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Urban Cemeteries—Places of Multiple Diversity and Challenges. A Case Study from Łódź (Poland) and Leipzig (Germany)

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Abstract: This article presents a pilot study investigating the multidimensional diversity of cemeteries as an important element of cultural heritage and green infrastructure within the urban landscape. We studied the state and diversity of nature, perceptions, and activities of visitors. As religion is an important aspect that differentiates cemeteries from each other, we studied a sample of four multi-confessional urban cemeteries in Łódź (Poland) and Leipzig (Germany) by using site observation and a questionnaire survey. We found that cemeteries are far undervalued as public green resources that can perform important functions in sociocultural life and the mental well-being of the general public, as the perceptions of silence- and contemplation-seeking visitors tell us. The perception of cemeteries depends on the level of secularization, varying from a sacrum sphere up to specific recreational and touristic opportunities; findings that should be considered by town planners when optimizing the cultural ecosystem services of green spaces.

Keywords: ecosystem services (ES); urban cemeteries; biocultural diversity (BCD); urban green infrastructure (UGI); questionnaire survey; Leipzig; Łódź

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1. Introduction

The increasing number and size of urban areas and the continuous transformation of urban landscapes pose big challenges for urban environments, such as the decline in the quality and quantity of green space, loss of biodiversity, ecosystem degradation, and citizens' disconnection from nature, which affect their health and well-being [1,2]. In this regard, it becomes highly important that green spaces in cities are appropriately designed to become multifunctional to meet the various needs of the urban population. A review of existing research on urban green spaces and ecosystem services (ES) shows that in most cases, scientists focus on urban forests, street trees, parks, and gardens, while cemeteries remain overlooked. Moreover, a vast literature deals extensively with the definition of green space that is rarely based on urban atlas classification, namely, "forest" and "green urban areas". It includes different land uses in one class, and important urban green spaces such as cemeteries are not included. As cemeteries are defined differently in different areas (or entirely overlooked), there is no shared understanding of their role and function in wider built environment networks. In addition, current research on cemeteries has rarely used an interdisciplinary approach, and there are few studies that are based on both concepts of ES and biocultural diversity (BCD) that are of an interdiscip, linary nature. This is because cemeteries, even when included in the concept of urban green infrastructure (UGI), are not ascribed qualities similar to those ascribed to public green spaces such as parks, forests, street trees, green roofs, and gardens; instead, most qualities are related to cultural history [3–5]. To date, research on cemeteries has been

preliminarily restricted to biodiversity and conservation aspects, including research on their vegetation and fauna [6–10], restorative components and compatibility [5,11], historical and cultural (e.g., cultural heritage and cultural encounters) [12–15], and aesthetic, spiritual and recreational [5,14,16–22] aspects. However, some current studies have also highlighted the big potential of cemeteries as an element of a city's greenery, being of multifunctional use with different uses and meaning [3–5,14,16,23].

In this context, this paper aims to fill the knowledge gap by examining the contribution of the urban cemetery as neglected green space to UGI and ES. We suggest the application of a multidimensional set of indicators to assess urban cemeteries as an important element of UGI, which can provide a specific range of ES. We empirically studied this new phenomenon by using a sample of four multi-confessional cemeteries in Leipzig (Germany) and Łódź (Poland) through site observation and a questionnaire survey. Additionally, this study also applied the concept of biocultural diversity (BCD) which gives acknowledgement to the diversity of understandings and appreciation of urban nature, and promotes alternative ways of living and being within cities [24,25]. Because there is neither specific literature on the large BCD of cemeteries nor any empirical studies, we had to work creatively with different sets of literature to produce our own synthesis. To the best of our knowledge, no study has addressed this overlap of processes (ES provided by urban cemeteries as an element of UGI of multifunctional use and meaning, resulting from a BCD approach) to date, in a spatially explicit manner. In the four different sets of literature (e.g., biodiversity aspects of cemeteries, cemeteries as cultural heritage including its historical and cultural values, recreational and restorative values of cemeteries, cemeteries as an element of a city's greenery) that we analyzed, there was a lack of research of the following perspectives: (a) diversity in a double sense, (b) multifunctionality, (c) multiculturality, and (d) integration of neglected social groups. From these perspectives, we developed our research questions to explore cemeteries as repositories of natural and cultural diversity, highlighting their huge potential for UGI and ES provision, and to introduce a framework for enhancing ecosystem processes and human uses in urban cemeteries. In doing so, we focused on viewpoints of utilization of the cemetery space and visual impact of the cemetery to people. We aimed to learn the perceptions of people who visit cemeteries, because they can provide everyday observations and perspectives related to those cemeteries. In order to achieve this goal, a pilot study was carried out to observe the sites (determination of the extent of ES and visitor's activities in given cemeteries) and by conducting a questionnaire survey among users.

We proposed five working research questions and objectives that help to better conceptualize possible future trends in the development and use of cemeteries as elements of UGI:

1. Do cemeteries have specific socio-ecological potential and fulfil ecological functions (e.g., climate regulation, habitat sphere, niche, original species niche) that differ from other urban green spaces?
2. What ES are provided by urban cemeteries? Do they differ in selected cases from Łódź and Leipzig?
3. Do cemeteries serve specific groups of urban population (neglected people) that are significantly different from those groups that use other green spaces within the city?
4. Is there a difference in the opinions of cemetery visitors within nations (German and Poles)?
5. What are the specific and informed recommendations for better integration of cemeteries in urban GI planning?

These five questions are of an integrative heuristic nature because, to date, theoretical considerations or solid empirical research findings on this topic barely exist. They are derived from the recent literature mentioned above and from pre-surveys conducted by the authors in April and June 2017 and 2018, in both case study cities [26,27]. These questions not only describe trajectories of future development of cemeteries as an element of UGI, but also provide an important conceptual starting point for our empirical research.

2. Materials and Methods

Methodically, the study used a four-step process, starting with preliminary research and identification of the research gap, research design and methodology for data collection (step 1), collecting data using site observation and a questionnaire survey among cemeteries' visitors (step 2), processing and analyzing data by applying spatial analysis and statistical analysis of the data obtained (step 3), and finally, data interpretation and alignment with previous studies (step 4).

Considering the five working research questions and objectives mentioned above, we developed a research framework which incorporates all steps 1–4 (Figure 1). It consisted of three main elements: cultural diversity, biological diversity, and biotic features and grey infrastructure, which aimed to explore and better conceptualize cemeteries as elements of UGI, reveal a set of ES provided by cemeteries, and investigate different ways of using cemeteries in daily life and visitors' activities, so as to understand people's opinions about these activities. This should enable a better understanding of the current role of the cemeteries within the urban fabric, not only for GI planners and scientists, but also for neglected groups of people who need other types of recreation which cannot be provided by certain crowded public parks or gardens.

