HARVEST TO TABLE:

A DESIGN PROCESS FOR AN EDIBLE FOOD FOREST IN MOSCOW, IDAHO

ABSTRACT

This project uses research by design methods to find a design strategy for creating a productive and sustainable edible food forest for Harvest Park in Moscow, Idaho. In recent years, with the continuous development of modern society, the urban landscape with rapid development of urban construction needs more practical design amenities and more attractive public participation to improve its use. With the rise of permaculture design concepts, creating urban public green space is more inclined to establish a diversified, integrated and self-sufficient ecosystem within the city. This research proposes a methodology to indicate and evaluate the best design model for Harvest Park in Moscow, Idaho. This project will propose and evaluate a variety of conceptual designs. The aim is to create a harmonious site-scale biological system and plant community within urban limits, which can bring new sensory enjoyment and a fresh experience to urban residents.

The results of this project intend to inform an evaluated feasible model for urban edible landscapes, so that urban green space can form a balanced landscape system with safety, productivity, sustainability and community participation. In conclusion, this project intends to provide Landscape Architects with a framework for devising and creating edible food forests as parks.

APPROVAL

Submitted in partial fulfillment for the Master of Landscape Architecture,
Department of Landscape Architecture, University of Idaho.

Master's Project Committee Members

Daniel Cronan, Major Advisor

Master's Project Chair Approval

Date: _____ Signature: _____

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Thank you also to the City of Moscow and the Moscow Tree Commission for inviting me to join the team and to share the results of the investigation and research work completed in the early stage of the project.

To my friends, thank you for your help in this study, providing me with reliable working equipment and driving me to buy necessities.

Many thanks to Yue Xi, who accompanied me through the most difficult period. Helped me calm down and feel the beauty around me when I am most anxious.

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Chapter 1 INTRODUCTION

1.1 Concept and Character of Edible Landscapes

1.1.1 The Concept of Edible Landscapes

The concept of edible landscapes was first proposed in the 1980s by Robert Kourik, who with Rosalind Creasy showed how ornamental edibles fit into classic styles of landscape design. Edible landscapes in the city are a type of garden that expands the ecological service function of urban green space systems, and provides fresh and high-quality living products (such as cereal, vegetables, flowers, fruits, medicinal herbs, etc.) for urban residents while improving the urban environment with urban green space. Edible landscapes can not only play the role of beautifying the environment as classical decorative landscapes in form, but also enhance people's participation in public space and bring certain economic benefits. In a narrow sense, the concept of edible landscapes refers to the landscape constructed by plants available for human consumption (Zhou et al., 2014), which is an edible landscape based on the combination of agricultural production and landscape design (Li, 2016). In a broad sense, edible landscapes is not only a design method that combines agricultural production with landscape design, but also a way of life that meets the spiritual needs of human beings and the pursuit of beauty (Ren et al., 2015). Moreover, it is a mode of urban and rural development that can create economic and ecological benefits (Sun et al., 2014) .

In this paper, designing an edible food forest called Harvest Park in Moscow, Idaho is taken as the research objective. Design products will include edible plant materials with local characteristics which construct the public landscape. In the design, multiple conceptual designs are comprehensively evaluated and the design research method is used to find the most sustainable urban ecological park with the most productive, aesthetic and recreational effects.

1.1.2 The Features and Qualities of Edible Landscapes

According to the literal meaning, edible landscapes first need to have an edible function and, simultaneously, beautify the environment. In addition, as an open

public green space under the concept of permaculture, it also has the characteristics of participation, education, and sustainability.

(1) Landscape Efficacy

In addition to the landscape effect of traditional gardens that can be brought to urban residents, edible landscapes are more of a brand new sensory enjoyment and experience. It integrates the rural scenery elements of farming culture into the urban public green space and enriches the landscape form of urban green space.

(2) Productivity

Edible landscapes use productive agricultural crops as plant design materials, which can not only beautify the environment, but also provides fresh and high-quality living products， such as cereal, vegetables, flowers, fruits, medicinal herbs, etc.

(3) Participation

Edible landscapes provide urban residents with an opportunity to participate in agricultural labor in a modern city. Compared with traditional gardens, they interaction between residents and urban green space and provides residents with more natural experience services. At the same time, residents can help and discuss with each other in labor, which strengthens the relationship between residents and promotes the formation of a harmonious community.

(4) Educational

Edible landscapes can provide teenagers and children growing up in the city with an opportunity to get close to and experience farming activities, enrich their knowledge of nature, agriculture and ecology, and have good educational significance.

(5) Ecological

Edible landscapes can promote a green and healthy ecosystem of crop growing sites and enrich the ecological diversity of cities.

1.2 Research Background

1.2.1 The History of Productive Landscapes

Productive landscapes have existed since ancient times. The term comes from people's production and living labor, including the production and transformation of nature and the reprocessing of natural resources.

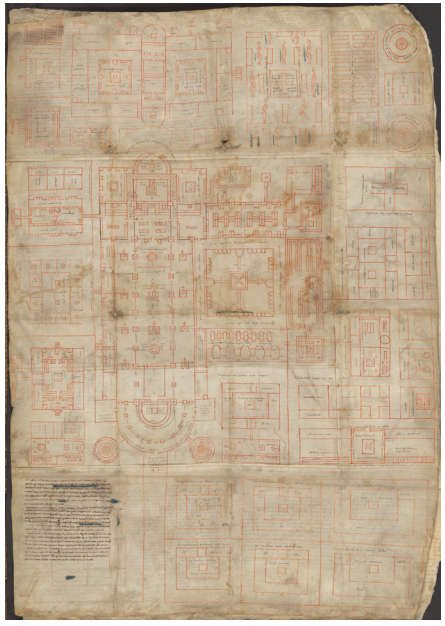


Figure 1.1 Plan of Saint Gall. Reichenau, early 9th century(ca.820 – 830). Ms. 1092. Parchment, 1 folio, ca. 112cm x 77.5 cm. Latin.

Productive landscapes of ancient Europe are closely related to religious activities. In ancient Greece, people in order to worship the plant god Adonis, an earthen basin with plants such as barley was placed around the temple.

In medieval Europe, some monastic gardens were composed of vegetable gardens, herb gardens and decorative gardens. Practical gardens with productive functions were a very popular gardening technique at that time. The church of St. Gall in Switzerland is a good example.

During the Renaissance, many Italian representative gardens also planted fruit trees and other productive crops. Oranges and lemons were grown in Villa di Castello and orchards in Villa Careggio.

The ancient European courts also had rich productive landscapes, such as the fruit and vegetable gardens at Versailles for the royal family to enjoy. By 1991, the garden in Versailles was opened to the public as a recreational area, and its role as a landscape began to take off.

After the industrial revolution, with the rapid development of cities, productive landscape began to combine with urban construction. Germany, as the first country to practice urban agriculture, built a "civic farm garden" in suburban green space in 1850. As a practical fruit and vegetable garden, its initial function is the cultivation of fruits and vegetables, food production and livelihood, and on this basis, developed into a

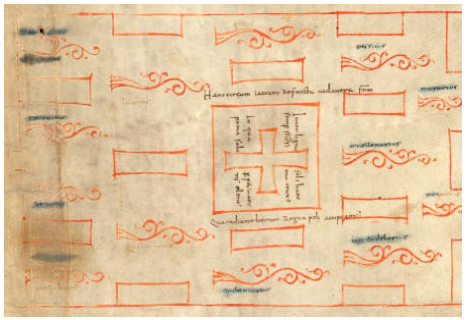


Figure 1.2 The vegetable garden, or hortis, at St. Gall
The rectangular planting beds of this very practical vegetable garden are 60" wide. Each bed is used for only one kind of plant.

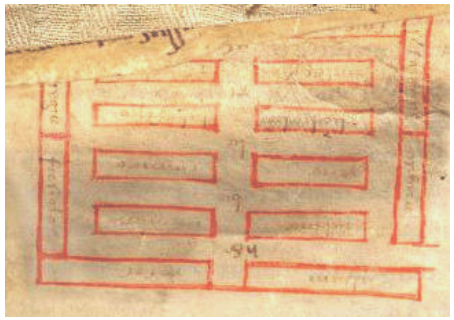


Figure 1.3 The physic garden or herbularis at St. Gall
The physic garden, located adjacent to the House of the Physicians (in the upper left corner of the plan) measures approximately 38' by 28'. this garden also grows just one kind of plant in each rectangular bed.

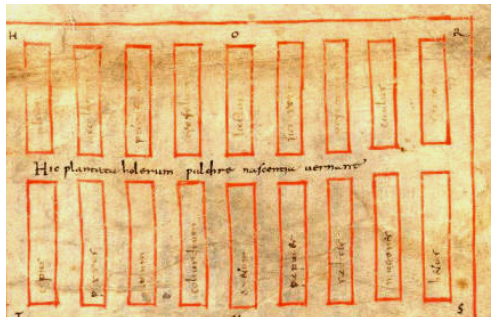


Figure 1.4 The orchard at St. Gall
The monks' orchard was also their cemetery; burial plots, each designed to hold seven interments, are interspersed among the trees.

new type of productive landscape operated by leasing on public land.

With the development of ecological protection movement, the modern productive landscape is no longer limited to production and landscape, but combined with ecological restoration, new energy utilization and other technical means. For example, the wind farm located in Denmark is one of the representatives of productive landscape that combines farmland and new energy.

Figure 1.5 A row of dwarf lemon trees in the gardens of the VIlla di Castello.

1.2.2 The Theoretical Study of Productive Landscapes

The theoretical evolution of productive landscapes planning and design is formed with the passing of time and the change of people's relationship between cities and ecology. It has generally experienced three stages, namely "Garden City" theory, continuous productive urban landscape (CPUL) theory and agricultural urbanism theory (Shi et al., 2015). Within the context of this project, I will explore edible landscapes utilizing the definition and framework of 'productive landscapes.'

"Garden City" Theory

In the 1880s, it was proposed by Ebenezer Howard in his book Garden Cities of Tomorrow. As one of the most important urban planning theories in the early stage, the main idea of garden city theory is to divide cities and cities by building a large agricultural belt outside the city, so as to control the unlimited expansion of the city. The main function of "garden city" is not only to control the size of the city, but also to provide necessary living products for urban residents and beautify the urban environment. Its function orientation of ecological protection, product production and landscape promotion meets the main connotation of edible landscape, which is regarded as the first application of productive landscapes in urban green space system.

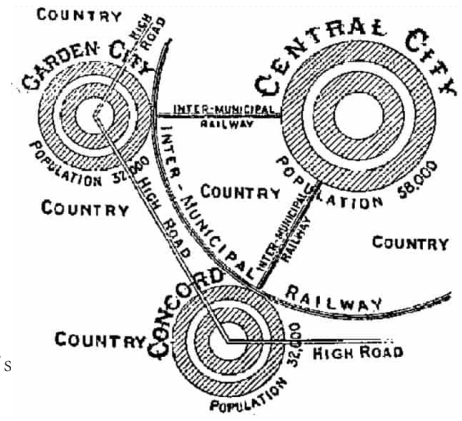


Figure 1.6 Ebenezer Howard's garden city movement diagram.

Continuous Productive Urban Landscape (CPUL) theory

In the late 20th century, with the innovation of urban planning theory, the concepts related to edible landscape theory were constantly updated. Katrin Bohn and Andre Viljoen believe that the productive urban landscapes should have continuity. Their core idea is to study the productive landscapes as a part of the urban landscape, to create a multi-functional and open urban space network, and to supplement and support the urban built environment. Sustainable and productive urban landscapes can be built in urban agricultural areas, residential outdoor Spaces, natural habitats, ecological corridors, and bike networks used as public non-motorized lanes. These open space corridors are interconnected to form a coherent and comprehensive urban landscapes. Sustainable productive landscapes not only provides a certain amount of agricultural products for the city, but also improves the ecological environment of the city through lower cost. Productive landscapes provide a strategic and relevant framework for modern urban design and practice, a goal that will shape the vision of a sustainable city of the future.

Figure 1.7 This illustration demonstrates how varying intensities of agriculture can "plug in" to the edge of a community according to Agricultural urbanism. Tractor Farms (left), Small Farms (center), and One-Acre Farmsteads (right) fit together like jigsaw pieces.

Agricultural Urbanism Theory

Agricultural city theory is a solution to the problem of food production and urban ecological environment. The theory of agricultural urbanism emphasizes that cities should have certain agricultural production functions to support their own development, so that the productive landscapes plays a more important role in the composition of urban landscapes, and urban self-sufficient agricultural production also reduces the rural burden. The theory of agricultural urbanism proposed by Andres Duany in 2009 is to integrate food production into urban planning in order to alleviate the current ecological problems faced by cities. His main idea is to plan the community based on agriculture, integrating farm, community garden, farmers' market and other agricultural activities into the community. In the 1990s, urban agriculture is defined as: in the inner cities and peri-urban areas of agriculture, is a kind of including production or breeding, processing, transportation and consumption, agricultural products and service for the city of the complete process of economy and rural agricultural important difference is that it is part of the urban economy and the ecological system.

1.3 Purpose and Significance of The Research

1.3.1 Research Question

Which effective design decisions can promote a sustainable and productive landscape for Harvest Park in Moscow, Idaho?

1.3.2 Research Objectives

The objective of the research is to find the most effective design mode of how to build a sustainable and productive landscape for Harvest Park in Moscow, Idaho. The Harvest Park in Moscow, Idaho is intended to be carried out as an example of urban permaculture through both natural conservation and social participation in urban public space. It is expected to add agricultural and edible plants with multiple values to urban public green space through sustainable development, and enrich the functions of traditional public green space. The aim is to create a harmonious site-scale biological system and plant community within urban limits, which can bring new sensory enjoyment and a fresh experience to urban residents.

The results of this research intend to inform an evaluated feasible model for urban edible landscapes, so that urban green space can form a well-balanced ecological system through the lens of safety, productivity, sustainability and community participation.

1.3.3 The Significance for The City of Moscow

The application of edible landscape in Moscow can make the living environment more vibrant and make the urban landscape more diverse. This park has the ability to bring new sensory enjoyment and a fresh experience to urban residents. It also can create a harmonious site-scale biological system and plant community, which can improve significance of urban ecology and the urban forest, making the urban landscape system become more complete. Urban residents can experience the happiness of agricultural labor, strengthen the relationship between residents, promote the formation of connected communities, the park will also provide teenagers and children with an opportunity to have close contact and experience farming activities, enriching their knowledge of nature, agriculture and ecology. Finally, residents can harvest fresh and healthy food through the edible landscape, creating economic value for local citizens.

For the planning and design of this project, the City of Moscow has carried out a series of preliminary work.They include two seminars.The results of the workshop included preliminary research on the project site and the completion of the concept design.

The City, with assistance from Bernardo Wills Architects, held the first public planning workshop on the new Edible Forest Park on December 19, 2018. Information about the project was presented and great information was gathered from the public for the new park(Edible Forest Park Design Workshop #1,2018).

At the second public planning workshop, which was attended by over 40 people, Bernardo Wills presented a proposed conceptual design for the Edible Forest Park; this design was based on the results of the first workshop as well as information collected through the public survey and input from the Moscow Tree Commission(Edible Forest Park Design Workshop #2,2019).

Figure 1.8 Concept design presentation at the second seminar.(Edible Forest Park Design Workshop #2,2019)

On this basis, the City of Moscow also conducted a public survey, including residents want the park to have the function and specific public facilities. Detailed content is placed at the end of the document as an appendix.

Figure 1.9 Photos from the seminar site.(Edible Forest Park Design Workshop #2,2019)

Figure 1.10 Project site survey photos.(Edible Forest Park Design Workshop #1,2018)

1.3.4 The Significance for Edible Landscapes in The Context of Landscape Architecture

The significance of edible landscape in landscape architecture is mainly reflected in the following aspects:

(1) Landscape Perspective

Compared with ordinary landscape plants, the Harvest Park in Moscow, Idaho has more obvious and abundant landscape changes, which can bring different visual and sensory experiences for urban residents. At the same time, as a new type of landscape, it will bring inspiration for the future to find more complex new landscape for the cities around Moscow area.

(2) Ecological Perspective

The agricultural products produced by the Harvest Park in design are planted and managed by urban residents themselves. Compared with traditional agricultural production, the output mode of the crops is safer and healthier, which can promote the planting site to become a healthy ecological system and bring improvement to the urban ecological environment.

(3) Social Perspective

The planting, maintenance and harvesting of edible landscapes can involve urban residents and increase the participation and interaction of urban landscapes. It creates a perfect place for urban residents to contact nature, relax and exercise their body and mind, it is also a living place for citizens to communicate and activities, increasing the relationship between families, colleagues and neighbors.

(4) Economic Perspective

Edible landscape produce food and fruit and vegetable process to a certain extent changed the traditional farming, allowing city dwellers to be self-sufficiency with new agricultural methods. At the same time promote the renewal of urban agricultural products and landscape environment, as well as the development of modern agricultural industry economy. Thus, the stable state of urban economic system can be ensured so as to stimulate and strengthen the sustainable development of urban food safety and its agricultural industry system, and promote the growth of urban economic benefits.

1.4 Case Study

Program Summary

Name: Beacon Food Forest P-Patch Community Gardens
Location： Beacon Food Forest, Seattle, Washington
Date Designed: 2009
Size: More than 5 acres

Figure 1.11 Pictures of the Beacon Food Forest(Beacon Food Forest Annual Report, 2017)

Program description

Beacon Food Forest is located in the Beacon Hill neighborhood to the west of Jefferson Park, 2.5 miles from downtown Seattle. It was a woodland ecosystem simulated with various edible plant materials. The goal of the Beacon Food Forest is to use the edible landscape to bring together diverse communities and create a public food sharing platform.

The goal of the Beacon Food Forest is to bring the richly diverse community together by fostering a Permaculture Tree Guild approach to urban farming and land stewardship.

By building a community around sharing food with the public to be inclusive to all in need of food.

Project Design

In order to achieve their purpose, the garden has planned such several functional areas. edible arboretum and children's area for educational function, a community garden for interactive functions , a food forest and nut grove For productive functions, and a public green space for residents to do outdoor activities.

Figure 1.12 Pictures of the Beacon Food Forest(Beacon Food Forest Website)

Operation Mode

The operation mode for this garden is organizing monthly work event for volunteers. During the event, they work together to maintain and manage the park and have a party to celebrate when the work is done.

