Biblical Gardens in Word Culture: Genesis and History

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Abstract

For nearly 80 years Biblical gardens have been present in the natural and cultural landscape. The first gardens came into existence in the US. The idea to create such gardens spread from the US mainly across Europe, Australia and Israel. These gardens are being made all the time; recently we have observed their dynamic development. This study is to show the effects of the 20 years long scientific work to formulate the original genesis of the Biblical garden idea. The characteristics of 64 facilities situated in 14 countries has been presented for the first time so widely. This enabled us to show both the history of these gardens and how they are situated in the cultural and social context. The effect of various factors inspiring people of various professions to create Biblical gardens both near sacral buildings and within the secular areas has been evidenced. Biblical gardens exercise the principles of gardens of senses and learning gardens. And it is the highly developed semantic layer that makes them stand out.

Keywords Biblical garden · Origin · Landscape · Social and cultural functions · Ecology

Introduction

Biblical gardens exist in public space. These are green areas currently being created in various parts of the world; despite their contemporary origin, they transfer us into the reality of ancient times, as miniature landscapes are being arranged in there with symbolic artifacts of those times. Within larger green areas, they can be a special landscape standing out in the already existing one. Apart from the function carried out by all other green areas within and outside the urban

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landscape, these gardens have also a highly developed semantic layer. Therefore, they can have the learning or even the contemplative function (Włodarczyk 2014, 2018). The Biblical garden arrangement is based on Old and New Testament texts, in which plants are mentioned (Włodarczyk 2004). The practice of using works of art of many art domains to depict Biblical texts in the garden is very significant. This makes the garden more attractive for recipients, contributing to see deeper values in it: not only visual, but also spiritual and emotional ones. Various water arrangements make the Biblical garden a nice place to rest, giving favorable sensory effect to it. This garden attribute is particularly appreciated in cities, where the garden becomes a perfect place to rest for people, and an enclave of life for birds and micro-fauna. Arrangements in Biblical gardens are rich in symbolic elements, the meaning of which has been recently erased, while understanding them again makes it possible to highlight the wealth of culture and tradition (Włodarczyk 2018).

The authors of this study have launched deep and multilateral research (so far they have been continued for 20 years) aimed at describing these structures and defining their common attributes, in order to create their scientific characteristics. This paper shows methodically and well-orderly the accumulated knowledge about the genesis and the history of Biblical gardens worldwide. This poses the following research questions:

1. What was the genesis—fundamental to the idea of making Biblical garden as such, and the genesis of each of 64 researched Biblical gardens existing today?
2. What kind of the social and cultural relations come into existence and what kind of favorable effects for people functioning and benefiting the Biblical gardens are observed?

Materials and Methods

This study is of the theoretical and empirical nature, conducted between 1996 and 2017. Various procedures of collecting data were used to obtain detailed information possibly from all Biblical gardens to conduct comparative analyzes. The fundamental intent was to follow the timeline from the date of creation of the world's first and oldest Biblical garden in Carmel, US (1940) to the year 2017. The main tool used in this research was a questionnaire, a widely used method in comparative studies (Vacha and Petr 2013; Zohrabi 2013) but also in garden art researches (Zachariasz 2006; Rostami et al. 2015). The questionnaire was sent to the addresses/e-mails of Biblical gardens obtained from literature (Hepper 1987; Swenson 2002, 2003) and by searching websites using key words: Biblical garden, Bible garden, Bibelgarten, Biblischer Garten. The questionnaire consisted of (1) heading (including the name and aim of the research, information about the investigators, indications how to mark answers, and the appeal to respondents to send maps, guides, a list of cultivated plants and addresses of other known to

them Biblical gardens); (2) a mixture of closed-ended and open-ended questions; and (3) the part requesting the official name of the Biblical garden and contact details (country, city, address, e-mail, website).

Data collected through the questionnaires was updated by further correspondence with the respondents. The most important were with Nogah Hareuveni (1924–2008), founder of the Biblical Landscape Reserve in Neot Kedumim, Israel, and Nigel Hepper (1929–2013), director of the Royal Botanic Gardens in Kew, UK. Valuable information was also provided by an employee of the Missouri Botanical Garden in St. Louis, where the Biblical plant collection designed in 1884 has been shown up to date; and by an employee of the New York Botanical Garden, where Harold Moldenke (1909–1996), author of “Plants in the Bible” and consultant of the first Biblical gardens in the world, worked.

