

UDK 712.413: 628.13: 712.253

## **BIOLOGICAL PECULIARITIES OF LANDSCAPE DESIGN IN COTTAGE GARDENS OF THE RIGHT-BANK PART OF ZAPORIZHZYA**

*O.V. Kobets*, Candidate of Agricultural Science (Ph.D.), Department of landscape gardening,

<https://orcid.org/0000-0003-4520-507X>

*N.P. Derevianko*, Candidate of Agricultural Science (Ph.D.), Associate Professor, Head of the Department of landscape gardening, <https://orcid.org/0000-0002-7255-493X>

*N. V. Derevyanko*, Candidate of Pedagogy, Associate Professor, Head of the Department of Design,

<https://orcid.org/0000-0003-1172-3282>

*S.V. Davydova*, Ph.D. (Pedagogy), Dean of the Faculty of Art and Design, Associate Professor of the Department of Design

[https:// orcid.org/0000-0001-7746-9219](https://orcid.org/0000-0001-7746-9219)

*O. Y. Zalevska*, Candida of Study of Art, Associate Professor at the Department of Design

<https:// orcid.org/0000-0002-5728-1195>

*Khortytsia National Educational and Rehabilitation Academy, Zaporizhzhia, Ukraine*

**Abstract.** The choice of architectural planning, selection of plants, small architectural forms, materials, decor and other elements of landscaping has a certain dependence on the region of the site, landscaping which is designed. Therefore, identifying certain features of the design of gardens in a particular region can be useful for landscape designers who will work in a given geographical location. The article is devoted to the analysis of design solutions developed for the design of 5 cottage gardens on the right bank of Zaporozhye. The study was conducted using the method of comparative analysis of master plans for landscaping and landscaping of selected cottages.

It is established that all surveyed areas have a flat relief, which eliminates the need for vertical planning. Regularity prevails in the architectural planning of gardens. The planning of the surveyed estates has two directions – decorative and decorative-utilitarian. Features of the decorative direction are the variety of ornamental vegetation, the presence of ponds, exquisite flower beds, the use of various garden equipment and decor. For gardens of decorative and utilitarian orientation is characterized by the presence of farm buildings, gardens, fruit and berry plantations, which are formed taking into account the decorative and nutritional qualities. The common features of all surveyed cottage gardens can be considered the emphasized design style, restraint and conciseness in planning and economy due to the successful selection of unpretentious plants and equipment. Landscape designers of the region can be asked at the first stage of planning to do functional zoning of the garden; the range of vegetation to select from local species and well-adapted exotics of small size; from flower beds to choose the easiest to create and care for; reservoirs, vertical and container landscaping are limited.

**Keywords:** *Cottage garden, landscape design, landscaping and improvement, private plot, site plan; functional zones of territory.*

**Introduction.** Cottage garden style is one of the youngest styles of landscape design, which originated at the end of the last century in England, but is not synonymous or a symbol of English landscape design in general, but rather one of its bright and interesting trends. This «young» direction of garden art sometimes seems not quite definite and certain. Although, it is the cottage gardens – are one of the simplest in structure, principle of organization, landscaping and more.

Cottage style garden design – a direction that has its origins, is based and «starts» from architecture, not from fine arts and aesthetics (Helmreich, Anne (2002)). This is a very practical and task-specific style, which can certainly be called highly specialized. If English, French,

Scandinavian, Mediterranean, gardens in the style of «high-tech» or «modern» designers break to your liking, sometimes not tied to buildings and structures on the site, or by some means to compensate for the lack of interesting architectural elements, cottage style is used exclusively for landscaping around cottages (Tilley, Christopher (2008).

The cottage garden is a grand and modernized landscape style with an impeccable look of modest but carefully thought-out plantings that look attractive, regardless of the season and the purpose of the plants. In fact, the cottage style is a modern rethinking and idealized version of the garden with a garden near a small house. In such a garden, modern neatness is given even to the beds, relying on practicality and aesthetics (15 cottage garden design ideas).

Most often, the cottage style is confused with the western style of «country» or «country garden». Unlike these typically landscaped gardens, which rely on simplicity, variety of details and pastoralism, cottage style is much more modern and bright. It is based on visibility and brightness, creates the illusion of perfection and perfection, does not like carelessness and blur in the design, especially flowering compositions (Buchan, Ursula (2017).

Originating at the intersection of classic landscape and modern design, the cottage style has absorbed the brightest solutions that allow you to create gardens «as in the picture».

Currently in Ukraine, landscape design of private cottage areas is a popular direction of garden and park art. The variety of directions and styles of garden design provide endless opportunities for modern specialists in the field of landscaping and landscaping in choosing a design option for a private garden. The choice of architectural planning, selection of plants, use of small architectural forms, gardening equipment, materials for construction, paving, decor in addition to the wishes of the customer, has a certain dependence on the region location of the design site, socio-economic level of development, national traditions (Davoren, E., et al. (2016), Rahmi, A.L., Gunawan, A. (2020), Jansen van Vuuren, M., et al., (2020), Dehghanpour Hanzaei, M., Pourahmadi Laleh, V., (2021), Hage, Ingebjorg., (2011), Ivashko, Y., et al (2021). Therefore, the definition of certain characteristics of the design of gardens in a particular region can be useful for landscape designers who will work in this geographical area and can serve as guidelines for the development of landscaping projects and landscaping of cottages in this region.

