

HOW TO RECONCILE THE NEEDS OF DOGS AND THEIR OWNERS WITH THE DEVELOPMENT OF URBAN SPACE

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ABSTRACT

Aim of the study

The aim of the study was to assess the attitudes of residents of Kraków towards the subject of dog parks, and to attempt establish standards of equipment for these sites in order to make them both physically and behaviourally safe for dogs. The following exploratory questions were posed in the study: Do Kraków residents use dog parks, and how often? Do they consider their number and equipment to be adequate? What infrastructure is lacking in dog parks?

Material and methods

For the purposes of the study, a survey was conducted to assess the need for the creation of dog parks in Kraków, and to examine the expectations of dog owners using such parks, regarding the infrastructure thereof. The survey was anonymous, and it was made available online to users of popular groups on social media.

Results and conclusions

An analysis of dog parks in Kraków revealed that the level and degree of their development, their technical condition, as well as their locations are highly varied. The parks in question include both fenced areas and those with infrastructure for people and dogs alike. Furthermore, the number of dog parks in Poland is growing, making it difficult to find generalized guidelines and content regarding their location and design. The study found that most respondents believe that more dog parks should be created in Kraków, ensuring easy and equal access throughout the city. An analysis of the distribution of dog parks revealed that such facilities are missing in many parts of the city. Observations conducted at dog parks in Kraków revealed that they are highly varied in terms of technical condition, layout, location, and size.

Keywords: development, domestic dog (*Canis lupus familiaris*), social behaviour of dogs, dog park, city infrastructure

INTRODUCTION

The first dog park in the world was created in 1979 in Berkeley, California. It was a fenced-in lawn with a few benches and tables, and like most current dog parks in the USA, it contained no equipment for dogs (Urbanik and Morgan, 2013). The literature contains several definitions of a dog park, beginning with min-

imalist formulations such as the one proposed by Allen (2007), defining a dog park as a fenced area meant exclusively for dogs. Brown (2012) proposed a more elaborate definition, according to which a dog park is an area designated for dogs without a lead, one that provides them with a safe, controlled environment where they can play, exercise, and spend time with other dogs. At the same time, it provides dog

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owners with an opportunity to spend time with their neighbours and people with similar interests. Just as the definitions of these places are diverse, so are the approaches to them – on the part of dog owners as well as the local community and authorities. According to Włodarczyk (2021), this is influenced in part by historical and geographical determinants and very important social and cultural issues. Dog parks in the USA are often given as an example, because that is where the first such facilities appeared. However, this was not so much due to concern for the welfare of dogs but rather due to their owners' desire to obtain any space in which their dogs could spend time. The first dog parks in the USA were met with reluctance on the part of local residents, who largely considered keeping dogs in urbanized areas to be in conflict with "civilized life" in the city (Armbruster, 2019). The approach to dog parks in the UK is completely different: there, dogs can roam freely in public places, on a lead or without one. There are also fenced-in areas for dogs, but these are perceived as a restriction on the ability to spend time freely with one's dog in common space, which for British people is extremely important (Wood, 1998). Even organizations such as Dogs Trust and the Kennel Club have spoken out against small fenced-in areas. They claim that small, enclosed areas where dogs that do not know each other are present do not benefit either the dogs themselves or their owners (www.dogtrust.org.uk; www.thekennelclub.org.uk).

In terms of regulations and the approach to dogs in public spaces, Poland is somewhere between the USA and the UK, albeit it is closer to the British approach. According to the Polish Animal Protection Act, "it is prohibited to let dogs loose without the possibility of controlling them and without a tag enabling identification of the owner or caretaker." (Journal of Laws 2023.1580). Here it is not clearly stated that the dog must be on a lead. This provision does not apply to dogs belonging to breeds considered dangerous according to the Regulation of the Minister of Internal Affairs and Administration of 28 April 2003 on the list of breeds considered aggressive, which must be on a lead and muzzled, and under the care of an adult (Journal of Laws 2003.77.687). On the basis of this act, local laws are passed in individual cities, which often add provisions prohibiting dogs from entering certain city parks or playgrounds for children. Polish

law also includes a ban on letting dogs loose in forests, and a total ban on entry into most national parks. In neighbouring countries, such as Slovakia, these laws were much more liberal until 15 December 2023; it was permitted for dogs to enter the Tatra National Park on the Slovak side, unlike on the Polish side. However, these regulations were changed, and admission to mountain trails with dogs was prohibited in order to protect sensitive ecosystems. However, apart from such admittedly justified cases, dogs in Poland enjoy considerable freedom and are able to make use of many common spaces. Dogs in Poland can use public transport without restrictions, an increasing number of shops and restaurants even boast of being dog-friendly, and some even have a special menu for dogs (Gellner and Boczar, 2021).

The issue of dogs in urban areas is important for many reasons, including the growing number of canine pets and changes in the approach to their treatment. The number of pets in European Union countries has clearly been increasing in recent years. The sharp increase in the number of pets may have been influenced by the COVID-19 pandemic (Koohsori et al. 2020; Chen et al. 2022). The number of pets in EU countries increased from 73 million in 2010 to more than 92 million in 2022 (Statista, 2024). Admittedly, the best-represented species in the EU is the cat, followed by dogs and ornamental birds. In terms of the number of dogs in European Union countries, it is highest in Germany, at 10.6 million, while Poland ranks fourth, with 8.0 million (Statista, 2024). Taking into account the differences between the populations of the two countries, this comes to 0.127 dogs per capita in Germany, and 0.215 per capita in Poland.

The dog has begun to play an important role in contemporary society. It is no longer only a working animal, but above all a life companion, a friend, and a member of the family. Increasingly, dogs and other pets are perceived as substitutes for a child, hence the use of amusing labels such as "fur baby," as in the contemporary "two plus fur baby" model of the family (Petersen and Engwall, 2019; McCants, 2024; Korach, 2022; Greenebaum, 2004). This may be supported by the fact that, according to the FEDIAF (The European Pet Food Industry Federation 2022), there is a dog in 49% of house-holds in Poland, with a European average of 25% (the European Pet Food Industry Fed-

eration). Interestingly, according to Consumer Panel Services GfK Polonia, there are now more households in Poland with a dog than with a child, and this trend is still on the rise (Statista, 2024a). Fortunately, as the number of dogs in Poland increases – from 7.8 million in 2019 to 8.0 million in 2022 (<https://ipk.gfk.pl/>) – the approach to animals and their welfare is generally improving. Dog owners are increasingly aware that the welfare of dogs means more than meeting their most basic needs, according to the five freedoms of animal welfare, which are: freedom from hunger, thirst, and malnutrition; freedom from psychological trauma and pain; freedom from pain, injury, and disease; freedom from fear and distress; and finally, the freedom to express natural behaviour (Hampton et al., 2023). In this respect, one of the key elements is the provision of adequate space and conditions as well as the company of individuals of the same species. Of course, these are only basic elements, which do not yet fully guarantee the well-being of any animal.

