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Articles

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Pet Welfare in Municipal Adaptation Plans: Case of Poland

Dobrostan zwierząt domowych w miejskich planach adaptacji do zmian klimatu. Przykład Polski

ABSTRACT

The aim of the article was to explore pet welfare in Municipal Adaptation Plans (MAPs), based on a literature review and case studies of 40 MAPs accepted in Poland as part of the "Let's Feel the Climate" project, supported by the Polish Ministry of Environment in 2017–2019. The study summarizes the concept of climate change and the importance of adaptation measures with particular emphasis on urban heat islands and heat stress, acknowledged by climate change literature, and outlines pet welfare in the context of thermal comfort and threats caused by heat stress. Because the authors subsequently presented an empirical study of the 40 accepted MAPs, they also discussed the role and legal nature of MAPs. The main hypothesis of this survey of Polish MAPs was that pet welfare in the context of their thermal comfort is an example of the adaptive measures clearly stipulated in Polish MAPs, which was examined after presenting the MAPs' findings. The starting point was the assumption that the welfare of pets should also be assessed from the perspective of their thermal comfort – a new element of broadly understood animal welfare. This is due to the fact that pets are

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exposed to the risk of heat stress resulting from urban heat islands and, just like people, have to endure the inconvenience of extreme weather phenomena, which is impossible without the support of amenities such as drinkers or water shelters and the development of green and blue infrastructure.

Keywords: pet welfare; Municipal Adaptation Plan; thermal comfort; adaptation to climate change; adaptation measures; heat stress

INTRODUCTION

Scientific evidence has confirmed that climate change is already taking place and that most of the warming observed over the past 50 years is due to human activity.[1] Climate change has the potential to exacerbate the risk of natural disasters, water stress, food insecurity, health risks, natural resource depletion, gender inequalities, social and economic marginalisation, conflict and migration, as well as adversely affect transport networks and other infrastructure. These effects are fundamental reasons for decreasing the global temperature to below 1.5°C,[2] thanks to both adaptative and mitigative measures.

Adaptation and mitigation are complementary aspects of climate change risk management that together create significant synergy. However, given the notable differences between adaptation and mitigation in terms of temporal and spatial scales of intervention, key stakeholders and decision processes, the mitigation of climate change, while critical, is not addressed in this paper.

According to the Intergovernmental Panel on Climate Change (IPCC), adaptation is understood as "adaptation in natural or human systems in response to actual or expected climatic stimuli or their effects, in order to mitigate damage or take advantage of beneficial opportunities".[3] Ever since the Fifteenth Conference

[1] *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. T.F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, P.M. Midgley, Cambridge – New York 2013, p. 11.

[2] O. Hoegh-Guldberg, D. Jacob, M. Taylor, M. Bindi, S. Brown, I. Camilloni, A. Diedhiou, R. Djalante, K.L. Ebi, F. Engelbrecht, J. Guiot, Y. Hijioka, S. Mehrotra, A. Payne, S.I. Seneviratne, A. Thomas, R. Warren, G. Zhou, *Impacts of 1.5°C Global Warming on Natural and Human Systems*, [in:] *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, eds. V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield, Intergovernmental Panel on Climate Change 2018, p. 203.

[3] European Commission, *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment*, 2013, https://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf [access: 11.06.2021], p. 8.

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of the Parties (CoP 15),[4] and the Paris Agreement[5] adaptation is being increasingly recognised as an important complementary response to greenhouse gas mitigation in order to address the risks posed by climate change – although in Poland it was not for a long time considered as important as mitigation.[6] Though adaptation planning and policy have historically taken place on a national scale – through national adaptation programmes – attention to adaptation at a local level has grown rapidly in recent years.[7] Nowadays, municipalities have an important role to play in both mitigating and adapting to changes in their local environment. In 2016, the International Energy Agency estimated that urban areas were responsible for 71% of global energy-related carbon emissions, and that by 2050, the world's urban population will almost have doubled from 3.4 billion to 6.3 billion people, representing most of the global population growth over that time.[8] According to the Organisation for Economic Co-operation and Development (OECD),[9] cities globally face significant risks from climate change and are taking an increasingly active role in formulating and implementing climate change adaptation policy.[10] While we understand adaptation as a process of adjustment to actual or expected climate change and its effects, local adaptation reflects geographic variability in climate impacts experienced locally.[11] Thus, cities must take a strategic and integrated ap-

