A planted forest in the mountain steppe of Tabriz, Iran. Visitor’s perceptions of Eynali Urban Woodland Park

Ramin Sabouri
University of Salzburg: Paris Lodron Universitat Salzburg

Jürgen Breuste
University of Salzburg: Paris Lodron Universitat Salzburg

Akbar Rahimi (akbar.rahimi@gmail.com)
University of Tabriz

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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). 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 (Randrup et al. 2005; Konijnendijk et al. 2005, 2006; Konijnendijk 2008; Leser 2008; Gilbert 2012; Johnson & 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), in Great Britain even up to 400 years (Peterken 1993).

Urban woodland parks in Iran are rare and for a long time Chitgar Park (built 1963 – 1969) on the western edge of Tehran was the only urban woodland park in Iran (CFP 2020). It covers an area of about 14.5 square kilometers, and includes recreational infrastructure. The green belt of Tehran contains some other urban woodlands with urgently needed recreational facilities (Attarod et al. 2016).

Tabriz actually has three big urban recreation areas El-Baghi Park (213 ha, since 2013), Abbas Mirza Park (2 ha, since 2011) and Big Park (700 ha, since 1990, only 150 ha finished) (Tabriz Parks and Green Space Organization, 2020) and Eynali Urban Woodland Park (EWP) (5,612 ha, since 2004) (Development organization of Eynali and nature park 2019), which is by far the largest and most important (see to Fig.1).

Urban woodland parks are rare in Near Eastern and Middle Eastern countries due to a lack of precipitation and historical land cultivation. Examples are Belgrade Forest (Istanbul) (Akkenik and Dağdeviren, 2000), (Daman-e-Koh hill top 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 behavior of Iranians in today’s urban parks is still influenced by the Iranian garden culture and strong emphasis on collectivism and sense of family. In general, Iranian gardens have several basic principles. The mud walls around the garden to separate it from the outer world and for safety and privatization.
makes the park together with mansion a favorite place for winter use. Safety and safety have always been and still is a major concern for visitors. Parson (1995) showed natural woodlands are perceived as less attractive and more unsafe than conventional urban parks. The Iranian garden creates an atmosphere of relaxation and leisure for its owners to which artificial waters belong. Water rivulets create water sounds in the garden, adding an acoustical impression. Trees provide shade and Fragrant Flowers add welcoming smells (Abbasalizadeh Rezakolai et al. 2015). According to the basics and design principles of Iranian gardens, Iranians mostly sit and rest to spend leisure time. The most preferred passive recreations include picnicking, sitting under the shade of trees and enjoying the landscapes (Hami 2009). Zeinali and Jafarpour (2015) showed that the majority of visitors stayed in El-Goli Park (Tabriz, Iran) for half a day or a few hours and the majority stayed together with friends and with their families. Because of climatic condition and summer heat most visitors come to the parks with their families in the evening. The main motivation to come to the parks in Tabriz is to enjoy nature, because of the general absence of opportunities for nature contact in this city.

After Turkey, Iran is the richest country in terms of plant diversity in the Middle East (White and Leonard 1991). It is located at the intersection of different vegetation zones and nearly 22% of the 8000 plant species of flora are endemic (Ghahreman 1999). According to recent research on vegetation in East Azerbaijan Province (plains and mountains) the dominant species are Trees including beech, oak, hornbeam, maple, van, walnut, cherry, hazelnut, apple and pear, which are native species. As well as, herbaceous plants in grasslands and pastures include Koeleria cristata - Thymus kotschyanus - Achillea tenuifolia - Bromus tomentellus - Astragalus gossypinus - Taeniatherum crinitum - Festuca ovina (Toupchi 2010; Zare et al. 2015). This makes Iranian urban parks and woodlands important for the preservation of urban biodiversity and to provide opportunities for nature contact among city residents.

2. Methods And Material

2.1. Study area

The city of Tabriz (1.56 million inhabitants) is located in the north-west of Iran (see to Fig.2) (Yigitacanlar et al. 2020). With the increasing population due to industrialization in recent decades, Tabriz has also experienced extreme growth (Panahi 2000). In the past, Tabriz was surrounded by gardens, had a moderate climate, and was valued by most of the Iranian kings. The recent expansion of Tabriz has destroyed these gardens and has already affected the climate of the city (Breuste and Rahimi 2015).

