year. Among dogs that were included in the training program, only 5.8% were returned to the shelter within the first six months. In summary, the governmental program was found to be a promising component of a national DPM program in a western country, to ensure animal welfare, sustainability, and public health; mainly by higher number of free-roaming dogs picked up and successfully rehomed, rather than euthanasia or longer stay on the streets/ shelters.

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## THE REGULATOR'S PREDICAMENT: USING PUBLIC CONSULTATION AS A TOOL TOWARDS DEVELOPING A NATIONAL POLICY FOR MANAGING FREE-ROAMING CATS IN ISRAEL

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All authors: Liran Plitman, Dganit Ben-Dov & Hen Honig

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The prevalence of free-roaming cats (FRC) creates serious concerns regarding their own welfare, public health and urban sanitation, ecological balance and wildlife biodiversity. With a continuing increase in cat population size and the phenomenon of communal feeding, governments are required to intervene, often in contradicting fashions. This is especially evident when facing animal welfare NGOs and activists, who frequently are not willing to compromise.

The issue of FRC is a highly controversial one, with an ongoing debate over best practices for controlling their population. Due to the complexity and sensitivity of the subject, many stakeholders with conflicting agendas are involved. For the last decade, the Israeli Ministry of Agriculture has offered governmental subsidies for municipalities to carry out trap-neuter-return (TNR) programs. Approximately 500 K cats have been neutered as part of

this policy. Seemingly, this has led to some positive change in regards to stabilizing some FRC populations. However, it is clear that this will not suffice.

Therefore, the Israeli Veterinary Services decided on conducting a public consultation with all interested parties prior to drafting a government policy for managing FRC. The department of Animal Welfare (Veterinary Service), entrusted with the matter, has been heading an extensive process of consulting with all stakeholders and the public in large via in depth interviews, focus groups, surveys and roundtables.

The main theme that has repeatedly surfaced was a considerable perception and knowledge gap among the public and many stakeholders regarding key issues relating to FRC. Issues such as disassociation between available food resources and overpopulation; concern over FRCs' welfare due to outside living while attempting to normalize their presence in the public sphere; disbelief regarding FRCs predation of wildlife; and general tension between science, logic and emotion.

In light of this, the regulator, who is meant to serve the public, faces a great challenge in forming a structured policy for FRC management. At this time, drawing on nudge theory, we are attempting to find incentives to better the cooperation with cat feeders and caretakers, who are key figures in any future policy. In the coming months we will begin a pilot study in two areas in Israel, which will combine aspects such as TNR, regulated feeding, veterinary care and education, as a holistic management approach.

## TNR PROGRAMS IN SPAIN: NATIONAL AND LOCAL OUTLOOK

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Overview of the newly adopted Law on the Protection of the Rights and Welfare of Animals and the specific example of the city of Cordoba

On March 28th 2023, the first national Law on the Protection of the Rights and Welfare of Animals was enacted in Spain. The Law declares mandatory the neutering and identification of all cats (except for professional breeders) and establishes TNR as the only method to manage un-owned cat population.

The Law introduces the concept of “community cat” for free-roaming cat living in human environments but not adoptable due to lack of socialization. Community cats are therefore exempted from the category “abandoned animals” and shall be managed with non-lethal methods based on TNR. The ethical management of cat colonies was already present in many Animal Protection Laws at a regional level. Many years ago some municipalities, such as Barcelona, had started to implement public TNR programs to manage cat colonies in collaboration with the numerous NGOs specialized in the protection and defence of cats.

Two years ago the city of Cordoba went ahead of what was then draft legislation, and launched an ambitious cat colony management programme. Based on strict methodology (high intensity TNR), proper veterinarians and volunteers training, together with the necessary political will and engagement and corresponding budget, the results of the programme are impressive. Lessons learned in Cordoba, above all the importance to insist on methodology to achieve population control, will undoubtedly help the implementation of the new national a success. The welfare of thousands of un-owned cats in Spain is at stake.

