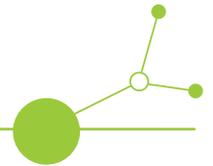


# D1.2.2

## Citizens' preferences towards specific restoration measures considered for implementation

### Synthesis report



Version 1  
11 2025



# Citizens' Preferences Regarding the Revitalization of Urban Watercourses in Central Europe

**Synthesis report comparing results of a survey conducted in the cities of Jablonec nad Nisou, Senica, Dresden, and Poznań**



The report presenting the results of the questionnaire survey was prepared within the framework of the ReBioClim project: REstoring urban streams to promote BIODiversity, CLIMate adaptation and to improve quality of life in cities (CE0200754), funded by the Interreg Central Europe programme.

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## Executive summary

The survey conducted within the international project *ReBioClim: REstoring urban streams to promote BIODiversity, CLIMate adaptation and to improve quality of life in cities*, funded by the Interreg Central Europe programme, aimed to support the implementation of stream restoration measures in urbanised environments. It focused on understanding residents' perceptions, preferences, and attitudes towards urban stream revitalisation in four pilot areas: the Bílá Nisa in Jablonec nad Nisou (Czech Republic), the Teplica in Senica (Slovakia), the Piaśnica in Poznań (Poland), and the Geberbach in Dresden (Germany). The results serve as an evidence base for incorporating citizens' perspectives into the planning and design of restoration measures.

A total of 3,006 individuals were randomly approached near the pilot sites, and 1,054 valid interviews were completed, resulting in a 35.5% response rate. Data were collected in 2024–2025 through face-to-face interviews using visual materials illustrating various stream features and restoration options. Respondents were generally well-distributed across age groups and genders (59.6% women, 40.2% men), with an average age of 45 years. The majority had completed secondary (43.6%) or higher education (35.3%), and about half were economically active. Nearly all respondents lived in urban flats or apartments, and most reported a positive perception of their neighbourhoods.

Almost all respondents expressed a very positive relationship with nature and visiting green spaces was part of everyday life for most participants (45% reported daily visits and 37% several times per week). Similarly, the river sites were popular local destinations, with almost two-thirds of respondents visiting them at least weekly. Frequent visitors tended to be older adults, women, and retirees, whereas younger and economically active individuals visited less often or for shorter periods. The main motivations for visiting included relaxation, observing nature, socialising, and walking or commuting through the area.

When assessing the appearance and features of urban streams, respondents across all cities showed a clear preference for nature-based solutions. The most valued elements were meanders, river islands, small piers, and pools or wetlands near the stream. Conversely, concrete channels and streams forced underground in pipes were rated the lowest. Diverse, wide riparian vegetation was consistently appreciated, particularly among older respondents and retirees, although preferences varied slightly among cities. Dresden and Jablonec respondents expressed the strongest affinity for natural stream forms, while those in Senica and Poznań were slightly more open to structured or technical designs.

Perceived benefits of stream restoration were all rated as important. The highest-ranked benefits were creating habitats for plants and animals, improving air quality, and enhancing the local microclimate (shade, cooling, humidity). Flood protection was

especially valued in Senica and Dresden, while dog-walking opportunities were relatively more appreciated in Jablonec and Senica. In contrast, educational and inspirational aspects were considered less important. Across the dataset, women, retirees, and older individuals tended to assign higher importance to most ecological and social benefits.

The discrete choice experiment confirmed these findings, highlighting a strong and consistent public preference for natural, meandering streams with accessible banks and diverse vegetation. In all cities, respondents rejected concrete channels and the absence of water access. Access via small piers or stairs was consistently rated most positively. Urban parks were the preferred type of surrounding greenery, while semi-natural parks were least favoured. Despite overall consistency, the modelling revealed meaningful differences among cities and respondent segments. In Senica, Dresden and Poland, two groups were identified, and three groups emerged in Jablonec.

Overall, the results from all four cities demonstrate a shared preference for accessible, green, and natural urban watercourses, integrated into the daily lives of residents. While local contexts and experiences shape specific expectations, the overarching message is clear: nature-based, multifunctional, and socially inclusive stream restoration designs are broadly supported by urban residents across Central Europe.

## Introduction

### About the Project

The project *ReBioClim: REstoring urban streams to promote BIOdiversity, CLIMate adaptation and to improve quality of life in cities* is funded by the Interreg Central Europe programme and focuses on the restoration of small urban watercourses using nature-based solutions. Although many (scientific) studies show that revitalised watercourses bring a wide range of benefits – from flood mitigation, increased biodiversity, and cooling effects to recreational and aesthetic functions – their restoration through nature-based approaches is still not common practice in urban environments. In reality, such efforts face a number of challenges. These include limited space in densely built-up areas, complex ownership relations of adjacent land, and a lack of awareness among stakeholders about the benefits restored watercourses can provide. This often results in resistance to revitalisation efforts within urban settings.

The project aims to help cities simplify both the planning and implementation of revitalisation measures by applying interdisciplinary approaches, engaging both experts and the general public, and fostering knowledge exchange. Project partners include research institutions from Germany, Czechia, Slovakia, Poland, and the Netherlands, as well as the cities of Dresden (Germany), Jablonec nad Nisou (Czech Republic), Senica (Slovakia), and Poznań (Poland), where the insights gained through the project will be applied in practice. Key project outputs include restoration plans for model urban streams and the implementation of nature-based measures along selected watercourses.

### Study Objective and Scope

The study aims to compare residents' preferences in four pilot cities regarding the revitalization of their urban watercourses, based on the results of a questionnaire survey. It summarizes the results of individual case studies conducted in Jablonec nad Nisou, Dresden, Senica, and Poznań, bringing together residents' opinions from all locations and comparing both city-specific results and overall trends.

In total, 16 different features and measures related to the watercourses and their surroundings were evaluated, ranging from existing conditions such as concrete channels, piped sections, and grass-covered banks to nature-based solutions including meanders, ponds, wetlands, and wider riparian vegetation zones. In addition to assessing preferences for individual elements, the study also explored preferred combinations of measures and their variations in relation to socio-demographic characteristics and other influencing factors.

Incorporating the survey findings into revitalisation plans can help increase public acceptance of the proposed changes. It may also highlight discrepancies between planned measures and public preferences, which can then inform communication strategies to explain why certain elements differ from those preferred by respondents.

## 1. Structure of the Questionnaire and Included Measures

The questionnaire was divided into 7 sections, with the final section (G) completed solely by the interviewer after saying goodbye to the respondent. On average, it took respondents 10-15 minutes to complete the questionnaire. The following lines provide a basic overview of each thematic section. This is followed by a presentation of the individual measures and a more detailed description of the section involving the choice experiment.

The face-to-face interviews consisted of sequential questions covering the following thematic areas:

### A) General attitudes toward nature and time spent in green areas

- 2 closed-ended question sets examining:
  - Scaled agreement with the statements (i) Nature as an important part of life; (ii) The diversity of nature is appreciated; (iii) Higher preference for wilder forms of nature
  - Frequency of spending free time in green (outdoor) areas

### B) Relationship of respondents to the study site

- 5 questions examining:
  - Place from where the respondent came from
  - Usual mode of transport to this location
  - Frequency of visiting the area near the stream
  - Duration of a typical visit
  - Reasons for visiting this area (using a rating scale)

### C) Evaluation of individual watercourse elements and riparian vegetation using illustrations (Figure 1)

- Rating on a scale from 1 to 10 (1 = like the least, 10 = like the most)
  - 13 illustrations of watercourse features
  - 3 illustrations of types of riparian vegetation

### D) Evaluation of revitalisation benefits from the respondent's perspective

- Importance of 9 pre-defined ecosystem and social benefits rated on a scale from 1 to 4 (1 = completely unimportant; 4 = completely important)

### E) Preference analysis using a choice experiment

- Respondents were asked to make nine successive choices between two visually illustrated revitalisation scenarios differing in four key attributes (Figure 2):
  - Type of corridor
  - Accessibility of the water

- Riparian vegetation
- Management of greenery in the wider surroundings

## F) Respondent characteristics

- 11 questions covering socio-demographic characteristics and information related to the respondent's place of residence

## G) Interviewer-filled data

- Supplementary data recorded by the interviewer, including:
  - Response rate (number of people contacted in total)
  - Whether the respondent was alone or accompanied
  - Interview location within the pilot area
  - Interviewer's initials
  - Weather conditions
  - The perceived seriousness of the respondent's answers

## Overview of Included Measures and Elements

Sixteen specific elements were selected for evaluation during the survey to assess how their presence in urban environments is perceived. Illustrations (Figure 1) depict various forms of the watercourse and associated features such as stones in the stream, dead wood, and fish passages, as well as interventions like riprap banks, stone flood walls, and various forms of access to the water (stairs, piers). Respondents also assessed different types of riparian vegetation.