The inner-city green spaces of Tabriz were reduced by 26.7% between 1976 and 2003 as a result of urban development. The main reason for the development of EWP was to compensate this tremendous reduction of urban green (Rahimi 2013). In this period, the per capita green space of Tabriz decreased from 14 m² to 7.5 m² (Beheshthirouy 2012). During the ten-year period from 2001 to 2011, urban green spaces in Tabriz could only be extended by 165 ha (Rahimi 2013). A necessary valuable extension could only be placed in the outskirts of the city. City managers and planners decided to create new urban parks there (Teymouri et al. 2010). This includes parks, mountain promenades and woodland parks (Breuste and Rahimi 2015).

Eynali Woodland Park (EWP) started to be established in 2004 on 5,612 ha of mountain grassland of the Eynali mountains chain in the northern district of Tabriz (Iran) of which 280.92 ha (= 5%) were planted with different types of bushland and trees in 13 executive zones until 2018. The park is managed by Tabriz Green Space and Parks Organization, a municipal enterprise. The project has an important role in the municipal program to increase the green infrastructure of the city. The main objectives were to provide a recreation area at the city's periphery, to balance the areas in the city that lack green infrastructure, to reduce the level of air pollution, and to connect the city with the surroundings via a green corridor. The area includes natural grassland patches, designed park elements and huge planted and irrigated woodlands with a variety of tree species. Between 2004 and 2018 5.7 ha of grassland, 2.5 ha flower beds were established. Furthermore, 233,482 trees (143,220 broad leave trees and 90,262 coniferous trees), as well as 175,226 shrubs and bushes were planted during this period. Before 2004, the Eynali mountain range was mostly mountain grassland with wild plants, used for sheep grazing and mountain grazing. The majority of planted tree species are non-natives: Robinia pseudoacacia (North America), Fraxinus excelsior (Europe), Alnus glutinosa (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 (native) and Pinus eldarica (Western Asia, native), are native. Apart from beside Rose spp. (native), all planted shrubs are non-native. These include Pyracantha coccinea (Southern Europe, Asia minor), Cotoneraster dammeri (China), Berberis thunbergii (Eastern Asia), Ligustrum ovalifolium (Japan), Forsythia x intermedia (hybrid). (Development organization of Eynali and nature park 2019).

2.2. Questionnaire

A questioning of 277 park visitors provided information on: visitor's perception of park and park nature, preferred activities and locations, and evaluation of the park's infrastructure. The questioned persons were randomly selected. Every third person to walk past the students conducting the survey was selected, when this person was not willing to participate the next person was selected. Most persons asked were willing to participate. The oral interviews were conducted in 2019 by students from Tabriz and Salzburg University.

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

Table 1 shows the demographic information of the questioned visitor sample. A bigger group of the questioned visitors were young men, single (33.6%) or in groups (43%), with higher 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 the promenades, existing facilities, and public safety.
The questioned visitors answered 12 questions. In nine questions, they could choose approval or rejection by yes and no to express their expectations for EWP (Tab. 3). The following categories for visitor expectations were included:

- 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. Four variables (exclusive of green spaces expectations) were set in the Likert rankings. Questions were asked based on photos representing the various types of "green space". Photos for the questions about "green space" were taken in the park on November 15th, 2019. Image size was adjusted to 8.7 cm × 13.4 cm and brightness, contrast, colour 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).

The questioned visitors were presented with 16 pictures of scenes representing different nature types in four samples (see to Fig.3). 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 Fig.4)

**2.3. Data analysis**

Various analysis techniques, including descriptive statistics, measurement - validity and reliability (exploratory factor analysis), ranking test (Friedman's test), bivariate correlation, and means comparison tests (Independent Sample t-Test and One-Way ANOVA) were conducted using SPSS 16.

**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 Tab. 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 two thirds) know that EWP is artificial nature, and 87% value the artificial nature. However, only half of the visitors reported to expect something spectacular (unique plants or animals) Simple relaxation and no special interest in specific activities are expressed. For a majority (nearly 80%) a stay in cooler conditions after sunset or even overnight is very important. Due to these trend refreshments are available until 2 a.m. in the central part.

Most of the visitors demand an improvement of the connection of EWP to the city by public transport, especially for parking as well as an improvement of the accessibility by car as well and parking facilities. Based on exploratory factor analysis (EFA), the priority for visitors was the feeling of "being in nature" and the attraction of the natural setting (see to Tab.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.

Results from Friedman's analyses are shown in Fig.5 and rank the expectations of visitors. 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).

