

Assessment of sustainability and health promotion of three public parks in Poland's Pomerania Region

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Abstract. The new tendency in Urban Green Spaces (UGS) design is to establish sustainable and health-promoting public parks – often described as the new (second) generation of public parks. The possibilities of wider implementation of the new generation of public parks are presented as an example of a recently constructed or revitalized park in the Pomerania region. This paper discusses three public parks in the Pomerania region – Public Municipal Parks in Rumia, Reda and Wejherowo. In this study, the main research question was whether the selected parks promote the well-being of inhabitants as well as sustainability. The parks were assessed using a standardized tool – the universal standard of health-promoting urban places. All three parks are places for physical, mental and social restoration of neighborhood communities, as well as ecological education. Thus, they can be regarded as health-affirming urban places.

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1. Introduction

The “new generation of urban parks” is a term used to describe modern public parks that have sustainable characteristics in terms of ecology, economy and society. The term refers to the shift in attitude towards ecological issues. While the traditional landscape design was focused on aesthetics, the new generation emphasizes sustainable design. Unlike historic parks rich in ornamental species or the post-modernist, manicured, large-scale landscape forms, the parks of the new generation follow nature-based solution guidelines and thus are low-cost and low-maintenance (Drapella-Hermansdorfer, 2006; Trojanowska, 2020). They relate to new paradigms in urban planning (Roe, 2021). As the garden city has proven to be mission impossible, it is time to bring nature to the cityscape (Roe, 2021; Kuo & Sullivan, 1998; Kuo, 2010; Hrehorowicz-Gaber, 2015; Szymańska, 2023).

The common features of a new generation of urban parks were first observed in modern eco-neighborhoods around the world. Nowadays we are witnessing a growing trend in their implementation in urban settings (Szymańska, 2023). They are becoming increasingly popular in Central and Eastern Europe (Drapella-Hermansdorfer, 2006; Pleshkanovska, 2020; Trojanowska, 2020a). Some of the recently constructed parks of the new generation include community gardens (Chahi, 2008; Gidhoni, 2023; Ouest France, 2015). Many vacant sites or brownfields are becoming public parks. The development of the public park is often the first stage of urban renewal of urban neighborhoods.

In this study, the main research question was whether the selected parks promote the well-being of inhabitants as well as sustainability. The detailed questions were thus:

- Do the selected parks have common features of parks of the new (second) generation?
- Do they promote sustainability?
- Are they health-promoting places?

To answer this question, the following research was conducted: literature review, site observation of three urban parks from the Pomerania region, and assessment of health-promoting qualities using the universal standards for health-promoting urban places (Trojanowska, 2017; 2023; Krzeptowska-Moszkowicz et al., 2021; 2022). The standard is a preliminary tool that facilitates the assessment of urban parks' therapeutic qualities and sustainability (Trojanowska, 2020b; 2021)

2. A new type of urban parks

The landscape of contemporary urban parks is changing. Sustainability is more important nowadays than it has ever been. Today it is even more important than aesthetics. The younger generation is increasingly aware of the ecological problems of our planet (Pisciarelli & D'Uggento, 2022; Bouman et al., 2020). People – who are the most important consideration in public space design – have different expectations than they had years ago. These parks satisfy the needs of people who nowadays want community gardens (Chahi, 2008; Gidhoni, 2023; Ouest France, 2015). On the other hand, the environmental aspects do not appear in the specifications for public projects (Jaszczak et al., 2021a). There is a need for education of all stakeholders involved in urban development. Therefore, it is important to study these new types of parks.

There are common qualities that characterize the new generation of urban parks. They differ from traditional parks (e.g., baroque or post-modernist) in aspects regarding public participation in their construction, landscape architecture and urbanism, sustainable use of resources and low-budget maintenance. The common features of the park of new (second) generation are as follows:

Healthy contact with nature for all social groups

There is a plethora of research evidence confirming the therapeutic effects of everyday contact with nature (Largo-Wight, 2011; Stigsdotter & Grahn, 2003; 2011; Takano, Nakamura, Watanabe, 2002). Everyday modern life offers fewer opportunities for outdoor activities and mental restoration. Thus, as social awareness is also rising and many individuals are visiting public parks daily, parks of the new generation are inclusively designed for all age groups. There should be spaces and activities, not only for children and youth but also for working adults seeking relief from stress, as well as for seniors, people with special needs and all disadvantaged groups. For people on lower incomes, the public park would be the only place to spend quality time outdoors free of charge. Accessible high-quality open green public space is one of the factors related to longevity and good health (Takano et al., 2002; Baran et al., 2020).

Mental and physical restoration in natural settings

Parks of the new generation can be health-affirming urban places. They are created to become places for physical, mental and social restoration of neighborhood communities and are open and welcoming to the public. They are places for everyday recreation (Roe, 2021; Maas & Verheij, 2009; Grahn et al., 2005). Mindfulness is significantly associated with pro-environmental behavior (Barbaro & Pickett, 2016). The design of new parks entails the preservation of semi-natural landscapes, which is crucial for mental restoration (Dentamaro et al., 2011). Moreover, destroyed ecosystems are re-naturalized to initiate urban forests, meadows, lakes or even swamps (Drapella-Hermansdorfer, 2006; Trojanowska, 2020; Roe & McCay, 2021; Ouest France, 2015, Gidhoni, 2023; Chahi, 2008). These parks are places for education about ecological issues and healthy lifestyles.

Physical activity

Today, diet and physical exercise are understood to be instruments for building health (Cojocarui et al., 2014; Edwards & Tsouros, 2008). Parks of the new generation are places that promote everyday physical activity in close contact with nature. They start with urban planning. These parks are built as first investments in new eco-neighborhoods (Trojanowska, 2020). Walking is invited when convenient paths are laid down to connect various parts of the neighborhood surrounding the new park. This promotes walking to do everyday errands using paths inside the park and thus spending more time in the natural environment. Running and cycling loops and sports infrastructure are also offered and diversified for various users. Playgrounds and "tot lots" are designed to fit various age groups. In densely urbanized areas, public parks might be the only places offering free physical activities to all age groups, which is crucial for maintaining well-being and health (Cojocarui et al., 2014; Edwards & Tsouros, 2008).

Landscape architecture and urban design

Parks of the new generation are spaces for recycling and preservation of previously developed land. Intervention is reduced to a minimum. What is crucial is universal accessibility and new paths, which are often laid in the most frequented places. The design must be easily legible and facilitate

orientation. There is no space for intricate layouts or high-maintenance parterres.

Community gardens

One of the common features of parks of the new generation is the location of new community gardens (Ouest France, 2015, Gidhoni, 2023; Chahi, 2008). There is much research confirming the beneficial effects of gardening (Sempik et al., 2005a; 2005b). In some community gardens, regular hortitherapy sessions are offered.

Social contacts

The parks of the new generation are connected to the initiation of urban renewal processes (Drapella-Hermansdorfer, 2006; Trojanowska, 2020a). They usually have their name and webpage with a calendar full of organized events. There are places to sit in smaller and larger groups, picnic areas, multi-functional open areas, open-air theatres and concert stages. Public participation is welcomed (Chahi, 2008; Ouest France, 2015, Roe, 2021; Gidhoni, 2023).

Noise reduction

The importance of soundscape for mental and physical regeneration has been the subject of studies (Jaszczak et al., 2021b). Nowadays many solutions are possible. Sound barriers are created with landscaping, planting and, if necessary, construction materials, masonry walls, etc. Moreover, soothing sounds can be proposed with artificial waterfalls, fountains or loudspeakers diffusing the sounds of relaxing music.