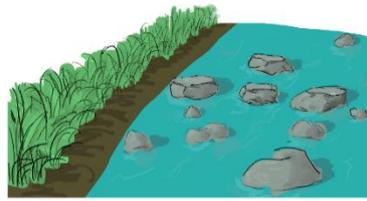
**Figure 1:** Illustrations used for the evaluation of 16 elements during data collection



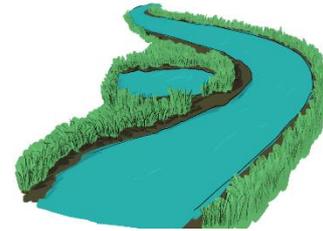
Dead wood in the stream



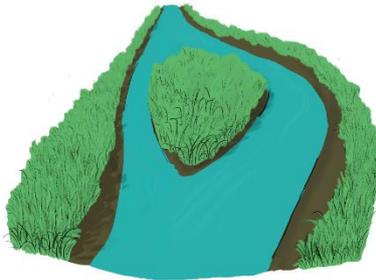
Stones in the stream



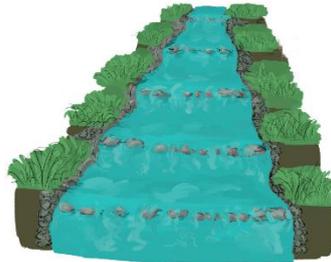
Pools and wetlands in floodplains



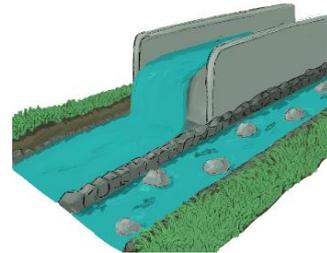
Isle in the river



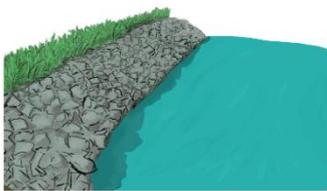
Water terraces/small dams



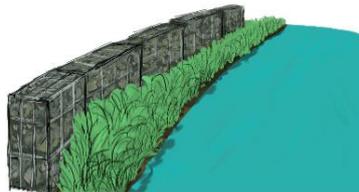
Fish passage (bridging the migration barriers)



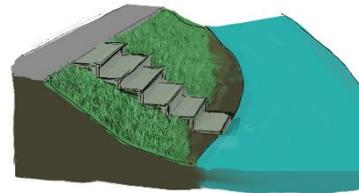
Riprap banks (rocky material placed along the stream)



Stone flood walls



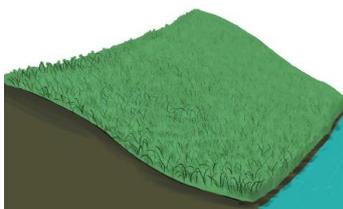
Access to the stream: Stairs



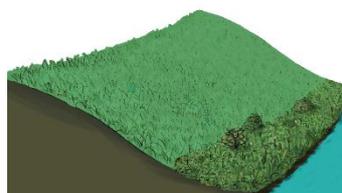
Access to the stream: Small pier



Grassed banks



Diverse nature-based vegetation in a narrow strip along the stream, otherwise grassing



Diverse nature-based vegetation in a wide strip along the stream



Each element was rated on a scale from 1 to 10, where 1 meant the respondent liked the element the least, and 10 represented the highest level of preference.

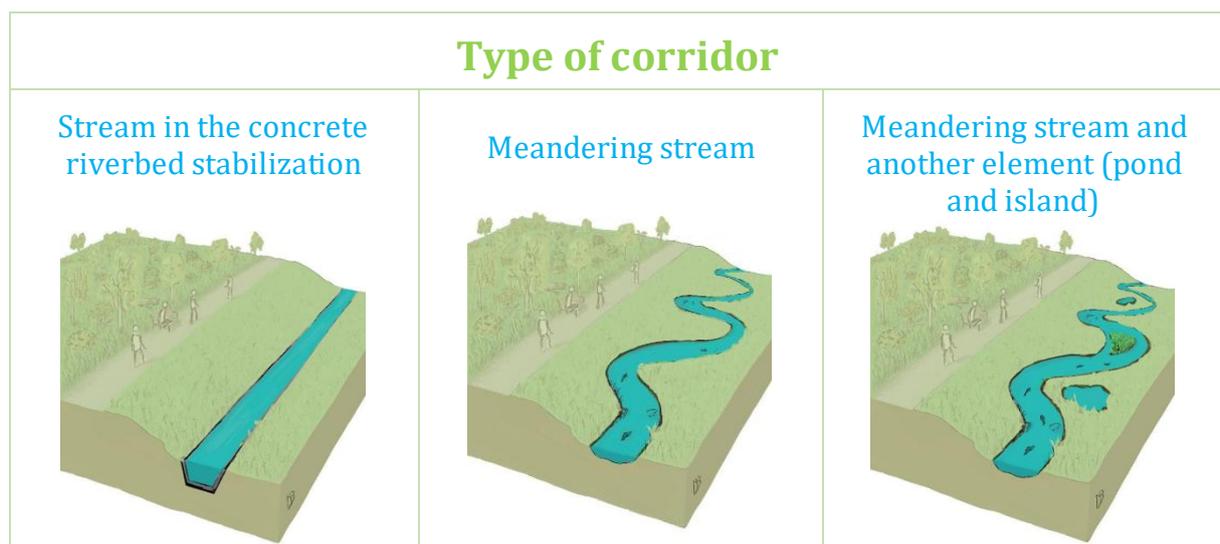
### Choice Experiment

Several of the elements were further used in a choice experiment designed to reveal more detailed preferences regarding possible forms of revitalisation, taking into account variations of specific features and their combinations.

At the beginning of this part of the survey, respondents were informed about the aim of the task – they were asked to imagine a situation where it would hypothetically be possible to revitalise the Piaśnica stream entirely according to their preferences (without real-world limitations such as land ownership, technical constraints, or the presence of infrastructure like electricity, gas, or water lines, ...). They were then told they would be presented with a series of paired combinations of stream features, and asked to choose which of the two they considered more appropriate or preferred. If neither combination was acceptable, they could also choose neither. The instructions were accompanied by an example to illustrate the task.

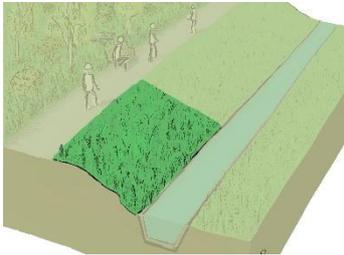
Based on expert literature, discussions within the international project team, and the practical needs of city representatives, four attributes were selected for the choice experiment: (i) Type of river corridor; (ii) Accessibility of the water; (iii) Type of riparian vegetation; (iv) Management of greenery in the wider surroundings. These attributes were introduced individually using illustrated examples (see Figure 2) before the choice tasks began.

**Figure 2:** Attribute levels used in the choice experiment

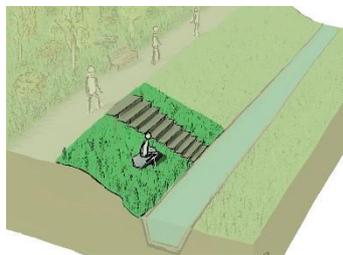


## Accessibility of the water

No accessibility  
(no elements)