The job content of Food forest work parties include maintenance and renovation of infrastructure, and the trimming of plant materials. According to the 2017 annual report, priorities for 2017 are:
Wetland building and Camas patch experiment

Phase II preparation
Retaining wall construction
Removal of diseased raspberry canes and other undesirable weeds
Weeding and rebuilding of woodchip paths
Reorganization and rebuild of the boneyard area
Planting/maintenance of annuals in Helix Garden including trellis building

Figure 1.13 Pictures of the Beacon Food Forest Work Parties(Beacon Food Forest Annual Report, 2017)

Problems and Solutions

The Beacon Food Forest's annual report documents some of the climate-related plant growth problems and offers solutions.

In 2017, after a very wet spring, it was the hottest summer on record in Seattle with the most days without measurable rain. We learn with the variations in our climate and variations in our species, as well as the performance of each specimen: some plants are reaching their stride, some stabilize, some struggle, die.
Soil and water are key to each plant's vitality. We added roughly 60 yards of organic matter increasing the sponge qualities of the soil and feeding the plants. Our long-term goal is to reduce our need for water from an outside source, as we create an increase in soil quality and organic matter(Beacon Food Forest Annual Report, 2017).

Beacon Food Forest's Influence on Harvest Park

The project design

In terms of design, Beacon Food Forest provides an excellent case study for my project. Through the analysis, the project has a more specific functional area. The field survey of Beacon Food Forest also gave me a preliminary understanding of the infrastructure needed for my project. For example, For example, the case study provided the size of the community vegetable plot, the function of the community square and so on.

The Operation Mode

Although my project does not involve the operation and management of Harvest Park, Beacon Food Forest undoubtedly provides a very effective way to operate. The monthly maintenance and management of the park through work parties can give full play to the cooperation and communication function of the community park and minimize the maintenance cost of the park.

Implications for the Future

The problems at Beacon Food Forest, which has been in operation for more than six years, demonstrate that even if parks can rely on teams of volunteers to maintain and manage them, there is still a need for professional solutions. These problems may be due to plant necrosis and loss of soil nutrients caused by climate.

In addition, Beacon Food Forest has also carried out functional zone transformation and upgrading for different groups of people. This shows that the harvest park will not be limited to the existing functional system in the future, and it can also be upgraded or transformed for the use of urban residents.

Chapter 2 SITE INVENTORY AND ANALYSIS

2.1 Project Introduction

This, called Harvest Park, is located along Southview Avenue, east of the intersection of Highway 95 and Southview Avenue at the south end of Moscow, Idaho. Covering an area of 4.09 hectares, the project is a long and dynamic landscape. This unique space is intended to provide educational opportunities and an example to the community of stewardship of a public food forest. The park is intended to create a sense of place and community pride for Moscow for generations to come.

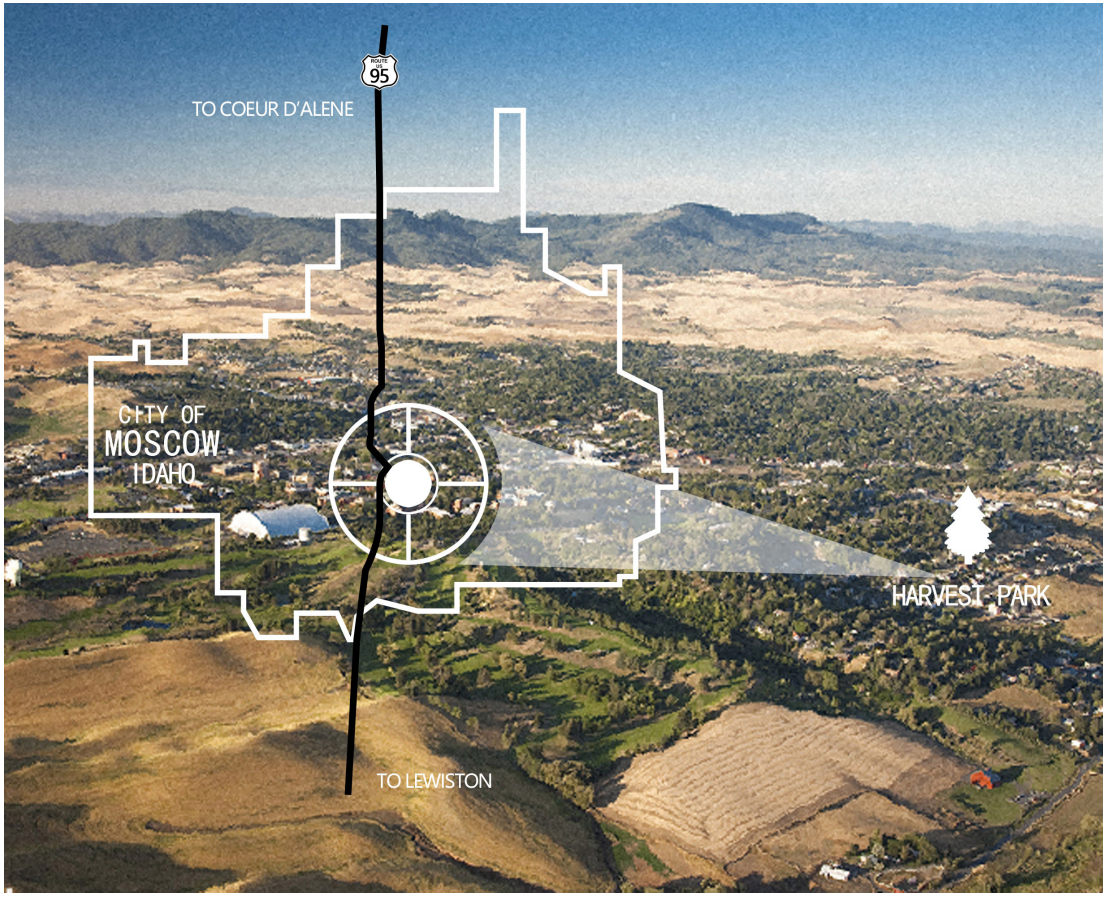
Figure 1.14 Project site survey photos.(Edible Forest Park Design Workshop #1,2018)

Figure 1.15 Project site survey photos.(Edible Forest Park Design Workshop #1,2018)

The City of Moscow is also in the process of naming this new park, which currently has the working name "Edible Forest Park". During the park naming nomination period, which ran from September 12, 2018 to October 20, 2018, thirty five (35) nominations were received. From those nominations, the Moscow Tree Commission has recommended the name “Harvest Park” as the official name of the park at their November 6, 2018 meeting.

"Harvest Park" mainly includes community garden and edible forest two functions. As a community garden, it aims to insert a designated and fenced plot of land located in the urban city fabric to allow for garden patches interspersed throughout the city. The project offers small-scale farming and garden to table opportunities. As an edible forest, it embodies the theme of "harnessing nature", which aims to establish an example of Agro-forestry that implements, to varying degrees prescribed, ecological and permaculture principles. These principles are concerned with the entire living web and promote a healthy self-sustainable system from which all can benefit.

Figure 2.1 Project Location



2.2 Project Region Inventory

2.2.1 Climate

According to the Köppen climate classification system, Moscow has either a warm-summer Mediterranean climate (Csb) or a dry-summer continental climate (Dsb).

The highest summer temperature in Moscow is in August, about 83 degrees Fahrenheit, and the lowest winter temperature is in January, about 26 degrees Fahrenheit. Moscow gets some kind of precipitation, on average, 116 days per year including rain, snow, sleet, or hail. With 22 inches of rain, on average, per year and 43 inches of snow per year.

August is the hottest month for Moscow with an average high temperature of 83.7℉, there are 16.5 days annually when the high temperature is over 90℉, which ranks it as cooler than most places in Idaho. December has the coldest nighttime temperatures for Moscow with an average of 24.1℉, there are 122.2 days annually when the nighttime low temperature falls below freezing. This is one of the warmest places in Idaho. There are 4 comfortable months with high temperatures in the range of 70-85℉. The most pleasant months of the year for Moscow are September, July and June.

November is the rainiest month in Moscow with 14.8 days of rain, and August is the driest month with only 3.8 rainy days. The rainiest season is Spring when it rains 32% of the time and the driest is Autumn with only a 15% chance of a rainy day.

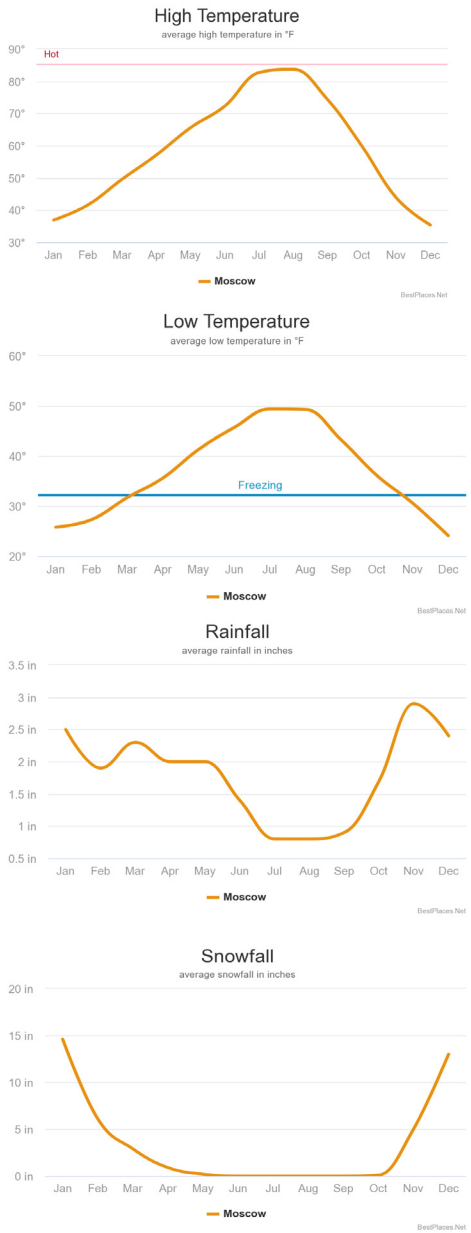


Diagram 2.1 Climatic Information

2.2.2 Demographics

The estimated population of Moscow is 25,766 (V2018), of which 48.1 percent are female persons. With a population of 3,473.9 per square mile, towns are more densely populated than other cities in the state. The proportion of people under the age of 18 in the town was 15.4% (2017), and the proportion of people aged 65 and over was 8.9% (2017), which was relatively low compared with other cities in Idaho. In Moscow, 97.8 percent of residents over 25 have a high school degree or above, the highest percentage in the state. In terms of income, median household income (in 2017 dollars) was $35,979, lower than in other cities in the state.

Data source: US Census

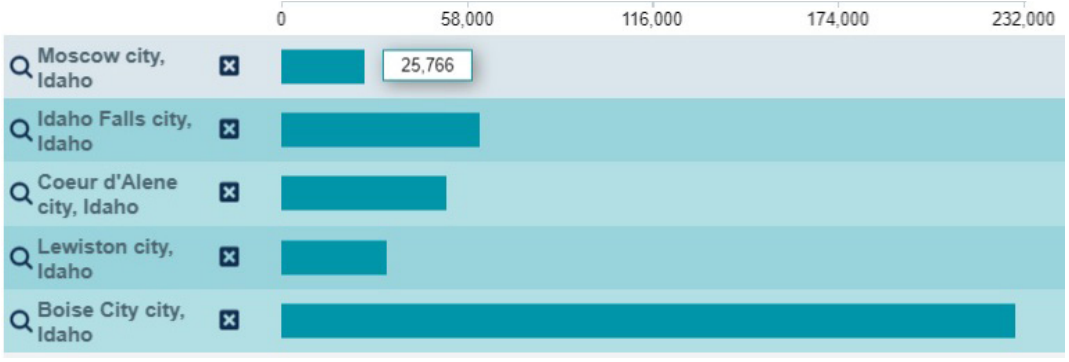


Diagram 2.2 Population Estimate

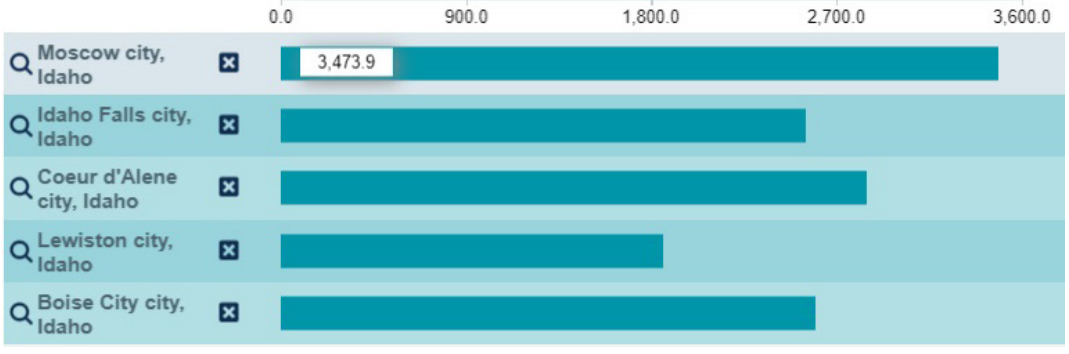


Diagram 2.3 Population Per Square Mile

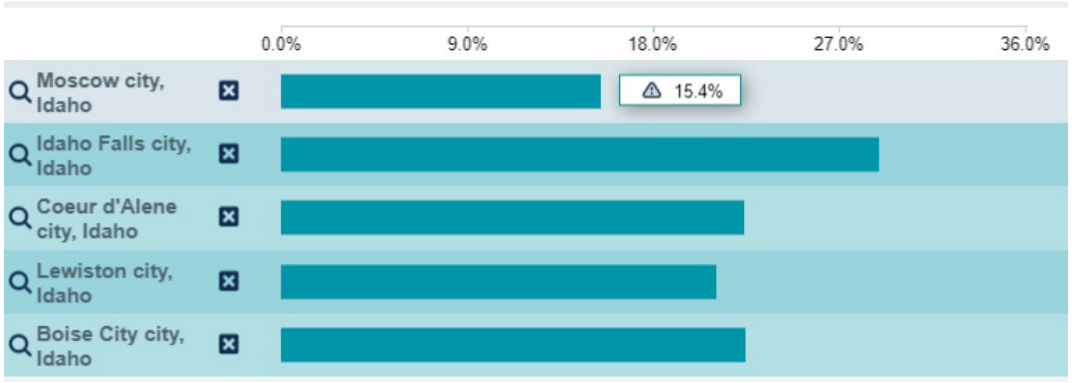


Diagram 2.4 Persons Under 18 Years

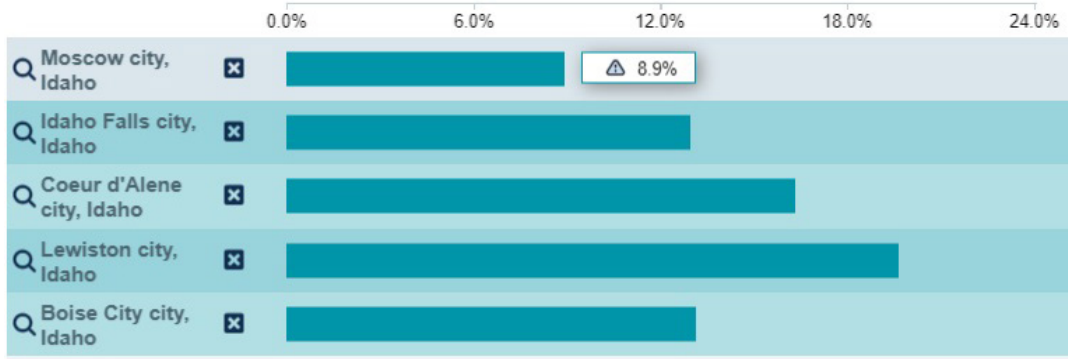


Diagram 2.5 Persons 65 Years and Over

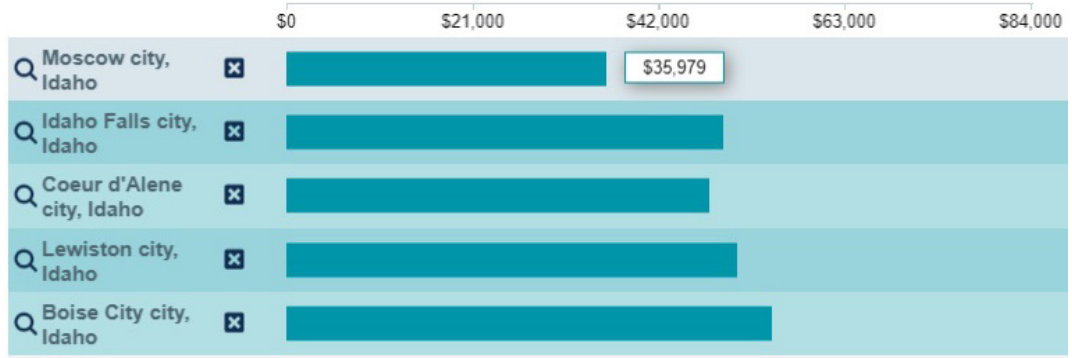


Diagram 2.6 Median Household Income

The project site is surrounded by middle - or low-income residential areas, and most of the residents are students and teachers from the university of Idaho.

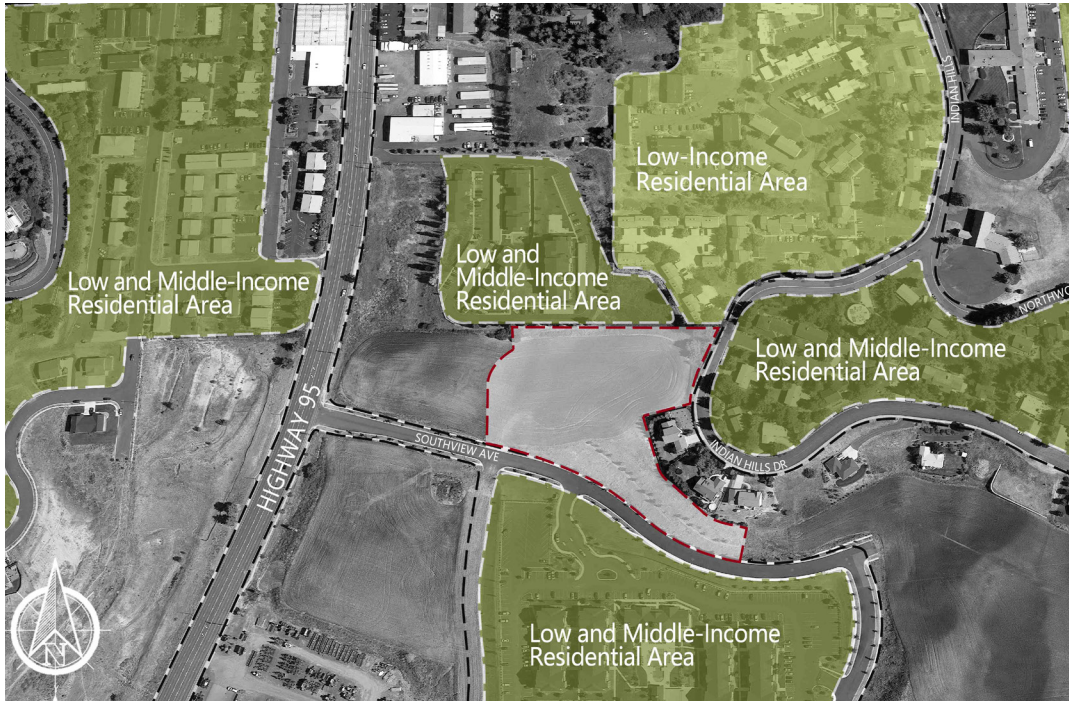


Figure 2.2 Residential Areas Around the Project

2.2.3 Regional Ecology

The ecoregion of Moscow is Palouse Hills, an arid grassland and sagebrush steppe that is surrounded by moister, predominantly forested, mountainous ecoregions. It is underlain by thick basalt. The largely unforested, loess-covered Palouse Hills ecoregion abuts the Rocky Mountains and has more available moisture than other parts of Idaho. Mountain fed perennial streams occur and intermittent, loess-bottomed streams rise within Moscow area. Soils, rich in organic matter and very productive, support extensive wheat farming but are easily eroded. Dry stream channels may be tilled.