Life in continually growing and overpopulated cities is increasingly difficult, even for people. Expanding built development, the disappearance of green areas, particularly those with a structure reminiscent of natural ecosystems, road traffic, air pollution, noise, and many other factors that affect us also affect our pets (Calderón-Garcidueñas et al., 2008). Life in highly urbanized areas is a major challenge for any species, and it requires dogs to adapt to continual changes in their lives. Increasingly, people do not seem to be surprised when dogs travel with us in cars, on trains, or even on planes, go to the hairdresser, or use the services of a pet sitter or an animal behaviourist (Stoltz et al., 2020). However, for the most part dogs are generally walked on crowded streets where people, cars, bicycles, and scooters meet in a small space, as well as other dogs.

Therefore, it is extremely important to begin adapting urban spaces to this trend, and to create places that will be friendly to both dogs and their owners. In the urban structure, it is particularly difficult to meet all of the physical and psychological needs determined by the ethogram of the dog, as well as by differences resulting from the breed and type of the dog, its character and prior experiences, and many other individual factors (Bekoff, 2018; Ward et al., 2020; Carrier et al., 2013; Iotchev et al., 2019). Could dog parks be such a place, and can they meet the animals' need to explore or run

freely? Do they constitute a restriction on freedom, or an interesting place on the city map? There are no clear answers to these questions. However, due to both the behavioural needs of dogs (arising in part from their hedonic budget) and the use of these areas by city residents, an attempt to find the answers should be made.

The aim of the present study was to assess the attitudes of residents of Kraków towards the subject of dog parks, and to attempt establish standards of equipment for these sites to make them both physically and behaviourally safe for dogs. The following exploratory questions were posed in the study: (1) Do Kraków residents use dog parks, and how often? (2) Do they consider their number and equipment to be adequate? (3) What infrastructure is lacking in dog parks?

MATERIALS AND METHODS

Ethics statement

The participants in the study were informed that the survey was voluntary and anonymous, and they gave their informed consent to the use of their data for scientific purposes. Ethical evaluation and approval of the research on animals were not required, because the study did not directly involve the use of dogs.

Data collection

For the purposes of the study, a survey was conducted to assess the need for the creation of dog parks in Kraków and the expectations of dog owners who use them regarding the infrastructure of such parks. The survey was anonymous, and it was made available online to users of popular groups on social media related to the subject of dogs and Kraków. It was available from April 1 to May 31, 2024.

The questionnaire included 18 closed-ended questions and 1 open-ended question. It was divided into three main parts:

- The participants' demographic data – three closed-ended, single-choice questions: Age? Gender? Does the respondent live in Kraków, and if so, in which district?
- Description of the respondent and especially the respondent's dog(s) – seven closed-ended questions, including four multiple-choice: How many dogs? How long has the respondent had the dog? Is it the respondent's first dog? Age of the dog/dogs?

Gender of the dog/dogs? Neutered/spayed? Has the dog had training?

- Questions regarding evaluation of dog parks in Kraków – nine questions (eight closed-ended, including six single-choice, and one open-ended): Does the owner believe there is a need to create dog parks in the city? Does the owner use dog parks? (If the answer was “no,” the participants were asked not to continue completing the survey.) Should there be more dog parks? How often does the respondent use dog parks? How far is it to the nearest dog park? Does the owner spend time with the dog/dogs while at the dog park? Does the respondent believe that dog parks in Kraków are well designed? What is missing from dog parks? What makes the respondent want to use the dog park?

During the field visit, 22 Kraków parks were evaluated with regard to their location, layout, and other parameters. The analysis mainly focused on aspects that often appear in works on dog parks and in surveys. These include: location, area, fences, double gates, division into zones, lighting, surface, equipment (e.g. for agility or socialization), shaded places, benches, dog waste bins, dog toilets, water for dogs, lead holders, greenery, access, parking, and the technical condition of the park. On that basis, the authors proposed elements which must be present in dog parks to ensure the welfare of dogs.

RESULTS AND DISCUSSION

Dog parks in the eyes of their users

Demographic data

A total of 256 people aged 16 to 62 took part in the survey. Most of the respondents – 91.8% (235) – were women, and 8.2% (21 people) were men. The largest age group was between 26 and 35 years (44.9% i.e. 115 respondents), and the smallest comprised respondents under the age of 18 (2% i.e. 5 respondents). Table 1 presents information on the districts of Kraków where the respondents reside. As many as 73 respondents provided only the information that they live in Kraków, without the precise location. Among the remaining respondents, the most people currently lived in District XIII: Podgórze (40 respondents) and District V: Krowodrza (29 respondents). No responses were obtained from District XVII: Wzgórza Krzesławickie.

Table 1. Breakdown of respondents by place of residence (districts of Kraków)

District	Number of respondents
XVII Wzgórza Krzesławickie	0
II Grzegórzki	2
VII Zwierzyniec	2
IX Łagiewniki-Borek Fałęcki	3
XVI Bieńczyce	4
X Swoszowice	5
XV Mistrzejowice	6
VI Bronowice	7
VIII Dębniki	7
XI Podgórze Duchackie	7
I Stare Miasto	9
IV Prądnik Biały	9
XIV Czyżyny	11
III Prądnik Czerwony	13
XVIII Nowa Huta	14
XII Bieżanów-Prokocim	15
V Krowodrza	29
XIII Podgórze	40
Kraków (overall)	73

Characteristics of dog parks' users

Most respondents (198) had one dog, 45 had two dogs, and only 13 had three or more dogs. In terms of experience, i.e. how long the respondent had had a dog, most participants answered that they had had their dog longer than two years. Only seven respondents had had their dog for less than six months. More than 67% (173 people) of respondents stated that their current pet dog (or dogs) is not their first dog, while for the other 32.4% (83 people) it was the first dog of their lives.

In the next four questions, the respondents were asked about their dog's age, gender, spaying/neutering, and participation in training. Most dogs had been spayed/neutered and were currently between the ages of one and four years. They were evenly divided in terms of gender, with 170 of each gender. About 43% of dogs (146 dogs) had taken part in training programmes (Fig. 1).