The aim of the work is to study, analyze and determine the characteristics of planning, landscaping and landscaping, highlighting common and distinctive features of 5 private cottage gardens, located in the right bank of Zaporozhye according to master plans for landscaping and landscaping and recommendations for the use of certain landscape elements and specifics of planning during the development of projects for the creation or reconstruction of private cottages in the region.

The objects of the research are homestead cottage plots, for which landscaping and improvement projects have been developed on the basis of a preliminary survey.

The subjects of the study are the features of the planning decision of the territory of the sites and the used elements of landscape design.

The organization of the territory of cottage gardens is simple: one common open space, surrounded by lush frames and «diluted» with an ornamental garden.

There are only three mandatory elements in the cottage style (Davoren, E., et al. (2016):

Free (or flat) area is an open space in the central part of the garden, which is traditionally filled only with lawn. Large lawns that give a feeling of elegance and freedom – the basis of the garden, its main element, which emphasizes and beats the environment.

Mixborders, landscape flower beds and individual «islands» of plants. Plants surround the house and the entrance to the site, as if creating a friendly bright picture for an unforgettable first impression. A flowering lawn frame does not have to be linear or with a smooth edge. It can beautifully «creep» on the lawn, varying in width.

Herbaceous perennials in mixborders, perimeter of the lawn and plantings around the house should create a feeling of lush flowering from early spring to autumn. Perennials with basket inflorescences are especially beautiful in the cottage style, but you can combine the

incompatible, mix plants on the principle of deep contrasts, look for new solutions in size, shape, color of inflorescences. Both ancient and classic types of plants look good in the cottage style. Plants combine with each other in color, character, height, degree of decorativeness in different seasons, creating lush, dense, «solid» and non-boring ensembles. cereals, yarrow, garden geraniums, sage, lavender, peonies, foxglove, dolphin, heleniums and other classic perennials (Cho, Hye-Ryeong (2017)).

An ornamental garden and a cottage-style orchard are also a must. Fruit trees are most often planted in a mixborder or used as solitary ornamental plants, but sometimes planted in a strict «checkerboard pattern» in one corner of the site in combination with flower beds.

The main requirement for crops used in the cottage style – or maximum usefulness, or maximum brightness and expressiveness. It is easy to choose «favorites» among the trees: in the cottage garden they are used «artificially», singly, placing high focal points. Usually in this style are limited to fruit or useful trees – apple trees, plums, pears, hazelnuts, using them as fruit-bearing and as decorative elements that provide shade in the summer heat. If the plot has an area for a large family tree, it is best to prefer walnuts.

Of the flowering shrubs, the ideal option for a cottage garden is the classic range of the best, time-tested and unpretentious lilacs, garden jasmine, viburnum, ornamental currants, roses and rose hips, hydrangeas and hawthorn (Helmreich, Anne (2002)). In combination with berry bushes, this «golden classic» acquires a completely different, completely new sound.

The cottage-style seating area is traditionally patio and adjacent to the house, but there are also corners in the garden for socializing. A traditional gazebo, or a gravel or bark area with comfortable furniture allows you to enjoy the thoughtful design of the cottage garden. Swings, benches and deck chairs can be placed even on the lawn.

Cottage style of landscape design, as well as small buildings, cottage buildings and typical architecture are distinguished by a kind of «stamped» or artificial. Simplicity of design often turns into a very unpleasant consequence – the loss of emotionality and individuality. This problem can be solved either by carefully choosing the color concept and plants, or by making personal decisions and accessories that will reveal the taste and character of the owners of the site. The easiest way is to add a few elements of a different style to the cottage garden [Tilley, Christopher (2008), Leontiak G. P., et al. (2020), Hanson, H.I., et al. (2021)].

Individual touches for cottage design can be added at any time. This is a very mobile style that can be constantly transformed by changing the created base at will. Using different summer colors or changing the color palette of one-year accents is one of the options that always allows you to bring a sense of novelty with minimal effort. [Helmreich, Anne (2002), Hanson, H.I., Eckberg, E., Widenberg, M., Alkan Olsson, J.(2021)].

Having read the publications of Ukrainian specialists in landscaping and landscaping in recent years [Doroshenko V.S., Osipov M.Yu. (2018), Panasenko O.M., Velichko Yu.A.(2018), Sadovy O.V., Rogovsky S.V. (2020), Fedorenko M.O., Velichko Yu. A. (2018), Shklyar O.V., Varlashchenko L.G. (2018), we can conclude that the above landscape elements, typical of purely English gardens, successfully find their place in the design of private cottage gardens and in Ukraine. A similar trend is observed in Eastern Europe (L. Khoroshkov, N. Derevianko, (2021)).

### **Materials and methods.**

At present, many methods of assessing garden landscapes, their vegetation, architectural specifics have been developed (Feng, L., Zhao, J. (2021), Shan, P., Sun, W., (2021), Liu, C., (2021)).

