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Restoration of a Rudolfine Mannerist historical castle garden

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Abstract

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This paper discusses plant assortments in historical Mannerist gardens and their use during the restoration of such a historical garden. Mannerist gardens were founded in the territory of Bohemia at the time of Emperor Rudolf II. The model garden for the purposes of this paper is the castle garden in Brandýs nad Labem. There are no reliable historical resources which could specify the plant assortment cultivated in this garden at the time of its creation. However, the period of Rudolfine Mannerism is defined by known determinative elements of garden architecture as well as certain cultivated plant species. For this reason, it was possible to compile a list of elements which must conform to the individual forms of greenery (solitary, hedges, alleys, climbers, containers) and their spatial arrangement (point, line, shape) typical for Renaissance and Mannerist composition. The list was created with respect for the current cultural and climatic conditions by evaluating the current utilisation of the garden.

Keywords: garden architecture; plant assortment; authenticity; Emperor Rudolf II.; Brandýs nad Labem

The restoration of historic gardens is a very specific field and many authors (Pacáková-Hošťálková et al. 2004; Šimek 2005; Kosmala 2007; Turner 2011; Dreija 2012) have written about the importance of historical gardens. For example, Kosmala (2007) refers to historical gardens as monuments, which evoke a sense of identity and remind us of our ancestors, their needs, preferences and capabilities, while others (Gustavsson, Peterson 2003; Pacáková-Hošťálková et al. 2004; Velebil et al. 2016) stress the importance of preserving these monuments for the next generation with a high level of authenticity. Important international documents underline the importance of authentic restoration of plant components in historical gardens e.g. The Florence Charter (ICOMOS 1982) and Nara Document of Authenticity (UNESCO 1994). In some cases, it is possible to find the originally grown species in historical sources, but in most cases this information is missing and the restoration must be based on generally valid solutions. The aim of this research was to find a suitably authentic plant assortment for the restoration of greenery in Rudolfine Mannerist gardens. The results of this research can be used for the restoration of Rudolfine Mannerist gardens.

Rudolfine Mannerism has been defined as a period of Mannerism in Bohemia by various authors (Fučíková, 1988; Pacáková-Hošťálková et al. 2004; Pánek et al. 2006; Dobalová 2009; Skalický 2009). Fučíková et. al (1988) adds that the artists at the court of Rudolf II developed a specific variant of Mannerism – Prague Mannerist art. According to Hauseblastová and Šroněk (1997) and Žáček and Vacek (2008), Rudolfine Mannerism in Bohemia can be delimited by two specific

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dates – the year 1583, when the emperor chose Prague as his royal city, and the year 1612, when the emperor died. Dobalová (2009), on the other hand, defines the period of Mannerist gardens as starting in 1535, when the Royal Garden of Prague Castle was enclosed, and ending in 1620, when the battle of the White Mountain took place.

The Mannerist gardens in Bohemia follow the tradition of European Renaissance gardens (Zimmermann 1992; Pacáková-Hošťalková et al. 2004; Skalický 2009; Dobalová 2009). Křesadlová (2006) described the forms of greenery cultivated in the Renaissance and Mannerist gardens as "bosco", orchard, solitary trees shaped or growing wild, hedges shaped or growing wild and climbers used for constructions. The list of cultivated species in Renaissance and Mannerist gardens has been described by many authors (Wimmer 2001; Pacáková-Hošťalková et al. 2004; Pavlátová, Ehrlich 2004; Machovec, Jakábová 2006; Křesadlová 2006; Skalická et al. 2007; McBride 2017).

MATERIAL AND METHODS

Dobalová (2009) developed a list of gardens associated with Rudolf II. For the purpose of this paper, the garden surrounding the castle of Brandýs nad Labem was chosen. The composition of the garden follows a very important Renaissance concept with orientation to the North, which is a particular characteristic of Italian Renaissance gardens.

Historical documents show that the garden was divided into two parts as a Renaissance, terraced Italian garden in a simple form. The symmetry of elements of the retaining wall with the Renaissance balustrade suggests that the garden was designed on the axis of some since-demolished building. The positions of the garden and the castle illustrate a hallmark of Bohemian Renaissance gardens: the garden was separated from the castle. Unfortunately, the historical list of plants used in the garden at this time period was not preserved. A graphic historical description of the castle and its garden dates from the year 1740 and shows the garden in baroque style. Around 1850, the garden was changed to a nature-landscape park. This modification completely disregarded the original layout of the garden and removed several important Renaissance and Baroque architectural elements. Furthermore, the lack of maintenance resulted in taller trees and a loss of symmetry. In the 20th century, the garden was again partially renewed. Currently, it is a part of the green space of the town of Brandýs nad Labem and is used as a public park that is open to visitors.