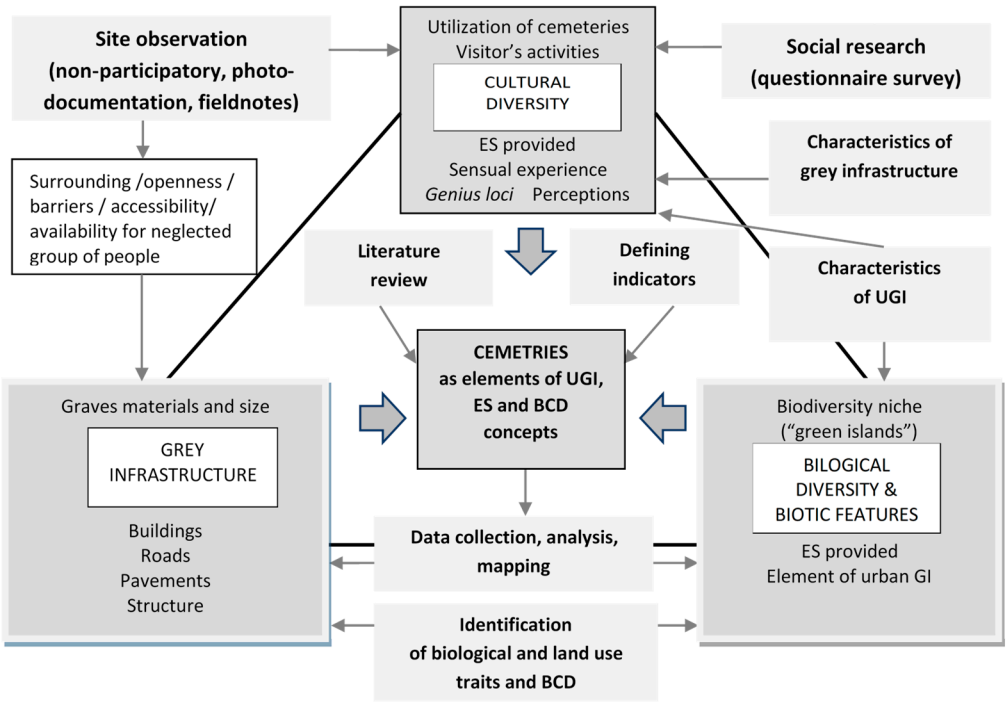


Figure 1. Research framework. Source: authors.

2.1. Study Area

We studied a sample of four multi-confessional cemeteries—two in Leipzig (Saxony, Eastern Germany), and two in Łódź (Łódzkie Voivodeship, Central Poland). The cities are similar due to their historical background as cities with factories which developed in the 19th century (Figure 2).

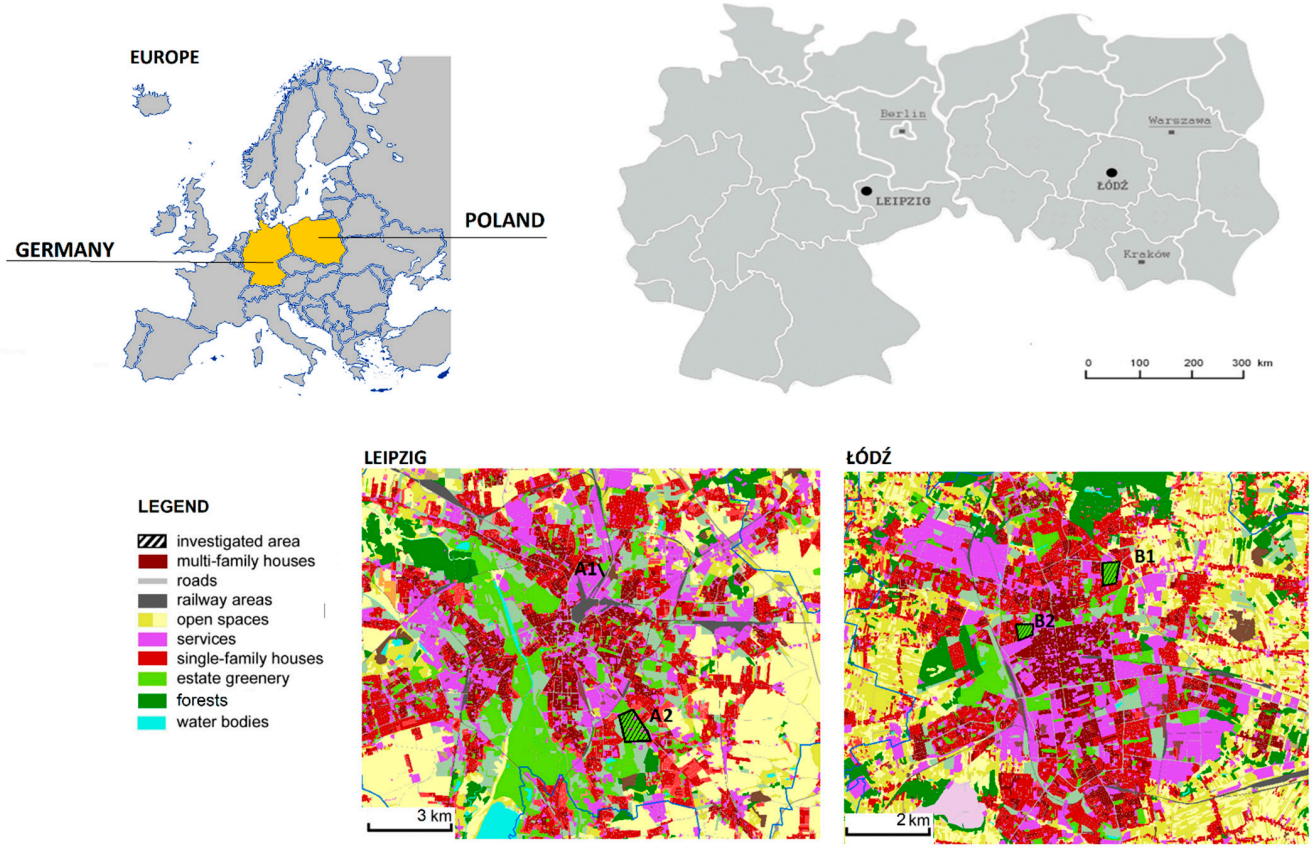


Figure 2. Study areas and site locations in Leipzig, Germany (A1 and A2) and Łódź, Poland (B1 and B2). Author: A. Długoński, based on [28,29].

Two different cemeteries in Leipzig, South Cemetery (Südfriedhof) and Old Jewish Cemetery (Der alte jüdische Friedhof), were chosen for the pilot study, to compare with Ogrodowa Street Cemetery (Stary Cmentarz) and Jewish Cemetery (Cmentarz Żydowski) situated in Łódź (Figure 3). The rationale for case sites' selection relates to several reasons. Firstly, these cemeteries have similar confessions (Christianity and Judaism), the highest recreational and tourist potential, and the most representative function of existing cemeteries in both cities. Secondly, they have strong traditions derived from other cultures and different genius loci (the spirit of the place). Thirdly, the size and shape of the areas, in addition to the same annual seasons and comparable bio-regions, provided important constants, which are key in such a comparison. For each city, two cemeteries were selected which are different in terms of their form and size, and canopy cover (high/low), and thus show a maximum variability. The selected cemeteries are unique, have multicultural characteristics, and are places of memory or remembrance of important people who were directly involved and have contributed to the creation of these two similar cities in Central Eastern Europe in their time. Moreover, the selection of the study sites included practical aspects such as good accessibility for the researchers and the experience of working in this study area, and thus the discussion benefited from this embedded knowledge. Cultural familiarity of the researchers with the religions of the cemeteries enabled the field study to be sensitively conducted, acknowledging all ethical aspects and tacit behavioral rules at the sacred places.