**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 (s. Tab. 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 /of the current situation ranking (see Fig. 6), visitors reported the most satisfaction regarding the accessibility of EWP (mean = 4.19), followed by its variety and function (mean = 3.54), usage and perception (mean = 3.17), equipment and infrastructure (mean = 2.29), and are least satisfied with its safety (mean = 1.81).

The result of B-variate correlation for visitors' expectations and the current situation in EWP (see Table 5) showed a moderately strong correlation (r = 0.526, a = 0.000) between usage and perception with the existing facilities in the current situation. Also, a moderately strong correlation (r = 0.504, a = 0.001) was revealed between safety for visitors and the current accessibility, a relatively strong correlation (r = 0.584, a = 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 observed by a moderately strong correlation (r = 0.590, a = 0.001) between natural attraction and variety & function, and a moderately strong correlation (r = 0.586, a = 0.000) between social monitoring and protective measures. All correlation is significant at a level of 0.01.

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).

### 3.5. Mean Comparison for Visitors’ Expectations and the current EWP situation of dependent variables

In the expectations section, men have a greater expectation of natural attractions (mean = 3.47, t = -5.89) and access (mean = 3.08, t = -6.27) compared to women, with a significant difference (a = 0.00). However, women have more expectations than men for existing facilities (mean = 3.80, t = -6.51) and social monitoring (mean = 3.20, t = -5.29), with a significant difference (a = 0.00). Women are more satisfied with the usage & perception (mean = 3.44, t = -4.93) than men, but less satisfied with accessibility (mean = 3.32, t = -4.61), equipment & infrastructure (mean = 3.11, t = -4.72), variety & function (mean = 3.51, t = -5.04), and protective measures (mean = 2.63, t = -4.38) than men (see Table 6).

The result of one-way ANOVA revealed a significant difference between visitors' ages and visitors' expectation variables such as attractiveness of nature "F (273, 3) = 4.17, a = 0.00", access "F (273, 3) = 5.06, a = 0.00", existing facilities "F (273, 3) = 4.89, a = 0.00", public safety "F (273, 3) = 4.71, a = 0.00", it can be seen that young visitors (31-45) have the highest expectations for access (mean = 3.10). The age group above 70 years has more expectations for existing facilities (mean = 4.00) and the age group of 18-30 years has more expectations for social monitoring. The result of one-way ANOVA revealed a significant difference between the variables of the current situation such as usage & perception "F (273, 3) = 7.36 , a = 0.00", accessibility "F (273, 3) = 7.09, a = 0.00", equipment & infrastructure "F (273, 3) = 6.98, a = 0.00", variety & function "F (273, 3) = 7.18, a = 0.00" and safety "F (273, 3) = 7.76, a = 0.00". However, in the section of satisfaction regarding the current status, the age group of 46-70 year aged visitors were least satisfied with the accessibility of EWP (mean = 3.03). They also reported low satisfaction regarding the equipment & infrastructure (mean = 2.79). Amongst all age groups visitors above 70 years reported the lowest level of satisfaction for the section "variation" with variation (mean = 3.12) and finally, visitors of the age group 46-70 years were least satisfied with the aspect of protective measures (see Table 7).

The result of one-way ANOVA using the Tukey HSD showed (s. Tab. 8) that significant differences exist between the type of park-use and visitor's expectation (attractiveness of nature "F (274, 2) = 6.18, a = 0.00", access "F (274, 2) = 5.97, a = 0.00", existing facilities "F (274, 2) = 6.59, a = 0.00" and social monitoring "F (274, 2) = 5.88, a = 0.00") and the current situation (usage & perception "F (274, 2) = 6.37, a = 0.00", accessibility "F (274, 2) = 7.17, a = 0.00", Equipment & Infrastructure "F (274, 2) = 6.61, a = 0.00", Variety & Function "F (274, 2) = 3.15, a = 0.00", protective measures "F (274, 2) = 7.41, a = 0.00"). Single visitors have the highest expectations (mean = 3.53) (see Table 8) for natural attractions, family visitors have the highest expectations for access (Mean = 3.10), existing facilities (mean = 3.81) and public safety by social monitoring (mean = 3.30). They show significant differences with other user groups. Single visitors reported the highest satisfaction for usage and perception regarding the current situation (mean = 3.56), family visitors exhibited the highest satisfaction for accessibility of EWP (mean = 3.41). Group visitors (whom coming to EWP in the group form, e.g. friendly, work and etc.) have the highest satisfaction for equipment and infrastructure (mean = 3.23) and family visitors exhibited the highest satisfaction for protective measures (mean = 2.83) and show significant difference with other user types.