Stairs with seating  
possibilities near the water

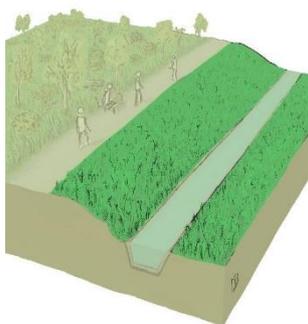


Stairs and pier with  
seating possibilities

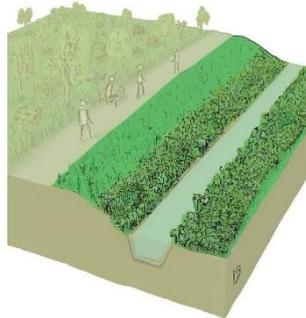


## Riparian vegetation

No vegetation – only  
grassing



More diverse vegetation in  
a narrow strip along the  
stream



More diverse vegetation in  
a wider strip along the  
stream



## Management of greenery in the wider surroundings

Nature-based



Semi-natural

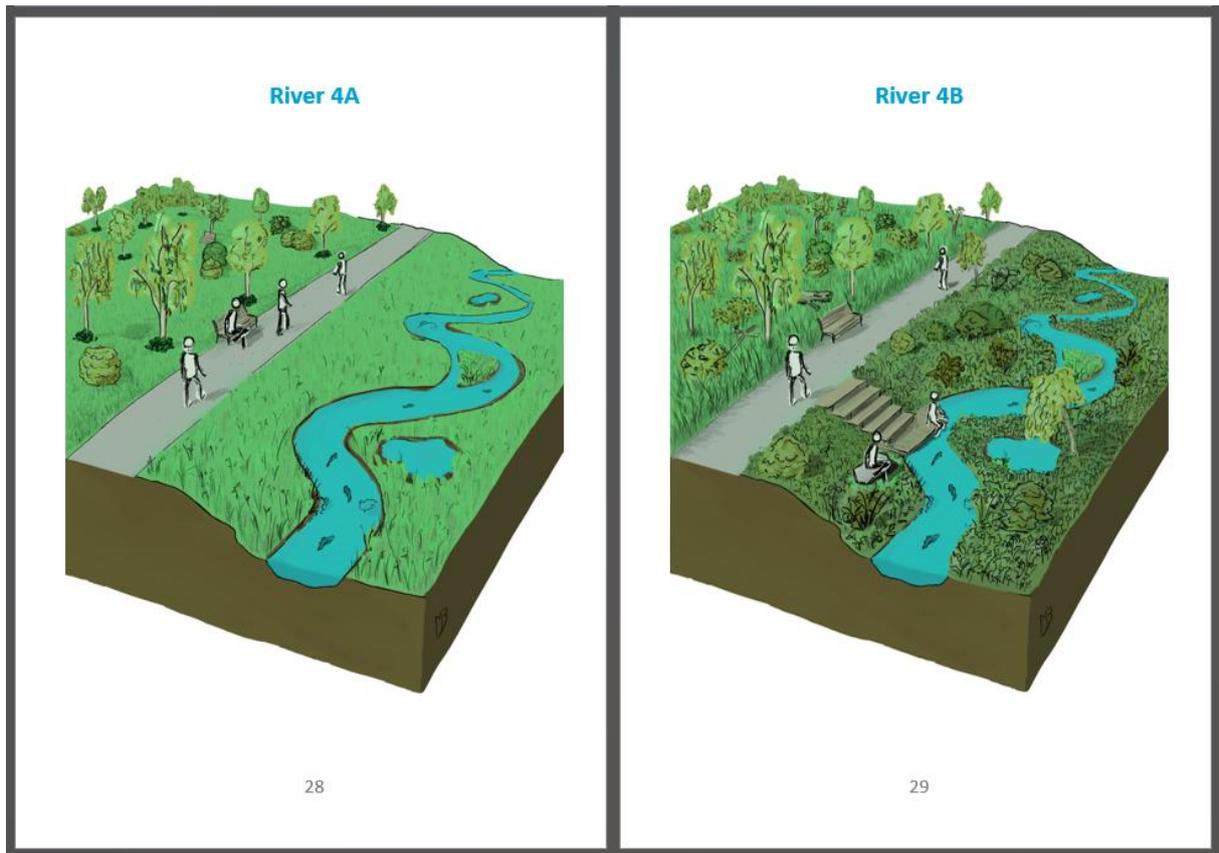


Urban park



As mentioned above, respondents then completed nine successive choice tasks, in which they selected between two illustrated versions of the model stream, each differing in the combination of the four defined attributes. In each task (e.g. Figure 3), the respondent chose between River A and River B, or selected current status (if neither option was suitable).

**Figure 3:** Example of a pair of cards used in the choice experiment



## 2. Data Collection

The survey was conducted through face-to-face interviews in Jablonec nad Nisou, Senica, Poznań and Dresden between 17 September 2024 and 6 August 2025. The main data collection was preceded by a pilot survey carried out in each city (Jablonec in autumn 2024; Senica, Poznań and Dresden in spring 2025), which served two purposes: (i) to verify the clarity and comprehensibility of all questionnaire items; and (ii) to generate the final combinations for the choice experiment based on the evaluation of pilot responses.

During the interviews, folders with individual questions on printed cards were used along with visual elements, such as illustrations of watercourse features. Interviewers were trained and equipped with tablets to facilitate response recording. In total, 3,006 individuals were randomly approached, of whom 1,066 agreed to participate, resulting in a response rate of 35.5 %. The sample was subsequently cleaned by removing responses from individuals whom interviewers identified as not taking the survey seriously. The final sample thus consists of 1,054 valid responses – 246 from Jablonec, 291 from Senica, 249 from Poznań and 268 from Dresden.

Data collection took place on different days of the week and at various times of day, conducted directly in the vicinity of the pilot sites – near the streams, adjacent parks, or town squares. As a token of appreciation, respondents received promotional items (e.g. in Jablonec notebooks and pens featuring the project logo and an illustration of the stream). Respondents were also informed about incoming stakeholder workshops.

**Figure 4:** Picture taken during the interview in Jablonec nad Nisou



### 3. Sociodemographic Characteristics of Respondents

The questionnaire was completed by 1054 valid respondents. Most of them live near the pilot site and only 30% of respondents have lived in the same district since birth. The majority of respondents live in flats/apartments (80%). Overall, 88% consider their place of residence a good place to live, with the highest satisfaction reported in Jablonec and the lowest in Dresden.

Women represented 59.6% of the sample (628 respondents), men 40.2% (424). The average age of respondents was 45 years, median was 42, and mode was 27. The youngest respondent was 15, the oldest 95. The most represented age group was group of 26–35 years old, with 236 (22.4%) respondents. Most respondents had a secondary education with a diploma (43.6%) or higher education (35.3%). The remaining 21% reported primary education or secondary without a diploma.

Regarding employment status, a half of the sample (51%) consisted of economically active groups, including full-time employees 39.6%, part-time workers (5.6%) and private entrepreneurs (6%). Unemployment was reported by 3.7% of respondents. More than 40% of respondents were economically inactive including retirees (26.5%), students/trainees (11.5%) or persons on maternity/parental leave (5.9%). Income categories varied considerably among respondents from different cities. A total of 3.2% reported having no income, and 14.5% of respondents chose not to specify their income category, with the highest share coming from Poland.

A comparison of respondents' characteristics across the cities is shown in Figure 5, and detailed description of the sample is provided in the appendix at the end of this document.

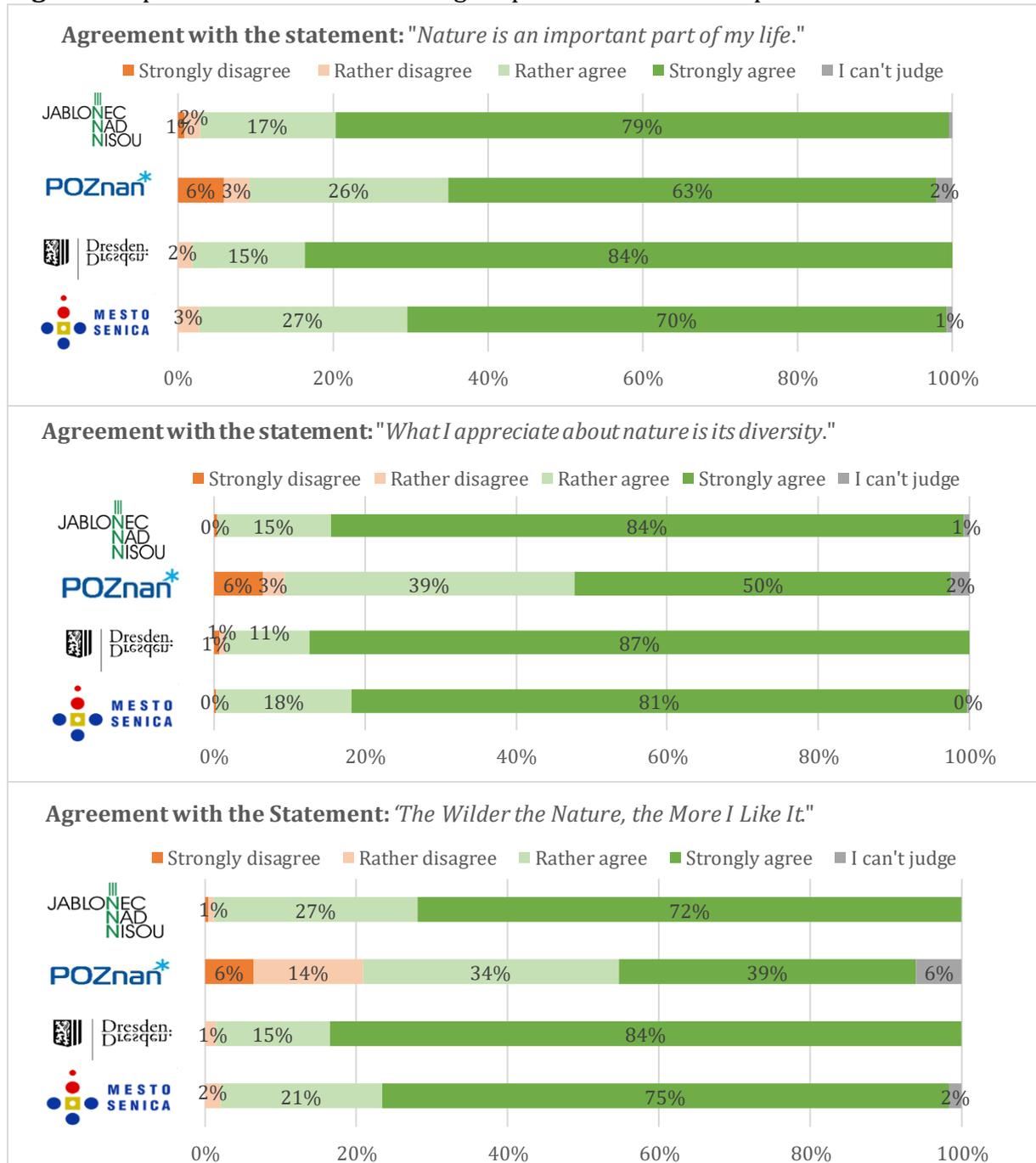
**Figure 5:** Comparison of socio-demographic characteristics of respondents across the cities

