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# A planted forest in the mountain steppe of Tabriz, Iran: Visitor's perceptions of Eynali Urban Woodland Park

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Eynali Urban Woodland Park (EWP) is a large mountain park in Tabriz, Iran, and is the largest urban woodland park in Iran. It was developed to increase the urban green space in the growing city of Tabriz for recreation, climate improvement, biodiversity, and ecological connection between the city and its natural surroundings. The planted hilly woodland is located in a natural mountain steppe in a semi-arid region and needs intensive management, including irrigation. By questioning 277 randomly selected park visitors' frequency of visits, activities, accessibility, preferences, and especially nature preferences were analyzed using visualization of different nature types by photographs. The management targets were compared to visitors' perceptions, preferences, and acceptances. The results show, that visitors prefer natural surroundings instead of artificial landscape design. Expectations of visitors for specific natural design attractions are lower than the actual status offers, and higher for social security, quality of infrastructure, accessibility, and utilization. Especially important are security by monitoring and guarding, enhancing picnic sites, improving the lighting system for evening visits, continuing forestry, public transport, and providing natural risk protection. Most visitors prefer nature-near vegetation, dry grassland with shrubs partly planted with trees and bushes, followed by planted forest. The planted forest is not the preferred preference. Visitors' mental nature imagination matches quite well with the nature experience they have from the surrounding mountain steppe with forest patches. The use of the visitors' expectations can improve the park landscape management can reduce the management costs.

## KEYWORDS

designed urban woodland, Iran, park visitor's perceptions, semi-arid city, Tabriz, urban

## 1. Introduction

It is well documented that desired green spaces in cities could have positive psychological and physiological effects on citizens (Balram and Dragičević, 2005; Richardson et al., 2010; Madureira et al., 2015; Kobayashi et al., 2021). Indeed, urban green spaces can improve physical health, mental relaxation, professional efficiency, and lifestyle; however, this has been largely ignored in urban design (Özgüner and Kendle, 2006; Lee and Maheswaran, 2011; Buchel and Frantzeskaki, 2015; Li et al., 2020). As a result, mental health and social health are more compromised in urban areas than in rural areas (Barton and Pretty, 2010). Green

spaces in cities compensate the negative impacts of stress as an ever-increasing complication of living in urban areas (Balram and Dragičević, 2005; Abuayyash et al., 2023). A clear focus of urban ecological research is on biodiversity and ecosystem services, energy consumption and sustainability, multifunctional landscapes (design and planning), and carbon footprint for climate change studies (Breuste and Qureshi, 2011).

Urban woodlands are typical elements of cultural landscapes. Mostly, they are managed by forestry. These areas typically lie on the urban periphery but can also be fully integrated within the city itself. Urban woodlands can either be publicly or privately owned. They are usually either natural woodlands or planted for commercial use. Aside from urban parks, urban woodlands are the most preferred urban green spaces by urban dwellers. For many people, they represent the type of “nature” which is normally missing in cities. Their accessibility is an essential prerequisite for the cultural ecosystem services they provide for the urban dwellers (Konijnendijk et al., 2005, 2006; Randrup et al., 2005; Konijnendijk, 2008; Leser, 2008; Gilbert, 2012; Johnson and Handel, 2019; Breuste, 2020). In many European countries, their continuity as woodland can be dated back to at least 250 years (Dzwonko, 1993; Hermy, 1994; Wulf, 1997), and in Great Britain even up to 400 years (Peterken, 1993).

Iran is predominantly an arid and semi-arid country, where, out of a total land area of 164.8 million hectares, 86 million ha (52.4%) are grasslands and pastures. Only 14.2 million ha (8.6%) are forests and woodlands, whereas 32 million ha (19.5%) are deserts including salt plains. The country receives an average annual precipitation of 240 mm (Revised National Biodiversity Strategies and Action Plan 2016–2030 (NBSAP2), 2016). Therefore, it is natural that there are no forested cities in most parts of Iran.

Urban woodland parks in Iran are infrequent and for a long time, Chitgar Park (built 1963–1969) on the western edge of Tehran was the only urban woodland park in Iran (Chitgar Forest Park, 2022). It covers an area of about 14.5 km<sup>2</sup> and includes recreational infrastructure. The green belt of Teheran contains some other urban woodlands with urgently needed recreational facilities (Attarod, 2016). In Near Eastern and Middle Eastern countries due to a lack of precipitation and historical land cultivation this urban green spaces are rare. Examples are Belgrade Forest (Istanbul) (Akemik and Dağdeviren, 2000), (Daman-e-Koh hilltop park and woodland park) (Islamabad) (Bokhari et al., 2018), and Sisangan Forest Park (near Nowshahr, Iran). All of which are remnants of natural woodlands that have been equipped with infrastructure and developed into recreational parks.

Ghandehari et al. (2012) express that public urban parks in the Neared Middle East are influenced in design by international and park use. Woodland parks are new developments. Due to cultural and societal conditions, most park users are male, young and have an above-average level of education (Hami, 2009). Women were more likely to use parks with families or to walk with their children at the weekend. Women do not use the parks frequently because of some restrictions due to religious rules, financial issues, and family responsibilities. The majority of visitors in Sisangan Forest Park (near Nowshahr) are single college-educated persons (Kheiri et al., 2015).

The importance of urban woodland parks around the world and having positive and appropriate feedback in Iran among the people is seen in previous studies. Most people and visitors

in the past researchers consider “urban woodlands” as one of the main urban green spaces in their leisure time. Therefore, designing, maintaining, and managing urban woodland parks is of undeniable importance. Thus, the purpose of this study is to examine visitors’ expectations and perceptions of urban woodland parks from various perspectives (green space and existing uses) and to compare them with the current situation so that better management and development can be achieved in the future in Eynali woodland park “EWP” (Tabriz, Iran). We are still attempting to answer the question: Do visitors and residents prefer “EWP” to city parks? EWP is most often visited as an individual, group, or family, and is this similar to visiting Tabriz city parks? What is the gap between visitors’ expectations and the current situation at Eynali woodland park? And, last but not least, which scenes of nature do they like and dislike?

## 2. Materials and methods

### 2.1. Study area

The city of Tabriz (1.56 million inhabitants) is located in northwest Iran (Yigitcanlar et al., 2020). Eynali Woodland Park (EWP) with 37°06’12.00” N 47°19’12.00” E, was established in 2004 on 5,612 ha mountain grassland of the Eynali mountain chain in the northern district of the city (see Figure 1), which 280.92 ha (= 5%) were planted with different types of bushland and trees in 13 zones until 2018 when the park was completed. The majority of planted tree species are non-natives: *Robinia pseudo acacia* (North America), *Fraxinus excelsior* (Europe), *Ailanthus altissima* (China), *Elaeagnus angustifolia* (Central Asia), *Crataegus* spp. (Europe), *Morus alba* (Europe), *Pinus nigra* (Mediterranean region), *Thuja orientalis* (China) - *Cupressus arizonica* (North America). Only two species, *Gleditsia caspica* and *Pinus eldarica* (Western Asia) are native. Apart from *Rose* spp., all planted shrubs are non-native. These include *Pyracantha coccinea* (Southern Europe, Asia minor), *Cotoneaster dammeri* (China), *Berberis thunbergii* (Eastern Asia), *Ligustrum ovalifolium* (Japan), *Forsythia x intermedia* (hybrid). (Development Organization of Eynali and Nature Park of Municipality of Tabriz, 2022; Latitude, 2022).

### 2.2. Questionnaire

A questioning of 277 park visitors provided information on visitors’ perception of EWP, preferred activities and evaluation of EWP’s infrastructure. The questioned persons were randomly selected, which were conducted in 2022 during June and July.

