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TOWARDS A BIOPHILIC CITY. RESOURCES, ACCESSIBILITY, AND PERCEPTION OF GREEN URBAN AREAS IN POLAND

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AIM OF THE PAPER

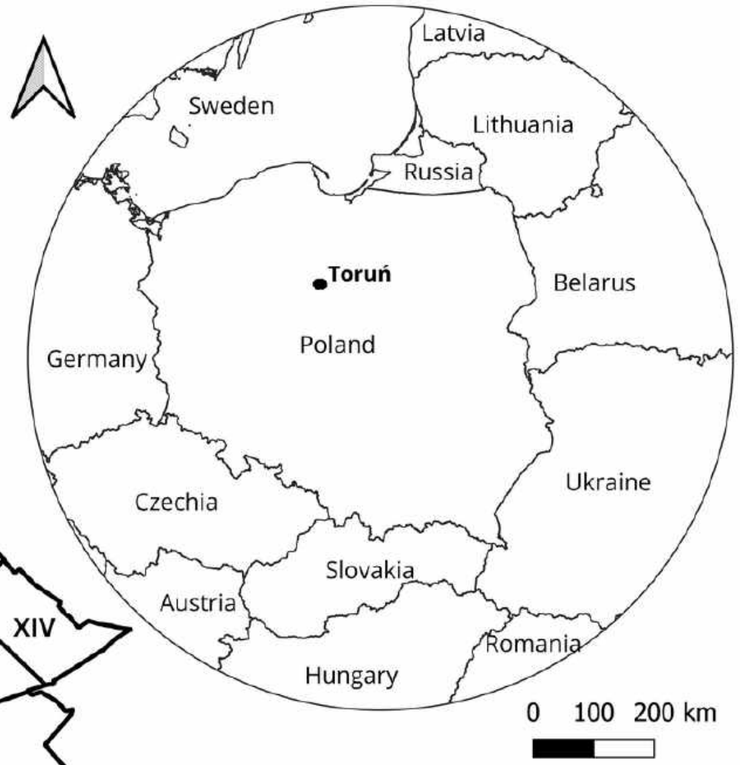
Determining the resources, accessibility, and perception of green urban areas (GUAs) in Toruń (Poland).

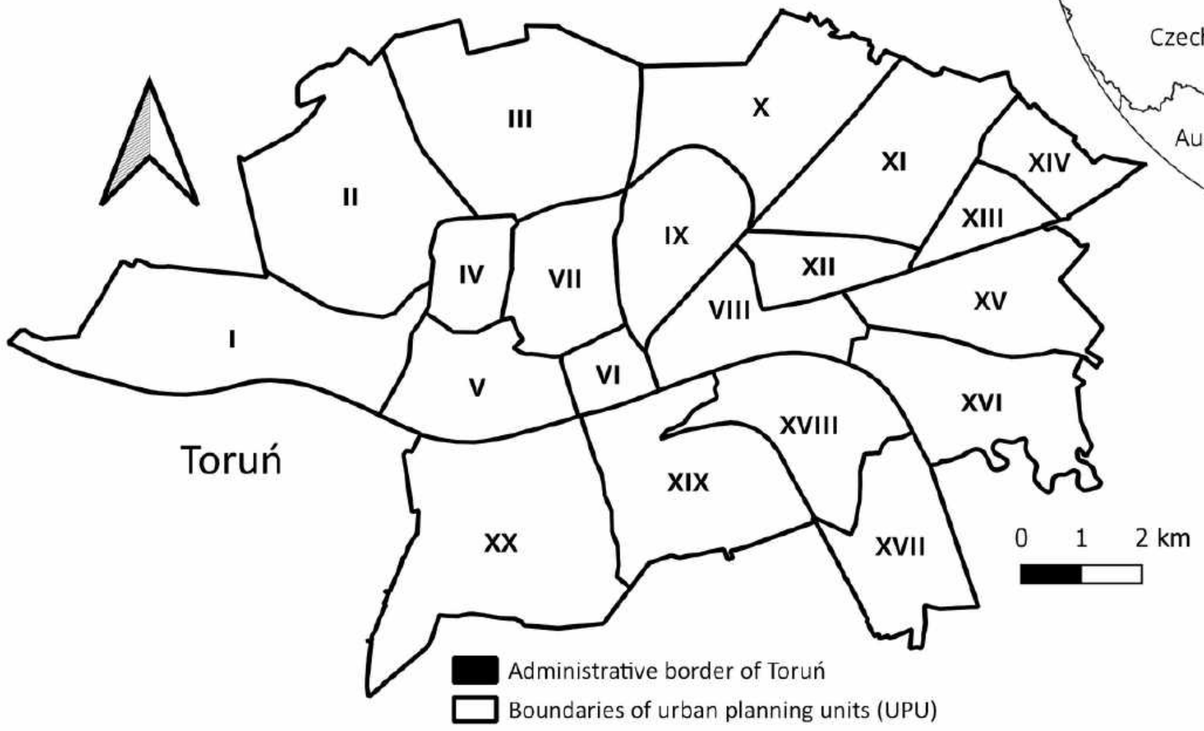
Research assumptions:

- (1) the share of GUAs in the total area of the city and each urban unit is at least 30%;
- (2) the share of the zone 300 m to the nearest GUAs in the total area of the city and each urban unit (after excluding GUAs themselves from the total area) is at least 50%;
- (3) perception is the strong attachment of city inhabitants to nature and the high assessment of GUAs.

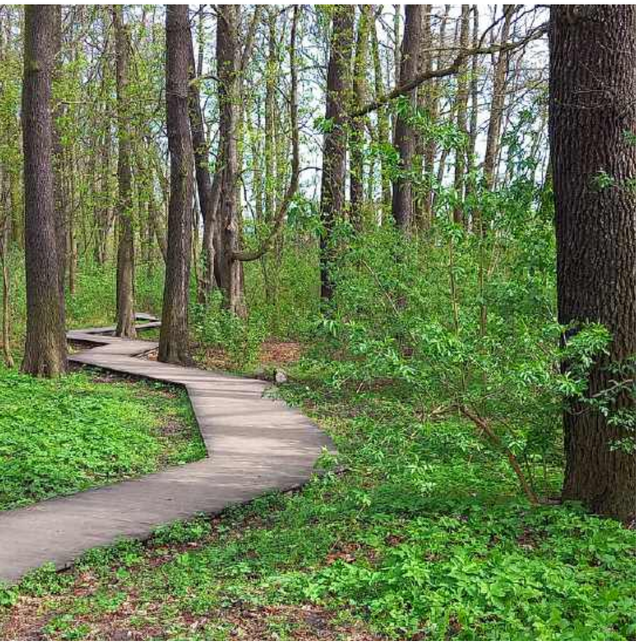
***The photographs used in the presentation come from our own resources**