## Day 4 – Thursday, June 22

# Human Behaviour & Access to Care

### THE IMPORTANCE OF ACCESS TO CARE IN DOG AND CAT MANAGEMENT PROGRAMS

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Presenting author: Alexandra Rothlisberger

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Around the world, many communities face barriers that prevent or limit access to needed veterinary services for their animals, increasing the risk of poor health and welfare for both animals and humans. Systemic poverty and inequality have increased the disparity between urban and rural areas, creating extreme gaps in the wellbeing of the companion animal and human populations. This presentation will discuss barriers to veterinary care including an update on the state of veterinary medicine globally and challenges that limit veterinary care access including access to transportation, and lack of knowledge and tools to understand basic animal needs, with a special focus on how these barriers impact under-resourced communities.

### EDUCATING COMMUNITIES IS ONLY HALF THE BATTLE: CHANGING HUMAN BEHAVIOUR SUSTAINABLY

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Presenting author: Ruth De Vere

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We frequently hear (and are probably guilty of making) statements that accuse owners of being ignorant (lacking in knowledge) and blame them for being irresponsible. As a result, we hear statements equally as often that focus heavily on the need to educate. Once we educate or promote, they will change their behaviour, and all will be resolved.

Without a doubt, knowledge is power. Owners need to know their responsibilities legally (depending on their country of residence) and practically. But how many of us understand the risks of smoking and do it anyway? How many of us understand just how much exercise we should do, and avoid it regardless? How many of us choose the slice of cake or chocolate rather than the fruit despite understanding the risk of obesity or diabetes? The list of desirable behaviours we are fully cognisant of and fail to undertake is long and varied. And yet we believe that information and education alone will solve population management - this most complex of issues.

Of far more value to organisations working to improve the outcomes for companion animals is an understanding of why humans behave the way they do, with the intention to build strategies that change human behaviour sustainably. Knowing that humans are motivated by factors that are far stronger than simply doing the right thing is a powerful wakeup call for those of us needing to promote responsible ownership. We may need to provide the information necessary to dispel myths or correct misunderstandings, but that is only half the battle. We need to understand the audience's perspectives,

their motivations, and the barriers they perceive to the action (not our assumptions of them). If we do this, we can build bespoke approaches to enable them to undertake the behaviour we deem to be desirable and in the interests of the animals.

A successful behaviour change approach is as much (if not more) about removing the barriers to action, rather than converting our target audience into animal welfarists. It's a commonly held (but misguided) view that we need to change attitudes first and then behaviour will follow. The truth is that we can change the behaviour of others in an instant, and the attitudes will follow, if we build our campaigns with people at the heart of them.

## COMMUNITY ADOPTION – STRIKING A BALANCE BETWEEN HUMAN AND ANIMAL WELFARE

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Presenting author: Annelieke Laninga (Anna)

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All authors: Annelieke Laninga (Anna) & Anjali Gopalan

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In India the rift between feeders and those who wish stray dogs to disappear has widened. Social media hypes have stirred up a fear-based climate while polarising the society. In this scenario finding effective ways to coexist becomes challenging but vital.

The Constitution of India envisages responsible citizens to have compassion for all living creatures. Local authorities are responsible for deworming, immunisation and dog population control. Resident Welfare Associations (RWA) should make necessary arrangement for feeding of community animals according to the new Animal Birth Control Rules (2023) under the Prevention of Cruelty to Animals Act (1960). Without community engagement however, this becomes mission impossible. The Stray Buddy program encourages communities to take self-responsibility to humanely manage the free roaming dog population in their area. Starting in 2015, residents in South-Delhi in collaboration with their RWA developed a model for a fact-driven, systematic and area-based approach to domesticate community dogs. The aim was to coexist. Experiences were shared in newsletters and on a [website](#). In 2021, a Delhi High Court appointed Committee spotted this grassroots initiative and effectively enabled it to scale up to 10 colonies, 300 community dogs and 150 people. The process is community-owned, resources are pooled, and peer learning is organised through informal get-togethers. NGOs and other stakeholders are called in when needed. The community adoption model was laid down in a draft guideline for RWAs, yet to be ratified by the Animal Welfare Board of India.