Phytosociology and plant succession

Parks of the new generation are usually created with mostly or exclusively native plants. Sometimes they are thus called "low-budget parks". Native and potential plants can be introduced and maintained on a limited budget. They are well suited to the local climate and thus would not require additional watering. The fact that they mature in a predictable manner further simplifies their long-term management. Native plants withstand local weather conditions and are usually resilient to pathogens and diseases. We can also foresee the natural plant

succession and speed it up with the use of specific plants (Fukarek, 1964; Drapella-Hermansdorfer, 2006; Trojanowska, 2020). In parks, you can find species that are remnants of previously existing plant communities or species that came from neighboring natural areas. These native plant communities are valuable and should be protected. Maintenance is limited, thus inviting natural succession. However, in some cases of parks constructed in brownfields, species that are native to the location may need to be introduced. The vegetation in the park is affected by several anthropogenic sources. The anthropogenic habitats are comprised mostly of exotics (LaPaix & Freedman, 2010). The risk comes from invasive species, which might be present in neighboring areas, and private gardens. Invasive species should be managed, removed from open areas and prevented from entering the forest. Patryk Czortek and Remigiusz Pielech (2020) propose to plant a barrier to invasive species – well-developed edge zones composed of a high number of competitive shrubs and nitrophilous tall herbs of native origin.

Biodiversity

Parks are important spots for the promotion of biodiversity in urban areas. They are the most species-rich types of urban green spaces (Nielsen et al., 2014). Although the “nature” of urban parks and the surrounding urban tissue is manipulated, still there is a place for native communities. Native plants form a biotope that is rich in species and thus more resilient – and more friendly to local animals and insects. Many species per square meter could provide various food options throughout the entire season, thus supporting local biodiversity and inviting pollinators and other species to form entire food chains (Fukarek, 1964; Chahi, 2008; Ouest France, 2015; Gidhoni, 2023). The richness and diversity of plants are greater in parks with a larger area and habitat heterogeneity (Moszkowicz et al., 2021). Trzaskowska and Adamiec (2011) draw attention that more attention should be given to groundcover plants in public parks.

Natural maintenance

Urban parks of the new generation are characterized by reduced maintenance costs, as the need for chemical products is eliminated. No herbicides or pesticides are allowed. Only natural compost made of plant material is allowed. Mowing is restricted to human paths or completely abandoned. Watering is

limited to young plantings or periods of drought. No plants are covered for winter, unless some ornamental exotic species are introduced for seasonal interest – e.g., large flowers, ornamental leaves, etc. The ecological aspects include biodiversity protection, soil remediation and stormwater retention (Fukarek, 1964; Drapella-Hermansdorfer, 2006; Chahi, 2008; Ouest France, 2015; Trojanowska, 2020; Gidhoni, 2023).

Stormwater management

Rainwater infiltration is promoted wherever possible. Rain gardens and installations for phytoremediation of stormwater are on display for educational purposes (Drapella-Hermansdorfer, 2006; Chahi, 2008; Ouest France, 2015; Trojanowska, 2020; Gidhoni, 2023). Moreover, the underground tanks are used to store the rainwater to use for watering young plants throughout the dry season (Trojanowska, 2020).

Location on brownfield and phytoremediation

Parks of the new (second) generation are established during large-scale operations of urban renewal and revitalization of brownfields (Drapella-Hermansdorfer, 2006). On some occasions, the soils are polluted and require some sort of remediation. Phytoremediation is the cheapest and the most visually pleasing solution. Thus, some parks are becoming large-scale testing laboratories for various methods of phytoremediation (Trojanowska, 2023).

3. Research materials and methods

In this study, three municipal parks were chosen, located in the Eastern Pomerania region of north-western Poland in the Kashubian region on the Baltic Sea coast. The parks are located in three small towns – Rumia, Reda and Wejherowo (collectively, the minor Kashubian Tricity). The three towns constitute a prolongation of the linear Tricity conurbation of Gdańsk, Gdynia and Sopot, which has over one million inhabitants (Fig. 1).

The climate was classified as Cfb by the Köppen-Geiger system. The time zone is UTC+1 (CET). The towns of Rumia, Reda and Wejherowo serve as dormitories of the Tricity. A rapid suburban train connection links all three towns to Gdynia, Sopot and Gdańsk.

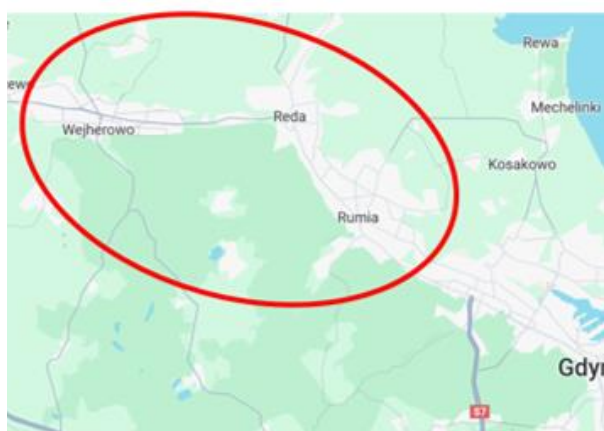


Fig. 1. Location of Rumia, Reda and Wejherowo. The case studies are located next to Gdynia and Gdańsk
Source: Map data ©2023 Google

3.1. The case studies

The parks represent the same geographical region and are located in close proximity to one another, it being possible to drive through all three towns in less than 50 km. The three locations are similar in terms of the geographical, socio-economic and cultural attributes that might influence the park's design and use. The major difference is that the park in Wejherowo is a historic park located next to the monumental Baroque Calvary, the park in Rumia is located on a brownfield and the park in Reda was constructed on formerly vacant lots.

All three of the studied parks were constructed or revitalized during the last twenty years, are centrally located in their respective towns and are very popular and frequently visited. Each one of them is a local attraction. They combine the majority of the characteristics of the park of the new generation.

The following is an overview of the three parks.

Municipal Park in Rumia: Park Starowiejski

The town is composed of former villages that were urbanized by the urban sprawl of the neighboring Tricity. The municipal park in Rumia was previously assessed using both versions of the standard (Trojanowska, 2022; 2023). For this study, the assessment was repeated to compare the results with the two other parks.

Park location and size

The municipal park is centrally located in the town along the banks of the local river, Zagórska Struga. The park is surrounded by single houses or small blocks of flats with commercial space on the first floor (Fig. 2). The park has a surface of ~10 hectares.

Number of visitors

Rumia is a small town, with a population of ~50,000 inhabitants. The area of the city is 30.10 km², and the population density is 1,748.6 persons per km². Interestingly, over 42,000 Rumia inhabitants voted to build a talent playground in the park (Trojanowska, 2022; Municipality of Rumia official webpage). Daily, the park is visited mostly by local inhabitants. However, during the summer numerous events may attract visitors from surrounding towns, e.g., laser shows, Kashubian music festivals, etc. The Modry Młyn restaurant and summer open-air café Chill Garden are also very popular among locals and visitors (Fig. 3).

Key facilities and amenities

The municipal park was developed in place of a former water smithy next to the local brook Zagórska Struga. In the park, artificial ponds were created. Even though they are in separate locations, they are an allusion to the industrial past of that area. In the park, there is a historic villa – Dwór pod Lipami – that hosts the local MDK cultural center. The new mill building, which recreates the atmosphere of the old smithy, houses a restaurant with traditional Kashubian cuisine. It was awarded a prize in the competition for Polish Culinary Treasures in 2022 (Kleśta-Nawrocka, undated). In the summer, the seasonal café Chill Garden with mini-golf and other attractions is opened. Public events are held in an open space next to an open-air stage (Fig. 3).

The park is located next to the municipal sports central MOSIR with multi-purpose fields and running tracks. Sports events are regularly held in open spaces and in the MOSIR building.