RESEARCH AREA





Source: Own elaboration based on data from Head Office of Geodesy and Cartography (Poland), Eurostat and Municipal Urban Planning Office in Toruń



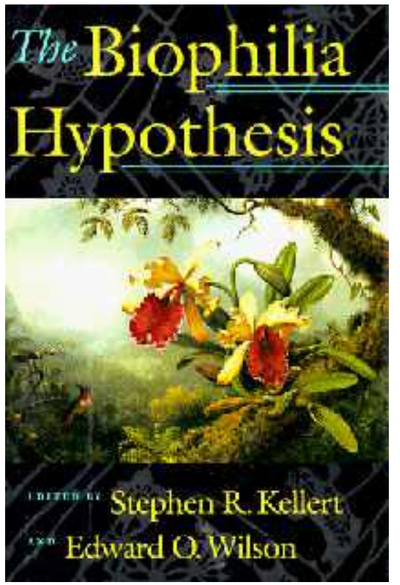
RESEARCH METHODS

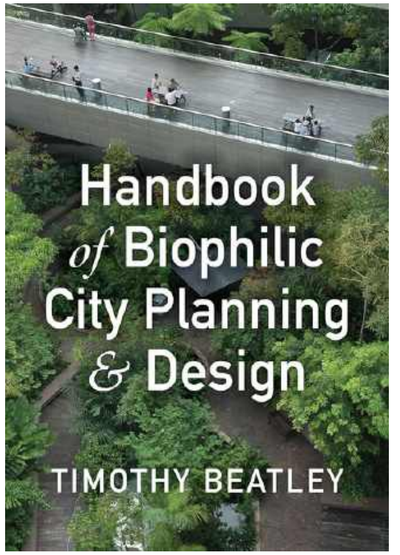
- Geospatial analyses of GUAs resources;
- Network geospatial analyses of the accessibility of GUAs;
- Computer Assisted Web Interview - CAWI (N=525).

BIOPHILIA AND BIOPHILIC CITY

Biophilia:
“the innate tendency to focus on life and lifelike processes”
(Wilson, 1984, p. 1)

Biophilic cities:
“1. cities of abundant nature and natural experiences.
2. biodiverse cities—places with rich flora, fauna, fungi.
3. multisensory cities.
4. cities of interconnected, integrated natural spaces and features.
5. immerse us in and surround us with nature.
6. outdoor cities.
7. embrace the blue as well as the green
8. celebrate the small and large; the microscopic to the celestial.
9. cities where citizens care about and are engaged with nature.
10. cities of awe.
11. care about and nurture other forms of life.
12. care about nature beyond their borders.
13. invest in nature.
14. are inspired by and mimic nature.
15. exhibit and celebrate the shapes and forms of nature.
16. seek an equitable distribution of nature and natural experiences”
(Beatley, 2016, p. 25)





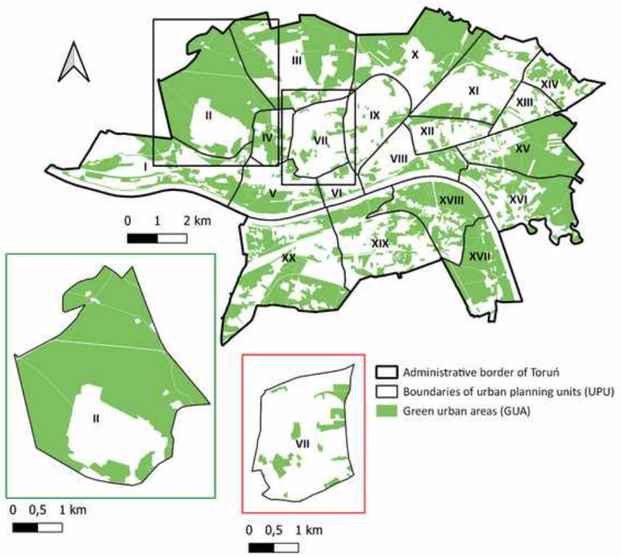
SHARE AND ACCESSIBILITY OF GUAS

DATABASES

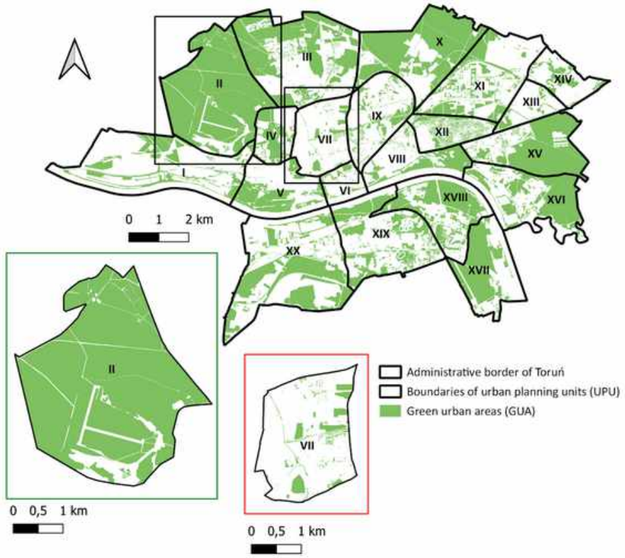
Geospatial analyses of share of GUAs	→ Network geospatial analyses of the accessibility of GUAs
Urban Atlas (2018)	
Open Street Map (2024)	Open Street Map - paths (2024)
Database of topographic objects (2024)	
The concept of development of green areas in Toruń (2018)	→ The concept of development of green areas in Toruń (2018)
Orthophotomap (2022)	→ Orthophotomap (2022) + Qneat3 Qgis plugin