Photo documentation was obtained from 28 Biblical gardens during on-site visits, which contributed to widening and contextualizing the visual data. Due to limited budget other Biblical gardens were not visited, however additional information were obtained during the 4th Biblical Gardeners Convention in Schleswig in 2012, which gathered contemporary Biblical garden founders/designers.

Finally, our four stays in the form of scientific camps in Israel and Jordan (in 1996, 2004, 2005, 2017) contributed to the verification of the natural environment being the background for Biblical texts. The search for publications in the fields of gardening art, Biblical studies, Biblical gardens and Biblical flora was being carried out throughout the whole data collection period.

The collected data was organized according to the following five criteria:

- Genesis—inspirations serving as an impetus/reason for establishing a garden. The following inspiration types have been found and accepted: literature of the subject including books and scientific publications in the field of Biblical flora, popularization of the Bible, Talmud and Quran contents, popularization of the Far East religions, other Biblical gardens, travel to the Holy Land, historical, social and artistic events, own historical and religious artifacts, a plant show, building an educational, hortotherapy database and background to scientific research, promoting ecological values, setting up a place to rest, improvement of regional touristic values, a scientific conference, possession of Biblical plant species, social integration, ecumenical values, reconstruction of a disused Biblical garden and willingness to know the Christian faith by Muslims.
- City, country.
- Year when a garden was established.
- Garden location: a garden at a sacral building (a church with the description of denomination/an orthodox church/a synagogue), part of a botanical garden, a garden at a unit of education (university/school/nursery), a garden at a Bible scientific research center, at a therapy center, at a recreation center, public park/gardens.
- Area of the garden (one are—an area measurement unit).

Based on it, completed information was obtained for 64 Biblical gardens, which enabled us to provide the answers for two research questions: (1) what was

the genesis of the idea of Biblical gardens foundation and (2) what kind of social and cultural relationships have been involved while creating and running Biblical gardens.

Results and Discussion

The Biblical garden genesis should be searched in the operation of botanical gardens, where, because of their designation, plants from all over the world are gathered and scientifically described. The plant species mentioned in Biblical texts, so those coming from the region of the Mediterranean Sea and the Middle East, can be found among those collections. Thematic sections of Biblical plants were gathered in one place of certain botanical gardens, to make their exposition more attractive. So, for instance, in 1884, Henry Shaw, director of the Botanical Garden in St. Louis, Missouri (US), organized the first Biblical plant exposition with 34 species (Stückrath 2012).

The next impetus for establishing gardens was the fact that new domains of agriculture—gardening and plant nursery—started to develop strongly at the turn of the nineteenth and the twentieth century. The mass of qualified garden designers, gardeners and plant nurserymen appeared. To promote their skills and goods and to find customers, these groups of profession started to organize gardening shows (Campbell-Culver 2004; Hobhouse 2004). Biblical plants had their share in those shows. In May 1935 during the San Fernando Valley Flower Show, Paul J. Howard's nursery Horticultural Establishment showed a plant arrangement composed of the plant species mentioned in the Bible. That event was considered as the first garden arrangement composed of Biblical plants only (Van Barneveld 1935; Moldenke and Moldenke 1952; Stückrath 2012). Six years later, in March 1941, at the International Flower Show in New York, employees of the New York Botanical Garden showed the arrangement of 75 Biblical species, getting the highest grade and the golden medal. Harold Moldenke published „Check-List of plants that mentioned in the Bible” (Moldenke 1941) in the Garden Newsletter, including 181 species (King 1941; Stückrath 2012). As Harold Moldenke recollects, 12 periodicals informed about the Show, and many letters were sent to the Botanical Garden from various states of the US and from Canada, asking for support in establishing regular Biblical plant expositions. That contributed a lot to founding the first Biblical gardens in history (Moldenke and Moldenke 1952).