Municipal park in Reda: Miejski Park Rodzinny

Reda is a small town, a former village that was rapidly developed in the second half of the 20th century to become a dormitory for employees of the



Fig. 2. Municipal park in Rumia, 3D view

Source: geoportal.gov.pl

nuclear power plant planned but never constructed in nearby vicinities.

Park location and size

The development of the municipal family park started in 2008. Today it encompasses 7.25 ha. The park is located along the Reda River. Thus, it forms a space that unites the left- and right-bank parts of the city. The park is surrounded by mostly multifamily blocks of flats on one side of the river and mostly single-family houses on the other side (Fig. 5).

Number of visitors

Reda is a small town of ~25,000 inhabitants. The location of the park makes it a convenient place for locals to cross when running everyday errands (Fig. 6). During the summer, the open-air amphitheater by the Fabryka Kultury municipal cultural center located near the park hosts events (e.g., live concerts of classical and contemporary music, seasonal events for children and families, flea markets) that attract visitors from other locations.

Key facilities and amenities

The park was developed to cater to various needs (e.g., sports and recreation, skate-park, open-air

theatre) and to preserve the ecological corridor of the river. The park is also a prominent place for social bonding for older generations of native inhabitants and newcomers who settled in new, rapidly constructed blocks of flats. It is emphasized that the park should promote family values and intergenerational connections (Strategia Rozwoju Gminy Reda ...). Accordingly, one of the major attractions for the youth is a large skatepark and playground for the children. The open-air amphitheater is an important feature facilitating the holding of events in the park (Fig. 4–7).

Municipal park in Wejherowo: Park im. A. Majkowskiego

Wejherowo is a historic town, founded in 1643, designed and constructed from scratch in the Baroque period. In the 1970s and more recently, a few neighborhoods with modern blocks of flats were added to the formerly regular city layout. The landmark and most important monument in Wejherowo is the Baroque Calvary located in the Tricity Landscape Park. Wejherowo is surrounded by forests. The park was previously assessed in 2017 using a preliminary draft of the standard tool (Trojanowska, 2018). For this study, the assessment was repeated using an updated standard tool to compare the results with the two other parks. The park is maintained sustainably. The historic part close to the palace is upkept with traditional flower beds and regular mowing, but there are parts where mowing is limited to a strip along the paths, and the marshes and forested areas are maintained with minimal human intervention.



Fig. 3. Municipal park in Rumia. a) Modry Młyn restaurant; b) Chill Garden summer open-air café, with mini-golf and other attractions; c) open green space in front of the open-air stage; d) path in the park along the river. A seasonal food truck with café and ice-creams is visible on the right.

Source: author



Fig. 4. Family park in Reda – 3D view. Many paths for locals to cross the park when running everyday errands. Location of recreational infrastructure



Fig. 5. Family park in Reda. a) Open-air sports infrastructure popular among seniors. b) Chess tables are popular on a Sunday afternoon in late July
Source: author



Fig. 6. Family park in Reda. Open-air amphitheater before a concert
Source: author



Fig. 7. Family park in Reda – a) preserving the wilderness of the Reda riverbed, b) ponds and gazebo
Source: author

Park location and size

The municipal park is located between the historic town center and the Calvary in the forest (Fig. 10). The park was developed on the foundations of the former 18th-century historic park, constructed in front of the Przebendowski-Keyserling Palace (today the Museum of Kashubian folklore) (Fig.

11). In 2009, the revitalization of the historic park started (Trojanowska, 2018; *Historia, Park Miejski, "Oranzeria La Belle"...*).

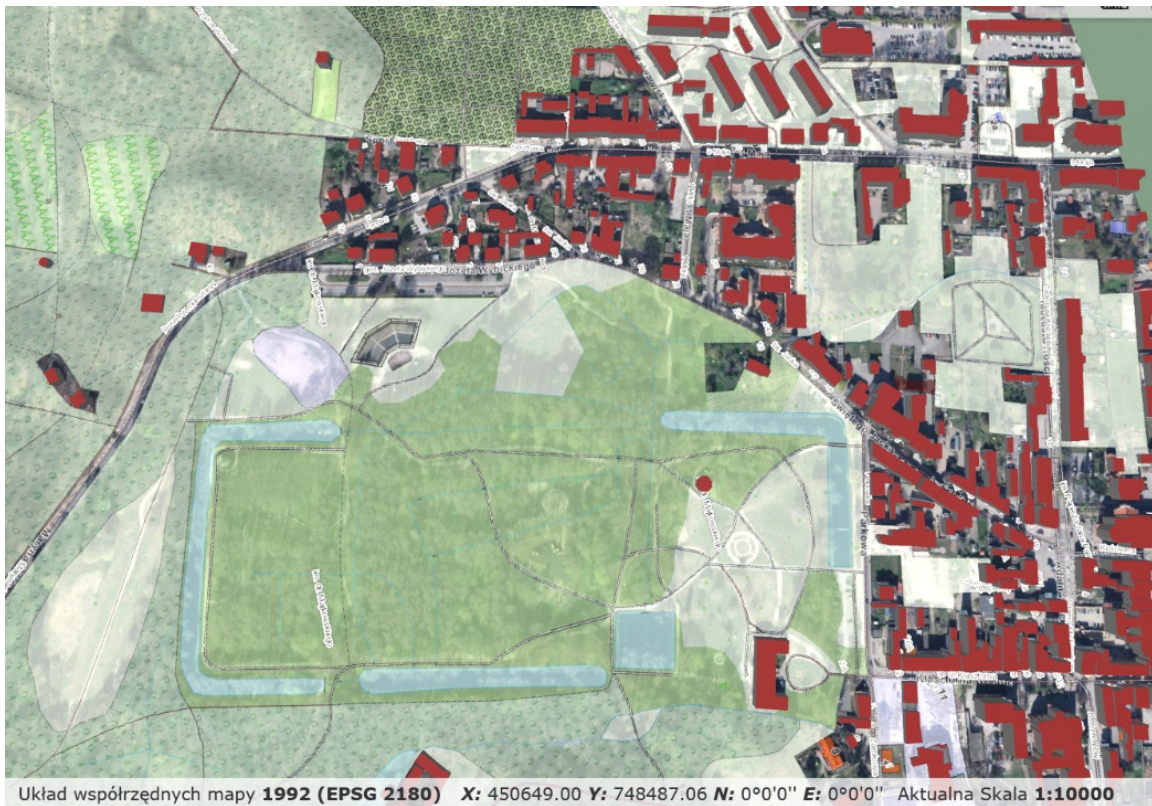


Fig. 8. Municipal park in Wejherowo, 3D view
Source: author



Fig. 9. Municipal park in Wejherowo – a) Przebendowski-Keyserling Palace (today the Museum of Kashubian folklore); b) floral parterre in the central part of the park
Source: author

Number of visitors

Wejherowo has ~47,000 inhabitants. The town with its monuments and Calvary is a tourist spot and attracts numerous visitors all year long. Most visit the park as they are passing through and some stay for longer and enjoy the numerous attractions in the park. During the warmer season, events are held in the park facilities. There are two open-air theatres and many open green areas (Fig. 12).

Key facilities and amenities

The beautiful, historic park is a tourist attraction in its own right. For many, just strolling along the park alleys is a simple pleasure (Figs. 11 and 13). The most important facility in the park is the Przebendowski-Keyserling Palace, which today hosts the Museum of Kashubian Folklore (Fig. 11). There is also a restaurant/café in the park, Orangeria “La Belle”, which is open all year long (*Oranżeria*

“*La Belle*”...). The park is also famous for its aviary with rare species of birds. The birds in the aviary could not be released into their natural habitat. Some have health conditions; others were raised in captivity.

The facilities in the park include an open-air amphitheater, an open-air theatre, sports fields and an outdoor gym. Another attraction during the summer is canoeing or swimming in a fairytale-shaped water ditch along the park canals. There is also a large and well-equipped playground for various age groups.

