People care deeply about dogs and cats. Managing dog and cat populations can help reduce animal welfare problems and public health risks with associated economic burdens. But years of ineffective or inhumane ‘stray control’ can leave the public outraged and governments frustrated by the lack of progress.

In this document, we explain why ‘stray control’ that focuses only on the ‘symptom’ of the current roaming dogs and cats fails; this includes reliance on culling or shelters to ‘clear the streets’ of roaming animals. We describe what ‘population management’ is and how realigning to also work on ‘sources’ of roaming animals can be so much more impactful. We also present rehoming and Trap/Catch, Neuter and Return as humane responses to the current roaming population services, applied as appropriate to the location, species and the individual animal.

There are several key principles of population management that support its effectiveness. This includes the realisation that this will require a permanent system of services; as long as people own dogs and cats there will always be a need to manage their populations. We provide a conceptual journey from stray control through to effective population management that is integrated into regulations and social norms.

We also establish the important role that national government should play in population management. Through governance, funding and training they can enable local governments to implement population management services. They can also minimise the population management problems caused by owned animals, through education and enforcement of legislation and regulations that demand responsible owner behaviour. Combining this enabling environment created by national government, with actions at the local level, ensures owners and cares can access the services they need to be responsible owners. Over time, with investment in relevant professions paired with encouraging responsible ownership practices, the public also increase their active role in population management and so support its sustainability.
EU competence for companion animal populations is limited to public health, the internal market and consumer protection. Legislation covering protection of dog and cat welfare and population management is established in individual country frameworks. Hence the interventions used to manage dog and cat populations, and their effectiveness, vary across the Member States of the EU.

Variation in intervention is appropriate, as effective population management must address the differing sources of unmanaged animals, respond to local dog and cat ownership practices, and observe Member State legislation and regulations. The stages of population management outlined in section 8 may also explain why some variation may exist between countries, as they are at different points on the progression of population management. A key point in this progression is a move from only ‘stray control’ where actions are focused entirely on the current roaming cats and dogs, to ‘population management’ where the sources of future roaming animals are identified and actions taken to also address these, with a focus on owned animals.

As an example of variation in population management action across the EU, we can consider the legislative areas of identification and registration, and breeder and seller controls. Across EU member states we see 82% of countries have made dog identification and registration mandatory, but only 10% have done the same for cats. Registration of professional breeders is already required in 86% of countries, but only 36% demand sellers to meet certain requirements in order to sell dogs or cats online. And over 90% of countries still allow some selling dogs and cats through pet shops. Such disparity in member state legislation is just an indication of differences in how dog and cat populations are managed.

This report aims to support EU Member States in developing companion animal population management policy. This report aims to support EU Member States in developing companion animal population management policy by describing key principles, effective systems, roles and responsibilities in population management. The discussion of roles and responsibilities is particularly focused on how national governments can create an enabling environment for population management. Through legislation, regulation and education, national governments can build an environment that supports and builds an expectation of responsible ownership behaviours. Whilst also enabling local government and veterinarians to provide access to services for owned animals and management of currently roaming dogs and cats using humane methods appropriate to the location.

Population management is not limited by national borders. Movement of companion animals across borders for sale and adoption emphasises the need for consistent effort across EU countries to manage populations effectively. Infectious disease transfer between countries is also a concern, especially where the disease is not well recognised in the importing country and where disease control measures have not been followed. Reported increases in pet ownership during COVID-19 lockdowns, with the potential for increased relinquishment and abandonment in future, is a timely reminder of the importance of population management systems.

This provides a foundation for control of commercial dog and cat breeding in all EU Member States. But the AHL requirements are only a foundation, leaving individual countries to establish associated standards and enforcement. The EU Platform on Animal Welfare is an initiative of the European Commission: a group of EU Member States and other stakeholders with the objective of enhancing dialogue on animal welfare issues and actions. These actions include developing best practice guidelines with the purpose of supporting EU Member States in further development of their legislation, standards and enforcement. Best practice guidelines relating to dogs and cats have included responsible breeding of dogs, responsible breeding of cats, commercial movement of dogs and cats by land.