	NUMBER OF RESPONDENTS	Average age (median)	Gender	Highest education	Employment status
	246	49 (47)	♀ 54% ♂ 46%	elementary: 5,7% secondary: 70,7% university: 23,6%	 50% 3% 8% 32% 7%
	291	38 (34)	♀ 63% ♂ 37%	elementary: 11,3% secondary: 58,1% university: 30,6%	 59% 2% 18% 14% 7%
	249	55 (60)	♀ 63% ♂ 37%	elementary: 12,7% secondary: 62,9% university: 24,3%	 30% 9% 8% 48% 5%
	268	39 (34)	♀ 57% ♂ 43%	elementary: 11% secondary: 25% university: 64%	 66% 2% 12% 12% 5%

## 4. General Attitudes of Respondents Toward Nature

At the beginning of the questionnaire, respondents were asked questions about their relationship with nature. As shown in Figure 6, nearly all respondents expressed a very positive attitude toward nature. 95% of respondents considered nature an important part of their life, 96% appreciated the diversity of nature, and 91% agreed with the statement that the more natural the environment is, the more they like it. Poznań was the only city where a slightly larger proportion of respondents disagreed with the statements.

**Figure 6:** Opinion statements assessing respondents relationship to nature

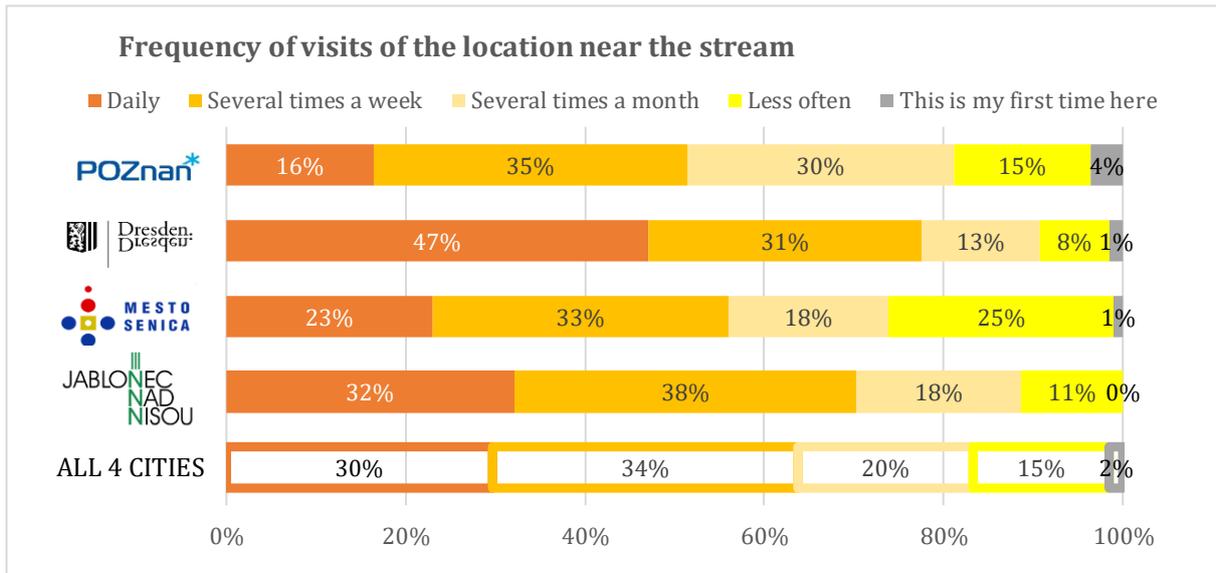


Regarding the frequency of spending free time in green areas, almost half of the respondents (45%) reported visiting nature daily. Another 37% did so several times a week, 14% visited several times a month, and only 4% spent time in nature less frequently. Among the four cities, respondents from Jablonec visited green areas most often, with 65% doing so daily, while respondents from Poznań had the lowest percentage of daily visitors (26%).

## 5. Relationship of Respondents to the Pilot Site

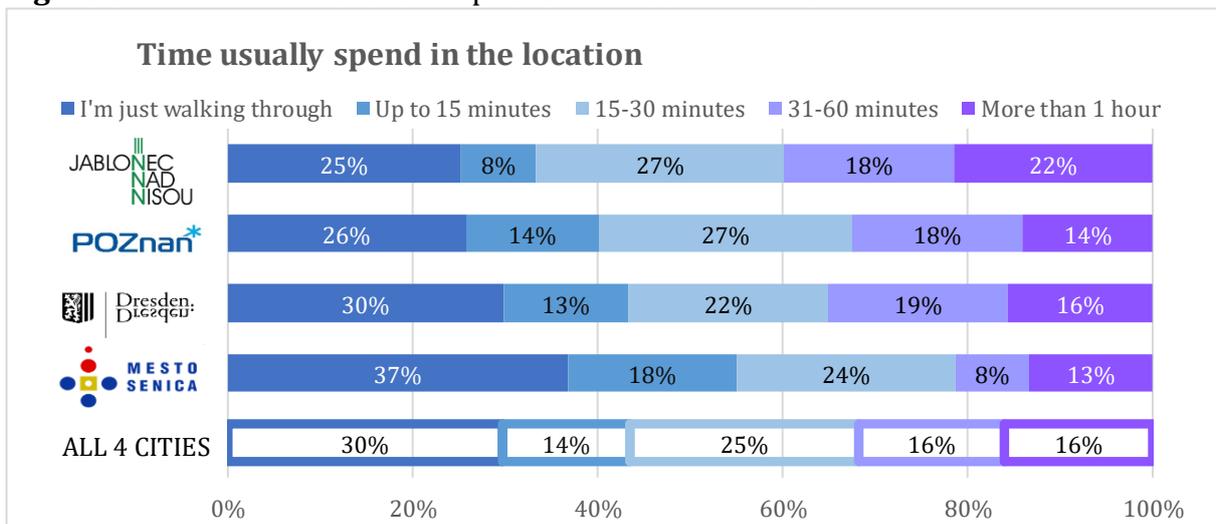
The results indicate that most respondents visit the pilot site near the river frequently – 30% on a daily basis and 34% several times a week. A further 20% visit several times a month, 15% less often, and only 1.5% stated that it was their first visit on the day of the interview. As illustrated in Figure 7, respondents from Dresden are the most frequent visitors to the river area, whereas those from Poznań visit it the least.

**Figure 7:** Frequency of visits to the pilot site across the cities



As shown in Figure 8, the sites are used both by people who usually just pass through (30%) and by those who spend more time there. A typical stay of 15 to 60 minutes was reported by 41% of respondents, and 16% usually spend more than one hour at the site. The longest average duration of stay was reported by respondents from Jablonec, while the shortest was recorded in Senica.

**Figure 8:** Duration of visits to the pilot site across the cities



There is statistically significant relationship between the frequency of visits and the time spent at the site – people who visit the stream more regularly tend to stay longer compared to occasional or first-time visitors. Based on the observations above and socio-demographic characteristics of respondents, the following patterns can be identified:

- **Higher visitation rates** were observed among retirees, older people, women and people living in flat. On the other hand, employed people or entrepreneurs, people with more adults in the household, people with higher education and higher monthly income had lower visitation rates.
- **Longer visits** were reported by women, older people, people with children in the household and persons on parental leave. On the other hand, students and people with higher monthly income usually spent a short time there.

As part of the survey, respondents were also asked about their **motivations for visiting the site**. As shown in Figure 9, the four most commonly agreed reasons were: (i) to get from point A to point B; (ii) to enjoy peace and relax; (iii) to observe and experience nature; and (iv) to talk and be with other people. Other reasons, such as letting children play outdoors or walking a dog, were more specific and relevant only to certain groups of respondents. The most common reason in Jablonec and Senica was “to get from point A to point B,” while in Poznań the leading motivation was “to enjoy peace and relax,” and in Dresden it was “to observe and experience nature.”