How Biblical Garden Makers were Inspired

Twenty three types of inspirations (Fig. 1) constituted a basis to create 64 researched Biblical gardens. In the case of 22% of the researched objects, the design and the garden making decision was made on a single impetus. But usually, the decision was affected by several simultaneous impulses. Most often, the willingness to promote Bible contents, a visit paid to another Biblical garden or the literature of the subject were the source of that decision. Those inspirations were mentioned by

Fig. 1 The inspiration types for the creation of Biblical gardens

34%, 30% and 22% of respondents, accordingly. The next group of popular inspirations mentioned by 9–17% of the surveyed individuals consisted of: creation of a base of education, historical and social events, having Biblical plants and improvement of regional touristic values. The same number of respondents, i.e. each 8% were inspired by a plant show, a need to setting up a place to rest, the willingness to popularize the Talmud contents and the need of social integration. Similarly, the same number of respondents, i.e. this time each 6% mentioned a travel to the Holy Land and ecumenical values as their inspirations. Five kinds of inspiration, namely building a hortitherapy center, historical and religious artifacts, promoting ecological values, building the background for scientific research, and an artistic event were mentioned by each 5% of respondents. Participation in a scientific conference was fundamental to make two gardens, similarly as in the case of the willingness to promote the Quran contents. There were two separate cases: the garden in Osnabrück, promoting, apart from other religions, the religions of the Far East, and one garden made as a reconstruction of an old disused Biblical garden.

The Biblical garden in Kiel is a special case, as it was to a huge degree inspired by the Muslim community. They approached the idea of a Biblical garden enthusiastically and, more than the local Christians, financially backed not only the initiative but also the implementation of the garden. Those Muslims emphasize that they want to know the Christian faith, claiming that “in their surroundings there is too little information about Christianity as if it was not present in everyday life” (Ulke 2013). On the basis of our own research we can state that all described Biblical gardens accommodate only positive reactions and lead to create a multi-vocal social and religious nature. This kind of cultural landscape conveys the literary content of the Bible, does not taking into account the ideological and political message, thus reaching beyond all divisions.

When analyzing in details particular kinds of inspiration, it was noticed that visits to the existing Biblical gardens had a huge effect on developing new garden concepts. As many as 15 such facilities located all over the world contributed to setting up 30% of the gardens researched by us. There are the following model gardens being the most often inspiration for others: the Biblical gardens in Ostritz, in Myczkowce, in Neot Kedumim, Hamburg and in Proszowice. In terms of the literature of the subject, the main part was played by the publications of Moldenke and Moldenke (1952), Moldenke (1940, 1941) and Hepper (1987). At individual facilities, the publications of Zohary (1995), Lukesch (2009), and Włodarczyk (2007, 2011) were the inspiration. The literature referenced above concerns the characteristics of the plants mentioned in the Bible, the fundamental material to make Biblical gardens. The Biblical garden being first of all the visualization of the Bible contents has become also the place of depicting the contents of the Talmud, the Jewish book explaining the Old Testament contents, the contents of the Quran, the holy book of Islam, and elements of religions of the Far East religion. Biblical gardens can be perceived as shaped by people based on the culture, religion, tradition and nature reflecting the human values, systems of beliefs and the nature of different societies. Presentation of the values brought by the Bible, the Talmud and the Quran is strictly linked to the need of building the educational base and exhibiting ecumenical values. This leads to social integration and to cross generational agreement. Making Biblical gardens is a response to various social and historical events, including such dramatic ones as the civil war in Yugoslavia (Kalnik) or the terrorist attacks in New York City on 11 September 2001 in the US (Osnabrück). Also the events related to the turn of the millennia (Garstang, Madrid, Schleswig, Kehl), the year of the Bible announced in Christian churches in 2003 (Korbach), Pope John Paul II's birthday anniversary (Myczkowce) or even the death of a 10-years-old girl (New York, Fig. 2) were the impetuses. These examples confirm the idea of connections between the cultural landscape and human memory, which is often associated with feelings of loss, pain or passing away (Taylor 2008). The idea of creating Biblical gardens within various religious and social communities can be the effect of the phenomenon of "collective memory" or "cultural memory". These terms express the relation between people and their past (Kansteiner 2002).

The makers of the two oldest gardens in the world (Carmel, Ojai) were inspired by the San Fernando Valley Flower Show (1935) and the International Flower Show with Biblical plants (1941) (Moldenke and Moldenke 1952). Three younger Biblical gardens came into existence also under the influence of gardening shows such as The Bundesgartenschau (BUGA) show in Cottbus (1995) and the Landesgartenschau (LAGA) show organized in 2004 in Burghausen and in Kehl/Strasburg. Apart from gardening exhibitions and landscape management-related arrangements, large green areas are designed and arranged within the framework of these shows. Sometimes they are maintained after the show to serve to the community (Frank 2011): so was in the case of the garden in Schöningen.

