

# The Universal Garden at the Arboretum and the Department of Physiography in Bolestraszyce

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## Abstract

In the early years of the 21st century, Bolestraszyce Arboretum began to design a universal space comprising themed gardens and spaces dedicated to specific groups of visitors. Currently, the Universal Garden consists of six parts: the Sensory Garden, the 'Through Touch' Gallery, the Tyfloplanetarium, the Garden of Permanent Changes, the Calvary House, and the Museum in the Air. The central point of this arrangement is the Sensory Garden, where the idea of a garden for the blind and partially-sighted has been implemented. All the plants in the Sensory Garden have been carefully selected, and the information about them written in Braille and large print and placed on information plates. The Sensory Universal Garden makes it possible to conduct continual educational activities for disabled people, senior citizens, as well as for all people of different age groups visiting the Arboretum. The current direction of the continuing development of the garden corresponds to the latest practices used in this type of concept around the world. Thanks to this, the Sensory Garden in Bolestraszyce, with its unusual and interesting form, attracts plenty of visitors and is an attraction for a large and diverse audience. The use of a number of specific, structural and functional solutions has made it possible to create a friendly place for a wide group of users and shows off the plant collections to their very best.

Key words: universal design, sensory garden, Through Touch gallery, the blind, visually-impaired, arboretum

In the early years of the 21<sup>st</sup> century at the Arboretum, the large-scale implementation of a "universal design" began in earnest at Bolestraszyce. In this development concept, introduced by Director Narcyz Piórecki, the thematic gardens and spaces dedicated to specific visitor groups have gained new value also in tourism services. The universality of the newly-created garden spaces is designed to integrate all visitors, regardless of their interests, age or fitness. The existing plantings in this part of the garden, made by Professor Jerzy Piórecki in the 1990s, have been incorporated into this new design. Moreover, some of the existing service buildings have been adapted for new needs. For example, the historic

barn from Cieszanów, thus far used as a rain shelter, was converted into a space for lectures, exhibitions and conferences.

In accordance with Director Narcyz Piórecki's concept, the Sensory Universal Garden comprises six parts: the Sensory Garden, the 'Through Touch' Gallery, the Tyfloplanetarium, the Garden of Permanent Changes, Calvary House and the Museum in the Air. The central point of the whole is the Sensory Garden, a garden for the blind or visually impaired. (Fig. 1).



Fig. 1. The Universal Garden — a bird's eye view, 2015. Photo M. Horwat.

#### THE SENSORY GARDEN

The Sensory Garden was opened in 2007 thanks to funding from the National Fund for Environmental Protection and Water Management in Warsaw, the Regional Fund for Environmental Protection and Water Management in Rzeszów, the Sejmik of the Subcarpathian Voivodeship and the Arboretum's own funds. The newly-formed setup acts as a 'pupil', concentrating all of the surrounding garden space into a mini scale. It connects directly with several educational trails: the "Coniferous Trees" dendrological trail (2009), the "Plants and animals of aquatic environments" nature trail, where the "ZigZag footbridge" (2004) over the "Middle Pond" (2004) lets visitors observe the plants on the banks, or rooted in the water or free-floating. The Sensory Garden is also near the wetland and close to the Museum in the Air (the first building was put up in 1999), the Calvary House (2011) and the canteen (1990s). (Fig. 2).



Fig. 2. A bird's eye view of the Sensory Garden, the "Zigzag" footbridge, the wetland, the Museum in the Air and the canteen, 2020. Photo Ł. Malicki.

Jerzy Piórecki, founder of the Arboretum, began adapting this site for the needs of the Arboretum in the mid-1990s and, since 2002, the current director, Narcyz Piórecki, author of the Sensory Garden, has continued this work.

The central part was designed by the on-site landscape architect, Piotr Szkołut PhD Eng. This project was his masters' thesis, supervised by Professor Janusz Janecki and defended at the Faculty of Landscape Architecture of the Catholic University of Lublin. (Fig. 3).



