cousinity
by the Affinity Foundation on the abandonment, loss and adoption of pets in Spain 2022: interpretation of results


## The following participated in the creation of this survey

- 478 pet companion animal shelters across Spain.
- Affinity Foundation.
- Department of Market and Consumer Intelligence of Affinity Pet Care.
- Punto de Fuga Research Institute.
- Chair Affinity Foundation Animals and Health (Autonomous University of Barcelona and Hospital del Mar Medical Research Institute).


## Summary of results

- The abandonment of pets is once again the main pet welfare problem in Spain.
- In 2022, 170,105 dogs and 118,352 cats were taken in by the almost 1,600 Companion animal shelters in Spain. This total figure represents the actual data of the 478 organisations that provided information, plus estimates for the rest of the animal protection centres in Spain that did not participate in the 2022 survey.
- Dog admissions to companion animal shelters in 2022 increase very slightly compared to the previous year, although they are still below those observed in the years prior to the pandemic.
- Cat admissions to companion animal shelters in 2022 is virtually identical to that observed in 2021.
- Identification helps the recovery of lost animals and is one of the main strategies to mitigate the impact of abandonment and loss of pets.
- Abandonment is a phenomenon that affects dogs and cats of all types and is not restricted to a particular age group or breed.
- Unwanted litters are one of the main sources of abandoned animals in our country. More than half the cats arriving at shelters are kittens.
- The four main reasons for abandonment reported by companion animal shelters are unwanted litters, behavioural problems, loss of interest in the animal and the end of the hunting season.



## How many dogs and cats were taken in by companion animal shelters in 2022?

## key Data

- Last year 288,457 dogs and cats were taken in.
- 170,105 dogs.
- 118,352 cats.
- Note: the total figures for the entire country are based on data from a sample of 478 out of a total of 1,591 animal welfare organisations, town halls and county councils across Spain.

The above data allow us to estimate the rate of abandonment and/or loss of animals at 3.6 dogs and 2.5 cats per 1000 inhabitants (Spanish population: 47,615,034*).

- Abandonment or loss in 2022 affected $2.6 \%$ of the estimated $6,552,000$ dogs and $2.6 \%$ of the estimated $4,492,000$ cats living in Spain**.
* Source: Spanish Institute of Statistics (Data at July 2022).
** Source: Affinity PetCare (2021 Population Data).


Figure 1. Trend in the number of animals admitted to companion animal shelters each year.

## Our interpretation

- Abandonment and loss are once again the main problem for the welfare and quality of life of dogs and cats in our country1.
- In 2022, approximately the same number of animals were taken in by the welfare centres as in 2021. This figure seems to confirm the hypothesis that the decrease observed in 2020 was mainly due to the impact of the first year of the COVID-19 pandemic, and in particular the lockdown periods (Figure 1).

As we see below, the situation is different if we compare dogs and cats

- n 2020 , the admission of dogs to companion animal shelters fell by $11.5 \%$ (Figure 2 ). This was the largest annual reduction we have observed in all the years we have conducted our survey. However, in 2021 the figure increased by $3.48 \%$, and again in 2022 by $1.46 \%$, although it is still around $7 \%$ below that observed in the year before the pandemic.


Figure 2. Trend in the number of dogs admitted to companion animal shelters each year.

The number of cat admissions is practically identical to that observed in 2021 (Figure 3).


Figure 3. Trend in the number of cats admitted to companion animal shelters each year.

Why is the number of dogs taken in increasing again?
Do the 2021 figures help to explain the role that the pandemic may have played in the numbers of abandoned and lost pets?

In order to be able to answer these questions, we must first examine the outcome of the animals that were admitted to companion animal shelters in 2021 and in previous years.

# What was the outcome of the dogs and cats that were taken in by companion animal shelters in 2022? 

## key Data

## Dogs

- $20.5 \%$ of the dogs taken in by companion animal shelters were returned to their families (Figure 4). From this percentage, we can estimate that at least 34,872 of the admissions to companion animal shelters were lost dogs (Figure 5).


Figure 4. Outcome of dogs admitted to companion animal shelters in 2022.