The "Biblical plants" thematic section was separated naturally within the framework of botanical garden resources in 6% of the investigated objects. Based on the Biblical plant species growing in the sacral buildings surroundings. The oldest Biblical garden in Carmel, where olive trees (*Olea europea*) have been growing since

Fig. 2 The Biblical garden near the Cathedral of St. John the Divine in New York (US)—the garden was created as a commemoration of a girl's death

1904 (Farley 1996), and the garden in Gossau with the magnificent Atlas cedar (*Cedrus atlantica*) and two Redbunt trees (*Cercis* sp.) (Gut 2006; Schaller et al. 2006) were established based on the Biblical plant species growing in the vicinity of sacral buildings. These are the examples to show that trees should be protected properly as the elements of the cultural landscape (Figs. 3, 4), because they certify the identity of the place, carrying the huge load of history and emotion of human life (Fraser and Kenney 2000). The trees were always the essential medium of landscapes with the unique strength worshipped by every monotheistic religion (Lehner and Lehner 2003). In three cases, the inspiration came from willingness to build a hortitherapy center based on Biblical plants. Two of those gardens (Berlin-Teltow, Ottendorf) came into being only for hortitherapy classes. The willingness to provide hortitherapy classes in the garden in Proszowice was one of many impetuses for the garden at the Caritas center—a church charitable organization. The authors noticed that working with Biblical plants motivated class participants to stronger involvement and greater effort, comparing to the situation, when plants not defined thematically were the class subject matter. It may be supposed that the plant symbolism and link to the Bible trigger respect and esteem, increasing in this way curiosity and stimulation of creative work, which increase the therapy effectiveness. Biblical gardens give an opportunity to observe the landscape in many dimensions, because, apart from sensations, namely by sight, smell, hearing, touch (Stigsdotter and Grahn 2002), the landscape transfers an observer to the religious and spiritual sphere (Bielo 2017). The makers of certain gardens were motivated by ecological values fundamental to establish the largest garden, the Biblical Landscape Reserve

Fig. 3 A general view of the Biblical garden established near the urban area of Muszyna city (Poland) using the borrowed views and landscape

Fig. 4 Biblical garden in Greisinghof (Austria) surrounded by forest as an example of the cultural landscape

Fig. 5 Biblical plants and water arrangements in the Biblical garden in Ostritz (Germany) promoting ecological values

in Neot Kedumim. Human sense of environmental responsibility and a conservation ethic can be improved by exposing people to natural environments, such as nature reserves where valuable interactions between people and the natural world can be created. This complies with Dearborn and Kark (2010), who described and analyzed the issues of urban landscape biodiversity conservation. The garden in Ostritz at the St. Marienthal Abbey is a very interesting case (Fig. 5). It is a part of a wider scheme under which the whole Ostritz town carries out the ecological development and recreation program. In such garden spiritual, religious, reflection and relaxation experiences are synthesized *ipso facto* making it possible to create the human being-nature relation and even to appreciate the garden as a source of philosophical thought and reflection. Possession of unused historical and religious artifacts, namely old bells (Harpstedt) or tomb stones (Harpstedt, Hoofdorp, Wolcze) was a rare, but interesting inspiration. The main idea to motivate the makers of the reserve in Neot Kedumim, the gardens in Schleswig and in Kraków at the University of Agriculture was to conduct special scientific research on Biblical plants and gardens. The travel to the Holy Land inspired the makers of three Biblical gardens in Poland (Myczkowce, Muszyna, Proszowice) and one in Germany (Oberlichtenau). The fact that a visit to Israel was a strong impulse for certain garden makers should be emphasized and respected, as, according to the German poet and drama writer: “Whoever wishes to understand the poet must go to the poet’s land” (von Goethe 1819). Biblical texts concern the Holy Land, and the cultural and natural landscape with plants that were

present there (Janick 2005, 2007) was not only a background to write those texts, but it was also many times invoked therein (Włodarczyk 2011). Three gardens came into existence as an effect of an artistic event, namely performance of the musical about Moses (Jägerwirth), exhibition of Bible-themed stained-glass (Kehl) or theater performance with existential topic (Schöningen). A huge number of works of literature with their Biblical roots have been written over the centuries; moreover, the Bible still inspires artists in many fields of arts (Schippe and Stetson 2005).