[4] CoP is an acronym from the English phrase "Conference of the Parties", meaning the Conference of the Parties to the United Nations Framework Convention on Climate Change, adopted in New York on 9 May 1992, ratified by Poland in 1996 (Journal of Laws 1996, no. 53, items 238 and 239).

[5] See Council Decision (EU) 2016/1841 of 5 October 2016 on the conclusion, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change (OJ L 282, 19.10.2016, pp. 1–3).

[6] L. Karski, *Istota prawa zmian klimatu – cel i klasyfikacja*, [in:] *Zmiany klimatu a społeczeństwo*, eds. L. Karski, I. Grochowska, Warszawa 2010, p. 438. See also J. Ciechanowicz-McLean, *Prawo ochrony klimatu*, Gdańsk 2016, passim.

[7] T.G. Measham, B.L. Preston, T.F. Smith, C. Brooke, R. Gorddard, G. Withycombe, C. Morrison, *Adapting to climate change through local municipal planning: Barriers and challenges*, "Mitigation and Adaptation Strategies for Global Change" 2011, vol. 16(8), p. 889.

[8] IEA, *Energy Technology Perspectives. Report 2016*, www.iea.org/reports/energy-technology-perspectives-2016 [access: 10.07.2021], p. 6.

[9] OECD, *Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance*, Paris 2009, p. 10. See also *Urban adaptation in Europe: How cities and towns respond to climate change*, EEA Report 2020, no. 12.

[10] M. Araos, L. Berrang-Ford, J.D. Ford, S. Austin, R. Biesbroek, A. Lesnikowski, *Climate change adaptation planning in large cities: A systematic global assessment*, "Environmental Science & Policy" 2016, vol. 66, p. 376.

[11] V. Reyes-García, A. Fernández-Llamazares, M. Guèze, A. Garcés, M. Mallo, M. Vila-Gómez, M. Vilaseca, *Local indicators of climate change: The potential contribution of local knowledge to climate research*, "Wiley Interdisciplinary Reviews Climate Change" 2016, vol. 7(1), p. 374.

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proach to form a climate-resilient future in order to prioritize the most urgent local adaptation activities and identify the required local human and financial resources.[12]

The main consequences of climate change observed in municipal areas are extreme weather events such as flash floods[13] and heatwaves causing urban heat islands.[14] A urban heat island (UHI) is recognized as a climatic phenomenon in which urban areas have higher air temperature than their surrounding rural area as a result of anthropogenic modification of land surfaces, urban expansion, population growth, energy use and its consequent generation of waste heat, which causes heat stress and negative health impacts in many metropolitan areas.[15]

Climate change causes not only natural catastrophes or changes in the structure of crops but also impacts other aspects of human life, such as health,[16] especially that of children[17] and the elderly.[18] However, it is not just human health that is affected – animal wellbeing[19] is also threatened by climate change: both wildlife, including urban wild animals found in cities, and pets, from cats and dogs to rabbits, birds, turtles and all the other domesticated animals we share our lives with. Heat stress caused by high temperatures, depending on its intensity and duration, may negatively affect pets' health by causing metabolic alterations, oxidative stress, immune

[12] P. Mukheibir, G. Ziervogel, *Developing a Municipal Adaptation Plan (MAP) for climate change: The city of Cape Town*, "Environment and Urbanization" 2007, vol. 19(1), p. 143.

[13] F. Moraci, M.F. Errigo, C. Fazi, T. Campisi, F. Castelli, *Cities under Pressure: Strategies and Tools to Face Climate Change and Pandemic*, "Sustainability" 2020, vol. 12(18), p. 7743.