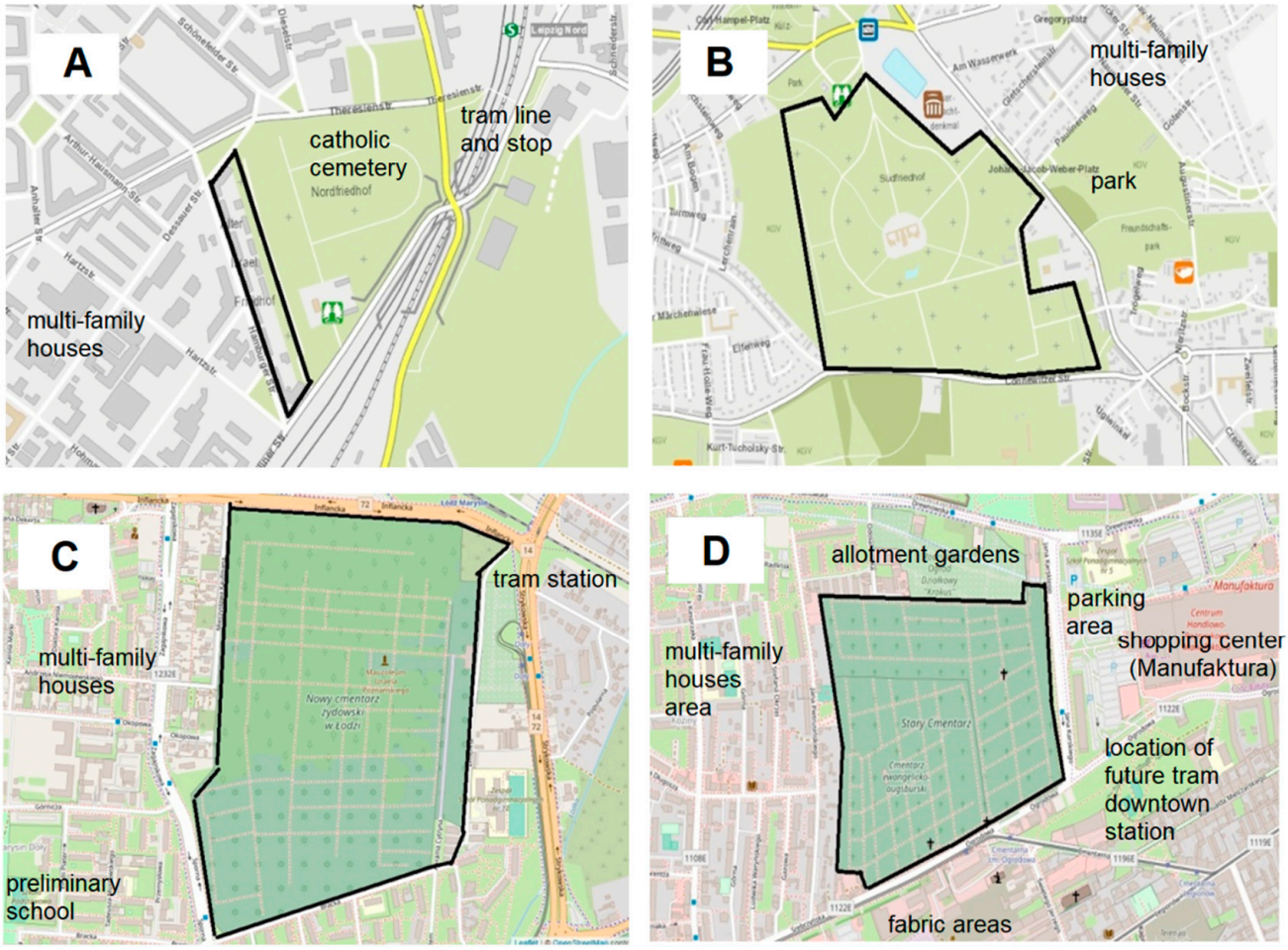


Figure 3. Maps with location of case studies (black line—boundary of given cemetery) with neighborhood: (**A**)—Old Jewish Cemetery in Leipzig (Germany), (**B**)—Südfriedhof Cemetery in Leipzig (Germany), (**C**)—Jewish Cemetery in Łódź (Poland), (**D**)—Ogrodowa Street Cemetery in Łódź (Poland). Author: A. Długoński, based on [28].

The analyzed cemeteries are located in densely built-up cities. Südfriedhof Cemetery in Leipzig is located in the southern part of the city, and the Old Jewish Cemetery in the city center. Ogrodowa Street Cemetery is in the central part of Łódź city, and the Jewish Cemetery is in the northeastern part of this city. Although in the past, cemeteries were located on the outskirts of cities, with time the cities grew, and cemetery facilities began to adjoin multi-family buildings, industrial and communication infrastructure, and less often with open areas. Currently, all analyzed objects are surrounded by multi-family buildings, some of which are located in close proximity to other green areas (allotment gardens—Ogrodowa Street Cemetery; or parks—Südfriedhof; or other religious cemeteries—Old Jewish Cemetery), in addition to important communication routes (main city roads—both Jewish or railroad cemeteries—Old Jewish Cemetery, Ogrodowa Street Cemetery) thus providing easy access or travel to visiting people (Figures 2 and 3).

2.2. Data Collection

On the basis of TEEB classification of ecosystem types [30] and the framing provided by Common International Classification of Ecosystem Services (CICES) V5.1 [31], we elaborated the classification scheme of cemeteries' ecosystem services' research, extending it by our own developed approach which was applied by us in previous studies of ES of different urban green areas [1,25,32,33]. Because this study is geared toward fundamental research in the (new) overlapping field that incorporates the concepts of UGI, BCD, and

ES [1,3,24,25,30,31,34] for green spaces, we used a literature review on ES provided by urban cemeteries and analyses of data on UGI based on different techniques developed and applied by us in previous research [35–42]. Other methodological approaches such as site observation, photo documentation, field notes, and non-participatory observation, were also applied [43–45].

2.2.1. Literature Review on Ecosystem Services Provided by Cemeteries

Using the above-mentioned framework adapted from [32,33], we explored the potential ecosystem services that may be provided by cemeteries in general, and later linked them to the ES supply by the selected cemeteries. It focused on provisioning (e.g., water for drinking, cultivated plants), regulating (e.g., mediation of wastes, flood protection) and cultural ecosystem services (e.g., experiential and physical use, education), although acknowledging that these are underpinned by "supporting" conditions (e.g., primary production). We examined the potential ecosystem services provided by cemeteries through a review of the literature related to cemetery design, management and use, further spatial analysis of the OS Open Greenspace data, and surveys of four studied cemeteries in Leipzig and Lodz. The results of the literature review are further provided in the results section and linked to the supply of ecosystem services by the selected cemeteries (Table 1).

2.2.2. Site Observation Using Non-Participatory Observation, Photo Documentation and Field Notes

Based on the approach of Bryman 2016 [43], site observation was first used to form a research hypothesis, and later, to gain data concerning a burial practice and visitors' behavior. This method was chosen as most probable to provide the initial understanding of cemeteries' functions. Furthermore, observation of the sites provided an understanding of how selected burial sites looked, and observation of people visiting the sites provided information on how these burials were treated within German and Polish societies. Observation of these cemeteries was conducted as non-participatorily and non-obstructively as possible. Field notes were taken immediately on the site, and were expanded upon in the evening of the same day, in addition to later being discussed. The notes included a description of location, structure of visitors, the purposes and length of visits, date and time of the day, characteristics of burial ground and its design, etc.

Photo documentation and field notes were also used to explore the local context before starting the site observation and survey, but later they helped to support (and in some cases better interpret or provide more details to) the results from the questionnaire survey and spatial analysis. In particular, we applied the approach of Emerson et al. (2011) [44] to writing ethnographic field notes in order to produce data that could be analyzed to gain insight and advance our knowledge. Following the approach of Holm (2014) [45], we conducted visual documentation by creating images that documented and answered specific research questions.

2.2.3. Questionnaire Survey and Pre-Survey

Survey data were collected using an on-site questionnaire distributed simultaneously in four selected cemeteries of Leipzig (Südfiedhof Cemetery and Old Jewish Cemetery) and Łódź (Ogrodowa Street Cemetery and Jewish Cemetery) in June–August 2019. As a starting point for the survey, pre-surveys were conducted by the authors in April–September 2017 and 2018 in both case study cities [26,27]. The sample was restricted to visitors of the selected cemeteries. This pre-survey not only helped to explore the key issues of cemeteries as an element of UGI, but also provided an important conceptual starting point for our empirical research and to describe trajectories for future development.