The Delphi technique was used to select the variables of the questionnaire. An independent group of experienced professors reviewed the variables in three phases and final approval of the authors of this research eventually questionnaire was categorized into three parts and consisted of 73 questions in total (7 demographic and general questions, 59 specialized closed questions, and 7 open questions).

**First part:** This contained socio-demographic information about gender, age (age groups), marital status, education level (six

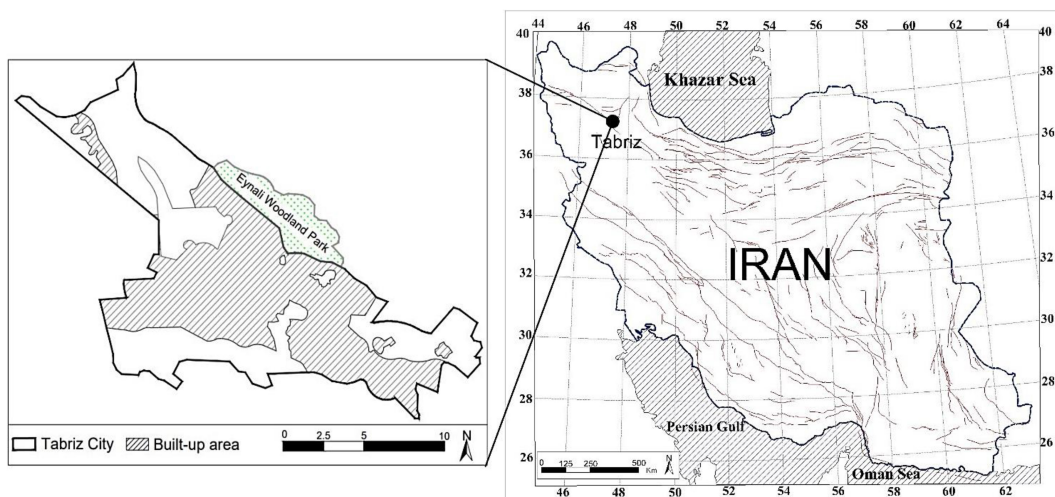


FIGURE 1 Two locations of Tabriz in Iran and Eynali woodland park in Tabriz (own design by the authors).

levels), visiting times (three options), and regular visits in social groups (single, group, or family).

Table 1 displays the demographical information of the questioned visitor sample. A big group of the questioned visitors were young men, single (33.6%) or in groups (43%), with high

education level. Apart from family groups, this is the most present visitor group.

**Second Part:** This part included questions about people's expectations of EWP. It has the following four sub-sections: natural attractions, access to EWP, existing facilities, and public safety (see Table 3).

TABLE 1 Distribution of the participants' socio-demographic information.

| Participants      |                            | Number | Percentage |
|-------------------|----------------------------|--------|------------|
| Total             |                            | 277    | 100        |
| Category          | Sub category               | Number | Percentage |
| Gender            | Male                       | 100    | 36.1       |
|                   | Female                     | 177    | 63.9       |
| Age               | Young (18–30)              | 149    | 53.8       |
|                   | Young adult (31–45)        | 92     | 33.2       |
|                   | First adulthood (46–70)    | 23     | 8.3        |
|                   | Second adulthood (Above70) | 13     | 4.7        |
| Marital status    | Single                     | 158    | 57         |
|                   | Married                    | 109    | 39.4       |
|                   | Other (divorced, etc.)     | 10     | 3.6        |
| Education         | High school                | 67     | 24.2       |
|                   | Diploma                    | 64     | 23.1       |
|                   | Bachelor                   | 106    | 38.3       |
|                   | Master                     | 36     | 13         |
|                   | Above master               | 4      | 1.4        |
| Social using type | Single                     | 93     | 33.6       |
|                   | Group                      | 119    | 43         |
|                   | Family                     | 65     | 23.5       |

- Feeling of nature in general (2 questions)
- Feeling of specific nature of EWP (3 questions)
- Feeling of recreation (2 questions)
- Transport connections (2 questions)

**Third part:** This was designated to the current conditions of EWP. There were five variables in this section: access, equipment and infrastructure, diversity and function, green spaces, and hazard protection (see to Figure 2). Four variables (excluding expectations of green spaces) were set in the Likert rankings. Questions were asked based on photos representing the various

TABLE 2 Visiting times.

| Visitors of EWP                            | Repetition of visits (in month) | Number | Percentage |
|--|---------------------------------|--------|------------|
| Visiting times spring and summer per month | 1–4                             | 104    | 37.5       |
|  | 5–8                             | 49     | 17.7       |
|  | >8                              | 124    | 44.8       |
| Visiting times autumn and winter per month | 1–4                             | 113    | 40.8       |
|  | 5–8                             | 47     | 17         |
|  | >8                              | 117    | 42.2       |

TABLE 3 Visitors' expectation of EWP.

| Expectation of EWP   | Frequency |      | %V of EFA |
|--|-----------|------|-----------|
|  | Yes       | No   |           |
| Is EWP a nature park?  | 91.3      | 8.7  | 18.33     |
| Do you have a nature feeling in EWP?   | 87.4      | 12.6 | 12.05     |
| Do you like nature attractions of EWP?   | 93.9      | 6.1  | 14.15     |
| Is EWP similar to a natural forest?  | 32.9      | 67.1 | 7.12      |
| Do you feel relaxed in EWP?  | 96.4      | 3.6  | 7.09      |
| Do you see unique plants or animals in EWP?  | 48.7      | 51.3 | 6.50      |
| Would you welcome additional public transport to EWP, especially on Iranian holidays?        | 76.5      | 23.5 | 5.23      |
| Do you like to stay in EWP overnight for sleeping (according to night activity equipment's)? | 79.1      | 20.9 | 5.07      |
| Can you find good parking places when you arrive?  | 25.3      | 74.7 | 4.47      |

types of “green space.” Photos for the questions about “green space” were taken in the park on 15 June 2022. Image size was adjusted to 8.7 cm × 13.4 cm and brightness, contrast, color and other features were adjusted for all images using Adobe Photoshop CS software, as recommended by Wergles and Muhar (2009) and Daniel (2001). The selection of photographs for the study was carried out following the principles presented by Kaplan and Kaplan (1989) and Appleton (1975) (see to Supplementary appendices 1, 2).

The questioned visitors were presented with 16 pictures of scenes representing different nature types in EWP.

Each of the four pictures was presented. The used nature categories were:

1. Nature-near vegetation (NA) (dry grassland with shrubs).
2. Nature-near vegetation (NB) (dry grassland with shrubs partly planted with trees and flowering bushes).
3. Planted ground layer vegetation (PA) (irrigated lawns or ground flowering plants).
4. Planted forest (PB).
5. Artificial constrictions (A) (see to Figure 3).

### 2.3. Data analysis

Various analysis techniques, including descriptive statistics, measurement—validity, and reliability (exploratory factor analysis), ranking test (Friedman’s test), B-variate correlation, and means comparison tests (Independent Sample *t*-Test and One-Way ANOVA) were conducted using SPSS 23.0.