A unique feature of the Stray Buddy program is its pragmatic 5-step approach that starts with mapping the community dogs and their caregivers. Dog profiles along with photos, basic details and medical records, are uploaded on the website. These records help to familiarise people with the dogs residing in their area. Other steps are responsible feeding (2), sterilisation (3), vaccination/medical care (4), and awareness building (5). Free templates and tools are provided online. Dog populations in the Stray Buddy communities have stabilised and declined, rabies has been eradicated, and human-animal conflicts have been solved in an amicable manner. Triggers for undesirable behaviour of community dogs are continually assessed and situations turned around through appropriate interventions. The Stray Buddy program is a powerful example of effective community adoption by fostering collaboration, promoting collective ownership and responsibility, building awareness and support, and providing practical tools that work towards coexistence.

## **INTEGRATED ANIMAL BIRTH CONTROL PROGRAMS: ENGAGING COMMUNITIES TO REDUCE HUMAN-DOG CONFLICT IN URBAN INDIA**

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**Presenting authors: Dr. Vrushti Mawani & Dr. Piyush Patel**

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Street dog spay/neuter programs, also known as Animal Birth Control (ABC) in India, historically consist of a catch-vaccinate-neuter-return protocol. These conventional ABC approaches however are often met by resistance from local communities due to low levels of awareness among residents regarding ABC programs and concerns regarding safety of the animals. Animal care officers on the frontlines of such ABC programs can even get caught up in conflicts with dog haters who refuse to let dogs get released back in the community post-sterilization. As a result, while ABC programs might help control street dog populations, they are largely ineffective in reducing human-dog conflict.

Pro-actively engaging communities in ABC processes can help change this. Targeted strategies like receiving and addressing dog-related complaints; conducting community meetings to increase awareness regarding ABC for street dogs; delivering workshops on dog behaviour, animal rights, and rabies awareness; building a strong volunteer network; and organizing events to celebrate street dog welfare work effectively and synergistically in reducing human-dog conflict. The impact of these strategies can be measured through metrics such as complaints received, requests for sterilization and vaccination, and number of dogs caught for spay/neuter services through active involvement of community members. Shifts in human-dog conflict can also be gauged through qualitative feedback received from program volunteers and local residents.

## **INTRODUCTION TO MANAGING DOGS IN FIRST NATIONS WORKSHOP**

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**Presenting authors: Jan Hannah & Alanna Collicutt**

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In 2019, Jan Hannah (International Fund for Animal Welfare) and Alanna Collicutt (Canadian Animal Task Force) began to examine how Canadian animal welfare organizations were working in First Nation communities. Were the programs sustainable? Respectful? Were animal welfare organizations working “in” First Nation communities or “with” First Nation communities? After an environmental scan, it was confirmed that there was a large gap in knowledge throughout Canadian animal welfare organizations in the science of dog population management. After 3 years of thoughtful development, the Managing Dogs in First Nations workshop was born!

The Managing Dogs in First Nations (MDFN) course is an online, participatory workshop created for individuals who work or plan to work in some capacity with people and dogs in First Nations communities. This course offers information, ideas, and perspectives and is accompanied by a guidebook packed full of resources and relevant information.

This course is intended to help Canadian animal welfare practitioners establish and maintain a mutually respectful relationship with First Nations communities as we work together for the betterment of dogs and people.

Our intention is for participants to build a deeper and fresher understanding of dog population management in a First Nations context so that we can understand, share, and carry out this important work in ways that magnify our impact with the dogs and people we support.

## **INCREASING ACCESS TO VETERINARY CARE IN CANADA'S NORTH THROUGH TELEHEALTH AND COMMUNITY ANIMAL HEALTH WORKER PROGRAMS**

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**Presenting author: Michelle Tuma DVM**

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Access to veterinary care has always been limited in Canada's North. In the Northwest Territories and Nunavut, there are only two permanent veterinary clinics both of which are in Yellowknife, the capital of the Northwest Territories. The remainder of the 56 communities, the majority of which are remote and only accessible via air, struggle with disease and population management of their local dogs.