**Figure 9:** Respondents’ reasons for visiting the pilot sites across the cities



When comparing the frequency and duration of visits with the motivations for visiting the site stream surroundings, the following relationships were identified:

- The area is **most frequently** visited by people who want to:
  - I. observe and experience nature
  - II. enjoy peace and relax
  - III. walk the dog
- The **longest visits** were reported by people who come to:
  - I. talk and spend time with others
  - II. enjoy peace and relax
  - III. observe and experience nature
  - IV. allow their children to play outdoors or accompany them to the training

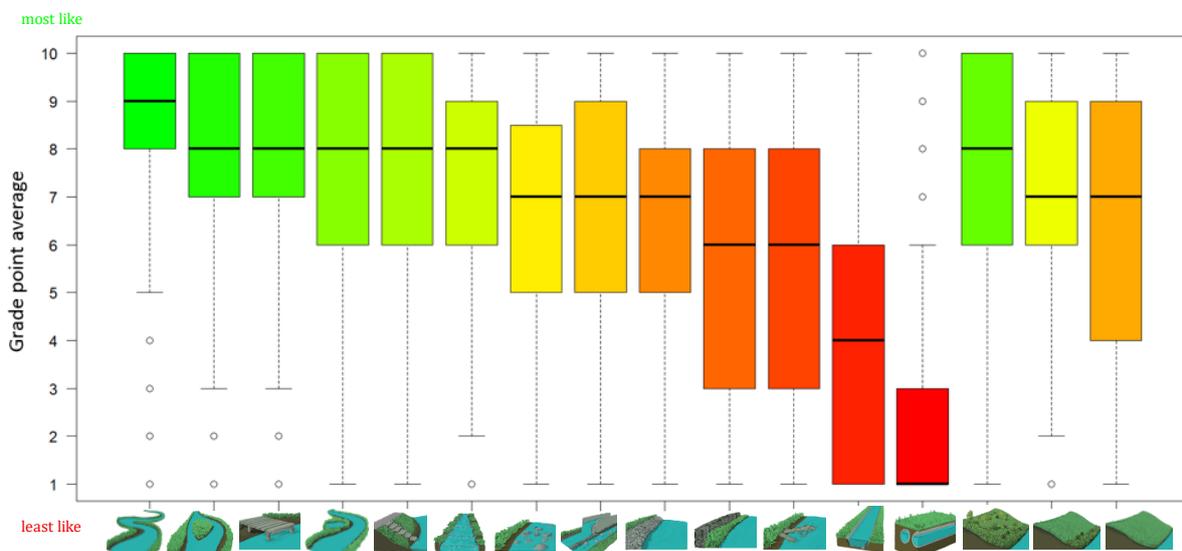
The stated reasons for visiting the site were often associated with certain respondent characteristics, such as employment status, age, gender, education or the presence of children in the household. The data analysis revealed the following correlations:

- **to enjoy peace and relax:** most common among older people, women, retirees, and those who live in a flat; on the other hand, this reason was less commonly agreed with by people with higher monthly income and students
- **to observe and experience nature:** most frequently reported by women, retirees, older individuals and those who live in a flat; on the other hand, people with higher monthly income, employees, people from larger households, students, and residents born in the area mostly disagreed
- **to enable children to play outside:** most often selected by younger women, persons on parental leave or employed people with higher monthly income, and people living in a house and with children in a larger household; on the other hand, students and retirees mostly disagreed
- **to accompany a child to a club or training:** most common among individuals from larger households with children, persons on parental leave or employed people; students and retirees mostly disagreed
- **to engage in sports activities:** often reported by younger people with higher monthly income, employees, and households with children; retirees disagreed
- **to walk the dog:** typically reported by younger people born in the area, individuals with lower levels of education, larger households, and those living in a house; retirees mostly disagreed
- **to talk and spend time with others:** most common among women, older or retired people, and individuals with lower levels of education

## 6. Assessment of Urban Water Elements and Riparian Vegetation

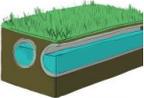
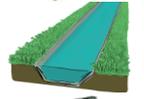
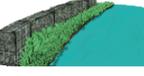
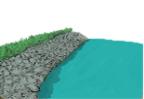
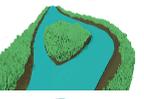
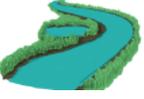
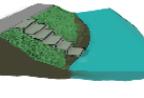
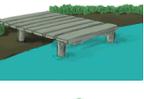
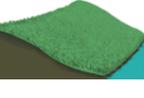
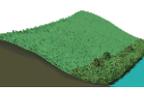
Out of the 16 elements found in urban watercourses, respondents gave the highest ratings to **i. meanders**, **ii. river island**, **iii. small pier**, **iv. pools/wetlands near the stream**, **v. stairs**, and **vi. water terraces**. On the other hand, the least preferred elements were streams forced underground in pipes, concrete river beds, and dead wood in stream. As for riparian vegetation, the most popular option was diverse, nature-based vegetation in a wide strip along the stream. However, the three types of vegetation were evaluated quite similarly. Respondents' ratings of the elements are shown in boxplots in Figure 10.

**Figure 10:** Rating of water elements and riparian vegetation (10 = most favorite)



As shown in Figure 11, there are clear differences in preferences among the cities. All of them, however, share a strong preference for nature-based water elements over technical ones. Meanders ranked first in Dresden, Senica, and Jablonec, while in Poznań the most popular feature was the isle in the river, which also placed second in Jablonec and Dresden. In contrast, the least preferred element – a stream forced underground in pipes – ranked last in all four cities. In Senica, the second and third highest-rated features were access to the stream via a small pier and via stairs. Respondents from Senica also rated technical elements such as the concrete river bed, flood walls, and riprap banks noticeably higher than in the other cities. Conversely, respondents in Dresden expressed particularly strong preferences for nature-based features, with meanders and diverse riparian vegetation in a wide strip along the stream receiving above-average ratings. Overall, Poznań and Jablonec showed the highest enthusiasm for water elements with visible surface dynamics (such as isles and small dams), whereas Senica respondents tended to value more accessible and structured river forms with less vegetation.

**Figure 11:** Average rating of water elements in the urban environment across cities with an indication of the three most popular (numbers in circles)

		MEAN	JABLONEC NAD SOU	MESTO SENICA	Dresden. Dietzgen	POZnan*
Stream forced underground in pipes		2,4	1,9	2,5	2,0	3,4
Concrete river bed (corridor)		4,1	3,9	4,8	2,7	4,7
Stone flood walls		5,9	4,6	7,3	5,8	5,8
Riprap banks (rocky material along the stream)		6,3	6,1	6,7	6,0	6,5
Fish passage (bridging the migration barriers)		6,6	6,2	7,1	7,0	6,0
Water terraces/small dams		7,4	7,2	7,7	6,8	7,9
Stones in the stream		6,9	7,0	6,3	7,0	7,4
Dead wood in stream		5,6	5,1	4,7	5,8	7,1
Meanders		8,3 <sup>1</sup>	8,4 <sup>1</sup>	8,1 <sup>1</sup>	8,8 <sup>1</sup>	8,1
Isle in the river		8,1 <sup>2</sup>	8,0 <sup>2</sup>	7,7	8,2 <sup>2</sup>	8,4 <sup>1</sup>
Pools and wetlands in floodplains		7,4	7,2	7,2	7,3	8,2 <sup>3</sup>
Access to the stream: Stairs		7,4	7,6	7,9 <sup>3</sup>	6,5	7,8
Access to the stream: Small pier		7,7 <sup>3</sup>	7,3	8,1 <sup>2</sup>	6,9	8,4 <sup>2</sup>
Grassed banks		6,4	5,8	7,0	5,4	7,5
Diverse nature-based vegetation in a narrow strip along the stream		7,0	6,7	7,4	6,5	7,6
Diverse nature-based vegetation in a wide strip along the stream		7,6	7,9 <sup>3</sup>	6,8	8,2 <sup>3</sup>	7,6