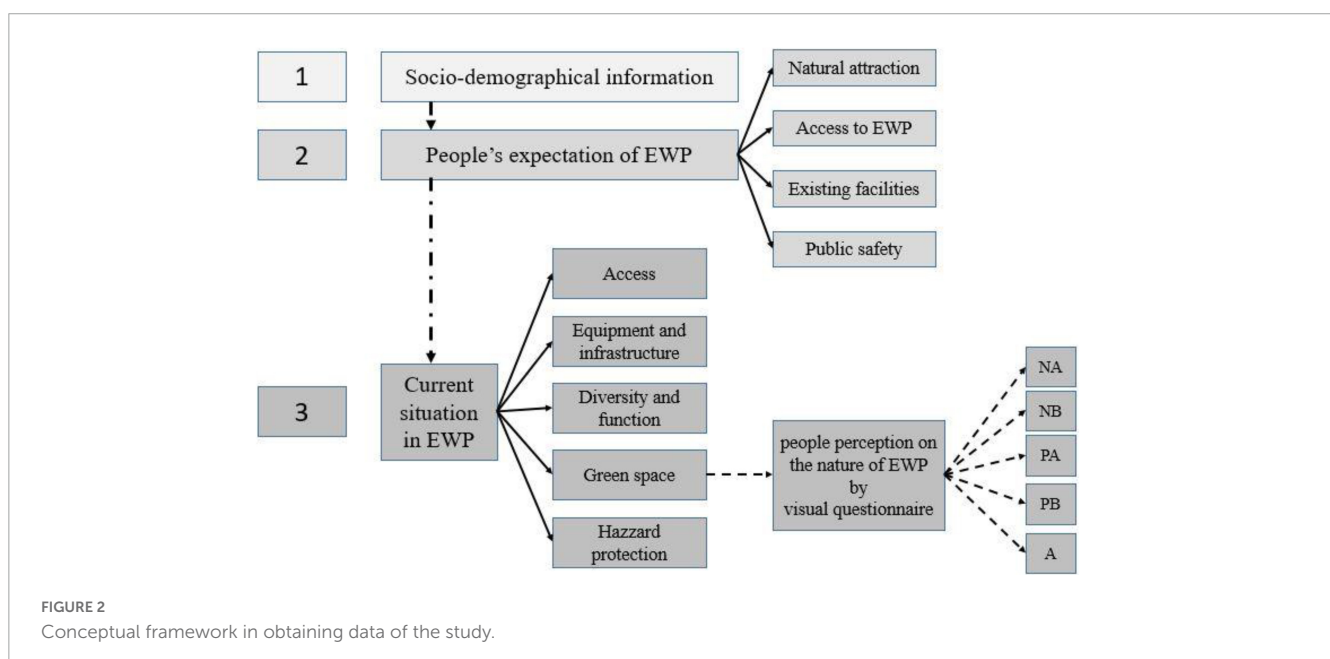
## 3. Results

### 3.1. Frequency of visits

There are two groups of visitors of nearly the same size - around 40% of the total (see to Table 2). One visits EWP about once a week, the other more than twice per week. There were no major differences between the frequency of visits between spring/summer and autumn/winter.

### 3.2. Visitor’s expectation of EWP

Nature, in general, is highly valued and was reported by more than 90% of visitors. Moreover, most visitors (more than





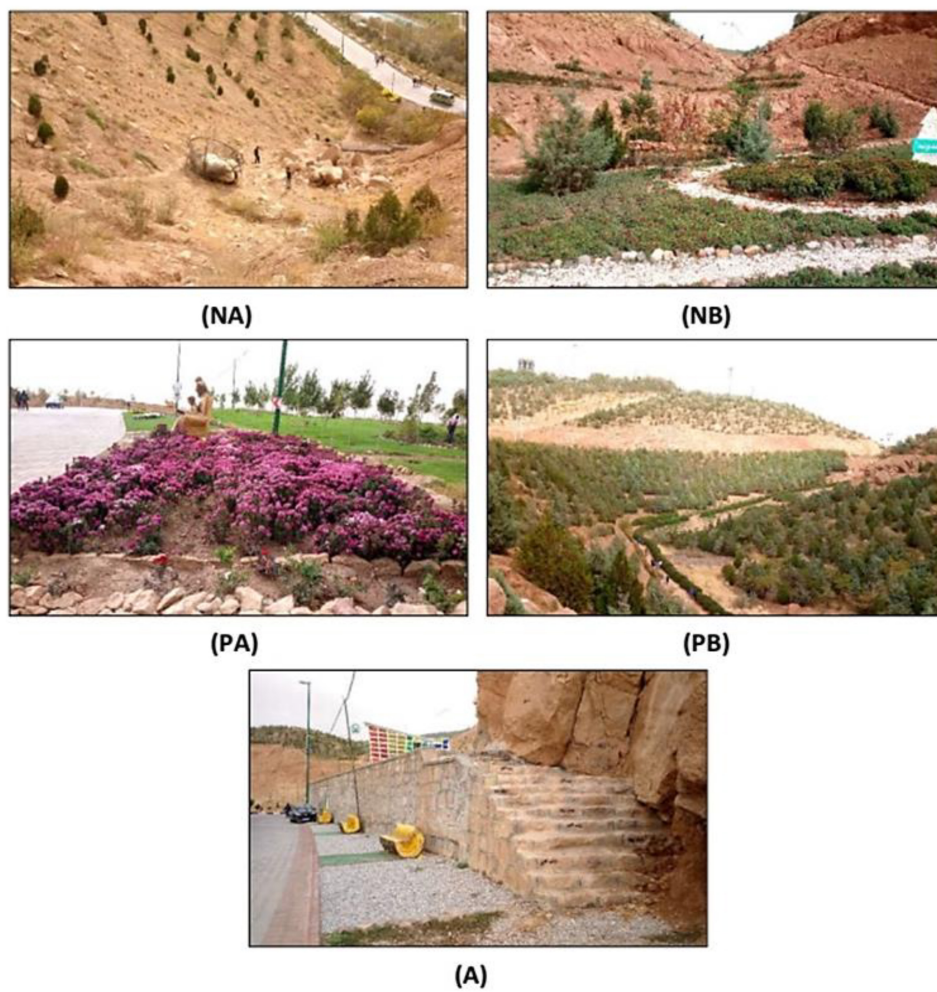


FIGURE 3  
The nature categories of Eynali woodland park (own design by authors).

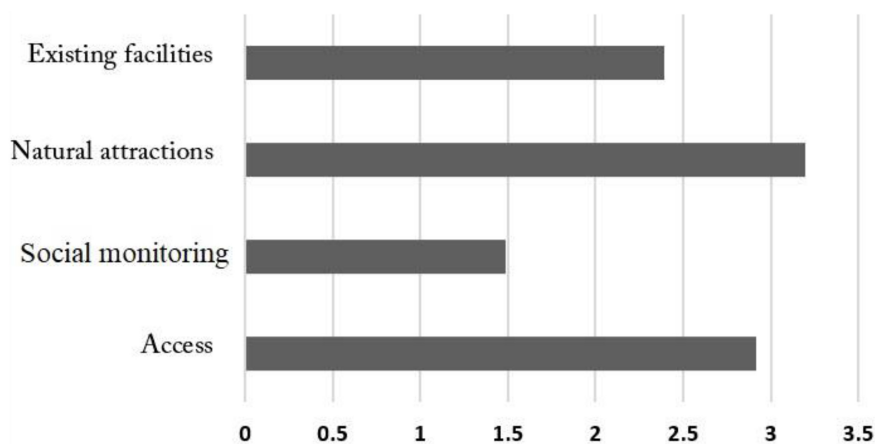


FIGURE 4  
Ranking of visitors' expectations of EWP.

two-thirds) know that EWP is artificial nature, and 87% value the artificial nature. However, only half of the visitors reported expecting something spectacular (unique plants or animals).