Delegated acts within the AHL also outline the disease prevention, surveillance, control and eradication measures expected of EU Member States for zoonotic diseases that can be carried by dogs and cats (rabies, Echinococcus multilocularis and Brucella canis). Population management can contribute to disease control programmes by increasing the proportion of dogs and cats in the population that are managed and therefore accessible for preventive veterinary health care and surveillance by owners, carers and veterinarians. Population management can also increase owner engagement and action in important practices such as vaccination, deworming and parasite control. However, these delegated acts do not require EU Member States to manage their populations in addition to the core disease control measures.

The OIE Terrestrial Animal Health Code Chapter 7.7 provides guidance on population management of dogs, outlining measures to be used in combination and selected according to local circumstances.

It is noted that current regional and international legislation and standards apply predominately to dogs rather than cats at this time.

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1 Unpublished data from EU Platform on Animal Welfare voluntary initiative group on health and welfare of pets in trade.


Where population management is lacking or ineffective, dogs and cats may experience or cause problems, including:

1. **Animal welfare** may be compromised due to lack of resources and untreated illness/injury or by inhumane methods used to control roaming or unwanted animals.
2. **Risks to public health** include road traffic accidents, zoonotic disease transmission and bites, with associated high economic burden for government. These may be more prominent issues with dog populations than with cat populations.
3. **Public perceptions** of unmanaged populations may be negative due to nuisance behaviours, fouling or fear of aggressive interactions. There may also be significant concern for the welfare of the animals themselves, including where inhumane killing methods are used or where rates of euthanasia are high. Some communities may find the presence of any roaming animals unacceptable or may only begin to express concerns when the density of animals reaches a threshold; note this threshold will vary over time and between people. Some people find roaming dogs or cats alter their use of public spaces and feel this negatively affects their social capital.
4. **Dogs and cats may predate or disturb livestock and wildlife.**

Problems need to be explored and measured to allow for impact assessment of population management interventions, but the positive value of roaming dogs and cats to people must also be recognised. The majority of roaming cats will be owned but currently roaming without owner supervision, the same may be true of roaming dogs, although this will differ with location due to different confinement practices of dog owners. Depending on resource availability and climate, unowned cats may survive well enough to become a large proportion of the roaming cat population. However, even unowned roaming animals may have great value to carers.

Although proactive population management to stem sources of future roaming animals will be welcomed by all, the approach to managing the current roaming animals is where significant controversy and conflict may occur if full consultation and agreement is not sought.

1. **Population management must be humane**, avoiding harm and maximising benefits for the animals involved. It cannot be considered humane if it includes inhumane methods of killing, killing roaming animals in the street or using killing as a sole measure of population management. Keeping dogs or cats in shelters permanently is likely to compromise animal welfare, those facilities should aim to achieve reuniting and rehoming services using only temporary housing. For feral cats, who live independently of people and avoid them if at all possible, any period of time in shelters will cause welfare compromise. Systems that rely on killing or permanent sheltering are also ultimately ineffective as a population management approach as they focus only on the current roaming population and do not address the sources of these dogs and cats.
2. **Dog and cat population dynamics differ between and within countries;** most importantly the sources of unwanted or roaming animals may differ; some animals are born on the street, others are abandoned or allowed to roam freely by their owners. Population management therefore needs to be adapted to local population dynamics, not blindly replicated after a “model” that worked elsewhere. Important lessons can be learnt from interventions in other locations, but they must be interpreted through the lens of the local situation. For example, Catch–Neuter–Return (CNR) of a specific and recognised population of dogs may have been an effective and accepted approach by one local community. But replication for all roaming dogs across a large city, with fast moving traffic and minimal community care of the dogs, may not be appropriate.
3. **Population management is a permanent system of services** that will need to be sustained and adapted over time; it is not a short-term project. While there will be times requiring greater emphasis on certain activities, for as long as dogs and cats are kept as pets, there will always be a need for services to manage their populations. Ideally, good management practice becomes a ‘social norm’ with the majority of management activities carried out by owners; for example, owners proactively seek and pay for reproduction control and identification and registration.
WHAT IS POPULATION MANAGEMENT?