4. Research results and discussion

The scope of this study was to answer the main research question of the selected parks promoting the well-being of inhabitants as well as sustainability. The detailed questions were thus:



Fig. 10. Municipal park in Wejherowo: a) open-air amphitheater; b) open-air theatre; c) central part with a bench dedicated to Kashubian folklore, d) raised path through the marshes in the forest
Source: author

- Do the selected parks have common features of parks of the new (second) generation?
- Do they promote sustainability?
- Are they health-promoting places?

Firstly, it was verified that all three of the case studies are developed and/or maintained as parks of the new (second) generation.

4.1. The features of a park of the new generation

For this part of the study, numerous visits and site observations in all three parks were conducted during the warmer season – from May to August 2023. All observations were performed by the author of this manuscript. All the features of a park of the new generation were observed during multiple visits to the assessed parks. These are: Healthy contact with nature for all social groups, Mental and physical restoration in natural settings, Physical activity, Social contacts, Noise reduction, Phytosociology and plant succession, Biodiversity, Natural maintenance, and Stormwater management. The actual approach may vary in individual cases, but the main objective towards the operationalization of sustainable development goals is visible. What were missing were Community gardens and Phytoremediation. There was plenty of space to install community gardens if they were needed. In the case of inhabitants living in houses with private gardens or those who have a private lot, there is usually less demand for community gardens.

In the case of the historic park in Wejherowo, some of the traditional garden features like colorful flowerbeds and exotic plants were maintained. The planting choice must be sustainable, but at the same time needs to please visitors, who respond positively to large colorful flowers. This involves constant negotiation between the needs of various groups of interest. However, the aim is to be as sustainable as possible without completely sacrificing the social and aesthetic aspects. Therefore, parks of the new generation are not restricted to only new urban renewal projects but also can be introduced in historic gardens.

Healthy contact with nature for all social groups

In all three parks, there were dedicated areas for all age groups, as well as for diverse types of activities – physical and mental restoration, physical activity, and social contacts. All three parks are open to all, and all activities are free of charge except for privately organized events. Even if there are privately

organized events, the majority of the park surface and all other facilities and amenities are available to all free of charge.

Mental and physical restoration in natural settings

All three parks are places for physical, mental and social restoration for all those who are visiting them. They are open and welcoming to the public. They are places for everyday recreation. In each of the parks, there are places with natural settings.

Physical activity

All three parks offer sports and recreation infrastructure: bicycle paths, walking and running loops, outdoor gyms and playgrounds.

Community gardens

Only in Rumia is there a community garden – a garden dedicated to education about biodiversity and maintained with the help of local volunteers and children. Should the communities be interested in establishing larger community gardens in all three locations, it would be possible, due to the large area of the parks.

Social contacts

All three parks have their names (Park Miejski im. Aleksandra Majkowskiego w Wejherowie, Miejski Park Rodzinny w Redzie, Park Starowiejski w Rumi) and calendars of events organized for the warmer parts of the year, school holidays and weekends. There are places to sit in groups, picnic areas, multi-functional open areas, open-air theatres, and concert stages in all three.

Noise reduction

The parks offer noise reduction with barriers in the form of plantings of trees and bushes. All three have secluded and peaceful areas to relax in quiet.

Phytosociology and plant succession

In all three locations, the majority of the plants were native. Additionally, some exotic plants with colorful flowers were used for the parterre in Wejherowo, and large flowering bushes were planted. Nevertheless, all three parks could be maintained on a limited budget.

Biodiversity

The planting choices and natural maintenance can support the local biodiversity in all three locations. Educational gardens and hotels for insects were installed in the municipal park in Rumia.

Natural maintenance

All three parks were maintained using natural methods. Mowing was continued but limited to areas of regular usage for recreational purposes – open picnic areas, sports fields, etc.

Stormwater management

Rainwater infiltration is promoted in all three locations.

All three – the park in Rumia located on a brownfield, the new park in Reda developed on a vacant lot, and the historic traditional English-style park in Wejherowo – can be treated as parks of the new generation. They have the common features of sustainable parks of new (second) generation (Drapella-Hermansdorfer, 2006; Trojanowska, 2020). They have no clear boundaries and spread to transform the entire neighborhood into the grid of blue and green infrastructure. All three parks are important parts of green and blue infrastructure. Maintenance is limited to basic cleaning and necessary pruning. Natural maintenance methods are used. The parks are places where sustainable development and biodiversity protection are as important as the well-being of the local community. All three parks were assessed as universally accessible to people with special needs. The recreational infrastructure was assessed as satisfactory. The basic needs of users are satisfied. All three parks offer different attractions, but in general, they offer enough sensory stimuli and salutogenic design features to satisfy users' basic needs. There were numerous features to facilitate the placemaking processes in all three parks.

4.2. The standard for health-promoting public parks

The second part of this research entailed a study of health-affirming qualities with the author's tool: The universal standard for health-promoting public parks. The standard is a conceptual framework that was developed during more than twenty years of studies and research and visits to over one hundred public parks and therapeutic gardens in Europe and the United States (Table 1). The universal standard is a tool that can be used by both profes-

sional designers and non-professionals to improve the health-promoting qualities of open green spaces (Trojanowska, 2017–2023; Krzeptowska-Moszkowicz et al., 2021). This methodology is filling the gap. There are no other tools dedicated to the assessment of health-promoting qualities of public parks.

The results of the assessment using the standard for health-promoting urban places are presented in Note 1. This study confirmed that all three parks, regardless of size, location or history, can be regarded as health-promoting places. Out of possible 92 points, the Public Municipal Park in Rumia scored 85 points, the Municipal Family Park in Reda – 81 points, and the Municipal Park in Wejherowo – 84½ points. The results were highly satisfactory and confirmed the initial assumption. Similar research conducted for parks in Bydgoszcz also confirmed that public parks maintained as parks of the new generation regardless of historic or modern design, even when located on former brownfields, can be treated as therapeutic places (Trojanowska, 2019; 2020).

The limitations of this study result from potential biases in the assessment, or in the generalizability of the findings to other locations or contexts. When it comes to health-promoting qualities, each case must be treated individually. The potential biases could be eliminated with a larger number of researchers reviewing each park. However, the subjectivity based on the fact of selection of three parks that represent the same geographic region could be overcome only with similar studies undertaken in different geographic locations.

5. Conclusions

All three parks that were studied can be regarded as parks of the new generation and health-promoting urban places. Thus, both historic and modern public parks can promote sustainability and human health. The key issue is to strive toward sustainability without sacrificing cultural and social values.

This study proves that parks of the new (second) generation, even when located on former brownfields and maintained on a relatively limited budget, can be health-affirming places.

Simultaneously, it was proven that in the same geographic location and close to one another, all three parks fulfill the health-promoting duties for the local inhabitants and thus should be mandatory elements of each town. Each of them is located within walking distance of the local community.