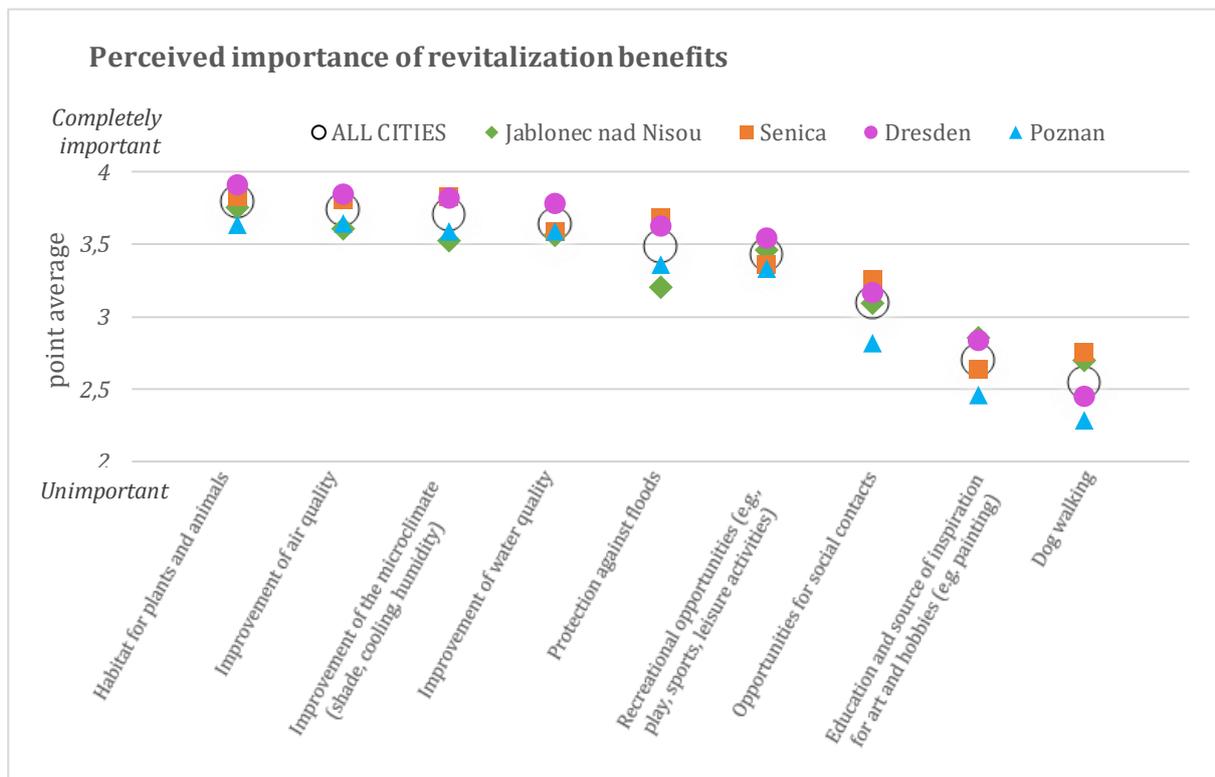
While preferences varied across respondent groups and cities, certain stream elements showed statistically significant preference patterns within the overall dataset.

- **concrete river bed**: more favored by younger people with lower levels of education, people born in the area, living in a house with a bigger households, and students; less favored by retired people
- **stream forced underground in pipes**: less favored by older people
- **meanders**: more favored by women and people with lower monthly income
- **dead wood in stream**: more favored by younger people with higher levels of education and employees; less favored by retirees and people born in the area
- **water terraces/small dams**: more appreciated by younger people and entrepreneurs; less favored by retirees
- **river island**: more popular among longer-stay visitors and people with lower monthly income
- **riprap banks**: less appreciated by older and retired people with higher education
- **stone flood walls**: more favored by people living in a house and born in the area
- **stairs**: more popular among younger people and woman; less popular among retirees and people with higher education levels
- **small pier**: more favored by younger people, students, and households with children; less favored by retirees
- **grassed banks**: more appreciated by younger people from a larger households with children, and with higher monthly income and lower education; less by retirees
- **diverse nature-based vegetation in a narrow strip along the stream**: more favored by people born in the area, employees and people with higher monthly income; less favored by retirees
- **diverse nature-based vegetation in a wide strip along the stream**: most favored by older individuals and retirees; students rated it more negatively

## 7. Respondents' Perception of the Benefits of Stream Restoration

The individual benefits were evaluated based on their perceived importance, and none of them was rated, on average, as unimportant. The results show that the most important benefit associated with restoration is the creation of habitats for plants and animals, followed by the improvement of air quality and the enhancement of the local microclimate (shade, cooling, and humidity). In contrast, the two least important benefits were education and inspiration from restoration activities, and opportunities for dog walking. As shown in Figure 10, respondents from Dresden tended to assign higher importance to the restoration benefits, while those from Poznań assigned lower importance compared to the other cities. Protection against floods was considered more important in Senica and Dresden; dog walking was rated as more relevant by respondents in Jablonec and Senica. However, in general, there were only relatively small differences between cities.

**Figure 12:** Perceived importance of urban watercourse revitalization benefits across the cities



Also some perceived benefits showed statistically significant preferences among different respondent characteristics. For example:

- **habitat for plants and animals:** more important to women, retirees, and older people with lower monthly income
- **education and a source of inspiration for art and hobbies:** more important to women, people with lower monthly income, and with children in the household

- **recreational opportunities:** more important to women, people with fewer adults but children in the household, people with higher levels of education, and persons on parental leave
- **opportunities for social contacts:** more important to women, older people, retirees, and persons on parental leave; less important for students
- **improvement of the microclimate:** more important to women, older and retired people, and those with higher levels of education
- **improvement of air quality:** more important to women, older people and retirees; less important to student, employees and people born in the area with children
- **improvement of water quality:** more important to women, retirees, older individuals, and people living in a flat with lower monthly income; less to students
- **flood protection:** more important to women, older and retired people; less important to students and employees
- **dog walking opportunities:** more important to younger people with lower levels of education, women, people living in a house, students and people born in the area

## 8. Preference Results from the Choice Experiment

Based on data from the choice experiment, several models were estimated for each city to identify the most and least preferred features of stream revitalization. Both a simple logit model (estimating the preferences of an average respondent) and a mixed model (allowing for heterogeneity among respondents) were applied. In all cases, the results of the two models were very similar, confirming consistent preference patterns across the cities.

Respondents from all 4 cities clearly preferred nature-based revitalization elements over technical solutions. Streams in a concrete channel were consistently the least preferred option, while **meandering streams**, especially those complemented by additional natural elements, were strongly favored. Similarly, **access to water** was highly valued in every city — respondents generally disliked the option with no access, and most appreciated access via a small pier or stairs. The presence of vegetation along the stream was seen as important, with **wide riparian vegetation** preferred over narrow or absent vegetation. In terms of the surrounding greenery, **urban parks** were the most popular, whereas semi-natural parks were the least favored in all cities.

**Figure 13:** Most frequently preferred combination of elements across the cities



Despite the shared patterns, some differences among the cities and their inhabitants can be observed. The mixed model identified two or three groups of respondents in each area whose preferences differ significantly (see Figure 14, 15, 16 and 17).

**Jablonec nad Nisou** respondents placed the greatest emphasis on both stream appearance and access to water, with **three** distinct preference groups of respondents identified:

- The first group (41%) strongly disliked concrete channels and preferred meandering streams with or without additional elements. They also favored access to water (either via stairs or pier) and appreciated wide riparian vegetation.
- The second group (47%) considered water access the most important factor, rating options without access and with concrete channels very negatively. They preferred both types of meandering streams and disliked streams without bank vegetation. Compared to the first group, this segment included fewer seniors and respondents with higher education.
- The third group (12%) represented a minority of respondents (but homogenous in preferences) preferring technical designs, such as a concrete channel, and valuing urban parks and options without vegetation. Their preferences were generally weaker, and they included proportionally more seniors.

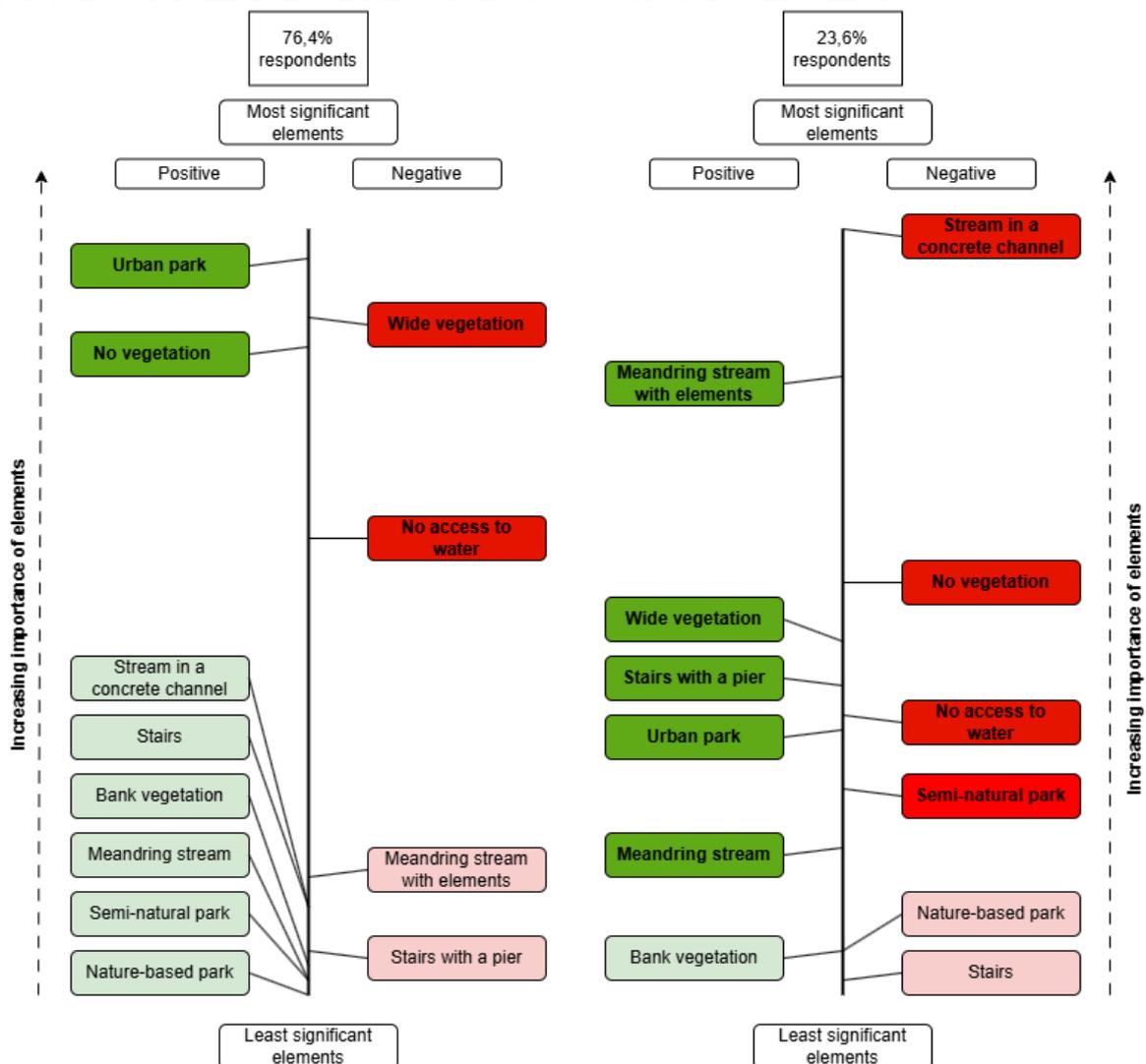
**Figure 14:** Preferences divided into 3 respondent groups based on the strength of preferences for different variants of the assessed features in **Jablonec**