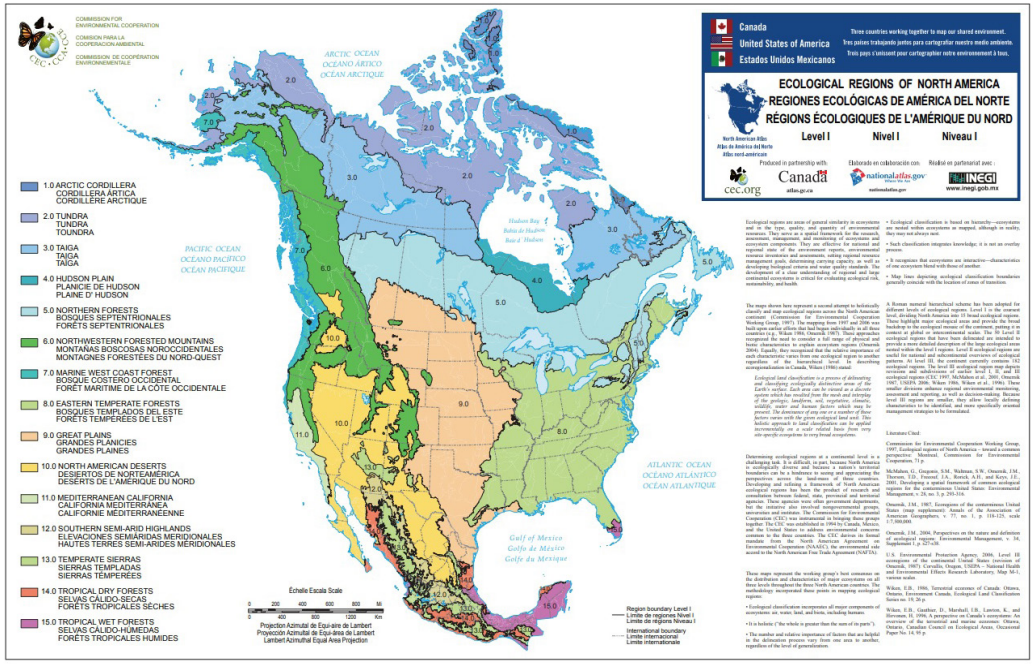


Figure 2.3 Ecoregions in North America

2.2.3.1 Native Plant Materials

The Palouse Hill was blanketed with a mosaic of native vegetation. Bunchgrasses were the dominant feature; shrubs, wildflowers (forbs), and even mosses and lichens also were important. This grand complex, known as the Palouse Prairie, impressed early settlers in the region. Once an extensive prairie composed of mid-length perennial grasses such as Bluebunch wheatgrass (Agropyron spicatum) and Idaho fescue (Festuca idahoensis), today virtually all of the Palouse Prairie is planted in agricultural crops. Here are a few native plants.

Grasses:

Idaho Fescue: It is native to western North America, where it is widespread and common. It can be found in many ecosystems, from shady forests to open plains

Figure 2.4
Idaho Fescue

grasslands. This fescue is a densely clumping long-lived perennial bunch grass with stems from about 30 to 80 centimeters in height. (Jepson Manual, 1993) The stiff, short, rolling leaves are mostly located near the base of the tuft. The inflorescence has hairy spikelets which produce large awned fruits. The root system is thick and penetrates deeply into the soil. The roots have symbiotic mycorrhizae. There are no rhizomes; the plant reproduces from seeds and from budding with tillers. This is a nutritious and preferred forage grass for wild and domestic animals.

Figure 2.5
Bluebunch Wheatgrass

Bluebunch Wheatgrass: This is the dominant species of grass among the mountainous regions of the western United States, occurring at elevations that range from 150 - 3,000 m and where precipitation is 250 – 500 mm. It occurs in many types of habitat, including sagebrush, forests, woodlands, and grasslands. This grass thrives in sandy and clay rich soils, but is also capable of growing on thin, rocky soils. It does not tolerate soils with high alkalinity, salt, or excessive moisture. (St. Clair et al., 2013)

Figure 2.6
Prairie Junegrass

Prairie Junegrass: It is a short, tuft-forming perennial bunchgrass, reaching heights from 20 – 70 cm (7.9 – 27.6 in). The leaves are basal and up to about 20 cm (7.9 in) long with a blue-green color.(Grass, 2017) The inflorescence is nearly cylindrical and may taper somewhat toward the tip. It holds shiny tan spikelets which are sometimes tinted with purple, each about half a centimeter long. Its fruit is a grain that breaks once it has fully ripened.(Grass, 2017) It is a good forage for many types of grazing animals. It is classified as a severe allergen in humans with grass allergy.

Forbs and Shrubs:

Wyeth Buckwheat: This is a perennial flowering plant with flowers measuring 4 – 9 mm. It has leaves in loose rosettes, covered with soft hairs measuring 0.5 – 3 cm. The hairs feel woolly and matted, and cover both sides of the leaf. The flowers have one carpel (achenes). Parsnipflower buckwheat has a whorled arrangement of leaves at midpoint of the stem. It blooms in early to mid summer. It attracts butterflies, bees, insects, and birds and is the host plant for several Palouse butterflies.

Figure 2.7
Wyeth Buckwheat

Biscuitroots: It is native to western North America; its common names include biscuitroot, Indian parsley, and desert parsley.(Hitchcock & Cronquist, 1973) It is in the family Apiaceae and therefore related to many familiar edible species such as carrots and celery; some Lomatium species were extensively used by Native Americans in the inland Northwest as a staple food.

Figure 2.8
Biscuitroots

Tapertip Onion: Allium acuminatum produces bulbs that are spherical, less than 2 cm across and smelling like onions. Scape is up to 40 cm tall, wearing an umbel of as many as 40 flowers. The flowers are pink to purple with yellow anthers. The onions were eaten by first peoples in southern British Columbia. They were harvested in either early spring or late fall and usually cooked in pits. Both the bulb and the flowering stalk are edible; however, in the culinary arts, the stalk possesses a more pleasant flavour(Hitchcock & Cronquist, 1969).

Figure 2.9
Tapertip Onion

Figure 2.10
Douglas Fir

Tree:

Ponderosa Pine Savanna: This is a very large pine tree species of variable habitat native to mountainous regions of western North America. It is the most widely distributed pine species in North America.

Douglas Fir: Douglas-firs are medium-size to extremely large evergreen trees, 20 – 100 metres (70 – 330 ft) tall(Littke et al., 2017).

2.2.3.2 Ecoregions

Moscow lies on the eastern edge of the Palouse region of north central Idaho in the Columbia River Plateau. The Mountains are mainly western foothills of the northern rocky mountains. East of the city is a valley within the mountains of the Palouse Range to the northeast, whose highest point is Moscow Mountain at 4,983 feet (1,519 m) above sea level. The less prominent Paradise Ridge at 3,702 feet (1,128 m) and Tomer Butte at 3,474 feet (1,059 m) are southeast of the city. Paradise Creek, with headwaters on Moscow Mountain to the northeast, flows through Moscow, then crosses the state border and joins the south fork of the Palouse River near Pullman, which eventually drains into the Snake River and Columbia River on its way to the Pacific Ocean.

The geology in and around Moscow represents varied formations: very old intrusive granite structures of the Jurassic–Eocene Idaho Batholith, fertile fields atop rolling hills of deep Pleistocene loess of the Palouse Formation deposited after the last ice age by westerly winds, and flood-worn channels of the Columbia River Basalt Group. The main soil types as follows: the Palouse, Southwick, Taney, Santa, Naff, Larkin, Joel, Lahtahco. Soils are rich in organic matter and productive. The main types of land use in the region are: Extensive small grain farming; Also cropland growing peas, lentils, and hay and pastureland.

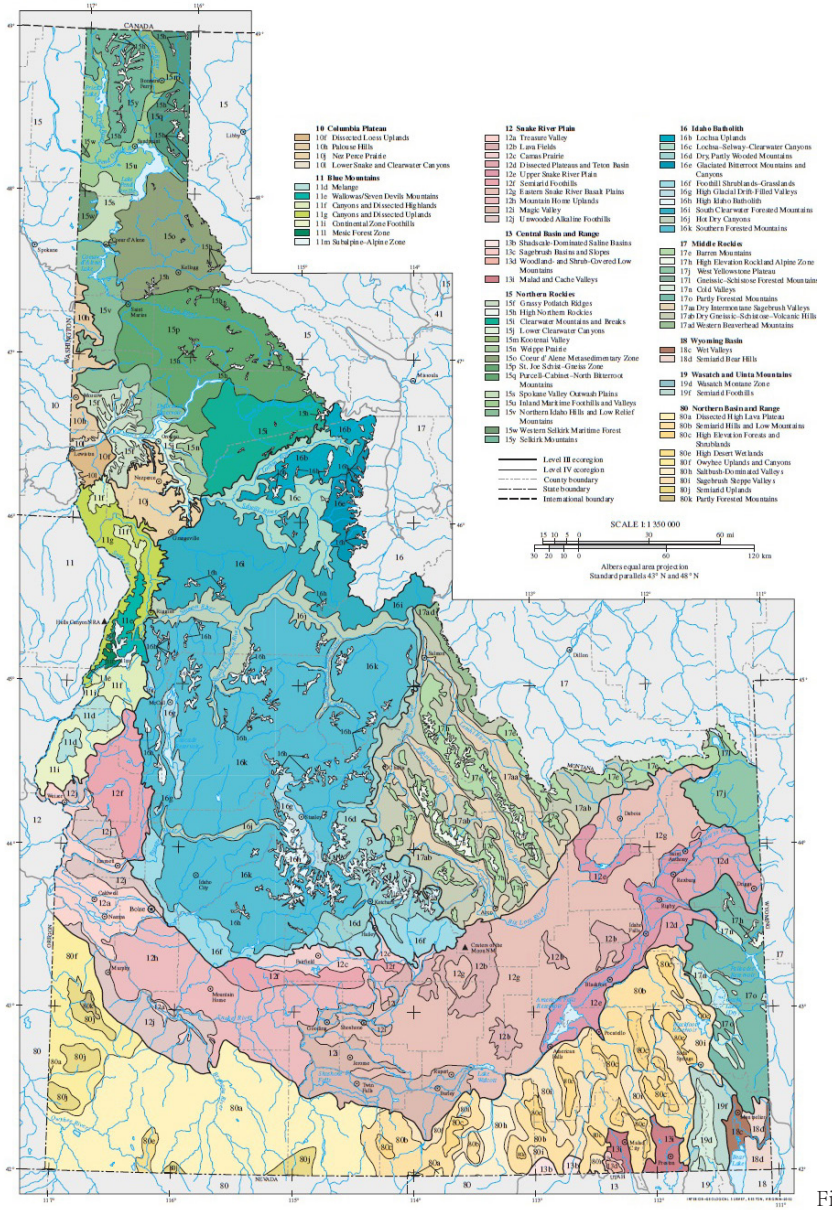


Figure 2.11 Ecoregions of Idaho

2.3 Project Site Inventory and Analysis

2.3.1 Area

The area of The Edible Forest Park is 4.09 acreage and the site is irregular in shape. The south side of the site is Southview Avenue, which is where the park entrance is located. The west side of the site is the commercial development still under planning. This direction needs to be completely isolated from the park. The north side of the site is a middle-income residential area, and the east side of the site is a high-income residential area.

Figure 2.12 Site Area Information

2.3.2 Slope

The site is divided into three areas: flattest, less steep and steep. The southwest area of the site is the most flattest area with a slope of about 5%, while the less steep area

is located in the middle of the park with a slope of 7%-14%. The steepest areas are located in the east and south of the park, with a maximum slope of 23%.

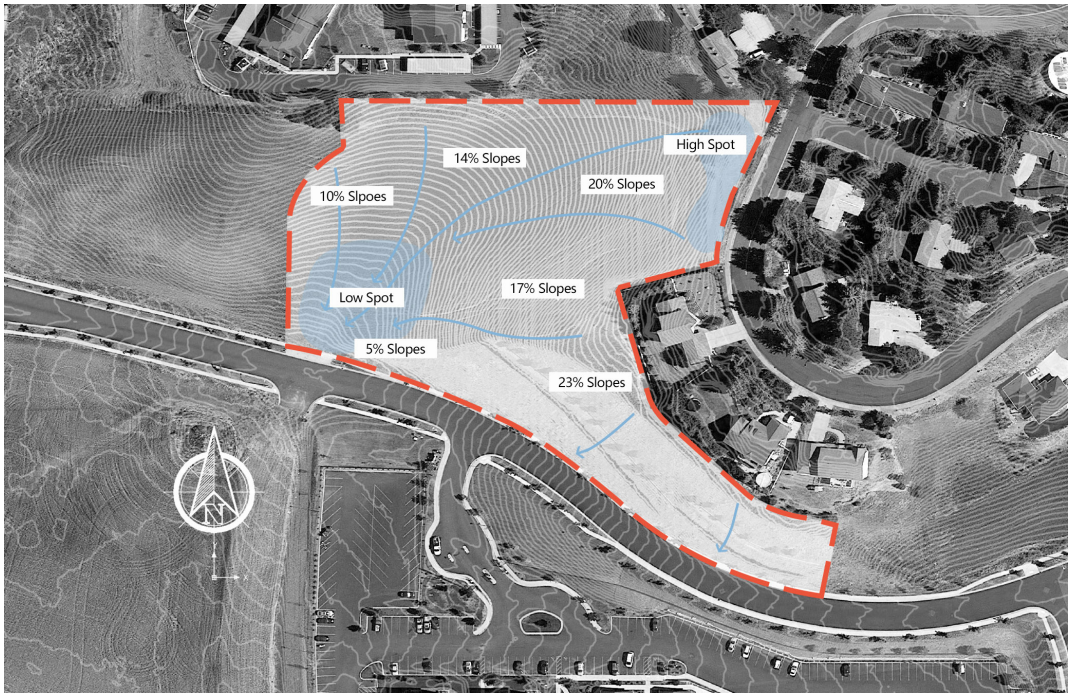


Figure 2.13 Site Slope Diagram

2.3.3 Soil

Soil Type: Naff-Palouse complex
Elevation: 2,070 to 3,250 feet
Mean annual precipitation: 23 to 29 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 145 days
Farmland classification: Farmland of statewide importance
Parent material: Loess
Typical profile:
Ap - 0 to 7 inches: silt loam

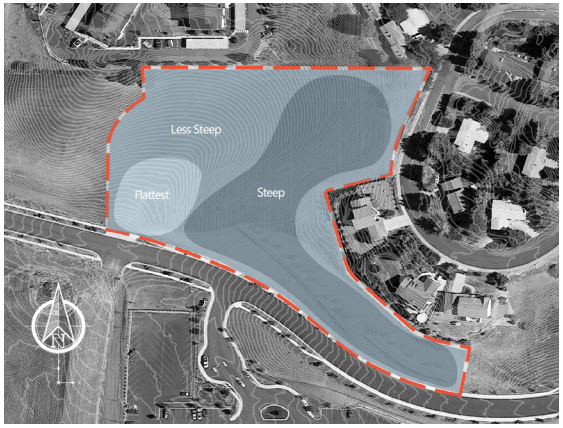


Figure 2.14
Site Slope Division Diagram

Bt - 7 to 60 inches: silty clay loam
Properties and qualities:
Slope: 7 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 10.4 inches)
Hydrologic Soil Group: C
Ecological site: LOAMY 16-24 PZ (R009XY102WA)
Properties and qualities:

Table 2.1 Soil Suitability Analysis

Soil Suitabilities and Limitstions for Use		
Classification	Specific Informstion	Rating
Building Site Development	Lawns, Landscaping, and Golf Fairways	Very Limited
	Small Commercial Buildings	Very Limited
	Unpaved Local Roads and Streets	Very Limited
Land Management	Erosion Hazard(Road, Trail)	Moderate
	Potential for Damage by Fire	Low
	Site Degradation Susceptibillity	Moderate
	Soil Compaction Resistance	Moderate
	Soil Restoration Potential	Moderate
	Suitability for Hand Planting	Moderate
	Suitability for Mechanical Planting	Not Suitable
Vegetative Productivity	Prod Index-Alfalfa Hay-Plaouse, Northern Rocky Mtns (ID)	Moderate
	Prod Index-Grass Hay-Plaouse, Northern Rocky Mtns (ID)	High
	Prod Index-Wild Hay-Plaouse, Northern Rocky Mtns (ID)	High
	Prod Index-Small Grains-Plaouse, Northern Rocky Mtns (ID)	Low
	Yields of Non-Irrigated Crops (Component)	Low
Waste Management	Disposal of Wastewater by Irrigation	Very Limited
	Disposal of Wastewater by Rapid Infiltration	Very Limited
	Overland Flow Treatment of Wastewater	Very Limited
	Slow Rate Treatment of Wasterwater	Very Limited
Water Managament	Excavated Ponds (Aquifer-Fed)	Very Limited
	Irrigation, General	Very Limited
	Irrigation, Micro (Above Ground)	Not Limited
	Irrigation, Micro (Subsurface Drip)	Not Limited
	Irrigation, Sprinkler (Close Spaced Drops)	Not Limited
	Irrigation, Sprinkler (General)	Not Limited

Slope: 7 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 12.0 inches)
Interpretive groups:
Hydrologic Soil Group: B
Ecological site: LOAMY 16-24 PZ (R009XY102WA)

Chapter 3 METHODOLOGY

3.1 Methodological Overview

This chapter focuses on the basic process of understanding the best design decisions for an edible food forest in Moscow, Idaho. The project adopted the design strategy of research by design(Deming and Swaffield, 2011). Based on the project, the site study mentioned in previous chapters, the feasible functional partitions and available plant materials were selected. Through the programing of the existing data, three conceptual design schemes are planned and designed. Finally, through the evaluation of concept schemes, the optimal design scheme was determined.