The studied area is located in the Czech Highlands which are part of the Jizerská tableland. According to Quitt (1971), the climate in this area is warm and slightly dry. The average yearly temperature is 8.6°C. The average rainfall is about 530 mm. The geological base is made up of Mesozoic rocks, namely sandstones and clays. The soil type is anthropogenic, clay loam. The Brandýs nad Labem garden is a part of the Elbe Valley bioregion (Culek 1995) and is characterised by the growth of beech and oak trees (Zlatník 1978). Potential natural vegetation includes linden oak forests and the phytosociological association Tilio-Betuletum (Neuhäslová et al. 2001).

A description of the current situation is provided by a dendrological survey of trees and shrubs from the year 2012 and based on the methodology of Šimek (2001). A part of the dendrological survey was the evaluation of metric figures and quantitative data of trees and shrubs in terms of vitality and landscape value.

The landscape value expresses the biological aspect of the dendrological potential of tree or shrub. The value is determined by several characteristics, such as life stage, vitality and health condition.

The evaluation of woody plants in the garden is based on the methodology of Velebil et al. (2016). According to this methodology, the elements of greenery in historical gardens can be divided into three groups according to their spatial arrangement – point, line and shape. This methodology also allows the classification of woody plants by their habitus, texture and colouring. These characteristics express the aesthetic value. This type of classification is therefore dependent on individual species and their characteristics and cultivars. Thus, the woody plants in the garden were subjectively analysed from the point of the view of their aesthetic value.

Finally, the current plant assortment in the garden was also evaluated from the point of view of authenticity. Because of the lack of herbal plants, the species of woody plants were divided into three groups – species from Renaissance and Mannerist assortments, species of domestic trees and shrubs and species of ornamental park trees and shrubs.

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RESULTS AND DISCUSSION

Renaissance and Mannerist plant assortment

The plant assortment in a typical Renaissance and Mannerist garden included mainly shrubs, deciduous trees as well as conifers. The basic species were *Myrtus* sp., *Ilex* sp., *Laurocerasus nobilis*, *Quercus ilex*, *Buxus sempervirens*, *Cupressus* sp. and *Pinus pinea*. The assortment was enriched by exotic species (lemon trees, coffee trees, orange trees, pineapple) grown in wooden, stone or ceramic containers. Other species grown in containers were *Ficus carica*, *Laurus nobilis*, *Punica granatum*, *Myrtus communis*, *Nerium oleander*, *Rosmarinus officinalis*, *Santolina chamaecyparissus* and *Cupressus sempervirens.*

Another typical element of Renaissance and Mannerist gardens was a 'bosco' which in the case of the Brandýs nad Labem garden was replaced by an orchard suited to Bohemian climatic conditions. The cultivated fruit species were *Malus* sp., *Pyrus* sp., *Prunus avium*, *Prunus cerasus*, *Prunus persica*, *Prunus domestica*, *Mespilus germanica*, *Amygdalus communis*, *Cydonia oblonga, Sorbus domestica*, *Sorbus aucuparia*, *Ribes rubrum*, *Ribes uva-crispa*, *Castanea sativa*, *Corylus avellana*, *Juglans* sp., *Prunus armeniaca*, *Morus* sp., *Cornus* sp. and *Ficus carica*.

As solitary trees, *Tilia* sp., *Ulmus* sp., *Taxus baccata*, *Carpinus betulus*, *Juniperus* sp. and *Buxus sempervirens* were planted. The most used material for hedges was *Carpinus betulus*, *Taxus baccata, Buxus sempervirens*, *Ulmus* sp., *Berberis vulgaris*, *Crataegus* sp., *Ilex aquifolium*, *Rosa* ssp., *Ribes uva-crispa*, *Prunus spinosa*, *Ligustrum vulgare*, *Corylus avellana*, *Ribes rubrum* and *Buxus sempervirens*. High walls were made by shaped *Tilia* sp.

Climbers were also used, most often *Vitis vinifera*. Other woody climbers included *Clematis vitalba*, *Clematis viticella*, *Hedera helix*, *Lonicera caprifolium*, *Lonicera periclymeum*, *Rosa* sp and *Rubus* sp.

The most common perennials found in Renaissance and Mannerist gardens were *Acanthus mollis, Achillea ptarmica, Aqulegia vulgaris, Bellis perennis, Helleborus nigra, Hesperis matronalis, Lychnis coronaria, Paeonia officinalis, Paeonia mascula, Primula veris, Salvia officinalis* and *Viola odorata*. Bulbs and tuberous plants such as *Allium ursinum, Galanthus nivalis, Iris germanica, Iris sibirica, Leucojum vernum, Lilium bulbiferum, L.candidum, L.martagon* and later *Anemone coronaria, Canna indica, Crocus flavus, Fritillaria meleagris,Fritillaria imperialis, Gladiolus communis, Gladiolus imbricatus, Hemerocallis fulva, Hyacinthus orientalis,* and *Tulipa* sp. were also present. Annuals and biennials included *Alcea rosea, Amaranthus* sp., *Anthirrhium majus, Calendula officinalis, Campanula media, Carthamus tinctorius, Celosia argentea, Consolida regalis, Cyanus segetum, Dianthus caryophyllus, Erysimum cheirii, Helianthus annus, Iberis umbellata, Matthiola incana, Mirabilis jalapa, Moluccella laevis, Nigella damascena, Papaver somniferum, Ricinus comunis, Tagetes erecta, Tropaelum minus* and *Viola tricolor*.