To compile a comparative description of the cottage gardens under study, an assessment of the landscape-spatial construction of the site, functional zoning, species and varietal composition of vegetation, the range of garden equipment, the presence of certain structural elements of the landscape and more. In total, the analysis was conducted on 15 indicators: plot size, area, site configuration, terrain, landscape-spatial planning, functional zoning, compositional use of trees, compositional use of shrubs, types of flower beds, water structures,



(*Berberis thunbergii* DC.) Variety «Bagatelle», Japanese henomeles (*Chaenomeles japonica* (Thunb.) Lindl. Ex Spach), tavalicapo. foxglove (*Dasiphora tenuifolia* (Willd. ex Schltld.) Y.C. Zhu), etc. The range of shrubs is selected with the expectation of continuous flowering and decorative during the season (Rahmi, A.L., Gunawan, A. (2020).

Cottage Garden №2 at st. Academician Vesnina, b. 24. The territory is rectangular, has an area of 1000.00 m<sup>2</sup>. Entrance to the site – from the asphalt road. The square-shaped residential building is located with a slight shift from the center of the site to the southeast. This garden combines the features of the classic regular (geometric) style with the free planning of the English (landscape) style of garden creation.

To improve the aeration, noise, wind regime of the territory, protective greenery is provided on the side of the roadway, namely the hedge of *Canadian spruce* «*Conica*» along the outer fence. In the left corner of the site there will be a seating area with benches in the comfort of wallpaper with *twisted roses* «*Albertine*». In front of the benches, the project proposes to divide the flower garden in the form of a segment of a circle with the design of hybrid roses «*Mayflower*» and garden carnation (*Dianthus caryophyllus* L.). The area in front of the house is proposed to be paved. The car park to the left of the house can be separated from the rest of the garden by two Japanese cherries (*Prunus serrulata* Lindl.), Which bloom profusely in spring.

Located in the south-eastern corner of the plot, it is proposed to decorate the border with juniper «*Daub's Frosted*» (*Juniperus* × *media* V.D. Dmitriev) and willow Matsudana (*Salix matsudana* Koidz.). The entrance to this building will be decorated with a tree hydrangea bush «*Annabelle*» (*Hydrangea arborescens* L.). The summer kitchen with a mixed orchard will be connected by a step-by-step path under the treetops of apple trees, pears (*Pyrus communis* L.), apricots of the common variety «*Pineapple*» (*Prunus armeniaca* L.). The orchard will grow seven apple trees, three cherry trees (*Prunus cerasus* L.), and fruit shrubs: black currant (*Ribes nigrum* L.), blackberry (*Rubus nessensis* Hall), raspberry (*Rubus idaeus* L.). Next to the orchard will be a decorative vegetable garden. To the right of the garden, the project proposes to arrange another recreation area in the shade of a pergola wrapped in *Campsis grandiflora* (Thunb.) K.Schum. Decorative and cozy corner will provide a beautiful flowering shrub group, which will consist of Japanese henomeles (*Chaenomeles japonica* (Thunb.) Lindl. Ex Spach), Japanese tavalga «*Shirobana*» (*Spiraea japonica* L.f.), Weigela flowering «*Pink Poppe*» (*Pink Poppe*). A. DC.), Thunberg's barberry «*Bagatelle*», viburnum (*Viburnum opulus* L.), almond (*Prunus triloba* Lindl.). Of the coniferous shrubs, it is proposed to plant several specimens of juniper (*Juniperus virginiana* L.), Chinese juniper (*Juniperus chinensis* L.), juniper. Around the bench under the home apple tree plant Weigel flowering «*Pink Poppet*», cypress pea «*Blue blue*» (*Chamaecyparis pisifera* (Siebold & Zucc.) Endl.). Set up a playground with swings, bench and sandbox. Around the bench will look interesting cypress nut «*Baby blue*» in a garden vase. The surface of the playground will be decorated with a terrace board. To the left, along the fence, the project proposes to plant virgin juniper in a semicircle and install a bench for relaxation. Opposite you can break a triangular rosary with a park rose, surrounded by a ribbon of *Japanese tavalga* «*Shirobana*».

Cottage Garden №3 at st. Academician Vesnina, b. 26. The area of the next cottage garden, located next to the above, has a rectangular shape, garden size 30x40 m, total area – 1200 m<sup>2</sup>. The house is located almost in the center of the yard, the distance from the entrance to the main entrance to the house – 10 m. This garden is also a model of combination of regularity and geometry in a rigid landscape with free landscape planning of decorative landscape elements – lawns, picturesque deciduous shrubs and conifers, mixborders, rockery.

Architectural and planning solution proposes to divide the garden into several functional zones: 2 front decorative zones – in front of the facade of the house and behind it, recreation area with canopy and barbecue, utility area with aviary, orchard and garden, free space occupied by lawn, designed for games and relaxation.

The central path leading to the house acts as an axis of symmetry, dividing the palisade part of the site into two levels in half area and will be decorated with an alley planting of the

western thuja «Danica» (*Thuja occidentalis* L.).