Simple relaxation and no special interest in specific activities were expressed. For a majority (nearly 80%), a stay in cooler conditions after sunset or even overnight is very important. Due

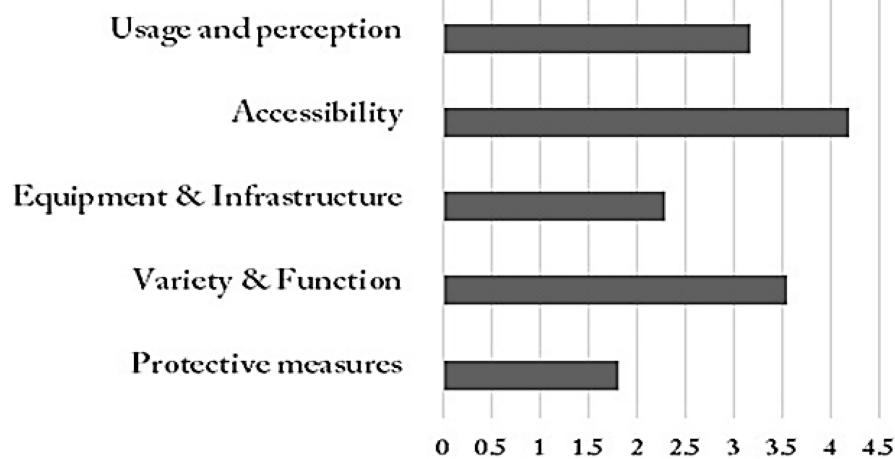


FIGURE 5 Satisfaction of current status in EWP.

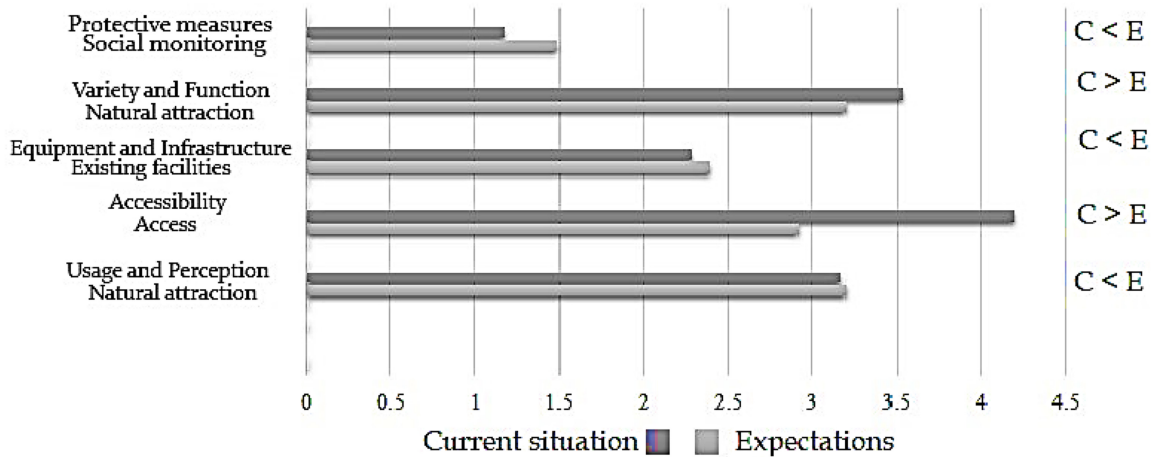


FIGURE 6 Expectations of visitors vs. current conditions of EWP.

to these trends, refreshments are available until 2 am in the central part of the park.

Most of the visitors demand an improvement of the connections from EWP to the city by public transport but also improved accessibility by car and better parking options. Based on exploratory factor analysis (EFA), the priority for visitors was the feeling of “being in nature” and the attraction to the natural setting (see to Table 3).

The high number of visitors (nearly 70%) who access EWP with private vehicles further demonstrates the insufficiency of available public transport. Apart from regarding EWP as artificially designed nature, the experience/feeling of being in nature is considerable, as 44% reported this to be “high” and even “very high” by 23%. Together, two-thirds of the respondents feel that they visit ‘nature’ in EWP.

The feeling of being safe is also important for most visitors. They expect adequate local park safety and monitoring.

According to Friedman’s analyses, the most important expectations are natural attractions (mean rank = 3.20), followed

by accessibility (mean rank = 2.92) and existing facilities (mean rank = 2.39). The least important criterion was “social monitoring” (mean rank = 1.49) (see to Figure 4).

### 3.3. Assessing the “current status” according to visitors’ opinions

Visitors reported the highest satisfaction regarding “access to EWP” (mean = 3.92, SD = 0.78) followed by “variety and function” (mean = 3.66, SD = 0.75), “usage and perception” (mean = 3.63, SD = 0.79), “equipment and infrastructure” (mean = 3.36, SD = 0.97) and lastly “public safety” (mean = 2.67, SD = 0.64). After differentiating the answers, a more detailed perspective is revealed (see to Table 4). The most important aspect for visitors was the ability to reach EWP (34%), followed by the availability of picnic facilities (30%), a lighting system (33%) for safe night use (21%) and guard rails on

step trails and steps (25%). Information on the nature within the park (e.g., botanical names of plants) was not a priority (10%).

According to Friedman’s analyses about the current situation ranking (see to **Figure 5**), visitors reported the most satisfaction regarding the accessibility of EWP (mean rank = 4.19), followed by its variety and function (mean rank = 3.54), usage and perception (mean rank = 3.17), equipment and infrastructure (mean rank = 2.29), and are least satisfied with its safety (mean rank = 1.81).

The result of B-variate correlation for visitors’ expectations and the current situation in EWP (see to **Table 5**) showed a moderately strong correlation ( $r = 0.526, \alpha = 0.000$ ) between usage and perception with the existing facilities in the current situation. Also, a moderately strong correlation ( $r = 0.504, \alpha = 0.001$ ) was revealed between safety for visitors and the current accessibility, a relatively strong correlation ( $r = 0.584, \alpha = 0.000$ ) between visitors’ expectations of natural attractions with equipment and infrastructure. This means that, according to visitors’ opinions, having the right infrastructure can increase natural attractions, as