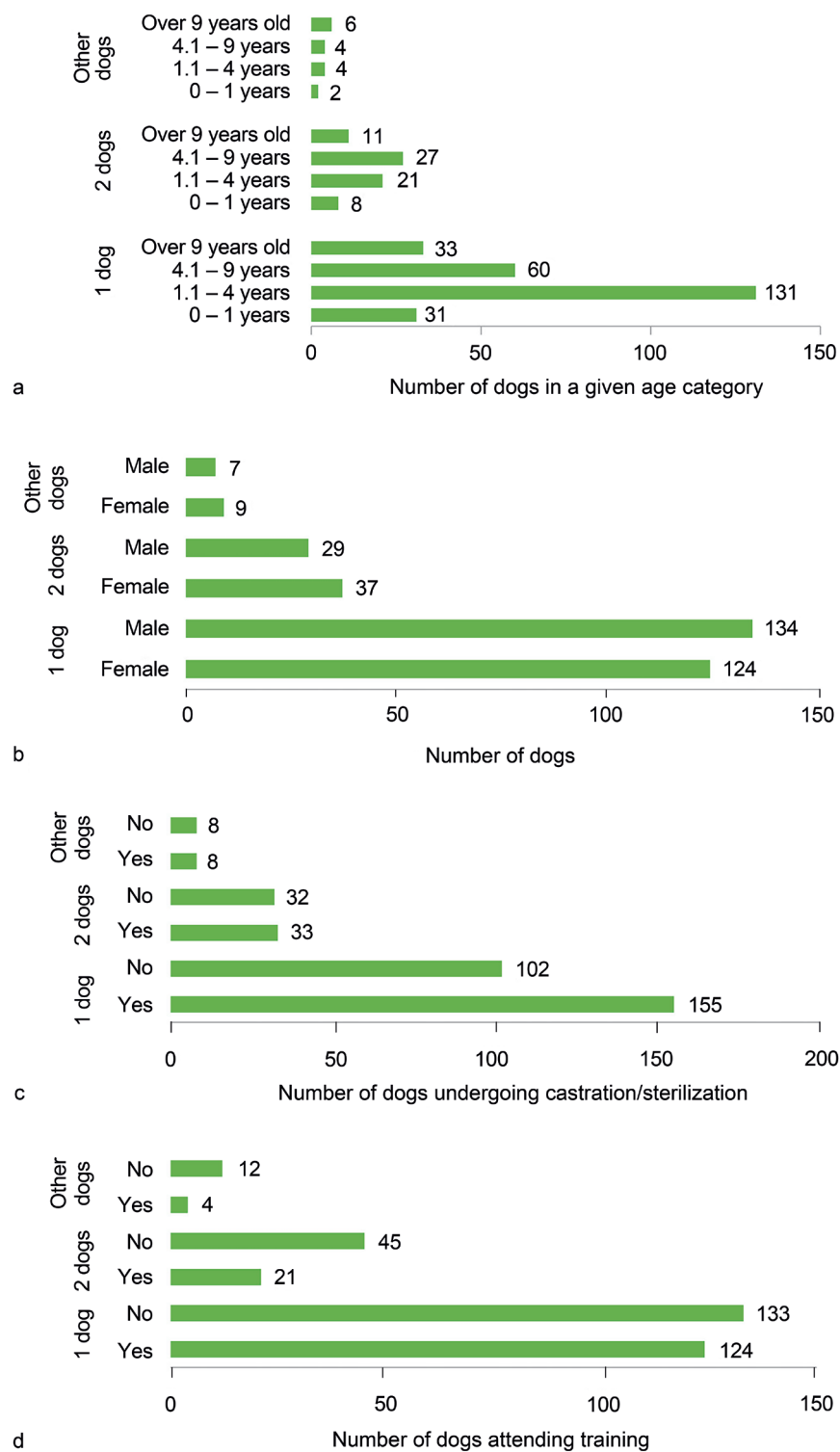


Fig. 1. Characteristics of dogs using dog parks: a – dog’s age; b – dog’s gender; c – castration/sterilization; d – dog training (Author’s own elaboration)

Evaluation of dog parks according to respondents

Among the respondents, 84.8% (217 people) expressed the opinion that parks for dogs should be built in Kraków, while 10.5% (27 people) stated that they did not see the need for such facilities. The remaining respondents had no opinion on the matter (4.7% i.e. 12 people).

Dog parks are used by 82% of respondents, while the rest do not make use of such spaces. To the question “Should there be more dog parks?” 83.9% (176 people) of respondents answered “yes,” 10.1% (21 people) answered “no,” and 6% (13 people) had no opinion. Of those surveyed, 4.6% (10 people) use dog parks in Kraków daily, and 20.2% (42 people) use them several times a week. The most respondents (44.5% i.e. 93 people) use dog parks occasionally, and 30.7% (65 people) use them several times a month. According to the survey results, 5.2% of the respondents (11 people) lived at the furthest distance from a dog park, i.e. more than 10 km. Such a distance may cause people to use the park less often, due to the need to travel there. According to Gajda (2015), a distance of about 500 m to green (walking) areas encourages their use. This was the distance to a dog park reported by 17.7% of users (37 people). The largest group of respondents (36.7% i.e. 77 people) live between 1.1 km and 3 km from the nearest dog park (Fig. 2). A slightly greater distance to dog parks, up to 1 km, is actually recommended, because the park itself should not be the only attraction of the walk for the dog. The greater distance allows the dog to explore the area, calm down

after several hours spent at home, and have a bowel movement. It is then much more likely that once in the park, the dog will not exhibit problematic behaviour, that could be resulting from over-excitement, for instance.

The most common forms of activity for dogs and their owners in dog parks involve the owner playing with the dog – as reported by 146 people (69.3%), and dogs playing together – 142 people (67.6%). Training or playing on agility tracks is another common way of spending time in Kraków dog parks – 80 cases (38.2%) (Fig. 3). This may indicate the need to include this type of equipment in dog parks. Unfortunately, as many as 31 (14.7%) respondents leave their dogs to occupy themselves while the owners spend time on their smartphones or read a book. This can adversely affect the dog’s behaviour and contribute to behavioural problems.

Nearly half of the respondents – 104 people (49.4%) complained that dog parks in Kraków were poorly designed, while 26.7% (56 people) were satisfied with their design. The remaining 23.9% (50 people) had no opinion on that matter.

The next question concerned features which users feel are lacking in Kraków dog parks. There were a great many answers, which included multiple elements. The most common responses were: benches, waste bins, double gates to prevent escape, watering stations, agility equipment, and lighting. Other elements, mentioned less often, included: division into zones, shady areas, a roof or awning, terms of use, space to run freely, an appropriate surface, dog waste bag dispensers, and plants. Many respondents indicated that there were not enough dog parks or that they were too far away. Interesting suggestions included: sandboxes for dogs that enjoy digging, or a pool or fountain for those that like swimming. Responses also included: toilets for people, and signs with photos or descriptions of dogs on the list of breeds considered aggressive, which according to the Regulation of the Minister of Internal Affairs and Administration must be on a lead and muzzled (Journal of Laws 2003.77.687). According to the respondents, this would help avoid misunderstandings and confusion of these dogs with other breeds, such as bull terriers. Of course, this does not solve the problem of potential aggressive behaviour, which is often

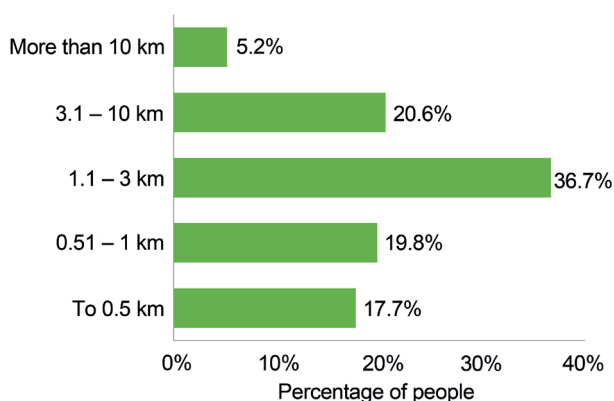


Fig. 2. Distance that users must travel to reach a dog park (Author’s own elaboration)

not the result of breed determinants but a broader context (prior experience, lack of socialization, the owner's use of aversive methods, and many other factors).