Two garden jasmine bushes (*Philadelphus coronarius* L.) on both sides of the path at the entrance to the house, two symmetrically located pergolas with twisted roses with twisted roses «Golden Gate» emphasize the regularity of the entrance and create a sense of solemnity and sophistication. The idea of the French style of garden design can be traced in the design of the garden behind the house: two symmetrical geometric flower beds, which grow bulbous flowers in spring and bright annuals in summer and autumn - a classic of the genre, as well as a central rectangular rosary lavender narrow-leaved variety «Steppe» (*Lavandula angustifolia*). Another corner of grandeur and chic – a recreation area under the canopy.

The car park is elegantly disguised from the main track with a trellis of Pierre de Ronsard roses. On the left edge it is surrounded by a dense green wall of biota eastern «Aurea nana» (*Platycladus orientalis* (L.) Franco). Even more decorative to this area in front of the house gives a spacious rockery of low conifers: spruce «Nidiformis», juniper medium «Old Gold», juniper scaly «Blue carpet» (*Juniperus squamata* Buch.-Ham. Ex D.Don), juniper horizontal Andorra compacta (*Juniperus horizontalis* Moench), Western Globosa and beautiful flowering ground cover: Scarlet Flame, Zwergenteppich, Bavaria (*Phlox subulata* L.), Creeping Red creeping thyme, Creeping Red deltoids «Alix Brett», «Doctor Mules», «Gurgedyke» (*Aubrieta deltoidea* (L.) DC). The rockery is built of travertine and strewn with crumbs of sand, reddish and gray.

You can walk from the parking lot to the house on a step-by-step path that wraps around the rockery.

To create a cozy atmosphere, the project proposes to decorate the side borders of the garden with mixborders of beautiful and coniferous trees and shrubs and perennial flowers (left), as well as ordinary planting of western western «Smaragd», which is interrupted by tapeworm (*viburnum*).

The spacious recreation area is located in the northern part of the site, is a paved area covered with polycarbonate canopy. The fountain on the left, framed by the fragrant *Hosta sieboldiana* (Hook. Hook.) Engl., Will create an atmosphere of peace, relaxation and comfort for guests.

The commitment of the owners of the garden to shade-tolerant plants, and the host in particular, can be traced in the design of the flower garden near the house, on the east side. A rich assortment of all kinds of hosts, eagles, hydrangeas, peonies have found their place here.

From the decorative area with lawn and mixborders to the left of the house the garden is separated by a wallpaper with twisted roses «Orange Meillandina».

The open lawns in this garden provide a lot of space, almost 40% of the total land area, which makes the garden spacious, and its division with a ribbon of evergreen boxwood (*Buxus sempervirens* L.) and single fruit trees gives the landscape volume and dynamics.

Cottage Garden №4 at st. Silska, b. 21. The plot has a rectangular shape, its area is 600 m<sup>2</sup>, the size of the plot is 30x20 m, oriented from east to west. The plot is small, almost half of it is occupied by a residential building with a parking space, so there is little space left for the garden. The wishes of the customers were the obligatory presence of a garden, fruit plants, spicy herbs, a limited number of unpretentious ornamental plants. A feature of the site is the lack of sewerage, which necessitated the construction of a well for wastewater. To do this, during the design of the house was left a strip of land between the outer fence and the house. To mask the well, the project proposes to plant Japanese cherry (*Prunus serrulata* Lindl.), Cossack juniper (*Juniperus sabina* L.), viburnum and hanging birch, which are also phytoncide plants. The curb edging of Siebold's hosts will give this group a graceful edging. The outer fence, made of metal sheets, will be decorated with Irish ivy (*Hedera hibernica* (G. Kirchn.) Carrière). Other fragments of the fence are proposed to be decorated with maiden grapes (*Parthenocissus quinquefolia* (L.) Planch.).

The rectangular area to the left of the house will be decorated with ordinary planting of lilac (*Syringa vulgaris* L.) several large-flowered varieties: «Mme Charles Souchet», «Beauty»,

«Katherine Havemeyer», «Polina Osipenko», «Mme Antoine Buchner», «India» etc., highlighted by lavender.

On the west side of the house is a large outdoor terrace overlooking the garden. The corners of the terrace will be decorated with hydrangea bushes «Annabelle». In the far left corner of the garden there will be a recreation area with a bench set in the shade of an ordinary pear, a large tree on a vigorous rootstock.

The obligatory garden has found its place in the far part of the garden – near the outdoor fence. It is optically separated from the rest area by black currant bushes. A step-by-step path leads from the garden to the summer kitchen. An exquisite rockery and a twisted Albertine rose will help to decorate its solid blank wall. Next to the summer kitchen and orchard – 2 apricot trees «Pineapple» and 3 apple trees. Fragrant creeping thyme will be located on the edge of the walkway leading from the parking lot to the summer kitchen.

The central part of the garden will be occupied by a parterre – a ceremonial composition consisting of a round parterre lawn, the perimeter of which will be a bright mixborder of beautiful flowering shrubs, perennials, conifers with accents in the form of large trees – hanging birch, willow, Matsudan willow, prickly spruce (*Picea pungens Engelm.*). All areas of the garden are connected by stepped paths of round or rectilinear configuration, laid out of paving slabs.

Cottage Garden № 5 at st. Ubileyna, b. 19. Country plot of irregular elongated shape with an area of 1000 m<sup>2</sup> (50x20 m), oriented from east to west. Entrance to the site from the side of Jubilee Street. The elongated shape of the plot forces the designer to plan the area into several functional fragments of approximately square shape, so we can say that the style of the garden tends to be more regular in planning.