A total of 122 individuals (37 men and 41 women from Łódź; 18 men and 26 women from Leipzig) participated in the questionnaire survey in the summer of 2019.

The survey consisted of two parts. In the first part, the respondents were asked their basic data (gender, age, education, marital status) in order to assign them to a group of

respondents. In the second part of the questionnaire, consisting of five main questions written in the respective local language (German or Polish), respondents were asked about the uses of cemetery spaces. This part of the questionnaire focused on their viewpoints of the utilization of the cemetery space and the visual impact of the cemetery on people. However, the survey also aimed to explore the perceptions of people who lived in the surrounding area of those cemeteries, because they could provide everyday observations and perspectives to those cemeteries. All questions were provided with several fixed responses (from three to five options to select) and explanation where needed. The questions included the issue of cemetery use, its further development and management, potential for the cemetery to become a space for recreation, and opportunities cemeteries can provide for recreation (Figure 4).

Questionnaire survey about the uses of cemetery spaces **Date of survey**_____

Site ID **Name of cemetery)** _____ **Surveyor**_____

- We focus on viewpoints of utilization of cemetery space and visual impact of cemetery to people;
- We want to learn the perceptions of people who live in the surrounding area of those cemeteries because they can provide everyday observations and perspectives to those cemeteries.

1. What was the reason for their your visit to the cemetery?

☐ visit the graves of their relatives ☐ practicing tourism, walking and admiring given cemetery area

☐ practicing tourism, walking and admiring given cemetery area ☐ making other things there: "participation in a funeral, cleaning the graves, observing nature and sculptures, re-search etc."

2. What is your opinion on management in cemeteries?

☐ Lack of knowledge about management of urban cemeteries ☐ Improper plant species selection

☐ Lack of organizational efficiency ☐ They are well managed ☐ Lack of integration with other organizations or communities of interest ☐ They are neglected places

3. What kind of recreational uses can cemeteries provide?

☐ ***Potential recreational Uses*** " I observe many people use cemetery spaces but I never go there. "Maybe anniversary events...it been around a long time...I think we should really start to think to put another building or houses in there....Maybe a church."

☐ ***Not sure:*** "it does have historical significant that definitely can be... the cemetery is like a preserved area that they can built buildings on it."

☐ ***No recreational use:*** "I rather disagree with the idea that cemeteries should be used for recreational uses, since it's not about recreational. ...It is a place of absolutely silence. Places between the party zone and where I live...it creates some kind of buffer in the middle of the town.

4. Should cemeteries be part of town's recreational inventory?

☐ **No:** "I don't think they would. In our culture, we think cemetery is a place to respect and designated only for funerary uses. If we go there, it would be a reason to see our relatives. But never thought about it can be a place to go have types of activities or celebrations."

☐ **Dobts:** "I don't know what can be there. This is a place to respect and sacrum sphere ...."

☐ **Not sure:** "I would rather deny as cemetery can be a part of recreational inventory as long as it is used as a cemetery but for walking purpose it is good for people live nearby.

☐ **Not needed anymore:** "I would rather deny as cemetery can be a part of recreational inventory as long as it is used as a cemetery but for walking purpose it is good for people live nearby.

☐ **Yes, due to lacking other recreation sites:** "I think this cemetery should be relocated or removed in this area, he notes that "for the type of people live here, I didn't think it is a place that people will go there have activities..."

5. Is this cemetery accessible to you?

☐ **Yes:** "you can see a lot of cars driving through it, also people walking"

☐ **Not sure:** "Cemeteries had difficulties with finding not sure with entrance to the cemetery, ...It it problem to find place for parking or way how to getting by public transport... I do not expect all rules for being in the area of cemetery..., I am aware about theand open hours problematic."

☐ **No:** "The cemetery in not accessible form me..." I do not want to go there because the given cemetery is unpleasant or horrible and overwhelming space for me"

Figure 4. Questionnaire template (Source: authors).

2.3. Data Analysis

2.3.1. Statistical Analyses

Statistical analysis using the chi-quadrat test was undertaken to analyze the data of the questionnaire survey conducted during the pilot study, in order to determine future spatial and societal trends in urban development, and to draw conclusions. All selected data are expressed in tables showing the number and percentage of responses by visitors in each nation (separately for Poles and Germans). Statistical comparisons of response rates between respondents by nationality in selected questions (Q1–Q5) of the questionnaire survey were performed using the chi-quadrat test. Values of $p \leq 0.05$ were considered to be statistically significant. All statistical analyses were performed with Statistica 13.0 (statSoft) software [46].

2.3.2. Spatial Analyses

Maps illustrating the location of selected cemeteries in the neighborhood and foreground of a given city were elaborated based on geographic information systems (GIS) in QuantumGIS (version 3.12) software (Mountain View, CA, USA), and OSMStandard by OpenStreetMap GIS portal [28] and Urban Atlas [29].

3. Results from Pilot Study

3.1. Ecosystem Services Provided by Urban Cemeteries

The observations showed that the selected cemeteries from Leipzig and Łódź have specific recreational, cultural and natural potential that differ from other urban green spaces. The explanation for this is their urban location: the selected cemeteries are typically located within the cities and are (as in the case of Südfriedhof and Ogrodowa Street cemeteries) larger and older than many municipal parks. From this urban perspective, cemeteries play a key role in contributing to the UGI and delivery of a wide range of ES (Table 1). Not underestimating the value of urban cemeteries to deliver provisioning ES, in our pilot study we mostly focused on their supporting, regulating and cultural ES. Cemeteries have multiple specific biodiversity, and serve as habitats for unique species of urban flora and fauna (supporting ES) (see Section 3.2). This is mostly due to the fact that, in comparison with other green spaces in Leipzig and Łódź, selected cemeteries are not such dynamic landscapes: once constructed, they remain as burial space with appropriate low-impact management and maintenance in naturalistic style, without radical change (they were never transferred to a built-up or sealed area). The selected cemeteries also make substantive contribution to delivering a range of regulating ES (e.g., climate regulation, habitat sphere, and green corridors) that help to mitigate the effects of urban heat island, flooding, air and water quality, and loss of biodiversity, which was revealed within the previous research of the authors [36–39,41,42]. Our pilot study also revealed a wide scope of cultural ES delivered by cemeteries (see Section 3.3). Among them are the therapeutic role of cemeteries as places for psychological regeneration and for rebuilding the body spiritually, which seems to be especially important in hectic or dense urban spaces such as Leipzig and Łódź, where there is a high stress level during/after working hours and lack of place for (self-)reflection. They are areas with historical significance, telling the history of culture and religion and people who developed and built the historical heritage objects in both cities. This creates an opportunity for developing thanatourism (sightseeing of cemeteries), observed especially strongly in both Jewish cemeteries, as a narrow range of tourism. The selected cemeteries were also characterized as sites with multiple diversity, with a cultural display for visitors and offering selected recreational activities. Within the pilot study, we realized that cemeteries are important spaces for "passive" recreation (e.g., to accommodate low-impact activities such as walking or bird watching, or provide an area for visual release) for some specific (neglected) social groups who need places for silence and self-reflection which cannot be provided by urban parks, gardens, etc.

Table 1. Characteristics of ES provided by selected cemeteries in Leipzig and Łódź considering the results of a literature review on the respective ES of cemeteries. Legend: A—Old Jewish Cemetery in Leipzig (Germany), B—Südfriedhof Cemetery in Leipzig (Germany), C—Jewish Cemetery in Łódź (Poland), D—Ogrodowa Street Cemetery in Łódź (Poland).