Figure 5. Estimated number of dogs that were admitted to companion animal shelters (orange), that were taken back by their families (light grey), that have been abandoned or whose families have not been able to take them back (grey) and that were adopted by a new family (light orange). In most cases, the animals recovered are those that have been taken in by the companion animal shelter after having been lost.

- $49.8 \%$ of dogs were adopted (Figure 4).
- $16 \%$ remained in the companion animal shelter awaiting adoption, $3.9 \%$ died or were put down for medical reasons (Figure 4).


## Cats

- $4.2 \%$ of the cats taken in by companion animal shelters were returned to their families (Figure 6). From this percentage, we can estimate that at least 4,971 of the admissions to companion animal shelters were lost cats (Figure 7).


Figure 6. Outcome of cats admitted to companion animal shelters in 2022.


Figure 7. Number of cats that were admitted to companion animal shelters (orange), that were taken back by their families (light grey), that have been abandoned or whose families have not been able to take them back (grey) and that were adopted by a new family (light orange). In most cases, the animals recovered are those that have been taken in by the companion animal shelter after having been lost.

- $46.5 \%$ of cats were adopted (Figure 6).
- $15.2 \%$ remained in the companion animal shelter awaiting adoption, $12.5 \%$ died or were put down for medical reasons (Figure 6).
- $15.8 \%$ were relocated to foster homes (Figure 6).



## Our interpretation

- The annual turnover of an companion animal shelter is related to 3 key indicators:
- Total number of admissions.
- Returned to the family. This parameter is an indirect indicator of the number of animals admitted to welfare centres after having been lost.
- Adoptions.

The actual abandonment figure can be inferred by subtracting the number of animals that have been recovered by their families from the total number of admissions. In this regard, a moderate but steady reduction in the total number of abandoned dogs has been observed in recent years (Figure 5).

In 2020 we observed a reduction in the total number of dogs admitted to shelters in parallel with those that were taken back by their families. Assuming that, firstly, the animals taken back tend to be mostly lost and, secondly, the proportion of animals identified in 2020 was comparable to that of 2019 (Figure 8), the data suggest that fewer dogs were lost in 2020 than in previous years. The reduced mobility of the population resulting from the implementation of the national lockdown periods (state of emergency) would reduce the likelihood of losing a dog. In this regard, our survey on the impact of the pandemic on pets indicates that, contrary to popular belief, dogs were walked less during the first lockdown in the spring of 2020 (Figure 9) ${ }^{2}$.

The 2021 data and the almost identical 2022 data confirm the above hypothesis. May 2021 saw the end of the state of emergency which, in fact, in the preceding months had already been much less restrictive than in 2020.

The progressive recovery of pre-pandemic mobility would explain the increase in the number of animals recovered by their families after having strayed or been lost.


Figure 8. Proportion of microchipped dogs and cats arriving at companion animal shelters (left). The percentage of dogs and cats living with families that are identified is shown on the right.


Figure 9. Total walking time of dogs during the first 2 months of lockdown (red) and the period before the national lockdown periods (grey).

Adapted from: Bowen J, García E, Darder P, Argüelles J, Fatjó J (2020) The effects of the Spanish COVID-19 lockdown on people, their pets, and the human-animal bond. Journal of Veterinary Behavior, 40, pp 75-91. doi:10.1016/j.jveb.2020.05.013.

- En In 2021, for the first time in several years, we detected a reduction in the number of cats taken in by companion animal shelter organisations. However, the almost identical figure observed in 2022 leads us to suspect that this reduction had more to do with the effects of the pandemic on the dynamics of abandonment and loss of cats, rather than a real change in trend.
It should be noted that, in relation to loss, cats have 2 important differences compared to dogs.
Firstly, the proportion of cats with outdoor access is very low. According to data from our study on the effects of the pandemic on the behaviour and quality of life of pets, more than $80 \%$ of cats never have home outdoor access (Figure 10).

Secondly, the proportion of identified cats arriving at companion animal shelters is very low, both in absolute terms and in comparison with that observed for dogs. This difference is very likely due to a combination of two factors. On the one hand, the proportion of identified cats in the overall population is significantly lower than that of dogs (Figure 8). On the other hand, a higher proportion of kittens than puppies admitted to companion animal shelters, as we will see below (Figure 14). It is important to note that a puppy, especially a young one, is less likely to have been identified than an adult individual.