The residential building is located deep in the plot, so you need to arrange a central path that will lead to the house and divide the garden into two halves. To optically expand the area, it is necessary to give the track a slight twist, soft curves. The functional zones of the cottage garden will alternate along the path. At the request of the owners it was necessary to provide on the site a parking lot, aviary, swimming pool, 3 different recreation areas, garden, berry garden, vegetable garden, farm buildings for pets and poultry.

To the right of the central gate there is a car park. In the same corner of the site is designed and a dog cage, which will guard the entrance to the territory. From the first recreation area, which will be located from the entrance on the left, the parking lot will be separated by a dense hedge of thuja western «Aurea nana». A rockery made of carefully selected conifers and creeping flowering herbaceous plants will help to distract from the parking lot and the aviary while driving along the path towards the exit.

The first recreation area «Altanka» – will be located in the left corner of the site. A cozy hexagonal wooden gazebo, wrapped in winding roses accentuated by lavender, will be located on the lawn surrounded by a mixborder of beautiful flowering shrubs (*hydrangea paniculata*), cereals (*Miscanthus Chinese Zebrinus (Miscanthus sinensis Andernus Hylotelephium spectabile (Boreau) H. Ohba*), phlox paniculata (*Phlox paniculata L.*), perennial dolphin (*Delphinium elatum L.*), spring primrose (*Primula veris L.*), etc.) and free-growing hedge of tall ornamental deciduous and flowering shrubs, which masks the entire fence on the left side of the site. Next to the gazebo – a decorative garden, planned in the form of classic rectangular beds, which are simple and easy to care for. Another part of the garden is designed near the outbuildings located in the depths of the site.

Another functional area for utilitarian purposes is an orchard and berry garden, the main part of which is concentrated to the right of the path in the central part of the plot. It is planned to plant large fruit trees here – apricot, cherry, sweet cherry (*Prunus avium (L.) L.*), apple, pear. Smaller fruit plants – domestic plums (*Prunus domestica L.*), common peaches (*Prunus persica (L.) Batsch*), plums (*Prunus cerasifera Ehrh.*), Are planned to be located in the form of ordinary plantings between the recreation area «Tent» and a garden of side, and raspberry on the other hand, as well as between raspberry and vegetable garden near outbuildings.

Ordinary plantings of berry bushes and vineyards will separate the orchard from the third



recreation area – «Pergola», which will be a lawn with a pergola under a large walnut tree (*Juglans regia* L.), wrapped in Chinese wisteria (*Wisteria sinensis* (Sims) Sweet). The decorative focus on the lawn will be a flower garden made of ornamental grasses and perennials – Chinese miscanthus, *Penisetum alopecuroides* var. *Viridescens* (Miq.) Ohwi, sandy leymus (*Leymus arenarius* (L.) Hochst.), *L. reed.* ), sedum prominent and caustic (*Sedum acre* L.), fireweed (*Festuca cinerea* Vill.). Transparent wallpaper with clematis hybrid «Ernest Markham» (*Clematis florida* Thunb.) Will separate this area from the views of the house.

But the most favorite area for relaxation will probably be a corner under the tent, near which will be a decorative pond-pond, decorated in a natural style with natural stones and pebbles in combination with classic coastal plants. By the way, this is not the only water structure in this cottage garden – for swimming and swimming, the owners of the garden have a desire to arrange a pool along the left fence, in the shade of fruit trees. This arrangement will require extra care to protect against debris falling from the trees, but will save on the cost of controlling green algae that breed in the open.

And the last wish of the owners was to design facilities for keeping domestic animals and birds. There was a place for them next to the outbuilding (located separately next to the barn).

#### **Discussion of research results.**

Summary results of the analysis of project documentation on landscaping and improvement of cottage gardens on the right bank of the city of Zaporozhye are given in table 1.

The size of the surveyed gardens is standard for cottage buildings of the Soviet period – 12 ares (plots №1, 2, 3); for country sites, which are gardens №4.5 - 6-10 acres. All gardens have a rectangular or rectangular shape. The relief of the surface of all areas is flat, so there is no need to develop an additional project of vertical planning.

Two of the five plots have a clear regular layout, two more combine the regular design of the central part of the garden with the landscaping of the peripheral part. And only one garden is planned according to the rules of English landscape style gardens.

Regarding the functional zoning of the garden, here you can see the presence of certain areas in each of the surveyed estates: parking, recreation areas, lawn, ornamental plants. Individually there are fruit and berry plantations, vegetable garden, economic zone, ponds, ground floor.

Composite use of woody vegetation is reduced to solitary and small group plantings, regular row plantings, regular orchards, hedges. The limited area of gardens does not allow the use of large composite elements: mixed groups, groves, arrays.

Shrubs are used in the form of hedges, small groups, as part of mixborders, as well as regular berry plantings in order to harvest berries.

Flower beds are in the form of monocultural groups, mixborders, rockeries, borders, and look attractive, but do not require much care.