[14] See the study prepared for Warsaw: B. Degórska, M. Degórski, *Influence of Climate Change on Environmental Hazards and Human Well-Being in the Urban Areas – Warsaw Case Study Versus General Problems*, [in:] *Climate Change, Extreme Events and Disaster Risk Reduction: Towards Sustainable Development Goals*, eds. S. Mal, R.B. Singh, C. Huggel, New York 2018, pp. 43–57.

[15] Y. Lee, M. Fadhil, P. Mohanadoss, Z.Z. Noor, K. Iwao, S. Chelliapan, *Overview of urban heat island (UHI) phenomenon towards human thermal comfort*, "Environmental Engineering and Management Journal" 2014, vol. 16(9), p. 2098. See also H. Takebayashi, M Moriyama, *Background and Purpose*, [in:] *Adaptation Measures for Urban Heat Islands*, eds. H. Takebayashi, M. Moriyama, Elsevier 2020.

[16] J.A. Patz, D. Campbell-Lendrum, T. Holloway, J.A. Foley, *Impact of regional climate change on human health*, "Nature" 2005, vol. 438; A.J. McMichael, R.E. Woodruff, S. Hales, *Climate change and human health: Present and future risks*, "Lancet" 2006, vol. 367(9513), p. 859; B. Dufour, F. Moutou, A.M. Hattenberger, F. Rodhain, *Global change: Impact, management, risk approach and health measures – the case of Europe*, "Revue Scientifique et Technique – Office International des Epizooties" 2008, vol. 27(2), p. 542.

[17] S. Bunyavanich, M. Phil, Ch.P. Landrigan, A.J. McMichael, P.R. Epstein, *The Impact of Climate Change on Child Health*, "Ambulatory Pediatrics" 2003 vol. 3(1), p. 45.

[18] A.B. Carnes, D. Staats, B.J. Willcox, *Impact of Climate Change on Elder Health*, "Journals of Gerontology: Biological Sciences" 2014, vol. 69(9), p. 1088. In the context of Poland, see B. Degórska, *Wrażliwość i adaptacja dużych miast do zmian klimatu w kontekście wzrostu temperatury powietrza*, "Biuletyn KPZK" 2014, vol. 254, p. 32.

[19] Commission of the European Communities, White paper – Adapting to climate change: Towards a European framework for action Brussels, 1.04.2009, COM(2009) 147 final.

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suppression and even death.[20] Current literature clearly demonstrates that climate change is expected to exert the same overwhelming negative effect on livestock health[21] and the welfare of pets as it will do on human beings. Humans, however, can avoid at least some of the negative effects of UHI, while pets like cats and dogs have no choice in accompanying people outside in all weather conditions, and, like their human carers, have special needs (e.g., walking) that are impossible to satisfy inside. Therefore, there is no doubt that local adaptation strategies of municipalities should include the issue of the relationship between the local heat island and the occurrence of heat stress, as well as mitigating its impact on human health, creating a multiplicity of adaptation strategies. Do they also consider animal welfare?

The goal of the study was to survey how the welfare of pets is provided for in Municipal Adaptation Plans (MPAs) accepted in Poland, in the context of thermal comfort and avoiding heat stress, and whether the MAPs suggest adaptive solutions that include necessary pet amenities such as resting stations, hydration stations and green spaces. The Polish MAPs developed between 2017–2019 have been the subject of several national studies,[22] but to date the latter have not yet focussed on pet welfare.

In the paper, we define pets as domestic animals bred not for material gain, but primarily for company and pleasure.[23] According to Article 4 (17) of the Polish Animal Protection Act[24] pets are animals customarily staying with people at home or in other appropriate accommodation and kept as companions.