Figure 10. Percentage of cats allowed out of the home.
Adapted from: Bowen J, García E, Darder P, Argüelles J, Fatjó J (2020) The effects of the Spanish COVID-19 lockdown on people, their pets, and the human-animal bond. Journal of Veterinary Behavior, 40, pp 75-91. doi:10.1016/j.jveb.2020.05.013.

- In short, the 2022 data suggest that the changes observed in the dynamics of abandonment and loss of pets in 2020 and, to a lesser extent, in 2021 were temporary and mainly related to the impact of the restrictions resulting from the national lockdown periods and the subsequent raising of lockdown measures.
- With regard to the death or putting down of animals taken in by the companion animal shelter, cats are of particular concern to us. The proportion of cats dying or being put down is three times higher than that observed for dogs.


# What impact does identification have on the abandonment and loss of pets? 

## key Data

- It was possible to return $63 \%$ of the microchipped animals admitted to their families (Figure 11).


Figure 11. The graph shows the percentage of animals taken in that were microchipped, and how many of these were able to be returned to their families of origin.

## Our interpretation

- The percentage of animals recovered by their families is much higher among those that are properly identified.

The key factor in the recovery of a lost animal is the possibility of locating its family and to achieve this it is essential for the animal to be properly identified by means of a microchip. Approximately $13.8 \%$ of all animals admitted to shelters are recovered by their families, while this percentage rises to $63 \%$ for dogs and cats that arrive at the shelter properly identified. In other words, an identified pet is between 5 and 4 times more likely to be recovered by the family than an unidentified one.
The number of identified cats arriving at companion animal shelters has always been very low, and in 2022 it is decreasing again.
In 2022 we have observed a very slight decrease in the percentage of identified dogs, which in recent years has been completely stable.

According to estimates by the research institute IPSOS for Affinity PetCare the total percentage of identified dogs and cats living with families is $89 \%$ and $51 \%$ respectively (Figure 8). If we take into account that identifying a pet is one of the main indicators of responsible pet ownership, our data would suggest that the abandonment or loss of pets would be at least partly related to a failure to fulfil the obligations and commitments involved in living with a pet.

- The percentage of cats returned to their families is largely lower than dogs. This may reflect, on the one hand, the lower proportion of cats identified compared to dogs and, on the other hand, the admission to shelters of many cats that have been born and raised on the street.


## What is the profile of the animals taken in by shelters?

## key Data

- $27.6 \%$ of dogs admitted to companion animal shelters are purebred, while the rest are crossbreeds (Figure 12).
- Only $6.7 \%$ of cats admitted to companion animal shelters are purebred, while the rest are crossbreeds (Figure 12).
- Slightly more than half, $55.3 \%$, of all dogs admitted to companion animal shelters are medium-sized, $25.8 \%$ are large and $18.9 \%$ are small (Figure 13).
- The majority of dogs are admitted to shelters as adults (56.8\%), although puppies ( $28.1 \%$ ) and older (or senior) animals (15.1\%) are also taken in (Figure 14).
- The majority of cats admitted to shelters are kittens (47.9\%), followed by adults (42.8\%) and finally older animals (9.3\%) (Figure 14).


Figure 12. Percentage of animals taken in by shelters according to whether they are purebred or crossbreeds.


Figure 13. Percentage of dogs taken in by shelters according to their size.


Figure 14. Percentage of animals taken in by shelters according to their age.


## Our interpretation

- Abandonment is a phenomenon that affects dogs and cats of all types and is not restricted to a particular age group or breed.
- The proportion of medium-sized and large dogs arriving at shelters is higher than their percentage in the overall dog population. Consequently, it could be suggested that smaller dogs suffer less abandonment and loss than larger dogs. As we will see below, behavioural problems are one of the main reasons for abandonment of pets and their negative impact is sometimes greater in larger dogs. In terms of loss, there may again be a bias towards large dogs, perhaps because of the places where they are walked and the greater tendency to let them loose in open spaces compared to smaller dogs.
- $47.9 \%$ and $28.1 \%$ of the animals taken in by shelters are respectively kittens and puppies. Most of them come from the birth of unwanted litters. It is important for all families to effectively control the reproduction of their dogs and cats in order to avoid this phenomenon, which is the main cause of the current overpopulation of pets.