Veterinarians Without Borders Canada operationalised their Northern Animal Health Initiative (NAHI) in 2022, after three years in pilot mode. The goals of the program are to increase access to veterinary services, create sustainable programming and build local capacity for community partners. These goals are reached by focusing on community-led, OneHealth initiatives including delivering annual temporary veterinary clinics, developing telehealth programs and training lay vaccinators and community animal health workers. We understand the importance of partnering with communities, discussing what they view as their priorities and supporting their values and beliefs in order to create a long-term program that will have sustainable, positive outcomes.

We recognize that the annual temporary vet clinic is important for relationship building and assessment of the community's dog population. It is time to talk about what happens after the vets leave. Through thorough research of similar projects across the globe and development of a program specific to Canada's unique and isolated northern landscape, NAHI works to find a solution that will increase regular access to veterinary care for our partner communities. In this presentation, Dr. Tuma will identify the program elements that VWB is testing to reach the desired outcomes and discuss our learnings to date.



## Day 5 – Friday, June 23

### Rehoming and Other Issues

#### RESOURCES FOR SHELTERS IN A “ONE-STOP” PRESENTATION

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Presenting authors: Battersea Dogs and Cats Home, Dogs Trust Worldwide, FOUR PAWS, International Cat Care

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Various resources for shelters already exist, including written and video material as well as formal and informal training opportunities. Some are online, some hybrid, some in-person, available in different languages and targeting specific geographic areas and species. There are specialist resources for example pets with special needs, toolkits for advocacy and adoption promotion kits. This presentation will provide an overview of what exists, and how these resources and programs complement each other.

#### CHANGING ATTITUDES AND BEHAVIOURS TOWARDS SHELTER DOGS THROUGH OUR SOCCER ADOPTION CAMPAIGN IN ROMANIA.

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Presenting author: Ana-Maria Constantinescu

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A simple, low-cost solution can have a huge impact on people’s perceptions of shelter dogs and shift barriers to adoption. CJ Ilfov will be presenting their “Adoption Campaign Fill the Void in Your Life” associating cute shelter puppies with national heroes, the soccer players and other sports personalities, and asking people to adopt dogs that were previously deemed as worthless or not desirable. The campaign is extremely low cost and builds on a simple idea, but has proven to be very impactful in Romania as well as being copied multiple time internationally.

#### A “SPAY SHOT” IS ON THE PATH TO TRANSFORM ACCESS TO STERILIZATION

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Presenting author: Valerie Benka

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All authors: Joyce Briggs, Valerie Benka

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Across the globe, there is need for new methods of sterilization for dogs and cats that are faster, easier, more accessible, and less expensive than surgery. This presentation will provide a high-level overview of the status of non-surgical technologies, including those that are commercially available, and those that are under development as additional “tools” in the humane animal population control “toolbox.” Regarding technologies under development, a single intramuscular injection using the latest in



scientific breakthroughs has resulted in no pregnancies in female cats in breeding trials over the last three years. It should suppress reproduction for a lifetime in female cats and dogs. The presentation will provide an update on the technology, its pathway through the FDA, and plans for field trials. This work is supported by the Michelson Prize and Grants Program, which 15 years ago offered a \$25 million prize and committed \$50 million in grants for innovative research leading to a single-dose, non-surgical sterilant for male and female cats and dogs. The program has energized many talented scientists and funded foundational and exploratory research. The field of possible approaches has been significantly narrowed and refined, and this aforementioned research is in the lead.

Separately, researchers at the University of Illinois are having success testing an implant that is given to young female puppies and kittens and prevents the development of puberty. Supported by investors and small business grants, they are independently pursuing this alternative and farthest along exploring it for dogs. Their approach could transform the ability to sterilize the females in litters living outdoors in communities, in owner and foster homes, and in kitten nurseries and under porches.