ES Category	ES Characteristics	Studies Confirmed	A	B	C	D
supporting	provide habitat for unique species of urban flora and fauna	[6–10,12]	x	x	x	x
	soil formation, photosynthesis, primary production, nutrient and water cycling	[16,47]	x	x	x	x
provisioning	landscape of consumption and use which is incrementally changing with each new burial	[5,13,20]	x	x	x	x
regulatory	help to mitigate the effects of the urban heat island, flooding, air and water pest and disease	[16,47,48]	x	x	x	x
cultural	provide special type of recreation	[5,11,14,18, 19,22]	x	x	x	x
	potential benefits for mental health and well-being	[14,16,22, 47]	x	x	x	x
	role as sacred places	[5,17,20,49]	x	x	x	x
	help in preserving and enhancing the character and cultural identity of the cemetery landscape	[14,15,47, 50]	x	x	x	x
	tell diverse stories of the city and represent intangible notions of the character of giving place	[15,19,51–54]	x	x	x	x
	cognitive development, spiritual enrichment, educational-civic function	[17,48]	x	x	x	x
	aesthetic value and experience	[17,47,52, 55,56]	x	x	x	x
multiple	type of urban green providing a variety of ES, place of biological and cultural diversity	[3,4,47,50, 56]	x	x	x	x
ES disservices	"disservices" such as allergens, invasive/dangerous/poisonous species, and the degradation of groundwater quality negative social perception of cemetery as a space for recreation and the ecosystem in which the cemetery exists	[16,47,50] [51–58]	x	x	x	x

Legend: x—the occurrence of a given feature was observed in the given cemetery.

To sum up, all four cemeteries in Łódź and Leipzig, regardless of their multidimensional diversity and several characteristics (size, history, use intensity, structural diversity, etc.), deliver all categories of ES, which leads to the conclusion that they offer fundamental ecological functions in terms of the benefits they provide to society as human well-being, which are similar, in this term, to other areas of UGI (Table 1).

3.2. Wild Nature in Cemeteries

All four selected cemeteries contain nature elements, including: old symbolic and valuable trees and shrubs (e.g., birch, lime, ash, spruce, yews, etc.) and creepers (e.g., ivy); different animals (e.g., squirrels, bugs, wildcats, hedgehogs, etc.), birds (e.g., thrushes, woodpeckers and towers, etc.) and insects (e.g., beetle, ants, etc.); and cultural–historical

elements (gravestones, sculpture). Because of the high potential to serve as refuge areas (e.g., surface for retreat) for flora and fauna in terms of biodiversity, they provide cities with habitat for native wildlife (Figure 4). The landscape of the Südfriedhof is structured, and resembles a city park. It is similar to the Ogrodowa Street Cemetery, where trees are planted with avenues modelled on the park cemetery, such as the French Père-Lachaise Cemetery. A different situation was observed in both Jewish cemeteries. Cmentarz Żydowski in Łódź is dilapidated and densely overgrown, with an undergrowth of old trees and ruderal vegetation that overgrow cemetery quarters. Only a small part of the Jewish Cemetery in Łódź is covered with grass (ghetto area), which is closer to the design of the Old Jewish Cemetery in Leipzig (Figures 5 and 6).



Figure 5. Wildlife and tombstones in Jewish cemeteries in Łódź and Leipzig. Legend: (**A**)—sequel, (**B**)—two examples of insect groups, (**C**)—creepers *Hedera helix*. Photographs: A. Długoński.



Figure 6. Views on case studies (site observation): (**A**)—Old Jewish Cemetery in Leipzig (Germany), (**B**)—Südfriedhof Cemetery in Leipzig (Germany), (**C**)—Jewish Cemetery in Łódź (small photo: ghetto area), (**D**)—Ogrodowa Street Cemetery in Łódź. Photographs: A. Długoński and D. Dushkova.

The pilot study revealed that all four cemeteries have a large variety of tree species, especially when compared with the adjacent/neighboring area. Both young and old, single and groups of trees were recorded. Tree-lined paths were also mapped. Many different hedges and shrubs were also revealed. In some parts of the Südfriedhof and Ogrodowa Street cemeteries, a densely wooded area similar to relict nature was recorded. On the partly cultivated and partly natural meadows, a large number of different ground covers and meadow plants, together with diverse spontaneous vegetation, was revealed. Along with such natural hotspots of biodiversity, in several parts of Südfriedhof and Ogrodowa Street cemeteries, a wide variety of plantings on the graves and flowerbeds was revealed, that additionally contributed to a great diversity of flora within the cemeteries' landscape. According to site observation, there was no infrastructure revealed for active recreation, for example, cycle paths, playgrounds, sports fields or tennis tables. Only infrastructure elements for low-impact recreation such as benches, pavilions, monuments, statues, memorial plaques and a mourning café were identified. Public sanitary facilities and a lighting fixture were also present in the southern cemetery. Altogether, it again underlined the contribution of burial sites to biodiversity support in urban landscapes.

3.3. Utilization of Cemeteries: Visitors' Activities and Potential for Recreation

3.3.1. Results from Site Observation

Site observation analyses of the four cemeteries showed that most activities that occurred were for visiting the graves of relatives, sightseeing (for tourism purposes or observing places of historical value such as thanatourism), walking and contemplating, spending time with children, and relaxing (Figure 7).

For the Südfriedhof Cemetery, additional activities included reading books and enjoying nature, because this landscape is similar, as stated earlier, to an urban park. Activities such as cleaning graves, cycling, sitting on benches, resting, and participation in funerals were rarely observed at Südfriedhof and Ogrodowa Street cemeteries.

We observed that Leipzig visitors mostly went to the cemetery for walking, running, inhaling fresh air, meeting friends, or contemplating. Łódź visitors, however, mostly went to the cemetery for a concrete reason (visiting the grave of relatives), or sometimes the reason for visiting was to contemplate or observe wild nature. This is due to urban planning associating the idea of cemeteries to "city parks." This issue was also apparent in Südfriedhof Cemetery in Leipzig and Ogrodowa Street Cemetery in Łódź. Germans often treat cemeteries as part of urban green public places (Südfriedhof), compared with Polish people who regard cemeteries as sacred/holy places that need to be separated from the city and protected, by maintaining silence and using only for the purpose of resting.

We also observed different activities occurring at the studied Jewish cemeteries (Cmentarz Żydowski and Old Jewish cemetery) of both cities. Observations showed that these places were visited mostly by tourists, rather than by relatives. This is also due to the historical background of citizens and past times of these sites. Therefore, it can be concluded that Jewish cemeteries are more often visited for thanatourism due to their historical and cultural meaning, or human curiosity.

In Łódź' cemeteries, some activities (cycling and running) were prohibited, whereas in Germany, more of these physical activities were not allowed but they are sometimes practiced (Südfriedhof). However, physical activities were strictly prohibited in the Old Jewish Cemetery because of culture and religion. This difference is not only due to the different cultural approaches of Christian and Jewish communities but also because of their nationalities.

The above-discussed examples of activities at cemeteries could be divided into three groups in terms of their level of effort: as active recreation, semi-active recreation, and passive recreation; and undiscovered activities that could be added to each group in terms of religion and specific development of the given cemetery Active recreation included cleaning graves, cycling, or running (not allowed but observed only in Südfriedhof cemetery as a "park place" in main transit roads of the object); semi-active recreation included

thanatourism and observation of sculptures, while passive recreation included reading books, contemplating, sitting on the bench, and walking (Figure 8).



Figure 7. The most common activities carried out in the cemeteries in Łódź and Leipzig. Legend: **1**—visit to the graves of relatives, **2**—sightseeing (for tourism purposes or observing places of historical value: thanatourism), **3**—walking and contemplating, spending time with children, relaxing (on benches) Photographs: A. Długoński and D. Dushkova.