3.2 Design Strategy

In this project, the method of research by design was used to transform the design for an edible food forest into a comprehensive and critical research process. Its basic principle is to design a number of feasible schemes by adjusting the variable factors on the basis of the existing immutable factors of the site.

Existing immutable factors determine the basic location of each infrastructure within the site and the required functionality of the site, as well as the available plant material. On this basis, the design scheme with different emphasis is obtained by adjusting the variable factors. For example, increasing the proportion of community gardens in the functional area would shift the focus of the whole park towards the participation of residents. By increasing the number of ethnobotanical plants in the plant material, the park can display more plants with special meanings, thus making the educational function of the park more

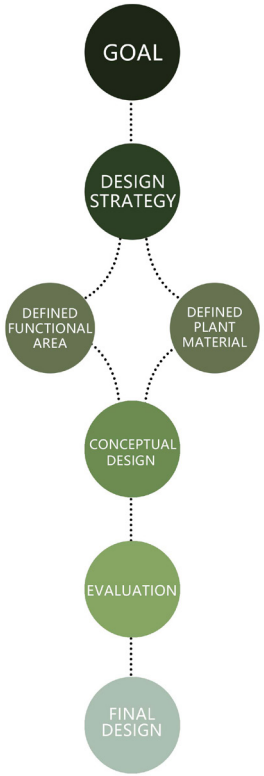


Figure 3.1 Methods Process Framework
This figure shows the steps and relationships of the methodological process.

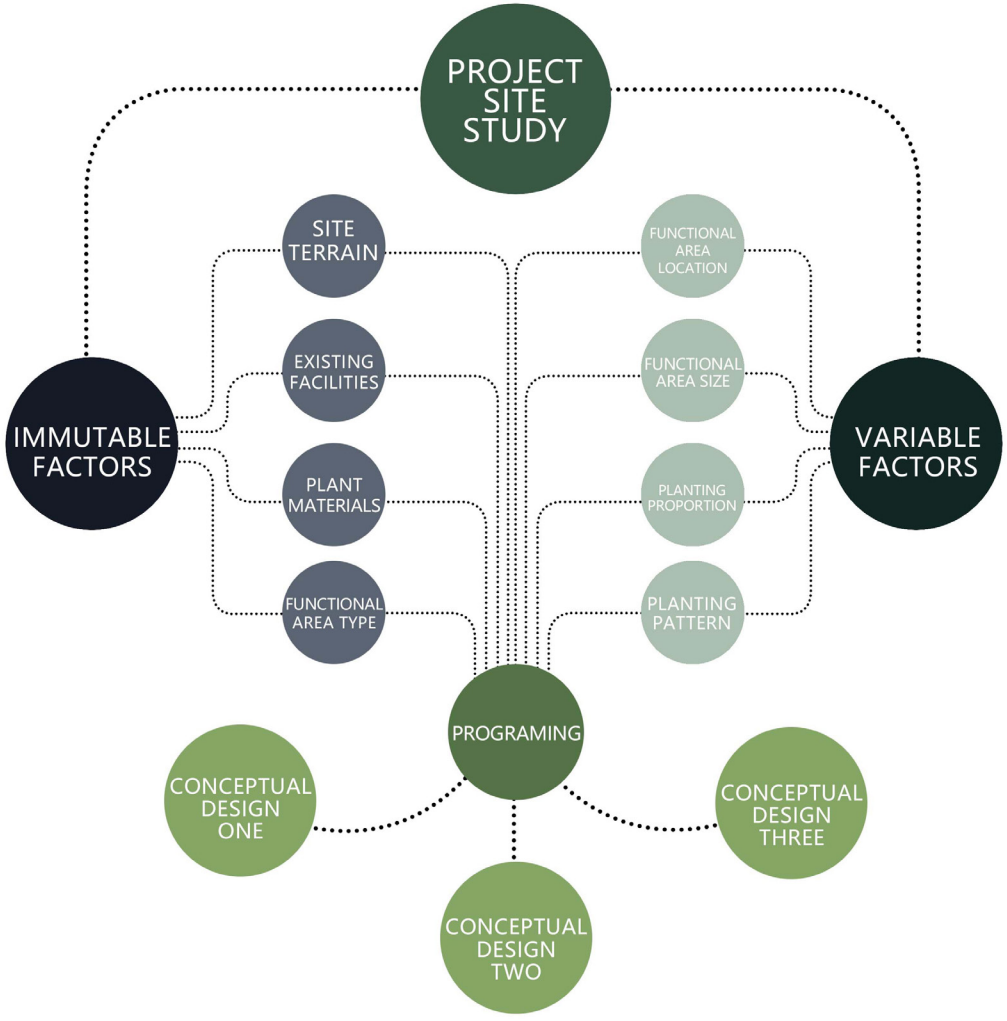


Figure 3.2 Design Strategy Framework
This figure shows the composition of the factors derived from site study and their relationship to conceptual design.

prominent. Since there is no significant difference between the types of functional areas and the types of plants used in the park during the design process, each design scheme has similar functions and different focuses, thus extending the three themes of edible forest and three conceptual designs.

3.2.1 Plant Material Selection

The selection of plant materials was based on the extent to which the city of Moscow, Idaho, belongs on the USDA Plant Hardiness Zone Map. According to the map, the city belongs to region 6. The selected plants have edible or medicinal value and are adapted to the local ecosystem. Each plant contains a label and description for one of the following: Native, Ethnobotanical, Common vegetables, Common Fruiting Shrubs/Trees, Less Common Fruiting Shrubs/Trees. The following is detailed information about each category.

Group 1: Native Group

This group of plants is native to Idaho, and even though most of them are not of very high edible value, they are very adaptable to the local ecosystem and are important for the maintenance of the park ecosystem.

Common Name	Scientific Name	Plant Labels	Description	Particularity	Photo
Springbeauty	Claytonia lanceolata	Native	Claytonia lanceolata is a species of wildflower in the Montiaceae family, known by the common names lanceleaf springbeauty and western springbeauty. This plant is native to western North America as far south as New Mexico where it grows in foothills up to alpine slopes. It thrives in the rocky soil of alpine climates where the snow never melts. It is a perennial herb growing from a tuber one to three centimeters wide. It produces a short, erect stem reaching a maximum height of 15 centimeters. At its smallest the plant bears only its first two rounded leaves before flowering and dying back.Its thick leaves are helpful for storing water. If it continues to grow it produces thick, lance-shaped leaves further up the stem. The star-shaped flowers come in inflorescences of three to 15 blooms and they are white or pink, often with veiny stripes and yellow blotches near the base of each petal. The fruit is a small capsule containing 2 seeds, which are black and shiny. The Okanogan-Colville, Okanogan, and Thompson Native American peoples used the tuber of this plant for food and for animal fodder.	The corms were eaten by native peoples and taste like potatoes.	
Nootka rose	Rosa nutkana	Native	Rosa nutkana grows to as much as 3 meters, often in thickets. It has light green paired leaflets with toothed edges and sharp prickles at the base. The prickles are straight and paired and generally appear at nodes. The 2-3 inch pink (5–8 cm) flowers usually occur singly, but may appear in groups of 2 or 3. The flowers, which appear in early summer, can have a pleasantly strong fragrance. The sepals are very long, longer than the petals, and are constricted in the middle. The fruits (hips) of Nootka rose are somewhat bitter but edible. It is reported that bletting will greatly mitigate the bitterness and make the hips much more palatable. Only the rind should be eaten as the seeds are irritating.	Hips are hign in vitamin C and can be eaten or cooked, or made into jelly or tea.	
sticky purple geranium	Geranium viscosissimum	Native	Flowers have five petals, are white to pinkish-purple, appearing in open clusters on forked stems about 2-3 inches above the leaves. Leaves are typically basal, palmate with toothed tips, pubescent, and range in size from 1-1 ½ inches.	Herbalists have employed many members of the Geranium family to diminish bleeding, and treat ailments such diarrhea, sore eyes, mouth sores, and chapped lips. This species was traditionally used by Native Tribes to treat colds and sore throats.	

Table 3.1 A Partial List of Native Group

Group 2:Ethnobotanical Group

This group of plants is actually part of native plants, and they were reclassified because most of them were widely used by native Americans and often had a special meaning to the lives of native people. For example, Common camas, is a well-known food of the mid-Columbia River Indigenous peoples and many other tribes in the Pacific Northwest. Some plants have medicinal value, such as Wyeth biscuitroot, by local tribes used to treat sore throat. Other plants are mythic, such as Western juneberry. Plants with such labels can provide residents with more knowledge of botany and history. Therefore, they play an important role in education.

Common Name	Scientific Name	Plant Labels	Description	Particularity	Photo
Common camas	Camassia quamash	Ethnobotanical	It is a perennial herbaceous monocot with leaves emerging from a persistent bulb in a basal rosette. The stems have a length between 30 and 90 centimetres (12 and 35 in). The leaves are basal and have a grass-like appearance. The pale blue to deep blue flowers appear in late spring to early summer (May to June in their native habitat). They are arranged in a raceme at the end of the stem. Each of the radially symmetrical, star-shaped flowers has six petals.	Called sqha'wlutqhwe' in the Schitsu'umsh language and it was normally harvested after bloom (Frey 2001, 6). Before this plant is harvested an offering and prayer must be made to request permission to harvest. If permission is granted the Creator must be thanked for the food as it is considered a gift. Some families of Schitsu'umsh serve common camas during family gatherings, birthdays, Easter, Jump Dance, and Christmas, or when elders simply desire it (Frey 2001, 156). The Sahaptin term for common camas is xn̓aaš or wáǩamu (Hunn 1990, 172). Common camas is a well-known food of the mid-Columbia River Indigenous peoples and many other tribes in the Pacific Northwest. Camas is prepared by the mid-Columbia River Indigenous peoples by baking it in the ground, and it was normally harvested after the bitterroot and lomatium season (Hunn 1990, 176-177). Common camas is known as quem'es in the Nez Perce language and identified as a root staple of the Nez Perce and Palouse Indigenous people (Davis 2015, 100, Walker 1998, 421, Sprague 1998, 354).	
Wyeth biscuitroot	Lomatium ambiguum	Ethnobotanical	Lomatium ambiguum, also known as Wyeth biscuitroot, is a perennial herb of the family Apiaceae that grows in the northwestern United States and into British Columbia in dry areas. The leaves are divided into many blades, and stems can be slightly purple and are 6–24 cm tall. Yellow flowers in compound umbels appear from late April to June.	The Okanagan-Colville Indigenous peoples are known to use this plant for both medicine and food (Moerman 1998, 313). An infusion of Swale desert-parsley flowers and upper leaves could be taken to relieve colds and sore throats (Moerman 1998, 313). The flowers and upper leaves can also be dried and used as food and spice (Moerman 1998, 313).	
Western juneberry	Amelanchier alnifolia	Ethnobotanical	It is a deciduous shrub or small tree that most often grows to 1–8 m (3–26 ft), rarely to 10 m or 33 ft, in height. Its growth form spans from suckering and forming colonies to clumped. The leaves are oval to nearly circular, 2–5 cm (3 / 4–2 in) long and 1–4.5 cm (1 / 2–1 3 / 4 in) broad, on a 0.5–2 cm (1 / 4–3 / 4 in) leaf stem, margins toothed mostly above the middle. The foliage is browsed by deer and livestock. As with all species in the genus Amelanchier, the flowers are white, with five quite separate petals. In A. alnifolia, they are about 2–3 cm (3 / 4–1 1 / 4 in) across,[citation needed] and appear on short racemes of three to 20 somewhat crowded together, in spring while the new leaves are still expanding. The fruit is a small purple pome 5–15 mm (3 / 16–19 / 32 in) in diameter,	Food and part of the Schitsu'umsh legend of Coyote and the Rock Monster. In this legend, Rock Monster goes crazy and tears up the land and destroys trees resulting in the creation of the Palouse prairie. Coyote defeats Rock Monster by leading him into a lake. The lake turns blue from all the huckleberries and serviceberries that Rock Monster rolled over while chasing Coyote (Frey 2001, 131-134). Western serviceberry was harvested in the lowlands and foothills between late June and mid-August by the mid-Columbia river peoples. It is called ččaa in Sahaptin (Hunn 1990, 178). The dried fruits of Western serviceberry were also used as food by the Nez Perce (Walker 1998, 421) and called kel (Nez Perce Historical Park 2017). Also, see comment on common chokecherry.	

Table 3.2 A Partial List of Ethnobotanical Group

Group 3:Common Vegetables

Plants with such labels are common garden vegetables. They adapt to the local ecological environment and are easy to survive. This group of plants was chosen because they can be grown and maintained by residents as a community garden species. So this group of plants is not limited to the contents of the list, it can be added by the residents themselves. This group of plants can increase the participation of residents and have important production significance.

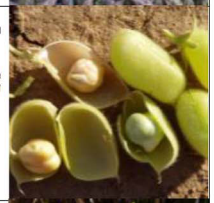
Common Name	Scientific Name	Plant Labels	Description	Particularity	Photo
Asparagus	Asparagus officinalis	Common vegetables	Asparagus is a herbaceous, perennial plant growing to 100–150 cm (39–59 in) tall, with stout stems with much-branched, feathery foliage. The "leaves" are in fact needle-like cladodes (modified stems) in the axils of scale leaves; they are 6–32 mm (0.24–1.26 in) long and 1 mm (0.039 in) broad, and clustered four to 15 together, in a rose-like shape. The root system is adventitious and the root type is fasciculated. The flowers are bell-shaped, greenish-white to yellowish, 4.5–6.5 mm (0.18–0.26 in) long, with six tepals partially fused together at the base; they are produced singly or in clusters of two or three in the junctions of the branchlets. It is usually dioecious, with male and female flowers on separate plants, but sometimes hermaphrodite flowers are found. The fruit is a small red berry 6–10 mm diameter, which is poisonous to humans.	Since asparagus often originates in maritime habitats, it thrives in soils that are too saline for normal weeds to grow. Thus, a little salt was traditionally used to suppress weeds in beds intended for asparagus; this has the disadvantage that the soil cannot be used for anything else Some places are better for growing asparagus than others. The fertility of the soil is a large factor. "Crowns" are planted in winter, and the first shoots appear in spring; the first pickings or "thinnings" are known as sprue asparagus. Sprue has thin stems.	
Chickpea	Cicer arietinum	Common vegetables	The plant grows to 20–50 cm (8–20 in) high and has small, feathery leaves on either side of the stem. Chickpeas are a type of pulse, with one seedpod containing two or three peas. It has white flowers with blue, violet, or pink veins.	In some parts of the world, young chickpea leaves are consumed as cooked green vegetables. Especially in malnourished populations, it cai supplement important dietary nutrients, because regions where chickpeas are consumed have been sometimes found to have populations lacking micronutrients. Chickpea leaves have a significantly higher mineral content than either cabbage leaves or spinach leaves. In natural settings, environmental factors and nutrient availability could influence mineral concentrations. Nevertheless, consumption of chickpea leaves is recommended for areas where chickpeas are produced as food for humans.	
Beets	Beta vulgaris	Common vegetables	Beta vulgaris is an herbaceous biennial or, rarely, perennial plant up to 120 cm (rarely 200 cm) height; cultivated forms are mostly biennial. The roots of cultivated forms are dark red, white, or yellow and moderately to strongly swollen and fleshy (subsp. vulgaris); or brown, fibrous, sometimes swollen and woody in the wild subspecies. The stems grow erect or, in the wild forms, often procumbent; they are simple or branched in the upper part, and their surface is ribbed and striate. The basal leaves have a long petiole (which may be thickened and red, white, or yellow in some cultivars). The simple leaf blade is oblanceolate to heart-shaped, dark green to dark red, slightly fleshy, usually with a prominent midrib, with entire or undulate margin, 5–20 cm long on wild plants (often much larger in cultivated plants). The upper leaves are smaller, their blades are rhombic to narrowly lanceolate.	The roots and leaves of the beet have been used in traditional medicin to treat a wide variety of ailments. Ancient Romans used beetroot as a treatment for fevers and constipation, amongst other ailments. Apicius in De re coquinaria gives five recipes for soups to be given as a laxative three of which feature the root of beet. Platina recommended taking beetroot with garlic to nullify the effects of 'garlic-breath'.	

Table 3.3 A Partial List of Common Vegetables Group

Group 4:Common Fruiting Shrubs/Trees

Plants with such labels can produce common fruit. These include blueberries, plums, and apples. Some of them, such as apples, plums and so on, can also open beautiful flowers in the flower season. These flowers enhance the landscape of the park. Although the plants in this group are not as available for the residents to grow by themselves as vegetables, they can also enhance the participation of the residents by organizing them to pick the fruits when they are ripe. This group of plants is both productive and landscaping for the park.

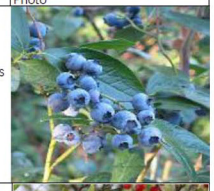
Common Name	Scientific Name	Plant Labels	Description	Particularity	Photo
Northern blueberries	Vaccinium corymbosum	Common fruiting shrubs	Vaccinium corymbosum is a deciduous shrub growing to 6–12 feet (1.8–3.7 m) tall and wide. It is often found in dense thickets. The dark glossy green leaves are elliptical and up to 2 inches (5 cm) long. In autumn, the leaves turn to a brilliant red, orange, yellow, and/or purple. The flowers are long bell- or urn-shaped white to very light pink, 1 / 3 of an inch (8.5 mm) long. The fruit is a 1 / 4-to-1 / 2-inch (6.4 to 12.7 mm) diameter blue-black berry.[4] This plant is found in wooded or open areas with moist acidic soils. The species is tetraploid and does not self-pollinate. Most cultivars have a chilling requirement greater than 800 hours.	In natural habitats, the berries are a food source for native and migrating birds, bears, and small mammals. The foliage is browsed by deer and rabbits. The berries were collected and used in Native American cuisine in areas where Vaccinium corymbosum grew as a native plant.	
Red chokeberry	Aronia arbutifolia	Common fruiting shrubs	Aronia arbutifolia, called the red chokeberry, is a North American species of shrubs in the rose family. It is native to eastern Canada and to the eastern and central United States, from eastern Texas to Nova Scotia inland to Ontario, Ohio, Kentucky, and Oklahoma. Aronia arbutifolia is a branching shrub forming clumps by means of stems forming from the roots. Flowers are white or pink, producing black or bright red fruits. Many people consider the fruits to be foul-tasting	The fruits are very high in nutritional compounds and the juice isoften added to fruit juice mixes.Bee plant	

Table 3.4 A Partial List of Common Fruiting Shrubs/Trees Group

Group 5: Less Common Fruiting Shrubs/Trees

Less common fruit trees are often not native plants, but are adapted to the local ecological environment. They serve as a demonstration tree and an educational function while producing fruit. This group of plants was chosen because they are highly educational and a good candidate for a botanical garden.