Source: Own elaboration

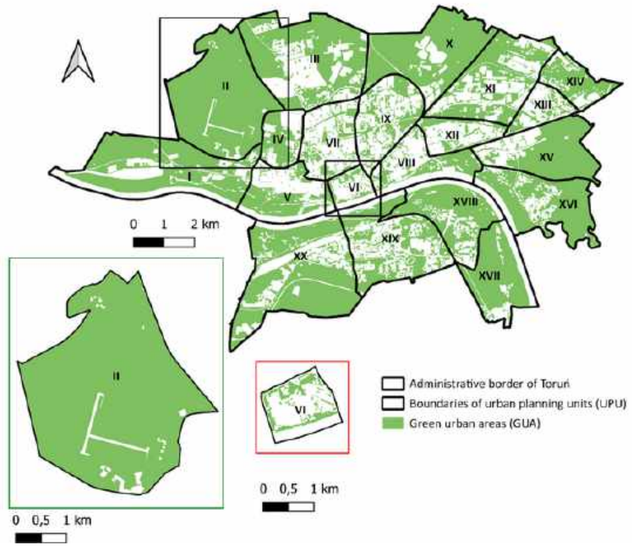
SHARE OF GUAS - RESULTS



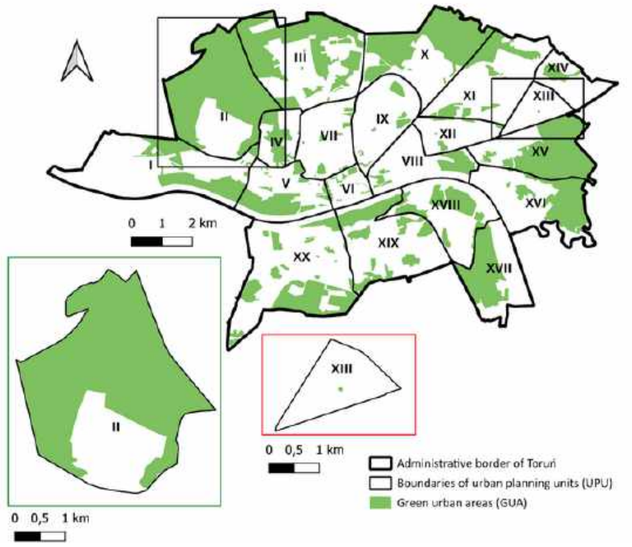
Copernicus Urban Atlas (UA)



Open Street Map (OSM)



Database of Topographic Objects (DTO)



The concept of development of GUAs in Toruń (CDGA) (municipal document)

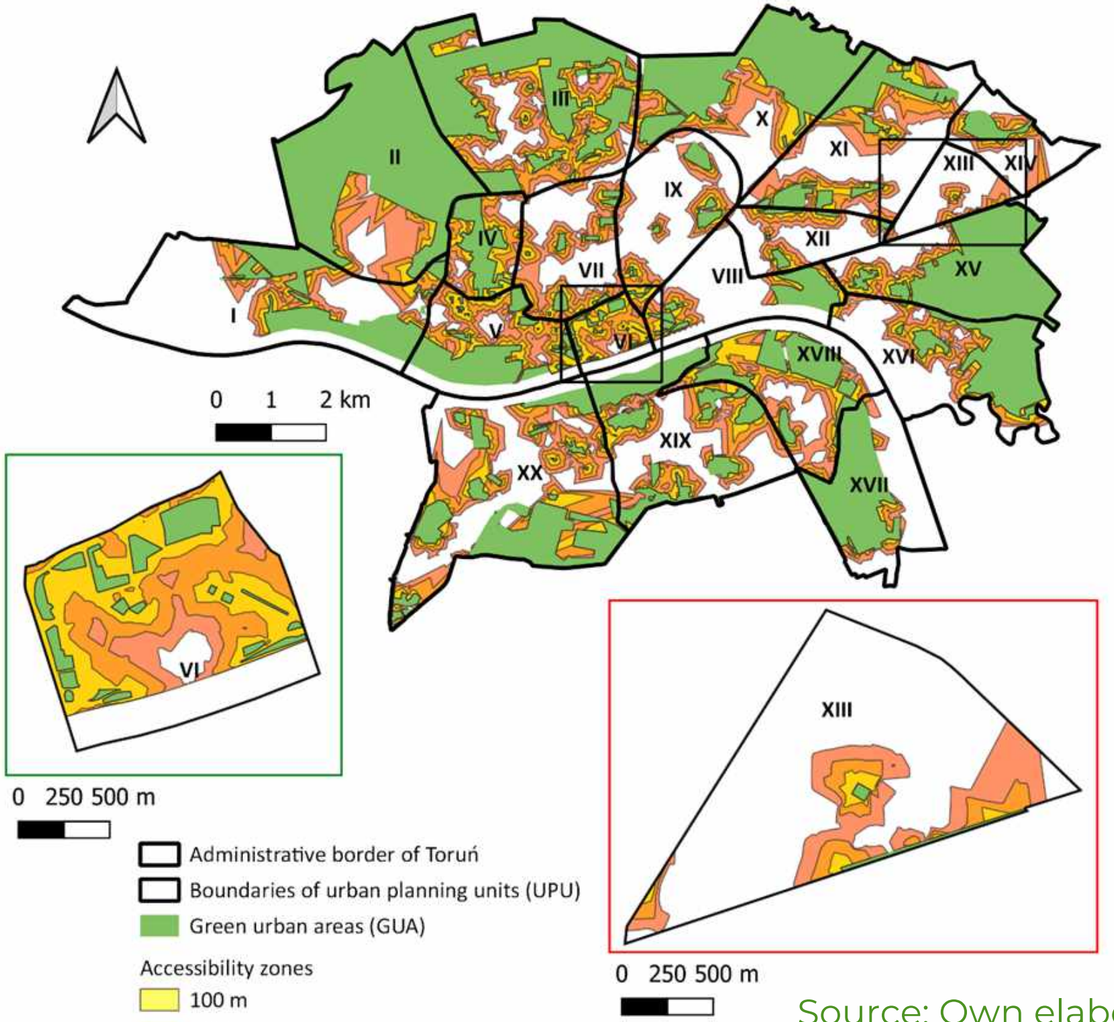
Source: Own elaboration based on data from UA, OSM, DTO, CDGA