The final question concerned the reasons why the dog owner uses the dog park. Majority of the responses (80.1%) had to do with the possibility of using an enclosed area from which the dog cannot escape. The next important issue for the users was the possibility

of interaction with other dogs – 53.4%. The third most important reason was agility equipment used by dogs – 23.7% of responses. The remaining respondents (13.2%) indicated that they used dog parks for other reasons (not specified) (Fig. 4).

Comparison of the responses revealed several patterns. The most obvious include the fact that residents who live a long way away from dog parks use them least often, which is undoubtedly linked to the need to

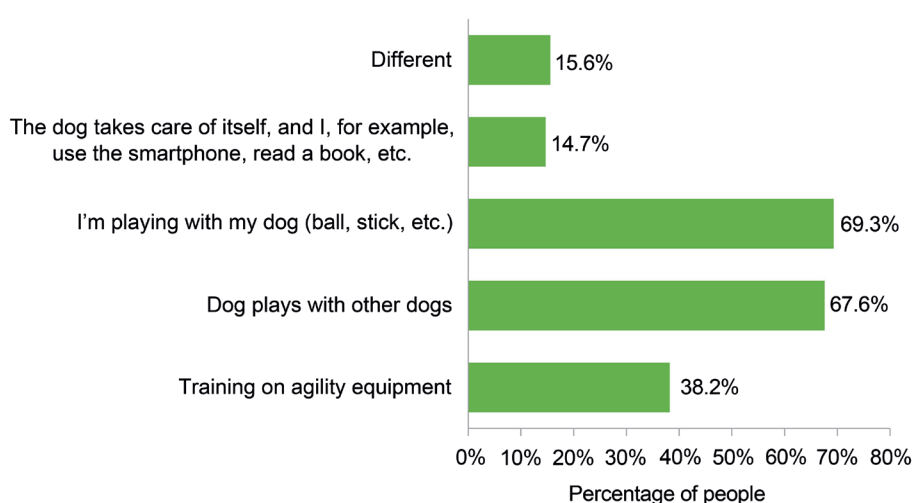


Fig. 3. Ways of using dog parks (multiple choice) (Author's own elaboration)

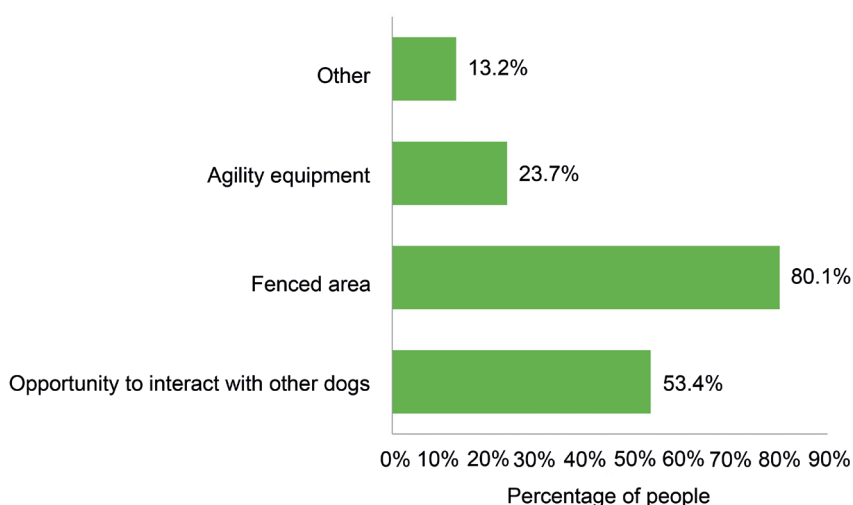


Fig. 4. Reasons for using dog parks in Kraków (Author's own elaboration)

travel to the park and devote more time to walking the dog. The second is the fact that people caring for dogs over the age of nine use these places only occasionally or not at all. There may be many reasons for this, beginning with the fact that older dogs need less exercise and are less interested in interacting with other dogs. Also, older dogs often suffer from various ailments, due to which they cannot exercise much or should not play with other dogs, because of the risk of injury. Despite the fact that the main reason for using dog parks is that they are enclosed areas preventing escape, they are most often used by people whose dogs have undergone training, and thus, in most cases, the owners have control over them. Here the reason may be the users' greater awareness of dogs' need for physical and mental activity or the desire to spend time with other dog owners. The last pattern observed is the fact that people who often use dog parks went into more detail in naming and describing the features they consider to be lacking in those establishments. Most of those who only occasionally used dog parks did not answer this question. This may indicate a low level of knowledge about the possibilities for designing this type of place, or about one's dogs' needs.

Analysis of dog parks in Kraków

Analysis of dog parks in Kraków shows that in terms of the level and degree of their development, technical condition, and location, they are highly varied. They include places that are merely an enclosed area (without even a double gate) and those with infrastructure for both people and dogs. Although the number of dog parks in Poland is increasing, it is difficult to find guidelines or recommendations regarding where they should be located and how they should be designed.

The world literature contains a few studies with recommendations, but in many cases the choice of solutions is dictated by the desire to minimize the impact of the presence of dogs on both people and the environment. This is largely due to the fact that models of dog parks come mainly from countries in which this type of facility is created primarily in order to isolate dogs from the rest of the community. We can find this type of recommendations in the works of Brown (2012), De Rosa and Fergusen (2013), the City of Ann Arbor (2014), Rahim et al. (2018), and the Trust for Public Land (2019). However, they are lack-

ing in terms of significant interest in the dog ethogram and the needs arising from it, as well as the limitations arising from the functioning of dogs' senses.

Location

There are about 22 dog parks in Kraków (according to the website of the City Greenery Board, there are 24, and sometimes the dog park at the Kraków-Balice International Airport is included; <https://krakowwzeleni.pl/>). There are plans to create more facilities of this type. Their distribution in Poland is uneven, as shown in Figure 5. This is due to the availability of green areas belonging to the city and to the fact that in parts of the city with large natural green areas, residents do not see the need for such specialized establishments (most dog parks in Poland are created and financed from the "Citizens' Budget," an instrument whereby groups of residents themselves introduce a proposal that all residents of the city can then vote for, which is then financed from the city budget). This type of facility cannot be created in the very centre of Kraków due to the dense development and heritage character of the historical parts of the city. Green areas are often enclosed and off-limits, e.g. the monastery gardens in District I: Stare Miasto. The eastern part of Kraków (District VII: Zwierzyniec and Dębniki) consists of areas with a great deal of natural greenery, including Bielańsko-Tyniecki Landscape Park, Wolski Forest, and Błonia (considered the largest city meadow in Europe). Similarly, the Nowa Huta District contains a large number of green areas, e.g. Przylasek Rusiecki. These areas give dog owners many opportunities to spend time actively with their pets, without the need to resort to specially designated, enclosed spaces. At present, there are no official dog parks in three districts – I: Stare Miasto, II: Grzegórzki, and X: Swoszowice (Fig. 5).