Population management should work as a system. This system is supported by a foundation of legislation, political will and social motivation driving the provision and use of appropriate ‘services’ (International Companion Animal Management (ICAM) terminology) or ‘measures’ (OIE terminology).

This system works to establish a positive relationship between dogs and cats and their owners or carers (‘carers’ in the case of community animals without a single referral household; in Europe, caring for community animals is more common with cats than dogs). This positive relationship is characterised by responsible behaviour to maintain good welfare and mitigate risks that dogs and cats may present to other animals, the environment and people.

The following is a diagrammatic representation of this system for dogs from the Humane dog population management guidance (ICAM 2019); this is designed to be globally relevant, so services are separated into fundamental and context-dependent, however for European countries all services will be relevant, with differing emphasis dependent on the species and their local population dynamics.

In recognition that wherever people own dogs or cats there will always be a need to manage their populations.

The same system will be required for cats but with different emphasis in how services are delivered. In particular, reproduction control of cats will always require sterilisation whilst for owned dogs this may be achieved by careful management of intact females when in oestrus to avoid unwanted breeding. Cats are also better able to maintain a good state of welfare when living as community animals than dogs and present less risk to the public in terms of bites and rabies. Hence reproduction control of community cats using Trap/Catch, Neuter and Return (T/CNR) will be assessed as appropriate in more locations than for dogs.

A response that uses actions focused only on the current roaming population, including both culling and sheltering, is not population management but may be more appropriately termed ‘stray control’. This is an inherently inefficient and unsustainable approach as it does not address the sources of roaming animals; conceptually as if you are continuously refilling a leaking bucket without first fixing the leak.

6.1. Population management foundations

In recognition that wherever people own dogs or cats there will always be a need to manage their populations, the foundations of the system are essential to support the delivery of services for the long-term:

1. Central legislation provides the framework and defines responsibilities for humane population management across the country, whilst local by-laws provide opportunity for locally relevant emphasis on services (e.g. T/CNR) and location specific expectations of responsible ownership (e.g. confinement of owned dogs).

2. Multi-stakeholder task forces can ensure input and action from across the relevant sectors.

3. Advocacy can establish political support to sustain resources and stakeholder engagement to maintain effective population management for the long-term.

4. Community engagement is particularly relevant as a foundation for local implementation. Its importance to population management becomes clear when we reflect on how influential human behaviour is to the population dynamics of domestic dogs and cats. Community engagement can help promote responsible ownership and engage carers of community animals in accessing and driving services to manage dogs and cats. The community can also provide valuable insights into population dynamics to help design and deliver services most effectively.

These four foundations are described in more detail in the Humane dog population management guidance (ICAM 2019).

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6 Cats appear less prominent in data on reported animal bites, presumably because they are more likely to avoid interaction with people and the injuries inflicted are less severe than for dog bites. Cats can become infected and transmit rabies but their populations do not function as a reservoir host for the rabies virus as dog populations do.

7 Reproduction control and veterinary care provided to unowned animals leading to management of unowned animals in situ on the streets. “Trap” is more commonly used for cats, Trap, Neuter and Return (TNR). “Catch” more commonly used for dogs, Catch, Neuter and Return (CNR). May also be called Catch, Neuter, Vaccinate and Return (CNVR) or Animal Birth Control (ABC).
6.2. Population management system of services

The following list of services are to be used in combination, with emphasis as needed for local population dynamics. The services are presented with those most appropriate to national governance and implementation at the top, followed by those services more suited to local government action.