## How does the admission of animals to welfare centres vary throughout the year?

## key Data

- There are no significant differences in the number of dogs taken in during the different months of the year (Figure 15).


Figure 15. Distribution by month of the total number of dogs taken in by companion animal shelter organisations in 2022 (orange) and 2021 (grey) (expressed as a percentage of the annual total).

- In contrast to dogs, the admission of cats to companion animal shelters varies significantly throughout the year (Figure 16).


Figure 16. Distribution by month of the total number of cats taken in by animal welfare organisations in 2022 (orange) and 2021 (grey) (expressed as a percentage of the annual total).

## Our interpretation

- If we examine the results of recent years, it is only in 2020 that we observe differences in the rate of admission of dogs to companion animal shelters, as a result of the restrictions on mobility imposed by the state of emergency, as well as the impact of the first months of the pandemic on the operation of animal welfare organisations. In 2021 and again in 2022, once normality had resumed in this respect, the number of dogs entering companion animal shelters was once again uniform throughout the year (Figure 15).
- As for cats, we do observe differences throughout the year in the number of admissions to companion animal shelters. The middle part of the year is always the most difficult for animal welfare organisations dedicated to helping abandoned cats. It must be remembered that the seasonal nature of cat reproduction means that the number of arrivals at companion animal shelters is higher in the central months of the year (Figure 16).


## Has pet adoption increased in 2022?

## key Data

- As mentioned above, 49.8\% of dogs managed by companion animal shelters in 2022 were adopted (Figure 4). Of these, 76.3\% were adopted by Spanish families and 23.7\% by families from other countries (Figure 17).
- $46.5 \%$ of cats managed by companion animal shelters were adopted (Figure 6). Of these, $90.9 \%$ were adopted by Spanish families and $9.1 \%$ abroad (Figure 18).


Figure 17. Percentage of dogs adopted by Spanish families (in orange) and those from other countries (in grey).


Figure 18. Percentage of cats adopted by Spanish families (in orange) and those from other countries (in grey).

## Our interpretation

- The number of dogs adopted in 2022 is one of the highest in recent years, just slightly lower than in 2021 (Figures 4 and 5).
- After the slight increase in cat adoption in 2021, the 2022 figure is slightly lower and not significantly different from that observed in previous years (Figures 6 and 7).
- In 2020, we observed a decrease in the adoption of animals by families from other countries, which was however offset by an increase in domestic adoption. In 2022, the percentage of adoption by families from other countries is very similar to that observed in 2019, just before the pandemic. The full recovery of international mobility explains the normalisation of adoptions by families from other countries.


## What were the most common reasons for the admission of dogs and cats to companion animal shelters?

## key Data

- $44.7 \%$ of the animals taken in by a shelter were found on the street. $15.7 \%$ are found and brought to the shelter by the police, while $2.4 \%$ are brought by the police after interventions in cases of animal abuse or dysfunctional animal hoarding syndrome ( $2.4 \%$ ). $24.4 \%$ of the animals were brought to the centres by private individuals who had found them. Only $10.7 \%$ of the animals were brought to the companion animal shelter by the family with whom the animal
was living up to that time (Figure 19).

Arrival of animals to the organisation


Figure 19. Origin of animals admitted to companion animal shelters in 2022.


- The top 6 reasons stated by families who handed over their pet to a shelter in 2022 were unwanted litters (18.6\%), behaviour of the animal (12.3\%), loss of interest in the animal (11.6\%) , the end of the hunting season (11.4\%), economic factors (8.9\%) and housing changes (7.8\%) (Figure 20).


Figure 20. Declared reasons for handing over a pet to a companion animal shelter. We also include the relative position in 2021 of the 6 reasons identified as most important this year.