In **Senica**, respondents were more open to technical features and they preferred less vegetation near the stream compared to other cities. **Two** main groups emerged:

- The first group (76%) strongly preferred grassed banks and urban parks in the surrounding area, while disliking a wide green strip along the stream. They were also negative toward the absence of water access, although neither type of access (pier or stairs) was viewed as particularly beneficial.
- The second group (24%) showed the strongest preference for the appearance of the stream. They rated a meandering stream with additional elements very positively and viewed a concrete channel negatively. They appreciated access via a pier and wide vegetation, while grassed banks were disliked. Similar to the first group, they preferred urban parks. This group generally derived a higher overall utility from stream revitalization and included fewer seniors and less-educated respondents.

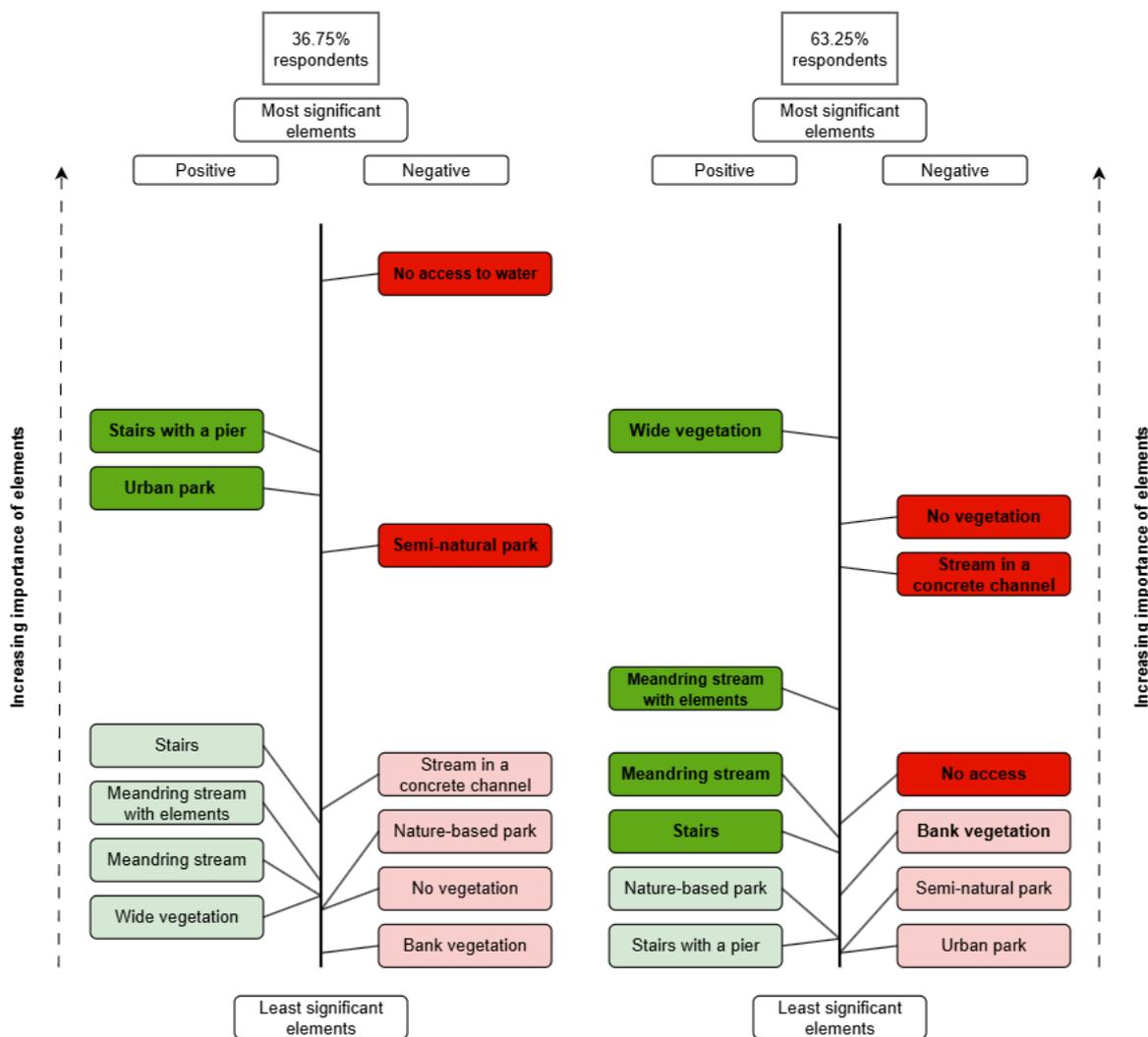
**Figure 15:** Preferences divided into 2 respondent groups based on the strength of preferences for different variants of the assessed features in **Senica**



**Dresden** respondents showed the strongest support for nature-based solutions. Two groups of respondents were identified:

- The first group (37%) placed the highest importance on access to water, favoring access via a pier with stairs and urban parks, while strongly disliking the lack of access and the presence of semi-natural parks. They were largely indifferent to the visual appearance of the stream and to vegetation along its banks.
- The second group (63%) showed strong support for meandering streams, especially those with additional elements, and clearly rejected concrete channels. They preferred wide riparian vegetation and rated no vegetation as the worst option. They had no strong preference regarding the type of surrounding greenery, though semi-natural parks were mildly disliked. This group included a slightly higher share of men, seniors, and more educated respondents.