Dendrological survey

A description of the greenery in the Brandýs nad Labem garden was provided by a dendrological survey. In total, 252 trees and shrubs and 16 groups of shrubs were analysed and described. Evaluation from the point of view of landscape value is presented in Fig. 1.

The upper terrace represents the original orchard. The assortment of fruit trees includes *Pyrus communis, Malus* sp., *Prunus cerasus*, *Prunus avium*, *Corylus colurna,* and *Juglans regia*. Along the southern wall there are conifers and hedges consisting of *Chamaecyparis lawsoniana* 'Alumii'. The south-eastern part of the orchard is covered with self-seeding deciduous woody plants. There are ornamental park shrubs around the playground (e.g., *Syringa vulgaris*, *Philadelphus coronarius*, *Spiraea ×vanhouttei*, *Cornus alba*). The space of the orchard is divided into two units and isolated from the rest of the garden by two perpendicular alleys of *Tilia cordata.* Along the walls there is loose vegetation of deciduous woody plants (*Fraxinus excelsior*, *Acer platanoides, Robinia pseudoacacia* and *Quercus robur*).

The upper terrace is made up of remnants of former ornamental broderie with a grass base. Parterre hedges in this part consist of *Ribes alpinum*, *Ligustrum vulgare* and *Acer campestre*. Hedges of ornamental broderie are complemented by planting of *Magnolia ×soulangeana*.

The middle terrace is defined by hedges of *Acer campestre* in the southern part. In addition, there are deciduous trees along the eastern border (*Aesculus hippocastanum*, *Fraxinus excelsior*, *Acer psaudoplatanus*, *Tilia cordata* and *Quercus robur*).

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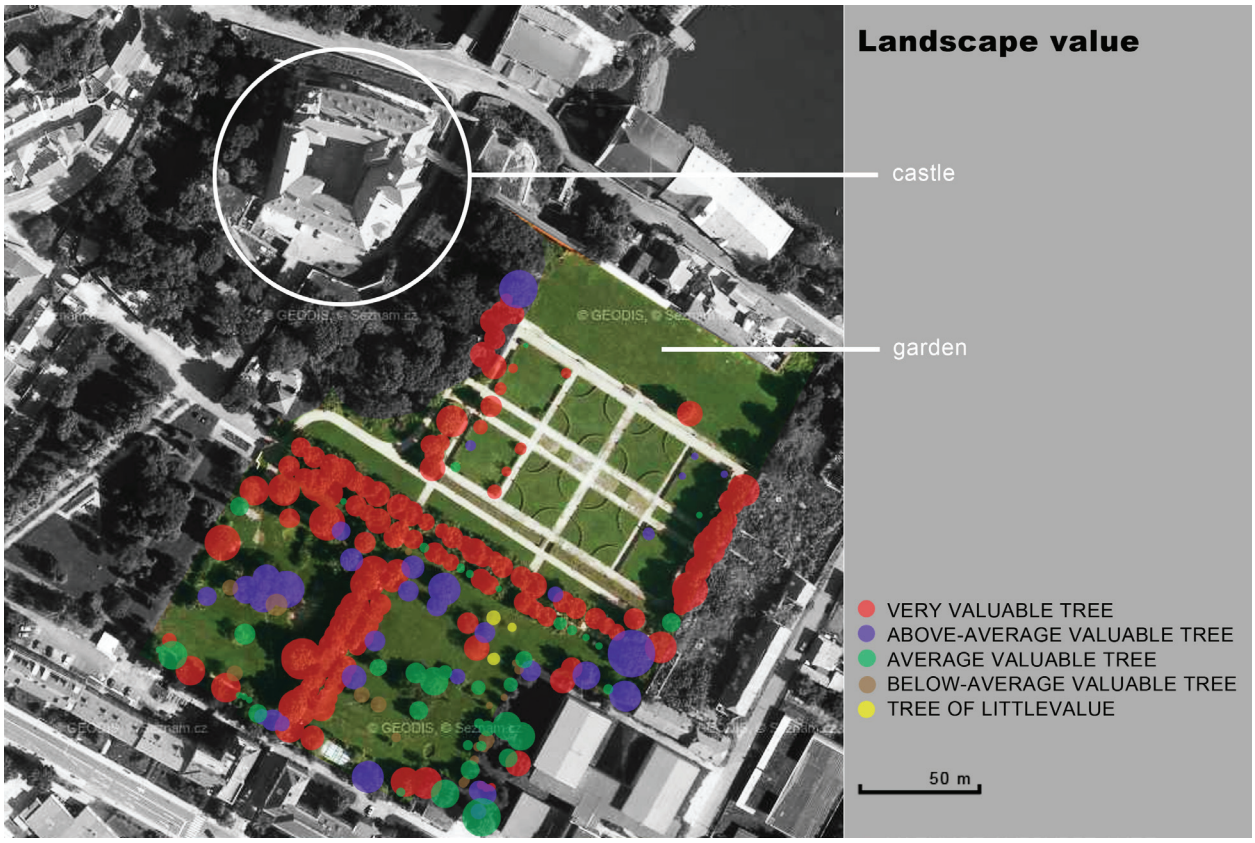