For dog population management, further details can be found in the Humane dog population management guidance (ICAM 2019) and chapter 7.7 of the OIE Terrestrial Animal Health Code.

For cat population management, further details can be found in the Humane cat population management guidance (ICAM 2011) or from International Cat Care (www.icatcare.org).

1. Identification and registration. Central or interoperable regional/local databases support efficient reuniting of identified and registered lost owned animals. This also provides proof of ownership for enforcement, traceability and tracking/reminders relating to health measures (where health records are linked to registration). Widespread adoption may be achieved through voluntary systems but mandatory legislations may be required. There are solutions that provide interoperability of European databases for both owner details where animals cross across borders.

2. Control of commercial breeding and sale. Puppies and kittens are healthy, well socialised and habituated, leading to increased retention by new owners. Breeders, sellers and consumers are aware of expected standards and those below standard are identified and improved/penalised. The EU Platform on Animal Welfare also provides guidance on standards of breeding dogs and cats1. The AHL establishes the requirement for all EU breeders, sellers, and assembly centres of dogs/cats to register their establish- ments with the competent authority. Countries have the option to use this as a foundation for greater controls, these may include:

   a. A further layer of licensing with inspected standards for commercial breeders and sellers.
   b. Breeder/seller registration details to be included on all advertisements.
   c. Identification and registration of all individual animals with the breeder as the first owner before sale.

3. Control of national and international (export or import) movements. Reduce infectious disease and parasites spread by using health care measures, such as screening, deworming and vaccination, within and across borders.

Taking note of the increasing risk of some parasites as they increase their geographical range due to dog and cat movement and climate change. Also to protect vulnerable livestock and wildlife in specific areas.

4. Strengthening population management professional capacity. Recognising and investing in relevant professions, including veterinarians, animal handling/care and enforcement agencies so that the services required for responsible ownership are accessible and good quality.

5. Promoting responsible behaviour. A combination of legislation, behaviour change communication and social pressure to increase responsible, safe and compassionate behaviour towards dogs and cats.

6. Reproduction control. Access to reproduction control services is fundamental to all population management as the humane way to limit population size (rather than increased mortality) and limit the production of puppies and kittens to those that are wanted. Ensuring access requires overcoming barriers to reproduction control, which may include cost, veterinary capacity and skills and transporting animals to clinics. T/CNR is an approach to delivering reproduction control to unwanted animals that are to be managed in situ on the streets. (See next section for how this can be used as an alternative/in combination with rehoming services).

7. Holding facilities and rehoming through shelters or foster networks. Achieving efficient and reliable reuniting of lost animals and a humane and responsible option of relinquishment (rather than abandonment) followed by efficient rehoming to new suitable homes. (See next section for how this can be used as an alternative/in combination with T/CNR services).

8. Veterinary care. Access to veterinary care ensures owners and carers can keep their animals in a good state of welfare and limit risk of zoonotic diseases. It brings them into contact with veterinarians who can encourage responsible ownership behaviours and provides an opportunity for disease and parasite surveillance1. Ensuring access may require subsidies for owners with limited resources and outreach services for those owners unable to reach static facilities. Veterinary care includes timely rabies vaccination to protect animals and people from this virus and to mitigate inappropriate reactions to rabies outbreaks resulting from fear of the disease.

9. Managing access to resources to reduce conflict with roaming dogs and cats. Improved waste management has been touted as a solution to stray control. However, if roaming animals are reliant on this food source a sudden reduction would lead to starvation and is hence not humane and can lead to increased conflict as roaming animals search for alternative sources. Rather than reducing food sources, these can be manipulated by moving food sources away from high conflict areas to more appropriate locations, for example using feeding stations. Poor waste management causes other more significant problems, including water contamination and air pollution, so an improvement in waste management over time is to be expected regardless of population management motivations. It is the role of population management to prepare the dog and cat population for the inevitable improvement in waste management driven by other motivations.

