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Review

Rethinking Horticulture to Meet Sustainable Development Goals—The Case Study of Novi Sad, Serbia

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Abstract: With the aim of being a part of global change and providing an example to other researchers throughout the world, this paper details how breeding goals of horticultural plants and their application have shifted in Novi Sad (Serbia) in the last 10–15 years. Contemporary cities/citizens strive to incorporate nature into all of their important life segments and activities, thus requiring an interdisciplinary approach to solving challenges that the 21st century brings. Early research in Novi Sad (Serbia) was focused on the basic genetic, physiological, biochemical and botanical aspects of plant functioning and development in a challenging and changing urban environment abundant in abiotic stressors, as well as biotic and abiotic stressors, that affect the production of horticultural plant in this field. Recently, research interest has shifted towards the sustainable usage of plant genetic resources (roses, autochthonous terrestrial orchids, sweet and sour cherry eco-types, and allochthonous oil-rich species), as well as sustainable practices and nature-based solutions (urban-derived biodiesel, rain gardens, green roofs, green walls, constructed wetlands, water ponds, bioswales and permeable surfaces on a different scale of urban planning). This case study aimed to illustrate how plant selection and breeding strategies can satisfy urban growth demands, whereas urban planning must include sustainable genetic resources suitable for urban ecosystems. Available ornamental plant genetic resources (with pronounced tolerance/resistance to abiotic and/or biotic stressors) associated with the novel approach of their application in green city infrastructure provide the opportunity to implement multiple nature-based solutions leading to numerous ecosystem services. Combined, these contribute to the globally defined goals for sustainable development.

Keywords: circular economy; nature-based solution; plant selection; sustainable cities; urban greenery

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1. Introduction

In 2015, the member states of the UN adopted the "2030 Agenda for Sustainable Development", which is an appeal to all countries to act on a global level to encourage the improvement of health and education, reduce poverty, stimulate economic growth, fight against climate change and preserve the environment and its natural resources [1]. Cities, as the areas that are the most developed, populated and significantly affected by the global challenges, are the major driving force towards achievement of these goals. Urban ecosystems (UEs) are dynamic and hybrid systems consisting of natural and human-made elements whose interactions affect or are affected not only by the natural environment but also cultural, political, economic and social factors [2]. To tackle the challenges of the 21st century, UEs as intertwined and multilayered systems should not be vulnerable, but should be able to cope with climate change and encourage sustainable development. With rising awareness and the development of novel nature-based solutions (NBSs), UEs should play a significant role in the mitigation processes for climate change, as well as in the climate adaptation strategy. The urban ecosystem, just like any other ecosystem, is a part of the changing environment, being affected by or affecting the soil, air, water, biodiversity and humans. According to Savard et al. [3], the association of biodiversity and urban ecosystems has usually been observed through the adverse impact of urbanization on biodiversity. However, biodiversity composition, presence and distribution have the potential to enhance urbanized areas. Biodiversity richness in the green sustainable municipalities or city districts might attract investors planning houses or buildings that will have higher demands and rates at the real estate market, due to the naturalistic planting design and species abundance. Research concerning urban areas prioritization or ecological restoration is mostly based on landscape analysis (using remotely sensed data and GIS) and adopts models designed for non-urban areas, e.g., the zoning conservation planning tool, the patch network concept [4] or graph theory [5,6]. Despite the interesting solutions proposed in these models, no solution has yet found universal application in urban planning and management. Therefore, the search continues for new smart tools related to artificial intelligence and machine learning that will support environmental decision making.

People's influence on the places they inhabit is tremendous; conversely, space, as a stage for personal and social development, affects the wellbeing of its inhabitants [7]. The criteria that direct the design of urban environments have expanded from work- and consumption-related needs to sustainable development, comprising the conservation of natural resources and cultural heritage, as well as the improvement of people's well-being, including individuals with special needs, such as the elderly, children or people with disabilities. Zumelzu and Herrmann-Lunecke [8] stated that mood and anxiety disorders are more often diagnosed among city dwellers, whereas Ma et al. [9] concluded that well-being is strongly correlated with the degree of the resident's participation with green spaces, including the frequency at which residents visit different types of green areas. Jian et al. [10] argue that in a post-pandemic society, one of the most crucial public health assets is the accessibility of public open spaces, which contributes to people's physical, social and psychological wellbeing. The COVID-19 pandemic and the difficult situation that befell the whole world had a great impact on the economic, social and ecological aspects of human life and gave society the opportunity to return to nature and to the use of green industry and its sources.

Serbia, as with any developing country, faces rapid growth and transformation on all levels (urbanization, population growth and land-use change), requiring sustainable development, food security and social advancement. Horticulture, a highly represented agricultural sector in Serbia, is one of the world's most intensive production branches, encouraging a shift towards sustainable and nature-based solutions while utilizing the Sustainable Developmental Goals in order to transform our world. Since it is estimated that by 2050, more than 80% of the population will live in cities [11], and Serbia is not exempt from this trend, there is a need to transform the urban ecosystem into a greener, healthier, more inclusive and resilient environment. Urbanization has been identified as a major threat to sustainable city development. Rural populations migrate to urban areas; meanwhile, ecosystem services from urban green spaces per capita are far below the needed level. Therefore, sustainable urban planning should promote a return to nature within the cities. Semi-natural urban landscapes and naturalistic planting design in urban open space, as well as urban gardens with edible ornamental species, are growing trends [12]. However, despite the existence of many ecosystem services, urban gardening comes with important challenges. The first is the very limited space and the need to cultivate dwarf, columnar or narrow-pyramidal forms, most often in pots and other containers. The second challenge is the occurrence and spread of diseases and pests in the growing urban green and semi-natural environment [12]. On the other hand, urban gardening should allow horizontal and vertical, permanent or temporary, stationary or mobile greening, which influence climate change adaptation and mitigation, human engagement, and food supply, harm reduction and biodiversity conservation. Due to the urgent issues listed above, our overall goal is to advance horticultural science and landscaping possibilities to align with smart specialization strategies at both the National (4S–Smart Specialization Strategy Serbia) and the European level (climate-neutral cities and sustainable development, securing green space and incorporating social dimensions into climate-related transformation processes of open urban spaces, etc.).

Before 2010, traditional research at the Faculty of Agriculture in Novi Sad (Serbia) concerned higher yields and fruit quality [13], rapid plant propagation [14] and higher ornamental value meeting the market and profitability requirements. Due to the rapid social, environmental and economic pressures, research tasks changed, focusing on sustainability in horticultural science and related landscaping. Thus, pertinent review paper aimed to present streamlined novel research: (1) the selection of disease- and pest-resistant rose cultivars with a reduced need for chemical treatment, characterized by high-quality flowers and/or fruits, suitable for urban gardening; (2) the selection of wild flowering species as a breeding material for ornamentals tolerant to stressful urban environments; (3) the selection of water-efficient and cost-effective low-vigorous rootstocks to allow urban gardening; (4) investigation of utilization possibilities, rather than the eradication of invasive and allergenic woody and shrub species; (5) the investigation of nature-based solutions to mitigate adverse climate factors; and (6) the investigation of hydrogel mitigating effect on drought-induced stress in flowering plants. Behind all listed activities lies the sustainable usage of plant genetic resources (roses, autochthonous terrestrial orchids, cherry eco-types, wild fruit species and allochthonous oil-rich species) and/or sustainable practices to support them.

This review paper is divided into the following sections:

(1) Introduction.

(2) Study design (covering research area and the methodologies).

(3) Sustainable usage of plant material, covering the shift in breeding strategies.

3.1. Sustainable garden rose breeding.

3.2 Selection of autochthonous terrestrial orchids.

3.3 Selection of dwarf rootstocks to increase urban food production.

(4) Sustainable practices covering major nature-based solutions surveyed and applied in Novi Sad.

4.1 Greening the economy and economizing the greenery approach investigating utilization rather than eradication of invasive alien species.

4.2 Sustainable urban planning investigating rain gardens, green roofs, green swales/bioswales, grass channels and constructed wetlands.

(5) Discussion.

(6) Conclusions and future prospects.

2. Study Design

2.1. Research Area

The City of Novi Sad is located in the Autonomous Province of Vojvodina, in the northern part of the Republic of Serbia (longitude 19°50′ E, latitude 45°19′ N) [15]. As a capital of Vojvodina, its administrative area encompasses 16 settlements, occupying an area of 699 km^2 [16,17]. The city was built on the left bank of the Danube River, in the extreme south of the Bačka region [18]. The Danube River passes through the southern and eastern parts of the urban area, with the river's width varying from 260 to 680 m, whereas in the northern part of the city, the Danube–Tisza–Danube Canal crosses the urban land [19]. In the immediate vicinity of the city the Fruška gora Mountain is located, from which territory approximately 26.25% holds the status of National Park [20]. The city is connected to the region with road and railway routes and waterways. It is positioned in the center of a highway network which connects Northeastern and Eastern Europe to the Middle and Far East, as well as Central and Northern Europe to the ports of the Adriatic Sea [21]. The climate of the area is temperate continental with four distinct seasons, characterized by extremely warm summers and cold winters [22]. The average annual temperature and the average annual precipitation sum for the last five years (2017–2021) were 12.9 °C and 671 mm, respectively. Regarding temperature extremes during this 5-year-period, the minimal temperature of −20.3 °C was recorded in March 2018, whereas the maximal temperature increase to 39.8 °C was measured in August 2017. Besides differences in precipitation sums between different years, ranging from 513 mm in 2017 to 758 mm in 2021, the distribution of precipitation was irregular, with a significant variation in precipitation amounts during different months [15].

After the First and especially after the Second World War, the intense development of Novi Sad occurred. Concurrently with the increasing population, the construction of boulevards, collective housing, dams and industrial facilities' was intensified [18]. Since the 1990s, radical changes were observed in the city of Novi Sad, concerning both social and special aspects. Those changes are, to this day, unparalleled in the region, concerning their nature and scope [23]. A process of uncontrolled urbanization after 2000 has been instigated by the strong concentration of capital in the regional centers, coupled with foreign and domestic investments [24]. At the same time, the number of inhabitants in Novi Sad and the surrounding suburban settlements increased, mainly due to immigration, both from the former republics of Yugoslavia (of which Serbia was a part) and from other parts of Serbia [18]. According to the 2002 census, the City of Novi Sad had 299.294 inhabitants, representing 14.7% of the total population of Vojvodina province [25]. The census from 2011 showed that the City of Novi Sad was the only municipality in Vojvodina which did not experience a decrease in the number of inhabitants. Its population is constantly growing as it is the second largest city in Serbia and the area to which people from other parts of Vojvodina and Central Serbia gravitate [26]. According to the Statistical Office of the Republic of Serbia [27], the population estimation in the City of Novi Sad in 2020 was about 363,000, which would mean that during the last two decades, the number of inhabitants has increased by more than 20%. Some parameters of urbanization intensity and population growth are shown in Figure 1.

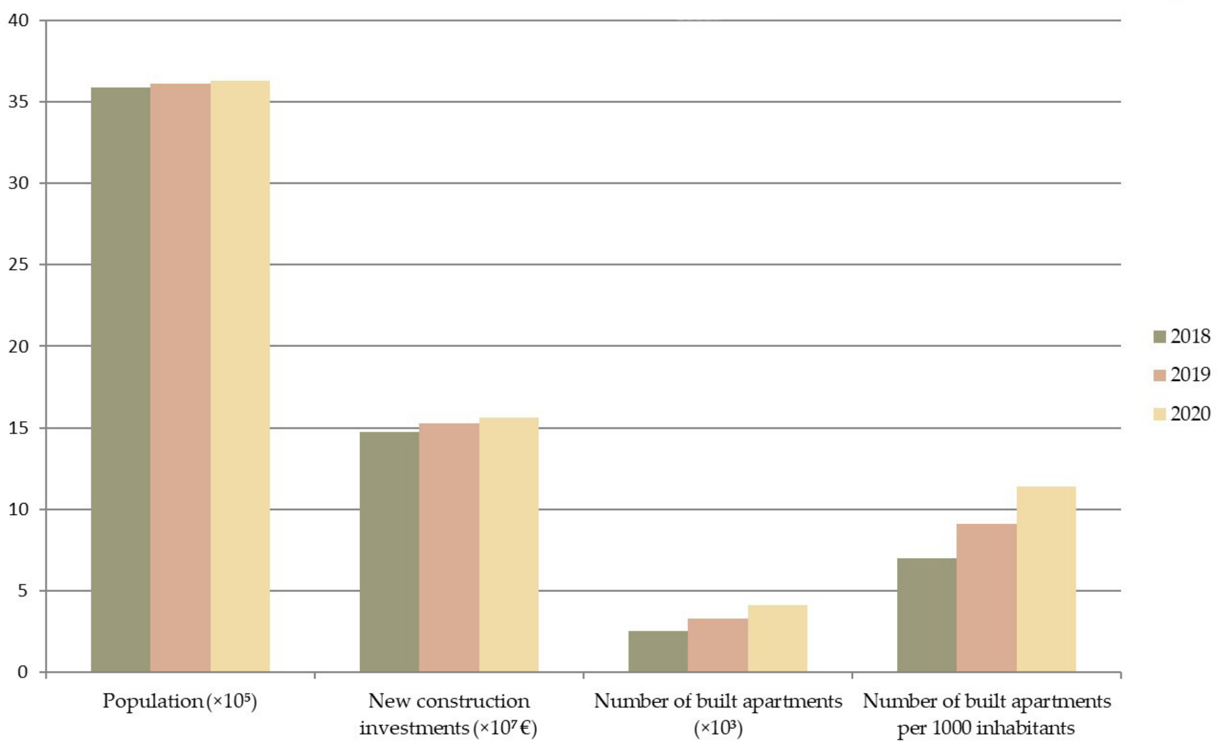

Figure 1. Indicators of urban population growth and urbanization intensification in the City of Novi Sad in 2018–2020 [27].