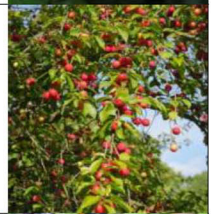
Common Name	Scientific Name	Plant Labels	Description	Particularity	Photo
Hawthorn	Crataegus	Less common fruiting tree	Crataegus species are shrubs or small trees, mostly growing to 5–15 m (16–49 ft) tall, with small pome fruit and (usually) thorny branches. The most common type of bark is smooth grey in young individuals, developing shallow longitudinal fissures with narrow ridges in older trees. The thorns are small sharp-tipped branches that arise either from other branches or from the trunk, and are typically 1–3 cm long (recorded as up to 11.5 cm (4.5 in) in one case). The leaves grow spirally arranged on long shoots, and in clusters on spur shoots on the branches or twigs. The leaves of most species have lobed or serrated margins and are somewhat variable in shape. The fruit, sometimes known as a "haw", is berry-like but structurally a pome containing from one to five pyrenes that resemble the "stones" of plums, peaches, etc., which are drupaceous fruit in the same subfamily.	Little required for maintenance. Some species are very thorny. Canopies can be raised in time bypruning off lower branches. Bee plants	
Cherry plum	Prunus cerasifera	Less common fruiting tree	Wild types are large shrubs or small trees reaching 8–12 m (25–40 feet) tall, sometimes spiny, with glabrous, ovate deciduous leaves 3–7 cm (1.5–2.5 inches) long.[3]:196 It is one of the first European trees to flower in spring, often starting in mid-February before the leaves have opened. The flowers are white or pale pink and about 2 cm (0.8 inches) across, with five petals and many stamens. The fruit is an edible drupe, 2–3 cm in diameter, ripening to yellow or red from early July to mid-September. They are self-fertile but can also be pollinated by other Prunus varieties such as the Victoria plum. The plant propagates by seed or by suckering, and is often used as the rootstock for other Prunus species and cultivars.	Little required for maintenance. Bee plant; also hedges and windbreaks.	

Table 3.5 A Partial List of Less Common Fruiting Shrubs/Trees Group

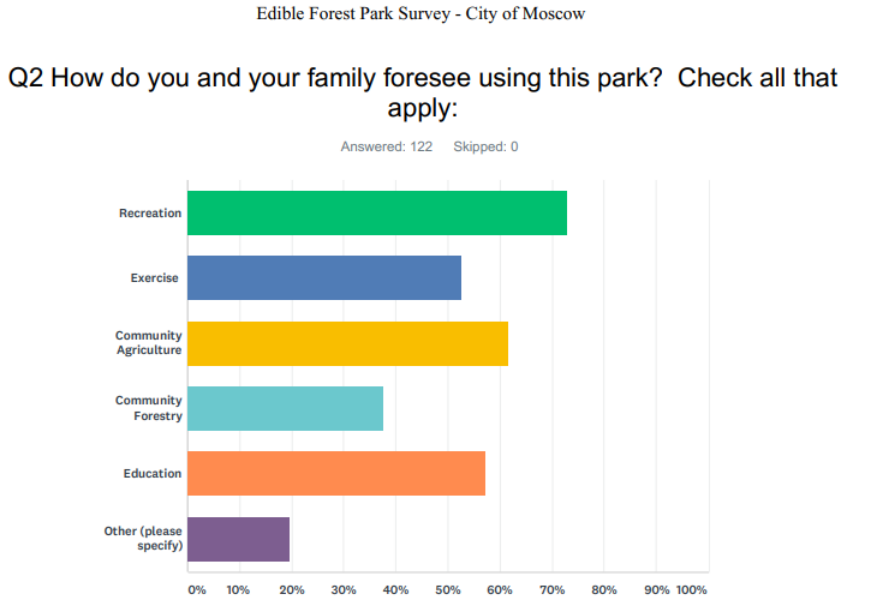
3.2.2 Functional Area Selection

Functional areas are determined based on two aspects of information.

First, from the literature review, it objectively expounds the characteristics of edible landscape. They include: ***Landscape Efficacy***: Bring a new sense of enjoyment and experience to urban residents, which enriches the landscape form of urban gardens. ***Ecological***: Enrich the ecological diversity of cities. ***Productivity***: Provide fresh and high-quality products. ***Participation***: Provide urban residents with an opportunity to participate in agricultural work. ***Educational***: Increase relevant knowledge for residents.

The second area of information comes from the Moscow government's survey of local residents. It subjectively addresses the functional needs of local populations for edible forests. They include: Recreation(72.95%), Community Agriculture(61.48%), Education(57.38%), Exercise(52.46%), Community Forest(37.70%).

The final selected functional areas are the entrance area, edible botanical garden, community garden, food forest, community playfield.



ANSWER CHOICES	RESPONSES	
Recreation	72.95%	89
Exercise	52.46%	64
Community Agriculture	61.48%	75
Community Forestry	37.70%	46
Education	57.38%	70
Other (please specify)	19.67%	24
Total Respondents: 122		

Figure 3.3 Questionnaire Survey of Residents
The results of the questionnaire survey show the residents' demand for the use of the park. The functional requirements, from high to low, are: Recreation, Community Agriculture, Education, Exercise, Community Forest.

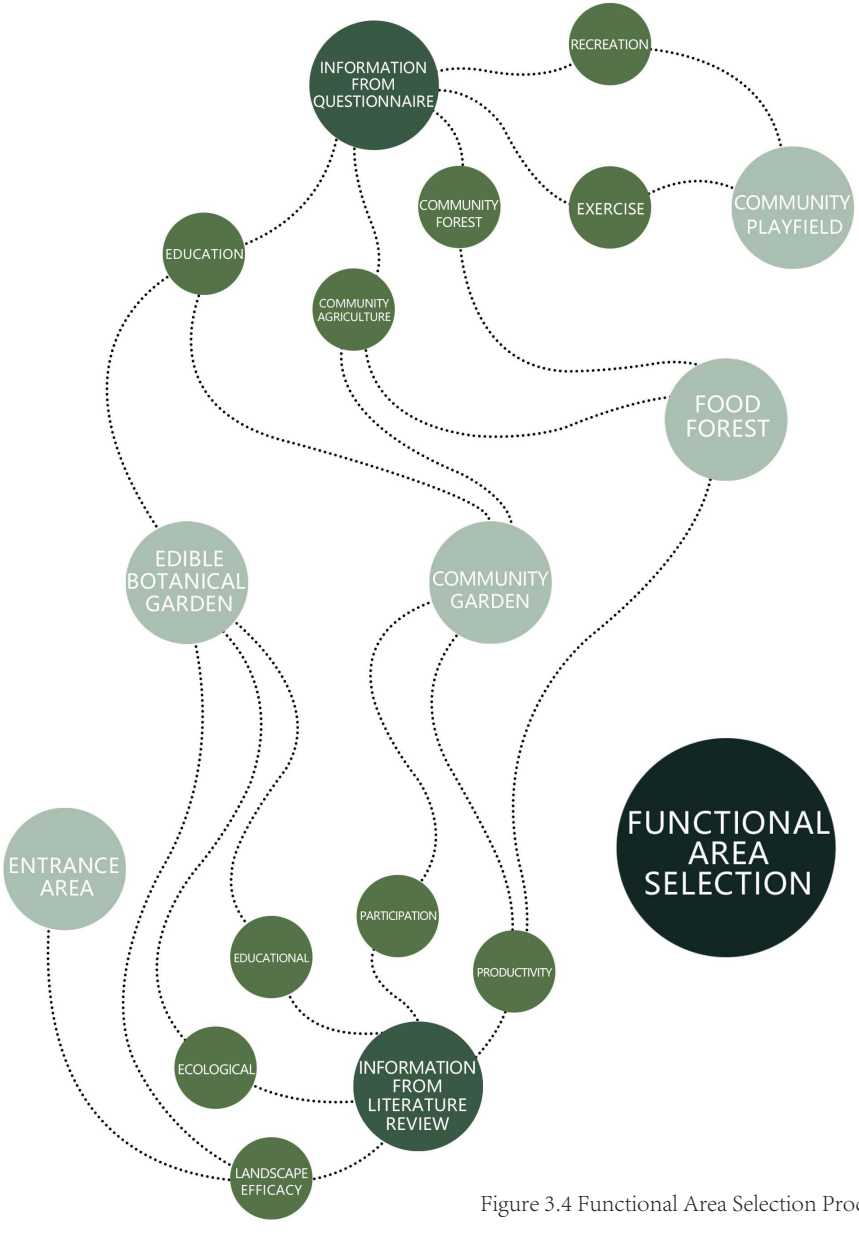


Figure 3.4 Functional Area Selection Process Diagram

3.2.3 The Theme Selected

According to the previous section of the study, productive landscapes have participation, landscape efficacy, productivity, recreational, educational, ecological and other functional characteristics. In the theme selection of conceptual designs, three characteristics of participation, education and ecological were selected as the functional emphasis of the three themes.

Theme One: An edible community garden with an emphasis on participation can provide more opportunities for residents to participate in community activities.

Theme Two: Edible botanical gardens with an emphasis on education can provide residents with more botanical knowledge.

Theme Three: The eco-focused edible eco-park aims to create a small eco-garden that is more in line with the local ecosystem.

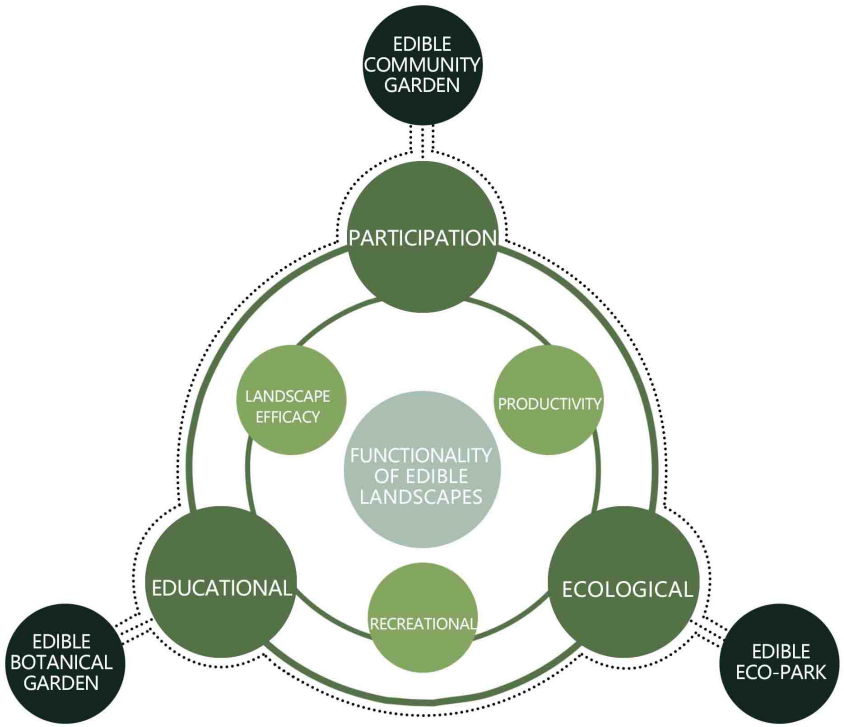


Figure 3.5 The Relationship Between Functional Focus and Theme

3.3 Conceptual Design

In this section, a draft plan is drawn for the three conceptual designs, and elaborated the specific information of the three conceptual designs. Include design purpose and function partition.

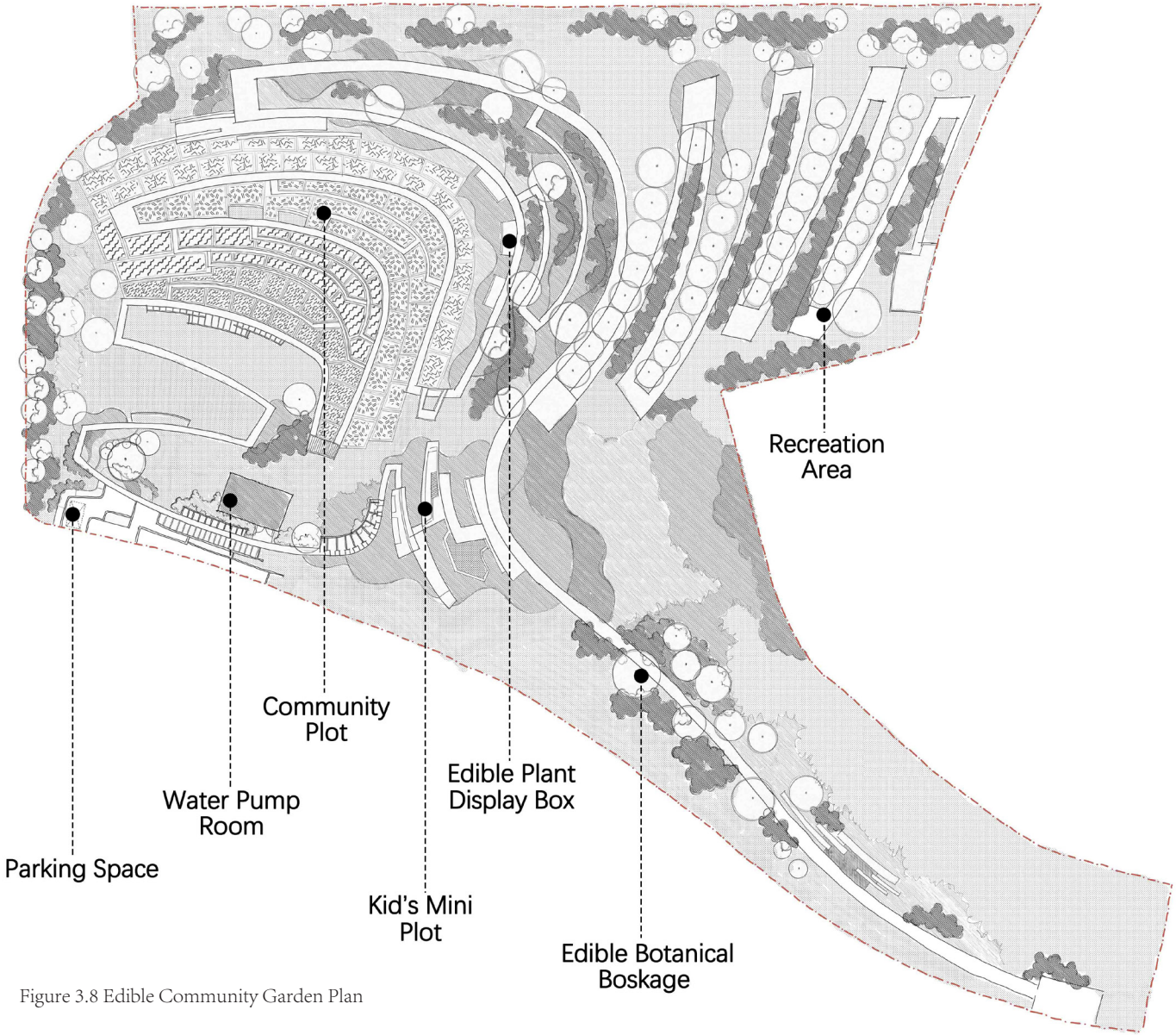


Figure 3.8 Edible Community Garden Plan

3.3.1 Conceptual Design One "Edible Community Garden"

This conceptual design focuses on community participation.
Its core functional area is the community garden, which is composed of a number of large and small vegetable plots, and residents can decide on the plants they want to grow in the vegetable plots. Therefore, it is the best place for community exchange and cooperation. In addition to participation, the vegetables produced in the community vegetable plots also achieve the productive function of the edible landscape.

The functional areas in this design also include an educational edible botanical garden, a children's area that provides small vegetable plots for children, a community playfield for residents to exercise, and a food forest that produces fruit.