Core to the population management system is addressing the source of future unwanted and roaming animals.

Core to the population management system is addressing the source of future unwanted and roaming animals. Owners that have the knowledge, motivation and ability to access services to practice responsible ownership behaviours can prevent their animals contributing to population management problems. This includes the services of affordable reproduction control, veterinary care, functioning identification and registration and the confidence to acquire a new pet knowing that breeding and sale is well regulated and safe for them and their future pet. But this system must also address the current unwanted and unowned roaming dogs and cats: the ‘symptom’. This requires careful consideration of how to use two relevant services. These are not mutually exclusive and can be used in combination:

Holding facilities/rehoming centres or ‘shelters’ for relinquished pets and unowned animals removed from the streets for reuniting or rehoming. Factors to consider include:

• Rehoming ‘centres’ do not need to be physical structures, these services can be delivered through foster networks with potential economic and animal welfare benefits.

• For rehoming centres to be a functional service there must be a culture of adoption, providing a reasonable chance that an animal will be rehomed, otherwise centres fill to capacity or become places where most animals will be euthanised. T/CNR may provide a management option whilst building adoption capacity.

References:

1 https://ec.europa.eu/food/animals/welfare/eu-platform-animal-welfare/platform_conclusions_en

2 Guidance for pets owners and professionals on parasite screening and control are available from https://www.esccapuk.org.uk/ and https://www.waavp.org/
7 ROLES AND RESPONSIBILITIES

Design and implementation of population management systems occurs at the local level, where it can be tailored to suit the local context. However, national governments have the role and responsibility to support and enable local implementation through several actions.

Service providers in population management should be with government support and funding and not reliant on donor or private practice funding.

National governments can also support and set expectations of responsible owner behaviour through legislation, regulation and education. Unfortunately, the extent of population management actions by national governments is varied across Member States of the EU, with the burden of responsibility sometimes falling to local governments alone.

As a Member State competence, there is no direct EU funding of population management. However, the different stages of population management between countries encourages movement of dogs and cats from countries with excess animals to those with markets for sale or rehoming. This potentially exacerbates infectious disease transmission across borders. National governments should consider requesting EU resources for training, infrastructure or technology that could improve their population management systems in order to protect public health and reduce motivation to export dogs or cats across their borders by harmonising population management stages.

The following outlines those key areas where national governments can and should play a role:

• **Effective governance** of population management requires clearly defined responsibility under a government department; the responsible or competent authority. However, the problems relating to dogs and cats, and the actions to solve them, require intervention by multiple departments. Therefore, the creation of a multi-stakeholder task force/advisory group for population management is recommended at the national level. Replication of similar multi-stakeholder groups at local government levels would provide additional localised advice. The most effective population management systems are built upon knowledge of local dog and cat population dynamics and adapted using evidence-based evaluation and learning. Responsible authorities can provide training and funds for data collection at the local level, devise standardised indicators to allow evaluation between locations, and inspire use of data by supporting evaluation and learning events.

• **Political support** from multiple sectors needs to be established to ensure sustained funding and support for development of appropriate legislation to underpin population management. The One Health–One Welfare concept can support multi-sectoral engagement, as can establishing the costs and potential benefits of population management to different departments.

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9 Spehar DD and Wolf PJ (2019) Back to School: An Updated Evaluation of the Effectiveness of a Long-Term Trap-Neuter-Return Program on a University’s Area. Animals, 10, 2089