2.2. Methodology

This study used checklists, a qualitative methodology that evaluates the surveyed characteristics and provides guidance for further steps in the research process [28]. The checklist details a list of criteria, aspects, tasks and properties, which are considered in a systematic approach when determining a set of complex factors. Furthermore, the implementation of checklists can be expanded to include the spatial features, flora and fauna, which can provide data on the quality of the analyzed area through criteria and parameters that rate the location, safety, purpose, aesthetics of the area and facilities, as well as the flora and fauna [29]. Considering the historical data and current field observations, checklists were successfully implemented on spatial features, the activity of users and vegetation, yielding data on the quality of the analyzed area through the criteria and parameters which served as a basis for the creation of the green design model [30]. Checklists are a useful tool for the evaluation of various indicators, including ecosystem services provided by urban greenery [31]. The checklists were thus chosen as an appropriate methodology summing previously published data in the leading and major international journals, as well as vast knowledge and experience of the paper's co-authors in the field of sustainable horticulture and landscape architecture.

Checklists were performed for each topic as shown in Figure 2, illustrating basic objectives and methodologies (with the appropriate referencing), and achieved results from the research conducted in Novi Sad thus far.

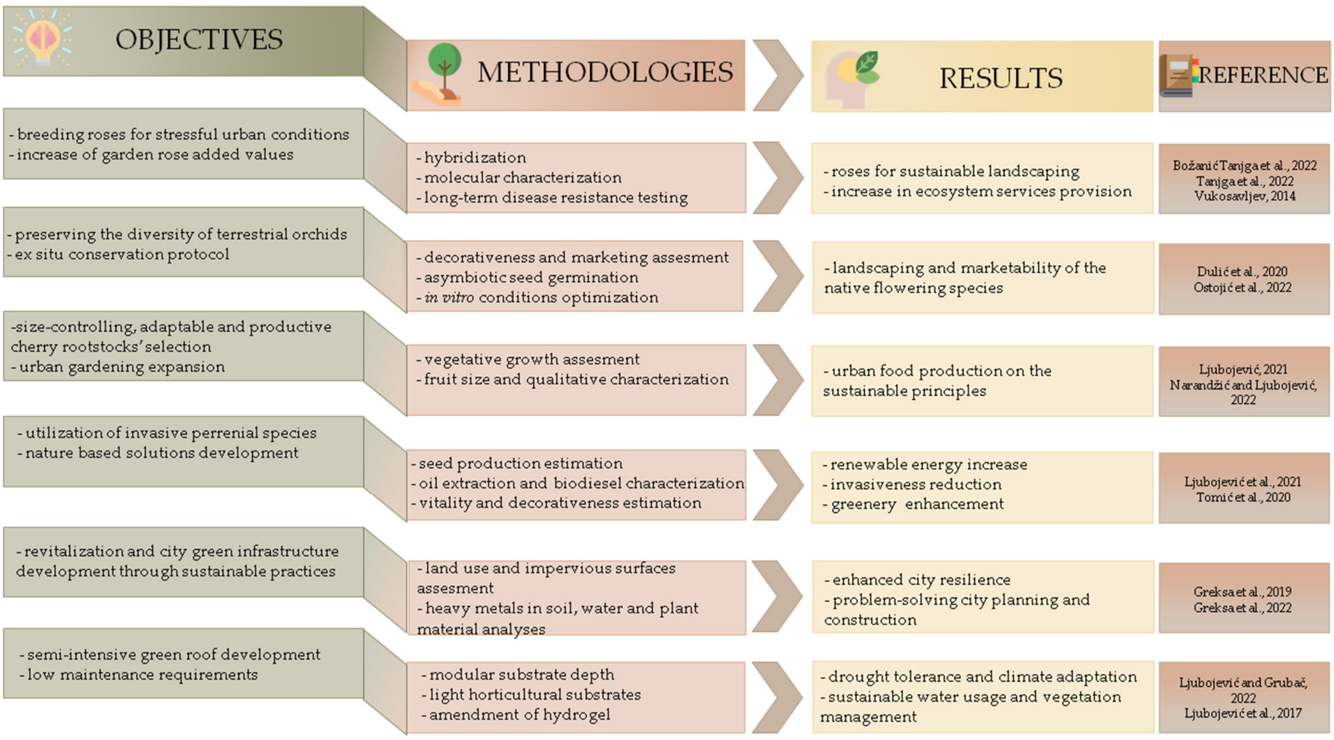

Figure 2. Main objectives, methodologies and results in the selection and breeding of ornamentals, as well as sustainable practices and investigation for sustainable city planning conducted by the research team in the past decade [12,32–43].

3. Sustainable Usage of Plant Material

Békési [44] agreed that responsible planning requires a multi-way approach, and advocated for the establishment of places and conditions in harmony with nature, besides 'serving the human needs' as a main driving force in landscape planning, both natural and artificial. According to Bringezu et al. [45], the management of natural resources, namely, raw materials, land, water and air, stretches across different scales, from local and regional to national and international. The inter-connectedness of water, energy, land and food sectors, with important roles for national governments and international bodies, is a necessary approach to assess investment possibilities and provide mutual benefits through the development and adoption of new technologies [46]. Additionally, advancements in information and communication sectors will enhance the administration of valuable resources, as noted by Javed et al. [47]. Recently, the development of smart cities has received public attention by introducing a model of urban growth which supports new value creation, technological innovation and sustainable development [48]. An important part of this sustainable approach is the responsible utilization of autochthonous resources for landscaping purposes, instead of the application of introduced plant material, as well as breeding horticultural plants for the purpose of the multiple ecosystem services they provide.

3.1. Shift in Breeding Strategies—Sustainable Garden Rose Breeding

With pronounced morphological and phenological diversity, garden roses have always been part of urban plantings. The significance of roses in ornamental and utilitarian (edible) horticulture can be amended with novel ecosystem services, by shifting their breeding targets towards more than aesthetic and nutritional value [12]. The goals of breeding garden roses have changed throughout history. In the past, more attention was paid to the aesthetic values of flowers, such as their color, fragrance, etc. [49,50], whereas nowadays, with the development of environmental awareness, the market demands healthy sustainable garden roses with as little pesticide use as possible. This is one of the reasons why today, in the breeding of garden roses, the most attention, next to fragrance, is paid to disease resistance and extreme conditions.

Streamlined novel breeding has resulted in several rose collections, each unique and suitable for achieving one or several SDGs. As presented in Table 1, newly bred cultivars combine multiple traits that make them suitable for sustainable landscaping. The majority of the cultivars from presented collections possess tolerance to major diseases (enabling the production and maintenance with significantly reduced pesticide application), attractive plant appearance and colors, pronounced fragrance and simple requirements (thus being easy to grow). Nevertheless, these collections were separated and named according to their most distinctive purposes. Similar to wild *Rosa rugosa*, and named after the Latin word for 'honey', the Mella collection is irresistible to bees and butterflies that enjoy foraging on its natural-looking flowers in many attractive colors. They are perfect wildflower-type roses for private urban and rural gardens or borders, small hedges or as potted plants in larger containers in public green areas. The second collection, Aurora roses, are drought- and heat-resistant, and, when grown on their own roots, these roses can tolerate poor, heavy and saline soils. They have a strong, bushy habitus, perfect for hedges or natural landscaping. Blooming is abundant and consistent throughout the year, while also providing a plenitude of bright orange hips which are edible and can be considered a functional food. Another edible collection, Taste of love, was distinguished due to the higher nutritional value than some common fruits and vegetables, concomitantly achieving their taste (pear, peach, raspberry and similar). They are full of substances beneficial for human health, such as vitamin C, antioxidants, sugars, proteins, lipids, tannins, pectin, amino acids and essential oils.

The Fashion, Reka and Vaza collections comprise ornamental, abundantly flowering, vigorous and disease-tolerant genotypes; Frayla is the most fragrant type, characterized by significant amounts of phenylethyl alcohol, nerol, linalool and geraniol [32]. The Pixie collection is represented by two types of patio roses: miniature roses ranging from 20 to 35 cm, and groundcovers ranging from 40 to 70 cm. They are suitable for container cultivation, in large terracotta containers or in small pots on windowsills, fulfilling small and constrained urban spaces. Finally, created with the assistance of the latest techniques in plant breeding, all roses from the Winterjewel collection share an important common feature—hardiness to low winter temperatures [33]. These varieties were bred with the aim to withstand temperatures as low as −35 °C in spite of their gentle appearance. In addition to this important quality, they come in various colours, experience repeat blooming and have proven to be very healthy and reliable.

Table 1. Garden rose breeding in Serbia to meet sustainable development goals.

	Added Value			Disease Resistance			Aesthetic Value				
Collection Candidate	**Food**	**Medicine**	**Horticulture, Urban Gardening**	**Powdery Mildew**	**Black Spot**	**Without Spraying**	**Attractive Color**	**Compact Growth**	**Numerous Petals**	**Fragrance**	**Easy to Grow**
Mella Collection											
Mellite Mella			✔			✔	✔	✔			✔
Exotic Mella			✔				✔	✔		✔	✔
Crystal Mella	✔		✔				✔			✔	✔
Barbie Mella			✔	✔		✔				✔	✔
Ruby Mella	✔		✔	✔			✔	✔			✔
Ducat Mella			✔				✔				✔
Edible Collection							✔	✔	✔	✔	
Dolce	✔	✔	✔	✔							
Nadia Zerouali	✔		✔	✔		✔	✔	✔		✔	✔
Raspberry	✔						✔	✔		✔	
Theo Clevers	✔		✔				✔	✔	✔	✔	✔
Eveline Wild	✔		✔				✔	✔	✔	✔	✔
Jordi Roca	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔
Pear	✔		✔				✔	✔		✔	✔
Aurora Collection											
Aromatic Aurora	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔
White Aurora	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔
Berry Bush Aurora	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔
Purple Aurora	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔
Fashion Collection											
Chic Fashion			✔	✔			✔	✔	✔	✔	✔
Hippie Fashion			✔	✔			✔	✔	✔	✔	✔
Perfume Fashion			✔	✔	✔		✔	✔	✔	✔	✔
Trendy Fashion			✔	✔			✔	✔	✔	✔	✔
Urban Fashion			✔	✔	✔		✔	✔	✔	✔	✔
Reka Collection											
Tara Reka			✔	✔	✔		✔	✔	✔	✔	✔
Tisa Reka			✔				✔	✔	✔	✔	✔
Nera Reka			✔	✔	✔		✔	✔	✔	✔	✔
Morava Reka			✔	✔	✔		✔	✔	✔	✔	✔
Vaza Collection											
Carmine Vaza			✔	✔	✔		✔	✔	✔	✔	✔
Lemon Vaza			✔		✔		✔	✔	✔	✔	✔
Cherry Vaza			✔	✔	✔		✔	✔	✔	✔	✔
Pearl Vaza			✔	✔	✔	✔	✔	✔	✔	✔	✔
Pink Vaza			✔		✔	✔	✔	✔	✔	✔	✔
Frayla Collection											
Zora Frayla	✔		✔				✔	✔	✔	✔	✔
Mina Frayla	✔		✔	✔			✔	✔	✔	✔	✔
Vera Frayla	✔		✔				✔	✔	✔	✔	✔
Marija Frajla	✔		✔				✔	✔	✔	✔	✔
Draga Frayla			✔	✔			✔	✔	✔		✔
Jelena Frayla	✔		✔	✔			✔	✔	✔	✔	✔
Isidora Frayla	✔		✔	✔			✔	✔	✔	✔	✔

Table 1. *Cont.*

	Added Value			**Disease Resistance**			**Aesthetic Value**				
Collection Candidate	**Food**	**Medicine**	**Horticulture, Urban Gardening**	**Powdery Mildew**	**Black Spot**	**Without Spraying**	**Attractive Color**	**Compact Growth**	**Numerous Petals**	**Fragrance**	**Easy to Grow**
Pixie Collection											
Milky pixie			✔				✔	✔			✔
Mauve Pixie											
Gaudy Pixie			✔	✔			✔	✔			✔
Coral Pixie			✔	✔	✔	✔	✔	✔			✔
Blush pixie	✔		✔	✔	✔	✔	✔	✔			✔
Winterjewel Collection											
Allure Winterjewel			✔	✔			✔	✔			✔
Crimson Winterjewel			✔				✔	✔			✔
Blush Winterjewel	✔		✔	✔			✔	✔	✔	✔	✔
Sunrise Winterjewel			✔	✔			✔	✔			✔
Scarlet Winterjewel			✔				✔	✔			✔

With their aesthetic values, pronounced biotic and abiotic factor tolerance, attraction to pollinators, food provision and rustic appearance, novel garden roses (Table 1) completely correspond to the semi-natural gardens/landscapes, contributing to the services found within the overall ecosystem. The Millennium Ecosystem Assessment presented roses contributing towards provision (honey production, food for human and useful insects, genetic material for future crosses and rose improvement), regulation (air purification, pollinators' habitat and disease control), culture (spiritual or inspirational service as well as aesthetic value) and support (tolerance to diseases, nutrient cycling and soil enrichment). This directly and indirectly has an impact on ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture (SDG 2), making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11). Nursery production of sustainable garden roses can also contribute to the achievement of gender equality and empower all women and girls, enabling their self-employment (SDG 5).