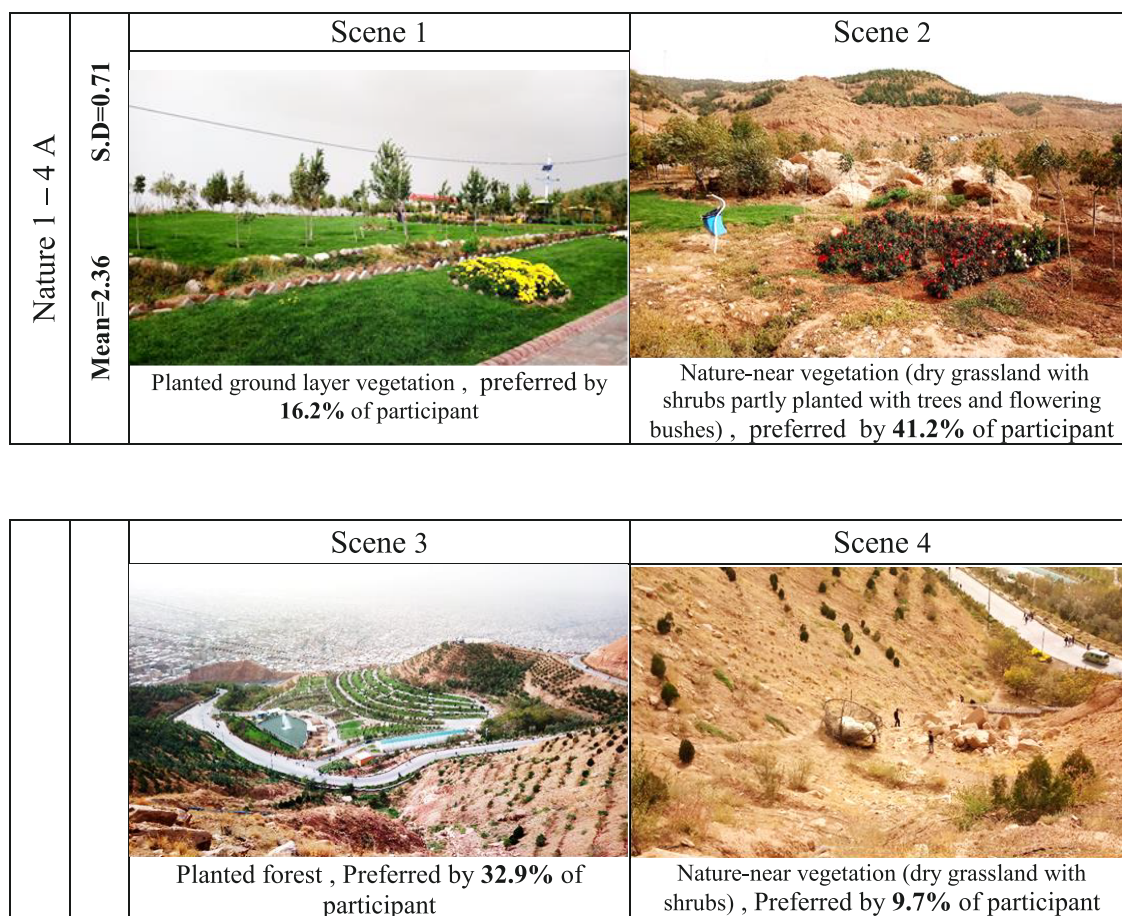
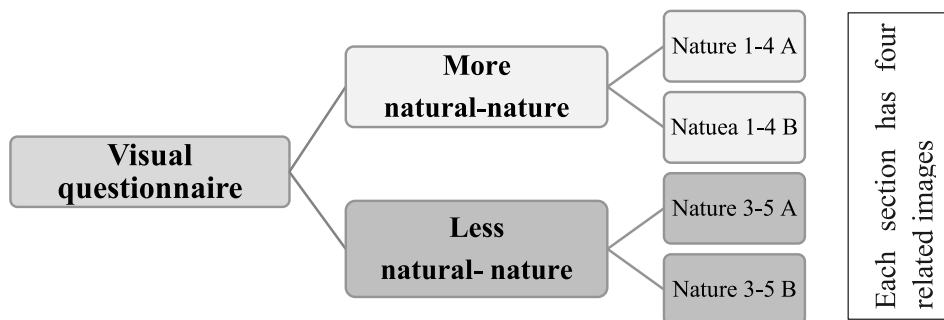


FIGURE 7 The combination of “nature 1–4 A”.




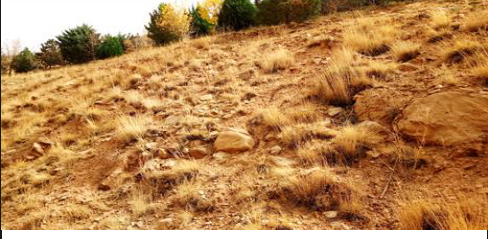


|                |            |  |  |
|----------------|------------|--|--|
| Nature 1 – 4 B | S.D= 1.05  | scene 1  | scene 2  |
|                |            |  <p>Nature-near vegetation (dry grassland with shrubs partly planted with trees and flowering bushes), Preferred by <b>20.9%</b> of participant</p> |  <p>Nature-near vegetation (dry grassland with shrubs), Preferred by <b>26.0%</b> of participant</p>                           |
|                | Mean= 3.05 | scene 3  | scene 4  |
|                |            |  <p>Planted forest, Preferred by <b>40.4%</b> of participant</p>  |  <p>Planted ground layer vegetation (irrigated lawns or ground flowering plants), Preferred by <b>12.6%</b> of participant</p> |

FIGURE 8  
The combination of "nature 1–4 B".





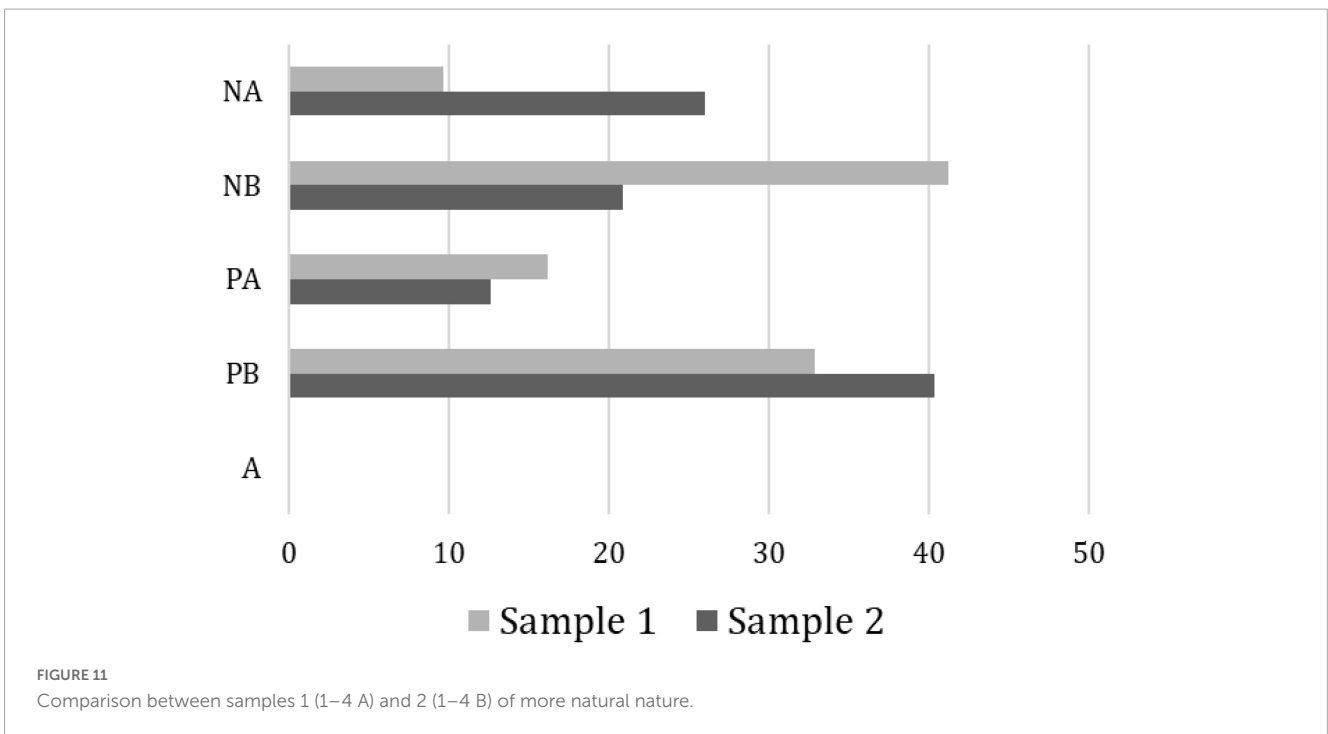
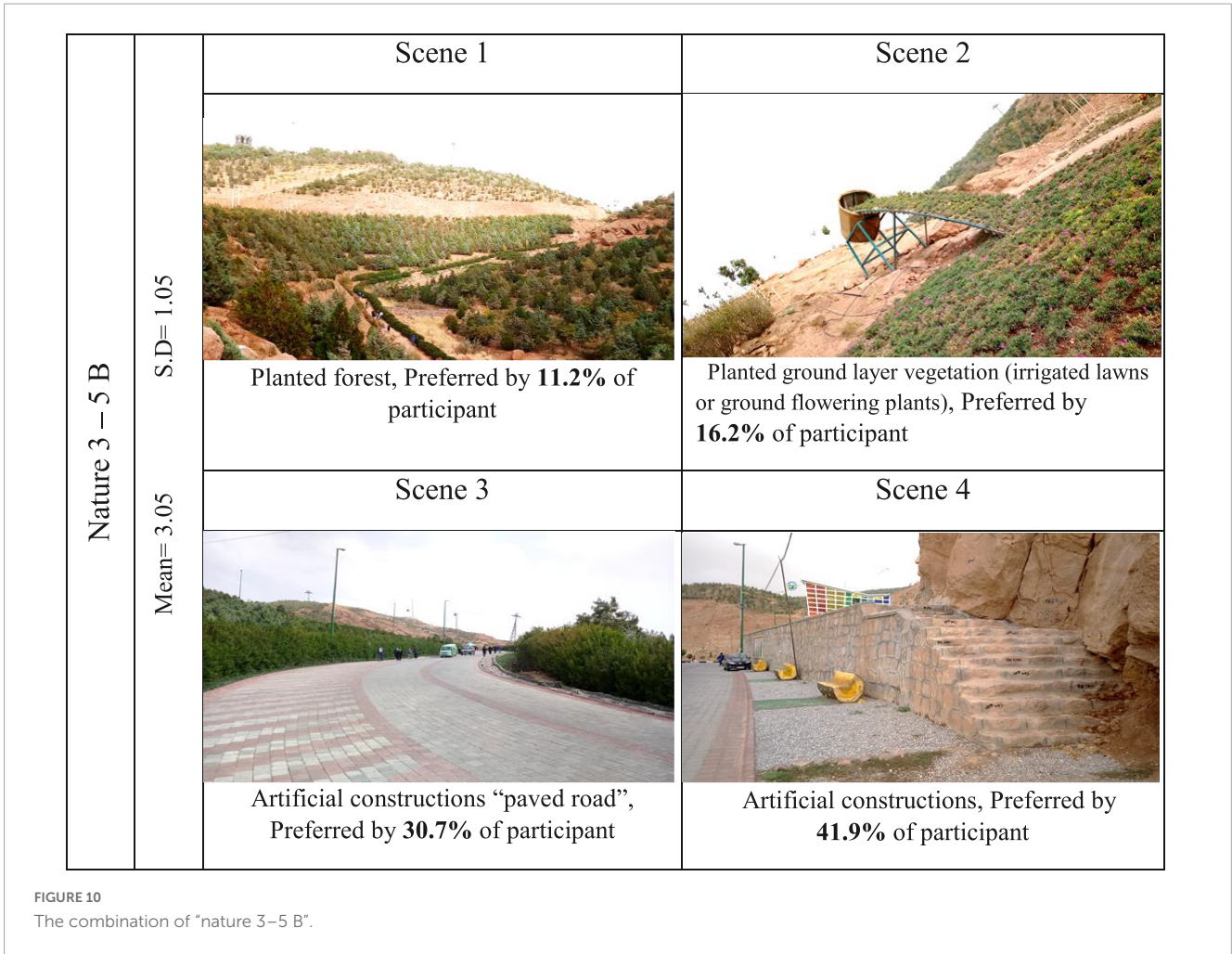
|                |            |  |  |
|----------------|------------|--|--|
| Nature 3 – 5 A | S.D= 1.17  | Scene 1  | Scene 2  |
|                |            |  <p>Planted forest (arranged planting), preferred by <b>15.9%</b> of participant</p>    |  <p>Planted ground layer vegetation (irrigated lawns or ground flowering plants), Preferred by <b>18.1%</b> of participant</p> |
|                | Mean= 3.04 | Scene 3  | Scene 4  |
|                |            |  <p>Planted forest (disarranged planting), Preferred by <b>15.2%</b> of participant</p> |  <p>Artificial constructions, Preferred by <b>50.9%</b> of participant</p>   |