### 3.5. 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 Fig.7),

(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, most visitors are still concerned about the accessibility and how to get to EWP.

v) There is very little difference in this criterion between people's expectations and the satisfaction with the current situation.

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

EWP 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).

#### 3.6.1. Visitors' preferences of nature in "more natural – nature" combinations

In the first sample, NB (41.2%) is the most preferred nature type, followed by PB (32.9%), PA (16.2%), and 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%), and PA (12.6%) (see to Fig.8).

#### 3.6.2. Visitors' preferences of "less natural – nature" combinations

In two further samples (sample 3 and 4), the "nature-near" types of nature NA and NB were excluded but artificial constructions (nature A) were added.

In the first of these, two samples nature a reached 50.9%, in the second 41.9% and 30.7% (two options of A in the second sample). These were always the most selected nature scenes, followed by PA (18.1%, in the first and 16.2% in the second sample), PB, 15.9% and 15.2% (two options in the second sample) and 11.2% (see to Fig.9).

Table 9 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.

The EWP is unique in Tabriz for many reasons. It is

- the first real big park - significantly larger than all others,
- the only woodland park in the city,
- a part of the surrounding cultural landscape,
- placed on the slopes of a mountain range with a diverse terrain, valleys, hills and scenic outposts,
- equipped with different infrastructure elements and possibilities for individual and family separation in the park and
- location at the edge of the city.

Despite the park's proximity to the city, the above-mentioned aspects may provide / give the visitor the impression of having a certain distance to the city and may create a feeling of independence. This can make EWP an attractive place for recreation and social interaction for families, groups, and especially young individuals.

More than 44% of visitors visit EWP in spring and summer, and 42% 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 the certain preferred park areas (such as around the lake, and near the religious shrine).

Furthermore, Mahmoudi (2010) also shows in his research that most visitors (30%) come to urban forests in Lordegan city (Iran) 8 times per month. This 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) reports on only one time visits of public urban parks in Tabriz and Malekian and Pouryazdi (2015) in Qom by the majority of visitors. It also shows the attractiveness of the park in comparison to others. In comparison Töyränen et al. (2007) found that under northern European conditions with long and cold winters that 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) in summer. Daily use was even reported by one third during summer and one fifth during winter. This high frequency of use can be explained by the proximity of Finish woodland parks to the residential areas. Here the most active users are residents between 31 and 45 years of age and families with small children. Students and school children use the woodland parks less than other groups, especially during winter.

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

Most of EWP visitors come in groups (43%), others as families (23.5%) and about one third as single persons. More than 50% are younger than 30 years. This means that the 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. Töyränen (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 visitors in Finland were significantly older than in Iran (only 14% under 30 years), however, this is primarily due to the demographic differences between the two countries with the median age in Finland being 43.8 and 31.7 in Iran (CIA.gov 2021).

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 behavior and attracting different visitor groups besides families. The woodland park is much less possible / likely to be overlooked, and therefore offers more social freedom making it especially attractive for groups of young people, who come here for social activities under less supervision and control. For this reason, there is a hypothesis stating that the number of visitor groups of “friends” is higher than in other parks (Malekian & Pouryazdi 2015).

Another reason could be a cultural change in public behavior of young persons in general in Iran (Mirkarimi et al. 2016).

4.3. Visitors’ expectations and satisfactions

Most of the participants come to the parks to walk, socialize, and engage in passive recreations. Eng and Niininen's (2005) found as that the expectations of visitors are to be in a protected natural environment, having recreational places for children, attractive lighting, and good maintenance. jim and Chen (2010) register beauty of plants, cleanliness and order, and adaptation of spaces to human needs as visitors’ expectations. These expectations are also shared by the visitors of EWP. Beside the many leisure offers of EWP the visitors had more expectations in four sections (attractiveness of nature, accessibility, facilities, and public safety) than the park offers. The different findings to other studies are based on the facts that visitors see EWP as a part of nature, and only secondly, they expect extraordinary attractions as plant arrangements or to see specific animals. Visitors have, even when they know to be in a designed landscape, the sense of being “in nature”, matching their mental ideas of a controlled, clean, and riskless nature, a societal based image of nature in Iran and elsewhere. However, visitors do not see EWP as a natural forest (like others in northern Iran as e.g. Arasbaran Forest).