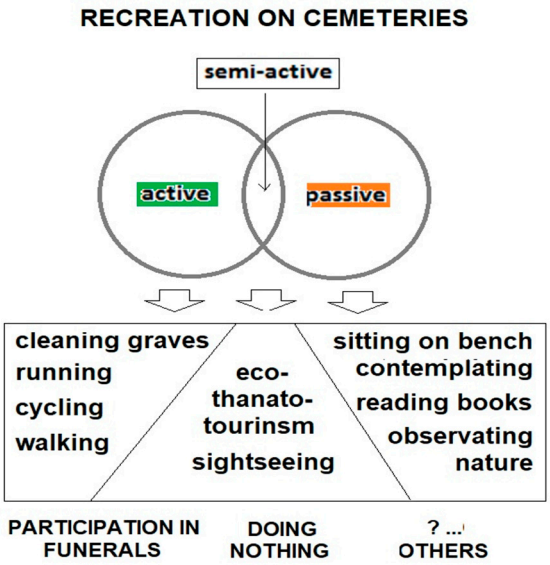


Figure 8. Relationship of overlapping fields of active, semi-active, and passive recreation in cemeteries observed during site observation research in cemeteries in Poland and Germany.

3.3.2. Results from Questionnaire Survey

As already mentioned, considering the perceptions of people, we asked them first about their gender, age, education, and marital status. In the second set of questions, we collected their opinions toward cemetery use and potential as follows:

- Q1: What was the reason for your visit to the cemetery?
- Q2: What is your opinion on the management of cemeteries?
- Q3: What kind of recreational uses do cemeteries provide?
- Q4: Should cemeteries be part of the city's recreational inventory?
- Q5: Are the cemeteries accessible to you?

According to the first question (Q1), most respondents visited the cemetery pragmatically, to place a candle on the grave of a loved one (Poles: 50 visitors, 64.1%; Germans: 26 visitors, 59.1%). Another set of visitors visited for tourist purposes such as walking, contemplating, a family trip, sightseeing (Poles: 17 visitors, 21.8%; Germans: 11 visitors, 25%) or to participate in a funeral, cleaning the graves, observing nature and sculptures, research, etc., (Poles: 11 visitors, 14.1%; Germans: 7 visitors, 15.9%) (Table 2).

Table 2. Reasons for visiting the studied cemeteries in Poland and Germany.

Q1. What was the Reason for Your Visit to the Cemetery?			
		Poles	**Germans**
A	Putting a candle	50 (64.1%)	26 (59.1%)
B	Tourist purposes	17 (21.8%)	11 (25%)
C	Others	11 (14.1%)	7 (15.9%)
	Total	78 (100%)	44 (100%)

Regarding the second question (Q2), most respondents from Poland responded that they lacked knowledge about the management of urban cemeteries (57 visitors, 73.1%). The results presented a completely different situation for Germans, who found that cemeteries were well managed in their opinion (18 visitors, 40.9%). Some Poles also paid attention to lack of organization (9 visitors, 11.5%) and integration with other organizations or communities of interest (5 visitors, 6.4%). Few found that cemeteries were well managed (2 visitors, 2.6%), or, on the contrary, they claimed that these areas were neglected places (3 visitors, 3.8%) and had improper plant selection in their management (2 visitors, 2.6%). For Germans, other replies were distributed as follows: 15 visitors (34.1%) noted that they lacked knowledge about the management of urban cemeteries, 5 visitors (11.3%) thought that cemeteries were neglected places, 4 visitors (9.1%) noted a lack of integration of interests, 1 visitor (2.3%) highlighted a lack of organization, and also 1 visitor (2.3%) noted improper plant selection in cemetery management (Table 3).

Regarding the third question (Q3), less than half of the respondents in Łódź (38 visitors, 48.7%) disagreed with the idea that cemeteries should be used for recreational uses. One third of the respondents from Łódź said that cemeteries have a historical meaning (23 visitors, 29.5%), and that they know some people who use the space for recreational purpose but they personally do not practice it (17 visitors, 21.8%). In Leipzig, 43.1% (19 visitors) claimed that they knew people who practice recreation on cemeteries, but they did not refer to them, while 36.4% of respondents (16 visitors) disagreed that cemeteries should be used for recreation, and only 20.5% (9 visitors) noted that the cemeteries have historical meaning (Table 4).

Table 3. Respondents' opinion on management aspects of selected cemeteries in Łódź and Leipzig.

Q2. What is Your Opinion on Management in Cemeteries?		
	Poles	**Germans**
A. Lack of knowledge about management of cemeteries	57 (73.1%)	15 (34.1%)
B. Improper plants	2 (2.6%)	1 (2.3%)
C. Lack of organization	9 (11.5%)	1 (2.3%)
D. Well managed	2 (2.6%)	18 (40.9%)
E. Lack of integration of interests	5 (6.4%)	4 (9.1%)
F. Neglected place	3 (3.8%)	5 (11.3%)
Total	78 (100%)	44 (100%)

Table 4. Respondents' opinion on selected cemeteries' usage in Łódź and Leipzig.

Q3.	**What Kind of Recreational Uses do Cemeteries Provide?**		
		Poles	**Germans**
A	I know that people use it but not me	17 (21.8%)	19 (43.1%)
B	Historical meaning	23 (29.5%)	9 (20.5%)
C	I disagree that cemeteries should be used for recreation	38 (48.7%)	16 (36.4%)
	Total	78 (100%)	44 (100%)

With regard to the recreational potential of the cemetery (Q4), half of the respondents from Germany (22 visitors, 50%) mentioned that cemeteries should be a place of recreation, mainly because of the lack of such sites in the neighborhood. However, one third of German respondents (16 visitors, 36.4%) replied "no", due to the sacral character of such places, 4 visitors (9.1%) were not sure (they doubted it was a good idea), and 2 visitors (4.5%) would rather deny, but saw some possibilities of the use of such places for walking (especially for people living nearby). In the case of Poles, two thirds of respondents (47 visitors, 60.3%) claimed "no" due to the character of such places "designated only for funerary uses", 16 visitors (20.5%) were not sure (they doubted it was a good idea), 15 visitors (19.2%) would rather deny, but saw some possibilities of the use for walking (especially for people who live nearby). Interestingly, none of the Poles answered "yes" to this question, either because of the occurrence of some recreational places in the cemetery's surrounding area (0 visitors, 0%), or that they did not think that the given cemetery should be relocated or removed from this area to provide space for organizing more activities (0 visitors, 0%) (Table 5).

Table 5. Respondents' opinion on the studied cemeteries as part of the city's recreational inventory of Lodz and Leipzig.

Q4.	**Should Cemeteries be Part of the City's Recreational Inventory?**		
		Poles	**Germans**
A	No	47 (60.3%)	16 (36.4%)
B	Doubts	16 (20.5%)	4 (9.1%)
C	May be for walking	15 (19.2%)	2 (4.5%)
D	Not needed anymore	0 (0%)	0 (0%)
E	Yes, due to lacking other recreation sites	0 (0%)	22 (50%)
	Total	78 (100%)	44 (100%)

With regard to accessibility of cemeteries (Q5), most respondents from Łódź (68 visitors, 87.2%) in addition to half of the respondents from Leipzig (22 visitors, 50%) found that

cemeteries were accessible. They claimed that actually a lot of people used it ("you can see a lot of cars driving through, also people walking"). Other visitors, both from Leipzig (14 visitors, 31.8%) and Łódź (6 visitors, 7.7%) believed that they had difficulties with finding the entrance to the cemetery, or a place for parking, or how to travel by public transport, or did not expect all the rules for being in the area of cemetery, or were not aware about the opening hours. The rest of the respondents believed that the cemeteries were not accessible to them, as stated by eight visitors (18.2%) in Leipzig, and four (5.1%) in Łódź. Respondents based their opinions on the fact that they did not want to go there because the given cemetery was unpleasant, or a horrible and overwhelming space for them (Table 6).