FIGURE 9  
The combination of "nature 3–5 A".





observed by a moderately strong correlation ( $r = 0.590, \alpha = 0.001$ ) between natural attraction and variety & function, and a moderately strong correlation ( $r = 0.586, \alpha = 0.000$ ) between social monitoring and protective measures. All correlation is significant at a level of 0.01.

### 3.4. Comparison between the expectations of visitors and the current situation

The expectations were compared with the current situation in EWP based on visitors' opinions and compared to each section as an index to separate them (see to [Figure 6](#)):

- (i) Safety/Protective measures in the current situation is lower than the expectations of visitors regarding public safety by social monitoring therefore, the visitors are not satisfied with the current level of safety provided in EWP.
- (ii) Regarding the attractiveness of nature, the level of satisfaction with the current situation is higher than the average visitor's expectations; this means that by using variety and function has been successful at satisfying the visitors' attraction to nature.
- (iii) The facilities do not quite meet the expectations and visitors are less satisfied with their current situation (facilities and infrastructure) compared to their expectations for existing facilities.
- (iv) The accessibility of EWP largely meets the expectations and the results show that visitors are more satisfied with the current situation of accessibility inside EWP compared to their expectations. However, how to get to EWP is still a concern.
- (v) There is very little difference in this criterion between people's expectations and the satisfaction with the current situation.

### 3.5. Visitors' preferences of EWP's green space (visual questionnaire)

Eynali Urban Woodland Park offers different sceneries regarding the arrangement of natural and artificial elements, a large variety of plants, and landscape designs. However; so far, no academic studies have been conducted on the interests, perceptions and attitudes of visitors in this regard. For this section, 16 images categorized into 4 sections were selected (Nature 1-4 A, Nature 1-4 B, Nature 3-5A, and Nature 3-5 B) (see [Figures 7–10](#)).

#### 3.5.1. Visitors' preferences of nature in "more natural—nature" combinations

In the first sample; Nature-near vegetation "dry grassland with shrubs partly planted with trees and flowering bushes" NB (41.2%) is the most preferred nature type, followed by "Planted forest" PB, (32.9%), Planted ground layer vegetation "irrigated lawns or ground flowering plants" PA (16.2%), and Nature-near vegetation "dry grassland with shrubs" NA (9.7%). In the second sample of "more natural nature" combinations PB (40.4%) is preferred most, followed by NA (26%), NB (20.9%), PA (12.6%) (see to [Figure 11](#)).

#### 3.5.2. Visitors' preferences of "less natural—nature" combinations

In two further samples (sample 3 and 4), the nature-near vegetation "dry grassland with shrubs" (NA) and nature-near vegetation "dry grassland with shrubs partly planted with trees and flowering bushes" (NB) were excluded but "artificial constructions" (A) were added.