Fig. 1. Landscape value

The transition between middle and upper terrace is realised by stairs and hedges of *Carpinus betulus*. The horizontal line of this hedge is then followed by a green belt of shaped trees of *Acer campestre*. The western boundary of the middle terrace is defined by deciduous trees (*Fraxinus excelsior, Fraxinus diversifolia* and *Quercus robur*) and conifers (*Taxus baccata*, *Pinus sylvestris*). In the lower terrace, there is one solitary *Aesculus hippocastanum*. All terraces are covered by lawns.

Classification with respect to spatial arrangement

The division of elements of greenery into three groups according to their spatial arrangement – point, line and shape is shown in Table 1. The points are represented by solitary trees. The most significant points are *Aesculus hippocastanum* and *Magnolia* × *soulangeana.* The lines are represented by alleys and hedges in the garden. The most dominant lines in the garden are two perpendicular alleys of *Tilia cordata* and the other lines are hedges of *Chamaecyparis lawsoniana* 'Alumii', *Ribes alpinum*, *Acer campestre* and *Carpinus betulus.* The shapes are represented by groups of trees and shrubs. The most important shape in the garden is the orchard. Other visible shapes in the garden are groups of flowering shrubs and groups of woody plants along the garden walls.

Classification from an aesthetic point of view

The elements of greenery were described from an aesthetic point of view. The habitus, texture and colour of every important element are described in Table 2.

Classification from an authenticity point of view

In Fig. 2 the classification of woody plants from an authenticity point of view is shown. From a total of 252 described trees and shrubs and 16 shrub groups, 36 species of woody plants were identified

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Table 1. The division of elements of greenery into three groups according to their spatial arrangement – point, line and shape

Spatial arrangement	Elements
Point	*Aesculus hippocastanum* *Magnolia ×soulangeana*
Line	alleys of *Tilia cordata* hedge of *Ribes alpinum* hedge of *Acer campestre* hedge of *Carpinus betulus* hedge of *Chamaecyparis lawsoniana* 'Alumii'
Shape	orchard with fruit trees groups of flowering shrubs groups of woody plants at the garden walls

in the garden. This group includes 12 species from the Renaissance and Mannerist assortment, 10 species of domestic trees and shrubs and 14 species of ornamental park trees and shrubs. The authentic species from the Renaissance and Mannerist assortment are species which could have grown in the Rudolfine period. The presence of these species supports the original Mannerist character of the garden and underlines its authenticity (Document of Authenticity, ICOMOS 1994). These authentic species dominate, especially in the upper terrace, and consist mainly of the linden alley and fruit trees localised in the area of the orchard. The alleys made up of *Tilia cordata* are present as hedges with a height of over 1.5 metres, creating sight barriers and outlining the axis of garden. The following fruit trees are planted in the orchard area: *Malus* sp., *Pyrus communis*, *Prunus avium*, *Prunus cerasus*, *Juglans regia* and *Corylus colurna*. In the upper and middle terraces, there are remnants of hedges with heights of between 0.5 and 1.5 metres and which define larger garden units. These are either shaped or left to grow wild and are comprised of *Taxus baccata*, *Carpinus betulus* and *Ligustrum vulgare*. Along the walls of the garden there are species such as *Tilia platyphyllos* and *Ulmus carpinifolia,* which create a green frame for the garden.

The domestic assortment of woody plants includes species native to natural forests in this area. These species are suitable for the natural and climatic conditions of the whole area. This assortment is localised mainly along the walls of the garden and creates a green frame for the garden. Due to the phytosociological position in the Tilio-Betuleum union various typical species are present: *Tilia cordata*, *Tilia platyphyllos*, *Acer campestre*, *Quercus robur* and *Carpinus betulus*. The domestic woody plants *Acer platanoides*, *Acer pseudoplatanus* and *Fraxunus excelsior* are also present. The garden also contains some species of conifers, such

Table 2. The habitus, texture and colour of every important elements

	Habitus	Texture	Colour
Aesculus hippocastanum	spreading/egg-shaped	rough	dark green
Acer platanoides *Acer pseudoplatanus*	conical/egg-shaped	rough	fresh green
Magnolia × soulangeana	spreading	rough	fresh green
Carpinus betulus	spreading	semi rough	fresh green
Chamaecyparis lawsoniana 'Alumii'	conical	smooth	yellow-greyish
Fraxinus excelsior *Fraxinus diversifolia*	spreading	semi rough	dark green
Quercus robur	spreading/semi round	semi rough	dark green
Ribes alpinum	spreading/semi round	semi rough	dark green
Robinia Ppseudoacacia	spreading	semi rough	light green
Tilia cordata *Tilia platyphyllos*	spreading/semi round	smooth	fresh green
Fruit trees	depends on cutting round/spreading/fastigiated	semi rough / rough	fresh green
Flowering shrubs	spreading/upright	smooth / semi rough	light green
Conifers	fastigiated	smooth	dark green