Most visitors reach EWP by private cars. This can be explained by the location at the edge of the city, the poor public transport service and the group related visits which supports to use a car for transport. The preference of car uses to reach public parks is also supported by other studies in Iran (Iranibehbahani and Rezaimoftakhar 2005; Malekian and Poursayzdi 2015). The use of private cars for transport links to immense parking problems which are negatively registered by the visitors. They expect the administration to better meet their expectations. As urban woodland parks are mostly in an external location and sometimes provide only few entrances, accessing them by individual transport is an issue in several cases in the EU and the USA. Therefore, improving and having a public transportation system is one way to ensure equality regarding the public use of these spaces (Dwyer 2000; Konijnendijk 2003). Pourahmad and Habbian (2018) found that problematic access to parks and promenades causes social injustice and affects the number and range of visitors. As EWP has only one main entrance from the city of Tabriz such a public transport system would be a possible solution to connect the city with the woodland park.

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

Visitors are relatively satisfied with the 'internal access' in EWP (especially the main paved path and EWP's internal accesses).

Visitors generally liked "variety and function", in the current situation in EWP. This means that the actual management status of landscaping and utilization and forestry, including the tree planting is accepted well. This is in line with the findings of Hami and Maruthaveeran (2018). They claimed that people prefer more trees in urban parks. Also, ornamental plants such as flowers and bushes constitute a considerable portion of landscape in the parks that were researched. Visitors had the least desire to be provided with information about the plants in EWP. This was a sub-criterion in this section and this result was unexpected because the actual information level is not very high. Other studies, e.g. Kendall et al. (2012), show that getting information on biodiversity increased people's acceptance of planting.

"Uses and perceptions" was the third aspect that satisfied visitors. EWP’s visitors are more inclined to increase 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. This contrasts with the results of Wong (2009) in Hong Kong, which state that doing exercise was the most common activity of visitors in urban parks and promenades. And like the results of Ghandehari et al. (2012) on urban parks user's profile, the most common activities of visitors to the urban parks in this study were recreation and physical activity.

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) also showed for Los Angeles that lighting is one of the most important equipment and infrastructure in urban parks and their absence causes fear and exclude use. Hilborn (2009) shows that with proper lighting system in public parks and promenades vandalism in the USA could be decreased. The special climatic situation in tropical and low latitude countries with high day temperatures force to shift park visits to the end of the light (insolation) time when temperatures have already dropped and night has fallen. In Iran the entire night is suitable for visiting the park with friends and families. But safety strongly demands an adequate lighting system. This is not expected in woodland parks in Finland as these parks are not used at night.

However, EWP visitors were least satisfied with the “protective proceeding”, which means that they have noticed the danger 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 as EWP is important. The risks can be stone falls, trails on steep slopes, mud flows 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 traditionally public parks this is much less a problem (e. g. Palliwoda et al. 2017 in Berlin) but already Tysravainen (2007) showed for Helsinki (Finland) that a certain degree of protection and safety in woodland parks is also expected.
In general, the most important expectations in woodland parks are getting a sense of peacefulness, in nature and a forest. Too much management (flower beds etc.) is not expected (Tyrväinen 2007). Citizen involvement in park decision making and planning, a subject often demanded and partly executed in European parks, is not demanded by EWP visitors. This is maybe caused by societal conditions and must not be out of focus when offered.

4.4. Nature perception

It is important to know how visitors of woodlands and public parks understand nature and what their preferences, fears, and perceptions are. Based on this knowledge a better planning, management and protection of nature can be developed.

Most visitors prefer the nature-near vegetation - dry grassland with shrubs partly planted with trees and flowering bushes - followed by planted forest. They understand both as “natural”. This is based on their experiences and knowledge of the region which has (not everywhere but present) both mountainous grassland and forest. Both are normally used and partly anthropogenically managed ecosystems (grassland for sheep grazing, planted, rare natural forest). Both ecosystems stay for Azeri people for “their typical nature”. It is no surprise that they identify with and value them also as nature in 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. These nature patches allow in picture 2 “having a picnic and relaxing” and in picture 4 “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’ preferences in Tabriz urban parks as preferred nature elements, valued for relaxing and having a picnic in the shade of those trees while enjoying the view of the water. Also watching wildlife, waterfront views, and plants have been preferred as finding in the studies of Rodiek (2002), Talbot and Kaplan (1991) as natural scenes in public parks. Also, in Hayir-Kanat and Breuste (2019) showed visitors tend to see nature scenes (nature area on the seaside, nature area near a lake, forest area and an urban park) in nature, value to “stay in nature” as a preference for relaxation.