Clearly, climate change negatively affects terrestrial, freshwater and marine (saltwater) environments, and it is expected that many animals, both wild and domestic, will continue to suffer and die from these effects.[25] However, our study

[20] N. Lacetera, *Impact of climate change on animal health and welfare*, "Animal Frontiers" 2019, vol. 9(1), p. 27.

[21] *Ibidem*, p. 28.

[22] E. Kalbarczyk, R. Kalbarczyk, *Typology of Climate Change Adaptation Measures in Polish Cities up to 2030*, "Land" 2020, vol. 9(10); A. Gendźwiłł, *Zdecentralizowana adaptacja? Opinie władz lokalnych o zmianach klimatu i lokalnej polityce adaptacji do zmian klimatycznych*, "Studia Regionalne i Lokalne" 2017, vol. 68(2). See also R. Gajewski, *Zastosowanie modelu „terytorium-miejsce-skala-sieci powiązań" w analizie miejskich planów adaptacji do zmian klimatu*, [in:] *Współczesne problemy i kierunki badawcze w geografii*, eds. Ł. Fiedeń, K. Anielska, A. Świgost-Kapocsi, vol. 8, Kraków 2020, pp. 31–57.

[23] European Convention for the Protection of Pet Animals, signed in Strasbourg on 13 November 1987.

[24] Act of 21 August 1997 on the protection of animals (consolidated text, Journal of Laws 2020, item 638), hereinafter: APA.

[25] S.B. Fey, A.M. Siepielski, S. Nusslé, K. Cervantes-Yoshida, J.L. Hwan, E.R. Huber, M.J. Fey, A. Catenazzi, S.M. Carlson, *Recent shifts in the occurrence, cause, and magnitude of animal mass mortality events*, "Proceedings of the National Academy of Sciences" 2015, vol. 112(4), p. 1083. See also O. Sushyk, D. Rosokhata, *Animals with Regard to Climate Changes – International and European Law Aspects*, "Przegląd Prawa Administracyjnego" 2018, no. 1, p. 43.

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omits both wildlife and domestic animals for food, due to the fact that local regulations for maintaining cleanliness and order in municipalities generally exclude the keeping of livestock and animal production in cities (apart from bees[26]). We also ignore the building of green infrastructures in the context of maintaining ecological corridors for wildlife, though recognizing green areas as places of animal refuge and diversity and fully accepting that they contribute to the preservation of biodiversity in cities,[27] as well as phenomena other than the UHI, focusing solely on the impact of thermal comfort of pets in the context of their well-being.

It is necessary to point out that lack of thermal comfort causes heat stress symptoms, which in animals includes excessive panting, difficulty in breathing, excessive water consumption, vomiting, diarrhoea, weakness, incoherent or aggressive behaviour, collapse or seizure. In extreme cases, animals, like humans, can die from heat stress, especially older pets and those with pre-existing heart or respiratory diseases. Animals that are overweight or not used to prolonged exercise are similarly vulnerable to heat extremes, as are certain breeds of dogs and cats with short muzzles and pets with coats that are dark-coloured or thick.[28]

For the authors of the paper, the context of pet welfare includes more than just their humane protection, based on the conviction that animals are capable of suffering, and that inflicting suffering on them beyond a duly justified dimension is unethical and should be prohibited. Such an attitude is undoubtedly motivated by non-economic considerations.[29] According to D.W.B. Sainsbury, pet well-being results from a set of conditions that cover the biological and behavioural needs of the body, allowing the full disclosure of its genetic potential.[30] According to the Brambell Committee[31] animals domesticated by humans in terms of living conditions should have five freedoms: 1) freedom from hunger, thirst and malnutrition by

[26] A. Haładyj, J. Trzewik, *Lokalizacja pni pszczelich na tle regulacji prawa administracyjnego i prawa cywilnego*, "Studia Prawnoustrojowe" 2017, vol. 37, p. 150.

[27] J. Alexandra, *The city as nature and the nature of the city – climate adaptation using living infrastructure: governance and integration challenges*, "Australasian Journal of Water Resources" 2017, vol. 21(2), p. 63.