Regarding the exact location of dog parks in Kraków, these are very often located within the grounds of city parks, and are one of many types of designated spaces, such as playgrounds or outdoor gyms. There are also facilities like the one located in District VI: Bronowice, a green area within a large crossroads and a viaduct. There are eight dog parks located along busy streets. According to Wilczkiewicz (2012), dog parks can be a good solution for developing difficult areas, such as shady parts of a park or areas under

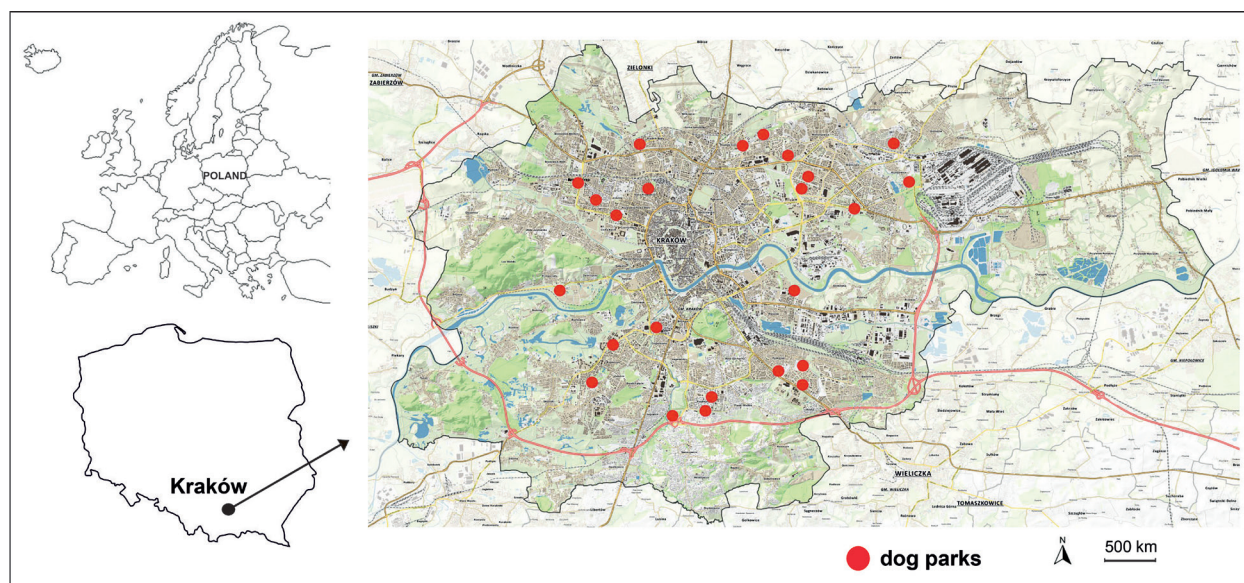


Fig. 5. Location of dog parks in Kraków (Author's own elaboration)

overpasses or bridges. However, in view of the intended benefits of these places, for dog owners but primarily for the main users, i.e. dogs themselves, this is a highly inappropriate approach, particularly in busy areas with lots of noise or rapidly moving vehicles. Unfortunately, there is no literature on the behavioural or general health consequences of the use of dog parks, and specifically their inappropriate location and design. The author's many years of experience as a professional dog behaviourist and trainer indicate that for young dogs, especially during the critical socialization period, for dogs with a noise phobia, or for highly sensitive dogs (HSD), exposure to such strong negative stimuli (noise, traffic, etc.) adversely affects their emotions and results in a number of behavioural disorders (Blackwell et al., 2013; Stolzlechner et al., 2022; Carrieri-Rocha et al., 2020; Gates et al., 2019). According to recommendations, e.g. by Holderness-Roddam (2020) for Australia or Rahim et al. (2018), dog parks should be located in such a way as to minimize the impact on wildlife and on local residents. In large cities such as Kraków, dog parks are already located in highly urbanized areas, therefore the problem of the impact on wildlife is marginal. In terms of distance from residential areas, a balance is necessary. The suggested distance from residential areas is at least 50 feet i.e. about 15 metres (Brown, 2012; City of Ann

Arbor, 2014), but the site should still be surrounded, for instance by a strip of sound-absorbing vegetation. This has a dual effect, because it protects both the local residents (Brown, 2012) and the users against noise. A short distance from residential areas enables easier access to the site, but dogs walking a short distance do not have the opportunity to release their emotions and energy after several hours spent at home. This could lead to hyperactivity and problems with the dog's behaviour around other dogs, particularly given that, according to Howse et al. (2018), the first few minutes are the most important for dog–dog interactions, as this is when dogs spend time together. Later, they begin to display other behaviour, e.g. spending time alone or with their owner.

Size

In cities, it is often difficult to acquire sufficiently large areas that can be used for investments such as dog parks. However, for the comfort and safety of dogs and their owners, dog parks should be as large as possible. According to McArthur (2007), small dog parks do not encourage walking or playing with dogs, but rather merely standing by. Moreover, gathering of many dogs in a small place can lead to conflicts between them, i.e. over resources, and this makes it more difficult for their owners to control their behaviour.

The smallest dog park in Poland is located at the Kraków-Balice International Airport and has an area of only 165 m², but this is a special type of facility, intended specifically for dogs waiting to fly or having arrived after an airplane journey. Among the others, the smallest dog park has an area of 6.5 ares, the largest is about 1 ha, and the average area is about 30 ares. The literature contains highly discrepant recommendations regarding the size of dog parks: according to Brown (2012), they should be between a quarter of an acre (10 ares) to 40 acres (about 16 ha), while Allen (2007) reports that they usually range from a quarter of an acre (10 ares) to 2.5 acres (about 1 ha); usually 1 acre (40.5 ares).

Fences

A fence is an important element, because without it there would only be a designated space where dogs can legally move about without a lead. Without a fence, there would be no sense of security for either the dogs or the people outside. In Kraków, 21 of the dog parks analysed had a fence, but in six of them it was too low, incomplete, or insufficient to prevent small dogs from escaping. Currently only one park, in the Nowa Huta District, is not fenced in. Brown (2012) recommends that the fence should be about 1.8 m high and should be secured against digging underneath. The average fence in Kraków dog parks is about 1.5 m high and is not secured against digging. The fences are mainly made of metal mesh on posts mounted on concrete plinths or from ready-made fence panels.

Double gate

Double gates prevent dogs from running out of the park and make it possible to remove the dog from the lead with the assurance that it will be safe to enter. This also allows the dog to first safely become acquainted with other dogs through the fence. Of course, in this situation the dog or dogs inside the park are at an advantage, because they have a larger area available to them and can fully present their natural behaviour, e.g. by increasing their distance or approaching in a curve. However, all authors are in agreement as to the need for this type of element (Brown, 2012; Allen, 2007; De Rosa and Ferguson, 2013; Trust for Public Land, 2019). In the case of larger parks, the fence should have more than one entrance/exit, at least one of which

should be adapted to the needs of people using wheelchairs. Of the 22 dog parks in Kraków, only nine currently have a double gate.