## Our interpretation

- Once again, in 2022 unwanted litters appear as the main reason for abandoning pets.
- This figure is yet another reminder of the importance of controlling the reproduction of pets as one of the best strategies for reducing the population of abandoned animals.
- Behavioural problems are the second leading cause of abandonment. In this regard, it should be noted that most behavioural problems can be prevented and successfully treated by veterinarians and dog trainers.
- The companion animal shelter organisations that participated in the study indicate that the end of the hunting season is one of main reason for the abandonment of pets. This figure seems particularly alarming to us, if we consider that the second most common cause of abandonment is specifically related to dogs involved in hunting activities, which only account for a small part of the almost 7,000,000 dogs living in Spain.
- In 2022, economic factors move up one position in the ranking compared to 2021, but are still far from the top position they occupied in 2020 (Figure 20).
- It is very important to note that the information available on the reasons for abandonment is provided in most cases by the people who personally take their pet to a companion animal shelter or by the companion animal shelter itself. As we have already said, most of the animals that enter the shelters have been found on the street or brought there by people who are not their families. Therefore, we still do not know the specific reasons for many of the pet abandonments that occur in our country.


## How dynamics have dog and cat adoptions?

Adoption is one of the most effective measures to reduce the negative impact of pet abandonment in the short and medium term. However, not all animals are equally likely to be adopted. Moreover, not all adoptions are successful and can sometimes result in the dog or cat being returned to the shelter of origin.

## key Data

- Puppies stay in shelters for an average of 2.8 months before being adopted, while for adults and seniors the average length of stay is 11.7 months (Figure 21).
- Kittens stay in shelters for an average of 3.4 months before being adopted, while for adults and seniors the average length of stay is 12.5 months (Figure 21).
- Adoption is relatively evenly distributed throughout the year, with a slight increase after the summer months. One in five adoptions of dogs and cats takes place in September and October (Figure 22).
- Adoption requests seem to be more frequent in the period immediately after the holidays and before Christmas (Figure 23).
- $92.7 \%$ of animals adopted in 2022 were not returned to the companion animal shelter they came from (Figure 24).
- $37.4 \%$ of returns to the shelter were due to problems related to the animal's behaviour. In $12.2 \%$ of cases, the family stated that the reason for return was a higher than expected responsibility. $10.6 \%$ of returns were related to allergies. This was followed by change of address or transfer, lack of space or time, and financial difficulties (Figure 25).
- Almost $47.9 \%$ of returns occurred within the first 4 weeks after adoption, and $52.1 \%$ within the first 3 months (Figure 26).


Figure 21. Average monthly length of stay of dogs and cats depending on their age at the time of arrival at the shelter.


Figure 22. Adoption of dogs and cats throughout the year.


Figure 23. Percentage of companion animal shelters reporting an increase in adoption requests at different times of the year.


Figure 24. Percentages of successful and failed adoptions declared by the organisations that have participated in the survey.


Figure 24. Main reasons for returning adopted animals to the shelter.



Figure 26. Distribution of animal returns to organisations according to the time elapsed since adoption.

## Our interpretation

- The shorter time puppies spend in the shelter can be explained largely by the greater attractiveness of a young animal to many adopters.
- There is a misconception that an adult animal will not integrate into its new family or that it can no longer be trained effectively. It is therefore important to implement information campaigns to inform adopters about the desirability and even the advantages for living with people that adopting an adult dog or cat often entail. In this regard, a 2017 scientific survey, carried out as part of the Postgraduate Course in Anthrozoology of the Chair Affinity Foundation Animals and Health at the Autonomous University of Barcelona, suggests that many people would adopt older animals if they received aid or incentives for their care3.
- A study presented in 2023 by the Chair Affinity Foundation Animals and Health on a population of almost 10,000 dogs registered on the online adoption promotion platform Miwuki shows that older dogs are indeed much less likely to be adopted ${ }^{4}$.
- Adoption is relatively evenly spread throughout the year, with a peak period just after the summer. Many people wishing to adopt a dog or cat prefer to do so after the holidays, once the usual routine has been resumed.
- Adoption requests seem to be more frequent after the holidays and just before Christmas. Interestingly, the increase in requests related to Christmas does not result in more adoption during that period. This discrepancy could be explained by the awareness-raising work carried out by the companion animal shelters to dissuade people who have decided to adopt an animal at Christmas as a gift, without having carried out the deep reflection required to take an animal into the family.
- Organisations report a very high adoption success rate, averaging more than $90 \%$.
- However, approximately in one out of fourteen adoptions the bond is not consolidated due to different barriers. These figures are consistent with those found elsewhere in the world. For example, a survey conducted in the United States in 2013 by the American Humane Association estimated that $10 \%$ of dog and cat adoptions fail within the first 6 months of the animal joining the family ${ }^{5}$.
- The animal's behaviour is reported as the main reason for return to the shelter, followed by erroneous expectations about the responsibility of caring for a pet.
- With regard to the behaviour of the animal it is interesting to note that, as we have already seen, it is also referred to as the third main reason for relinquishing an animal to a pet shelter. In fact, if we do not consider unwanted litters and dogs coming from the hunting world, neither of which are relevant in the scenario of failed adoption, behavioural problems appear as the main reason for relinquishing a pet.
- It should be noted that behavioural problems are a diverse category, which encompasses all those behaviours that are a barrier to harmonious coexistence. In short, they represent problems of coexistence between the family and the dog or cat, which can be studied and, in most cases, corrected.