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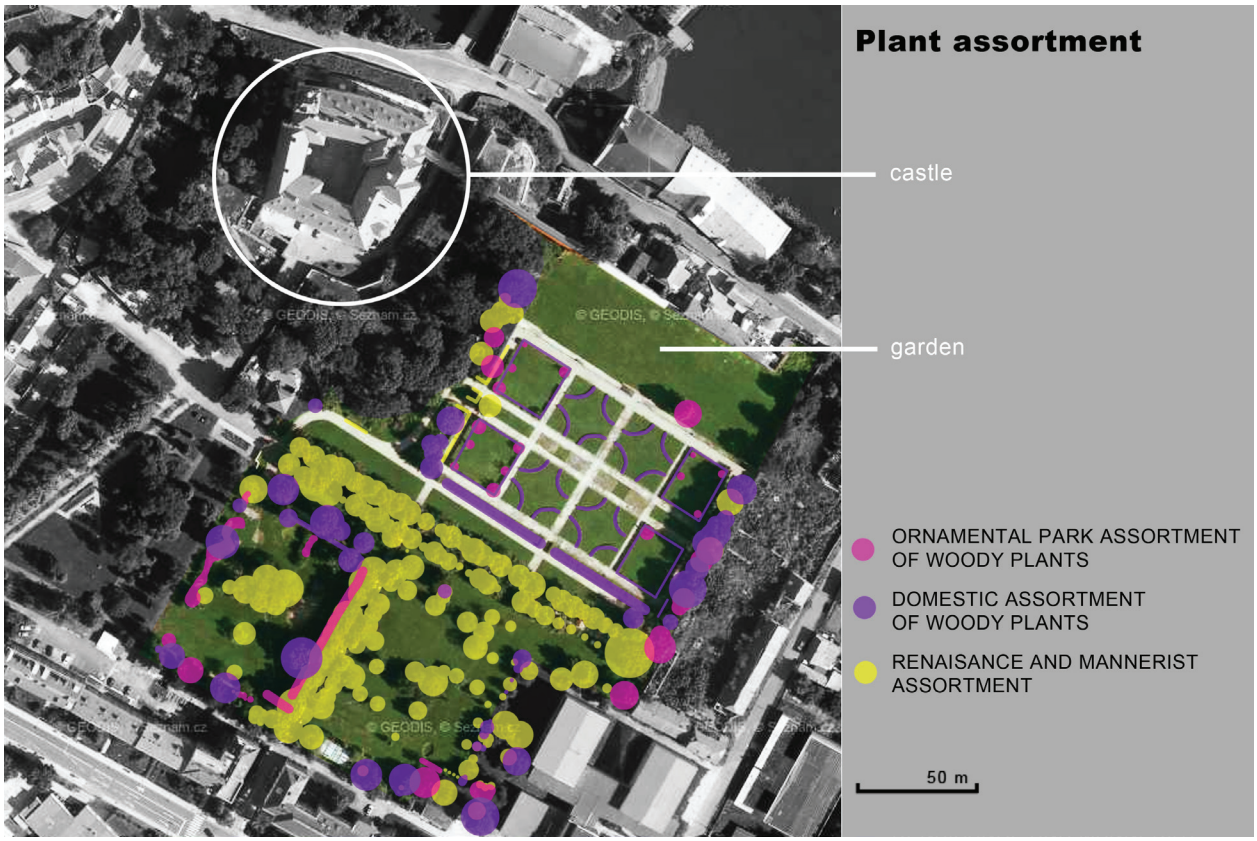

Fig. 2. Plant assortment

as *Picea abies, Pinus sylvestris* and *Larix decidua*. The remainder of the former ornamental broderie consists of the domestic currant *Ribes alpinum*. The hedge of *Acer campestre* and *Carpinus betulus* is located between the middle and upper terraces.

The ornamental park assortment of woody plants is an assortment of woody plants which do not fit into the Renaissance and Mannerist garden design because of their habitus and aesthetic expression. These species are not authentic for this composition of garden and were introduced in later periods of the landscape architecture development. The garden contains a number of *Aesculus hippocastanum* trees, which were used as solitary trees in baroque garden composition at the beginning of the 17th century. The broderie on the middle terrace is complemented by solitary *Magnolia* × *soulangeana*. *Robinia pseudoacacia* and *Fraxinus diversifolia* are other woody plants that are located in the garden area, especially in groups along the garden walls. Conifers are represented as well, e.g., *Picea pu-ngens* 'Glauca' *Picea omorika, Pseudotsuga menziesii,* and hedges consisting of *Chamaecyparis lawsoniana* 'Alumii' and *Thuja occidentalis* 'Malonyana'. The upper terrace around the playground contains flowering shrubs such as *Syringa vulgaris*, *Philadelphus coronarius*, *Spiraea* ×*vanhouttei*, *Berberis atropurpurea* and *Berberis thunbergii.*

Projects for restoration of the castle garden

The current plant assortment of the castle garden in Brandýs nad Labem is a reflection of the partial realisation of several projects that were developed for this garden (Ondřejová 1967). For this paper, three projects for the restoration of the castle garden, found in the archive of the National Heritage Institute of Czech Republic, were analysed and evaluated. All projects were implemented during the mid-20th century, and none of them were ever fully realised. Each project approached the restoration of the historic garden in Brandýs nad Labem in a different way, using different garden programmes and themes and varied plant assortments.