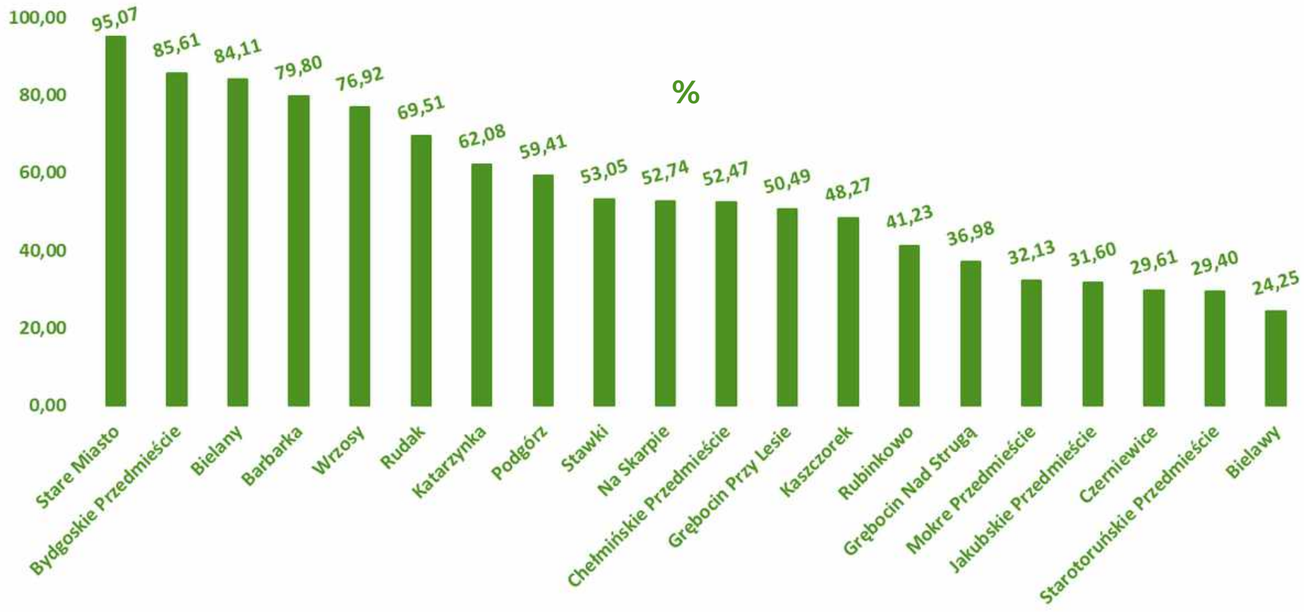
SHARE OF GUAS - RESULTS

no	urban planning unit name	UA	OSM	DTO	CDGA	average
				%		
	TORUŃ	46.39	45.35	64.22	36.24	48.05
I	Starotoruńskie Przedmieście	34.57	22.23	67.95	23.81	37.14
II	Barbarka	75.95	89.74	96.67	76.53	84.72
III	Wrzosy	58.93	52.87	65.09	50.80	56.92
IV	Bielany	47.27	47.12	56.83	38.35	47.39
V	Bydgoskie Przedmieście	42.18	38.62	44.32	34.75	39.97
VI	Stare Miasto	18.35	17.93	25.22	12.83	18.58
VII	Chełmińskie Przedmieście	13.51	12.08	28.63	7.08	15.32
VIII	Jakubskie Przedmieście	25.95	31.85	38.24	19.11	28.79
IX	Mokre Przedmieście	14.13	20.68	38.35	7.38	20.13
X	Katarzynka	62.28	74.09	85.13	60.59	70.52
XI	Grębocin Przy Lesie	28.82	30.91	55.32	21.30	34.09
XII	Rubinkowo	24.62	40.05	35.56	7.74	26.99
XIII	Bielawy	19.92	20.30	35.71	1.51	19.36
XIV	Grębocin Nad Strugą	35.71	24.29	71.19	14.22	36.35
XV	Na Skarpie	71.60	72.22	76.96	70.85	72.91
XVI	Kaszczorek	54.20	48.84	74.85	35.21	53.28
XVII	Czerniewice	68.96	53.43	74.78	48.20	61.34
XVIII	Rudak	58.79	50.59	67.37	29.72	51.62
XIX	Stawki	35.34	36.61	53.06	27.80	38.20
XX	Podgórz	44.49	37.34	70.38	27.95	45.04

Source: Own elaboration based on data from UA, OSM, DTO, CDGA

ACCESSIBILITY OF GUAS - RESULTS





The share of the zone 300 m to the nearest GUAs in the total area of the city and each urban unit (after excluding GUAs themselves from the total area)

Source: Own elaboration based on data from OSM and CDGA

PERCEPTION OF GUAS

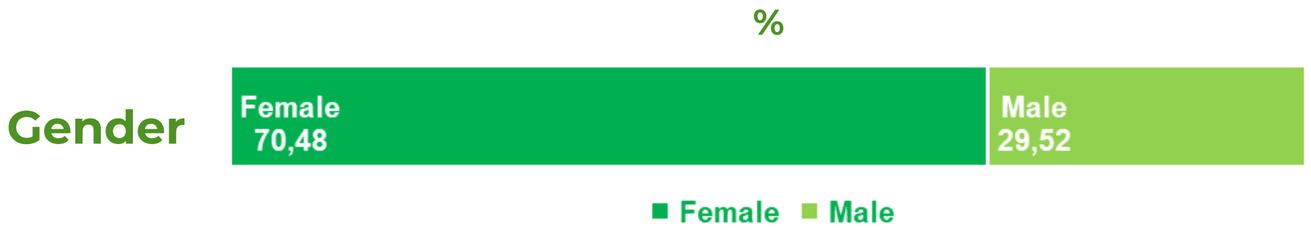
Methodology

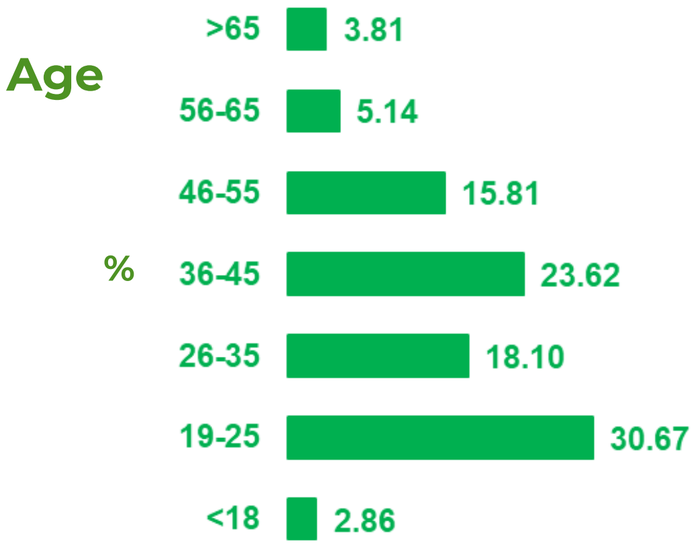
01 Computer Assisted Web Interview (CAWI)