Table 1. Standard for health-promoting urban places – public park

A UNIVERSAL STANDARD FOR HEALTH-PROMOTING PLACES				
1. Sustainability	2. Accessibility	3. Amenities	4. Design	5. Placemaking
1.1. Environmental characteristics	2.1. Distance to park	3.1. Catering to basic needs	4.1. Architectural design	5.1. Social engagement
Area	Infrastructure-	Safety and security	Human scale	Organization of events
Location	Width of sidewalk	(presence of guards, cleanliness, maintenance, etc.)	Structure of interior connections	Personalization
Surrounding urban pattern	Evenness of surface	Places to sit and rest	Framed views	Animation
Soil quality	Slope	Shelter	Long vistas (Extent)	5.2. Human perception - spiritual & symbolic
Water quality	Sufficient drainage	Restrooms	Pathways with views	Sacred places
Air quality	2.3. General conditions of walkways	Drinking water	Invisible parts of the scenery (Vistas which engage the imagination)	5.3. Culture and connections to the past
Noise level	Maintenance	Food (possibility to buy food in park or nearby)	Possibility to watch other people	5.4. Works of art
Green&Blue infrastructure	Overall aesthetics	3.2. Psychological and physical regeneration	Possibility to see wildlife	5.5. Monuments
1.2. Parks of Second (New) Generation	Street art	Natural Landscapes	4.2. Salutogenic design	5.6. Thematic gardens
1.3. Forms of natural protection	Sufficient seating	Green open space	Focal points and landmarks	
1.4. Biodiversity protection	Perceived safety	Presence of water	Optimal level of complexity	
Parts of open green space not available to visitors	Buffering from traffic	Places to rest in the sun and in the shade	Engaging features	
Native plants	Street activities	Places to rest in quiet and solitude	Controlled Risk	
Native animals	Vacant lots	3.3. Promotion of Physical Activities	Mystery/Fascination	
Native animals	2.4. Traffic	Sports and recreational infrastructure	Movement	
Natural maintenance methods	Speed	Addressing the needs of people with disabilities	4.3. Water in the park	
1.5. Sustainable water management	Volume	3.4. Promotion of social contacts	4.4. Sensory stimuli design	
Rainwater infiltration	Number and safety of crossings	Meeting places for groups	Sight stimuli	
Irrigation with non-potable water	Stop signs	Community gardens	Hearing stimuli	
1.6. Urban metabolism	On-street parking		Smell stimuli	
1.7. Ecological energy sources	Air quality		Touch stimuli	
	Noise level		Taste stimuli	
	Sufficient lighting		Sensory path	
	Sunshine and shade		4.5. Soundscape	
	Visibility of nearby buildings			
	2.6. Public transport stops			
	2.7. Sufficient Parking			

Source: Author, improved version of the standard

This study also confirms that the universal standard of health-promoting public parks is a valuable tool for the assessment of public parks of the new generation. The standard could be a helpful tool for designers, urban planners, policymakers and community developers.

Notes

Note 1. The assessment of selected public parks

UNIVERSAL STANDARD FOR HEALTH-PROMOTING PLACES						
	Municipal park in Rumia		Municipal park in Reda		Municipal park in Wejherowo	
1. SUSTAINABILITY						
1.1 Environmental characteristics						
Area, Neighborhood Park, approximately 2–10 ha	Neighborhood Park ~10 ha	1	Neighborhood Park ~7.5 ha	1	Neighborhood Park ~10 ha; part of large-scale Tricity Landscape Park	1
Location (centrally)	Along the banks of the river Zagorska Struga; centrally between former villages	1	Along the river Reda banks; centrally between the parts of the town on opposing riverbanks	1	Centrally, next to former Palace, close to historic market	1
Surrounding urban pattern	Low-density residential urban tissue with small-scale retail and services	1	Blocks of flats, townhouses, single family houses, small-scale retail and services	1	Townhouses, Townsquare Calvary, Tricity Landscape Park	
Soil quality	Good, no visual traces of pollution	1	Good, no visual traces of pollution	1	Good, no visual traces of pollution	1
Water quality	Non-potable, no visual traces of pollution	1	Non-potable, no visual traces of pollution	1	Non-potable, no visual traces of pollution	1
Air quality inside the park	Very good according to Polish air quality standards [Jakość...] Moderate according to AccuWeather [Accuweather, Rumia]	1	Moderate according to AccuWeather [Accuweather, Reda]	½	Very good according to AccuWeather [Accuweather, Wejherowo]	1
Noise level in the park	Low	1	Low	1	Low	1
Green and Blue Infrastructure	Important part of the green and blue infrastructure. Artificial ponds, river	1	Important part of the green and blue infrastructure	1	Important part of the green and blue infrastructure	1
1.2 Parks of Second (New) Generation						
	Park can be treated as a park of new generation.	1	Park can be treated as a park of new generation.	1	Park can be treated as park of new generation with some ornamental features.	1
1.3 Forms of legal protection						
	Heritage building	1	No specific legal protection	0	Heritage site	1
1.4. Biodiversity protection						
Parts of open green space not available to visitors	Island on artificial pond	1	No	½	Artificial island	1
Native plants	Planting is a combination of native and non-native species.	1	Planting is a combination of native and non-native species.	1	Planting is a combination of native and non-native species.	1
Native animals	Both native and foreign species were observed.	1	Both native and foreign species were observed.	1	Both native and foreign species were observed; native and exotic birds are bred in a specialized aviary.	1
Natural maintenance methods	Natural maintenance methods are used.	1	Natural maintenance methods are used.	1	Natural maintenance methods are used.	1
1.5 Sustainable water management						
Rainwater infiltration	Facilitated rainwater infiltration	1	Facilitated rainwater infiltration	1	Facilitated rainwater infiltration	1
Irrigation with non-potable water	Data n/a		Data n/a		Data n/a	
1.6 Urban metabolism						
	Waste segregation and collection	1	Waste segregation and collection	1	Waste segregation and collection	1
1.7 Ecological energy sources						
	Data n/a		Photovoltaic cells	1	Photovoltaic cells	1
2. ACCESSIBILITY (assessment of walkways to park)						
2.1 Distance to park						
Distance to potential users	The majority of users walk to the park. Accessible public transportation – local buses, suburban trains	1	The majority of users walk to the park. Accessible public transportation – local buses, suburban trains	1	The majority of users walk to the park. Accessible public transportation – local buses, suburban trains	1
2.2 Sidewalk Infrastructure						
Width of sidewalk	Sufficient	1	Sufficient	1	Sufficient	1
Evenness of surface	Good	1	Good	1	Good	1
Lack of obstructions	Some sidewalks need to be developed	½	No obstructions	1	No obstructions	1
Slope	Flat, no significant slope	1	Flat, no significant slope	1	Flat, no significant slope	1
Sufficient drainage	Sufficient	1	Sufficient	1	Sufficient	1

Table 2 continued.