All the initiators of the projects (Kadlec, Rozhoň 1954; Ondřejová 1967; Hora, Horová 2002) tried to reinforce a rectangular conception

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Table 3. A list plants of suitable for the restoration of the Mannerist historical garden in Brandýs nad Labem

Spatial arrangement	Form of greenery	Authenticity	Specie
Part I – Orchard			
Point	solitary in soil	Renaissance and Mannerism	*Malus* sp. *Pyrus* sp. *Prunus avium* *Prunus domestica* *Juglans* sp. *Tilia cordata* *Carpinus betulus* *Ulmus* ssp.
	containers	Renaissance and Mannerism	*Laurus nobilis* *Ficus carica* *Punica granatum* *Citrus limon* *Citrus aurantium*
Line	alley	Baroque	*Tilia cordata*
Shape	hedges 0.5–1.5 m	Renaissance and Mannerism	*Carpinus betulus* *Ribes rubrum* *Ligustrum vulgare* *Ribes uva-crispa*
	orchard	Renaissance and Mannerism	*Malus sp.* *Pyrus sp.* *Prunus avium* *Prunus cerasus* *Prunus cerasifera* *Prunus domestica* *Corylus avellana* *Juglans sp.*
	climbers	Renaissance and Mannerism	*Vitis vinifera* *Lonicera caprifolium* *Clematis vitalba*
Part II – Terraces			
Point	solitary in soil	Baroque	*Aesculus hippocastanum*
		Renaissance and Mannerism	*Taxus baccata* *Buxus sempervirens* *Juniperus communis*
	containers	Renaissance and Mannerism	*Myrtus communis* *Nerium oleander* *Cupressus sempervirens*
Line	hedges – up to 0.5 m	Renaissance and Mannerism	*Buxus sempervirens*
Shape	hedges 0.5–1.5 m	Renaissance and Mannerism	*Ribes alpinum*
	hedges above 1.5 m	Renaissance and Mannerism	*Carpinus betulus* *Taxus baccata*
	climbers	Renaissance and Mannerism	*Hedera helix* *Cardiospermum halicacabum* *Calystegia sepium* *Clematis vitalba* *Lonicera caprifolium* *Lonicera periclymeum*
	flower beds		

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of the garden. Especially Ondřejová (1967) and Hora and Horová (2002) embellished the Renaissance and Mannerist appearance of the garden with newer elements. They added the chestnut as an important solitary tree, which is a typical baroque tree (Pacáková – Hošťalková et al. 2004; Skalická et al. 2007). Another basic determining element of baroque gardens are the alleys. However, the authors of the restoration projects also proposed species of ornamental fruit trees that were evidently not grown in the Renaissance and Mannerist period.

Because of the addition of flowering woody plants whose origin and habitus do not follow the principles of the Mannerist garden concept, inauthentic species have been cultivated in the garden. These inauthentic species are *Magnolia* × *soulangeana*, which was designed into fields of broderie, *Cotoneaster floribunda*, which formed a shaped hedge between the middle and the upper terraces and the flowering shrubs *Syringa vulgaris*, *Philadelphus coronarius, Cotoneaster floribunda*, *Hydrangea sargentii*, *Deutzia* sp., *Weigela* sp. and roses. Horáček and Mencl (1999–2016) wrote that *Magnolia* × *soulangeana* is a species that was developed in the beginning of the 19th century and was first planted in Bohemia in 1844. Similarly, the other flowering shrubs were planted in Bohemia long after the Renaissance and Mannerist period.

The proposal

According to the Florence Charter (ICOMOS 1982), one historical period should not be preferred over another, but Ondřejová (1967) wrote that due to the situation at that time in the territory of the Bohemian kingdom (the battle of the White Mountain which caused most gardens to be destroyed and later restored as baroque units), it is important to restore the gardens to their original Renaissance composition. However, because of the absence of a historical list of specific plants that were grown in the Brandýs nad Labem garden, it is not possible to reconstruct the garden to its original composition, and a proposal for the plant assortment has to be based on a list of plants known to be grown in other gardens during the Renaissance and Mannerist period in Bohemia (Wimmer 2001; Pacáková – Hošťalková et al. 2004; Pavlátová, Ehrlich 2004; Machovec, Jakábová 2006; Křesadlová 2007; Skalická et al. 2007; McBride 2017).