## Main conclusions

- Abandonment is still a major animal welfare problem in our country. The 2022 data, largely similar to that of 2021, confirm that the slight observed decrease in the number of dogs arriving at companion animal shelters in 2020 compared to the previous was be cyclical, reflecting the impact of the pandemic on the mobility and lifestyle of families.
- Neutering, identification, education and adoption are the 4 most important strategies to prevent and minimise the impact of pet abandonment. Neutering, identification and education are part of a broader concept of responsible pet ownership, which encompasses the obligations and responsibilities of every person who undertakes a commitment to care for an animal. Citizen participation is therefore essential to fight the problem of pet abandonment, as it is the basis for the effective implementation of the four strategies mentioned above (neutering, identification, education and adoption), which have proven to be key factors in combating the problem of abandonment.

It is important to highlight the importance of citizenship education about everything that involves responsible care for their pets, as a fundamental pillar to prevent abandonment in the medium and long term.

- Beyond simply raising awareness of the need to adopt, we must educate the public about the benefits, but also the obligations, of adopting a pet, and how its arrival can influence our lifestyle.


## Methodology

## How is our survey on the abandonment, loss and adoption of pets carried out?

The main aim of our annual survey is to assess the magnitude of pet abandonment and loss in Spain.
As in any thorough epidemiological study, in order to know this figure it is necessary:

1. To have a comprehensive census of companion animal shelters operating in Spain.
2. Obtain data from a large and significant sample of these centres.
3. Make a reasonable estimate of the total number of dogs and cats admitted to companion animal shelters, based on the data obtained from the sample.

## How many companion animal shelters are there in Spain today?

## The aim

To obtain a list of all companion animal shelters implies a major effort of research, documentation and constant refining of the data. On the one hand, some centres may have closed from one year to the next, and new ones may have been opened in the same period. On the other hand, if an companion animal shelter works in collaboration with a public centre, it could be the case that both organisations provide information about the same group of animals, and this would result in a duplication of data.

## The method

Each year for the survey:

- We check the opening of new animal welfare organisations or the possible closure of some that have been part of the census up to now.
- We verify that there are no duplicated data, for example, from collaborating organisations.


## The result

The Affinity Foundation now has the most extensive and comprehensive census of Companion animal shelters in Spain. It includes 1,591 organisations, of which 1,334 (85\%) are private organisations and 247 (15\%) are pet municipal companion animal shelters (Figure 27).
Although the majority of centres take in dogs and cats, a small number only take in one of these two species. Thus, 1235 organisations take in dogs only and 1252 take in cats only (Figure 28).
$49 \%$ of the organisations that take in dogs are small (with a capacity to care for up to 30 animals), $23 \%$ are medium-sized (from 31 to 70 animals) and 28\% are large (more than 70 animals) (Figure 29).
$63 \%$ of the organisations that take in cats are small (with a capacity to care for up to 30 animals), $19 \%$ are medium-sized (from 31 to 70 animals) and 18\% are large (more than 70 animals) (Figure 29).