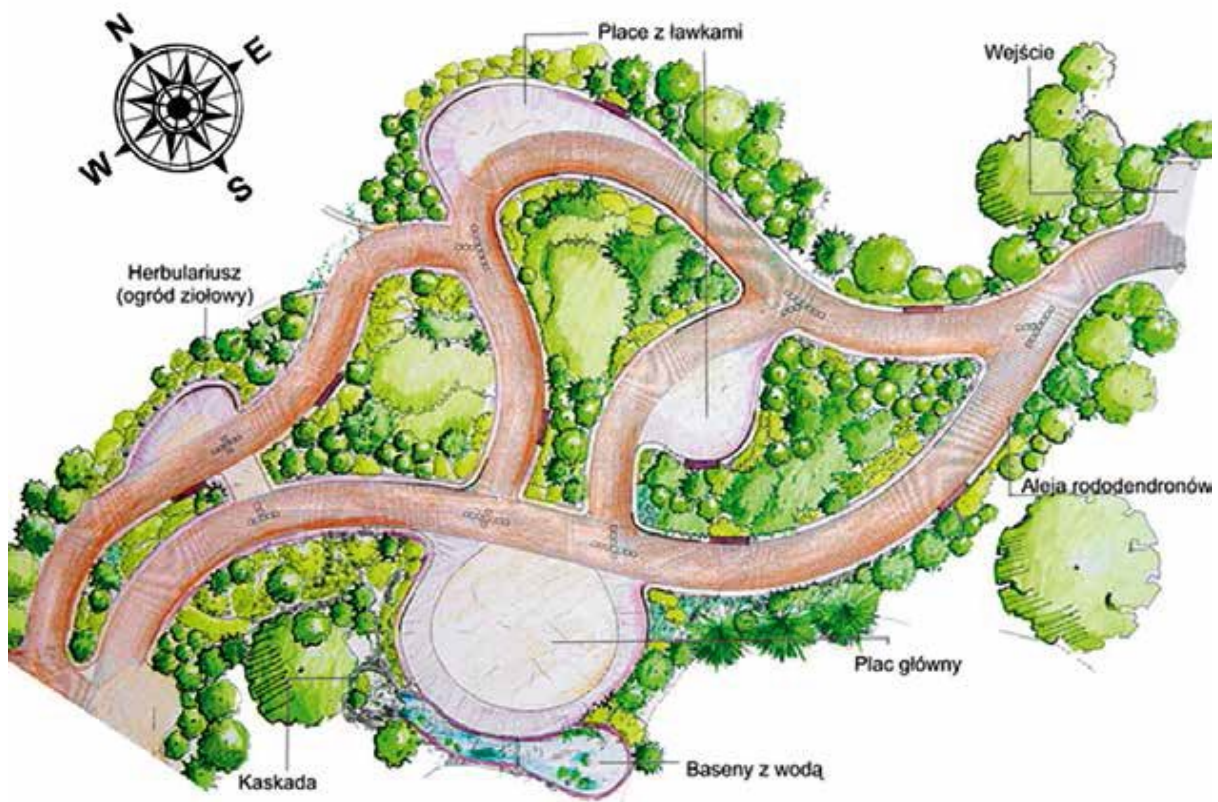


Fig. 3. Project design of the garden. Drawing P. Szkołut.

The garden visit begins in the ticket office by the main gate where one can borrow printed **Braille guidebooks** and audio guidebook discs for the handicapped. In addition, the Arboretum website has text and MP3 audio files with information about the plants growing in the Sensory Garden.

There are **notice boards** by the entrance to the Sensory Garden showing a general map of the Arboretum and a map of the Garden. (Fig. 4). These maps make it easier for visitors to find their way around, showing six tour routes and helping to find specific plants and the shortest route to them. The notice boards display the information both visually and for reading by touch.



Fig. 4. The Sensory Garden — a bird's eye view, 2018. Photo M. Giżycki, 2017. Photo N. Piórecki.