Figure 3.6 Conceptual Design One
Perspective Sketch

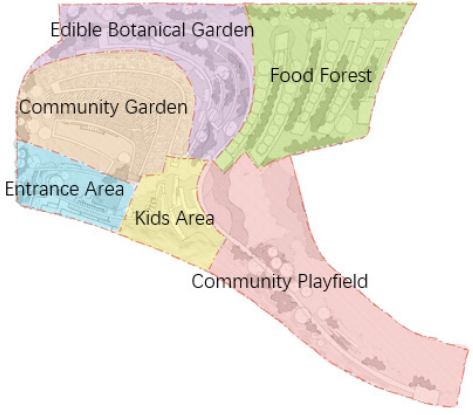


Figure 3.7 Conceptual Design One
Functional Area

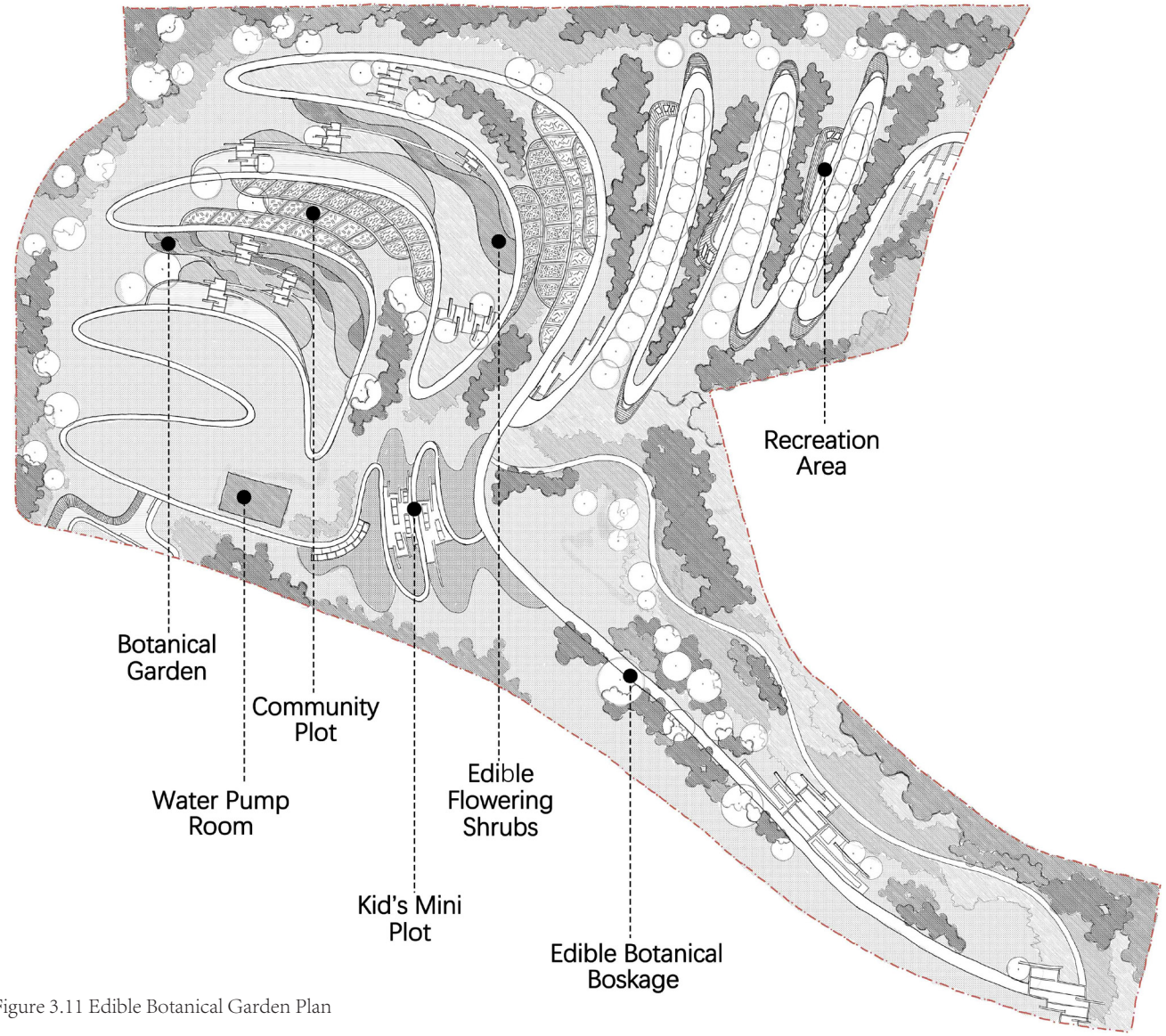


Figure 3.11 Edible Botanical Garden Plan

3.3.2 Conceptual Design Two "Edible Botanical Garden"

The conceptual design focuses on the educational function and resembles a botanical garden made up of edible plant materials.

Its core functional areas are native flora and edible botanical garden. Native plants are widely used in native flora. Most of them are ethnobotanical species and were widely used by native Americans, which has a certain historical meaning. Edible botanical garden is used to display any plants that are adapted to the local ecological environment and have edible or medicinal value. Both functional areas are used for the educational and ecological systems within the park.

Other functional areas include a community garden for residents to participate in activities, a kid's area with small planting grounds for children, and a food forest that produces fruit.

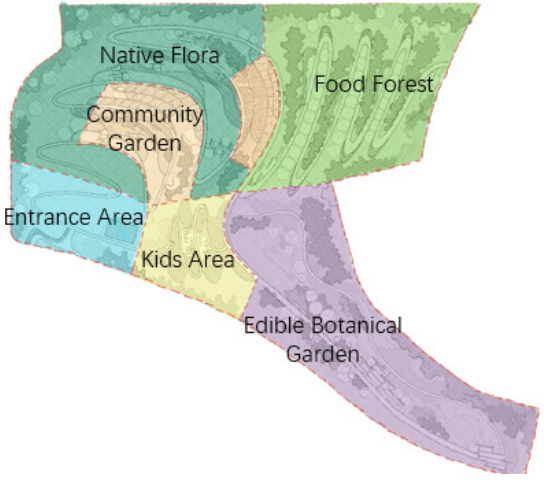


Figure 3.9 Conceptual Design Two Perspective Sketch

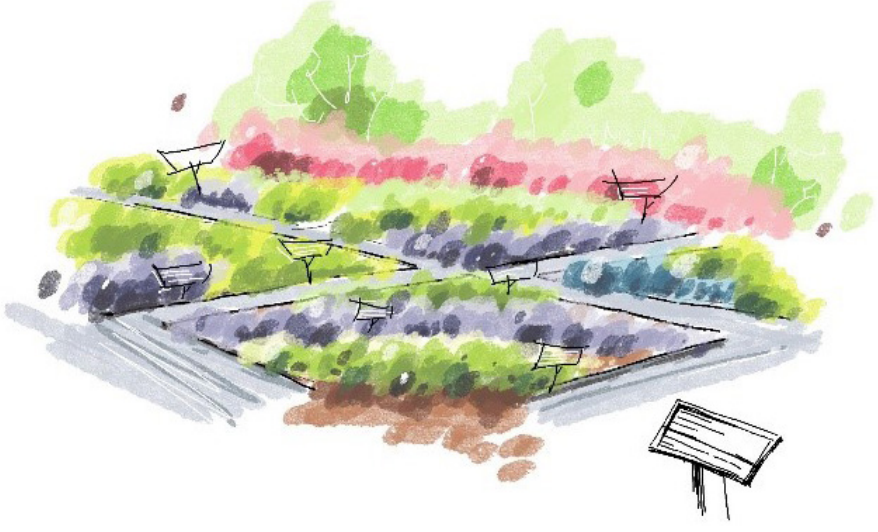


Figure 3.10 Conceptual Design Two Functional Area

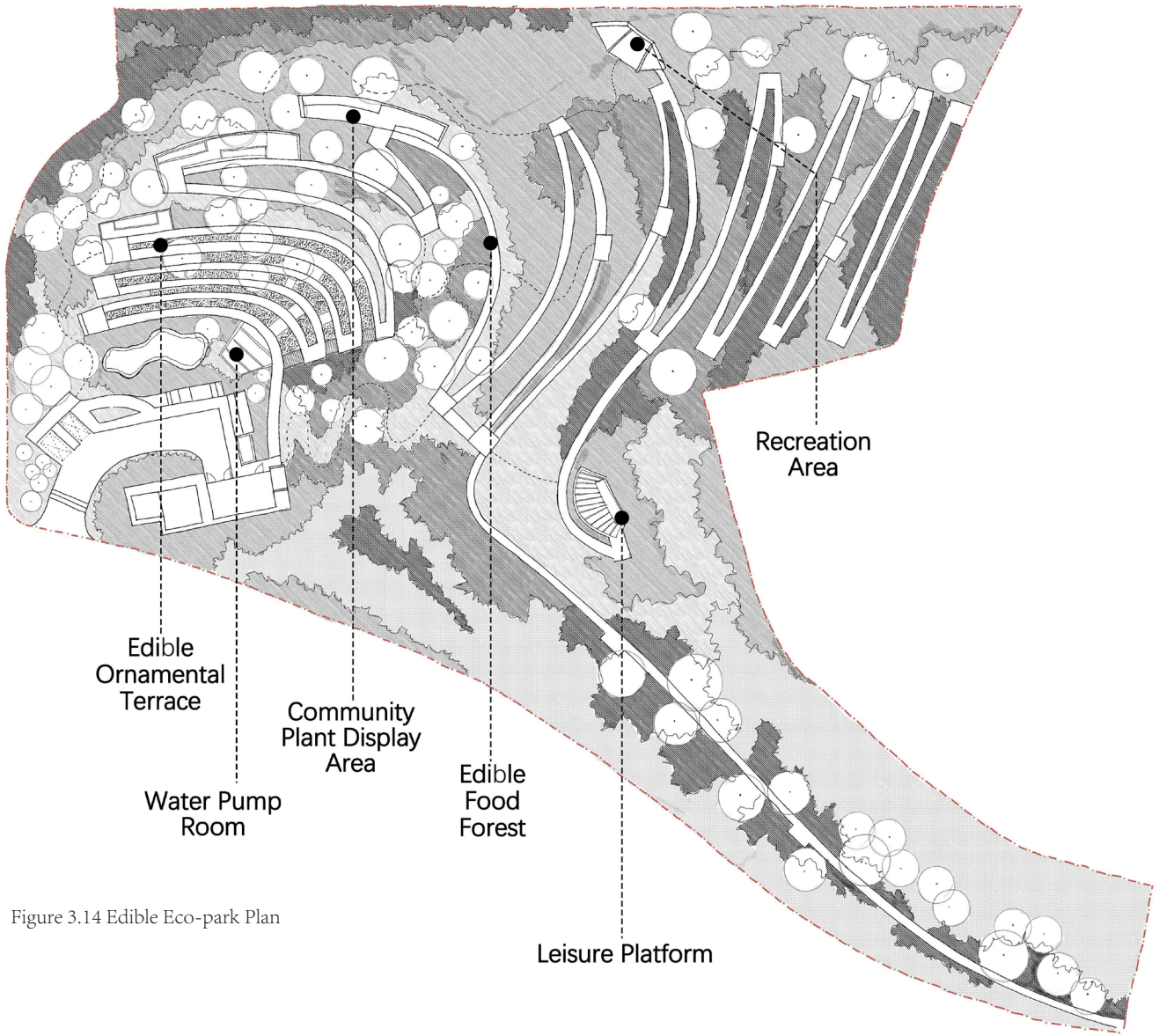


Figure 3.14 Edible Eco-park Plan

3.3.3 Conceptual Design Three "Edible Eco-park"

This design incorporates the functions of the productive landscapes into the ecosystem.

It contains five ecological zones: agriculture land, wetlands, forests and Palouse prairie. Each ecosystem area is represented by a different plant material. Vegetable plots that allow residents to participate in planting are placed on agricultural land. Trees or shrubs that produce fruit are planted in forest areas. Native species with special meaning are on display in the Palouse Prairie.

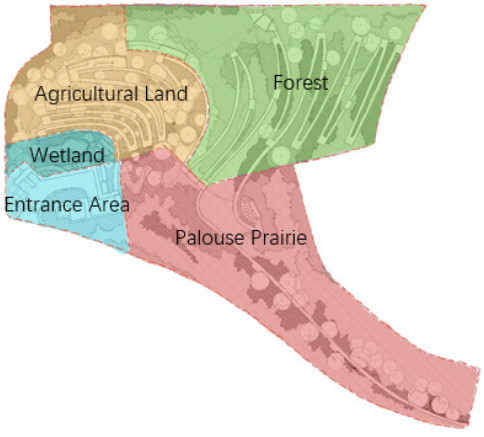


Figure 3.12 Conceptual Design Two
Perspective Sketch

Figure 3.13 Conceptual Design Three
Functional Area

Chapter 4 EVALUATION

4.1 Evaluation by SITES

This section evaluates the three concept designs based on the criteria provided by "SITES."

The Sustainable Sites Initiative ™ (SITES ™) is a program based on the understanding that land is a crucial component of the built environment and can be planned, designed, developed, and maintained to avoid, mitigate, and even reverse these detrimental impacts.
Development of the SITES v2 Rating System has been a collaborative, interdisciplinary effort made possible by the input of more than 70 dedicated contributors, including technical advisors, practitioners, and representatives of professional, advocacy, and educational organizations.

Details are shown in the following table. Among them, the darkening part is the requirement of the project, and the answer of this part is only "Y(Project confident points are achievable)" and "N (Project is unable to achieve these points)".The non-burn part of the color is optional, and the answers to this part are shown in the form of scores on the left side of the table. The scores of the three concept designs correspond to the Numbers of column "D1", "D2" and "D3" respectively.

4.1.1 Site Context and Pre-Design Assessment

This part of the evaluation focuses on site study and project pre-design, and since the three concept designs are based on the same site study, the scores are the same.

D1	D2	D3	1: SITE CONTEXT		Possible Points:	13
Y	Y	Y	**CONTEXT P1.1**	Limit development on farmland		
Y	Y	Y	**CONTEXT P1.2**	Protect floodplain functions		
Y	Y	Y	**CONTEXT P1.3**	Conserve aquatic ecosystems		
Y	Y	Y	**CONTEXT P1.4**	Conserve habitats for threatened and endangered species		
4	4	4	**CONTEXT C1.5**	Redevelop degraded sites		**3 to 6**
4	4	4	**CONTEXT C1.6**	Locate projects within existing developed areas		**4**
3	3	3	**CONTEXT C1.7**	Connect to multi-modal transit networks		**2 to 3**
11	11	11				TOTAL

D1	D2	D3	2: PRE-DESIGN ASSESSMENT + PLANNING		Possible Points:	3
Y	Y	Y	**PRE-DESIGN P2.1**	Use an integrative design process		
Y	Y	Y	**PRE-DESIGN P2.2**	Conduct a pre-design site assessment		
Y	Y	Y	**PRE-DESIGN P2.3**	Designate and communicate VSPZs		
3	3	3	**PRE-DESIGN C2.4**	Engage users and stakeholders		**3**
3	3	3				TOTAL

Table 4.1 The Evaluation results of Site Context and Pre-Design Assessment

4.1.2 Site Design

This part of the evaluation focuses on the design of the site, including Water, Soil and Vegetation, Materials Selection, Human Health and Well-Being.

The design of the three conceptual schemes for water is based on the location of the existing piped water on the site. As the terrain is the same, the three schemes treat the rainwater in the same way. Therefore, each scheme has the same score within this section.

D1	D2	D3	3: SITE DESIGN - WATER		Possible Points:	23
Y	Y	Y	**WATER P3.1**	Manage precipitation on site		
Y	Y	Y	**WATER P3.2**	Reduce water use for landscape irrigation		
4	4	4	**WATER C3.3**	Manage precipitation beyond baseline		**4 to 6**
4	4	4	**WATER C3.4**	Reduce outdoor water use		**4 to 6**
4	4	4	**WATER C3.5**	Design functional stormwater features as amenities		**4 to 5**
0	0	0	**WATER C3.6**	Restore aquatic ecosystems		**4 to 6**
12	12	12				TOTAL

Table 4.2 The Evaluation results of Site Design-Water

In plant selection, because the three conceptual design two and conceptual design to use more local plant materials, so there is a higher score. The concept design three main objectives is building a small edible ecosystem, so for the choice of plants and planting way more in line with the local ecosystem, thus got the highest score in this part.

D1	D2	D3	4: SITE DESIGN - SOIL + VEGETATION		Possible Points:	40
Y	Y	Y	SOIL+VEG P4.1	Create and communicate a soil management plan		
Y	Y	Y	SOIL+VEG P4.2	Control and manage invasive plants		
Y	Y	Y	SOIL+VEG P4.3	Use appropriate plants		
4	5	6	SOIL+VEG C4.4	Conserve healthy soils and appropriate vegetation		4 to 6
4	4	4	SOIL+VEG C4.5	Conserve special status vegetation		4
4	5	6	SOIL+VEG C4.6	Conserve and use native plants		3 to 6
4	5	6	SOIL+VEG C4.7	Conserve and restore native plant communities		4 to 6
5	6	4	SOIL+VEG C4.8	Optimize biomass		1 to 6
4	4	4	SOIL+VEG C4.9	Reduce urban heat island effects		4
1	1	1	SOIL+VEG C4.10	Use vegetation to minimize building energy use		1 to 4
0	0	0	SOIL+VEG C4.11	Reduce the risk of catastrophic wildfire		4
26	30	31				TOTAL

Table 4.3 The Evaluation results of Site Design-Soil and Vegetation

In the choice of materials, the three design schemes have similar building materials, so the score is roughly the same. The subtle difference is still reflected in the choice of plant materials. Concept designs two and three have more native species and are therefore more sustainable than concept design one.

D1	D2	D3	5: SITE DESIGN - MATERIALS SELECTION		Possible Points:	41
Y	Y	Y	MATERIALS P5.1	Eliminate the use of wood from threatened tree species		
2	2	2	MATERIALS C5.2	Maintain on-site structures and paving		2 to 4
3	3	3	MATERIALS C5.3	Design for adaptability and disassembly		3 to 4
3	3	3	MATERIALS C5.4	Use salvaged materials and plants		3 to 4
3	3	3	MATERIALS C5.5	Use recycled content materials		3 to 4
3	3	3	MATERIALS C5.6	Use regional materials		3 to 5
1	1	1	MATERIALS C5.7	Support responsible extraction of raw materials		1 to 5
1	1	1	MATERIALS C5.8	Support transparency and safer chemistry		1 to 5
5	5	5	MATERIALS C5.9	Support sustainability in materials manufacturing		5
2	4	5	MATERIALS C5.10	Support sustainability in plant production		1 to 5
23	25	26				TOTAL

Table 4.4 The Evaluation results of Site Design-Materials Selection

In this part, the concept design one has a higher well-being due to its commitment to building community garden where residents can participate those components have a higher scores.

D1	D2	D3	6: SITE DESIGN - HUMAN HEALTH + WELL-BEING		Possible Points:	30
2	3	2	**HHWB C6.1**	Protect and maintain cultural and historic places		**2 to 3**
2	2	2	**HHWB C6.2**	Provide optimum site accessibility, safety, and wayfinding		**2**
2	2	2	**HHWB C6.3**	Promote equitable site use		**2**
2	2	2	**HHWB C6.4**	Support mental restoration		**2**
2	1	1	**HHWB C6.5**	Support physical activity		**2**
2	2	2	**HHWB C6.6**	Support social connection		**2**
4	3	3	**HHWB C6.7**	Provide on-site food production		**3 to 4**
0	0	0	**HHWB C6.8**	Reduce light pollution		**4**
0	0	0	**HHWB C6.9**	Encourage fuel efficient and multi-modal transportation		**4**
0	0	0	**HHWB C6.10**	Minimize exposure to environmental tobacco smoke		**1 to 2**
3	3	3	**HHWB C6.11**	Support local economy		**3**
19	18	17				TOTAL

Table 4.5 The Evaluation results of Site Design-Human Health and Well-Being

4.1.3 Construction and Operations

In this section, because the three design schemes are in the design stage and have not been constructed. The evaluation component represents assumed results. In the future operation process, the concept design one has a higher involvement as a community garden and is superior to the other two in terms of management and maintenance.