The questioned visitors were clearly able to separate "less natural nature" (e.g. artificial constructions etc.) in presented pictures. This documented less interest should be recognized by the park management to shift to a more nature near nature management. This will be more valued by visitors and will even cost less management and result in higher biodiversity.

5. Conclusions

Eynali Urban Woodland Park (EWP) in Tabriz, Iran, shows the strength of the municipality to compensate for the loss of urban green spaces of the last decades by construction, by developing a large urban recreational area on the urban fringe. The design and management of green spaces, especially woodlands in semi-arid cities like Tabriz, is a huge investment and should meet the best visitor's 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 and objective of this research. It was expected that people have a strong preference for woodland nature even when this is normally not available in and around semi-arid cities where grassland dominates. This could be clearly confirmed. Besides this, the study shows that visitors in a woodland park at the urban fringe don't expect extended 'beautification' by garden design but are prepared to enjoy nature-near conditions with lower nature, but very good infrastructure management. The analysis shows that the nature of the woodland park and its infrastructure is only partly and clearly selective valued by the visitors. We found that visitors prefer urban woodlands in semi-arid climate for recreation on a broader scale by with preference of natural green spaces and nature-near vegetation. Preferred are, a high social security standard, convenient infrastructure for picnic with families, and a good lighting system for evening use in hot summers.

The park management 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.

Declarations

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Not applicable.

Availability of data and material (data transparency)
The authors mentioned it in the "Material and Method" section in the manuscript. All data obtained from questionnaires and interviews (in SPSS, Excel, etc.) will be available for the reviewers during the review process.

Authors' contribution
All authors read and approved the final manuscript.

**Ethics approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

**Competing interests**

The authors declare that they have no competing interests.

**References**


### Tables

**Table 1: Distribution of the participants’ socio-demographic information**

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>100</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>177</td>
<td>63.9</td>
</tr>
<tr>
<td>Age</td>
<td>Young (18-30)</td>
<td>149</td>
<td>53.8</td>
</tr>
<tr>
<td></td>
<td>Young adult (31-45)</td>
<td>92</td>
<td>33.2</td>
</tr>
<tr>
<td></td>
<td>First Adulthood (46-70)</td>
<td>23</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>Second Adulthood (Above70)</td>
<td>13</td>
<td>4.7</td>
</tr>
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<td>Marital status</td>
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<td>158</td>
<td>57.0</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>109</td>
<td>39.4</td>
</tr>
<tr>
<td></td>
<td>Other (divorced, etc.)</td>
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<td>3.6</td>
</tr>
<tr>
<td>Education</td>
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<tr>
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<tr>
<td></td>
<td>Bachelor</td>
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<td>38.3</td>
</tr>
<tr>
<td></td>
<td>Master</td>
<td>36</td>
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</tr>
<tr>
<td></td>
<td>Above master</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>Social using type</td>
<td>Single</td>
<td>93</td>
<td>33.6</td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>119</td>
<td>43.0</td>
</tr>
<tr>
<td></td>
<td>Family</td>
<td>65</td>
<td>23.5</td>
</tr>
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</table>

**Table 2: Visiting times**

<table>
<thead>
<tr>
<th>Visiting times spring &amp; summer per month</th>
<th>1 to 4</th>
<th>5 to 8</th>
<th>&gt;8</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>104</td>
<td>49</td>
<td>124</td>
<td>277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visiting times autumn &amp; winter per month</th>
<th>1 to 4</th>
<th>5 to 8</th>
<th>&gt;8</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>113</td>
<td>47</td>
<td>117</td>
<td>277</td>
</tr>
</tbody>
</table>

**Table 3: Visitors’ expectation of EWP**
### Table 4: Ranking the criteria and determining their most important according to visitors