**Table 1**

#### **Comparative characteristics of cottage gardens on the right bank of the city of Zaporozhye**

<b>Adress/ indicator</b>	<b>st. Kvitucha, b. 42</b>	<b>st. Academician Vesnina, b. 24</b>	<b>st. Academician Vesnina, b. 26</b>	<b>st. Silska, b. 21</b>	<b>st. Ubileyna, b. 19.</b>
<b>Size, area, m<sup>2</sup></b>	44,7 x 26,8 m 1200 m <sup>2</sup>	30x40 m, 1200 m <sup>2</sup>	30x40 m, 1200 m <sup>2</sup>	20x30 m, 600 m <sup>2</sup>	50x20 m, 1000 m <sup>2</sup>
<b>Composite use of trees</b>	Solitary and group plantings of ornamental conifers and deciduous	Orchard, coniferous tapeworms, ordinary plantings on the perimeter of the	Orchard, fruit tapeworms, coniferous hedges, coniferous accents in	Orchard, individual trees as accents in mixborder and groups,	Ordinary and solitary plantings of fruit trees



	plants	plot	mixborders	solitary plantation garden	
<b>Composite use of shrubs</b>	Hedge around the perimeter of the site, decorative groups of coniferous and ornamental deciduous shrubs	Regular groups of ornamental coniferous and deciduous shrubs, tapeworms, mixborder of shrubs	Hedges as components in mixborders, alley planting	Mixborder, berry regular plantings,	Ordinary plantings, container culture planting berry bushes as components of decorative groups, rockery
<b>Types of flower beds</b>	Monocultural groups, rosary, rock garden	Rosary, borders	Mixborders, rosary, iridarium	Miskorders, borders, rockery	Mixborder, rockery, cereal-succulent group
<b>Assortment of woody vegetation</b>	Wide range of decorative forms of coniferous, deciduous trees	Wide range of decorative forms of coniferous, deciduous trees, round plants	Fruit trees, coniferous trees (limited)	Fruit trees, decorative coniferous and deciduous trees (limited)	Fruit trees
<b>Assortment of shrub vegetation</b>	A wide range of decorative forms of coniferous and deciduous shrubs	Berry bushes, decorative forms of coniferous, flowering and ornamental deciduous shrubs	Berry bushes, boxwood, hydrangeas, lilacs, roses	Berry bushes, boxwood, beautiful flowering shrubs	Berry bushes, low-growing coniferous shrubs, beautiful flowering tall shrubs
<b>Assortment of flowering plants</b>	Soil cover, rhizome perennials	Soil cover, rhizome perennials	Rhizome, bulbous, ground cover perennials, lavender	Rhizomatous, ground cover perennials	Rhizomatous, bulbous perennials
<b>Lawns</b>	Normal, occupies 1/4 of the area	Normal, occupies 1/8 of the area	Normal, occupies 1/8 of the area	Ground floor 1/5 of the plot area, ordinary 1/6 of the plot	Normal, occupies 1/15 of the area
<b>Vertical landscaping</b>	Not used	Campsis rooting on the pergola	Coils of roses on pergolas	Continuous masking of the fence with ivy and grapes, coils of roses on trellises	Coils of roses around the gazebo, lomonis hybrid on trellises

The use of water structures is limited – only two owners have ponds in the garden. It is an ornamental pond, an ornamental waterfall and a swimming pool. This is probably due to the high cost of construction of such a facility, as well as its complex and costly maintenance.

The garden and park equipment used at the surveyed sites is quite diverse, and its choice is determined by the wishes of the owners. These are garden paths of continuous and step-by-step paving, gazebos, benches (available in every garden), children's equipment on the playground (for small children), decorative bridge, swing, barbecue, trellises for climbing plants,

aviaries, canopies, container landscaping – selected according to individual requirements of customers.

The range of woody and shrubby vegetation is quite diverse, but there is a set that is found in every garden: decorative forms of firs, junipers, thuja, roses and shrubs, low-flowering shrubs, low ornamental deciduous shrubs, evergreen boxwood. The set of species of fruit and berry plants is also standard: apricots, cherries, apples, pears, plums, peaches, etc.

Raspberries, currants, gooseberries, blackberries are also classics. There are only a few exotics (for example, willow «*Hakuro Nishiki*»), but those that are time-tested and feel good in our climate.

The range of flowering plants is also similar in all surveyed gardens – they are ground cover, rhizome, bulbous perennials. Very rarely in the flower design are beautiful flowering annuals, only as a replacement for faded bulbs.

In all the gardens studied, the obligatory element of the landscape is the lawn of the usual (garden-park) type, which occupies from 1/15 to 1/4 of the garden. In section №3 the regular part of the garden is occupied by a parterre lawn.

Vertical landscaping is mainly used to mask fences and delineate functional areas. In one garden, vertical landscaping is not used at all.