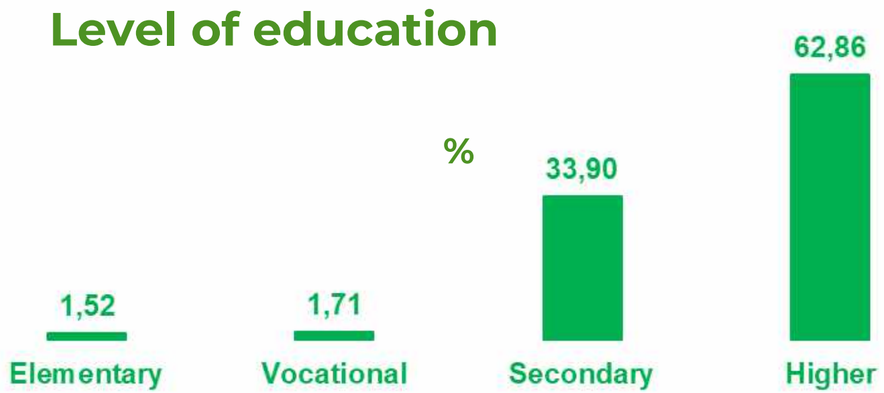
02 Sample: P = 195 690; n = 383; N = 525

03 Period: 5 II - 5 III 2024

PERCEPTION OF GUAS - RESULTS

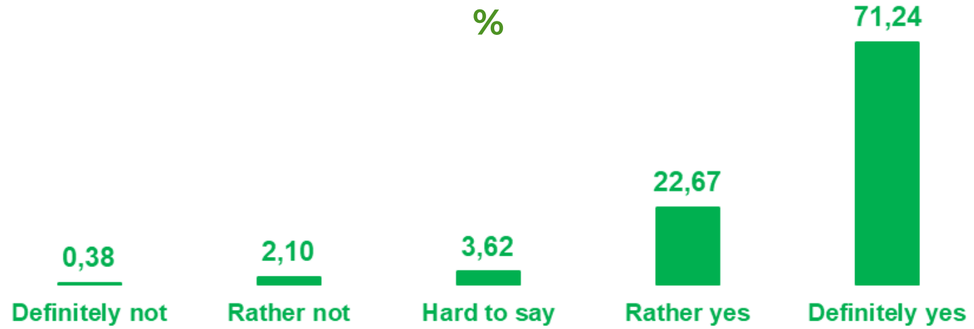




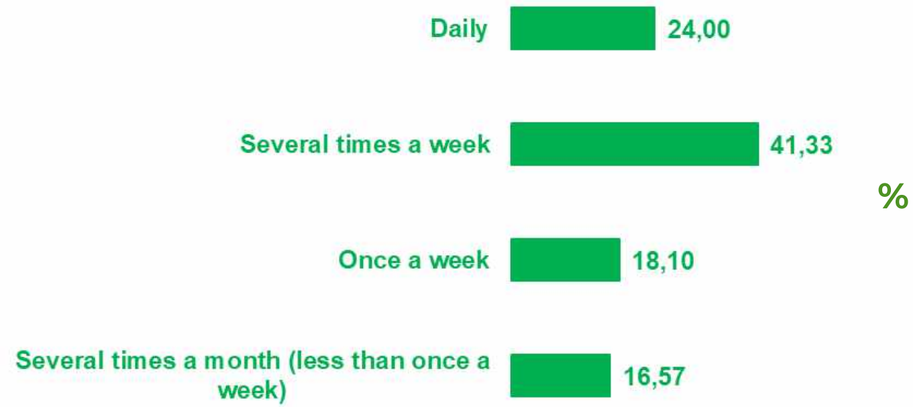


Source: Own study based on a survey N=525

Do you feel the need to be close to nature?



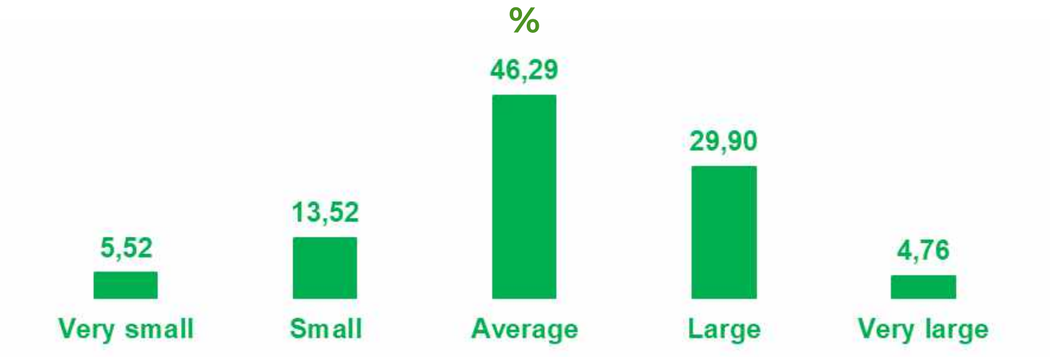
How often do you visit green areas?



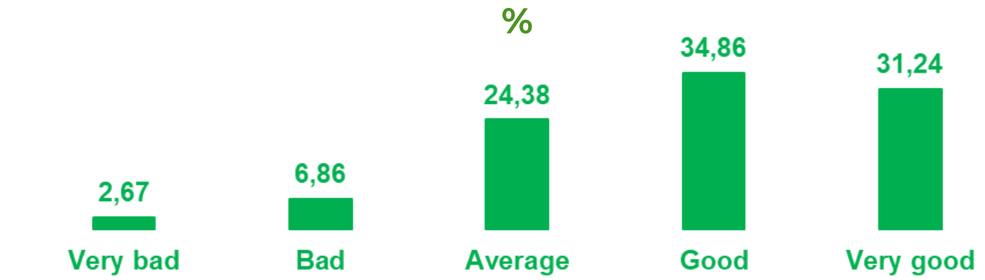
How long do you spend in green areas at a time?

Source: Own study based on a survey N=525

How do you assess the resources of green areas in the Toruń area?