[28] The Climate Reality Project, *Climate change and your pet: how to keep your best friend safe and healthy in a warming world*, Washington 2019, www.climaterealityproject.org/sites/default/files/climatechangeandyourpet_ebook_04_2019_v2.pdf [access: 10.06.2021],

[29] M.E. Szymańska, *Livestock Welfare – Legal Aspects*, [in:] *Legal Protection of Animals*, eds. E. Kruk, G. Lubeńczuk, H. Spasowska-Czarny, Lublin 2020, p. 180.

[30] D.W.B. Sainsbury, *Pig Housing and Welfare*, "Pig News and Information" 1984, no. 4, p. 337.

[31] Brambell Cometee Report of the Technical Committee to Enquire into the Welfare of Animals kept under Intensive Livestock Husbandry, Presented to Parliament by the Secretary of State for Scotland and the Minister of Agriculture, Fisheries and Food by Command of Her Majesty, December 1965, p. 9. More about the welfare of domestic animals from the perspective of EU legal regulations in this area, see E. Kruk, *Polish and Estonian Regulations on Homeless (Stray) Animals*, "Studia Iuridica Lublinensia" 2021, vol. 30(1).

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providing access to fresh water and food that will keep animals healthy and strong; 2) freedom from psychological trauma and pain by providing adequate shelter and a place of rest; 3) freedom from pain, wounds and diseases due to prevention, timely diagnosis and treatment; 4) freedom to express natural behaviour by providing adequate space, conditions and the company of other animals of the same species; and 5) freedom from fear and stress by providing care and treatment that does not cause an animal mental suffering. Clearly, freedom from heat stress and the support of fresh water, shelter from heat and protection from pain (e.g., caused by a burn) are elements of pet well-being in cities, and resources and instruments to guarantee their welfare should be taken into account, as well as human well-being in adaptation measures, because we are morally responsible for pets' welfare.[32] Therefore, we are looking for pet-orientated adaptation measures in Polish MPAs.

As a framework for our survey, we based it on a project named "Wczujmy się w klimat" ("Let's feel the climate"), carried out by the Polish Ministry of Environment in 2017–2019. Its aim was to assess the sensitivity to climate change of 44 cities with over 100,000 inhabitants, as well as reviewing planning adaptation measures within MPAs for the largest Polish cities that were considered adequate enough to cope with climate change threats previously identified.

When it comes to MAPs' legal nature, the MAP is a strategic document, voluntarily accepted, non-normative environmental protection planning instrument, accepted since 2019. MPAs are realised by local government units, because "adaptation is always local",[33] though in future, due to the potential intensification of the climate crisis, intervention from the central administration level might be needed.[34] The up-to-date literature emphasizes the political and directional nature of MAPs and their low correlation with other local public policy documents,[35] which is considered essential for the effectiveness of MAPs,[36] plus an inadequate sense of political responsibility on the part of local self-government leaders regarding the implementation of adaptation measures.[37]

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[32] I. Grochowska, *Wprowadzenie*, [in:] *Zmiany klimatu…*, p. 5. See also D. Engster, *Care Ethics and Animal Welfare*, "Journal of Social Philosophy" 2006, vol. 37(4), pp. 521–536; T. Pietrzykowski, *Moralność publiczna a konstytucyjne podstawy ochrony zwierząt*, "Studia Prawnicze" 2019, no. 1, p. 9.

[33] T.G. Measham, B.L. Preston, T.F. Smith, C. Brooke, R. Gorddard, G. Withycombe, C. Morrison, *op. cit.*, p. 890.

[34] A. Chajbowicz, *Administracja wobec zmian klimatu (prolegomena)*, "Przegląd Prawa i Administracji" 2020, no. 1, p. 399.

[35] K. Chrobak, P. Kryczka, *The Comparison of Urban Policy Documents in the Context of Adaptation to Climate Change – Case Study of Wrocław*, "Space & FORM" 2020, no. 2, p. 170.