3.2. Shift in Breeding Strategies—Selection of Autochthonous Terrestrial Orchids

Biodiversity is directly related to ecosystem sustainability, highlighting that habitat loss is the main cause of global genetic diversity decline [51,52]. Ecosystem instability is mainly influenced by uncontrolled exploitation of habitats of native and protected species (construction land, agricultural production, etc.), but also by the uncontrolled planting of invasive species, which significantly affect the destruction and survival of native biodiversity. According to Gaertner et al. [53], cities are hotspots for biological invasions, and many urban areas around the world share a number of common invasive species. The high prevalence of invasive alien species in urban areas can be explained by their high ornamental value, because of which they were often planted in public areas, private gardens, botanical gardens and other green spaces. According to Stojanović et al. [54], the proper selection of species for the landscaping of urban green areas is the basic prerequisite for combating the spread of invasive plants. They pointed out in their study that planting primarily natural, autochthonous plant materials reduces this process to a minimum. However, in the planning of urban greenery, the extreme conditions prevailing in urban areas must be considered. It is necessary to examine the diversity of existing autochthonous species, the environmental conditions for their cultivation, but also the methods of reproduction with the aim of their sustainable application in urban areas. Although the orchid family (Orchidaceae) is cosmopolitan and includes more than 20,000 species, orchids are simultaneously one of the most rapidly disappearing plant groups and are high on the IUCN Red List [55,56]. The instability of orchid diversity was noted by Seaton et al. [57], who identified significant declines in the number and size of orchid populations in their natural habitats. A similar trend was noted in this study, which found large declines in both the species themselves and in their natural habitat. Multi-year monitoring of populations revealed a high degree of population and site degradation, which was directly reflected in population distribution and dispersal, and most species were classified as endangered or threatened (*O. militaris*, *O. purpurea*, *O. mascula*, *H. jankae*, *N. tridentate*, *N. ustulata*, *G. odoratissima*, *Ophrys sphegodes*, *Ophrys scolopax*, *S. spiralis*, *E. helleborine*, *E. mycrophylla*, *L. abortivum*, *P. bifolia*, *C. longifolia*).

The morphological characterization as well as the results of the market demand analysis indicate that the studied populations have a rich palette for the selection of ornamental traits that have exceptional commercial value. The analysis of the diversity of terrestrial orchids revealed high diversity both in terms of morphological characteristics and the habitat they inhabit (Table 2). The average height of 11 orchid species was $\geq$30 cm, 14 species had an inflorescence height of $\geq$5 cm, whereas the number of flowers per inflorescence was $\geq$20 in 13 species. The obtained results show that the orchid species occurring on Fruška Gora (Northern Serbia) have a wide morphological spectrum, whereas the analysis of market demand showed that the studied species have a great potential as a new product on the market including pot plants, cut flowers and ground covers in both rural and urban conditions. This coincides with the results of the study by Dulić et al. [34], who clearly state that the species *S. spiralis*, *O. purpurea*, *O. militaris*, *H. jankae*, *A. pyramidalis* and *N. tridentata* have a high potential in the horticultural market due to their attractive inflorescences and their ability to grow in nitrogen-poor soils.

Soil chemical composition analysis provided a clear picture of terrestrial orchid habitat characteristics and guidelines for potential use in urban environments. The soil chemical analysis clearly groups terrestrial orchids by soil type. The species *A. pyramidalis*, *G. conopsea*, *G. odoratissima*, *O. militaris*, *O. purpurea*, *N. tridentata*, *O. sphegodes*, *O. scolopax*, *N. ustulata*, *H. jankae*, and *E. microphylla* live in sites where a neutral to slightly alkaline environment predominates. In addition, the sites inhabited by these species were found to have a high $CaCO_3$ content. According to Zhang et al. [58], $CaCO_3$ content directly affects soil pH and results in an alkaline environment, which explains the correlation of these results. Although most species grow under neutral to slightly alkaline conditions, it cannot be generalized that these conditions are suitable for all species. Soil samples collected from the sites of *E. helleborine*, *P. bifolia*, *C. longifolia*, *L. abortivum*, and *O. mascula* showed no carbonate in the soil, which was also reflected in the soil acidity. This result is consistent with the findings of Robatsch [59], Harp and Harp [60], and Esposito et al. [61], namely that the species *E. helleborine* and *P. bifolia* inhabit acidic to neutral soils, whereas the other three species (*C. longifolia*, *L. abortivum*, and *O. mascula*) can tolerate acidic to slightly alkaline soils [60,62]. Observed tolerance of the poor soils can be used for planting terrestrial orchids on urbisols−compacted, structurally deteriorated soils, often characterized by high salinity [43].

Table 2. Diversity analysis of terrestrial orchids of Fruška gora with multiple potential uses in horticulture.

Orchid Species	Morphological Characteristics			Soil Characteristic			Asymbiotic Seed Germination		Conservation Status	Market Demand	
	Plant Height ≥ 30 cm	Inflorescence Length ≥ 5 cm	Number of Flower ≥ 20	pH	$CaCO_3$	Humus	Seed Viability	Successfully Germinated Seeds in In Vitro Conditions	Urgency for Conservation	Market Potential	Market Life Phase
Anacamptis pyramidalis	✔	-	✔	Al	H	H	H	✔	3	3.0	5.0
Orchis militaris	✔	✔	✔	Al	H	H	H	✔	5	4.5	5.0
Orchis purpurea	✔	✔	✔	Al	H	H	/	/	5	4.5	5.0
Orchis mascula	✔	✔	✔	Ac	Nc	M	H	/	5	3.5	5.0
Himantoglossum jankae	✔	✔	✔	Al	H	H	H	✔	5	5.0	5.0
Neotinea tridentata	-	-	✔	Al	H	H	H	/	5	4.5	5.0
Neotinea ustulata	-	-	✔	Al	H	H	/	/	5	4.5	5.0
Gymnadenia conopsea	✔	✔	✔	Al	H	H	H	✔	3	4.5	5.0
Gymnadenia odoratissima	✔	✔	✔	Al	H	H	/	/	5	4.5	5.0
Ophrys sphegodes	-	✔	-	Al	H	H	H	✔	5	5.0	5.0
Ophrys scolopax	-	✔	-	Al	H	H	L	/	5	5.0	5.0
Spiranthes spiralis	-	✔	✔	Al	M	H	H	✔	5	4.8	5.0
Epipactis helleborine	✔	✔	✔	Sac	Nc	H	/	/	5	4.5	5.0
Epipactis microphylla	-	✔	-	N	H	H	L	/	5	3.5	5.0
Limodorum abortivum	✔	✔	-	Ac	Nc	M	H	✔	5	3.5	5.0
Platanthera bifolia	✔	✔	✔	Sac	Nc	H	/	/	5	5.0	5.0
Cephalanthera longifolia	✔	✔	✔	Ac	Nc	M	L	/	5	4.5	5.0

Abbreviations and label description: pH reaction: Al—Alkaline, Ac—Acidic, Sac—Slightly acidic, N—Neutral; Content of $CaCO_3$: Nc—Non-carbonate, M—Medium, H—High; Content of Humus: L—Low, M—Medium, H—High; Seed viability: H—High (viable ≥ 50% seeds) L—Low (viable ≤ 50% seeds); Urgency for conservation: 1—not endangered and threatened; 5—endangered and threatened; Market Potential: 1—least potential to create new forms of existing crop or new crop; 5—highest potential; Market life phase: 1—declining; 3—peaked; 5—increasing/new market.

The analysis of the results clearly shows that the gene pool studied is highly threatened, but has a high commercial value due to its decorative effect. Their added values come from the role in the promotion of semi-natural urban landscapes that provide the bridge between those two constrained ecosystems–nature and the city. The importance of semi-natural species is clearly emphasized by Millard [63], who stresses the importance of their appropriate management for both community benefits and overall urban plant biodiversity. Regulation of existing green spaces in urban areas that includes the introduction of semi-natural and autochthonous species would have an impact on individual physical health and psychological well-being and prevent the homogenization of urban green spaces. Planting predominantly natural, autochthonous plant material, which includes the orchid species examined in this study, also contributes to the achievement of sustainable development goals' promotion. This approach to urban greening includes: ensuring healthy lives and promote well-being for all people of all ages (SDG 3); making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11); taking urgent action to combat climate change and its impacts (SDG 13); and protecting, restoring and promoting the sustainable use of terrestrial ecosystems; managing forests sustainably; combatting desertification and halting and reversing land degradation; and halting biodiversity loss (SDG 15).

3.3. Shift in Breeding Strategies—Selection of Dwarf Rootstocks to Increase Urban Food Production

The urban agriculture includes the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry within and near the cities [64]. Russo et al. [65] stated that integration of edible plants into urban open spaces contributes to the provision of multi-functional urban landscape with edible green infrastructure, thus supporting the wide range of benefits which urban agriculture provides, including climate change negative consequences' mitigation, urban food security enhancement, poverty alleviation and food production possibilities which do not jeopardize the land availability [66]. Agricultural activities could be performed in various places throughout the urban environment, from balconies, verandas and rooftops, to the private yards, allotment, community and institutional gardens, as well as in the form of vertical gardening and the design of streets and urban pockets [67–71]. The need to grow food individually in our own space was highlighted during the COVID-19 pandemic [72], and it will indisputably remain important in the decades to come. Although the fruit species are present in urban gardens to some extent [73,74], urban horticultural production is usually limited to annuals and perennial vegetables and edible ornamentals despite increasing possibilities for urban fruit production expansion and availability of cultivars suitable for growing in urban spaces [36]. When selecting plants for any environment, their dimensions at mature stage, the level of maintenance and fruit quality must be addressed, in addition to the resistance to severe site conditions, such as exposure to drought, strong winds and thermal stresses. In many cases, shallow and poor substrate in which plants are grown could be aggravating factor.

Controlling the architecture and dimensions of plants is an important aim of plant breeding, and which has numerous advantages [75]. Moreover, appropriate rootstock selection allows the transition of originally highly vigorous plants to the less vigorous, dwarfing but productive ones. As numerous studies showed, the natural growth and development of grafted fruit trees in the same environment differ greatly among plants on different rootstocks [76–79]. Our research encompassed an autochthonous plant material which could introduce cherry species into the world of urban landscaping on a larger scale, enabling their usage in a wide range of urban spaces (Table 3). We opted for cherries due to their large canopies and tree vigor; thus, the task to provide extreme size reduction to fit the urban environment was challenging. Trees grafted on 57% of the total number of rootstock candidates in our research were characterized with height below 3 m, whereas trees on 43% of rootstock candidates had a crown diameter below 1.5 m. Almost all studied rootstock candidates induced an effective crown volume (V_e) below 3 m^3.

The lack of time, experience and finances could undermine the willingness of urban residents to engage in urban agriculture [80], thus any potential time-consuming and complex practices, and additional expenses should be avoided, including costs of mechanical support for plantings, the removal of suckers or pesticide usage. Strong anchorage was observed for trees on 65% of PC candidates, 92% of PF candidates and both PM candidates, suggesting that after initial leaning in the juvenile period, trees continue to grow in such a position, simultaneously increasing the rooting strength [81]. Among the investigated rootstock candidates, 83% were characterized with the occurrence of suckers, which is a species-specific feature of 'Oblačinska' and European ground cherry rootstocks [82]. However, some candidates showed a complete absence of suckers during the experimental period, thus representing the good candidates for cherry growing in urban spaces. An additional advantage of the investigated species is the shallow roots of *P. cerasus* and *P. fruticosa* genotypes, making them suitable for shallower substrate depths. Regarding the quality of fruits, our investigation showed that studied autochthonous rootstock candidates induced fruits' traits that could satisfy users even in the conditions without the application of irrigation and pesticides, thus supporting the sustainable principles in fruit production [36]. Desired sweet cherry fruit weight in commercial production varies worldwide and has been changed through the years from 6–8 g to 9–12 g [83–86]. Our results showed that on some PC and PF rootstock candidates, fruit weight exceeded 9 g, with fruit width above 26 mm and SSC above 15%, which met not only the needs of garden hobbyists, but the high-quality fruit standards even in terms of commercial sweet cherry production [87,88].

Table 3. The rootstock candidates' assessment based on grafted 'Summit' trees' vegetative, qualitative and generative characteristics in the fifth year after plantation establishment.

	Vegetative Growth				Qualitative Characteristics			Fruit Quality Traits			
Rootstock Candidate	**Tree Height < 3 m**	**Crown Diameter < 1.5 m**	**Ve < 3 m^3 ***	**Ve Reduction Compared to 'Gisela 5'**	**Absence of Prominent trunk´s Leaning**	**Absence of Suckers**	**Strong Anchorage**	**Fruit Weight 8–9 g**	**Fruit Weight > 9 g**	**Fruit Width > 26 mm**	**SSC > 15% ****
PC_01_01			✔	✔	✔						✔
PC_01_03			✔		✔			✔		✔	✔
PC_01_05			✔			✔	✔	✔		✔	✔
PC_02_01/4	✔		✔				✔			✔	✔
PC_02_03/2			✔	✔							✔
PC_03_01	✔		✔	✔			✔				✔
PC_03_02			✔	✔	✔		✔				✔
PC_03_03			✔		✔		✔				✔
PC_04_01		✔	✔	✔	✔		✔	✔			✔
PC_04_02	✔		✔				✔				✔
PC_04/1_01	✔	✔	✔	✔	✔		✔		✔	✔	✔
PC_04/1_03	✔	✔	✔	✔							✔
PC_05_02	✔	✔	✔	✔				✔			✔
PC_05_04	✔	✔	✔		✔	✔	✔				✔
PC_05_06	✔	✔	✔					✔		✔	✔
PC_05_07	✔		✔		✔		✔	✔		✔	✔
PC_06_03	✔		✔	✔				✔		✔	✔
PC_06_04	✔	✔	✔	✔	✔		✔	✔		✔	✔
PC_06_12	✔	✔	✔	✔	✔	✔	✔				
'Ciganymeggy'	✔	✔	✔	✔	✔		✔	✔		✔	✔
PF_01_01	✔	✔	✔	✔	✔		✔				✔
PF_02_16	✔	✔	✔	✔	✔				✔	✔	
PF_04_09	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
PF_06_04	✔		✔		✔		✔	✔		✔	
PF_06_06			✔		✔		✔	✔		✔	
PF_06_08					✔		✔		✔	✔	
PF_06_15		✔	✔	✔	✔		✔				
PF_07_01			✔	✔	✔		✔		✔	✔	✔
PF_07_02		✔	✔	✔	✔		✔	✔		✔	✔
PF_07_04			✔				✔		✔	✔	✔
PF_07_05	✔		✔				✔		✔	✔	✔
PF_07_07			✔		✔		✔		✔	✔	✔
PF_07_08	✔		✔		✔		✔	✔			✔
PM_09_01	✔	✔	✔	✔	✔	✔	✔				✔
PM_09_02					✔	✔	✔	✔			
'Gisela 5'	✔	✔	✔	/	✔	✔	✔	✔		✔	✔
'Colt'			✔	✔	✔	✔	✔				

* Ve, the effective crown volume; ** SSC, the soluble solids content.