Thus, we can trace two trends in the design of cottage gardens on the right bank of the city of Zaporozhye – purely decorative and utilitarian-decorative. In the gardens of fans of purely decorative direction of the building, structural elements of the landscape, range of woody, shrubby and flowering plants are aimed at creating an attractive, harmonious environment that would provide garden owners with conditions for comfortable rest, calm and good mood. Gardens of this direction are characterized by free planning, rich assortment of ornamental plants, interesting planning of paths, the presence of decorative ponds, swimming pools, cozy recreation areas, lack of outbuildings and ancillary facilities. In the areas of cottage owners, for whom the utilitarian function of the garden is also important, in addition to recreation areas and ornamental plantations, it is mandatory to have orchards of seed and bone trees, various berry bushes, raspberries and guard dogs, as well as , chicken coops for poultry. Spatial planning of such areas is close to regular.

A common feature for all surveyed areas is the implementation of three main principles:

1. Stylishness. Every owner of a cottage garden managed to realize the main thing – to create a garden – «picture», «picture», in which everything is perfect – well-groomed and neat everything: paths, buildings, plants. There is no free soil left in these gardens, the principle of following modern garden fashion and maximum attractiveness is observed.

2. Conciseness. In the cottage gardens located on the right bank of Zaporozhye, everything is very simple. All sites have a limited number of large functional areas: entrance area, recreation area, lawn, peripheral ornamental plantings, gardens of utilitarian-decorative orientation – also an orchard, vegetable garden. Complex regular flower beds made of demanding annuals, formed hedges, figured cut-off tapeworms, the use of container landscaping are very limited. All these gardens are a perfect front picture, which is «enclosed» in an emphatically restrained decorative frame.

3. Cost-effectiveness. The considered cottage gardens are mostly equipped with a wide range of plants, but their selection was carried out from among well-adapted to the local climate breeds and species from among traditional (planting material which is quite affordable) and limited – tested exotics, which allows minimal resources. achieve maximum effectiveness. The opportunity to save in this kind of cottage gardens gives simplified care and plantings. Species of unpretentious flower beds, hardy conifers, shrubs that do not require much care, limited area of lawns on the ground and ordinary type. Such gardens are objects of landscaping, which are easy, convenient and inexpensive to care for, maintaining in perfect order all its elements.

### **Conclusions**

On the basis of the survey of 5 cottage gardens located in the right bank of the city of Zaporozhye, we can conclude about some features of their planning and arrangement, namely:

1. All surveyed areas have a flat relief, typical of the right-bank part of Zaporozhye, which greatly simplifies the development of project proposals, eliminating the need for vertical planning;

2. Planning of cottage gardens has two directions – purely decorative and decorative-utilitarian.

3. The architectural and planning decision of gardens tends to regularity. Two plots are characterized by classical geometric planning, two more are examples of a mixed style of garden design – successful combinations of regularly planned central parts of the garden with areas of free planning, and only one is a model of English landscape garden.

4. For the decorative design is characterized by an expanded range of ornamental woody, shrubby, herbaceous vegetation, the presence of ornamental ponds, more refined but easy to care for flower beds (rock gardens), the availability of various garden equipment (benches, swings, pergolas, trellises, decorative bridges).

5. For gardens of decorative and utilitarian orientation, the presence of farm buildings for domestic animals and poultry, gardens for growing vegetables, plantations of fruit trees and berry bushes, which are formed on the principle of «beauty + benefit», which makes them related to gardens, decorated in a «country» style (Severin P.O., Rogovsky S.V. (2020).

6. The general principles that unite all surveyed cottage gardens can be considered style in the overall planning and details, conciseness in the zoning of the total area and efficiency in the selection of plants and equipment and their subsequent care.

7. As recommendations for landscape designers working in the region can be offered:

a) at the first stage of design to allocate in the territory of the future garden some obligatory functional zones: parking, a zone of rest, a lawn, peripheral decorative plantings. At the special request of the customer: orchard, berry garden, economic zone;

b) compositional methods of using woody vegetation: tapeworms, ordinary plantings, hedges; shrub vegetation: groups as components of mixborders, hedges;

c) the range of vegetation should be selected from local species, well-adapted, time-tested exotics, preferring garden forms of small size;

d) from flower beds to use easy-care borders, monocultural groups, mixborders, rockeries;

e) use of water devices, vertical landscaping, container landscaping is limited;

f) garden and park equipment to choose at the request of the customer to create maximum comfort for life and leisure.

## References

1. Helmreich, Anne (2002). *English garden and national identity: The Competing Styles of Garden Design, 1870-1914 (Modern Architecture and Cultural Identity)*. Cambridge: Cambridge University Press

2. Tilley, Christopher (2008). From the English Cottage Garden to the Swedish Allotment: Banal Nationalism and the Concept of the Garden. *Home Cultures: The Journal of Architecture, Design and Domestic Space*, 5, 219-249. doi:10.2752/174063108X333191.

3. 15 cottage garden design ideas. We create a flowering area, like the British. (2020). *E-magazine «My Beautiful Garden»*. Retrieved from <https://7dach.ru/MoySad/15-idey-dizayna-kottedzhnogo-sada-sozdaem-cvetuschiy-uchastok-kak-u-anglichan-246773.html>.

4. Buchan, Ursula (2017). *The English Garden*. London: Frances Lincoln

5. Davoren, E., Siebert, S., Cilliers, S., du Toit, M.J. (2016). Influence of socioeconomic status on design of Batswana home gardens and associated plant diversity patterns in northern South Africa. *Landscape and Ecological Engineering*, 12(1), 129-139. Retrieved from <https://link.springer.com/article/10.1007/s11355-015-0279-x>.