In the sample 3; Artificial constructions (A) (50.9%) in the less preferred nature, followed by Planted ground layer vegetation "irrigated lawns or ground flowering plants" PA (18.1%), Planted forest "arranged planting" (15.9), and Planted forest "disarranged planting" (15.2%). In the fourth sample; artificial construction A (41.9%) in the less preferred nature, by followed artificial

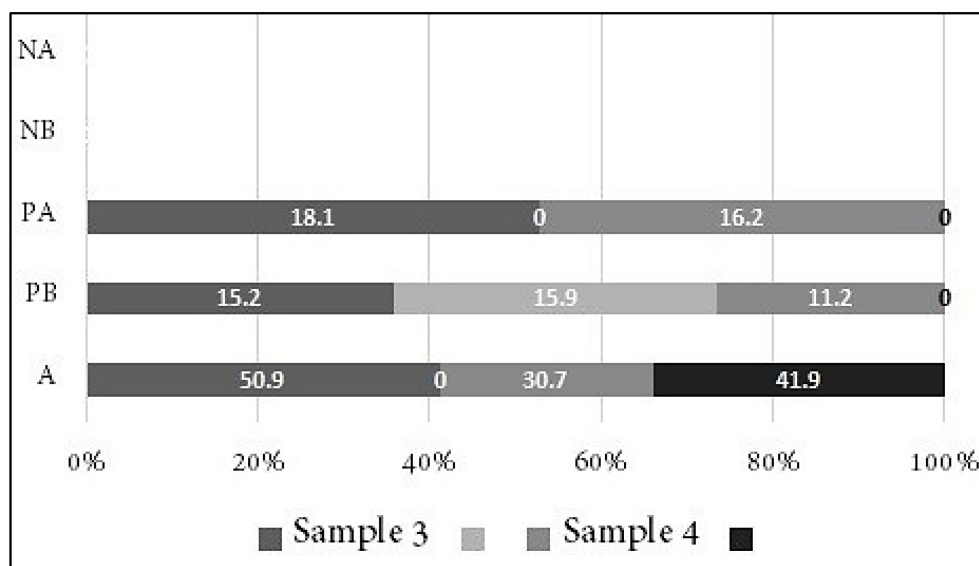


FIGURE 12 Comparison between samples 3 (3–5 A) and 4 (3–5 B) of less natural nature.

construction “paved road” A (30.7%), Planted ground layer vegetation “irrigated lawns or ground flowering plants” PA (16.2%), and planted forest (11.2%) (see **Figure 12**).

**Table 6** shows the preferred types of nature in the two combinations.

## 4. Discussion

### 4.1. EWP is different to public parks in size, structure, and utilization opportunities

More than 44% of visitors visit EWP in spring and summer, while 42% visit in autumn and winter more than 8 times per month. This shows a very intensive use of the space all year round. The visitors tend to come to EWP mostly on weekends (Iranian weekends) and prefer to stay overnight in certain park areas. Furthermore, **Mahmoudi and Daneh-kar (2009)** also shows that most visitors (30%) come to urban forests in Lordegan city (Iran) 8 times per month, which further supports the hypothesis that most Iranians prefer urban woodlands and urban forests compared to urban parks as long as they are available around their cities, which is especially rare in the north of the country and only possible in the mountains.

As **Hami (2009)** reported on only one-time visits to public urban parks in Tabriz and the same results by **Malekian and Pouryazdi (2015)** in Qom city (Iran), by the majority of visitors. It also shows the attractiveness of the park compared to others. In comparison, **Tyrväinen et al. (2007)** found that, under northern European conditions with long and cold winters, urban woodland

parks were visited in Finland all year round, with a high frequency of use of two to three times a week (80% of visitors) during the summer.

### 4.2. EWP attracts a greater variety of user groups than traditional public parks

Most of EWP visitors are mostly groups of young male or female. Most participants are women, often single and well educated. This is related to results of traditional inner city public parks different, where the majority of visitors are families (**Hami, 2009; Malekian and Pouryazdi, 2015**). This is also controversy to the results of **Hami (2009)** who states that for public parks in Tabriz women mainly do not visit public parks alone because of cultural tradition. **Tyrväinen et al. (2007)** who investigated woodland parks in Finland under very different cultural and societal conditions counted that 61% of the visitors were women. Also, **Palliwoda et al. (2017)** found that the most frequent visitors of urban parks in Berlin (Germany) are women.

The results could be interpreted that EWP is as a unique area, different to traditional parks in location, size and structure, thereby bringing forth-different utilization behaviors and attracting different visitor groups. The woodland park is less likely to be overlooked, and therefore offers more social freedom making it especially attractive for groups of young people who come there for social activities with less supervision and more control. For this reason, there is a hypothesis stating that the number of groups (of friends) who visit this park is greater than in other parks (**Malekian and Pouryazdi, 2015**). Another reason could be a cultural behavioral change in the young people of Iran (**Mirkarimi et al., 2016**).

TABLE 4 Ranking the criteria and determining importance according to visitors.

|                              | Significant sub criterion   | %V of EFA | Mean | Std. deviation |
|------------------------------|---|-----------|------|----------------|
| Usage and perception         | Picnic  | 30.54%    | 3.63 | 0.79           |
|                              | Exercise  | 23.13%    |      |                |
|                              | Getting away from the congestion                                    | 15.02%    |      |                |
|                              | Hiking and walking  | 12.57%    |      |                |
| Accessibility                | Having a concern to arrive here                                     | 34.09%    | 3.92 | 0.78           |
|                              | Strengthening the public transportation system                      | 18.58%    |      |                |
| Equipment and infrastructure | Lighting system   | 32.98%    | 3.36 | 0.97           |
|                              | Number and location of buffets                                      | 16.83%    |      |                |
|                              | Number and location of toilets                                      | 15.67%    |      |                |
| Variety and function         | Forestry in recent years  | 19.43%    | 3.66 | 0.75           |
|                              | Diversity of plants   | 15.58%    |      |                |
|                              | Color variation of plants   | 13.94%    |      |                |
|                              | The desire to get to know the names (botanical and local) of plants | 9.94%     |      |                |
|                              | Beautify around Eynali lake   | 9.12%     |      |                |
| Protective measures/safety   | Existence of guard rail on steep trails and steps                   | 24.65%    | 2.67 | 0.64           |
|                              | Existence of lighting system on mail trails                         | 20.63%    |      |                |
|                              | Protect of rock slipping  | 18.01%    |      |                |
|                              | Protect of dangerous heavy rainfalls                                | 14.48%    |      |                |

TABLE 5 B-variety correlation between visitors' expectations and the current situation.

| Current situation            | Visitor's expectation |  |                    |         |                     |                   |
|------------------------------|-----------------------|--|--------------------|---------|---------------------|-------------------|
|                              |                       |  | Natural attraction | Access  | Existing facilities | Social monitoring |
| Usage and perception         | Pearson correlation   |  | 0.376**            | 0.396** | 0.526**             | 0.311*            |
|                              | Sig. (2-tailed)       |  | 0                  | 0       | 0                   | 0.037             |
| Accessibility                | Pearson correlation   |  | 0.367**            | 0.308** | 0.450**             | 0.504**           |
|                              | Sig. (2-tailed)       |  | 0                  | 0       | 0                   | 0.001             |
| Equipment and infrastructure | Pearson correlation   |  | 0.584**            | 0.485** | 0.494**             | 0.487**           |
|                              | Sig. (2-tailed)       |  | 0                  | 0       | 0.004               | 0                 |
| Variety and function         | Pearson correlation   |  | 0.590**            | 0.402*  | 0.411**             | 0.267**           |
|                              | Sig. (2-tailed)       |  | 0.001              | 0.041   | 0                   | 0                 |
| Protective measures          | Pearson correlation   |  | 0.379**            | 0.498** | 0.431**             | 0.586**           |
|                              | Sig. (2-tailed)       |  | 0                  | 0.003   | 0                   | 0                 |

Pearson correlation coefficient: <0.3 negligible correlation, 0.3–0.5 weak correlation, 0.5–0.7 moderately strong correlation, 0.7–0.9 strong correlation, 0.9 < very strong correlation (Hinkle et al., 2003).

\*Correlation is significant at the 0.05 level.

\*\*Correlation is significant at the 0.01 level.