A Biblical garden maker modifies the landscape he or she has found to the large extent, creating the geographically (Middle East) and historically (ancient times) distant space. In this way, a maker creates an unusual landscape within the existing one. To create landscape in a landscape is a proven and intensively progressive trend applied by architects of these days dealing with green area concepts in various environments, such as cities, postindustrial areas, public or private gardens and parks (Oudolf and Kingsbury 2013; Oudolf 2010).

City, Country, Year When a Garden was Established

From among 64 researched Biblical gardens situated in 14 countries, German gardens with 25 facilities are the largest group (Table 1). The next position is occupied by gardens in the US and in Poland—nine gardens were established in each country. Five researched gardens are located in the UK, each three in Austria and the Netherlands, each two in Israel and Australia, and single ones in Croatia, Denmark, Spain, Ireland, Switzerland and Ukraine.

The first concepts of green areas of the Biblical garden nature came into existence in the US. These are the gardens existing to date: the one in Carmel of 1940 and in Ojai of 1957—both situated in California (Table 1), while the oldest Biblical garden in Europe was established in Bangor in 1961 (Fig. 6). It inspired the founder of the first garden of this type in Canberra, Australia, opened five years later, in 1966. The Biblical Landscape Reserve in Neot Kedumim, Israel, was opened in 1968. Five years later, the Biblical garden in New York, US, was opened. The first garden with Biblical plants within the territory of Germany, was established in 1979 in the Botanical Garden in Hamburg. The next European Biblical garden was made in 1980 at the Akiva rabbinic school in London, UK. Gardens of this type were established in the last 20 years of the twentieth century, mainly in the US, Germany, the Netherlands, the UK, Denmark, Spain, Ireland and Israel. Nearly a half of the researched gardens were founded before 2000.

In 2000, the year of the turn of the millennium, Biblical gardens were opened in various European countries (Table 1). The two first gardens of Biblical plants were established in that year in Poland, in the Netherlands and in Germany.

The next three facilities were established in 2002 in Germany, and one year later next seven gardens were opened, including four in Germany, each one in Austria, Poland and in the US (Table 1). Between 2004 and 2017, biblical gardens were founded mainly in Germany and in Poland.

To sum up, the history of creating Biblical gardens worldwide is nearly 80 years old, dating back to 1940, when the first Biblical garden in the world was established

Table 1 The characteristics of Biblical gardens

Serial number	City (garden name)	Country	Year of establishing	Garden location	Garden area (are)
1	Bad Sooden-Allendorf (Bibelgarten)	Germany	2008	A garden at a protestant church	8.0
2	Bangor (Bible Garden—Bishop's Garden)	United Kingdom	1962	A garden at an anglican church; public garden	2.0
3	Berlin—Lichterfelde (Bibelland)	Germany	2008	A garden at a protestant church	0.4
4	Berlin—Teltow (Bibelgarten der Teltow Diakonischen Westestätten)	Germany	2006	A garden at a therapy center	4.0
5	Boleszayce (Kolekcja roślin biblijnych)	Poland	2006	Part of a botanical garden	0.5
6	Brema (Bibelgarten)	Germany	1998	A garden at a protestant church	3.6
7	Bruck/Mur (Bibelgarten der Evangelischen Pfarrgemeinde AB und HB Bruck an der Mur, Österreich)	Austria	2008	A garden at a protestant church	2.5
8	Canberra ^a (The Bible Garden)	Australia	1966	A garden at a unit of education (school)	5.6
9	Canberra—reconstructed (The Bible Garden)	Australia	2008	A garden at a unit of education (school)	7.0
10	Carmel (Master's Garden)	US	1940	A garden at a protestant church	5.36
11	Chorzów (Biblical Garden)	Poland	2013	A garden at a catholic church	7.0
12	Cireleville (Biblical Garden of Trinity Lutheran Church)	US	1994	A garden at a protestant church	1.0
13	Cobh (Bible Garden)	Ireland	1995	A garden at a catholic church	60.0
14	Duisburg (Biblicher Garten der Evangelischen Kirchengemeinde Rumeln-Kaldenhausen)	Germany	1987	A garden at a protestant church	4.0
15	Dundee (Bible Garden)	US	2003	A garden at a protestant church	40.0
16	Elgin (Biblical Garden)	United Kingdom	1996	A public garden	120.0
17	Ellicottville/New York (Lowe Herb Garden)	US	1984	A garden at a recreation center; public park	2.0
18	Fair Haven (The Biblical Garden)	US	1983	A garden at a protestant church	4.0
19	Garstang (The Bible Garden)	United Kingdom	1999	A garden at a protestant church	1.3
20	Gossau (Bibelgarten Gossau)	Switzerland	2005	A garden at a catholic church	10.0