The design works included detailed analysis of the future plans for the garden; above all the exceptionally important **choice of materials and plants**. The goal was to ensure that the plants were well-known, widely available and long-lasting. The plants were selected to work in a variety of ways and to give the full range of tactile, scented and auditory experiences. The plants directly add to the plethora of different sounds that can be heard in the garden. The plants are a habitat for fauna: for birds who can find shelter and food and for pollinating insects. (Piórecki & Lib 2010). The flowerbeds alongside the path are planted with deciduous and evergreen trees and shrubs, both creeping and dwarf varieties. The wider, inner part of the flowerbeds are planted with low growing, ground-cover perennials. The plants were chosen to look as different from each other as possible. One can marvel at the interesting textures of the plants and the shapes of their stems, leaves and fruits, as well as at their bright colours and the intensive or distinctive scents of their flowers. Above all, it is the flowers, with their extravagant colours and scents, that make the garden so attractive. These include the butterfly bush *Buddleja davidii* Franch., hydrangeas, *Hydrangea macrophylla* (Thunb. Ex Murray) Ser., and vibernums. The spiky branches of the balsamic fir *Abies balsamea* (L.) Mill., or the conical variant of the white spruce *Picea glauca* 'Conica' give off the distinctive scent of essential oils. A multitude of scents float up from the flowerbeds full of different herbs. Here we find common basil *Ocimum basilicum* L., garden lovage *Levisticum officinale* W.D.J. Koch, wild thyme *Thymus serpyllum* L., wild mint *Mentha arvensis* L., peppermint *Mentha x piperita* L., horse mint *Mentha longifolia* (L.) L. and garden thyme *Thymus vulgaris* L. The corkscrew hazel *Corylus avellana* 'Contorta' has arresting twisted stems which are easy to feel. Equally interesting to touch is the lamb's ear *Stachys byzantine* K. Koch with its soft, fat leaves covered with a white, wool-like fur. One can feel



the spiky stems of the berberis and the prickly leaves of the stemless carline thistle *Carlina acaulis* L. (Piórecki & Goraś 2008).

Due to the variety of soils required it was imperative to prepare the ground for each group of plants. For example, the soil was completely changed for the wetland plants. In addition to the heathers and heaths, we also find here wild rosemary *Ledum palustre* L., crowberry *Empetrum nigrum* L. and yellow azalea *Rhododendron luteum* Sweet. The garden also has species of plants which are partially or wholly protected species such as: common yew *Taxus baccata* L., stemless carline thistle *Carlina acaulis* L., trumpet gentian *Gentiana clusii* E.P. Perrier et Sonjeon, rose daphne *Daphne cneorum* L., mezeureum *Daphne mezereum* L., and ferns, such as the ostrich fern *Matteuccia struthiopteris* (L.) Tod.

**In the central part of the Sensory Garden** plants have been put in specially prepared, raised beds. This gives the blind and those in wheelchairs, as well as children, easy access to the plants. The flowerbeds, held behind retaining walls, are of different heights which gives the impression of a varied topography. These walls, which run along the paths, are wavy, creating delicate spiral lines, reflecting forms familiar to us from nature. Thanks to wooden planks, they also serve as benches. This creates an attractive space which appeals to all visitors to the Arboretum. (Fig. 5).



Fig 5. The Sensory Garden — raised beds with information plaques in Braille, 2007. Photo Arboretum Bolestraszyce.

Each plant growing in the Universal Sensory Garden has a description on a **plaque**. These descriptions are both in Braille and in large print for the benefit of elderly or blind visitors. In order to make the text easy to read, the plaques were set at an angle of 45° and at a height





experience the aquatic environment by dipping one's hand in the water. You can hear the humming of the small waterfall. The sound of running water is an additional point of orientation in the space for blind visitors (Kuryłowicz 1996).

An interesting idea used here is a section of path crossed by runnels which allow the water from the pools to run down into the Large Pond nearby before going back again. In 2008 a stone art installation was created here by Professor Marek Sak (Fig. 8).