Table 6. Respondents' opinion on accessibility of the studied cemeteries in Łódź and Leipzig.

Q5.	Are the Cemeteries Accessible to You?		
		Poles	Germans
A	Yes	68 (87.2%)	22 (50%)
B	Not sure	6 (7.7%)	14 (31.8%)
C	No	4 (5.1%)	8 (18.2%)
	Total	78 (100%)	44 (100%)

The next part of the survey consisted of a statistical comparison of the results of the response rates between subjects by nationality in the selected five questions (Q1-Q5), of respondents from Poland and Germany. The results of this analysis, with information about $p < 0.05$ (statistically significant value) and $p > 0.05$ (statistically insignificant value), are presented in Appendix A1 (Table A1). Regarding the first question (Q1), which related to the purpose of visiting the cemetery, the chi-square test showed no significant factor. From the analysis, we can conclude that the remaining questions of the questionnaire survey (Q2–Q5) were statistically significant. The chi-square test thus showed statistically significant values in the responses of different nationalities of the respondents, which were related to their opinions on the management, recreational uses of cemeteries, understanding cemeteries as part of the city's recreational inventory, and accessibility of cemeteries in Łódź and Leipzig.

4. Discussion

4.1. Reflection on Pilot Study

Although contemporary literature mostly embeds ecosystem services and functions provided by cemeteries such as biodiversity support and regulating ES, it neglects the experience-rich potential of cemeteries as cultural products. However, it has already been confirmed [5,14–16,19] that cemeteries offer both nature-based and cultural activities. It is worth noting that some specific social groups who need passive recreation which cannot be provided by urban parks, gardens, etc. can be perceived as neglected in terms of not being able to find an appropriate place for recreation. Within the urban context, cemeteries can play a key role in contributing to the UGI and delivery of a wide range of ES (supporting, provisioning, regulatory, cultural ES). It is essential to highlight the multiple benefits provided by cemeteries being a part of UGI. On one hand, they are habitats for unique species of vegetation and animals (supporting and provisioning ES); and on the other hand, they present a type of urban green, as one of the important elements of a city's greenery which provides a special type of recreation (cultural ES) [4,16,47]. Cemeteries could once again make a more substantive contribution to delivering a range of regulatory ES that help to mitigate the effects of urban heat island, air and water quality, and loss of biodiversity [47]. Cultural ES provided by urban cemeteries refers to the fact that natural burial landscape might also help in preserving and enhancing the character and cultural identity of the cemetery landscape [15,19,48,58]. Whilst the potential benefits for mental health and well-being that can be derived from urban green spaces are well

documented [59,60], only a few research papers focus on the unique opportunity provided by the urban cemetery to deliver cultural ES, especially those supporting human health and well-being [14,16,21–23,55]. It is important to analyze what qualities correspond to societal changes and landscape design history [24,25]. At the same time, the research often relates to burial landscape as nature, architecture and art, while individuals' use of the cemetery as a place for memory and meaning-making remains overlooked. Moreover, it would be of great importance to explore how they do relate to the fact that death becomes an area for negotiation between different cultural, religious and individual opinions or needs, and social norms/rules, especially in relation to the intentions for recreational use [48–56]. Thus, further research is needed in order to highlight certain tendencies in place-making strategies.

4.2. Cemeteries as Places of Multiple Diversity and Mental Barriers

The results indicate that urban cemeteries now witness a variety of usages and are not limited to commemoration practices. However, the social acceptance of nonconventional activities on cemetery sites is still debatable [51,52,54,55]. Further research on this issue should investigate different ways of using cemeteries that are clearly evident to be part of the cemeteries' daily life, to explore different activities, and to understand people's opinions about these activities (as was explored within the pilot study). There is also a need for research to prove the functions of urban cemeteries in comparison with other elements of UGI and their potential for accommodating a variety of functions. In the context of increased urban development, a better understanding of the current role of cemeteries within the urban fabric appears to be highly relevant not only for UGI planners and scientists, but also for the neglected groups of people who need other types of recreation that cannot be provided by crowded public parks or gardens. This includes cultural ES that gives potential benefits to users in terms of mental health and well-being. Additionally, cemeteries also play a role as sacred places with "spatial vessels of civic identity, telling diverse histories of the city, and representing intangible notions of the characteristics of a given place" [19].

The pilot study presented in the article shows that cemeteries might be understood as "slow places" in hectic cities. First of all, they have high potential as refuge areas (e.g., place for retreat) for flora and fauna in terms of biodiversity, and they provide cities with habitat for native wildlife. Secondly, cemeteries are repositories of natural and cultural diversity, and they are also unique places with their own ecological sanctuary and an ecological niche. Therefore, they serve as a "peace of mind" refuge area for humans who visit the graves of relatives; for tourism goals or so called thanatourism (e.g., observing historical values of city and past city's citizens' history) [3]; for spending time with family—relaxing and enjoying urban fauna; and also for those people (e.g., elderly, disabled, depressive, or hypersensitive individuals) who are looking for perfect peace and silence amidst the buzz and noise of a city area. All these factors make those places ecologically, culturally and historically different than other urban green spaces such as parks, pocket parks or forests [4,16,23].

In Łódź city, some activities (cycling and running) are prohibited in cemeteries, whereas in Germany, more physical activities are also not allowed but are acceptable (Südfriedhof). However, physical activities are prohibited in both Jewish cemeteries because of its culture and religion. This difference is not only due to different cultural approaches of Christian and Jewish communities but also because of their nationalities. Germans often treat cemeteries as part of urban green public places (Südfriedhof), compared with Polish people who perceive cemeteries (Ogrodowa Street Cemetery) as sacred/holy places that need to be separated from the city and protected by maintaining silence and using only for the purpose of resting.

As mentioned earlier, cemeteries make a fascinating cultural display for visitors by offering both nature-based and cultural activities [19]. They present one of the important elements of a city's greenery that provide a special type of recreation. This recreation is

closer to passive (low-impact) recreation, which differs from jogging, picnic or ball games, but mostly relates to observing nature and exploring the history of the place, contemplation and sightseeing (thanatourism) [3]. On one hand, cemeteries are specific areas with certain rules, but have barriers that enclose visitors to spend more time in these areas. All of the studied cemeteries were available at certain times, which organized and imposed certain activities on the cemetery. Even more difficult were the (Old) Jewish cemeteries in Leipzig and Łódź, which were much more difficult to access than the Christian cemeteries (Südfriedhof and Ogrodowa Street cemeteries). As a rule, their entrance was from a side street and was not exposed. Some, such as Jewish cemeteries, have special rules, usually determined by rules or religions (e. g. obligatory wearing of headgear for male visitors of cemetery). On the other hand, they are places of great potential for a selected group of people (neglected people) who, due to difficult urban conditions or noise pollution in other green areas such as parks, forests and boulevards, need sacred tranquility or silence. However, these are only places for people who want to relax and enjoy this specific green space in peace and silence (Figure 9).



Figure 9. Barriers and restrictions to access the cemeteries in Łódź and Leipzig: Legend: (**A**,**B**)—cemetery regulations in Südfriedhof, (**C**)—side entrance to the premises of the Jewish Cemetery in Łódź, (**D**)—opening hours of the Old Jewish Cemetery in Leipzig, (**E**)—obligatory wearing of headgear by men at Jewish cemeteries with regard to rules and religion. Photographs by: Długoński A., Dushkova D.