Analysis of plants which were used in the Renaissance and Mannerist period, as well as the analysis and evaluation of the current plant assortment in the garden and the evaluation of the proposed plant assortment from Kadlec and Rozhoň (1954), Ondřejová (1967) and Hora and Horová (2002) suggests a solution for the restoration of the plant assortment in the garden. A list of suitable plants was created which can be used under current conditions for the restoration of the Mannerist historical garden in Brandýs nad Labem from the Rudolfine period (Table 3). Due to the multilayered adjustments of the garden, it is necessary to remove new elements with low architectural and landscaping value and to, as far as is possible, restore the garden to its original form using contemporary plant material.

Part I, as seen in Table 3, is an orchard which is used as a public park by the town of Brandýs nad Labem and which includes a children's playground and benches. The proposed plant assortment was adapted to that purpose: it consists mainly of woody fruit species with no poisonous species. Thus, the proposal also respects the original function of the space.

Another factor which influences the choice of the plant assortment for historical gardens is the level of maintenance. According to the Florence Charter (ICOMOS 1982), the maintenance of historical gardens is a primary objective. The garden should be maintained in a suitable state and it is necessary to avoid any change to the physical environment which could disturb the ecological balance. The garden in Brandýs nad Labem is used as a public park, and both the garden and its facilities attract a high number of visitors. The environment of the garden was also changed by new buildings. For that reason, the authenticity of the garden as a whole cannot be restored, but by careful choice of the plant assortment the spirit of the original Mannerist garden can be preserved.

Part II, as seen in Table 3, is an area with terraces, designed to recall the original Mannerist garden from the Rudolfine period. Marešová and Hájek (2007) and Watkins and Wright (2007) recommend maintaining the historical garden principle with respect to the layout of individual vegetation elements and elements of small garden architecture. The proposed plant assortment for the restoration of the historical garden should therefore be suitable for the contemporary conditions while still main-

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taining a similar aesthetic value as the original plant elements. The plant assortment presented here fulfils these conditions and matches the assortment of plants which were used during the Rudolfine Mannerism period. The proposed species of trees and shrubs are shown in Table 3. The flower assortment for the flower bed is proposed with respect to the garden characteristics and consists of annuals, perennials and bulbs. The assortment of annuals and biennials includes *Alcea rosea*, *Amaranthus* sp., *Antirrhinum majus*, *Calendula officinalis*, *Campanula media*, *Carthamus tinctorius*, *Celosia argentea*, *Consolida regalis*, *Cyanus segetum*, *Dianthus caryophyllus*, *Erysimum cheirii*, *Helianthus annus*, *Iberis umbellata*, *Matthiola incana*, *Mirabilis jalapa*, *Moluccella laevis*, *Nigella damascena*, *Papaver somniferum*, *Ricinus comunis*, *Tagetes erecta*, *Tropaelum minus* and *Viola tricolor*. The proposed perennials are *Acanthus mollis*, *Achillea ptarmica*, *Aqulegia vulgaris*, *Bellis perennis*, *Helleborus nigra*, *Hesperis matronalis*, *Lychnis coronaria*, *Paeonia officinalis*, *Paeonia mascula*, *Primula veris*, *Salvia officinalis* and *Viola odorata*. The following geophytes are proposed for flower beds: *Allium ursinum, Galanthus nivalis, Iris germanica, Iris sibirica, Leucojum vernum, Anemone coronaria, Canna indica, Crocus flavus, Fritillaria meleagris, Fritillaria imperialis, Gladiolus communis, Gladiolus imbricatus, Hemerocallis fulva, Hyacinthus orientalis* and *Tulipa* ssp.

CONCLUSION

On the basis of the results described here it is possible to restore the plant assortment of Rudolfine gardens. Because of the absence of important historical materials describing the garden it was not possible to use the process of garden reconstruction nor to propose the original plant assortment. Therefore, a suitable plant assortment was created for the restoration of the garden in Brandýs nad Labem, based on a list of plants that were known to be grown in gardens during the Renaissance and Mannerist period in the Czech Republic. The list was created with respect for the current cultural and climatic conditions and by evaluating the current situation of greenery in the garden and analysing individual proposals for restoration of the greenery. The proposed plants are typical for that artistic period and underline the original character of a Mannerist garden composition.

The research has proven that it is most important to first restore the different forms of greenery, then the spatial arrangement of individual elements and then the individual species.

References

Culek M. (1995): Biogeografické členění České Republiky. Praha, Enigma.

Dobalová S. (2009): Zahrady Rudolfa II. Jejich vznik a vývoj. Praha, Ústav dějin umění AV ČR.

Dreija K. (2012): Historic gardens and parks: challenges of development in the context of relevant regulations, definitions and terminology. Science: Future of Lithuania, 4: 167–175.

Fučíková E (1989): Malířství a sochařství na dvoře Rudolfa II. v Praze. Dějiny českého výtvarného umění II/1. Od počátku do závěru baroka. Praha, Academia.