	Moderate	1	Moderate	1	Moderate	1
Maintenance	The park is clean. No littering	1	The park is clean. No littering	1	The park is clean. No littering	1
Overall aesthetics	Good	1	Good	1	Good	1
Street art	Graphic Art, Murals	1	Graphic Art, Murals	1	Graphic Art, Murals	1
Sufficient seating	Multiple benches	1	Multiple benches	1	Multiple benches	1
Perceived safety	Perceived as a safe place	1	Perceived as a safe place	1	Perceived as a safe place	1
Buffering from traffic	Sufficient	1	Sufficient	1	Sufficient	
Street activities	No	0	Yes; occasional events, both organized and spontaneous	1	Yes; occasional events, both organized and spontaneous	1
Vacant lots	Yes; a few vacant lots	0	Yes; a few vacant lots	0	Yes; a few vacant lots	0
2.4. Traffic						
Speed	Slow	1	Slow	1	Slow	1
Volume	Moderate	1	Moderate	1	Moderate	1
Number and safety of crossings	Numerous possibilities for safe crossing of the street	1	Numerous possibilities for safe crossing of the street	1	Numerous possibilities for safe crossing of the street	1
Stop signs	Yes	1	Yes	1	Yes	1
On-street parking	Yes	1	Yes	1	Yes	1
2.5 User Experience						
Air quality on the way to the park	Very good according to Polish air quality standards [Jakość...] Moderate according to AccuWeather [Accuweather, Rumia]	1	Moderate according to AccuWeather [Accuweather, Reda]	½	Very good according to AccuWeather [Accuweather, Wejherowo]	1
Noise level on the walkways to park	Low to moderate in places close to traffic lines	1	Low to moderate in places close to traffic lines	1	Low to moderate in places close to traffic lines	1
Sufficient lighting	Numerous lamps and sufficient lighting along pedestrian walking routes and roads, but parts of the area are dark after dusk	½	Numerous lamps and sufficient lighting along pedestrian walking routes and roads, but parts of the area are dark after dusk	½	Numerous lamps and sufficient lighting along pedestrian walking routes and roads, but parts of the area are dark after dusk	½
Sunshine and shade	Yes; sunny open spaces surrounded by trees providing shade	1	Yes; sunny open spaces surrounded by trees providing shade	1	Yes; sunny open spaces surrounded by trees providing shade	1
Visibility of nearby building	Good visibility of nearby buildings, but there are parts with no view of the city	1	Good visibility of nearby buildings, but there are parts with no view of the city	1	Good visibility of nearby buildings, but there are parts with no view of the city	1
2.6 Public transport stops						
	Bus and train stops within walking distance	1	Bus and train stops within walking distance	1	Bus and train stops within walking distance	1
2.7 Sufficient Parking						
	Yes; numerous parking spots, as well as on-street parking near park	1	Yes; numerous parking spots, as well as on-street parking near park	1	Yes; numerous parking spots, as well as on-street parking near park	1
3. AMENITIES in the park						
3.1 Catering for basic needs						
Safety and security (presence of guards, cleanliness, maintenance, etc.)	Perceived as a safe place	1	Perceived as a safe place	1	Perceived as a safe place	1
Places to sit and relax in quiet	Numerous benches in most popular areas	1	Numerous benches	1	Numerous benches	1
Shelter	Visitors can shelter under tree canopies, gazebo or inside buildings – Cultural Centre restaurant. Provisional temporary structures provide shelter in summer	1	Visitors can shelter under tree canopies, gazebo or inside buildings – Cultural Centre, restaurant. Provisional temporary structures provide shelter in summer	1	Visitors can shelter under tree canopies, gazebo or inside buildings – Cultural Centre, restaurant. Provisional temporary structures provide shelter in summer	1
Restrooms	Yes	1	Yes	1	Yes	1
Drinking water	Restaurant, seasonal cafes	1	Drinking fountains	1	Restaurant, seasonal cafes	1
Food (possibility to buy food in the park or close vicinity)	food stands, restaurant, seasonal café	1	No	0	food stands, restaurant	1
3.2. Psychological and physical regeneration						
Natural Landscapes	Areas that give impression of natural landscape	1	Areas that give impression of natural landscape	1	Forest	1
Green open space	Numerous extensive grass-covered grounds	1	Numerous extensive grass-covered grounds	1	Numerous extensive grass-covered grounds	1
Presence of water	Ponds, river, fountain	1	River, pond, fountain	1	Ponds, canal, fountain	1

Table 2 continued.

Presence of water	Ponds, river, fountain	1	River, pond, fountain	1	Ponds, canal, fountain	1
Places to rest in the sun and shade	Multiple places, incl. play areas	1	Multiple places, incl. play areas	1	Multiple places, incl. play areas	1
Place to rest in silence and solitude	Multiple places	1	Multiple places	1	Multiple places	1
3.3. Promotion of Physical Activities						
Sports and recreational infrastructure	Running loops, bicycle paths, cross-fit stations, recreational infrastructure for all age groups	1	Running loops, bicycle paths, cross-fit stations, recreational infrastructure for all age groups	1	Running loops, bicycle paths, cross-fit stations, recreational infrastructure for all age groups	1
Addressing the needs of people with disabilities	Pathways are wide and even, most of the park area is accessible	1	Pathways are wide and even, most of the park area is accessible	1	Pathways are wide and even, most of the park area is accessible	1
3.4. Promotion of Social Contacts						
Meeting places for groups	Numerous picnic areas, gazebo, restaurant, outdoor café	1	Numerous picnic areas, gazebo, skatepark	1	Numerous picnic areas, gazebo, restaurant-café, museum	1
Stage & audience, open-air theatre	Stage & open green space	1	Open-air theatre	1	Open-air theatre	1
Community gardens	Educational gardens of biodiversity	1	No	0	No	0
4. DESIGN						
4.1. Architectural design						
Human scale	Cozy park interiors	1	Cozy park interiors	1	Cozy places inside the forest	1
Structure of interior connections	Clear structure of interior connections	1	Clear structure of interior connections	1	Clear structure of interior connections	1
Framed views	Natural frames created by mature trees	1	Natural frames created by mature trees	1	Natural frames created by mature trees	1
Long vistas (Extent)	Linear park offers numerous extensive vistas	1	Numerous extensive vistas	1	Numerous extensive vistas	1
Pathways with views	Many paths with interesting views	1	Many paths with interesting views	1	Many paths with interesting views	1
Invisible parts of the scenery (Vistas which engage the imagination)	Vistas that engage the imagination	1	Vistas that engage the imagination	1	Numerous designed vistas that engage the imagination	1
Possibility to watch other people	Plenty of places to watch the activities of other people from a distance	1	Plenty of places to watch the activities of other people from a distance	1	Plenty of places to watch the activities of other people from a distance	1
Possibility to see wildlife	Plenty of places to see wildlife from a distance	1	Plenty of places to see wildlife from a distance	1	Plenty of places to see wildlife from a distance	1
4.2. Salutogenic design						
Optimal level of complexity	Yes; composition of park is legible, yet offers optimal levels of complexity	1	Yes; composition of park is legible, yet offers optimal levels of complexity	1	Yes; composition of park is legible, yet offers optimal levels of complexity	1
Focal points and landmarks	Numerous focal points, landmarks – MDK in the historic villa, restaurant, gazebo open-air stage, playgrounds, sculptures, garden features, colorful bridges, etc.	1	Numerous focal points: open air theatre, gazebo, playground, skatepark, chess tables area, bridge, beach, etc.	1	Numerous focal points: palace, café, playgrounds, outdoor gym, gazebo, open-air stage, open-air amphitheater, labyrinth, etc.	1
Engaging features	Multiple features attract attention	1	Multiple features attract attention	1	Multiple features attract attention	1
Controlled Risk	Several elements offer a subjective feeling of overcoming controlled risk, e.g. bridges	1	Several elements offer a subjective feeling of overcoming controlled risk, e.g. bridges	1	Several elements offer a subjective feeling of overcoming controlled risk, e.g. wooden platforms over wetlands	1
Mystery/Fascination	Presence of sculptures, landscape features	1	Presence of sculptures and monuments, landscape features	1	Presence of sculptures and monuments, landscape features	1
Movement	River, shimmering plants	1	River, shimmering plants	1	River, shimmering plants	1
4.3 Water in the park						
	River, canal, artificial ponds	1	River, pond, fountain	1	Canals, ponds, fountain	1
4.4. Sensory stimuli design						
Sensory stimuli: Sight	Colorful leaves in the autumn, flowering trees in the spring	1	Colorful leaves in the autumn, flowering trees in the spring	1	Colorful leaves in the autumn, flowering trees in the spring	1
Sensory stimuli: Hearing	Rustling sound of the river and plants	1	Rustling sound of the river and plants	1	Rustling sound of the river and plants	1
Sensory stimuli: Smell	Flowering plants	1	Flowering plants	1	Flowering plants	1
Sensory stimuli: Touch	Plants, water	1	Plants, water	1	Plants, water	1
Sensory stimuli: Taste	Restaurant, seasonal café	1	Seasonal café	1	Restaurant, seasonal café	1
Sensory path	No	0	No	0	No	0

Table 2 continued.