The results indicate that in the stressful, non-irrigated or unmaintained roof and other urban edible gardens genotypes, PC_01_05, PC_04_01, PC_04/1_01, PC_05_04, PC_05_07, PC_05_06, PC_06_04, PC_06_12, PF_01_01, PF_02_16, PF_04_09, PF_06_04, PF_07_01, PF_07_02, PF_07_05, PF_07_07, PF_07_08 and PM_09_01 are expected to perform well.

The selection of adaptable yet dwarfing and productive rootstocks for commercial production as well as for the urban garden hobbyists eager to produce their own food, contributes to the achievement of multiple SDGs. That includes: the end of poverty (SDG 1) and hunger, food security, nutrition improvement and sustainable agriculture promotion (SDG 2), natural resources preservation—availability and sustainable management of water (SDG 6)—and the protection and restoration of terrestrial ecosystems, as well as stopping and reversing land degradation and biodiversity loss (SDG 15). Consequently, it represents one way of coping with climate change in order to mitigate and prevent its negative impacts, as stated in SDG 13.

4. Sustainable Practices—Utilization and Development of Novel Nature Based Solutions

4.1. Greening the Economy and Economizing the Greenery Approach

Invasive alien species (IAS) are plants, animals, pathogens and other organisms that are not natural in a certain ecosystem and that can cause economic or environmental damage or adversely affect human health. With vast species biodiversity of different origins, public parks seem to play a significant role in plant invasions [89]. Allochthonous ornamental species indisputably contribute to the biodiversity and decorativeness of the greenery, thus are its most valuable element. Investigations have proven that even the most threatening IAS, such as *Ailanthus altissima* (tree of heaven) provides multiple ecosystem services (medicinal, agricultural, pharmaceutical, reforestational, cultural and environmental); thus, this could be a useful species in aiding many contemporary needs of modern civilization [90]. Moreover, it has been recently shown that a tree of heaven might be a significant source of biodiesel [91]. Similarly, very recent studies proved that *Koelreuteria paniculata* can provide raw material to be processed in food [92], cosmetic and pharmaceutical industry [93], or as a biodiesel feedstock [38,39]. It is very difficult, almost impossible to separate and balance the benefits and damages, services (ES) and disservices (EDS) caused by IAS, and research efforts are increasing in this field [94]. Thus, our most recent investigation focused on oil-rich invasive and potentially invasive ornamentals.

In the inner city of Novi Sad, a total of 2226 individuals belonging to the examined presumably oil-rich invasive ornamental species (*Thuja orientalis* L., *K. paniculata* Laxm., *Hibiscus syriacus* L., *Parthenocissus quinquefolia* L. and *Juniperus horizontalis* Moench.) were recorded. Quantitative and qualitative characteristics were analyzed for each examined decorative species (Table 4). Ornamental species that are present on urban green areas in the territory of the city of Novi Sad are typical species that are used all over the world as ornamental species in public green areas, botanical gardens, garden centers and gardens [95]. The total number of individuals in ornamental species was recorded in *T. orientalis* (816 individuals), *K. paniculata* (400 individuals), *H. syriacus* (865 individuals), *P. quinquefolia* (61 individuals) and *J. horizontalis* (84 individuals) in the inner city of Novi Sad on public green areas such as parks, squares, urban pockets, street greenery, tree rows and residential community complexes. Pušić et al. [96] showed in their work that in the territory of the city of Novi Sad, the number of ornamental allochthonous species is dominant (58%) compared with autochthonous species (42%); they also found that these species show a certain invasive potential and great competitiveness against native species. Highly invasive species include Chinese golden rain [68] and Virginia creeper [96], characterized by a wide range of distribution and easy adaptation to new habitat conditions, due to a well-developed dispersal system in the form of hairs and wings that allow them to disperse more easily. The seeds of these highly invasive foreign species germinate very quickly and are easily planted on other green surfaces, which leads to the creation of spontaneous associations that are located near the mother plant, and at the same time they can grow from concrete, stone, roads and other inadequate places for the plant [90,97]. Oriental cedar and Rose of Sharon are considered moderately invasive species, which are characterized by slow adaptation to new habitats and have a lower distribution of individuals [96,97]. Since the seeds of moderately invasive foreign species do not have well-developed systems for self-dispersion, they form spontaneous associations to a lesser extent, which greatly reduces their degree of invasiveness. Although they are defined as moderately invasive alien species, they require further monitoring so that they do not become a potential danger to urban ecosystems. Creeping juniper is considered a weak or potentially invasive alien species, and it is characterized as a species that has the power of vegetative spread to other habitats and whose cone maturation period lasts quite long, which leads to very low self-dispersion. Certain positive features that adorn the ornamental invasive alien species are the flowering period, rapid growth, vegetative reproduction, height, abundant canopy, and the production of a large number of seeds and fruits, which are related to their ability to become highly invasive but make them very suitable for afforestation in urban areas due to their highly aesthetic and decorative values [98,99]. These ornamental species, which are found in various green areas, in addition to being invasive, are often allergenic and poisonous, which essentially represents a threat to the urban ecosystem [100]. Oriental cedar and Creeping juniper are considered highly allergenic species because their phenostatic period lasts more than a month and they have cross-reactivity with the pollen of other ornamental species that occur on green areas. Ornamental species such as Chinese golden rain, Rose of Sharon and Virginia creeper are considered moderately allergenic species, which are characterized by increased growth and large flowers, but have a shorter phenostatic period than highly allergenic species. Ornamental species that are characterized by invasive and allergenic potential represent a challenge faced by a large number of cities, and it is necessary to take adequate measures such as careful selection of plant material on green areas or to identify solutions that will reduce the degree of invasiveness and allergenicity, and at the same time increase sustainability urban ecosystems to a higher level [95].

Table 4. Assessment of the quantitative and qualitative characteristics of ornamental species on public green areas in the inner city of Novi Sad.

	Quantitative Characteristics			**Qualitative Characteristics**							
Species	**Total Number of Specimens**	**Canopy Volumes (m^3)**	**Oil Percentage (%)**	**High Invasive Potential**	**Moderate Invasive Potential**	**Low Invasive Potential**	**High Allergen Potential**	**Moderate Allergen Potential**	**High Vitality Value**	**High Ornamental Value**	**Biodiesel Production**
Oriental cedar (*Thuja orientalis* L.)	816	61.7	22		✔		✔		✔	✔	✔
Chinese golden rain (*Koelreuteria paniculata* Laxm.)	400	268.6	22.8	✔				✔	✔	✔	✔
Rose of Sharon (*Hibiscus syriacus* L.)	865	9.4	11.5		✔			✔	✔	✔	✔
Creeping Juniper (*Juniperus horizontalis* Moench.)	84	34.9	2.1			✔	✔		✔	✔	✔
Virginia creeper (*Parthenocissus quinquefolia* L.)	61	21.4	25	✔				✔	✔	✔	✔

The listed ornamental species examined in this work are characterized by an abundant canopy that produces large amounts of fruits and seeds (green biomass) which are usually unused and irretrievably lost (Table 4). The average value of crown volume in highly invasive alien species such as *K. paniculata* and *P. quinquefolia* was 268.6 m^3 and 21.4 m^3, in the moderately invasive alien species *T. orientalis* and *H. syriacus* the average crown volume is 61.7 m^3 and 9.4 m^3, while *J. horizontalis* as a potentially invasive alien species, had an average crown volume of 34.9 m^3. Knowing the volume of the crown of these ornamental species gives a clear estimate of how many seeds and fruits (green biomass) they can produce on an annual basis, thus implying the use of generative parts (fruits and seeds) in the function of new green solutions-biodiesel and biofuels, as opposed to the traditional need to eradicate these ornamental species in order to suppress their degree of invasiveness. Invasive ornamental species in the function of green solutions-biodiesel and biofuels have the task of directing the production of green solutions towards new sources of raw materials that come from decorative horticultural plants growing in different green areas throughout the city without the need to occupy additional arable land or use pesticides and fertilizers [39]. Green solutions of investigated species expand the wide range of ecosystem services that they offer and the possibility of using inedible oils as a renewable energy source [101]. The seeds of decorative species such as *P. quinquefolia* (25%), *K. paniculata* (22.8%), *T. orientalis* (22%) and *H.s syriacus* (11.5%), have the highest percentage of oil, while the lowest percentage of oil occurs in the seeds of *J. horizontalis* (2.1%). Seeds of ornamental species *T. orientalis*, *K. paniculata*, *H. syriacus* and *P. quinquefolia* are rich in oil that is suitable for the production of biodiesel and biofuel, according to the standard defined by regulation EN 14214 for the production of biodiesel [39].

Our 'greening the economy and economizing the greenery' approach is thus reflected in the exploitation and not the eradication of oil-rich potentially invasive and invasive species, while technology production of green solutions improves urban greenery and is considered sustainable for urban ecosystems. Although the Agenda counts 17 Sustainable Development Goals (SDGs), SDG 7-Green waste is a new source of sustainable energy aims to "provide affordable, sustainable and reliable energy for all" that will have an immediate impact on people's daily lives [1]. Green energy, in addition to providing alternative sources of energy, can directly or indirectly affect other SDG goals such as sustainable cities and communities (SDG 11), climate change (SDG 13), sustainable economic growth and decent work (SDG 8), gender equality (SDG 5), and one of the most important is halting the loss of biodiversity and preserving urban ecosystems (SDG 15) [102].

4.2. Sustainable Urban Planning

Nature-based solutions are important in the achievement of the multiple sustainable development goals [103]. The term "NBS" emerged in the late 2000s and has since been used in various international environmental documents and frameworks, with prominence as actions for addressing the climate change and biodiversity loss crises [104]. In addition to contributing to the increase in the total area under vegetation, NBS have been proven to effectively mitigate and solve resource depletion and climate-related challenges in urban areas [105]. Nature-based solutions are focusing on the application of the set of different sustainable tools that include multifunctional green areas-zones integrated into urban spaces such as rain gardens, green roofs, green walls, constructed wetlands, water ponds, bioswales and permeable surfaces on different scales of urban planning. In the process of searching for a sustainable approach for the city of Novi Sad, some of these NBS tools are further presented and discussed in order to contribute to their affirmation and future implementation.

Although sustainable development is recognized as a desirable model for the urban design of the city of Novi Sad, the issue of sustainable management is generally underdeveloped in theory and practice. Compared with data from the year 2000, the construction index of the city increased with extreme values in several individual urban parts of the city, leading to a lack of the quality of green spaces and a high percentage of impervious surfaces. Extreme values of the construction index are also being accompanied by high population densities. The ratio of impervious surface in the Novi Sad city ranges from 5% up to 95% in different parts of the city, whereas the highest percentage of imperviousness with value of 60% is present in the city center [106]. The urban area of the city of Novi Sad also contains different concentrations of heavy metals in soil and stormwater, such as zinc (Zn), lead (Pb) and copper (Cu), along with problems such as frequently localized flooding during heavy rains [40]. According to Greksa et al. [41], integrating some of the NBS bioretention gardens, the city of Novi Sad could enhance resilience in the part of the city that is more vulnerable to climate change adverse factors.

4.2.1. Rain Gardens

The first step towards determining the potential for implementing NBS included spatial analysis such as the analysis of the existing land use, analysis of the number of impervious surfaces, existing infrastructure and the number of green areas. Based on these analyses, the existing situation in the urban context of the city of Novi Sad was identified. The vulnerability ratio of urban parts of Novi Sad, such as current environmental problems with water and soil pollution and urban floods, was taken as an important indicator for NBS implementation (Table 5), at the same time pointing out the parts of the city with primary significance for sustainable urban regeneration. The current land use of Novi Sad includes public areas, individual and collective housing, agricultural, forestry and nature-related uses, whereas the green areas are categorized as urban greenery—parks, squares, greenery of the roads, greenery of residential blocks, green areas of special character, protective green belts in the urban fabric, suburban greenery, forests, places for leisure and active recreation and greenery outside the construction area (non-urban greenery)—natural or created forest massifs, national parks, hunting and fishing areas [107]. According to Table 5, the most vulnerable part of the city is the city center, which has a high percentage of impervious surfaces and other environmental issues such as the presence of heavy metals in soil, stormwater and plants, whereas localized flooding relates to all parts of the city. In terms of that, the analysis of the possibility of implementing NBS with the aim of revitalizing the urban area of Novi Sad refers to the basic research and design questions such as how to find a solution in a densely urban area on the territory of Novi Sad that will turn conventional green areas into spaces for sustainable water, soil and plant management.

Table 5. Potentials on implementing NBS in urban context of Novi Sad based on important indicators such as detected environmental issues.