Free-Roaming Cat Population. Animals, 9, 768 Spehar DD and Wolf PJ (2020) The Impact of Targeted Trap–Neuter–Return Efforts in the San Francisco Bay • For an individual animal to be • Tolerance and acceptance of roaming animals by the majority of the public is necessary for roaming animals to maintain good welfare following T/CNR. • For an individual animal to be considered a suitable candidate for T/CNR, there should be evidence that they can maintain an acceptable • Where TNR is used, ideally rehoming is also available as an option • Both shelters and T/CNR have been misunderstood as equating to population management when used in isolation. These can only function as part of a • Where TN is combined with ongoing monitoring by carers, and the environment presents minimal risk, cats can maintain good overall welfare in the long-term with reportedly long life-spans1. • Where unowned roaming animals show an ability to breed successfully on the • There is a risk that where legislation prohibits abandonment of owned animals, authorities may interpret release of sterilised animals as a form of abandonment. In such situations, agreement with the authorities on the difference between ‘abandonment’ and ‘release’ will need to be sought prior to starting T/CNR.

The assessment of which of these two options is most appropriate for managing unwanted and unowned animals will differ between location, species and over time. For example, some countries may consider T/CNR appropriate in sub-urban or rural communities with relatively limited traffic but not within a busy city. Or TNR of cats may be considered appropriate when the same approach for dogs would not be acceptable to local communities or released dogs would struggle to maintain good welfare. Where T/CNR is used, ideally rehoming is also available as an option for individual animals that are not suitable for release. All organisations that have a direct interaction and responsibility over dogs and cats, in particular rehoming centres and T/CNR services, must have a euthanasia policy in place. This policy should be founded on animal welfare principles, appropriate to national legislation, local regulations and realistic to implement within their veterinary, physical and staff capacity. The goal is that euthanasia is only used for those dogs and cats that are suffering from an incurable illness, injury or unmanageable behaviour problem that prevents them being rehomed or released, or are not coping well enough with the facilities to maintain reasonable welfare. For some Member States and organisations with limited rehoming potential and limited resources, this threshold for euthanasia may not be achieved immediately, but is the goal to work towards.
• Legislation at the central level provides the framework for population management, ensuring actions do not compromise animal welfare and are consistent with other relevant legislation. Some measures are most appropriately established in central legislation, including regulation of commercial breeding, identification and registration requirements and control of import/export of cats and dogs. Other measures, such as delivery of reproductive control services and implementation of TNR may require local flexibility and hence may be best outlined in local regulations. Responsible authorities at the national level should establish suitable central legislation with space for local adaptation, plus sufficient funding, training and procedural guidelines to support enforcement.

• Establishing sufficient funding of population management will require both political support and a legislative basis to justify government budget relating to population management actions. This must take note that population management requires a permanent system of services and not only short-term intervention.

Costs of population management are incurred in the implementation of actions and when tackling population management problems (e.g. bites and zoonotic disease control). These costs may be incurred by different government departments; cost monitoring and collation across departments can support economic assessment of population management efforts.

• National governments are well positioned to use training and support to achieve minimum standards and efficiencies in the implementation of population management. This may include ensuring veterinarians and other professionals involved in population management have access to necessary training, both delivered through core curriculum and as well as continuing professional development. And creating tools that can be adapted and used by local governments, including monitoring methods and behaviour change communications to encourage responsible animal ownership.

Non-Governmental Organisations (NGOs) are prominent voices in dog and cat population management, as advocates for humane methods and service providers (including veterinary, education and adoption services). Practicing veterinarians are at the frontline of population management of owned animals and, as recognised and trusted experts, are highly influential of owner behaviour. Both stakeholders should be engaged in multi-stakeholder advisory groups for population management. In recognition of the need for a permanent system of services to manage dog and cat populations, their role as service providers in population management should be in government support and funding and not reliant on donor or private practice funding.

As population management is a permanent community service that needs to adapt over time in response to changes in dog and cat population dynamics and community expectations, it can be seen as a journey or progression of stages over time. These stages are not prescriptive and movement between stages may not be consistent across a country, with municipalities or regions moving ahead or lagging behind the majority.

However, the concept of a progression may be useful for investigating for politicians and communities alike.

The following illustrates 4 broad stages and actions/outputs that are needed to move to the next stage. For each stage there is a brief goal, single measurable indicator and description of key services in dark green text.
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