[36] Y. Abunnasr, E.M. Hamin, E. Brabec, *Windows of opportunity: Addressing climate uncertainty through adaptation plan implementation*, "Journal of Environmental Planning and Management" 2013, vol. 58(1), p. 17.

[37] A. Gendźwiłł, *op. cit.*, p. 40.

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RESEARCH AND RESULTS

The survey was based on the outcome of the project "Let's feel the climate", coordinated by the Ministry of the Environment. The project ran its own website: http://44mpa.pl/miejskie-plany-adaptacji, which presented the assumptions and stages of the project, its educational panel, good practices and many others. Under the auspices of four regional bodies (The Institute of Environmental Protection – National Research Institute, The Institute of Meteorology and Water Management, The Institute of the Ecology of Industrial Areas, Arcadis), 44 draft MAPs were prepared. However, the project did not contain a list of adopted MAPs we found in official journals and through an Internet query, based on the list of cities covered by the project available at http://44mpa.pl/partnerzy-projektu. We eventually located 40 accepted MAPs and 4 drafts (for cities: Czeladź, Dąbrowa Górnicza, Sopot, Tychy). Each MAP was verified by the command "search" (CTRL + F) with the subject terms "pet", "animal", and further, where results were lacking or insufficient, with the additional phrase: "comfort". Warsaw, the Polish capital, was excluded from the survey because a MAP for Warsaw was prepared as part of a separate project "ADAPTCITY" financed by LIFE+ funds.[38]

The findings of the study, based on the survey, are as follows: in 40 accepted documents pets themselves are not mentioned as an aim of any activities foreseen by the MAPs. Wild animals are only mentioned as a part of protected biodiversity or affected by climate change (migration, extinction, diseases, etc.). Only one MAP specifically focuses on thermal comfort regarding animal welfare – in Kraków's MAP, among the initiatives aimed at increasing the availability of water in the city area, the following facilities are listed: "fountains, ponds, water troughs for animals and water curtains, drinker-spots, water playgrounds".

We believe, however, that pets are part of the anthroposphere and their welfare should be considered as part of thermal comfort measures adopted in MAPs for residents. We, therefore, searched for initiatives aimed at providing thermal comfort and minimising heat stress for all inhabitants. According to guidelines accepted by the Polish Ministry of Environment,[39] creating solutions to ensure the thermal comfort of residents includes: the construction and maintenance of water fountains and curtains, maintenance of water pergolas and street drinking water spas, distribution of drinking water to passers-by, shading of recreational and sports areas, and the greening of infrastructure, such as green roofs and walls, and blue infrastructure, like ponds, canals and rivers.

[38] ADAPTCITY, www.pine.org.pl/adaptcity [access: 10.07.2021].

[39] Ministerstwo Środowiska, *Podręcznik adaptacji dla miast. Wytyczne do przygotowania Miejskiego Planu Adaptacji do zmian klimatu*, 2019, www.rpo.wzp.pl/sites/default/files/podrecznik_adaptacji_dla_miast_20191126.pdf [access: 10.08.2021].

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Some of the above-mentioned amenities are measures accepted in MAPs for Bydgoszcz, Bytom, Chorzów, Częstochowa, Dąbrowa Górnicza, Elbląg, Gdańsk, Gdynia, Jaworzo, Kalisz, Katowice, Kraków, Legnica, Lublin, Łódź, Mysłowice, Olsztyn, Opole, Ruda Śląska, Rybnik, Słupsk, Sopot, Sosnowiec, Szczecin, Toruń, Wałbrzych, Włocławek, Wrocław, Zabrze and Zielona Góra. Some MAPs focus on green infrastructure only in the context of thermal comfort: enriching the flora in public spaces, planting trees in the city, creating shaded gazebos and walking paths. Increasing the thermal comfort of residents and the quality of life in the city are a part of MAPs for Płock, Poznań, Rzeszów and Tarnów. No doubt, green areas and water supply amenities for the inhabitants are attractive for pets as well.