4.3. Synthesis of Questionnaires Survey

The questionnaire survey showed some differences in the perception of the cemetery space by Poles and Germans. Poles treat cemeteries as a sphere of the sacred, while Germans more often see these places as recreational and touristic places of high historical and cultural importance. The knowledge about cemetery management and belonging to the green infrastructure system is much broader among Germans. Most of the respondents from Poland (73.1%) had no knowledge about the management of the cemetery, while Germans (40.9%) found that cemeteries were well managed. In addition, there were minority responses both from Germans and Poles that the cemeteries were neglected, with lack of integration of interests or usage of improper plants in land use of the given area. The users of the cemeteries in Łódź indicated that the historical cemeteries, although still in use, were already used as recreational places (19.2%), mainly for walking purposes or watching/observing nature. In Germany, the proportion was 4.5%. In total, 29.5% of Poles and 20.5% of Germans drew attention to the historical value of cemeteries. The

proportion of respondents from Łódź who did not see a recreational potential of historical cemeteries was much higher (48.7%), compared with only 36.4% of respondents from Leipzig. Cemetery users in Poland and Germany were also asked if they thought the cemetery area should be integrated into UGI and used for recreational purposes. The majority of the respondents recognized cemeteries as memorial sites and not places for any activity other than walking, contemplating and sightseeing/leisure activities.

4.4. Possibilities for the Future Development and Challenges in Research on Cemeteries

Understanding how the different elements of UGI and especially urban ecosystems presented by cemeteries work in addition to multifunctionality and multiculturality provided by urban ecosystems is an important issue for both science and management/practice of cemeteries. With regard to research on cemeteries, there is acknowledgement that they perform important functions in personal, familial and community life [4,5,16,19]. However, this issue of social function needs to be examined in more detail in the direction of current policies (for maintenance, security and possible re-use) that sustain the nature of cemeteries and contribute to the renewal of cemetery life [47–50]. All this requires a careful understanding of the historical, cultural, religious, legislative, economic, but also ecological and social roles of cemeteries, for a wide range of visitors, and an issue of public acceptance here, plays an important role [51,52,54,55]. Moreover, exploring the visitor (user) perspective can provide first-hand understanding of underlying meanings and uses of cemeteries for different cultural and ethnic groups, for which the cemetery landscape is ever present as the material outcome of sets of interests.

The results of this study can be used as a background and essential element for elaboration of the framework/guidelines to inform urban management and decision makers from the field of urban cemeteries, on how to best integrate the natural environment and human needs, by applying the methodical approach from the concepts of UGI, ES and BCD. For this purpose, the next step will be to broaden the research including more cemeteries in the two cities, to repeat the study and to make the findings more robust, e.g., to uncover other categories of ES provided by cemeteries and identify further trends in cemetery use, by analyzing the preferences among users (local residents and touristic visitors) in terms of the perception, use practices and management of UGI. Based on this fundamental knowledge on the interrelations of ES provided by cemeteries and the identification of particular types of cemetery use practices, we could implement a more in-depth study to determine ecological and cultural properties and performance of ES of urban cemeteries for cities, in addition to exploring how these types are allocated and distributed in urban space, and if the differences within a city are more than those between studied cities. Another direction for future research can be seen in broadening the choice and sample of test sites including other cities and other religions (we had already started with one Orthodox and one Muslim cemetery in Berlin, some years ago, as a test). Using an innovative approach (multi-mixed method of cemeteries' assessment as suggested by research framework, Figure 1) can bring together academia, city governance, and civil society, aiming towards the co-production of usable knowledge in the form of a transferable framework that can guide managers through the processes of evaluating sociocultural and biophysical conditions, determining desired future conditions, and assessing how to progress from the present to desired future conditions through collaborative creation and implementation of a management plan for future cemetery use.

5. Conclusions

Cemeteries are an important element of cultural heritage and landscape of cities, and have a specific biodiversity potential for native species and respective niches.

1. Cemeteries are a space of silence and contemplation in dense cities;
2. Cemeteries have specific ecological potential and deliver a bundle of ecosystem services that differentiates them from other urban green spaces;

3. Cemeteries serve also specific groups of population, in particular, neglected people and 'invisible groups' such as elderly, disabled, depressive, or hypersensitive individuals who:
    a. sometimes do not find space in other types of UGI;
    b. are searching for safe and silent places in dense cities, because they are significantly different from groups that use other green spaces within the city in terms of multifunctionality, and multiculturalism being a characteristic for urban cemeteries;

Biocultural diversity of cemeteries of different religions (Christian, Jewish) differs considerably within one city, in addition to land cover and management.

4. The perception of cemeteries by nationalities varies and depends on the level of secularization of the society. For Poles, a cemetery is mostly a sacrum sphere, for Germans, it is an open place with remembrance of relatives but also some selected recreational and touristic opportunities;
5. Cemeteries are thus far undervalued as public green resources that can perform important functions in the sociocultural life and mental well-being of the general public; however, this issue of social function needs to be examined in more detail in the direction of current policies. Users' perspectives related to cultural practices, management aspects, or usage are of special importance for sustainable living in ever more multicultural societies;
6. As land demand in cities everywhere increases, cemeteries are considered as an open space to accommodate passive recreational activities such as walking, nature observation or sightseeing, and provide an area for visual satisfaction;
7. Further research on urban cemeteries should:
    a. Highlight certain tendencies in place-making strategies based on the fact that the cemetery is an area for negotiation between different cultural, religious and individual opinions or needs;
    b. Specify the role of cemeteries to safeguard local (native) biodiversity, act as specific niches for local ecosystems and thus a local gene pool;
    c. Investigate different ways of using cemeteries which are already a clearly evident part of the cemeteries' daily life, to explore different activities, and to understand people's opinions about these activities;
    d. Determine the desired future conditions of urban cemeteries, and assess how to progress from the present to the desired future conditions through collaborative creation and implementation of a management plan.

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conducting of statistical analyses. Hence, the greatest value to the development of the authors' database on investigated areas was the honest and objective content posted.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Comparison of response rates between respondents by nationality (chi square test).

Question	Answer	Poles	Germans	Chi Square
Q1	Putting a candle	50 (64.1%)	26 (59.1%)	0.8600 [2]
	Tourist purposes	17 (21.8%)	11 (25%)	
	Others	11 (14.1%)	7 (15.9%)	
Q2	Lack of knowledge about management of cemeteries	57 (73.1%)	15 (34.1%)	0.0000[1]
	Improper plants	2 (92.6%)	1 (2.3%)	
	Lack of organization	9 (11.5%)	1 (2.3%)	
	Well managed	2 (2.6%)	18 (40.9%)	
	Lack of integration of interests	5 (6.4%)	4 (9.1%)	
	Neglected place	3 (3.8%)	5 (11.3%)	
Q3	I know that people use it but not me	17 (21.8%)	19 (43.1%)	0.0449 [1]
	Historical meaning	23 (29.5%)	9 (20.5%)	
	I disagree that cemeteries should be used for recreation	38 (48.7%)	16 (36.4%)	
Q4	No	47 (60.3%)	16 (36.4%)	0.0000 [1]
	Doubts	16 (20.5%)	4 (9.1%)	
	May be for walking	15 (19.2%)	2 (4.5%)	
	Not needed anymore	0 (0%)	0 (0%)	
	Yes, due to lacking other recreation sites	0 (0%)	22 (50%)	
Q5	Yes	68 (87.2%)	22 (50%)	0.0000 [1]
	Not sure	6 (7.7%)	14 (31.8%)	
	No	4 (5.1%)	8 (18.2%)	

Note: Q1. What was the reason for your visit to the cemetery?; Q2. What is your opinion on management in cemeteries?; Q3. What kind of recreational uses do cemeteries provide?; Q4. Should cemeteries be part of the city's recreational inventory?; Q5. Are the cemeteries accessible to you? [1] If $p < 0.05$, the association is significant (which implies that the analyzed factor influences the phenomenon being investigated). [2] If $p > 0.05$, the association is not significant.

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