Locations/part of the city	Percentage of imperviousness for this part of the city [106]	Land use [107]	Heavy metals in soil (Zn, Pb, Cu) [40]	Heavy metals in stormwater runoff (Zn) [41]	Heavy metals in snow runoff [108]	Concentrations of heavy metals in plants (Zn, Pb, Cu) [40]	Often flooded locations	Presence of neglected areas or unused green spaces and [107]
Detelinara	49	residential	✔	✔	✔	✔	✔	✔
City center	60	residential, city centers	✔	✔	✔	✔	✔	✔
Industrial zone-North 2	30	industrial, commercial					✔	✔
Banatic	30	multi-family housing	✔	✔	✔	✔	✔	✔
Liman	31	residential	✔		✔	✔	✔	✔
Podbara	39	multi-family and single housing	✔		✔	✔	✔	✔
Old city part	42	city centers and residential	✔		✔	✔	✔	✔
Grbavica	50	residential	✔	✔	✔	✔	✔	✔

Rain gardens are often called bioretention systems. They are designed in the form of shallow depressions, in order to receive the stormwater and infiltrate it into the soil. In the rain gardens, water is treated through various physical, chemical and biological processes, thus reducing pollution and preserving water quality. This ecological approach encourages the infiltration of rainwaters at the place of their occurrence, water storage, evaporation and/or rainwater reuse [109]. Stormwater management strategies using conventional drainage systems in recent years are being complemented with sustainable management methods that mimic natural processes, such as bioretention or rain gardens. These terms refer to common definitions for all systems that are designed to accept and reduce the amount of runoff, while treating pollutants. In addition, water retention through bioretention reduces flood risk, surface and groundwater pollution and protects the environment. As presented in Table 5, field and laboratory analyzes indicated the presence of heavy metals with variable concentrations at individual locations in Novi Sad. Zinc (Zn) was isolated as a heavy metal with the highest measured concentration in soil and stormwater. Lead (Pb) was the second most abundant heavy metal detected. For the purpose of determining the presence of heavy metals in plant material, the most representative deciduous tree species that form tree alleys at the selected sites were analyzed: *Platanus* × *acerifolia* (Aiton) Willd., *Celtis occidentalis* L., *Tilia argentea* L. and *Quercus robur* L. Determining the concentrations of heavy metals in leaves and calculating bioconcentration factors revealed that *C. occidentalis* mainly accumulates Cu, the species Q. robur mainly accumulates Zn and *T. argentea* accumulates Pb, whereas *Platanus* × *acerifolia* retains all tested heavy metals, but in lower concentrations compared with the other analyzed species. The overall results of the research highlighted the importance of applying bioretention as a sustainable model for reducing runoff and treating stormwater. On the territory of Novi Sad, bioretention gardens can be integrated into the already existing elements of the urban area, such as green infrastructure. The applied methodology can be recommended and applied to other cities, not only in Serbia, but all over the world with similar problems of urban floods.

4.2.2. Green Roofs

A green roof, or rooftop garden, is a vegetative layer grown on a rooftop. Green roofs provide shade, remove heat from the air, reduce temperatures of the roof surface and surrounding air and reduce runoff volumes. They are designed not only to return the natural element to the urban environment, but also to provide solutions to important problems such as the urban island heat effect and atmospheric water treatment, as well as the growing need for food [42]. The observed average runoff retention averages 67%, although it generally ranges between 50% and 80% [110]. Green roofs increase evaporation and transpiration and combined with other NBS practices; they are part of sustainable water management.

Searching for the tolerant flowering species as well as light horticultural substrates/soils suitable for semi-intensive green roofs and balconies the research was carried out during the summer months of 2022 in the Botanical Garden of the Faculty of Agriculture in Novi Sad for three months. The selection of plant material included the inclusion of flowering species potentially resistant to drought and high insolation (more than 20 continuous days without natural precipitation, daily temperatures above the trial reaching around 45 °C, 10–12 h of full sun), namely: *Gazania rigens* (L.) Gaertn., *Petunia* × *hybrida* Juss., *Salvia splendens* Sellov ex J.A. Schultes, *Catharanthus roseus* (L.) G.Don and *Begonia* × *semperflorens-cultorum* L. Box palettes with an area of 1 m^2 and a height of 15 cm were made, in which a shallow substrate in the ratios 5:5 cm (peat:perlite), 5:10 cm (peat:perlite) or 10:5 cm (peat:perlite) were applied. Each substrate was amended with a 0.3% concentration of hydrogel. In addition to different depths of the substrate, the treatments entailed different irrigation dynamics. In total, 30 plants of each species were irrigated with 3 mm of precipitation every second day, and 30 plants received the same amount every third day. Irrigation was not applied in the event of rainfall.

The checklist was made by evaluating the adaptability of five different flowering species to the lack of water in a shallow substrate by applying certain treatments after three months (Table 6). Treatments were compared in terms of irrigation level, survival percentage and regenerative potential.

Table 6. Adaptability assessment of 5 different flowering species to water stress based on the qualitative and quantitative characteristics for a period of three months after planting.

Species	3 Months after Planting															
	Plant Height > 15 cm		Plant Width > 20 cm		Plant Length > 20		% of Survival > 50%		Moderate Vitality Score		Good Vitality		High Decorativeness		100% Regenerative Potential	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Gazania rigens (L.) Gaertn.		✔					✔	✔	✔		✔				✔	✔
Petunia × *hybrida* Juss.	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Salvia splendens Sellow ex J.A. Schultes	✔	✔					✔		✔	✔	✔		✔			
Catharanthus roseus (L.) G.Don	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Begonia × *semperflorens-cultorum* L.		✔					✔	✔	✔		✔			✔	✔	✔

According to Anjum et al. [111] and Shao et al. [112], the reduction in plant height appears to be one of the most significant effects and visible symptoms of water deficit during the vegetative period; however, the results of the experimental water deficit treatment (T2-watering every third day) indicated the drought-tolerance of all five analyzed species. Within T1, in which the plants were watered every second day, two species: *G. rigens* and *B.* × *semperflorens-cultorum* proved to have the highest threshold of tolerance to water deficit compared to the other three species bearing in mind that the value of their height increased in conditions of less frequent watering.

Although the percentage of survival and regenerative potential showed well for all species except *S. splendens*, most of the plants on this list require some frequency of watering to survive the dry summer months, especially in drier areas. Different plant species have different responses to drought stress [113]; for example, the change in leaf area is considered one of the basic characteristics of the leaves of plants under drought stress that directly affects plant yield [114]. This is proven by the evaluations of plant width and length parameters, where a significant difference in relation to height was observed, and only two species out of the total showed their development potential under conditions of reduced irrigation, namely: *P.* × *hybrida* and *C. roseus*, whereas the other species showed significantly reduced plant development in drought conditions.

By detecting morphological and physiological changes, plant vitality can be assessed [115,116], which was shown in research concerning the species: *G. rigens*, *S. splendens* and *B.* × *semperflorens-cultorum* whose vitality was significantly reduced in T2 under drier conditions. In the first watering treatment, all five species showed solid vitality; however, by analyzing decorativeness, only two species out of the total number preserved their complete appearance. The species that proved to be the most tolerant to water deficit in terms of all evaluated parameters were *P.* × *hybrida* and *C. roseus*.

Drought frequency and severity are expected to increase in many regions in the future as a result of reduced precipitation and increased evaporation due to global climate change [117–119]. Therefore, one of the main motivations for scientific research on plants is to improve our understanding of the drought impact on plant functional traits due to the potential impact on ecological productivity and vegetation management [120]. For decades, methods of applying soil water deficit have been used in pot research [121] and the most basic method is the drying of plants in pots by stopping irrigation [122]; however, this method risks rapid rates of drying. Therefore, wooden boxes (containers) were used as part of this experiment, which will provide approximately equal conditions for the growth and development of plants. According to Landis [123] and Kostopoulou et al. [124], the depth of the container directly affects the growth and development of plants due to the fact that it is related to the water retention capacity, humidity and air ventilation; therefore, research should be directed towards the search for adequate substrates and conditions in which different types of plants are grown.

The implementation of highly ornamental flowering species in a light substrate amended with hydrogel instead of simple extensive green roofs with sedums, directly affects SDG 3—ensure healthy lives and promote well-being for all at all ages, SDG 6—ensure availability and sustainable management of water and sanitation for all, and SDG 11—make cities and human settlements inclusive, safe, resilient and sustainable. Indirectly benefits are related to SDG 13—take urgent action to combat climate change and its impacts.

4.2.3. Green Swales/Bioswales

Swales can be described as landscaped depressions planted with dense vegetation or grass that treat stormwater from roofs, streets and parking lots. They represent linear, shallow and long vegetation systems (channels), characterized by the fact that they store or transmit stormwater, reduce runoff and reduce the amount of pollution. They can be integrated in open spaces and in public parks. They can be designed as dry and wet depressions (dry swale and the wet swale/wetland channel). Dry depressions rely primarily on filtration through engineered media to provide the removal of contaminants from stormwater. Wet depressions achieve pollutant and sediment removal through settling and biological removal [125].

4.2.4. Grass Channels

Grassed canals, also called "biofilters", are usually designed to allow runoff to be treated as well as to reduce velocities. They can be implemented on a variety of surfaces, including roads and highways. Unlike the practice of improved shallow depressions, they do not have an engineered filter media, and therefore have a lower pollutant removal rate [104]. Grassed channels can partially infiltrate stormwater from minor storm events on permeable soils.

4.2.5. Constructed Wetlands

Constructed wetlands or marshy areas are shallow depressions that collect and retain wastewater and allow it to be filtered [125]. Constructed wetlands are areas that are permanently under water. They can be used in all stages of water purification (primary, secondary and tertiary) from different impermeable surfaces. Wetlands are characterized by swamp vegetation that is adapted to the conditions of soil saturation and has the properties that its tree allows the removal of pollutants, through processes such as sedimentation, filtration, biodegradation, sorption, etc. [126]. In constructed wetlands, water is present on the surface and in the zone of the root system for a longer period of time.

5. Discussion

A decade ago, it was noted that environmentally and health-friendly production methods and the careful use of ornamentals' resources have become crucial for reaching the goal of a more sustainable horticultural plant production [127]. Proper consumption of limited resources and reduction in chemicals applied during production of ornamental plants was recommended towards the environmental protection. According to Van Huylenbroeck [128], the germplasm of many species and their relatives has still not been fully explored and remains unknown. Enhanced disease and pest resistance, along with increased tolerance against abiotic and biotic stressors, embedded in the germplasm of ornamentals can help to reach sustainable development goals. The same author stated that many countries recently realized the value of their native plant species and the potential to use them as ornamentals. It was noted that several aspects playing a role in sustainable ornamental production can be addressed by plant breeding, namely, selection towards disease or pest resistance (reducing the use of pesticides), natural compact growth (reducing chemical growth regulation and enabling cultivation in constrained spaces) and drought tolerant landscape plants (reducing the need of irrigation). Genetic resources of terrestrial orchids and autochthonous cherry germplasm in our research corroborated this statement, with the expansion of cherry germplasm services for utilitarian (urban food production) rather that solely ornamental purposes. Autochthonous flora introduction on the horticultural market and its application was previously proven for Allium, anemones, ranunculus, cyclamen, Muscari, Narcissus, Ornithogalum, Lilium, Scilla and Tulipa [129]. Due to the change in consumers' preferences towards more natural and environmentally friendly or wildlife-friendly products, Greek researchers proposed numerous native species for commercialization: *Dianthus corymbosus*, *D. crinitus, Dianthus gracilis* subsp. *gracilis*, *Astragalus maniaticus, Campanula incurve*, *Campanula garganica* subsp. *Cephallenica*, *C. huljakii*, *Potentilla detommasii*, *Satureja pilosa* subs. *pilosa*, *Sempervivum marmoreum* subsp. *marmoreum*, *Silene fabaria* subsp. *domokina*, *Stachys cretica*, *Teucrium flavum* subsp. *hellenicum*, *Thymus thracicus*, *T. degenii* and *T. sibthorpii* [130]. In the past decade, there has been increasing interest from design professionals in the use of indigenous trees, shrubs and groundcovers, to achieve both aesthetic and environmental objectives, with the potential to develop and promote native vegetation in resort and urban streetscape projects [131].

Sustainability in floriculture as a part of the horticultural production is required to reduce environmental degradation, conserve genetic resources and energy concomitantly preserving quality of life and maintaining productivity and economic viability [132]. Shifting from merely ornamental purposes, our approach to rose breeding with the pronounced added values towards ecosystem services further expands sustainability in breeding efforts. Variation in disease resistance among different garden rose species and their interspecific compatibility enables introgression of those traits into novel cultivars, which are specifically gaining interest in breeding programs, including in the United States [133]. Disease resistance within cut rose flower cultivars is hard to achieve, whereas within garden roses, there is an existing genepool characterized by disease resistance. Here, the introgression of wild and diverse germplasm in breeding has lead to significant progress in the development of a new disease-resistant assortment of garden roses during recent years. The use of resistant cultivars is the most effective and durable way to combat pathogens in ornamentals, with even a small increase in the disease resistance resulting in positive environmental and production outcomes [134]. In general, sustainability in floriculture should consider social, environmental and economic dimensions [132], known as the three Ps: people, planet and profit [135], or in our opinion, the four Ps: people, plants, planet and profit. We also strive to expand the well-known triple-helix model (interactions between academia or the university, industry and government, to foster economic and social development) towards the quadric-helix approach with the interactions between academia, industry, government and natural wealth reflected in the existing biodiversity.

Combined with breeding for sustainability, such practices lead to the true implementation of nature-based solutions. One EC document on NBS [136] specified strict questions to define whether an action can or cannot be considered an NBS: (1) Does the NBS use nature/natural processes? (2) Does it provide/improve social benefits? (3) Does it provide/improve economic benefits? (4) Does it provide/improve environmental benefits? (5) Does it have a net benefit for biodiversity? According to Sowińska-Świerkosz and Garcia [137], the best examples of actions that fulfill these requirements are flowering ornamental plants planted on green vertical walls in urban settings, which contribute to the increase in biodiversity and are also highly appreciated by people for their aesthetic value. As the same authors stated, besides green walls, green roofs can also be regarded as NBS, contributing to the achievements of SDGs. NBS green roofs and green façades are a natural tool to reduce the energy demands, due to the lower surface temperatures during summer [138].