Table 1 (continued)

Serial number	City (garden name)	Country	Year of establishing	Garden location	Garden area (are)
21	Greisinghof (Bibelweg und Bibelgarten Greisinghof)	Austria	2003	A garden at a catholic church	17.0
22	Hamburg (Pflanzen der Bibel)	Germany	1979	Part of a botanical garden	3.0
23	Harpstedt (Christusgarten Harpstedt)	Germany	2003	A garden at a protestant church	20.0
24	Hohenvestedt (Bibelgarten)	Germany	2003	A garden at a protestant church	4.0
25	Hoofddorp (Bijbelse Tuin in Hoofddorp)	The Netherlands	2000	A garden at a catholic church	120.0
26	Hoorn (Bijbelse Tuin Foreestenhuis)	The Netherlands	1998	A garden at a protestant church	4.0
27	Jägerwirth (Der Moses-Bibelgarten in Jägerwirth)	Germany	2005	A garden at a catholic church	2.0
28	Jerozolima (The Path of Bible Plants)	Israel	1999	Part of a botanical garden	110.0
29	Jever (Bibelgarten Lütje Eden)	Germany	2004	A garden at a protestant church	1.0
30	Kalnik (Biblijski vrt mira)	Croatia	2000	A garden at a unit of education (school)	4.0
31	Kehl (Biblischer Garten Kehl)	Germany	2004	Public garden	3.0
32	Kiel (Bibelgarten)	Germany	2004	A garden at a protestant church	1.6
33	Korbach (Der Bibelgarten der Markugemeinde)	Germany	2002	A garden at a protestant church; a garden at a unit of education (nursery)	6.0
34	Königstein (Bibelpflanzengarten d. ev. und kath. Kirchengemeinde Königstein)	Germany	2005	A garden at a protestant church	4.1
35	Kraków/Łosiówka (Ogród biblijny—Ogród Boga)	Poland	2016	A garden at a catholic church	9.0
36	Kraków/ Jagiellonian University (Kolekcja roślin biblijnych)	Poland	2000	Part of a botanical garden	0.5
37	Kraków/University of Agriculture (Kolekcja roślin biblijnych)	Poland	2000	A garden at a unit of education (university)	1.2

Table 1 (continued)

Serial number	City (garden name)	Country	Year of establishing	Garden location	Garden area (are)
38	London (The Biblical Garden)	United Kingdom	1980	A garden at a synagogue; a garden at a unit of education (school) at Akiva School at the Sternberg Centre	8.0
39	Lublin (Kolekcja roślin biblijnych)	Poland	2003	Part of a botanical garden	5.0
40	Madrid (Jardin de las Tres Culturas)	Spain	1990	Public park and garden	300.0
41	Malvern (The Jesse Tree)	United Kingdom	2008	A garden at a protestant church	3.0
42	Mt. Pleasant (Biblical Garden)	US	1984	Public park	2.0
43	Muszyna (Ogrody biblijne)	Poland	2015	A garden at a catholic church	130.0
44	Myczkowce (Ogród biblijny w Myczkowcach)	Poland	2010	A garden at a recreation center	100.0
45	Neot Kedumim (The Biblical Landscape Reserve of memory Nogah Hareuveni)	Israel	1968	A garden at a Bible scientific research center	25,000.0
46	Nienburg (Bibelgarten der Kreuzkirchen-Gemeinde)	Germany	2000	A garden at a protestant church	5.3
47	New York (Biblical Garden)	US	1973	A garden at a protestant church	10.0
48	Oberlichtenau (Bibelgarten)	Germany	2002	Public park	30.0
49	Ojai (Biblical Garden of Ojai)	US	1957	A garden at a protestant church	20.0
50	Osnaabrück (Gärten der Weltreligionen: Paradiesgarten Christlich-Jüdischer Garten)	Germany	2005	A garden at a unit of education (school)	2.0
51	Ostritz (Garten der Bibelpflanzen St. Marienthal)	Germany	1999	A garden at a catholic church	10.0
52	Ottendorf (Bibelgarten Ottendorf)	Germany	2003	A garden at a therapy center	0.25
53	Oyten (Bibel und Paradiesgarten)	Germany	2002	A garden at a protestant church	2.0
54	Pittsburg (Rodef Shalom Biblical Botanical Garden)	US	1986	A garden at a synagogue	5.0
55	Proszowice (Ogród Biblijny)	Poland	2008	A garden at a therapy center; public garden	10.0