Division into zones

A dog park should have at least two zones, of which one is assumed to be for small dogs and the other for large dogs (Brown, 2012; Holderness-Roddam, 2020; Lee et al., 2009). However, this is only a convention, and the zones can also be used when dogs cannot get along or differ in play styles, character, or temperament. In large dog parks, it is best if a zone can be designated for puppies (i.e. with elements facilitating socialization), another zone for training (although the presence of other dogs behind the fence may make training impossible), and another zone for dogs with behavioural problems, dogs that have to be alone, etc. These zones should be separated by strips of greenery so that dogs cannot see each other and so that their perception of other stimuli, such as odours and sounds, is limited. This promotes emotional comfort and minimizes stress in more sensitive dogs. Only eight of the existing Kraków dog parks are divided into zones. This mainly involves separating the park into two parts with a fence, with no official function designated for each part.

Lighting

Lighting in dog parks is important for several reasons. For example, as mentioned by Brown (2012), it prevents vandalism. An advantage of lighting is that the facilities can be used after dark. This is particularly important in geographic locations where in winter it becomes dark by 4 p.m., as it is only then that most working people have time to spend an active afternoon and evening with their dog. Lighting in dog parks not only makes it easier to control the dogs, but also makes it safer for both dogs and their owners to walk about the park. In Kraków, only 11 out of 22 dog parks were equipped with lighting. This is one of the features that the respondents indicated as essential to using the parks. Some Kraków dog parks, despite not having their own lighting, are at least partly illuminated by street lights.

Surface

The predominant surface in Kraków dog parks is grass in combination with other materials, such as paving stones, asphalt, pavement tiles, or sand, from which

typically only the paths are made, and sometimes also the area surrounding benches or gazebos. In the smallest parks, there is no hardened surface at all. One of the parks (in Lilla Weneda Park) has a rubber, open-work surface that protects the area against trampling and the formation of puddles, and above all is an anti-slip surface, which is important for dogs running or training on agility obstacles. Works by Allen (2007), Brown (2012), and Holderness-Roddam (2020) give various examples of suitable surface materials: grass, concrete, granite, wood chips, pea gravel, K9 artificial turf, or poured rubber. Their use is often explained by ease of maintenance, durability, resistance to digging, hygiene, or cost. However, the safety of the dogs, e.g. the load on the joints or damage to the paw pads on hard surfaces, is not prioritized in these works. As in the case of other technical solutions, the comfort or safety of the dogs is the least consideration. Although grass quickly becomes trampled and is dug up by dogs, and puddles form when it rains, it is still the safest and most natural solution. Dogs feel much better in an environment which mimics natural conditions, such as a meadow. In this regard, Kraków dog parks have very natural surfaces.

Equipment for agility or socialization of dogs

The most controversial question is the provision of exercise equipment in dog parks. The survey showed that among the most desired features are agility obstacles, although very few users know how to use them properly. According to Włodarczyk (2021), who analysed dog parks in Warsaw, obstacles are often “non-regulatory,” i.e. they are not suitable for training for competitions, and they are arranged in such a way that they cannot even be used for recreation, e.g. the distance between obstacles is too small. In 13 of the parks analysed in Kraków, the technical condition of these elements is varied; there are often only certain individual elements (not the entire track), and they are made of various materials (metal or wood). A much better solution is to equip parks with branches, boulders, tyres, and varied terrain (six dog parks in Kraków have this type of feature). These are elements which enable free play, reminiscent of exploration of a natural area. Some dog parks in Kraków have such “natural” zones for dogs. This is a much better solution than agility tracks, which are often mentioned by users, but largely due

to their lack of knowledge of dogs’ needs, which arise from the predatory sequence, on which all dog entertainment should be based. Larger dog parks should be subdivided into zones, for instance with different types of surfaces for the socialization of puppies.

Shaded areas

Not only in hot climates, but in places like Kraków as well, there is a need for shaded areas – gazebos, pergolas, or shade created by vegetation. This opinion is shared by Brown (2012) and Lee et al. (2009), according to whom shaded areas are necessary for the comfort of both dogs and their owners. There are also opinions, such as the recommendations introduced by the City of Ann Arbor (2014), that too much tall vegetation can inhibit the growth of grass. However, in this instance, the comfort and safety of dogs is far more important than the growth of grass. Most of the dog parks in Kraków have areas shaded by trees or by pergolas and gazebos.

Benches

The presence of benches or other places for dog owners to rest (gazebos or picnic tables) is controversial. According to the authorities of the City of Ann Arbor (2014), too many benches or other elements for rest discourage walking. However, Allen (2007) draws attention to the use of dog parks by older people or those with mobility problems, and therefore recommends a fairly high density of places to sit. The problem of resting places is also addressed by Brown (2012), De Rosa and Fergusen (2013), and Holderness-Roddam (2020). These places should be located and constructed above all so as not to pose a risk to running dogs (e.g. with no sharp edges or slats between which a dog’s paws could get stuck). They should be distributed in such a way that some are in the shade, and others are in the sun. Only five of the Kraków dog parks have no places to sit. There is only one bench in the smaller ones, while there are more in the larger ones, or there is a gazebo with seats. However, seats in these places are not essential, as a dog park is a place to spend time actively with one’s dog. One of the Kraków dog parks (in Wzgórza Krzesławickie) has a highly aesthetic gazebo with benches. The question arises as to whether this part of the dog park would not better be devoted to a space that could be used by dogs. Also, one might ask, is it justified to spend city funds on this type of

infrastructure? Surely, a dog park should be designed primarily in accordance with the needs of dogs, its main users. Unfortunately, the design of this type of facility is often guided by strong anthropocentrism.

Dog waste bins

Chen et al. (2022), Ebani et al. (2021), and Mori et al. (2023) draw attention to the problem of dog excrement and the associated risk of the occurrence of pathogens and the spread of zoonotic diseases. In their opinion, dog owners should be informed that they must collect and properly dispose of dog waste. According to the Act of 13 September 1996 on maintaining cleanliness and order in municipalities, in Kraków, as in all of Poland, the dog owner is legally required to clean up the dog's waste. Therefore this is not a major problem in dog parks. Admittedly, there are always people who shirk this responsibility, but this is particularly rare in large cities. All Kraków dog parks contain bins, usually separate ones for dog excrement and municipal waste. Unfortunately there is a shortage of waste bags; often there are only empty dispensers which are not refilled frequently enough. This is not a problem in cities like Kraków, as it is unusual to find someone walking a dog on the street without a supply of bags. Another, broader problem is the use of plastic bags, which are probably the most popular form. Given the number of dogs in Poland, several million plastic bags, which are often not biodegradable, are released into the environment every day. An interesting idea is the attempt to compost dog waste in the Notre-Dame-de-Grâce (NDG) dog park in Montreal, Canada (Nemiroff and Patterson, 2007).

Dog toilet

Another problem is dog urine, which apart from hygiene considerations, is damaging to plants and infrastructure. One solution protecting plants and infrastructure from dog urine is special dog toilets. In Kraków, they are found in seven of the analysed parks, usually in the form of a separate area covered with sand. The central point is often a wooden stake, which can be used by male dogs needing to mark vertical surfaces. However, the sand must be changed regularly, because the concentration of urine is very high, which poses both a sanitary problem and an odour problem. While the concentration of urine deposited in different places is small, and it is washed away by the rain, here

it is accumulated in one place. Holderness-Roddam (2020) and Paradeis et al. (2013) have proposed the use of plants at the edges of dog parks, where the urine concentration is high, special fertilizers to counteract the effects of dog urine, as well as more trees and natural high grass to capture and filter the flowing urine. This is a much better solution for a number of reasons. It makes the area feel natural, and disperses urine over a larger area. Moreover, when dogs are running free, it is difficult to control them and induce them to urinate in one place. Dogs have to be specially trained to use a dog toilet (however, from a behavioural perspective, training a dog to urinate only in specified places can contribute to many problems, e.g. stress arising from not being able to urinate when there is no appropriate space available).