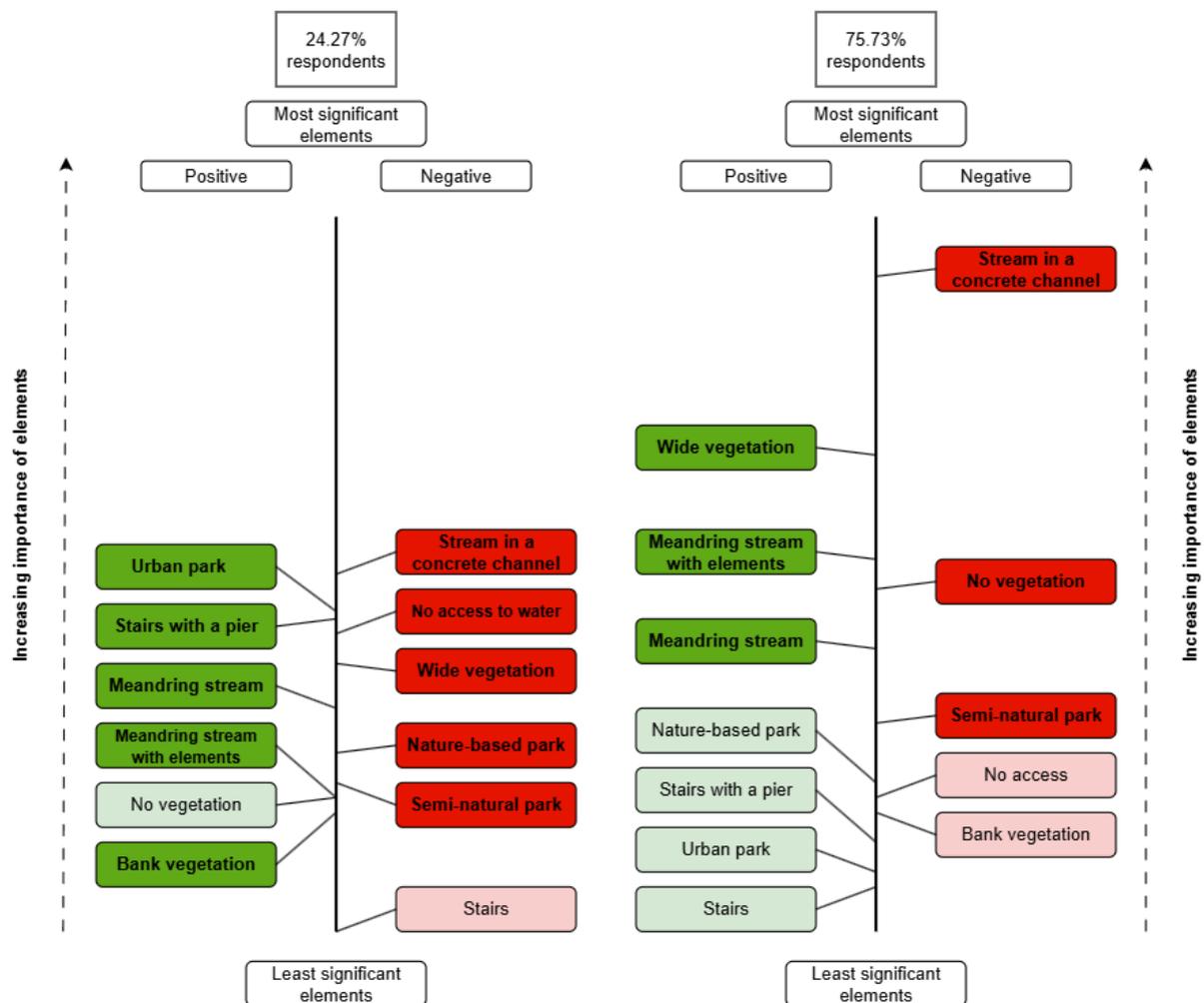
**Figure 16:** Preferences divided into 2 respondent groups based on the strength of preferences for different variants of the assessed features in **Dresden**



In **Poznań**, preferences were divided mainly between access to water and vegetation, and the model also revealed two distinct preference groups:

- The first group (24%) valued access to the stream, especially with a pier, and preferred urban parks. They viewed the absence of access, concrete channels, and wide vegetation negatively, favoring instead a more open environment with narrower vegetation.
- The second group (76%) showed strong support for meandering streams, ideally with additional elements, and strongly rejected concrete channels. They appreciated wide riparian vegetation and disliked bare banks. This group was largely indifferent to the type of park but mildly disliked semi-natural ones. It contained a higher proportion of men, seniors, and more educated respondents.

**Figure 17:** Preferences divided into 2 respondent groups based on the strength of preferences for different variants of the assessed features in **Poznań**



## Conclusions

Overall, the results of the urban water elements and riparian vegetation assessment as well as the choice experiment reveal a clear and consistent trend across Central European cities: residents strongly support natural and accessible watercourses integrated into urban green spaces. While Dresden and Jablonec show the most pronounced preference for natural, meandering streams, Senica and Poznań display slightly greater tolerance for technical or structured solutions. The observed differences may reflect varying urban contexts, cultural environments and experiences with existing watercourses, but the general preference for green, accessible, and diverse urban streams is evident across all locations.

The results of this study can be used in many ways. On the one hand, they show which urban water elements are most highly rated, and on the other hand, they also identify several opinion-homogeneous groups in each city whose opinions may differ significantly. In the case of investment-intensive projects, such as the revitalization of river courses in densely populated urban areas, it is certainly not possible to satisfy the preferences of all residents. Furthermore, some solutions are sometimes not even possible for environmental, technical, or urban-spatial reasons. Therefore, the planning and design of urban river revitalization requires a multidisciplinary approach combining knowledge from all of the above-mentioned disciplines.

The results of surveys of residents' preferences can provide guidance in planning and designing which elements/forms of revitalization would be most preferred, but at the same time they are very valuable for focusing information campaigns on the planned revitalization. If the planned revitalization measures differ from the preferences of the population, the results of this type of survey will show which groups of the population should be the primary focus of the information campaign on the benefits of revitalization.

## Appendix: Socio-demographic Characteristics

Pilot area	Jablonec	Senica	Poznań	Dresden	ALL
<b>Number of respondents</b>	N = 246	N = 291	N = 249	N = 268	<b>N = 1,054</b>
<b>Average age (median)</b>	49 (47)	38 (34)	39 (34)	55 (60)	<b>45 (42)</b>
<b>Age categories (%)</b>					
15-25	29 (11.8)	86 (29.6)	38 (15.3)	26 (9.7)	<b>179 (17.0)</b>
26-35	42 (17.1)	66 (22.7)	89 (35.7)	39 (14.6)	<b>236 (22.4)</b>
36-45	47 (19.1)	44 (15.1)	59 (23.7)	41 (15.3)	<b>191 (18.1)</b>
46-55	37 (15.0)	51 (17.5)	20 (8.0)	19 (7.1)	<b>127 (12.0)</b>
56-65	23 (9.3)	16 (5.5)	13 (5.2)	26 (9.7)	<b>78 (7.4)</b>
66-75	51 (20.7)	21 (7.2)	22 (8.8)	60 (22.4)	<b>154 (14.6)</b>
75+	17 (6.9)	5 (1.7)	5 (2.0)	55 (20.5)	<b>82 (7.8)</b>
<b>Gender (%)</b>					
Women	134 (54.5)	183 (62.9)	143 (57.4)	168 (62.7)	<b>628 (59.6)</b>
Men	112 (45.5)	107 (36.8)	106 (42.6)	99 (36.9)	<b>424 (20.2)</b>
Other	0	1 (0.4)	0	1 (0.4)	<b>2 (0.2)</b>
<b>Education (%)</b>					
Primary	14 (5.7)	33 (11.3)	4 (1.6)	34 (12.7)	<b>85 (8.1)</b>
Secondary without a dipl.	67 (27.2)	24 (8.3)	23 (9.2)	17 (6.3)	<b>137 (13.0)</b>
Secondary with a dipl.	106 (43.1)	145 (49.8)	63 (25.3)	151 (56.3)	<b>459 (43.6)</b>
Higher education	59 (24.0)	89 (30.6)	159 (63.9)	65 (24.3)	<b>372 (35.3)</b>
<b>Net monthly personal income category (%)</b>					
Category A	19 (7.7)	16 (5.5)	3 (1.2)	19 (7.1)	<b>57 (5.4)</b>
Category B	15 (6.1)	12 (4.1)	6 (2.4)	63 (23.5)	<b>96 (9.1)</b>
Category C	48 (19.5)	18 (6.2)	21 (8.4)	57 (21.3)	<b>144 (13.7)</b>
Category D	59 (24.0)	21 (7.2)	11 (4.4)	53 (19.8)	<b>144 (13.7)</b>
Category E	30 (12.2)	19 (6.5)	19 (7.6)	25 (9.3)	<b>93 (8.8)</b>
Category F	38 (15.4)	37 (12.7)	17 (6.8)	10 (3.7)	<b>102 (9.7)</b>
Category G	12 (4.9)	36 (12.4)	22 (8.8)	4 (1.5)	<b>74 (7.0)</b>
Category H	7 (2.8)	36 (12.4)	21 (8.4)	1 (0.4)	<b>65 (6.2)</b>
Category I	10 (4.1)	65 (22.3)	17 (6.8)	0	<b>92 (8.7)</b>
No income	1 (0.4)	13 (4.5)	9 (3.6)	11 (4.1)	<b>34 (3.2)</b>
No answer	7 (2.8)	18 (6.2)	103 (41.4)	25 (9.3)	<b>153 (14.5)</b>
<b>Employment status (%)</b>					
Employee	112 (45.5)	145 (49.8)	140 (56.2)	78 (29.1)	<b>475 (45.1)</b>
Entrepreneur	12 (4.9)	26 (8.9)	25 (10.0)	3 (1.1)	<b>63 (6.0)</b>
Parental leave	17 (6.9)	19 (6.5)	12 (4.8)	14 (5.2)	<b>62 (5.9)</b>
Retired	79 (32.1)	42 (14.4)	29 (11.6)	129 (48.1)	<b>279 (26.5)</b>
Student	19 (7.7)	52 (17.9)	30 (12.0)	20 (7.5)	<b>121 (11.5)</b>
Unemployed	7 (2.8)	5 (1.7)	4 (1.6)	23 (8.6)	<b>39 (3.7)</b>
<b>Housing (%)</b>					
Flat	198 (80.5)	162 (55.7)	223 (89.6)	258 (96.3)	<b>841 (79.8)</b>
Family house	44 (17.9)	128 (44.0)	26 (10.4)	8 (3.0)	<b>206 (19.5)</b>
<b>Lifelong residents (%)</b>	74 (30.1)	171 (58.8)	53 (21.3)	13 (4.9)	<b>311 (29.5)</b>