Table 1 (continued)

Serial number	City (garden name)	Country	Year of establishing	Garden location	Garden area (are)
56	Rheinfelden Beuggen (Biblischer Garten)	Germany	2008	A garden at a protestant church; public garden	12.0
57	Ritzlhof (Bibelgarten Ritzlhof, Bibelschen Erzählungen nachgehen)	Austria	2011	A garden at a unit of education (school)	10.0
58	Schleswig (Bibelgarten St. Johannisklaster)	Germany	1996	A garden at a unit of education (school)	17.0
59	Schöningen (Bibelgarten St. Lorenz Schöningen)	Germany	1996	A garden at a protestant church	20.0
60	Tübingen (Eberhardskirche Tübingen Bibelgarten)	Germany	1998	A garden at a protestant church	1.0
61	Utrecht (Planten uit de Bijbel, Botanic Garden University Utrecht)	The Netherlands	1999	Part of a botanical garden	2.6
62	Viborg (Bibelhaven)	Denmark	1989	Part of a botanical garden	2.0
63	Werlte (Bibelgarten)	Germany	2003	A garden at a catholic church; public garden	13.0
64	Wolze (Biblijnyj sad)	Ukraine	2012	A garden at the orthodox church	13.0

^aThe garden currently does not exist, in its place a new garden (serial number 9) was created (of different composition arrangement)

Fig. 6 The Biblical garden near the Cathedral Close in Bangor (UK)—the oldest Biblical garden in Europe

in California, US. The first garden facility of this type in Europe was opened for public in 1961 in Bangor, UK (Whitehead 1961). Five years later (in 1966), the first Biblical garden came into existence in Canberra, Australia. This order of garden making worldwide is not accidental—in those days, access to the literature of the subject in English was easy and common in English-speaking countries. Subscription of specialist periodicals was the basic source of information. The topic of Biblical plants became very attractive for a lot of journalists. They published mainly in journals about gardening (Moldenke and Moldenke 1952; Stückrath 2012). Also great botanists (e.g. J. H. Balfour) started promoting this topic, publishing, often anonymously, brochures, quoting Biblical texts and describing the plant species mentioned in there (Zohary 1982). So the desire and willingness to learn Biblical plants were coming into existence. That was spectacularly reflected in creating and showing Biblical plant collections in botanic gardens (Missouri, New York). Because of the huge interest of visitors, those shows evolved into permanent expositions, and the oldest one in the botanical garden in Missouri (established in 1884) has been in operation to date. As a result of garden shows, ordinary people desired to plant Biblical plants in their nearest surroundings. That initiative was many times addressed to Harold Moldenke, who played the unusually important part in the further process of creation and promotion of the theme of Biblical plants as a group of plants of special meaning (Reeves 1996). Moldenke was inspired by the Shakespeare Garden, established in 1916 in Central Park, N.Y., to celebrate the 300th

anniversary of William Shakespeare's death. The plants mentioned by the playwright in his works together with the quotes from respective dramas were planted in that garden (Carroll 2001). Moldenke decided to depict the Bible contents in the similar way. That was carried out in the first Biblical gardens in the US (Moldenke and Moldenke 1952).

Establishing the Museum of Biblical and Talmudic Botany at the Hebrew University on Mount Scopus in Jerusalem was a very significant achievement in promoting the Biblical botany. Spouses Ephraim and Hannah Hareuveni were its founders (Hareuveni 1996). The Biblical landscape reserve in Neot Kedumim was being created for many years under the direction of their son, Nogah Hareuveni, on the basis of that institute. That facility was being created on wasteland, where archeological discoveries unveiled the traces of ancient communities (the terrace field structure, residential and farm buildings, press houses, mills, agricultural and water supplying devices, etc. (Uval 1997). Those excavations were used to restore the cultural landscape of the Biblical times. Finally, the facility was officially opened for public in 1968, and after the death of its founder, it is named the Nogah Hareuveni Biblical Landscape Reserve.

Biblical gardens are still being created. The facilities in Chorzów (2013), Muszyna (2015) and Kraków-Łosiówka (2016) belong to the most recent.