Water for dogs

Dogs need access to water, especially but not only on hot days. When the dog owner is not carrying a bottle and a bowl, watering stations in dog parks can be useful. Six of the analysed dog parks have special watering stations, often not only for dogs, but for their owners as well. The watering stations are connected to the municipal water supply network, which is possible due to the very high quality of the tap water throughout Kraków: it is suitable for people to drink without the need for boiling or filtering. Allen (2007) and Brown (2012) suggest that a good solution is to install a shower or hose to wash dogs, or special swimming pools for dogs that enjoy playing in water.

Lead holders and “dog parking”

Additional features of seven of the Kraków dog parks are lead holders and special “dog parking stations,” where dogs can momentarily be tied up if necessary.

Greenery

Greenery in dog parks is a highly problematic issue for many reasons. Vegetation makes these places aesthetically more pleasing, and in larger parks it can be designed to look very natural. However, plants are susceptible to damage, especially by urine, but also by digging or, less often, biting. Moreover, the most important consideration is probably the safety of dogs – the plants must not have thorns or other elements that could hurt a dog, and they cannot be toxic for dogs. It should be borne in mind that plants, especial-

ly their fruit, may be nontoxic for people but toxic for dogs, e.g. grapes (Allen, 2007; Brown, 2012). Allen (2007) suggests using resistant plants belonging to native species and planting them along fences, in order to separate the dogs in the park from the surrounding area, and also to protect local residents from noise. Greenery is the most neglected element of dog parks in Kraków. Only three of these facilities contain special beds with ornamental plants designed to be isolated from dogs.

Access and parking

Public transport throughout Kraków is very well developed, and in contrast to countries such as Australia or the USA, it is not a problem to travel with a dog (the only requirement is the purchase of a special ticket and the use of a muzzle and lead). Only three of the parks analysed here are not directly accessible from a public transport stop, but the distance does not exceed 1 km. Therefore it is not a problem to reach a dog park without having one's own car. Allen (2007) and Brown (2012) suggest that car parks should be located in the direct vicinity of dog parks, but this is not necessary in Poland. Moreover, these places are typically used by people who live nearby and access them by foot. This solution is also beneficial for the dogs, which, as mentioned above, have the opportunity to relieve themselves and release some of their energy before arriving at the park. Furthermore, this type of place cannot be the dog's only form of activity.

Technical condition of the park and other features

Most of the dog parks in Kraków are in average technical condition. The benches and bins have clearly been in use for many years, the dog waste bag dispensers are not refilled, there are gaps in the fences, etc.

Several parks employ interesting design solutions, such as tyres, logs, boulders, or varied levels of terrain. This makes the park more reminiscent of a natural, wild area, which allows dogs to spend time in a safe but natural space. An interesting approach is presented by the landscape architect Leslie Lowe, who took part in designing Hugh Rogers Wag Park in Whitefish, Montana, considered by USA Today to be one of the 10 best dog parks in 2015. The designer believes that a dog park should imitate natural play in an open space and stimulate dogs' natural instincts arising from the canine ethogram. She stresses that dogs feel best in a natural

environment among logs, rocks, and plants (Metacalfe, 2017). Why then do the respondents name agility tracks as an essential feature? This is often explained by a poor understanding of how to spend time with a dog, due to a low level of knowledge of the canine ethogram and of skill in observing dogs' behaviour. According to Herron et al. (2014), dog owners are unable to recognize the factors causing frustration in dogs, which is the main factor determining the frequency of behavioural disorders. Many dog owners whose dogs exhibit behavioural disorders are not able to indicate the factor inducing the behavioural anomaly, which suggests a lack of effective observation of the relationship between the dog and environmental factors. Dog owners also have difficulty recognizing the needs which influence their dogs' well-being, often due to anthropomorphism (Griffin et al., 2023). An urban space, like other spaces designated for dogs, must above all provide conditions for meeting the needs of the canine species, and not the needs of people (Case, 2023; Mamzer, 2020).

CONCLUSIONS

The survey showed that most respondents are clearly in favour of increasing the number of dog parks in Kraków, so that access to them would be easy and equal throughout the city. Analysis of the distribution of dog parks shows that there are parts of the city without such facilities. In some of these districts, such as Swoszowice, there are many other attractive ways to spend time with a dog, but in others, such as Śródmieście and Grzegórzki, it is difficult to walk a dog due to the nature of the development and the limited number of green areas. In these parts of town it is particularly important to find an urban space to organize a dog park. In terms of development of those that already exist, the respondents pointed out the equipment that is most often present at this type of facility, i.e. bins, benches, watering stations, fences, double gates, zones, and agility equipment. It was difficult to find responses regarding features such as "wild" spaces allowing dogs to present natural behaviour, whereas 38.2% of the respondents named training on agility equipment as a way to spend time with a dog in the park. This is difficult to confirm by observing this type of place; people often use only one obstacle or use it in a way that is completely different from its intended

purpose. There are probably several reasons for this: the tracks are poorly designed (unsuitable distribution, height, material, and even colour of obstacles); dogs and their owners do not know how to use them; dogs are afraid of them as unknown elements, etc. The observations carried out in 22 dog parks in Kraków show that their technical condition, layout, location, and area are highly varied. There is a lack of detailed guidelines for organizing this type of space in order to adapt it as well as possible to the needs of its main users, i.e. dogs. In Kraków and in other cities as well, dog parks are located in places for which it is difficult to find another function in the urban space, e.g. areas located by railway tracks, along busy streets (the dog park in Krowoderski Park), at crossroads (dog park in Bronowice), etc. The Greenery Board often explains that these are places far from residential areas, so in this way they avoid possible residents' protests. In Poland, it is easy to see differences in the approach to the question of the need for dog parks between large cities, such as Kraków or Warsaw, and smaller towns. Residents of large cities are much more open to this type of investment and have no problem with sharing urban space with animals. For residents of smaller towns, the separation between "human" and "animal" space is deeply ingrained. For them, dog parks are synonymous with dirt, noise, and sources of disease and parasites (Włodarczyk, 2021; Infoilawa.pl). The relationship between the city, nature, people, and animals inhabiting it, including pets, is still evolving. Issues associated with the relationship between dogs and their owners and the urban environment remain problematic, and they tend to balance between conflict and symbiosis. Similarly, there are varied approaches to dog parks around the world, from treating them as an "urban ghetto" where dogs and their owners feel isolated from the rest of the community, to rarely used facilities that may not be necessary, to spaces welcomed as something positive and an indicator of change in the approach to and treatment of companion animals.