Some MAPs deal with thermal comfort in the context of the thermomodernisation of public and/or private buildings only (Gliwice, Gorzów); some skipped the issue completely (Białytok, Kalisz, Kielce, Radom).

DISCUSSION AND CONCLUSIONS

We have concluded that pet welfare should be a part of MAPs because pets are treated not only as human companions,[40] but in many cases even replace family ties or interpersonal relationships, and as concomitant city dwellers strongly associated with people's lifestyles, they also experience the adverse effects caused by climate change, including heat stress. Despite this, only one MAP identified in our study explicitly addresses the topic of necessary pet amenities in the context of climate change adaptation: the MAP for Kraków. Nevertheless, we recognize that, for the above-mentioned reasons, initiatives contributing to the improvement of thermal comfort for residents in the area of blue and green infrastructure, shading recreational areas and thermal modernization of private residential buildings will also contribute to improved conditions for pets. Such effects were envisaged in the plans of 36 municipalities. However, the adaptative measures created in MAPs are of a general nature and therefore inadequate.

Regarding the thermal comfort of pets, local solutions are poorly advanced and do not acknowledge the importance of animal welfare and the need to build infrastructure intended solely for pets. This does not correspond to the principles outlined by S.B. Carter[41] and contained in the US programme "Better Cities for

[40] G. Lubeńczuk, *Administrative Restrictions with Respect to Keeping Pet Animals in the Light of Polish Law and the Convention for the Protection of Pet Animals*, [in:] *Legal Protection…*, p. 198.

[41] S.B. Carter, *Why planning limits its concern: A case study of planning for dogs in Melbourne, Australia*, "Australian Planner" 2016, vol. 53(3).

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Pets".[42] Thus, in order to improve pet welfare in cities, it is not only investment measures that will be key (such as fountains or ponds), but, above all, a change of awareness and education[43] of both pets owners who will require such amenities, and city leaders and politicians who are responsible for adaptation measures.

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ABSTRAKT

Celem przeprowadzonego badania była analiza dobrostanu zwierząt domowych w miejskich planach adaptacji (MPA) w oparciu o przegląd literatury oraz studium przypadku 40 MPA przyjętych w Polsce na podstawie projektu „Wczujmy się w klimat", prowadzonego przy wsparciu Ministerstwa Środowiska w latach 2017–2019. W opracowaniu podsumowano koncepcję zmian klimatycznych i znaczenie działań adaptacyjnych, ze szczególnym uwzględnieniem miejskiej wyspy ciepła i stresu cieplnego, które zostały rozpoznane w literaturze dotyczącej zmian klimatycznych, a także nakreślono dobrostan zwierząt w kontekście komfortu termicznego i zagrożeń spowodowanych stresem cieplnym. Ze względu na to, że przedstawiono empiryczne badanie 40 zaakceptowanych MPA, zdecydowano również o roli i charakterze prawnym MPA. Główną hipotezą badania polskich MPA było to, że dobrostan zwierząt domowych w kontekście ich komfortu termicznego jest uwzględniony jako rodzaj działań adaptacyjnych, co następnie poddano pod dyskusję po przedstawieniu wyników badania. Punktem wyjścia było założenie, że dobrostan zwierząt domowych należy oceniać także przez pryzmat ich komfortu cieplnego, który jest obecnie nowym elementem szeroko rozumianego dobrostanu zwierząt. Wynika to z faktu, że zwierzęta towarzyszące nam w miastach są narażone na stres cieplny i jako najbliżsi towarzysze człowieka, podobnie jak ludzie, muszą znosić niedogodności ekstremalnych zjawisk pogodowych, co jest niemożliwe bez istnienia takich udogodnień, jak poidła czy wodopoje oraz rozwój zielonej i niebieskiej infrastruktury.

Słowa kluczowe: dobrostan zwierząt domowych; miejski plan adaptacji; komfort cieplny; adaptacja do zmian klimatu; działania adaptacyjne; stres cieplny