Location of Biblical Gardens in the Cultural Landscape

The researched gardens are located both in large cities, such as Canberra, Berlin, Kraków, London, Madrid, New York, and in the small ones (Ojai, Carmel, Muszyna), also in villages (Myczkowce, Wołcze). Most Biblical gardens (63%) were founded around temples. Two gardens are located at the synagogue, each one at the orthodox church and at the Anglican cathedral church, 10 at catholic churches and the other 26 at the protestant churches (Table 1, Fig. 7). Only one Biblical garden

Fig. 7 Location of Biblical gardens

is located at the orthodox church in Ukraine, but it is good to know that along with development of orthodox monasteries, the diversity of thematic and symbolic gardens created in the territory of the monastery was impressive. Even in the distant past the organization of such gardens aimed at creating a landscape representing a hypertext telling Bible stories to the faithful (Osychenko 2016). Nearly 40% of the analyzed gardens were founded within the public utility areas, aside from sacral buildings. Thirteen percent of the facilities have the status of the park or the public garden, and 11% of facilities are a part of botanical gardens (Fig. 8). Biblical gardens (14% of facilities) were founded also at education units of various levels: at a the kindergarten, a junior high school, a vocational school, the University of Agriculture, a rabbinic school, a Biblical school and at the Centre of Christianity and Culture. Introducing plant arrangements into the school or even kindergarten surroundings should be emphasized as becoming more and more a principle accepted by landscape architects of these days. This principle is close to the current directions of education oriented to learn, respect and appreciate the world of the nature from early years of life (Blair 2009). Five percent of facilities are a part of vast recreational areas; these are the garden in Ellicottville (on the outskirts of the forest, at the pond), in Mt. Pleasant (within the territory of the large natural area with vast marsh and water birds), and in Myczkowce (within the area of old trees and meadows). Three Biblical gardens (5% of facilities) operate as a form of assistance at therapy centers. The facility in Neot Kedumim in Israel is a scientific unit, where the research on Biblical issues is conducted.

Fig. 8 The Biblical garden in Hamburg (Germany) as a part of botanical garden landscape

Area of Biblical Gardens

From among the researched gardens, the one in Ottendorf has the smallest area, occupying no more than 25 m² (Table 1). The Biblical plant collections in the Botanical garden at the Jagiellonian University in Kraków and in Bolestraszyce are two times larger, while the Biblical garden in Berlin-Lichterfelde occupies 40 m². Twenty eight gardens have the area from 100 m², not exceeding 500 m²; together with the smallest ones (31 facilities in total) they are nearly a half of all the researched facilities. There are nine gardens with their area exceeding 500 m² (5 ares), but smaller than 1000 m² (10 ares). Ten researched facilities cover between 10 to 20 ares. Six gardens are of the area of several tens ares, and five gardens have their area from 1 to 2 ha. The Three Cultures Garden in Madrid occupies 3 ha, and the above mentioned Nogah Hareuveni Biblical Landscape Reserve in Neot Kedumim, Israel, is the largest facility, occupying 250 ha.

As the data shown above prove, the researched gardens occupy both very small areas and vast spaces of several hectares. The area is not a factor to limit such green areas coming into existence. They can be a landscape element standing out among strongly developed urbanized locations.

Conclusions

The results of this study provide novel and multilateral information about the phenomenon of the Biblical gardens creation in various parts of the world. Both the scientific (activity of botanic gardens) and the commercial (garden shows) factors contributed to the genesis of this phenomenon. The founders of individual Biblical gardens were inspired by various elements coming from natural sciences as well as from social, cultural and spiritual needs. Since the first Biblical garden foundation in 1940, the phenomenon of creating such objects has been continued uninterrupted for nearly 80 years and observed mainly in North America and Europe. The Biblical gardens came into existence most often at sacral buildings, however nearly 40% of the researched facilities were made in public space of the secular nature, including parks, botanical gardens, units of education, recreational and therapy centers. The researched gardens occupy various areas, from several tens square meters to several hectares, but nearly a half of them (49%) do not exceed the area of 5 ares. Finally, it can be assumed that the presented Biblical gardens trigger social activity of ordinary people at various levels. People of different culture, religion and age join in together to take care of Biblical plants, which indicates that such gardens can serve as integration place for Christians of different religions, Jews and Muslims. Some of the Biblical gardens are used as therapeutic centers, others increase the regional touristic values or promote ecological values. Often their foundation was connected with various social, historical or even dramatic events constituting a kind of collective memory that lasts in interpersonal relationships.

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