Recently, Romanian researchers surveyed permeable paving, grass and graveled areas; swales and conveyance channels—channels and rills; solutions for water filtration—filter strips and filter trench, bioretention areas; solutions for water infiltration—infiltration basins, rain gardens; solutions for water retention and detention—retention ponds, wetlands; finally, inlets, outlets and control structures. This comprehensive study on urban water management showed that it may help Romanian cities in their endeavors to increase resilience and achieve sustainability goals [139]. Another NBS was surveyed in the UK where the local River Trust proposed a constructed wetland to naturally filter water and improve the quality of water released into the Rivel Ingol showed that this NBS was an alternative to improve water quality concomitantly improving social, environmental and economic dimensions of nature-based solutions [140].

In the future, surveyed nature-based solutions can be fortified by simulated methods such as artificial intelligence and machine learning. Despite the extraordinary amount of biodiversity on earth, human activities have been depleting it at an accelerating rate; as a result, it has now reached the level of a mass extinction event summarized in the HIPPO concept. Popularized by Edward O. Wilson, "HIPPO" stands for 1. Habitat Loss, 2. Invasion, 3. Pollution, 4. Population and 5. Overexploitation. Some of the examples of artificial intelligence tools for biodiversity lost calculation are 'EstimateS', which is a well-known software tool that provides simple procedures for calculating biodiversity indices [141]. In recent times, the R programming language and the R package 'vegan', in particular, have become popular alternatives for these biodiversity calculations [142]. This research also conducted in Novi Sad showed successful applications for measuring dendrofloristic diversity in city parks; however, these methods can be easily extended to calculating the diversity of fauna and other life forms to other spatial extents as well. The calculation procedures were performed with the R program, applying the R package 'vegan'. Two useful R packages for additional modeling purposes are 'plant' and 'ForestFit' both of which offer diverse types of analysis and simulation regarding plant communities and their 'size and trait-structured demography, ecology and evolution' [143].

6. Conclusions and Future Prospects

Aiming to promote sustainable plant selection and practices, breeding and greening goals significantly changed during the past decade. Intertwining the horticulture (providing plant material for greening purposes) and landscape architecture (applying the plant material) allowed new streamlined research in Novi Sad (Serbia). Formerly conducted greening projects as well as plant selections were based mainly on aesthetic requirements. Such solutions do not contribute to the affirmation of NBSs, because they contradict current scientific and practical sustainable practices. Green areas are full of invasive and allergenic plan species, whereas free areas are being occupied by parking lots and illegally built garages, with almost no planned public spaces for socialization of the residents. Our approach calls for rethinking the horticulture and related landscape architecture especially in the under-developed and developing countries, to meet multiple SDGs. It is necessary to introduce NBS in guidelines for their implementation at both macro and micro levels. The shift in research interest towards sustainable usage of plant genetic resources (roses, autochthonous terrestrial orchids, sweet and sour cherry eco-types, and allochthonous oil-rich species), as well as sustainable practices such as nature-based solutions (urban-derived biodiesel, rain gardens, green roofs, green walls, constructed wetlands, water ponds, bioswales and permeable surfaces on a different scales of urban planning), led to the introduction of NBSs. There are many advantages of NBS tools, namely, urban food production, plant tolerance to abiotic and biotic stressors, protection of water quality, reduction in rain runoff and floods, mitigation of toxic, polluting substances, replenishment of natural groundwater and improved sustainability and pleasantness of urban areas by their integration into the existing landscape. Options for NBS application in the city of Novi Sad include new areas of residential development, new areas of commercial/industrial development, roadway/streets projects, institutional developments, revitalization and smart growth projects, urban retrofit projects, private residential landscaping, pocket parks and neglected areas, with sustainable greenery within numerous ecosystem services. Plant selection and breeding strategies should meet the urban increase requests, whereas urban planning needs to incorporate sustainable genetic resources suitable for urban ecosystems.

However, research limitations related to the specificities of each city's constructed elements, such as difficulties in the incorporation of novel solutions to the current gray and green infrastructure and, similarly, require adjustments and more investigations in the following period. The presented investigations and practices are exemplary case studies aiming to provoke similar motions on a larger scale. Urban expansion, the degree of construction patterns' arrangement, geo-position, population growth and dynamics will demand more complex landscapes with specific requirements, encouraging additional surveys and research. Thus, it is expected that only mutual involvement of breeders/geneticists, landscape architects, horticulturalists and engineers can lead to the sustainability and durability of the plants and of construction. Rethinking horticulture and landscape architecture is essentially one multidisciplinary approach with the unique and permanent philosophy of a gradual and constant transformation of grey into green sustainable cities, concomitantly raising awareness of the researchers, society and governments about the reorientation of cities towards nature through 'horticulturalization'.

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References

1. Constable, C.E. (Ed.) Preface to Transitioning to Affordable and Clean Energy. In *Transitioning to Affordable and Clean Energy*; Transitioning to Sustainability Series 7; MDPI: Basel, Switzerland, 2022; pp. 1–3.
2. United Nations Environmental Programme–UNEP-IETC. *The Ecosystems Approach to Urban Environmental Management*; United Nations Environmental Programme: Nairobi, Kenya, 2003.
3. Savard, J.P.L.; Clergeau, P.; Mennechez, G. Biodiversity concepts and urban ecosystems. *Landsc. Urban Plan* **2000**, *48*, 131–142. [CrossRef]
4. Schuller, D.; Brunken-Winkler, H.; Busch, P.; Förster, M.; Janiesch, P.; Lemm, R.; Niedringhaus, R.; Strasser, H. Sustainable land use in an agriculturally misused landscape in northwest Germany through ecotechnical restoration by a 'Patch-Network-Concept'. *Ecol. Eng.* **2000**, *16*, 99–117. [CrossRef]
5. Urban, D.L.; Minor, E.S.; Treml, E.A.; Schick, R.S. Graph models of habitat mosaics. *Ecol. Lett.* **2009**, *12*, 260–273. [CrossRef]
6. Galpern, P.; Manseau, M.; Fall, A. Patch-based graphs of landscape connectivity: A guide to construction, analysis and application for conservation. *Biol. Conserv.* **2011**, *144*, 44–55. [CrossRef]
7. Rosa Martínez, E.; Coquillat Mora, P.; Berenguer Forner, C. Designing human-friendly cities. *Cienc. Cogn.* **2022**, *16*, 7–9.
8. Zumelzu, A.; Herrmann-Lunecke, M.G. Mental well-being and the influence of place: Conceptual approaches for the built environment for planning healthy and walkable cities. *Sustainability* **2021**, *13*, 6395. [CrossRef]
9. Ma, B.; Zhou, T.; Lei, S.; Wen, Y.; Htun, T.T. Effects of urban green spaces on residents' well-being. *Environ. Dev. Sustain.* **2019**, *21*, 2793–2809.
10. Jian, I.Y.; Chan, E.H.; Xu, Y.; Owusu, E.K. Inclusive public open space for all: Spatial justice with health considerations. *Habitat. Int.* **2021**, *118*, 102457. [CrossRef]

11. Eurostat. Urban Europe–Statistics on Cities, Towns and Suburbs. Available online: https://ec.europa.eu/eurostat/statistics-explained/index.php/Urban_Europe_%E2%80%94_statistics_on_cities,_towns_and_suburbs (accessed on 15 January 2020).
12. Božanić Tanjga, B.; Ljubojević, M.; Đukić, A.; Vukosavljev, M.; Ilić, O.; Narandžić, T. Selection of garden roses to improve the ecosystem services they provide. *Horticulturae* **2022**, *8*, 883. [CrossRef]
13. Ljubojević, M.; Ognjanov, V.; Bošnjaković, D.; Barać, G.; Mladenović, E.; Čukanović, J. Assortment for intensive cherry orchards. In Proceedings of the XXV Conference of Improvement in Fruit and Grape, Institute PKB Agroekonomic, Grocka, Serbia, 29 July 2011; Volume 17, pp. 5–12.
14. Dorić, D.; Ognjanov, V.; Ljubojević, M.; Barać, G.; Dulić, J.; Pranjić, A.; Dugalić, K. Rapid propagation of sweet and sour cherry rootstocks. *Not. Bot. Horti Agrobot. Cluj-Napoca* **2014**, *42*, 488–494.
15. Republic Hydrometeorological Service of Serbia. Meteorological Yearbook–Climatological Data 2017; 2018; 2019; 2020; 2021. Available online: https://www.hidmet.gov.rs/latin/meteorologija/klimatologija_godisnjaci.php (accessed on 23 November 2022).
16. Statute of the City of Novi Sad. *Official Gazette of the City of Novi Sad*; The City of Novi Sad, The City Administration for Regulations of the City of Novi Sad: Novi Sad, Serbia, 2019.
17. Statistical Office of the Republic of Serbia. Statistical Yearbook of the Republic of Serbia. 2017. Available online: https://publikacije.stat.gov.rs/G2020/pdfE/G20202053.pdf (accessed on 23 November 2022).
18. Živković, M.B.; Lukić, T.; Đerčan, B. Urban changes and problems of Novi Sad in the 21st century. *Geogr. Rev.* **2020**, *43*, 63.
19. Savić, S.; Milošević, D.; Arsenović, D.; Marković, V.; Bajšanski, I.; Šećerov, I. Urban climate issues in complex urbanized environments: A review of the literature for Novi Sad (Serbia). *Acta Climatol. Chorol.* **2016**, *36*, 63–80.
20. Trišić, I.; Privitera, D.; Štetić, S.; Genov, G.; Stanić Jovanović, S. Sustainable tourism in protected area—A case of Fruška Gora National Park, Vojvodina (Northern Serbia). *Sustainability* **2022**, *14*, 14548. [CrossRef]
21. City of Novi Sad–Official Website of City of Novi Sad. Available online: http://www.novisad.rs/ (accessed on 23 November 2022).
22. Republic Hydrometeorological Service of Serbia. Basic Climate Characteristics for the Territory of Serbia. Available online: https://www.hidmet.gov.rs/data/klimatologija_static/eng/Klima_Srbije.pdf (accessed on 23 November 2022).
23. Kostreš, M.; Reba, D. Housing for the new socio-economic elite: A case study of Novi Sad. *Facta Univ. Ser. Archit. Civ. Eng.* **2010**, *8*, 329–343. [CrossRef]
24. Kostreš, M.; Atanacković-Jeličić, J. Sociopolitical changes and city growth—A case study of Novi Sad, Serbia. In Proceedings of the REAL CORP, Essen, Germany, 18–20 May 2011.
25. Stojšin, S. Changes in the population trends in the town of Novi Sad in the period between two censuses. *Zb. Matice Srp. Za Drus. Nauk.* **2006**, *121*, 119–126. [CrossRef]
26. Stojšin, S. Specificity of population trends in Vojvodina-the 2011 census. *Zb. Matice Srp. Za Drus. Nauk.* **2014**, *148*, 471–479. [CrossRef]
27. Statistical Office of the Republic of Serbia. Municipalities and Regions of the Republic of Serbia 2019; 2020, 2021. Available online: https://www.stat.gov.rs/en-US/publikacije/?d=13&r= (accessed on 23 November 2022).
28. Martz, W. Validating an evaluation checklist using a mixed method design. *Eval. Program Plan.* **2010**, *33*, 215–222. [CrossRef]
29. Đorđević, S.; Sentić, I. Industrial heritage park of The Old shunting station in Novi Sad. In Proceedings of the 25st International Eco-Conference, 14th Eco-Conference on Environmental Protection of Urban and Suburban Settlements, Ecological Movement of Novi Sad, Novi Sad, Serbia, 22–24 September 2021.
30. Đorđević, S.; Brndevska Stipanović, V.; Kolarov, R.; Penchikj, D.; Čukanović, J. From grey to green squares. Fighting climate change. In Proceedings of the ECLAS Conference 2022: Scales of Change, Ljubljana, Slovenia, 12–14 September 2022.
31. Phoomirat, R.; Disyatat, N.R.; Park, T.Y.; Lee, D.K.; Dumrongrojwatthana, P. Rapid assessment checklist for green roof ecosystem services in Bangkok, Thailand. *Ecol. Process.* **2020**, *9*, 19. [CrossRef]
32. Tanjga, B.B.; Lončar, B.; Aćimović, M.; Kiprovski, B.; Šovljanski, O.; Tomić, A.; Travičić, V.; Cvetković, M.; Raičević, V.; Zeremski, T. Volatile profile of garden rose (*Rosa hybrida*) hydrosol and evaluation of its biological activity in vitro. *Horticulturae* **2022**, *8*, 895. [CrossRef]
33. Vukosavljev, M. Towards Marker Assisted Breeding in Garden Roses: From Marker Development to QTL Detection. Ph.D. Thesis, Wageningen University, Wageningen, The Netherlands, 2014.
34. Dulić, J.; Ljubojević, M.; Savić, D.; Ognjanov, V.; Barać, G.; Dulić, T.; Milović, M. Implementation of SWOT analysis to evaluate conservation necessity and utilization of natural wealth: Terrestrial orchids as a case study. *J. Environ. Plan. Manag.* **2020**, *63*, 2265–2286. [CrossRef]
35. Ostojić, J.; Ljubojević, M.; Narandžić, T.; Pušić, M. In vitro culture conditions for asymbiotic germination and seedling development of *Anacamptis pyramidalis* (L.) Rich. and *Gymnadenia conopsea* (L.) R. Br. *S. Afr. J. Bot.* **2022**, *150*, 829–839. [CrossRef]
36. Ljubojević, M. Horticulturalization of the 21st century cities. *Sci. Hortic.* **2021**, *288*, 110350. [CrossRef]
37. Narandžić, T.; Ljubojević, M. Breeding size-controlling cherry rootstocks for changing environmental conditions. *Hortic. Environ. Biotechnol.* **2022**, *63*, 719–733. [CrossRef]
38. Ljubojević, M.; Tomić, M.; Simikić, M.; Savin, L.; Narandžić, T.; Pušić, M.; Grubač, M.; Vejnović, S.; Marinković, M. *Koelreuteria paniculata* invasiveness, yielding capacity and harvest date influence on biodiesel feedstock properties. *J. Environ. Manag.* **2021**, *25*, 113102. [CrossRef]