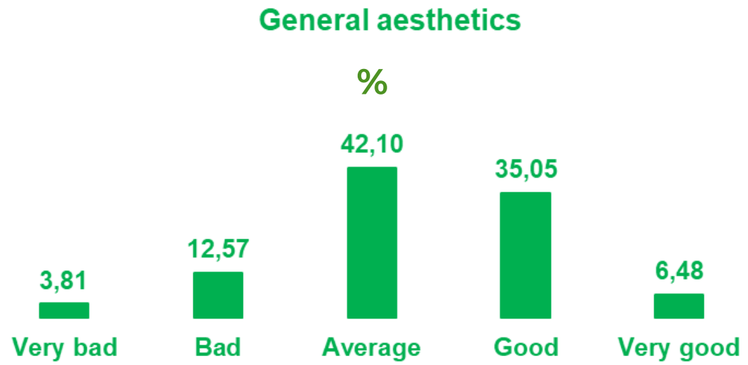


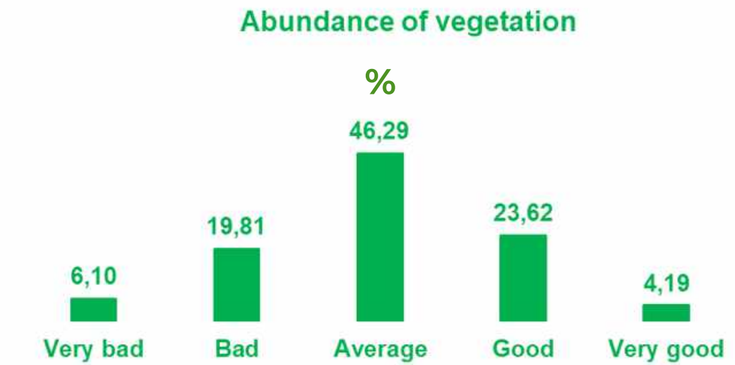
How do you assess the time accessibility of green areas from your place of residence?

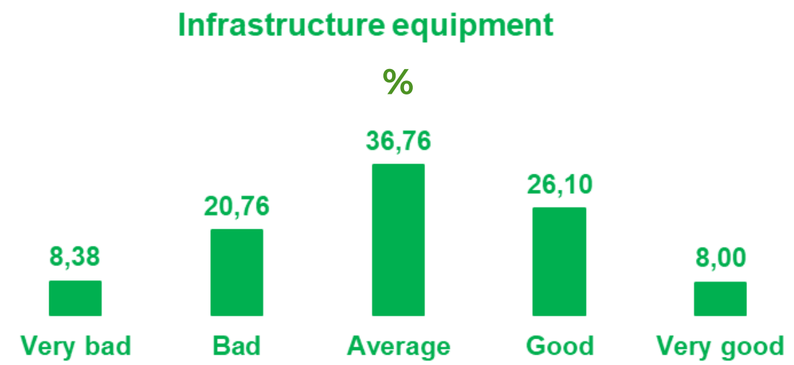


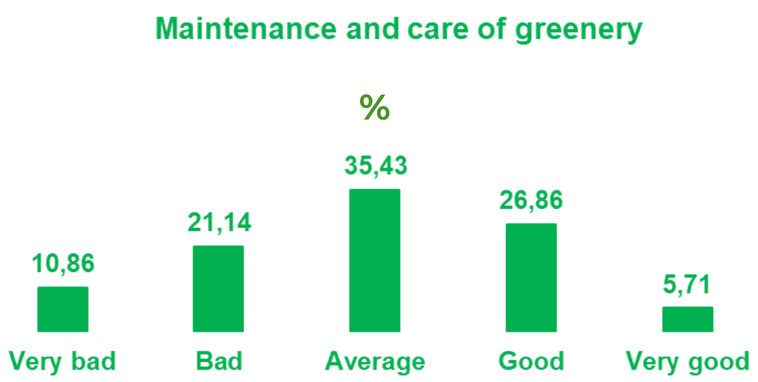
Source: Own study based on a survey N=525

How do you assess the condition of green areas in Toruń?



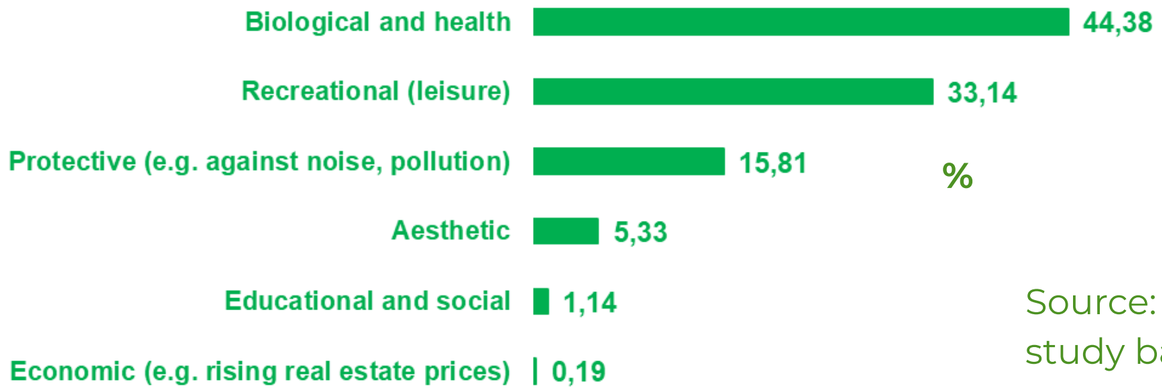






Source: Own study based on a survey N=525

What function of green areas is most important in your opinion?