The path round the Sensory Garden is clear and of a suitable width to allow visitors to move around comfortably and without colliding, including for wheelchair users (Szkofut 2004). In places where there are little alcoves, two wheelchairs can pass each other. The material used to build the path is distinctive both for its texture and its colour. The mosaic layout shows the visitor route and where the crossroads are. A crossroad is identified by arrows made of granite sets, surrounded by pieces of brickwork. The bricks used here are smooth and red, showing the main paths (Fig. 10). The spotted grey granite sets were laid in circles to show the start and finish of the garden, and in places for pausing and resting, as well as in the alcoves — next to plants of particular interest. The different textures of the path surfaces, as well as the use of different colours, helps people with poor vision get around the Sensory Garden. The middle of the garden is dominated by a large, central space, designed for guides and their groups, educational classes, workshops and summer concerts.

In order to ensure safety, all obstacles at height have been removed, such as branches hanging down from old trees.



Fig. 7. The Sensory Garden — a view of the raised water pools, 2009. Photo N.Piórecki.

## THE 'THROUGH TOUCH' GALLERY



The 'Through Touch' Gallery has been in the Sensory Garden since 2008 (Fig. 9). This is an outdoor exhibition of sculptures created specifically for perceiving through touch (Piórecki & Zarzycki 2010). Anyone can engage with the artworks, familiarising themselves with the different shapes, textures and materials they are made from. The Gallery exhibits include the following sculptures: wicker ones made during the International Artistic Wicker Open Air festivals at the Arboretum, as well as ceramic, wooden and stone sculptures, made by artists from Poland and abroad participating in the great variety of events organised at the Arboretum. The Gallery's collection is continually growing. The works of many artists can be found here, for example, by Alicja Kupiec, Daniel Ludwiczuk, Marek Sak, Piotr Szwiec, Gennadij Titowai and students of the Art Faculty off the UMCS workshop of Sculpture and Ceramics of Professor Adam Myjak.

### THE TYFLOPLANETARIUM

An extension of the idea of the Sensory Universal Garden is the Tyfloplanetarium built in 2014 — a tactile planetarium. The Tyfloplanetarium is shaped like a bell. Visitors go underneath the bell to find a tactile map of the heavens on the inside of the bell. They experience a new perspective of space and how it feels to have "the heavens at their fingertips". Thanks to its safe and easily adjustable height the Tyfloplanetarium can be visited by any and all visitors regardless of their age, height, or visual impairment.

The Tyfloplanetarium is located next to the avenue which encircles the Sensory Universal Garden and close to the dendrological trail and playground.

This project was made possible by cooperation between the Vihorlatská hviezdáreň Observatory in Humenné, Slovakia, as part of a joint Polish-Slovak microproject entitled Rhythms of nature. Innovative natural history tourism products at Bolestraszyce Arboretum — the construction of an astronomical tyfloplanetarium observatory at the Arboretum. The project was co-financed by the European Union from the European Fund for Regional Development and the Polish state budget, through the Carpathian Euroregion as part of the Programme of Cross-border cooperation between the Republic of Poland and the Republic of Slovakia 2007-2013.

### THE GARDEN OF PERMANENT CHANGES

The next, important element of the Universal Garden is the Garden of Permanent Changes (Fig. 11). This garden includes the rock garden and the collections of protected and xerothermic plants as well as grasses and irises. The plot and initial plantings were prepared at the end of the 1990s by Dr. Jerzy Piórecki, a Professor at Rzeszów University. The creation of the rock garden was a great challenge because, in spite of the varied landscape of the Arboretum, until then there had been no structures made out of stone blocks and large stones on the slope or at the foot of the slope. The location was decided and prepared while work on the Sensory Garden was underway. At the same time, a network of internal paths was established linking to the surroundings. The inspiration for the ultimate design of the

rock garden was a work of art; an installation entitled 'Garden' by Marek Sak made during the *Festival of Gardens*. The garden was only completed once the post- ice age boulders, left over from the motorway build, had arrived. Director Narcyz Piórecki's concept envisaged two parts to the rock garden (upper and lower), separated by an avenue of granite sets. The composition of the boulders was developed and executed by Marek Sak. The signs and polishings on the stones give the composition and element of mystery.