39. Tomić, M.; Ljubojević, M.; Mićić, R.; Simikić, M.; Dulić, J.; Narandžić, T.; Čukanović, J.; Sentić, I.; Dedović, N. Oil from *Koelreuteria paniculata* Laxm. 1772 as possible feedstock for biodiesel production. *Fuel* **2020**, *277*, 118162. [CrossRef]
40. Greksa, A.; Ljevnaić-Mašić, B.; Grabić, J.; Benka, P.; Radonić, V.; Blagojević, B.; Sekulić, M. Potential of urban trees for mitigating heavy metal pollution in the city of Novi Sad, Serbia. *Environ. Monit. Assess.* **2019**, *191*, 636. [CrossRef]
41. Greksa, A.; Grabić, J.; Blagojević, B. Contribution of low impact development practices-bioretention systems towards urban flood resilience: Case study of Novi Sad, Serbia. *Environ. Eng. Res.* **2022**, *27*, 210125. [CrossRef]
42. Ljubojević, M.; Grubač, M. Rooftop fruit growing as a nature based solution to mitigate the climate change. In *Sustainable Practices in Horticulture and Landscape Architecture*; Ostojić, J., Cig, A., Eds.; Iksad: Ankara, Turkey, 2022; pp. 213–244. ISBN 978-625-8323-13-9.
43. Ljubojević, M.; Ognjanov, V.; Maksimović, I.; Čukanović, J.; Dulić, J.; Szabò, Z.; Szabò, E. Effects of hydrogel on growth and visual damage of ornamental *Salvia* species exposed to salinity. *Clean Soil Air Water* **2017**, *45*, 1600128. [CrossRef]
44. Békési, D. How can the impact of a world pandemic accelerate the desire to create more functional and ecological public spaces in urban environments? In Proceedings of the Fábos Conference on Landscape and Greenway Planning, Budapest, Hungry, 30 June–3 July 2022; Volume 7, p. 38.
45. Bringezu, S.; Potočnik, J.; Schandl, H.; Lu, Y.; Ramaswami, A.; Swilling, M.; Suh, S. Multi-scale governance of sustainable natural resource use—Challenges and opportunities for monitoring and institutional development at the national and global level. *Sustainability* **2016**, *8*, 778. [CrossRef]
46. Ringler, C.; Bhaduri, A.; Lawford, R. The nexus across water, energy, land and food (WELF): Potential for improved resource use efficiency? *Curr. Opin. Environ. Sustain.* **2013**, *5*, 617–624. [CrossRef]
47. Javed, A.R.; Shahzad, F.; ur Rehman, S.; Zikria, Y.B.; Razzak, I.; Jalil, Z.; Xu, G. Future smart cities requirements, emerging technologies, applications, challenges, and future aspects. *Cities* **2022**, *129*, 103794. [CrossRef]
48. Jo, S.S.; Han, H.; Leem, Y.; Lee, S.H. Sustainable smart cities and industrial ecosystem: Structural and relational changes of the smart city industries in Korea. *Sustainability* **2021**, *13*, 9917. [CrossRef]
49. Gudin, S. Rose: Genetics and breeding. *Plant Breed. Rev.* **2000**, *17*, 159–189.
50. Henz, A.; Debener, T.; Linde, M. Identification of major stable QTLs for flower color in roses. *Mol. Breed.* **2015**, *35*, 190. [CrossRef]
51. Tisdell, C.A. Biodiversity and the UN's Sustainable Development Goals. In *Transitioning to Sustainable Life on Land*; Transitioning to Sustainability Series 15; Beckmann, V., Ed.; MDPI: Basel, Switzerland, 2021; pp. 25–42.
52. Cardinale, B.; Duffy, J.E.; Gonzalez, A.; Hooper, D.U.; Perrings, C.; Venail, P.; Narwani, A.; Mace, G.M.; Tilman, D.; Wardle, D.A.; et al. Biodiversity loss and its impact on humanity. *Nature* **2012**, *486*, 59–67. [CrossRef]
53. Gaertner, M.; Wilson, J.R.; Cadotte, M.W.; MacIvor, J.S.; Zenni, R.D.; Richardson, D.M. Non-native species in urban environments: Patterns, processes, impacts and challenges. *Biol. Invasions* **2017**, *19*, 3461–3469. [CrossRef]
54. Stojanović, N.; Anastasijević, N.; Anastasijević, V. The use of autochthonous plants in prevention of spreading of invasive plant spaces in the process of urban land planting. In Proceedings of the XIX International Scientific and Professional Meeting "Ecological Truth" EKO-IST-2011, Bor, Serbia, 1–4 June 2011; pp. 324–331.
55. Wraith, J.; Norman, P.; Pickering, C. Orchid conservation and research: An analysis of gaps and priorities for globally Red Listed species. *Ambio* **2020**, *49*, 1601–1611. [CrossRef]
56. IUCN. IUCN Red List of Threatened Species. Version 2021-1. Available online: https://www.iucnredlist.org (accessed on 30 October 2021).
57. Seaton, P.T.; Hu, H.; Perner, H.; Pritchard, H.W. Ex situ conservation of orchids in a warming world. *Bot. Rev.* **2010**, *76*, 193–203. [CrossRef]
58. Zhang, Y.; Zhang, S.; Wang, R.; Cai, J.; Zhang, Y.; Li, H.; Huang, S.; Jiang, Y. Impacts of fertilization practices on pH and the pH buffering capacity of calcareous soil. *Soil Sci. Plant Nutr.* **2016**, *62*, 432–439. [CrossRef]
59. Robatsch, K. Beiträgezur Blüten biologie und Autogamie der Gattung Epipactis. *Jahresber Nat. Ver Wupp.* **1983**, *36*, 25–32.
60. Harp, A.; Harp, S. *Orchids of Britain and Ireland*; A&C Black Publishers Ltd.: London, UK, 2005.
61. Esposito, F.; Vereecken, N.J.; Gammella, M.; Rinaldi, R.; Laurent, P.; Tyteca, D. Characterization of sympatric *Platanthera bifolia* and *Platanthera chlorantha* (*Orchidaceae*) populations with intermediate plants. *PeerJ* **2018**, *6*, 42–56. [CrossRef] [PubMed]
62. Rackham, O. *Ancient Woodland*, 2nd ed.; Castlepoint Press: Colvend, UK, 2003.
63. Millard, A. Semi-natural vegetation and its relationship to designated urban green space at the landscape scale in Leeds, UK. *Landsc. Ecol.* **2008**, *23*, 1231–1241. [CrossRef]
64. Bailkey, M.; Nasr, J. From brownfields to greenfields: Producing food in North American cities. *Community Food Secur. News* **1999**, *2000*, 6.
65. Russo, A.; Escobedo, F.J.; Cirella, G.T.; Zerbe, S. Edible green infrastructure: An approach and review of provisioning ecosystem services and disservices in urban environments. *Agric. Ecosyst. Environ.* **2017**, *242*, 53–66. [CrossRef]
66. Chatterjee, A.; Debnath, S.; Pal, H. Implication of urban agriculture and vertical farming for future sustainability. In *Urban Horticulture-Necessity of the Future*; Solankey, S.S., Akhtar, S., Maldonado, A.I.L., Rodriguez-Fuentes, H., Contreras, J.A.V., Reyes, J.M.M., Eds.; IntechOpen: London, UK, 2020. [CrossRef]
67. CoDyre, M.; Fraser, E.D.G.; Landman, K. How does your garden grow? An empirical evaluation of the costs and potential of urban gardening. *Urban For. Urban Green.* **2015**, *14*, 72–79. [CrossRef]

68. Glavan, M.; Schmutz, U.; Williams, S.; Corsi, S.; Monaco, F.; Kneafsey, M.; Čenič-Istenič, M.; Pintar, M. The economics of urban gardening in three EU cities examples from London, Ljubljana and Milan. In Proceedings of the 2nd International Conference on Agriculture in an Urbanizing Society: Reconnecting Agriculture and Food Chains to Societal Needs, Rome, Italy, 14–17 September 2015; pp. 225–226.
69. Saha, M.; Eckelman, M.J. Growing fresh fruits and vegetables in an urban landscape: A geospatial assessment of ground level and rooftop urban agriculture potential in Boston, USA. *Landsc. Urban Plan.* **2017**, *165*, 130–141. [CrossRef]
70. Zasada, I.; Weltin, M.; Zoll, F.; Benninger, S.D. Home gardening practice in Pune (India), the role of communities, urban environment and the contribution to urban sustainability. *Urban Ecosyst.* **2020**, *23*, 403–417. [CrossRef]
71. Narandžić, T.; Ljubojević, M. Urban space awakening–identification and potential uses of urban pockets. *Urban Ecosyst.* **2022**, *25*, 1111–1124. [CrossRef]
72. Nicola, S.; Ferrante, A.; Cocetta, G.; Bulgari, R.; Nicoletto, C.; Sambo, P.; Ertani, A. Food supply and urban gardening in the time of COVID-19. *Bull. Univ. Agric. Sci. Veter-Med. Cluj-Napoca. Hortic.* **2020**, *77*, 141–144. [CrossRef]
73. Von Hoffen, L.P.; Säumel, I. Orchards for edible cities: Cadmium and lead content in nuts, berries, pome and stone fruits harvested within the inner city neighbourhoods in Berlin, Germany. *Ecotoxicol. Environ. Saf.* **2014**, *101*, 233–239. [CrossRef]
74. Da Cunha, M.A.; Paraguassú, L.A.A.; Assis, J.G.d.A.; Silva, A.B.d.P.C.; Cardoso, R.d.C.V. Urban gardening and neglected and underutilized species in Salvador, Bahia, Brazil. *J. Ethnobiol. Ethnomed.* **2020**, *16*, 67. [CrossRef]
75. Petersen, R.; Krost, C. Tracing a key player in the regulation of plant architecture: The columnar growth habit of apple trees (*Malus* × *domestica*). *Planta* **2013**, *238*, 1–22. [CrossRef] [PubMed]
76. Balducci, F.; Capriotti, L.; Mazzoni, L.; Medori, I.; Albanesi, A.; Giovanni, B.; Giampieri, F.; Mezzetti, B.; Capocasa, F. The rootstock effects on vigor, production and fruit quality in sweet cherry (*Prunus avium* L.). *J. Berry Res.* **2019**, *9*, 249–265. [CrossRef]
77. Milošević, T.; Milošević, N. Behavior of some cultivars of apricot (*Prunus armeniaca* L.) on different rootstocks. *Mitt. Klosterneubg. Rebe Wein Obstbau Früchteverwert.* **2019**, *69*, 1–12.
78. Sobierajski, G.D.R.; Blain, G.C.; Teixeira, L.A.J.; Mayer, N.A. Vegetative growth and foliar nutrient contents of peach on different clonal rootstocks. *Pesqui. Agropecu. Bras.* **2021**, *56*, e02043. [CrossRef]
79. Kajtár-Czinege, A.; Krauczi, É.O.; Hrotkó, K. Growth characteristics of five plum varieties on six different rootstocks grown in containers at different irrigation levels. *Horticulturae* **2022**, *8*, 819. [CrossRef]
80. Houessou, M.D.; van de Louw, M.; Sonneveld, B.G. What constraints the expansion of urban agriculture in Benin? *Sustainability* **2020**, *12*, 5774. [CrossRef]
81. Stokes, A. Responses of Young Trees to Wind: Effects on Root Architecture and Anchorage Strength. Ph.D. Thesis, University of York, Department of Biology, Heslington, UK, 1994.
82. Milatović, D.; Nikolić, D.; Miletić, N. *Sweet and Sour Cherry*, 2nd ed.; Scientific Pomological Society of Serbia: Čačak, Serbia, 2015.
83. Apostol, J. Results of the sweet cherry breading programme in Hungary. *Acta Hortic.* **1999**, *484*, 177–178.
84. Waterman, P. Cherry production trends in British Columbia. *Acta Hortic.* **2005**, *667*, 311–317. [CrossRef]
85. Thurzó, S.; Drén, G.; Dani, M.; Hlevnjak, B.; Hazic, V.; Szabó, Z.; Racskó, J.; Holb, I.; Nyéki, J. Fruit bearing shoot characteristics of apricot and sweet cherry cultivars in Hungary. *Int. J. Hortic. Sci.* **2006**, *12*, 107–110. [CrossRef]
86. Thurzó, S.; Szabó, Z.; Nyéki, J.; Racskó, J.; Drén, G.; Szabó, T.; Nagy, J.; Holb, I.; Veres, Z.S. Some fruit-bearing shoot characteristic of nine sweet cherry cultivars in Hungary. *Acta Hortic.* **2008**, *795*, 673–676. [CrossRef]
87. Whiting, M.D.; Lang, G.; Ophardt, D. Rootstock and training system affect sweet cherry growth, yield, and fruit quality. *HortScience* **2005**, *40*, 582–586. [CrossRef]
88. Kappel, F.; Fisher-Fleming, B.; Hogue, E. Fruit characteristics and sensory attributes of an ideal sweet cherry. *HortScience* **1996**, *31*, 443–446. [CrossRef]
89. Vojík, M.; Sádlo, J.; Petřík, P.; Pyšek, P.; Man, M.; Pergl, J. Two faces of parks: Sources of invasion and habitat for threatened native plants. *Preslia* **2020**, *92*, 353–373. [CrossRef]
90. Sladonja, B.; Sušek, M.; Guillermic, J. Review on invasive tree of heaven (*Ailanthus altissima* (Mill.) Swingle) conflicting values: Assessment of its ecosystem services and potential biological threat. *Environ. Manag.* **2015**, *56*, 1009–1034. [CrossRef]
91. Hoseini, S.S.; Najafi, G.; Ghobadian, B.; Mamat, R.; Ebadi, M.T.; Yusaf, T. *Ailanthus altissima* (tree of heaven) seed oil: Characterisation and optimisation of ultrasonication-assisted biodiesel production. *Fuel* **2018**, *220*, 621–630. [CrossRef]
92. Gao, X.Y.; Zhang, Z.F.; Kou, Y.R. Nutritional characteristics of crude fat, crude protein and crude fiber in the fruits of *Koelreuteria paniculata* Laxm. *Nonwood For. Res.* **2009**, *3*.
93. Andonova, T.; Dimitrova-Dyulgerova, I.; Slavov, I.; Muhovski, Y.; Stoyanova, A. A comparative study of *Koelreuteria paniculata* Laxm. aerial parts essential oil composition. *J. Essent. Oil Bear. Plants* **2020**, *23*, 1363–1370. [CrossRef]
94. Milanović, M.; Knapp, S.; Pyšek, P.; Kühn, I. Linking traits of invasive plants with ecosystem services and disservices. *Ecosyst. Serv.* **2020**, *42*, 101072. [CrossRef]
95. Velasco-Jiménez, J.M.; Alcázar, P.; Cariñanos, P.; Galán, C. Allergenicity of the urban green areas in the city of Córdoba (Spain). *Urban For. Urban Green.* **2020**, *49*, 126600. [CrossRef]
96. Pušić, M.; Narandžić, T.; Ostojić, J.; Grubač, M.; Ljubojević, M. Assessment and potential of ecosystem services of ornamental dendroflora in public green areas. *Environ. Sci. Pollut. Res.* **2022**. [CrossRef]