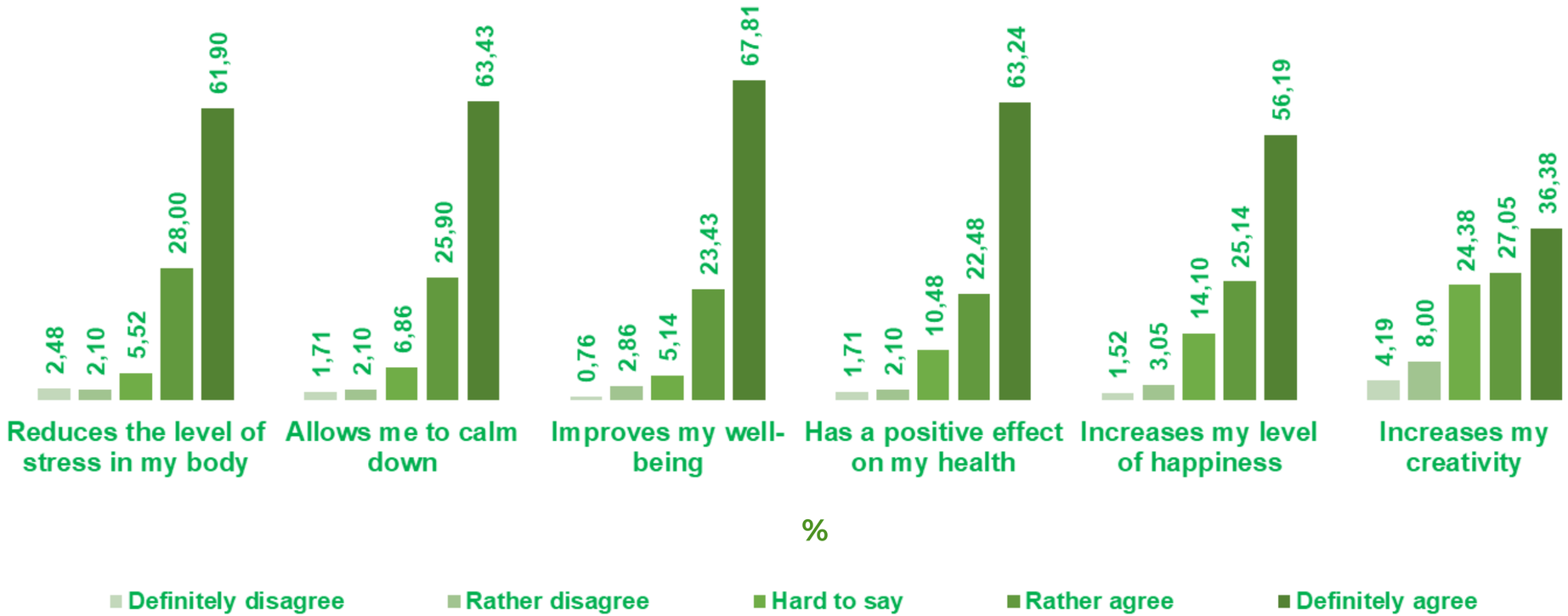


Source: Own study based on a survey N=525

For what purpose do you visit green areas?

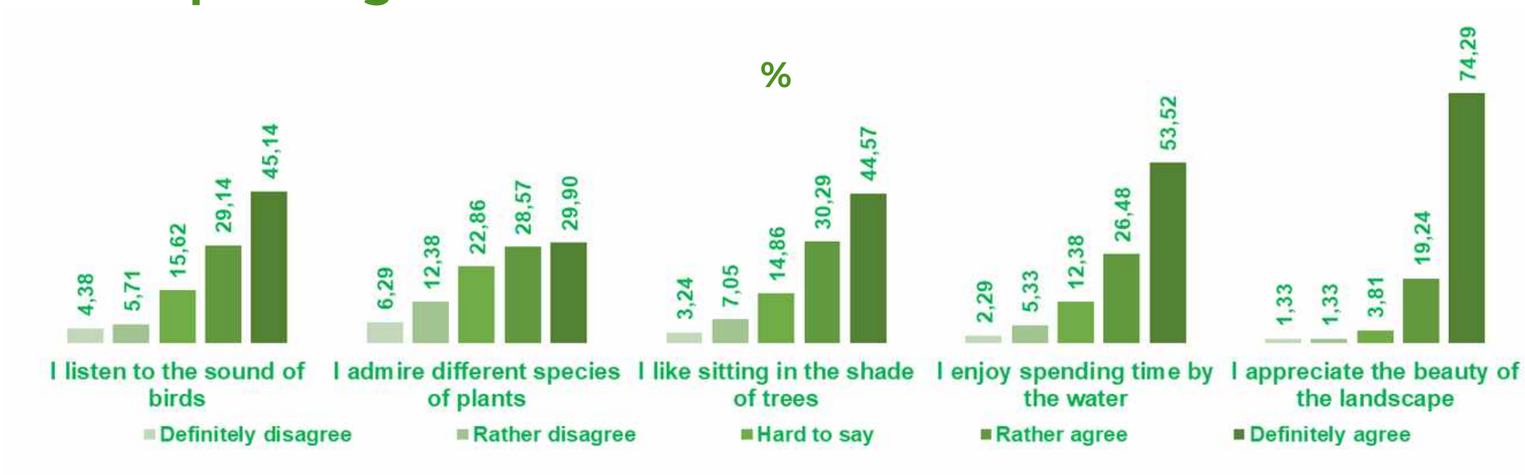
A. Walking
B. Walking the dog
C. Running/training/exercising
D. Meeting friends
E. On the way to: work/school/kindergarten where I drop off the kids
F. Playing with the kids
G. Picnic outdoors
H. Visiting a botanical garden/zoo
I. Reading a book
J. Artistic hobby
K. Other

Do you agree with the following statements about being close to nature?