TABLE 6 Preferred types of nature in different nature combinations by participants (in percent).

| Nature types   | More natural—nature     |       | Less natural—nature     |           |
|--|-------------------------|-------|-------------------------|-----------|
|  | Nature combinations 1–4 |       | Nature combinations 3–5 |           |
|  | 1–4 A                   | 1–4 B | 3–5 A                   | 3–5 B     |
| (1) Nature-near vegetation, dry grassland with shrubs (NA)   | 16.2                    | 26.0  | –                       | –         |
| (2) Nature-near vegetation dry grassland with shrubs partly planted with trees and flowering bushes (NB) | 41.2                    | 20.9  | –                       | –         |
| (3) Planted ground layer vegetation (PA)   | 9.7                     | 12.6  | 18.1                    | 16.2      |
| (4) Planted forest (PB)  | 32.9                    | 40.4  | 15.2/15.9               | 11.2      |
| (5) Artificial constriction (A)  |                         |       | 50.9                    | 30.7/41.9 |

TABLE 7 Mean of visitor preferences of nature types in EWP.

| Nature types   | More natural—nature     |  | Less natural—nature     |  |
|--|-------------------------|--|-------------------------|--|
|  | Nature combinations 1–4 |  | Nature combinations 3–5 |  |
|  | Mean                    |  | Mean                    |  |
| (1) Nature-near vegetation, dry grassland with shrubs (NA)   | 21.1                    |  | –                       |  |
| (2) Nature-near vegetation dry grassland with shrubs partly planted with trees and flowering bushes (NB) | 31.05                   |  | –                       |  |
| (3) Planted ground layer vegetation (PA)   | 11.15                   |  | 17.15                   |  |
| (4) Planted forest (PB)  | 36.65                   |  | 14.1                    |  |
| (5) Artificial constriction (A)  | –                       |  | 41.16                   |  |

### 4.3. Visitors' expectations and satisfactions

Most of the visitors come to the parks to walk, socialize, and engage in passive recreations. Eng and Niininen's (2005) found as that the visitors' expectations are to (i) be in a protected natural environment, (ii) have recreational places for children, (iii) attractive illumination of the park, and (iv) good maintenance. Jim and Chen (2010) register the visitors' expectations in regards to

beauty of plants, cleanliness and order, and adaptation of spaces to human needs. These expectations are also shared by the visitors of EWP. Besides the many leisure activities offered in EWP, the visitors had more expectations than what was offered in the park in four sections: attractiveness of nature, accessibility, facilities, and public safety. The different findings in our study compared to other studies are based on the fact that visitors see EWP as a part of nature, and only secondly, they expected extraordinary attractions such as plant arrangements or specific animals. Visitors



of EWP experienced a sense of being “in nature”, even when they knew they were in a designed landscape. This means their mental ideas of being in a controlled, clean, and riskless nature were fulfilled.

Five criteria were important for the satisfaction of EWP visitors: accessibility, variety and function, usage and perception, equipment and infrastructure, and protection proceeding.

Visitors are relatively satisfied with the “internal access” in EWP. Visitors generally liked “variety and function” in the current situation of EWP. This means that the actual management status of landscaping, utilization and forestry (including tree planting) is accepted well. This is in line with the findings of [Hami and Maruthaveeran \(2018\)](#) who claimed that people prefer more trees in urban parks. EWP’s visitors showed a strong support of the construction of picnic places and rest areas. This is comparable to the results of [Hayir-Kanat and Breuste \(2019\)](#); [Kart \(2005\)](#); and [Sezer and Akova \(2016\)](#). Most visitors of public parks and resorts in Turkey are highly interested in relaxation, picnics and walking along lakes and waters.

Visitors are relatively less satisfied with “equipment and infrastructure.” Their biggest concern is the insufficient lighting system and the elimination of intimidating and unsafe spaces at night. [Loukaitou-Sideris et al. \(2016\)](#) study of Los Angeles showed that lighting is one of the most important equipment and infrastructure features in urban parks and their absence causes fear among visitors and lead to less visits after sunset. [Hilborn \(2009\)](#) shows that a proper lighting system in public parks and promenades lowers vandalism in the USA.

However, EWP visitors were least satisfied with the “protective proceeding,” which means that they have noticed the dangers in this area and that no action has been taken by the management to eliminate them. Reduction of such risks in hilly and mountainous areas like EWP is important. The risks can be stone falls, trails on steep slopes, mudflows after heavy rainfalls, and the danger of wear at exposed points. The protection level in EWP is very low and this is noticed and criticized by its visitors. In traditional public parks, this is much less a problem (e.g., [Palliwoda et al., 2017](#) in Berlin) but [Tyrväinen et al. \(2007\)](#) displayed in Helsinki (Finland) that a certain degree of protection and safety in woodland parks also were expected.

#### 4.4. Nature perception

Most visitors prefer planted forest followed by the nature-near vegetation - dry grassland with shrubs partly planted with trees and flowering bushes in the first and second simples of “more natural—nature” combination (see to [Table 7](#)). This is based on their experiences and knowledge of the region, which has both forest and mountainous grassland. It is no surprise that they identify with and value them both as a natural part of EWP, also in typical combinations as at many places in mountains to see, in steep valleys shrubs and trees, on ranges and plateaus grassland and mountain steppe. Even urban dwellers still have close relation to the countryside live and nature and welcome to find these nature elements in EWP. Planted forest nature (PB)

patches allow in scene 3 ([Figure 7](#)), scene 3 ([Figure 8](#)), scene 1 ([Figure 9](#)), and scene 1 ([Figure 10](#)) “walking with a group or family and sitting in places where they can see this view.” Also, [Hami \(2009\)](#) showed big and old trees and water views as visitors’ preferred view in the urban parks of Tabriz as it is valued for relaxing and having a picnic in the shade of those trees while enjoying the view of the water. Watching wildlife, having waterfront views, and seeing beautiful plants have also been shown as a strong preference among visitors in the studies of [Rodiek \(2002\)](#), and [Talbot and Kaplan \(1991\)](#). Also, [Hayir-Kanat and Breuste \(2019\)](#) came to the conclusion that visitors tend to prefer habitat heterogeneity (nature area on the seaside, nature area near a lake, forest area and an urban park) in nature and value to “stay in nature” when relaxing. Visitors to the EWP agree that the most unnatural nature is “artificial constructions” (Mean = 41.16) that can’t be seen naturally in urban woodlands, and most people do not have positive feedback on this issue. Therefore, it should be handled with more sensitivity and comprehensively planned; Designed and implemented various elements and views in urban woodlands park.

## 5. Conclusion

The design and management of green spaces, especially woodlands in semi-arid cities like Tabriz, is a huge investment and should meet the visitors’ perceptions and expectations on such natural conditions and infrastructure. To investigate visitors’ perception of nature and to include this into designed nature like in an urban park is an important research subject, hence the objective of this research project. It was expected for people to have a strong preference for woodland nature as this normally is not available in and around semi-arid cities where grassland dominate and this could clearly be confirmed by this study. Besides this, the study shows that visitors in a woodland park at the urban fringe do not expect extended ‘beautification’ by garden design, but they do expect to enjoy nature-near conditions and good infrastructure management. The analysis shows that the nature of the woodland park and its infrastructure is only partly valued by the visitors. We found that visitors enjoy urban woodlands in semi-arid climate for recreation on a broader scale with preferences for natural green spaces and nature-near vegetation. Preferred conditions are high social security standards, convenient infrastructure for picnics with families, and a good lighting system for evening use in hot summers.

The park management administrations can reduce the costs of the development of urban recreational woodland in semi-arid cities of the Middle East by including these findings in the design and maintenance of the areas.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

Ethics review and approval/written informed consent was not required as per local legislation and institutional requirements.

## Author contributions

RS: conceptualization, methodology, software, formal analysis, investigation, and writing—original draft preparation. JB: validation, resources, data curation, writing—review and editing, and supervision. AR: validation, investigation, resources, visualization. All authors contributed to the article and approved the submitted version.

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## Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/ffgc.2023.963809/full#supplementary-material>

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