97. Ljubojević, M.; Pušić, M. Review on ornamental Rose of Sharon (*Hibiscus syriacus* L.): Assessment of decorativeness, invasiveness and ecosystem services in public green areas. In *Sustainable Practices in Horticulture and Landscape Architecture*; Ostojić, J., Cig, A., Eds.; Iksad: Ankara, Turkey, 2022; pp. 71–144. ISBN 978-625-8323-13-9.
98. Van Kleunen, M.; Weber, E.; Fischer, M. A meta-analysis of trait differences between invasive and non-invasive plant species. *Ecol. Lett.* **2010**, *13*, 235–245. [CrossRef]
99. Vaz, A.S.; Kueffer, C.; Kull, C.A.; Richardson, D.M.; Vicente, J.R.; Kühn, I.; Schröter, M.; Hauck, J.; Bonn, A.; Honrado, J.P. Integrating ecosystem services and disservices: Insights from plant invasions. *Ecosyst. Serv.* **2017**, *23*, 94–107. [CrossRef]
100. Mrđan, S.; Ljubojević, M.; Orlović, S.; Čukanović, J.; Dulić, J. Poisonous and allergenic plant species in preschool's and primary school's yards in the city of Novi sad. *Urban For. Urban Green.* **2017**, *25*, 112–119. [CrossRef]
101. Jain, S.; Sharma, P.M. Biodiesel production from *Jatropha curcas* oil. *Renew. Sust. Energ. Rev.* **2010**, *14*, 3140–3147. [CrossRef]
102. Vijay, V.; Chandra, R.; Subbarao, P.M.V. Biomass as a means of achieving rural energy self-sufficiency: A concept. *Built Environ. Proj. Asset Manag.* **2021**, *12*, 382–400. [CrossRef]
103. Bremer, L.L.; Keeler, B.; Pascua, P.; Walker, R.; Sterling, E. Nature-based solutions, sustainable development, and equity. In *Nature-Based Solutions and Water Security*; Elsevier: Amsterdam, The Netherlands, 2021; pp. 81–105.
104. Li, L.; Cheshmehzangi, A.; Chan, F.K.S.; Ives, C.D. Mapping the research landscape of nature-based solutions in urbanism. *Sustainability* **2021**, *13*, 3876. [CrossRef]
105. Volkan Oral, H.; Radinja, M.; Rizzo, A.; Kearney, K.; Andersen, T.R.; Krzeminski, P.; Buttiglieri, G.; Ayral-Cinar, D.; Comas Matas, J.; Gajewska, M.; et al. Management of urban waters with nature-based solutions in circular cities—Exemplified through seven urban circularity challenges. *Water* **2021**, *13*, 3334. [CrossRef]
106. Stipić, M.; Šranc, R.; Prodanović, D.; Stefanović, R.; Kolaković, S. Redesign of the Existing Combined Sewer System (CSS) of Novi Sad. In Proceedings of the 9th International Conference on Urban Drainage Modelling, Belgrade, Serbia, 4–7 September 2012; pp. 1–13.
107. Master Plan of the City of Novi Sad till 2030 Year. Available online: http://www.nsurbanizam.rs (accessed on 15 October 2022).
108. Mihailović, A.; Vučinić-Vasić, M.; Ninkov, J.; Erić, S.; Ralević, N.M.; Nemes, T.; Antić, A. Multivariate analysis of the contents of metals in urban snow near traffic lanes in Novi Sad, Serbia. *J. Serb. Chem. Soc.* **2014**, *79*, 265–276. [CrossRef]
109. Dunnett, N.; Clayden, A. *Rain Gardens—Managing Water Sustainably in the Garden and Designed Landscape*; Timber Press, Inc.: Portland, OR, USA, 2007.
110. Shafique, M.; Kim, R.; Kyung-Ho, K. Green roof for stormwater management in a highly urbanized area: The case of Seoul, Korea. *Sustainability* **2018**, *10*, 584. [CrossRef]
111. Anjum, F.; Yaseen, M.; Rasul, E.; Wahid, A.; Anjum, S. Water stress in barley (*Hordeum vulgare* L.). I. Effect on morphological characters. *Pak. J. Agric. Sci.* **2003**, *40*, 43–44.
112. Shao, H.B.; Chu, L.Y.; Shao, M.A.; Jaleel, C.A.; Hong-Mei, M. Higher plant antioxidants and redox signaling under environmental stresses. *Comp. Rend. Biol.* **2008**, *331*, 433–441. [CrossRef] [PubMed]
113. Misra, V.; Solomon, S.; Mall, A.K.; Prajapati, C.P.; Hashem, A.; Abd Allah, E.F.; Ansari, M.I. Morphological assessment of water stressed sugarcane: A comparison of waterlogged and drought affected crop. *Saudi J. Biol. Sci.* **2020**, *27*, 1228–1236. [CrossRef]
114. Yang, X.; Lu, M.; Wang, Y.; Wang, Y.; Liu, Z.; Chen, S. Response mechanism of plants to drought stress. *Horticulturae* **2021**, *7*, 50. [CrossRef]
115. Verslues, P.E.; Agarwal, M.; Katiyar-Agarwal, S.; Zhu, J.; Zhu, J. Methods and concepts in quantifying resistance to drought, salt and freezing, abiotic stresses that affect plant water status. *Plant J.* **2006**, *45*, 523–539. [CrossRef] [PubMed]
116. Lima, J.M.; Nath, M.; Dokku, P.; Raman, K.V.; Kulkarni, K.P.; Vishwakarma, C.; Sahoo, S.P.; Mohapatra, U.B.; Mithra, S.V.A.; Chinnusamy, V.; et al. Physiological, anatomical and transcriptional alterations in a rice mutant leading to enhanced water stress tolerance. *AoB Plants* **2015**, *7*, 23. [CrossRef] [PubMed]
117. IPCC. *Global Warming of 1.5 °C: Summary for Policymakers, in Global Warming of 1.5 °C. An IPCC Special Report on the Impacts of Global Warming of 1.5 °C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*; Masson-Delmotte, V., Zhai, P., Pörtner, H.O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Eds.; World Meteorological Organization: Geneva, Switzerland, 2018; p. 32.
118. Naumann, G.; Alfieri, L.; Wyser, K.; Mentaschi, L.; Betts, R.A.; Carrao, H.; Spinoni, J.; Vogt, J.; Feyen, L. Global changes in drought conditions under different levels of warming. *Geophys. Res. Lett.* **2018**, *45*, 3285–3296. [CrossRef]
119. Dey, R.; Lewis, S.C.; Arblaster, J.M.; Abram, N.J. A review of past and projected changes in Australia's rainfall. *WIREs Clim. Chang.* **2019**, *10*, e577. [CrossRef]
120. Marchin, R.M.; Ossola, A.; Leishman, M.R.; Ellsworth, D.S. A simple method for simulating drought effects on plants. *Front. Plant Sci.* **2020**, *10*, 1715. [CrossRef]
121. Munns, R.; James, R.A.; Sirault, X.R.R.; Furbank, R.T.; Jones, H.G. New phenotyping methods for screening wheat and barley for beneficial responses to water deficit. *J. Exp. Bot.* **2010**, *61*, 3499–3507. [CrossRef]
122. Poorter, H.; Fiorani, F.; Stitt, M.; Schurr, U.; Finck, A.; Gibon, Y.; Usadel, B.; Munns, R.; Atkin, O.K.; Tardieu, F.; et al. The art of growing plants for experimental purposes: A practical guide for the plant biologist. *Funct. Plant Biol.* **2012**, *39*, 821–838. [CrossRef] [PubMed]

123. Landis, T.D. Miniplug transplants: Producing large plants quickly. In *National Proceedings: Forest and Conservation Nursery Associations-2006*; USDA Forest Service RMRS-P-50; Riley, L.E., Dumroese, R.K., Landis, T.D., Technical Coordinators, Eds.; USDA Forest Service: Fort Collins, CO, USA, 2007; pp. 46–53.
124. Kostopoulou, P.; Radoglou, K.; Papanastasi, O.D.; Adamidou, C. Effect of mini-plug container depth on root and shoot growth of four forest tree species during early developmental stages. *Turk. J. Agric. For.* **2011**, *35*, 379–390. [CrossRef]
125. Schueler, T.R. *A Current Assessment of Urban Best Management Practices: Techniques for Reducing Non-Point Source Pollution in the Coastal Zone*; Metropolitan Washington Council of Governments: Washington, WA, USA, 1992.
126. Hassan, I.; Chowdhury, S.R.; Prihartato, P.K.; Razzak, S.A. Wastewater treatment using constructed wetland: Current trends and future potential. *Processes* **2021**, *9*, 1917. [CrossRef]
127. Lütken, H.; Clarke, J.L.; Müller, R. Genetic engineering and sustainable production of ornamentals: Current status and future directions. *Plant Cell Rep.* **2012**, *31*, 1141–1157. [CrossRef] [PubMed]
128. Van Huylenbroeck, J. Breeding for sustainable ornamental plants. *Acta Hortic.* **2020**, *1288*, 1–8. [CrossRef]
129. Heywood, V. Conservation and sustainable use of wild species as sources of new ornamentals. *Acta Hortic.* **2003**, *598*, 43–53. [CrossRef]
130. Zervaki, D.; Papanastasi, K.; Maloupa, E. A new theory–model strategy for new flower crops development. In Proceedings of the VI International Symposium on New Floricultural Crops, Funchal, Portugal, 11–15 June 2007; pp. 147–154.
131. Stice, K.N.; Tora, L.D.; McGregor, K. Increasing demand for native plants in Fiji's ornamental horticulture sector. *Acta Hortic.* **2013**, *977*, 363–368. [CrossRef]
132. Wani, M.A.; Nazki, I.T.; Din, A.; Iqbal, S.; Wani, S.A.; Khan, F.U. Floriculture sustainability initiative: The dawn of new era. In *Sustainable Agriculture Reviews*; Lichtfouse, E., Ed.; Springer: Cham, Switzerland, 2018; Volume 27, pp. 91–127.
133. Leus, L.; Van Laere, K.; De Riek, J.; Van Huylenbroeck, J. Rose. In *Ornamental Crops*; Van Huylenbroeck, J., Ed.; Springer: Cham, Switzerland, 2018; pp. 719–767.
134. Leus, L. Breeding for disease resistance in ornamentals. In *Ornamental Crops*; Van Huylenbroeck, J., Ed.; Springer: Cham, Switzerland, 2018; pp. 97–125.
135. Hindle, T. *Guide to Management Ideas and Gurus*; John Wiley & Sons: Hoboken, NJ, USA, 2008; Volume 42.
136. *Science for Environment Policy: The Solution is in Nature, Future Brief 24, Brief Produced for the European Commission*; Publications Office of the European Union: Luxembourg, 2021.
137. Sowińska-Świerkosz, B.; García, J. What are Nature-based solutions (NBS)? Setting core ideas for concept clarification. *Nature Based Solut.* **2022**, *2*, 100009. [CrossRef]
138. Campiotti, C.A.; Gatti, L.; Campiotti, A.; Consorti, L.; De Rossi, P.; Bibbiani, C.; Muleo, R.; Latini, A. Vertical Greenery as Natural Tool for Improving Energy Efficiency of Buildings. *Horticulturae* **2022**, *8*, 526. [CrossRef]
139. Pânzaru, D.M.R.; Iojă, I.C.; Pleșoianu, A.I.; Hossu, C.A.; Diaconu, D.C. Nature-based solutions for urban waters in Romanian cities. *Nat. Based Solut.* **2022**, *2*, 100036. [CrossRef]
140. Souliotis, I.; Voulvoulis, N. Operationalising nature-based solutions for the design of water management interventions. *Nat. Based Solut.* **2022**, *2*, 100015. [CrossRef]
141. Colwell, R.K.; Chao, A.; Gotelli, N.J.; Lin, S.Y.; Mao, C.X.; Chazdon, R.L.; Longino, J.T. Models and estimators linking individual-based and sample-based rarefaction, extrapolation, and comparison of assemblages. *J. Plant Ecol.* **2012**, *5*, 3–21. [CrossRef]
142. Lakićević, M.; Reynolds, K.M.; Orlović, S.; Kolarov, R. Measuring dendrofloristic diversity in urban parks in Novi Sad (Serbia). *Trees For. People* **2022**, *8*, 1–8.
143. Falster, D.S.; FitzJohn, R.G.; Brannstrom, Å.; Dieckmann, U.; Westoby, M. Plant: A package for modelling forest trait ecology and evolution. *Methods Ecol. Evol.* **2016**, *7*, 136–146. [CrossRef]