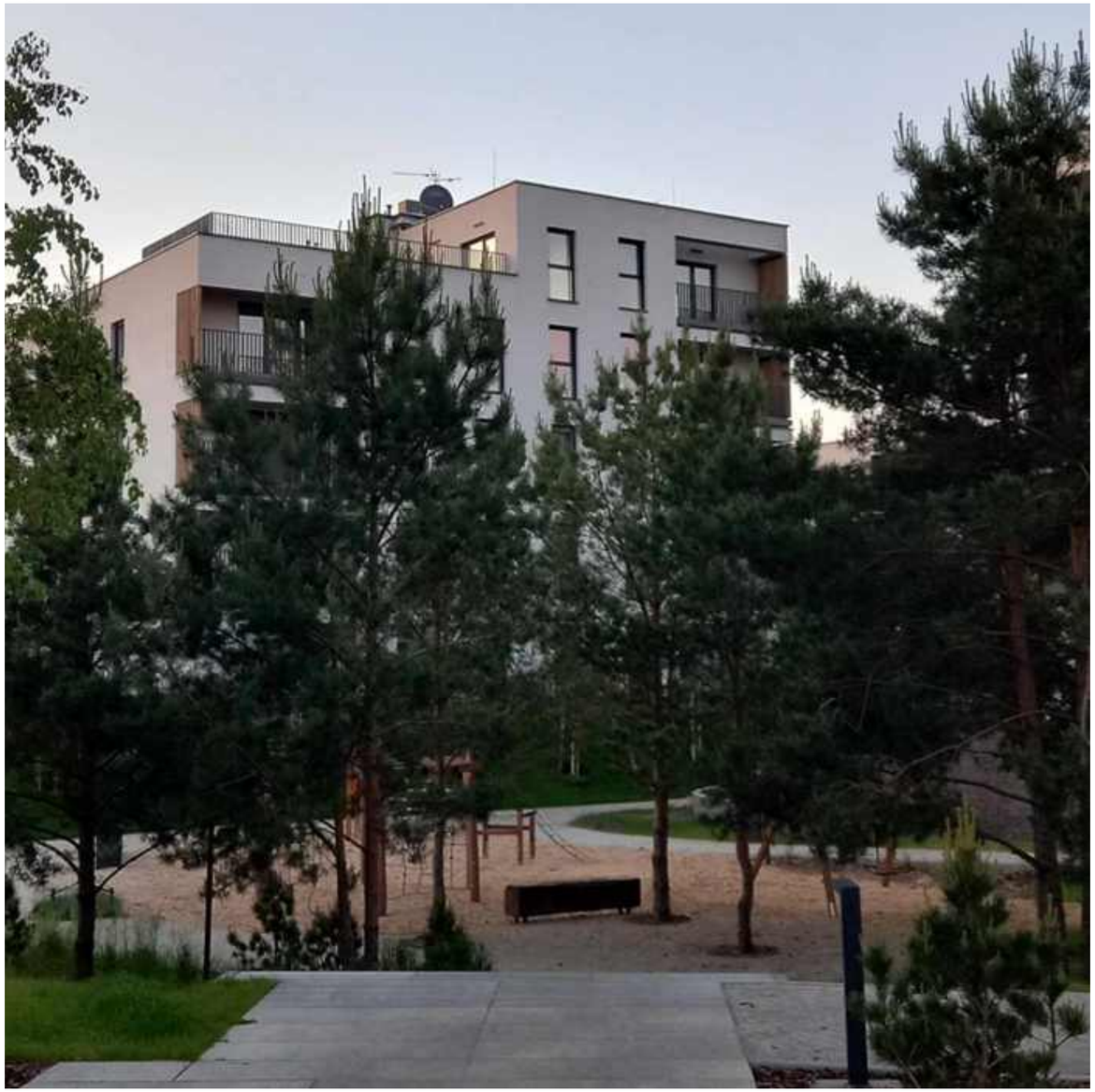


Source: Own study based on a survey N=525

Do you agree with the following statements? When spending time in nature:



Source: Own study based on a survey N=525



CONCLUSIONS

- The analyses confirmed the research assumptions (1) and (2) for the entire city area. The constructed theses have not been confirmed in relation to all UPUs.

It should be concluded that the resources and accessibility of GUAs in Toruń are generally good - they exceed the established limit values of indicators. However, unevenness in their distribution was observed. There are UPUs with very high indicators, and small resources and poor accessibility of GUAs characterize others.

- As for assumption (3), it was also not completely fulfilled.

The city's inhabitants were strongly attached to nature, but GUAs' assessment should be considered average.

SOURCES

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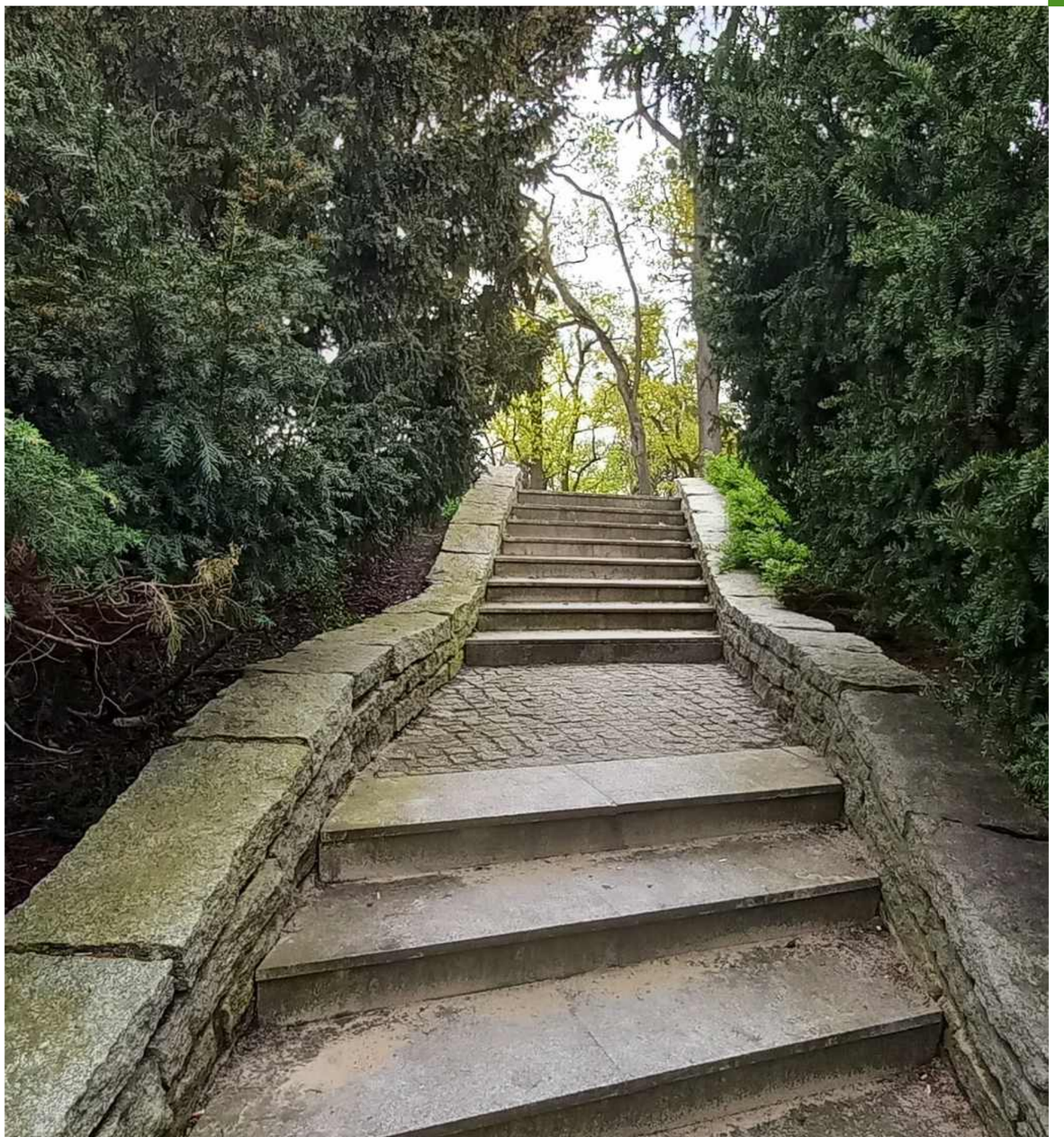

PLEASE CONTACT US

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