4.5 Soundscape						
	Noise reduction, occasional concerts in the park	1	Noise reduction, occasional concerts in the park	1	Noise reduction, occasional concerts in the park	1
5. PLACEMAKING						
5.1 Social engagement						
Organization of events	MDK Cultural Centre, Multiple events, sport challenges, etc.	1	Multiple events	1	Pilgrimages, organized events	1
Personalization	Educational gardens of biodiversity	1	No	0	No	0
Animation	Multiple events	1	Multiple events	1	Multiple events	1
5.2 Human perception -spiritual & symbolic						
Sacred places	Nearby churches	1	Nearby churches	1	Nearby churches, Calvary, Station of the cross	1
5.3 Culture and connections to the past						
	Historic villa, memory of the place, monuments, works of art	1	Monuments, works of art	1	National Heritage Site, Historic palace, chapels, sculptures and paintings, stations of the Calvary reenactment of the Passion of Christ, religious events	1
5.4. Works of Art						
	Sculptures	1	Sculptures	1	Historic heritage: chapels, sculptures, paintings, architecture	1
5.5. Monuments						
	Historic villa	1	New monuments commemorating events and local Community	1	Historic palace, sculptures and monuments, stations of the Calvary	1
5.6. Thematic gardens						
	Educational Gardens	1	No	0	Part of the park on the wetlands	1
TOTAL=92	85		81		84½	

Source: own work

References

- Accuweather Rumia, (2024). Available at: <https://www.accuweather.com/pl/pl/rumia/265570/air-quality-index/265570> (Accessed: 28 March 2024).
- Accuweather Reda, (2024). Available at: <https://www.accuweather.com/pl/pl/reda/265603/weather-forecast/265603> (Accessed: 28 March 2024).
- Accuweather Wejherowo, (2024). Available at: <https://www.accuweather.com/pl/pl/wejherowo/265575/weather-forecast/265575> (Accessed: 28 March 2024).
- Baran, J., Weres, A., Wyszynska, J., Pitucha, G., Czenczek-Lewandowska, E., Rusek W, Leszczak, J. & Mazur, A. (2020). 60 Minutes Per Day in Moderate to Vigorous Physical Activity as a Natural Health Protector in Young Population. *International Journal of Environmental Research and Public Health*, 17(23): 8918. DOI: <https://doi.org/10.3390/ijerph17238918>.
- Barbaro, N. & Pickett, S.M. (2016). Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior. *Personal Individ Differ*, 93: 137–142. DOI: <https://doi.org/10.1016/j.paid.2015.05.026>.
- Bouman, T., Verschoor, M., Albers, C. J., Bohm, G., Fisher, S., Poortinga, W. & Steg, L. (2020). When worry about climate change leads to climate action: How values, worry and personal responsibility relate to various climate actions. *Global Environmental Change*, 62: 102061
- Chahi, C. (2008). Les jardins, nouvelle generation, maison a part 3 avril 2008. Available at: <https://www.maisonapart.com/edito/les-jardins-nouvelle-generation-1517.php> (Accessed: 26 July 2023)
- Czortek, P., & Pielech, R. (2020). Surrounding landscape influences functional diversity of plant species in urban parks. *Urban Forestry & Urban Greening*, 47: 126525.
- Cojocaru, D.C., Gavrilută, D.C.C. & Mitrea, G. (2014). The importance of healthy lifestyle in modern society: a medical, social and spiritual perspective. *European Journal of Science and Theology*, 10(3): 111-120.
- Dentamaro, I., Laforteza, R., Colangelo, G., Carrus, G. & Sanesi, G. (2011). Evaluating the restorative potential of urban and periurban green spaces with different degree of naturalness: a case of study in Italy 14th European Forum on Urban Forestry (EFUF) Glasgow 1-4 June 2011.

- Drapella-Hermansdorfer, A.** (2006) Współczesny park miejski w Europie (Contemporary urban park in Europe – in Polish). In: *Wizja rozwoju Wojewódzkiego Parku Kultury i Wypoczynku im. Gen. Jerzego Ziętka*. Katowice: Urząd Marszałkowski Woj. Śląskiego. Available at: https://slaskie.pl/images/wpkiw/pw_wpme_2.pdf (23.05.2023)
- Edwards, P. & Tsouros, A.D.** (2008). A healthy city is an active city: a physical activity planning guide. In *A healthy city is an active city: a physical activity planning guide*.
- Gidhoni, E.** (2023). Bernex tient enfin son nouveau parc. (Bernex finally have its own new park - in French) Available at: <https://www.tdg.ch/bernex-tient-enfin-son-nouveau-parc-952598378843> (Accessed: 26 July 2023).
- Grahn, P. & Stigsdotter, U.A.** (2003). Landscape planning and stress. *Urban Forestry & Urban Greening*, 2(1): 1-18.
- Grahn, P., Stigsdotter, U. & Berggren-Bärring, A.M.** (2005) A planning model for designing sustainable and healthy cities. The importance of people's need of recreational environments in an urban context. NAEP (National Assoc. of Environmental Professionals) 30th Annual Conference, Alexandria VA, USA, 16-19 April 2005.
- Fukarek, F.** (1964). *Fitosocjologia* (Phytosociology – in Polish). Państwowe Wydawnictwo Rolnicze i Leśne, Akademie Verlag.
- Hrehorowicz-Gaber, H.** (2015). Role of green areas for space integration of Kraków's Metropolitan Area. *Bulletin of Geography. Socio-economic Series*, 28: 69–76. DOI: <https://dx.doi.org/10.1515/bog-2015-0016>.
- Jakość powietrza w Rumii, stan na 28.03.2024 (2024). Available at: <https://powietrze.rumia.eu/map> (Accessed: 28 March 2024).
- Jaszczak, A., Kristianova, K., Pochodyła, E., Kazak, J.K., & Młynarczyk, K.** (2021a). Revitalization of Public Spaces in Cittaslow Towns: Recent Urban Redevelopment in Central Europe. *Sustainability*, 13: 2564. DOI: <https://doi.org/10.3390/su13052564>.
- Jaszczak, A., Pochodyła, E., Kristianova, K., Małkowska, N., & Kazak, J.K.** (2021b). Redefinition of park design criteria as a result of analysis of well-being and soundscape: The case study of the Kortowo Park (Poland). *International Journal of Environmental Research and Public Health*, 18: 2972.
- Kleśta-Nawrocka, A.** (2023). Polskie skarby kulinarne. Plebiscyt na najlepszą restaurację. (Polish Culinary Treasures. Voting for the best restaurant – in Polish) Restauracja Modry Młyn. Available at: <https://www.polskieskarby.pl/szlak-kulinary/trojmiasto/restauracja-modry-mlyn> (Accessed: 28 July 2023).
- Kuo, F.E., Bacaicoa, M. & Sullivan, W.C.** (1998). Transforming inner-city landscapes: Trees, sense of safety, and preference. *Environment and behavior*, 30(1): 28-59.
- Kuo, F.E.** (2010). Parks and other green environments: 'essential components of a healthy human habitat'. *Australasian Parks and Leisure*, 14(1): 10-12.. Available at: <https://www.nrpa.org/globalassets/research/mingkuo-research-paper.pdf>.
- Krzepitowska-Moszkowicz, I., Moszkowicz, Ł. & Porada, K.** (2021). Evolution of the concept of sensory gardens in the generally accessible space of a large city: Analysis of multiple cases from Kraków (Poland) using the therapeutic space attribute rating method. *Sustainability*, 13(11): 5904. DOI: <https://doi.org/10.3390/su131159>.
- Krzepitowska-Moszkowicz, I., Moszkowicz, Ł., & Porada, K.** (2022). Urban Sensory Gardens with Aromatic Herbs in the Light of Climate Change: Therapeutic Potential and Memory-Dependent Smell Impact on Human Wellbeing. *Land*, 11(5): 760. DOI: <https://doi.org/10.3390/land11050760>.
- LaPaix, R. & Freedman, B.** (2010). Vegetation Structure and Composition within Urban Parks of Halifax Regional Municipality, Nova Scotia, Canada. *Landscape and Urban Planning*, 98: 124–135.
- Largo-Wight, E.** (2011). Cultivating healthy places and communities: evidenced-based nature contact recommendations. *International Journal of Environmental Health Research*, 21(1): 41-61.
- Maas, J., Verheij, R.A., de Vries, S., Spreeuwenberg, P., Schellevis, F.G. & Groenewegen, P.P.** (2009). Morbidity is related to a green living environment. *Journal of Epidemiology & Community Health*, 63(12): 967-973.
- Map data (2023). ©2023 Google (Accessed: 23 May 2023).
- Map data from Geoportál 3D (2023). Available at: https://mapy.geoportál.gov.pl/imap/Imgp_2.html?gmap=imap3d (Accessed: 23 May 2023).
- Map of the park in Reda. (2023). Available at: https://cloud.e-mapa.net/?x=18.352033&y=54.606190&sr_id=4326 (Accessed: 23 May 2023).
- Moszkowicz, Ł., Krzepitowska-Moszkowicz, I. & Porada, K.** (2021). Relationship between parameters of public parks and their surroundings and the richness, diversity and species composition of vascular