The Garden of Permanent Changes by definition **is meant to undergo continual changes**, which happen in stages; to the upper part one year, the lower part, the next year. A collection of xerothermic plants has been planted in this stony setting. Looking at the artistic/environmental composition allows one to notice the changes and the interaction between the plants and the boulders over the changing seasons. One gets the impression that the boulders have grown when the plants stop vegetating and then have shrunk when the plants are fully developed.

Following the line of the axis of the rock garden and next to the xerothermic plant collection is the collection of protected plants. Opposite this, a collection of grasses has been established (Fig. 12). Also here is a collection of irises, registered as the National Collection of *Iris Laevigata*.



Fig. 8. The Sensory Garden — a view of the pools and the water flowing through the runnels to the pond, as well as M. Sak's art installation. Top: view from the west, 2012. Photo N. Piórecki. Bottom: view from the south, 2020. Photo Ł. Malicki.

The composition of unknown or not very popular plants lets the visitor observe them directly and to touch them. In addition to their educational role, the plants act as a screen, closing the space and creating a natural barrier that divides the road from the unsafe banks of the



pond. The grasses and shoreline plants along the bank (modified in the early 2000s), are exceptionally picturesque, particularly when they are reflected in the water.

The next part of the Sensory Universal Garden is the Calvary House; an original, 100-year old, listed, wooden building, brought from Kalwaria Paławska in 2011. It was renovated and opened in 2018. The building references the 20<sup>th</sup>-century traditional houses found in the Przemyśl Lands. The roof is covered in tin and has a single room with a low-tech finish made from materials collected from wind damage and tree surgery in the Arboretum. Next to the building is an information plaque in Braille. The Calvary House is currently used as the Multimedia Gallery and as a lecture hall, exhibition space and conference room. In the future, there are plans to extend the building by rebuilding the kitchen/utility part.



Fig. 9. The Sensory Garden, the 'Through Touch' Gallery, 'Bird' a sculpture by M. Sak, 2010, photo Arboretum Bolestraszyce.



Fig. 10. The Sensory Garden – the system of paths with its grey granite sets and red bricks, 2020. Photo N. Piórecki.

Ethno-inspiration and education are the primary motives behind the development of the wide-ranging project of the Calvary House. Educational show-gardens were established nearby. The first was a collection of utility plants established in 2004; plants whose uses were once widely known, but where that knowledge is fast disappearing. In 2007, thanks to cooperation with Dr. Łukasz Łuczaj, a professor at Rzeszów University, a collection of wild, edible plants was established with the plant descriptions adapted for blind and partially-sighted visitors (Fig. 13). In the following years, plants once used to dye materials were planted; dye plants and spice plants. (The collection is supervised by Ewa Antoniewska).

The **area around the Calvary House** harks back to the traditional cottage gardens of the Subcarpathian region (Fig. 14). This is a throw-back to a landscape filled with kitchen garden plants, as well as giving a picture of the lives and work of village dwellers. The first traditional kitchen garden was designed by Dr. Beata Gawryszewska and Dr. Izabela Myszka-Stąpór from the Faculty of Landscape Architecture of Warsaw University of Life Sciences as part of the Festival of Gardens in 2012. Since then, every year, in line with the way it works in villages and in tune with the needs of the plants and the changing seasons, visitors can see the changes taking place. The cyclical *Traditional Fears* competition for children and youth is also organised here.





Fig. 11. The Garden of Permanent Changes, M. Sak, 2015. Photo N. Piórecki.



Fig. 12. The grass collection along the shore of the pond, 2020. Photo N. Piórecki.

#### THE MUSEUM IN THE AIR

This part of the Sensory Universal Garden also has one of the exhibition halls and shelters — **the Museum in the Air** — where dendrological exhibits are displayed (Fig. 15). Director Professor Jerzy Piórecki established the collection and this idea has been continued and developed by the current director, Narcyz Piórecki, who has expanded the collection with new museum exhibits and new exhibition spaces. The exhibits from the dendrological collection are housed in shelters built in different parts of the Arboretum which protect them from bad weather. The collection is comprised of cross-cuts, fragments or entire trunks of trees and shrubs which, for a variety of reasons, had ‘died’, gathered from the Subcarpathian region or the Arboretum itself. For example, this happened with a black oak *Quercus* whose trunk was rescued from an oxbow lake on the River San. Of particular interest are the recovered fragments of non-native species of tree, planted in the 19<sup>th</sup> century in manor house parks; for example, a cross-section of the American tulip tree

*Liriodendron tulipifera* from the former Drużbacki Park in Prałkowice, or the trunk of a black poplar *Populus nigra* from the Lubomirski park at Bakończyce.