<table>
<thead>
<tr>
<th>Sub Criterion</th>
<th>Significant</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>%V of EFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usage and Perception</td>
<td>Picnic</td>
<td>3.63</td>
<td>0.79</td>
<td>30.54%</td>
</tr>
<tr>
<td></td>
<td>Exercise</td>
<td></td>
<td></td>
<td>23.13%</td>
</tr>
<tr>
<td></td>
<td>Getting away from the congestion</td>
<td></td>
<td></td>
<td>15.02%</td>
</tr>
<tr>
<td></td>
<td>Hiking and walking</td>
<td></td>
<td></td>
<td>12.57%</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Having a concern to arrive here</td>
<td>3.92</td>
<td>0.78</td>
<td>34.09%</td>
</tr>
<tr>
<td></td>
<td>Strengthening the public transportation system</td>
<td></td>
<td></td>
<td>18.58%</td>
</tr>
<tr>
<td>Equipment &amp; Infrastructure</td>
<td>Lighting system</td>
<td>3.36</td>
<td>0.97</td>
<td>32.98%</td>
</tr>
<tr>
<td></td>
<td>Number and location of buffets</td>
<td></td>
<td></td>
<td>16.83%</td>
</tr>
<tr>
<td></td>
<td>Number and location of toilets</td>
<td></td>
<td></td>
<td>15.67%</td>
</tr>
<tr>
<td>Variety &amp; Function</td>
<td>Forestry in recent years</td>
<td>3.66</td>
<td>0.75</td>
<td>19.43%</td>
</tr>
<tr>
<td></td>
<td>Diversity of plants</td>
<td></td>
<td></td>
<td>15.58%</td>
</tr>
<tr>
<td></td>
<td>Color variation of plants</td>
<td></td>
<td></td>
<td>13.94%</td>
</tr>
<tr>
<td></td>
<td>The desire to get to know the names (botanical and local) of plants</td>
<td></td>
<td></td>
<td>9.94%</td>
</tr>
<tr>
<td></td>
<td>Beautify around Eynali lake</td>
<td></td>
<td></td>
<td>9.12%</td>
</tr>
<tr>
<td>Protective measures /Safety</td>
<td>Existence of guard rail on steep trails and steps</td>
<td>2.67</td>
<td>0.64</td>
<td>24.65%</td>
</tr>
<tr>
<td></td>
<td>Existence of lighting system on mail trails</td>
<td></td>
<td></td>
<td>20.63%</td>
</tr>
<tr>
<td></td>
<td>Protect of rock slipping</td>
<td></td>
<td></td>
<td>18.01%</td>
</tr>
<tr>
<td></td>
<td>Protect of dangerous heavy rainfalls</td>
<td></td>
<td></td>
<td>14.48%</td>
</tr>
</tbody>
</table>

Table 5: B-Variety correlation between visitor's expectation & current situation

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).

Table 6: Independent sample t-test between gender and variables
<table>
<thead>
<tr>
<th>Visitor's Expectation</th>
<th>Natural attraction</th>
<th>Access</th>
<th>Existing facilities</th>
<th>Social monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usage &amp; perception</td>
<td>Pearson Correlation</td>
<td>0.376**</td>
<td>0.396**</td>
<td>0.526**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.037</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Pearson Correlation</td>
<td>0.367**</td>
<td>0.308**</td>
<td>0.450**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td>Equipment &amp; Infrastructure</td>
<td>Pearson Correlation</td>
<td>0.584**</td>
<td>0.485**</td>
<td>0.494**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.004</td>
<td>0.000</td>
</tr>
<tr>
<td>Variety &amp; Function</td>
<td>Pearson Correlation</td>
<td>0.590**</td>
<td>0.402†</td>
<td>0.411**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.001</td>
<td>0.041</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Protective measures</td>
<td>Pearson Correlation</td>
<td>0.379**</td>
<td>0.498**</td>
<td>0.431**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.003</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 7: ANOVA result for ages and visitor's expectation & current situation criterion

<table>
<thead>
<tr>
<th>Age</th>
<th>Visitor's Expectation</th>
<th>Natural attraction</th>
<th>Access</th>
<th>Existing facilities</th>
<th>Social monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 30</td>
<td>Usage &amp; perception</td>
<td>3.34b</td>
<td>3.51bd</td>
<td>3.46b</td>
<td>3.40b</td>
</tr>
<tr>
<td>31 - 45</td>
<td>Access</td>
<td>2.95a</td>
<td>3.10c</td>
<td>2.80d</td>
<td>3.00ab</td>
</tr>
<tr>
<td>46 - 70</td>
<td>Existing facilities</td>
<td>3.77a</td>
<td>3.72c</td>
<td>3.73c</td>
<td>4.00b</td>
</tr>
<tr>
<td>Above 70</td>
<td>Social monitoring</td>
<td>3.42ab</td>
<td>3.04c</td>
<td>3.39d</td>
<td>3.25b</td>
</tr>
</tbody>
</table>