Whatever the reason for the appearance of dog parks in the urban landscape, it is important that they should above all be safe for dogs and adapted to their ethogram, or at least not cause or aggravate behavioural disorders. Therefore it is important to create guidelines which prioritize not so much the human

needs and efforts to minimize the negative impact on the surroundings, but above all, the needs of dogs. This means that the implementation of such facilities requires consultation with trainers and behaviourists and more in-depth research on the behaviour of dogs in dog parks, especially assessment of stress levels. Scientific studies on dog parks rarely emphasize the negative impact of poorly designed dog parks on the health and psyche of dogs. Therefore, on the basis of the survey and our own observations, we have suggested general design strategies defining what should be obligatory equipment in every new dog park.

Suggested design solutions adapted to the needs of dogs

1. Fence

- tall enough to prevent large dogs, or dogs that can jump high, from jumping over it; at least 1.8 m;
- secured against digging, not allowing smaller dogs to pass through it;
- the construction cannot pose dangers, e.g. sharp edges, openings in which a dog's paw can get stuck, etc.;
- near the entrances, it should be possible for owners to see through the fence to determine whether there is someone in the park and if they can enter with their dog.

2. Double gate

- larger parks should have at least two gates;
- there should be a double gate with a zone where the lead can safely be fastened and unfastened;
- a sign with park rules is a good solution;
- information on how to creatively and safely use this type of facility, the basic symptoms of stress in a dog, what types of dog behaviour appear to be good fun but turn in-to "torment" of other dogs or aggressive behaviour, etc. For purposes of health safety, there should be information here on the need to properly collect the dog's faeces and on health prophylaxis, e.g. deworming, faecal analysis, and routine vaccinations (not only the mandatory rabies vaccination but also against other infectious diseases). This type of information could be in the form of a QR code linking to a website.

3. Zones

- there should be at least two zones so that, if necessary, large and small dogs can be separated, as well as dogs with different temperaments or styles of play, etc. They should not be officially designated as zones for large or small dogs. Their use should be fluid, depending on needs;
- special zones for puppies are often proposed, but it is not a good idea for very young dogs to be in dog parks, especially during the socialization period, for behavioural reasons. However, if such a zone is created, it should have a separate entrance, so that puppies do not have to pass the zone for adult dogs. It should be separated from the zone for adult dogs not only by a fence, but also e.g. by a strip of greenery, in order to minimize stress in puppies and allow them to play or undergo training in peace;
- in the case of large dog parks, it is important to have a zone for running loose – a “wild zone,” separated from the sport or training part. This would be a zone with equipment reminiscent of a natural environment.

4. Shaded areas

- it is best if they are formed by natural vegetation, especially in small parks where additional infrastructure in the form of elements such as shelters or gazebos would take up space that could be used by dogs for play and exercise.

5. Bins for dog waste and other waste

- this is an important element for hygienic and aesthetic reasons. It is not essential to install dispensers with dog waste bags, because most people carry them, and refilling such dispensers is a major problem.

6. Lighting

- allows the park to be used after dark;
- where possible, it should be powered by renewable energy sources, especially if it is on 24 hours a day.

7. Surface

- despite its lack of durability (trampling, digging, urine, etc.), the best surface is natural grass, which is cheap and safe for dogs.

8. Vegetation

- above all, it needs to be safe for dogs (nontoxic, without thorns or other dangerous elements);
- flower beds and large amounts of vegetation, hidden behind special fences to protect against urine, trampling or biting, are controversial. In very large parks, if these elements are not the basis of the infrastructure and do not pose a risk to playing dogs, they can be an interesting architectonic feature, but in small spaces this is pointless. This type of facility is mainly meant to be used. Vegetation should be adapted to the needs of dogs, e.g. shrubs or trees with edible fruit or the creation of places where dogs can freely explore the terrain, e.g. in high grasses;
- designing a large amount of ornamental plants significantly raises the cost of the investment and is a major challenge in terms of selection and protection against dogs, while having no measurable benefits for dogs;
- dog parks located in busy parts of the city, e.g. at crossroads, should be surrounded by plants protecting against noise and other stimuli, allowing both dogs and their owners to relax. In small parks, however, where these plants will be very close to the fence, they will lead to the formation of a limited, enclosed space that could negatively affect dogs' well-being. The lack of impression of open space may induce anxiety in some dogs.

9. Elements of sport/training infrastructure

- not all dog parks, especially small ones, should have agility tracks, which are popular in Poland. Observations show that few people use this type of infrastructure or use it properly;
- a much better solution is to create a natural space with the type of obstacles a dog might find in the environment: trees, shrubs, logs, boulders, rocks, a place for digging, a pool of water if possible, high grass, hillocks, etc. Instead of e.g. a separate zone for socialization of puppies with varied substrates (a “sensory trail”), this zone can have different types of surfaces distributed randomly: paving stone, pine cones, wood chips, stone grit, a sewage grate, or slip-

perty tiles. This distribution will be more in line with the dog's natural living environment instead of teaching it a sequence of specific elements in its surroundings.

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JAK POGODZIĆ POTRZEBY PSÓW I ICH WŁAŚCICIELI Z ROZWOJEM PRZESTRZENI MIEJSKIEJ

ABSTRAKT

Cel pracy

Celem badania była ocena postaw mieszkańców Krakowa wobec parków dla psów oraz próba ustalenia standardów wyposażenia tych miejsc, aby były one bezpieczne zarówno pod względem fizycznym, jak i behawioralnym dla psów. W badaniu zadano następujące pytania: Czy mieszkańcy Krakowa korzystają z parków dla psów i jak często? Czy uważają ich liczbę i wyposażenie za wystarczające? Jakiej infrastruktury brakuje w parkach dla psów?

Materiał i metody

Na potrzeby badania przeprowadzono ankietę mającą na celu ocenę potrzeby tworzenia parków dla psów w Krakowie oraz oczekiwań właścicieli psów korzystających z nich w zakresie infrastruktury. Ankieta była anonimowa i dostępna online dla użytkowników popularnych grup w mediach społecznościowych, związanych z tematyką psów i Krakowa. Podczas wizyty terenowej oceniono 22 krakowskie parki pod kątem ich lokalizacji, układu i innych parametrów.

Wyniki i wnioski

Analiza parków dla psów w Krakowie pokazuje, że poziom i stopień ich zagospodarowania, stan techniczny oraz lokalizacja różnią się znacznie od siebie. Są to zarówno miejsca tylko z ogrodzonym terenem (nawet bez podwójnej bramy), jak i te z infrastrukturą dla ludzi i psów. Chociaż liczba parków dla psów w Polsce rośnie, trudno znaleźć wytyczne i zalecenia dotyczące ich lokalizacji i projektowania. Badanie wykazało, że większość respondentów wyraźnie opowiada się za zwiększeniem liczby psich parków w Krakowie, tak aby dostęp do nich był łatwy i równy w całym mieście. Analiza rozmieszczenia psich parków udowadnia, że istnieją części miasta, w których brakuje takich miejsc. Obserwacje przeprowadzone w 22 parkach dla psów w Krakowie pokazują, że ich stan techniczny, układ, lokalizacja i powierzchnia są bardzo zróżnicowane.

Słowa kluczowe: zagospodarowanie, pies domowy (*Canis lupus familiaris*), park dla psów, zachowanie społeczne psów, miejska infrastruktura