D1	D2	D3	7: CONSTRUCTION		Possible Points:	17
Y	Y	Y	**CONSTRUCTION P7.1**	Communicate and verify sustainable construction practices		
Y	Y	Y	**CONSTRUCTION P7.2**	Control and retain construction pollutants		
Y	Y	Y	**CONSTRUCTION P7.3**	Restore soils disturbed during construction		
3	3	3	**CONSTRUCTION C7.4**	Restore soils disturbed by previous development		**3 to 5**
3	3	3	**CONSTRUCTION C7.5**	Divert construction and demolition materials from disposal		**3 to 4**
0	0	0	**CONSTRUCTION C7.6**	Divert reusable vegetation, rocks, and soil from disposal		**3 to 4**
0	0	0	**CONSTRUCTION C7.7**	Protect air quality during construction		**2 to 4**
3	3	3				TOTAL

D1	D2	D3	8. OPERATIONS + MAINTENANCE		Possible Points:	22
Y	Y	Y	O+M P8.1	Plan for sustainable site maintenance		
Y	Y	Y	O+M P8.2	Provide for storage and collection of recyclables		
5	4	4	O+M C8.3	Recycle organic matter		3 to 5
5	4	4	O+M C8.4	Minimize pesticide and fertilizer use		4 to 5
3	4	4	O+M C8.5	Reduce outdoor energy consumption		2 to 4
0	0	0	O+M C8.6	Use renewable sources for landscape electricity needs		3 to 4
0	0	0	O+M C8.7	Protect air quality during landscape maintenance		2 to 4
13	12	12				TOTAL

Table 4.5 The Evaluation results of Construction and Operations

4.1.4 Education

In this section, concept design one scored higher because of its innovative community garden.

D1	D2	D3	9. EDUCATION + PERFORMANCE MONITORING		Possible Points:	11
3	4	3	EDUCATION C9.1	Promote sustainability awareness and education		3 to 4
0	0	0	EDUCATION C9.2	Develop and communicate a case study		3
	0	0	EDUCATION C9.3	Plan to monitor and report site performance		4
3	4	3				TOTAL

D1	D2	D3	10. INNOVATION OR EXEMPLARY PERFORMANCE		Bonus Points:	9
5	5	3	INNOVATION C10.1	Innovation or exemplary performance		3 to 9
5	5	3				TOTAL

Table 4.6 The Evaluation results of Education and Innovation

Chapter 5 RESULT

5.1 Final Result of The Evaluation

The final result of the evaluation:

Concept Design One "Edible Community Garden" had the highest score in section "Human Health and Well-Being" and "Construction and Operations", the final score was 118. Concept Design Two "Edible Botanical Garden" had the highest score in section "Education" and the final score was 123. Concept Design Three "Edible Eco-park" had the highest score in section "Soil and Vegetation" and "Materials Selection", the final score was 121.

Although Concept Design Two got the highest score, what the project needed was not the design with the highest score, but the part with the greatest advantage of each design.

Because of a better interactive experience. Concept Design One "Edible Community Garden" had the highest score in section "Human Health and Well-Being".

Because of the largest botanical garden with educational function. Concept Design Two "Edible Botanical Garden" had the highest score in section "Education".

Concept Design Three "Edible Eco-park" had the highest score in section "Soil and Vegetation", because in terms of plant materials, the design uses the plants closest to the local ecosystem.

	Site Context& Pre-Design Assessment	Site Design-Water	Site Design-Soil and Vegetation	Site Design-Materials Selection	Site Design-Human Health& Well-Being	Construction& Operations	Education	Final Score
Design One	14	12	26	23	19	16	8	118
Design Two	14	12	30	25	18	15	9	123
Design Three	14	12	31	26	17	15	6	121

Table 5.1 The Final Score for Each Concept Design

Chapter 6 CONCLUSION

6.1 Final Design Master Plan

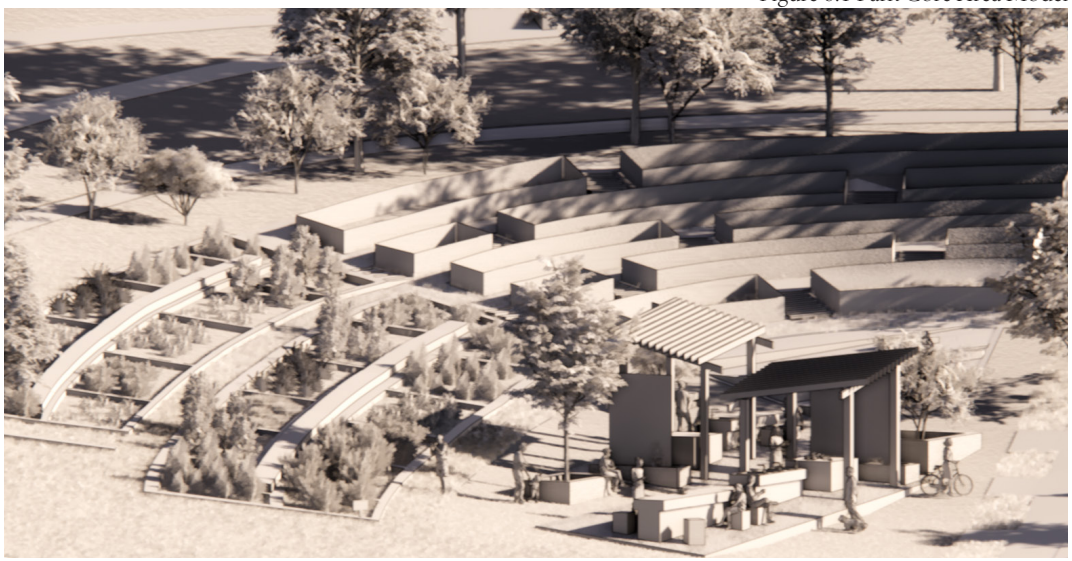
The final design scheme is obtained by synthesizing the evaluation results of the three concept designs. With the main frame of concept design three and made some changes in the functional area.

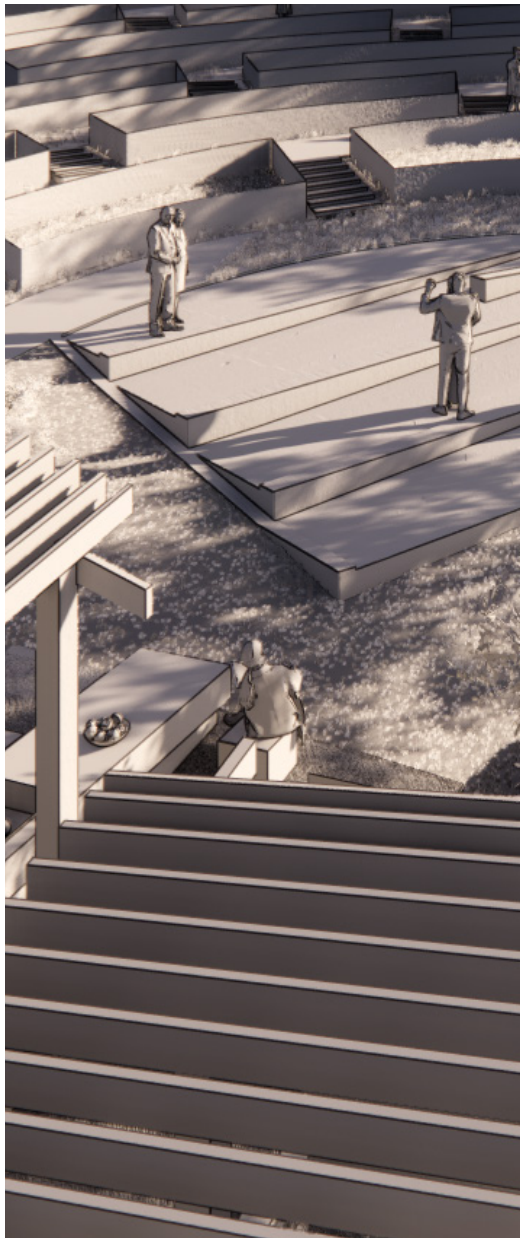
In the final design scheme, the main entrance area (1) consists of two parking spaces (2) and a series of functional rooms. They are the restroom (3), the tool room (4) and the water pump room (5).

The core area of the park contains a gathering plaza (6) and an amphitheater (7). An ethnobotanical garden (8) reflecting the educational function of the park and an edible ornamental terrace (9) reflecting the landscape efficacy of the park.

Other functional areas in the park include edible plant display areas (10), kid's area (11), and food forests (14) that reflect the park's production.

Figure 6.1 Park Core Area Model





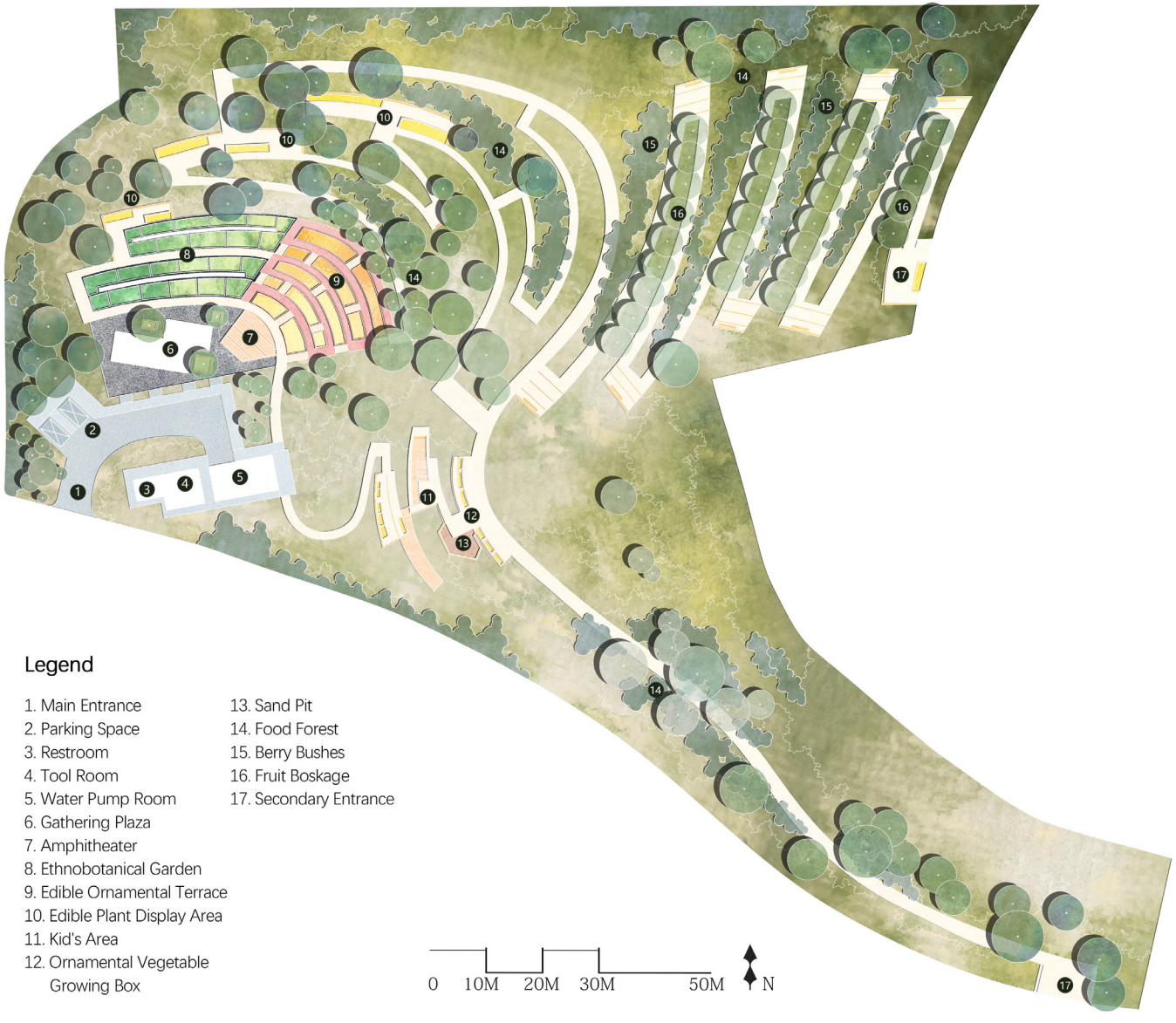


Figure 6.2 Final Design Master Plan

6.2 Functional Area

In the final design scheme, the more important functional areas are:
Edible Ornamental Terrace, Ethnobotanical Garden, Edible Plant Display Area, Food Forest, Kid's Area, Gathering Plaza. They are used to reflect the landscape efficacy, productivity, ecological, participation and educational functions that edible landscapes should have.

Secondary functional areas include: Parking Space, Water Pump Room, Tool Room, Restroom. They are used for the daily use, management and maintenance of the park.

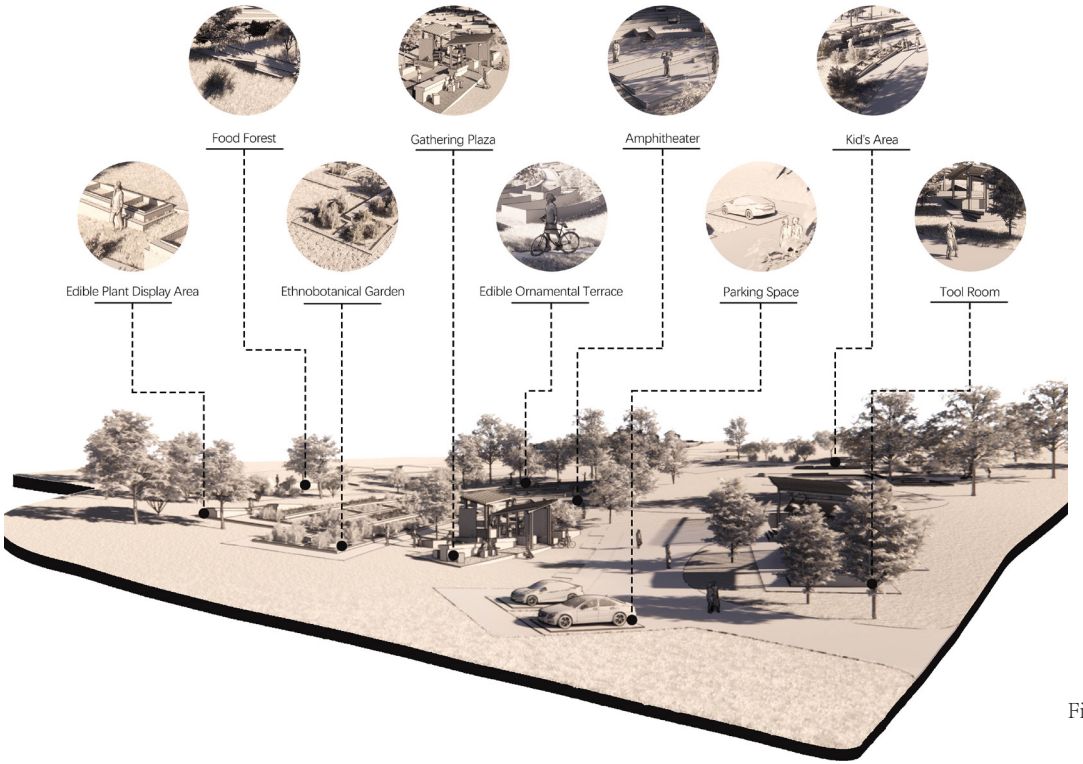


Figure 6.3 Functional Areas

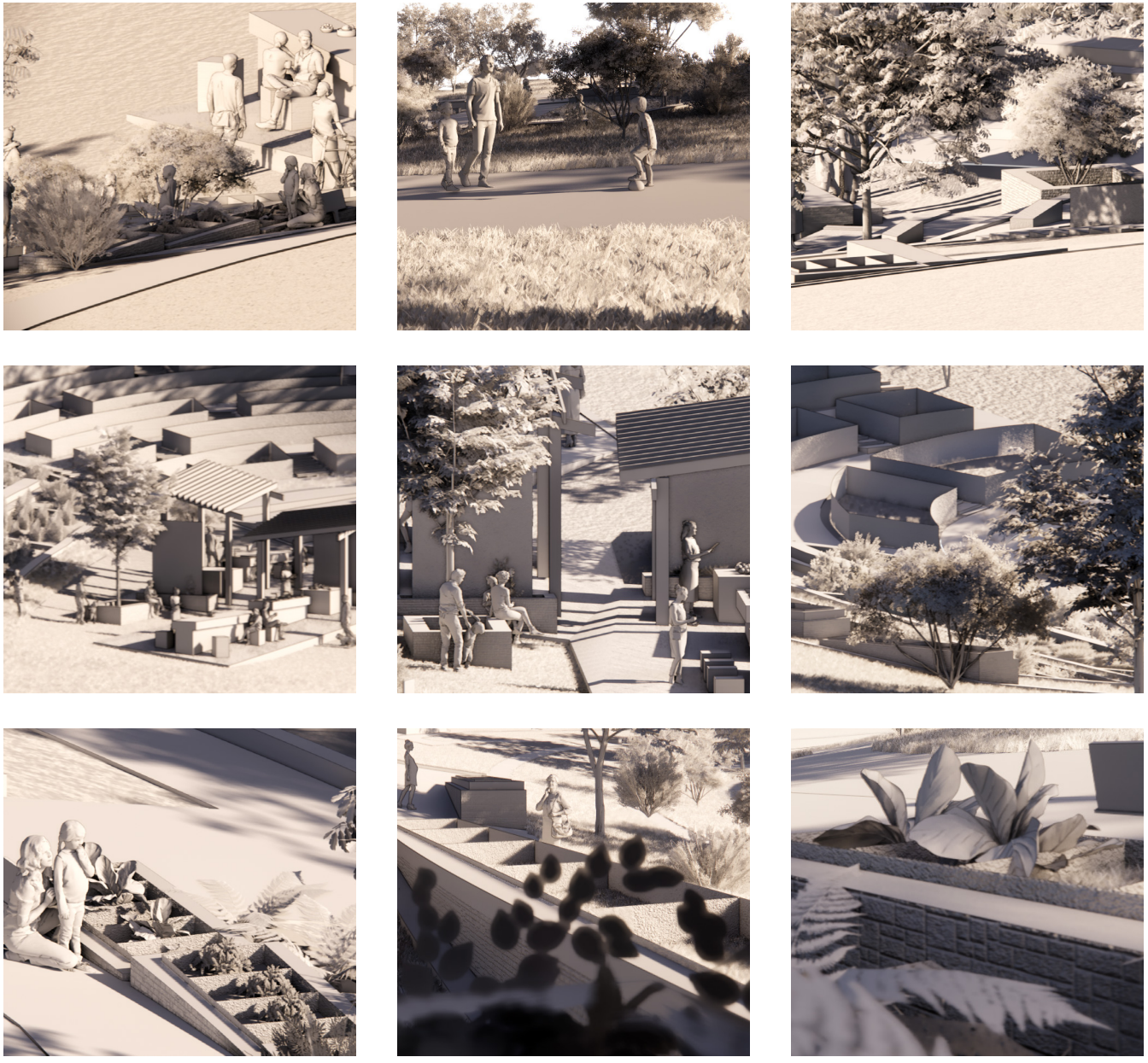


Figure 6.4 Functional Areas Model

6.2.1 Edible Ornamental Terrace

This section consists of several gradually raised plant boxes. To display edible plant materials of ornamental value. The main function of this part is to enhance the aesthetic effect of the park. It can also be an educational place, because it may be hard for anyone to believe that all the flowers on display here have parts of their bodies that are edible.