Note: 1 Cell entries are mean values based on 5 point Likert scale (1 = very low, 2= low, 3= natural, 4= high, 5= very high). 2 The raw mean with different superscript at p < 0.05. 3 Tukey was used for Post Hoc test.
Table 8: ANOVA result for social user types and visitor's expectation and current situation criteria

<table>
<thead>
<tr>
<th>Social user type</th>
<th>Visitor's expectation</th>
<th>Current situation</th>
<th>Df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Natural attraction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social user type</td>
<td>Group</td>
<td>Single</td>
<td>Group Family</td>
<td>274</td>
<td>6.18</td>
</tr>
<tr>
<td>Visitor's expectation</td>
<td>Access</td>
<td>2.91^a 3.05^b 3.10^c</td>
<td>274</td>
<td>5.97</td>
<td>0.00</td>
</tr>
<tr>
<td>Visitor's expectation</td>
<td>Existing facilities</td>
<td>3.70^a 3.75^ab 3.81^c</td>
<td>274</td>
<td>6.59</td>
<td>0.00</td>
</tr>
<tr>
<td>Visitor's expectation</td>
<td>Social monitoring</td>
<td>3.12^ab 3.16^a 3.30^b</td>
<td>274</td>
<td>5.88</td>
<td>0.00</td>
</tr>
<tr>
<td>Current situation</td>
<td>Usage &amp; perception</td>
<td>3.56^a 3.35^b 3.37^c</td>
<td>274</td>
<td>6.37</td>
<td>0.00</td>
</tr>
<tr>
<td>Current situation</td>
<td>Accessibility</td>
<td>3.33^ab 3.34^a 3.41^c</td>
<td>274</td>
<td>7.17</td>
<td>0.00</td>
</tr>
<tr>
<td>Current situation</td>
<td>Equipment &amp; Infrastructure</td>
<td>3.10^a 3.23^b 3.09^ab</td>
<td>274</td>
<td>6.61</td>
<td>0.00</td>
</tr>
<tr>
<td>Current situation</td>
<td>Variety &amp; Function</td>
<td>3.75^a 3.58^b 3.50^ab</td>
<td>274</td>
<td>3.15</td>
<td>0.045</td>
</tr>
<tr>
<td>Current situation</td>
<td>Protective measures</td>
<td>2.74^ab 2.74^a 2.83^b</td>
<td>274</td>
<td>7.41</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Note: 1 Cell entries are mean values based on 5 point Likert scale (1= very low, 2= low, 3= natural, 4= high, 5= very high). 2 The raw mean with different superscript at p < 0.05. 3 Tukey was used for Post Hoc test.

Table 9: Preferred nature in different nature combinations (in percent)

<table>
<thead>
<tr>
<th>Nature types</th>
<th>Nature combinations 1 - 4</th>
<th>Nature combinations 3 - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-4 A 1-4 B 3-5 A 3-5 B</td>
<td>1-4 A 1-4 B 3-5 A 3-5 B</td>
</tr>
<tr>
<td>1 Nature-near vegetation, dry grassland with shrubs (NA)</td>
<td>16.2 26.0</td>
<td>18.1 16.2</td>
</tr>
<tr>
<td>2 Nature-near vegetation dry grassland with shrubs partly planted with trees and flowering bushes (NB)</td>
<td>41.2 20.9</td>
<td>15.2 15.9</td>
</tr>
<tr>
<td>3 Planted ground layer vegetation (PA)</td>
<td>9.7 12.6 18.1 16.2</td>
<td></td>
</tr>
<tr>
<td>4 Planted forest (PB)</td>
<td>32.9 40.4 15.2 15.9</td>
<td></td>
</tr>
<tr>
<td>5 Artificial constriction (A)</td>
<td>50.9 30.7/41.9</td>
<td></td>
</tr>
</tbody>
</table>

Figures
Figure 1

Locations of urban woodlands and big parks in Tabriz (own design by authors)
Figure 2

Location of Tabriz (Breuste & Rahimi 2015)
Figure 3

Frequency percentage of sample size (own design by authors)
Figure 4

The nature categories of Eynali woodland park (own design by authors)
Figure 5
Ranking of visitors’ expectations of EWP

Figure 6
Satisfaction of current status in EWP
Figure 7
Expectations of visitors with current conditions of EWP

Figure 8
Comparison between samples 1 (1-4 A) and 2 (1-4 B) of more natural nature
Figure 9

Comparison between samples 3 (3-5 A) and 4 (3-5 B) of less natural nature