Gustavsson R., Peterson A. (2003): Authenticity in landscape conservation and management – the importance of the local context. In: Palang H., Fry C. (eds): Landscape Interfaces: Cultural Heritage in Changing Landscapes. Dordrecht, Kluwer Academic Publishers.

Hausenblasová J., Šroněk M. (1997): Urbus aurea. Prague of Emperor Rudolf II. = Praha císaře Rudolfa II. Praha, Gallery.

Hora D., Horová L. (2002): Rekonstrukce zámecké zahrady v Brandýse nad Labem, Studie zahradní úpravy. Praha, NPÚ.

Horáček P., Mencl J. (1999–2016): Dendrologie. Available at www.dendrologie.cz (accessed May 7, 2016).

ICOMOS (1981): The Florence Charter. Available at www.icomos.org (accessed Nov 4, 2013).

Kadlec, J., Rozhoň F. (1945): Úprava zámecké zahrady v Brandýse nad Labem. Praha, NPÚ.

Kosmala M. (2007): Brief Historic Outline of the Preservation and Conservation of Historic Gardens. Annals of Warsaw University of Life Sciences – SGGW. Horticulture and Landscape Architecture: 28.

Křesadlová L. (2006): Použití rostlin a zahradnická praxe v jednotlivých etapách vývoje zahradního umění na panství knížecího rodu Liechtensteinů, analýza a interpretace archivních materiálů. [Ph.D. Thesis.]. Brno, Mendel University in Brno.

Křesadlová L. (2006): Použití rostlin a zahradnická praxe v jednotlivých etapách vývoje zahradního umění na panství knížecího rodu Liechtensteinů, analýza a interpretace archivních materiálů. [Ph.D. Thesis.]. Brno, Mendel University in Brno.

Machovec J., Jakábová A. (2006): Sadovnícke kvetinárstvo. Nitra, SPU.

Marešová S., Hájek T. (2007): Obnova historických zahrad a parků v ČR. Zprávy památkové péče: 67: 64–67.

https://doi: 10.17221/77/2017-HORTSCI

McBride J. R. (2017): The World's Urban Forests. History, Composition, Design, Function and Management, Berkeley, Landscape architecture and Environmental University of California.

Neuhäuslová Z., Blažková D., Grulich V., Husová M., Chytrý M., Jelínek J., Jirásek J., Kolbek J., Kropáč Z., Ložek V., Moravec J., Prach K., Rybníček K., Rybníčková E., Sádlo J. (2001): Mapa potenciální přirozené vegetace České republiky, textová část. Praha, Academia.

Ondřejová V. (1967): Návrh rekonstrukce zámecké zahrady v Brandýse nad Labem. Praha, NPÚ.

Pacáková-Hošťálková B., Petrů J., Riedl D., Svoboda A.M. (2004): Zahrady a parky v Čechách, na Moravě a ve Slezsku. Praha, Libri.

Pánek J., Bukovinská B., Fučíková E., Muchka I.P., Bohatcová M., Antonín L., Stehlíková D., Daněk P. (2006): Rudolfínská Praha: 1576–1612. Praha, Středoevropská galerie a nakladatelství.

Pavlátová M., Ehrlich M. (2004): Zahrady a parky Jižních Čech. Říčany, Junior.

Quitt E. (1971): Klimatické oblasti Československa. Brno, Academia.

Šimek P. (2001): Hodnocení dřevin a jejich porostů pro pěstební účely v zahradní tvorbě. [Ph.D. Thesis.] Brno, Mendel University in Brno.

Šimek P. (2005): Dendrologický potenciál vybraných historických parků v České republice. Životné prostredie, 39: 156 –159.

Skalická E. (2007): Pražské historické zahrady. Praha, Útvar rozvoje hl. m. Prahy.

Skalický A. (2009): Zahrady a vily manýrismu v souvislostech. Praha, Jalna.

Turner T. (2011): European Gardens. History, Philosophy and Design. New York, Taylor & Francis Group.

UNESCO (1994): The Nara Document On Authenticity. Available at whc.unesco.org (accessed Nov 4, 2013).

Velebil J., Bulíř P., Vrabec V., Andreas M., Businský R., Tábor I. (2016): Péče o dřeviny a jejich zachování v památkách zahradního umění: certifikovaná metodika. Průhonice, VÚKOZ Průhonice.

Watkins J., Wright T. (2007): The Management and Maintenance of Historic Parks, Gardens and Landscape. London, Lincoln.

Wimmer C.A. (2001): Bäume und Sträucher in historischen Gärten, Dresden, Verlag der Kunst.

Žáček J., Vacek P. (2008): Zahrady u Pražského hradu. Praha, Havlíček Brain Team.

Zimmermann R. (1992): Iconography in German and Australian Renaissance Gardens. In: Hunt J.D. (ed.): Garden History: Issues, Approaches, Methods. Washington, Dumbarton Oaks.

Zlatník A. (1956): Nástin lesnické typologie na biocenologickém základě a rozlišení československých lesů podle skupin lesních typů. Pěstění lesů III. Praha, Státní zemědělské nakladatelství.

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