One in two organisations has its own shelter and the majority (67\%) collaborate with foster homes (Figure 30).


Figure 27. Types of organisation.


Figure 28. Percentage of organisations that take in dogs and cats, dogs only and cats only.


Figure 29. Distribution of organisations according to their capacity to take in dogs and cats.


Figure 20. Percentage of organisations that work with temporary shelters (left), that have their own shelter (centre) and that manage controlled colonies of cats (right).

Figures 31 and 32 show the map of companion animal shelters that are part of our census for dogs and cats respectively.

## How many companion animal shelters participated in the survey?

## The aim

Having obtained a comprehensive and reliable census, our next aim is to obtain data from as many companion animal shelters as possible, in order to obtain a representative sample of the total.

## The method

The data was collected using a standardised questionnaire, which was designed by researchers from the Affinity Foundation and the Chair Affinity Foundation Animals and Health at the Autonomous University of Barcelona. We directly contacted all the organisations in the census. The follow-up was done by means of more than 7000 phone calls and up to 6 email reminders.

## The result

We obtained data from 478 private and public organisations, i.e. $30 \%$ of the total number of animal shelters we have registered in Spain.

## How can we estimate the total number of lost and abandoned dogs in 2022?

## The aim

Any survey that aims to obtain information from a whole population faces a basic limitation: we cannot get answers from everyone. Whether it is a survey of people's opinions on a certain topic or, as in our case, a survey of a set of organisations, it is very unlikely that we will be able to obtain information from all of them.

Therefore, based on the information from the sample of 478 organisations, we must try to estimate the number of animals taken in by the organisations that have not been able to provide us with this information, in order to estimate the total number of lost or abandoned animals in Spain.

## The method

The part of a whole set of people or organisations that provides information in a survey is called a sample. For example, if we talk about the political opinions of the population and we carry out a survey in which 1000 citizens participate, that part of the population will be our sample. Similarly, in our case, the number of shelters and companion animal shelters that have provided us with information would constitute our sample. Specifically, as we have mentioned above, we would be talking about 461 centres. From the information in the sample, we must try to estimate the number of animals taken in by the organisations that have not been able to provide us with this information.

After years of experience and based on the information and advice of the animal welfare organisations that have helped us year after year, our researchers estimate the number of animals that have been admitted to the centres that have not provided information, taking into account their capacity, which we do know, and comparing them with the data from the centres that have been able to participate in the survey.

Let's look at an example to illustrate this type of calculation. Let us imagine that the census of companion animal shelters included one third of small capacity, one third of medium capacity and one third of large capacity. Now suppose that two thirds of the organisations participating in the study were of large capacity and only one third of medium or small capacity. If we were to extrapolate the data from this sample directly to the entire census, we would be overestimating the presence of high-capacity centres and, therefore, the overall figure for abandonment and loss would be artificially inflated.

If, on the other hand, our sample included a higher proportion of small capacity centres than the total census, we would run the risk of underestimating the overall number of lost or abandoned animals.

In order to be able to correct the data obtained from the 478 centres participating in the study, we needed one key piece of information: the distribution according to capacity of all or most of the centres included in the census, whether or not they had provided information on lost and abandoned animals. To achieve this, and as a complement to our annual survey, in recent years we have conducted around 1,400 direct interviews with the managers of the centres, with the aim of gaining a better understanding of their characteristics, including their size and capacity.

## The result

Our estimation method allows us to conclude that 288,457 dogs and cats were admitted to the TOTAL number of Spanish companion animal shelters in 2022. As we have said, this OVERALL figure is the result of extrapolating the data obtained from our sample, after adjusting the figure to take into account the capacity of the various centres.


Figure 31. Map of companion animal shelters caring for lost and abandoned cats.


Figure 32. Map of companion animal shelters caring for lost and abandoned cats.

## The 3 keys to our methodology

1. A comprehensive census of companion animal shelters.
2. A detailed knowledge of the characteristics of the existing Companion animal shelters in Spain.
3. An accurate estimation method that takes into account the characteristics of ALL companion animal shelters, whether or not they have been able to provide data for 2022.

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