A critically important element of any universal garden is the children's playground. That is why, as part of the 2009 plans, a safe and pleasant space was set aside here for families with the youngest children to find rest and recreation.

#### THE USE AND PERSPECTIVES OF THE UNIVERSAL GARDEN

The Sensory Universal Garden is the Arboretum's calling card. It is located in the smartest part of the Arboretum, by the main entrance. It contains and presents a large variety of utilitarian forms and a broad range of different elements from many collections.



Fig. 13. The collection of wild edible plants, 2018. Photo N. Piórecki.



Fig. 14. The Calvary House, 2020. Photo N. Piórecki.





Fig. 15. The Museum in the Air, 2020. Photo N. Piórecki.

The Universal Garden means we can run regular educational classes for the handicapped and pensioners, as well as for people from different age groups visiting the Arboretum. People with sight loss are looked after by qualified guides — tyflogists. The opening of the Sensory Universal Garden meant that we can increasingly host visitors from special needs schools, from therapy workshops, from the Polish Association for People with Mental Disabilities, from the Polish Institute for the Blind and from Polish welfare homes.

The programmatic and spatial concept initiated a dozen years ago is continually evolving and is systematically developed and implemented in the different areas and themes delivered in the Arboretum. Similarly, the very idea of creating disabled-friendly facilities has matured and consolidated in the universal design method, i.e. designing space for everyone and not creating a specialized space (Wysocki 2009). Apart from the appropriate notion of the space itself, the issues related to public transport or access to information are also of equal importance when building universal space. In the case of the Arboretum, the multi-sensory provision of information about the entire park and its collections has been implemented effectively from the very beginning. It remains a challenge to open up the entire Arboretum area physically, mainly due to its topography. Contemporary theory on universal design focuses not only on users of space with disabilities, but also on the elderly, children, and people with temporarily limited abilities (Kowalski 2013). Such a wide range of users with different predispositions and expectations is a real challenge for shaping contemporary public spaces, in particular for open park spaces.

It is clearly visible that from the very outset when setting the assumptions and developing concepts, the programme and form of the Bolestraszyce Sensory Garden perfectly matched the contemporary trends and, in many cases, was ahead of them. The current direction of the systematic development of the garden also corresponds to latest practices around the world. As a result, the Sensory Garden in Bolestraszyce, with its unusual and attractive form, attracts crowds of visitors. The use of a number of specific design and functional solutions made it possible to create a place friendly to a wide group of users and allowed for good

display of the collections (Piórecki and Szkołut 2008). The garden continues to be an exemplary facility and is an inspiration for similar facilities under construction all over the country. Drawing on the experience gained in Bolestraszyce, similar facilities are currently being built at the Arboretum at the Ecological Education Centre in Janów Lubelski and at the Forest Culture Centre in Gołuchów. Despite some programme similarities, each will have its own unique features. Getting to know plants is particularly difficult for people with disabilities, therefore only a properly arranged exhibition of a botanical garden or an arboretum can provide the opportunity. The Sensory Universal Garden appears to be an example of the right way to create an open and friendly garden for all. Currently, a multimedia application is being developed which will enable visitors to get audio information on their mobile phones.

In 2020, the Sensory Universal Garden received an award from the jury of the LODOŁAMACZE 2020 Competition of the Lublin, Lesser Poland, Subcarpathian and Świętokrzyskie regions as well as from the jury of the National Competition. It also took first place in the Friendly Space category for adapting universal design and for the use of the best urban and architectural solutions in adapting buildings and spaces to the needs of people with disabilities.

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