The Alliance for Contraception in Cats & Dogs is a non-profit focused on catalysing this area of research. The organization helps represent the animal welfare field's interest in and advocate for the accessibility of non-surgical sterilants and contraceptives.

## **“IT’S JUST ONE PIECE OF THE PUZZLE...”: PRACTITIONER PERSPECTIVES REGARDING THE ROLE OF STERILISATION IN DOG POPULATION MANAGEMENT**

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**Presenting author: A. Collinson**

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All authors: A. Collinson, R. Dean, M. Brennan, J. Stavisky

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Management of free-roaming dogs requires multifaceted approaches to address its complexity. Surgical sterilisation is often considered as the key component of humane dog population management (DPM) programmes. However there is limited evidence about how contextual factors influence implementation of such programmes, and the impacts that are achieved. The aim of this study was to better understand the role of sterilisation within DPM programmes and the wider barriers and facilitators shaping these efforts.

A purposive convenience sample of DPM practitioners (including programme founders, managers and veterinarians) was used to capture the knowledge and expertise gained among people working on programmes involving the sterilisation of free-roaming dogs. Semi-structured interviews with 15 people representing 12 non-governmental organisations were conducted to understand the use of sterilisation in diverse contexts, in terms of geographical setting, dog population characteristics, perceived problems with free-roaming dogs, and strategies used.

Thematic analysis highlighted the complex nature of free-roaming dog populations and their associated issues. These findings demonstrated many of the features of a ‘wicked’ problem. Complex inter-relationships, especially in the interactions between dog, human and environmental factors, were identified as underpinning limitations as to what could be achieved through sterilisation alone. Participants’ responses underlined the need for context-specific approaches which emphasise engagement, collaboration,

and developing local capacity. Despite initial motivations being focused on the use of sterilisation in order to effect changes in the dog population, participants described how they had become increasingly focused on human behaviour change.

This study provides an insight into the ways in which sterilisation is perceived to work in practice, what the challenges are and what else is needed to facilitate change. Factors such as trust, building relationships and support from government and policy are key facilitators across different settings. Understanding the role that sterilisation may have in leading to change, including its limitations and interactions with other aspects of DPM programmes, is essential. These insights can be used to help develop sustainable interventions that are appropriate to both the dog populations and the communities within which they live.

## THE DOG AND CAT MEAT TRADE: IMPLICATIONS FOR RABIES CONTROL AND POPULATION MANAGEMENT

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Presenting author: **Matt Backhouse**

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Every year in Asia, approximately 30 million dogs and cats are captured, tortured, and killed in the dog and cat meat trade (DCMT). Southeast Asia alone accounts for 10 million animals, making it arguably one of the most serious issues facing companion animals today.

Many animals are stolen from homes or roaming populations, but removing vaccinated dogs from local populations undermines rabies control and population management programmes. High animal turnover impacts herd immunity, which is needed to interrupt rabies transmission within a population. The DCMT is inextricably linked to rabies, with higher rabies incidences in provinces with a prominent DCMT. Animal movement in the DCMT is widespread, with cross-border trade between Cambodia, Laos, Thailand, and Vietnam.

Studies reveal the presence of rabies-infected dogs in restaurants, slaughterhouses, and regional markets. The World Health Organisation has identified the movement of animals for the DCMT as a challenge to rabies elimination. Despite this, many NGOs and expert groups still don't include the DCMT in their approach. Countries with endemic rabies and DCMT are yet to consider this in their national rabies strategy.

If the DCMT is phased out, the population will likely boom once animals are no longer removed and killed for food. Without robust strategies for population management and disease control, the risk of dogs being seen as a public health issue is significant. Legislation currently being discussed in Bali criminalizes the dog meat trade but does not integrate that with efficient rabies control systems. This oversight ignores the One Health model and the welfare concerns stemming from the chaining, caging, and culling of street dogs.

The DCMT raises other ethical considerations, given the lack of facilities and resources to support large numbers of confiscated animals in countries without little to no adoption culture. This presentation explores the themes above, what could happen to the animals left behind if governments phase out the DCMT, and the practical and ethical considerations involved.