6. Rahmi, A.L., Gunawan, A. (2020). Home Garden Concept of Rumah Gadang based on Minangkabau Culture. *IOP Conference Series: Earth and Environmental Science*, 501(1),012022. Retrieved from <https://iopscience.iop.org/article/10.1088/1755->

1315/501/1/012022.

7. Jansen van Vuuren, M., van Averbek, W.B., Slabbert, M.M. (2020). Urban home garden design in Ga-Rankuwa, City of Tshwane, South Africa. *Acta Horticulturae*, 1279, 117-124. doi:10.17660/ActaHortic.2020.1279.18.
8. Dehghanpour Hanzaei, M., Pourahmadi Laleh, V. (2021). Applying Landscape Assessment Criteria: The Case of Garden-Alleys in Chahe Qeble Quarters Yazd. *Urban Book Series*, 153-160. doi:10.1007/978-3-030-62550-4\_8
9. Hage, Ingebjorg. (2011). Historical Vernacular Gardens Beyond Norway's Arctic Circle. *Acta Borealia* 28(2), 203-227. doi:10.1080/08003831.2011.626939
10. Ivashko, Y., Chang, P., Zueva, P., Ding, Y., Kuzmenko, T. (2021) Continuity of traditions and innovation in modern landscape design in China. *Landscape Architecture and Art*, 18(18), 94-103. doi:10.22616/j.landarchart.2021.18.10
11. Cho, Hye-Ryeong (2017). Englishness represented in a Cottage Garden. *Journal of the Korean Institute of Landscape Architecture*, 45 (1), 63-72. doi:10.9715/KILA.2017.45.1.063
12. Leontiak G. P., Osipov M. Yu., Maslovata S. A., Mauboroda Yu. V. (2020). Landscaping and improvement project for a garden plot in the city of Uman. *Scientific Bulletin of NLTU of Ukraine*, 30 (2). 14-18. doi:10.36930/40300202
13. Hanson, H.I., Eckberg, E., Widenberg, M., Alkan Olsson, J. (2021) Gardens' contribution to people and urban green space. *Urban Forestry and Urban Greening*, 63,127198. doi:10.1016/j.ufug.2021.127198
14. Doroshenko V.S., Osipov M.Yu. Landscaping and improvement of the private plot in the village Novoarkhangelsk, Kirovograd region. Retrieved from <https://lg.udau.edu.ua/assets/files/zbirnik-kafedri-spg-2018-gruden.pdf#page=65>
15. Panasenko O.M., Velichko Yu.A. Features of garden design in the style of a rural English cottage. Retrieved from <https://lg.udau.edu.ua/assets/files/zbirnik-kafedri-spg-2018-gruden.pdf#page=37>
16. Sadovy O.V., Rogovsky S.V. Features of landscaping and improvement for private house territory in modern conditions. Retrieved from [https://science.btsau.edu.ua/sites/default/files/tezy/zbirnik\\_tez\\_stud\\_agro\\_15.04.2020.pdf#page=69](https://science.btsau.edu.ua/sites/default/files/tezy/zbirnik_tez_stud_agro_15.04.2020.pdf#page=69).
17. Fedorenko M.O., Velichko Yu. A. Landscaping and improvement project for a garden plot in the village Polyanetske, Uman district. Retrieved from <https://lg.udau.edu.ua/assets/files/zbirnik-kafedri-spg-2018-gruden.pdf#page=37>
18. Shklyar O.V., Varlashchenko L.G. Project of landscaping and improvement project for a garden plot in the city of Kyiv. Retrieved from <https://lg.udau.edu.ua/assets/files/zbirnik-kafedri-spg-2018-gruden.pdf#page=40>
19. L. Khoroshkov, N. Derevianko (2021). Landscaping Project for a Private Garden Plot in the City of Zaporizhzhia. *Scientific Horizons*, 24(3), 68-74. DOI: 10.48077/scihor.24(3).2021.68-74.
20. Feng, L., Zhao, J. (2021). Research on the construction of intelligent management platform of garden landscape environment system based on remote sensing images. *Arabian Journal of Geosciences*, 14(14),1401. doi:10.1007/s12517-021-07739-3
21. Shan, P., Sun, W. (2021). Research on landscape design system based on 3D virtual reality and image processing technology. *Ecological Informatics*, 63,101287. doi:10.1016/j.ecoinf.2021.101287.
22. Liu, C.(2021). Research on Environmental Protection Factors of Landscape Design in Garden Greening. *IOP Conference Series: Earth and Environmental Science*, 714(2),022030. <https://iopscience.iop.org/article/10.1088/1755-1315/714/2/022030>
23. Severin P.O., Rogovsky S.V. Planting types and a modern range of woody plants for private houses landscaping in cities. Retrieved from [https://science.btsau.edu.ua/sites/default/files/tezy/zbirnik\\_tez\\_agro\\_magistr\\_](https://science.btsau.edu.ua/sites/default/files/tezy/zbirnik_tez_agro_magistr_)

20.1.2020.pdf#page=43.

24. Latin plant names are given according to «The Plant List». Retrieved from <http://www.theplantlist.org>