- herbaceous plants on the example of Krakow in Central Europe. *Landscape Online*, 94-94.
- Municipality of Rumia. (2019). Official webpage. 2019 Podwórko Talentów Nivea już otwarte, Portal internetowy miasta Rumia. Available online: <https://rumia.eu/podworko-talentow-nivea-juz-otwarte> (Accessed: 28 July 2023).
- Na ogrodowej. Park im. Aleksandra Majkowskiego w Wejherowie. (2023). (Park named after Aleksander Majkowski in Wejherowo – in Polish) Available at: <https://naogrodowej.pl/park-im-aleksandra-majkowskiego-w-wejherowie/> (Accessed: 23 May 2023).
- Nielsen, A.B., Van Den Bosch, M., Maruthaveeran, S. & van den Bosch, C.K. (2014). Species richness in urban parks and its drivers: A review of empirical evidence. *Urban ecosystems*, 17: 305-327.
- Ouest France. (2015) Nantes. Au Sillon, un parc urbain nouvelle generation. (Nantes, urban park of new generation – in French) Available at: <https://www.ouest-france.fr/pays-de-la-loire/nantes-44000/nantes-au-sillon-un-parc-urbain-nouvelle-generation-388d9062-dba1-11e9-8deb-0cc47a644868> (Accessed: 26 July 2023).
- Park Miejski w Wejherowie. (Municipal Park in Wejherowo – in Polish). (2023). Available at: <https://turystyka.wejherowo.pl/s/14-park-miejski> (Accessed: 23 May 2023).
- Piscitelli, A. & D'Ugento, A.M. (2022). Do young people really engage in sustainable behaviors in their lifestyles? *Social Indicators Research*, 163(3): 1467-1485. DOI: <https://doi.org/10.1007/s11205-022-02955-0>.
- Pleshkanovska, A.M. (2020). Assessing the level of greening in a major city: subjective and objective evaluation on the example of the city of Kyiv. *Bulletin of Geography. Socio-economic Series*, 48(48): 155-164. DOI: <https://doi.org/10.2478/bog-2020-0019>.
- Roe, J. & McCay, L. (2021). *Restorative Cities: Urban design for mental health and wellbeing*. Bloomsbury Publishing.
- Sempik, J., Aldridge, J. & Becker, S. (2005). Growing Together: A practice guide to promoting social inclusion through gardening and horticulture. *Policy Press*.
- Sempik, J., Aldridge, J. & Becker, S. (2005). Health, well-being and social inclusion: therapeutic horticulture in the UK. *Policy Press*.
- Stigsdotter, U. & Grahn, P. (2003). Experiencing a garden: A healing garden for people suffering from burnout diseases. *Journal of therapeutic horticulture*, 14(5): 38-48.
- Stigsdotter, U.K. & Grahn, P. (2011). Stressed individuals' preferences for activities and environmental characteristics in green spaces. *Urban forestry & urban greening*, 10(4): 295-304. DOI: <https://doi.org/10.1016/j.ufug.2011.07.001>.
- Strategia Rozwoju Gminy Miasto Reda do 2030 roku, (Strategy for the development of the town of Reda until 2023 – in Polish). (2023). Available at: <https://miasto.reda.pl/strategia-2030/>.
- Szymańska, D. (2023). *Inteligentne miasta (Smart cities - in Polish)*. Wydawnictwo Naukowe PWN. Warszawa. DOI: <https://doi.org/10.53271/2023.090>.
- Takano, T., Nakamura, K. & Watanabe, M. (2002). Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spacer *Journal of Epidemiology Community Health*, 56: 913-918.
- Trojanowska, M. (2017). *Parki i ogrody terapeutyczne*. (Therapeutic parks and gardens – in Polish). Wydawnictwo Naukowe PWN, Warszawa.
- Trojanowska, M. (2018). Sacred places in public open green areas. *Teka Komisji Urbanistyki i Architektury Oddziału Polskiej Akademii Nauk w Krakowie*, 419-429.
- Trojanowska, M. (2019). Justification tool for health-affirming urban places design. *Budownictwo i Architektura*, 18(2): 121-143. DOI: [10.35784/bud-arch.559](https://doi.org/10.35784/bud-arch.559), <https://ph.pollub.pl/index.php/bia/article/view/559>.
- Trojanowska, M. (2020a). The new generation of urban parks and health-promoting landscapes in eco-neighborhoods. *Technical Transactions*, 117(1): e2020003. DOI: <https://doi.org/10.37705/TechTrans/e2020003>.
- Trojanowska, M. (2020b). Therapeutic Qualities and Sustainable Approach to Heritage of the City. The Coastal Strip in Gdańsk, Poland. *Sustainability*, 12: 9243. DOI: <https://doi.org/10.3390/su12219243>.
- Trojanowska, M. (2021). A universal standard for health-promoting places. Example of assessment—On the basis of a case study of Rahway River Park. *Budownictwo i Architektura*, 20: 57–82.
- Trojanowska, M. (2022). Climate change mitigation and preservation of the cultural heritage—A story of the Municipal Park in Rumia, Poland. *Land*, 11(1): 65. DOI: <https://doi.org/10.3390/land11010065>.

Trojanowska, M. (2023a). *Projektowanie zielonych przestrzeni publicznych (Designing green public spaces – in Polish)* Wydawnictwo Naukowe PWN, Warszawa.

Trojanowska, M. (2023b). Reclamation of polluted land in urban renewal projects. Literature review of suitable plants for phytoremediation. *Environmental Challenges*, 13: 100749. DOI: <https://doi.org/10.1016/j.envc.2023.100749>.

Trzaskowska, E. & Adamiec, P. (2011). Runo parków miejskich Lublina. *Acta Scientiarum Polonorum. Formatio Circumiectus*, 10(4): 51–59.

Park Miejski Wejherowo, Historia (2023). Available at: <https://www.parkmiejskiwejherowo.wznk.pl/park/historia/> (Accessed: 23 May 2023).

Wejherowo.pl (2023). Park Miejski. Prace inwestycyjne w Parku Miejskim im. Aleksandra Majkowskiego „Przywrócenie walorów historyczno-przyrodniczych Parku Miejskiego im. A. Majkowskiego w Wejherowie”. Wejherowo. Available at: <https://www.wejherowo.pl/inwestycje/park-miejski-i3.html> (Accessed: 23 May 2023).

Wejherowo.pl (2023). „Oranżeria La Belle” - gastronomiczny wizerunek Wejherowa. (Restaurant „Oranżeria La Belle” – gastronomic image of Wejherowo. Wejherowo. Available at: <https://www.wejherowo.pl/artykuly/oranzeria-la-belle-gastronomiczny-wizerunek-wejherowa-a6363.html> (Accessed: 28 July 2023).