The plant material used for this part comes from the native group and the ethnobotanical group, which usually has bright flowers. For example, arrowleaf balsamroot has a very attractive yellow flower, and at the same time the stalks of arrowleaf balsamroot are used as celery in the spring by the mid-Columbia Indigenous peoples (Hunn 1990, 170). The Nez Perce are known to use sunflower seeds, which would include arrowleaf balsamroot, as a food source (Walker 1998, 421). More plant information is detailed in the plant list in the appendix of this document.

Arrowleaf balsamroot
Yellow flower/ Edible stalk

Yellowbell
Yellow flower/ Whole plant is edible

Scarlet gilia
Red flower/ Medicinal value

Sticky purple geranium
Red flower/ Medicinal value

Edible Ornamental Terrace

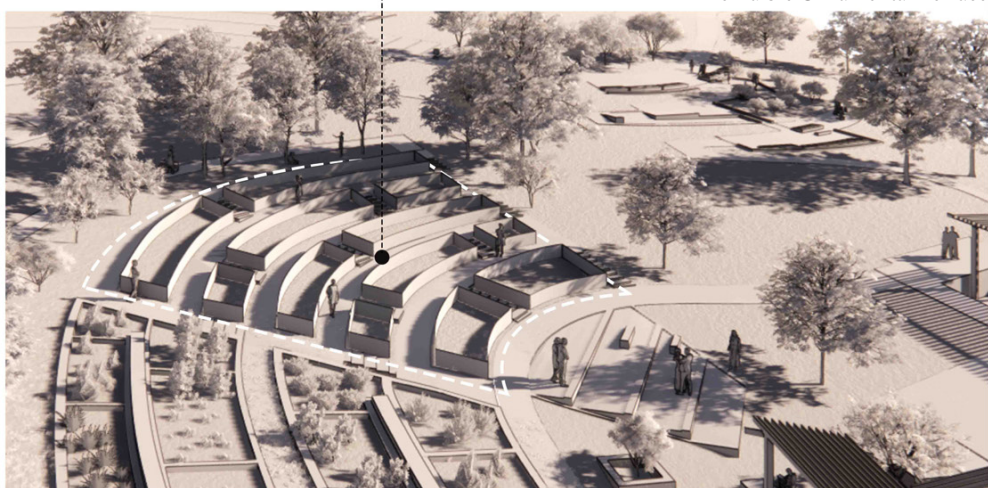


Figure 6.5 Model of
The Edible Ornamental Terrace

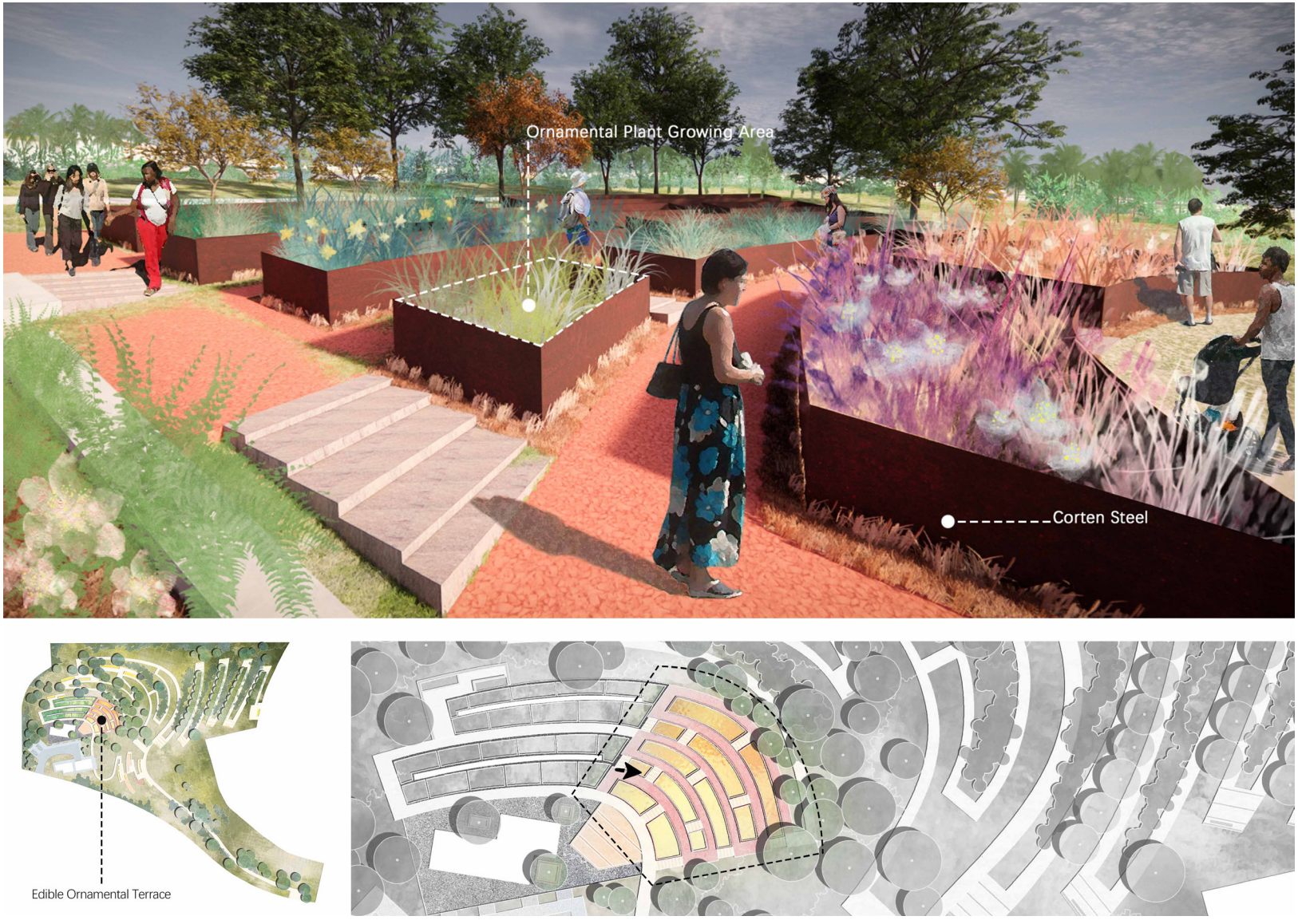


Figure 6.6 Rendering of The Edible Ornamental Terrace

6.2.2 Ethnobotanical Garden

This section consists of several small planting areas, each of which can be used to display a single plant, or a series of flowers. The difference is that all the plant material used comes from ethnobotanical group. The plants are native species and were once widely used by native people. Ideal teaching material for plants.

The plant material used in this area is from ethnobotanical group, some were a well-known food of the mid-columbia river tribes, such as common camas. Some have fairy tales, such as western juneberry. More plant information is detailed in the plant list in the appendix of this document.

Common camas is a well-known food of the mid-Columbia River Indigenous peoples and many other tribes in the Pacific Northwest.Camas is prepared by the mid-Columbia River Indigenous peoples by baking it in the ground, and it was normally harvested after the bitterroot and lomatium season (Hunn 1990, 176-177).

Common camas
Blue flower/ Well-known food

Cow parsnip
White flower/ Edible root

Yellow avalanche lily
Yellow flower/ Edible root

Western juneberry
white flower/ Edible fruit

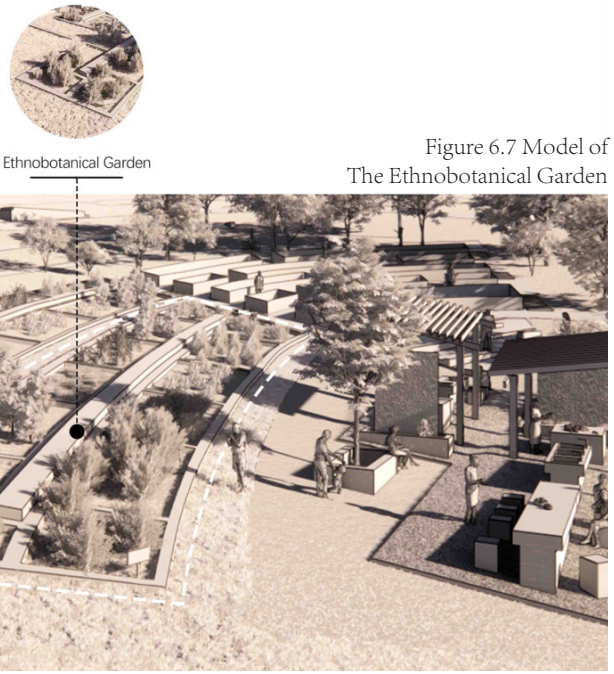


Figure 6.7 Model of
The Ethnobotanical Garden

Figure 6.8 Rendering of The Ethnobotanical Garden

6.2.3 Edible Plant Display Area

This section is used to show edible plant materials with special features. It consists of several display boxes for planting. The display box is a stone platform with a wooden frame. Planting areas can be separated into several areas by corten steel.

The plant material shown in this area can be a relatively rare species, such as ostrich, is one of the few edible ferns. It also could be ground elder, which is invasive, so it's better to isolate them. More plant information is detailed in the plant list in the appendix of this document.

Once established, goutweed is difficult to eradicate. The smallest piece of rhizome left in the ground will quickly form a sturdy new plant. All-green goutweed may be more persistent and spread more rapidly than ornamental, variegated goutweed varieties, making the all-green type particularly difficult to control (Crawford, 2010).

Douglas' brodiaea
Blue flower/ Edible root

Ostrich
The young fiddleheads are cooked as a vegetable

Ground elder
The leaves can be eaten raw in Salads/ Invasive habit

Mountain sorrel
The leaves and stems are edible/ Rich in vitamin C

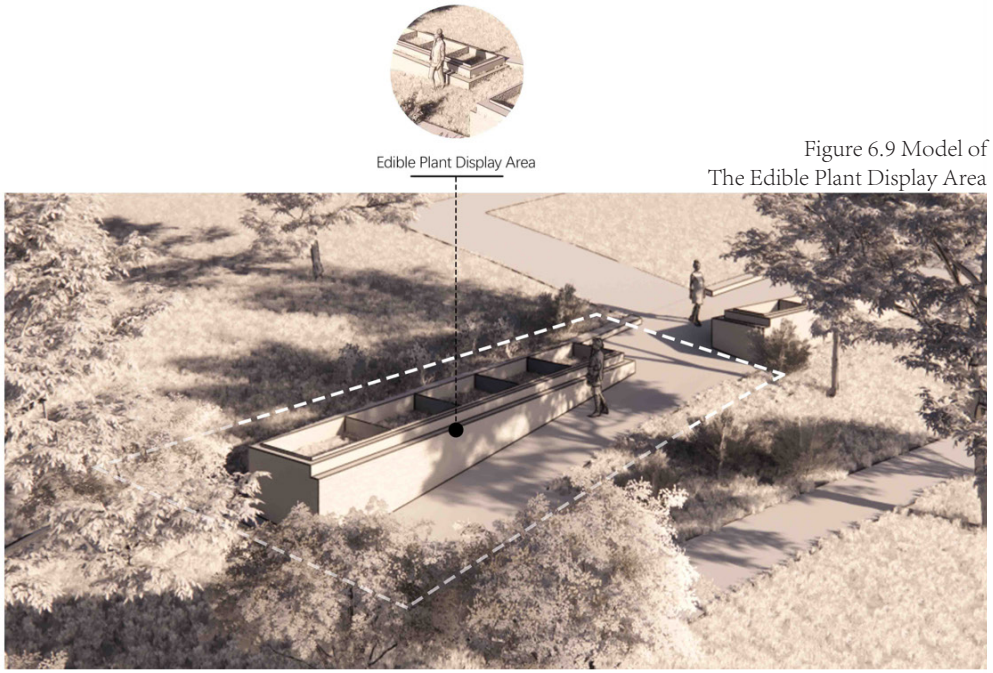


Figure 6.9 Model of The Edible Plant Display Area

Figure 6.10 Rendering of The Edible Plant Display Area

6.2.4 Food Forest

The food forest is a boskage made of edible plant material. This is the area of the park that actually produces fruit, and its coverage is not limited to the areas shown in the master plan, any suitable area covered by vegetation can be transformed into a food forest. The area shown in the rendering, shrubs and trees are planted separately for a better aesthetic effect.

The plant materials available in this area are more flexible and can be a variety of common or less common fruit trees. More plant information is detailed in the plant list in the appendix to the document.

In natural habitats, the northern blueberries are a food source for native and migrating birds, bears, and small mammals. The foliage is browsed by deer and rabbits.
The northern blueberries were collected and used in Native American cuisine in areas where Vaccinium corymbosum grew as a native plant (Crawford, 2010).

Apple
White, pink flower/ Common fruiting tree

Sweet cherry
White flower/ Common fruiting tree

Northern blueberries
White flower/ Common fruiting shrubs

Juneberry
White flower/ Ornamental in spring/ Less common fruiting tree

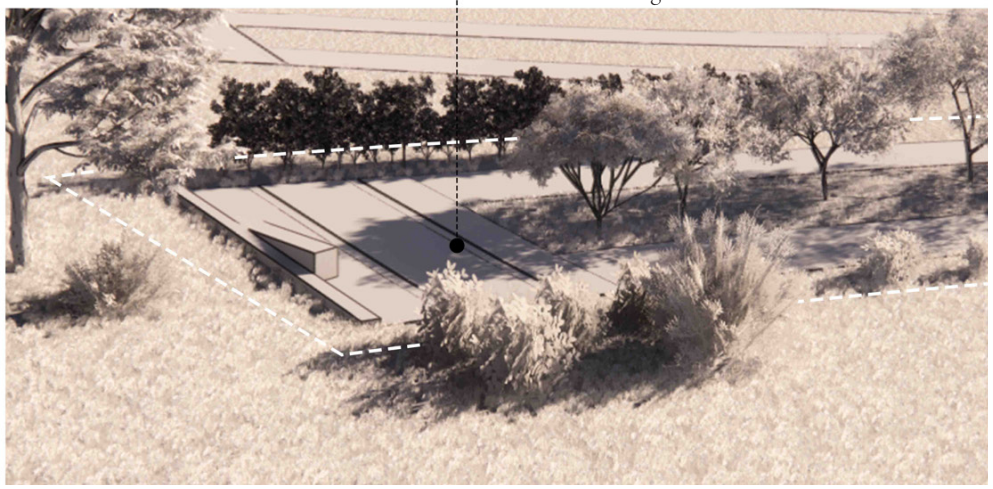


Figure 6.11 Model of The Food Forest

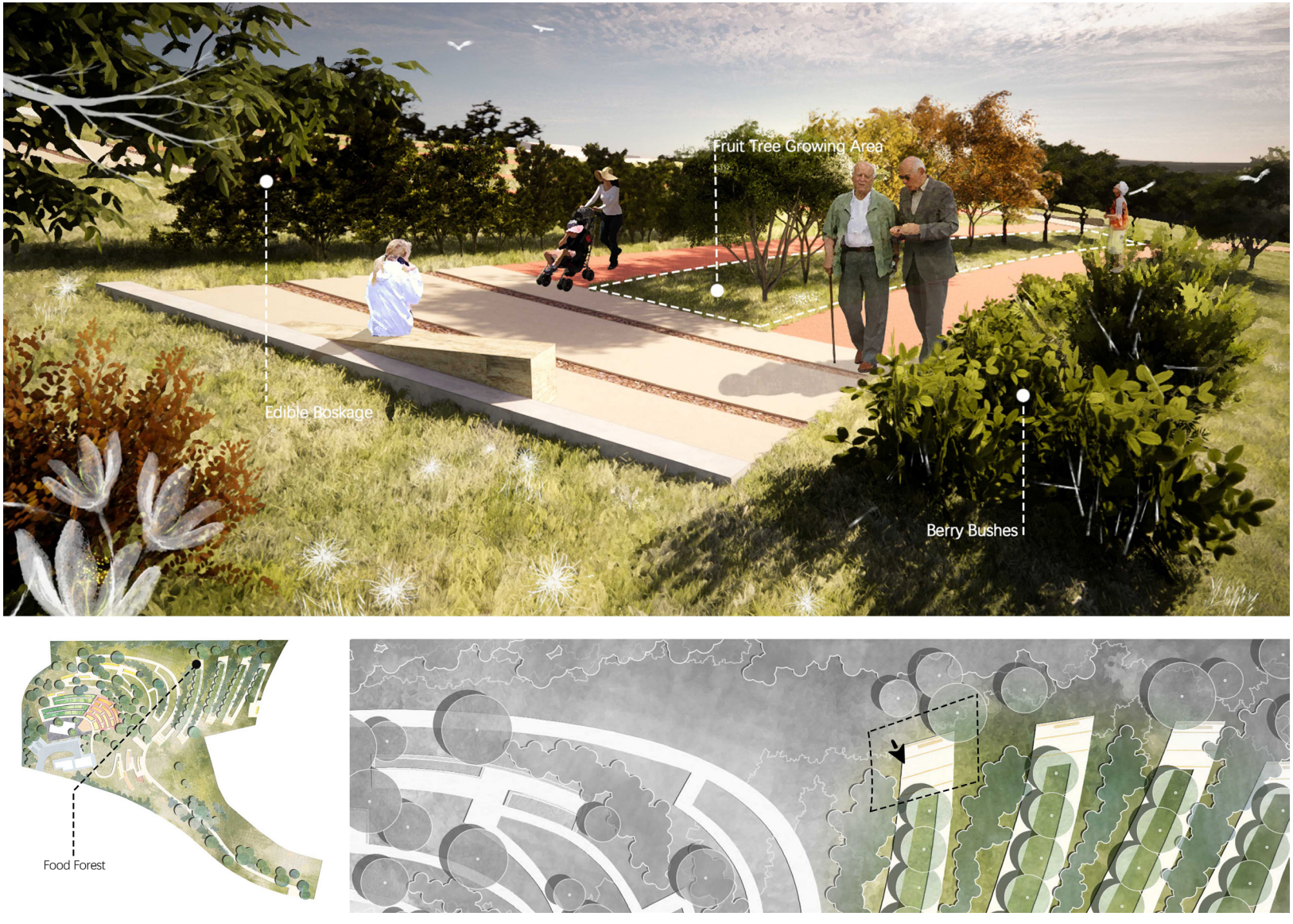


Figure 6.12 Rendering of The Food Forest

6.2.5 Kid's Area

The function of this section is to provide a place for children to play and to show some knowledge about the use of plant materials. It also has some display boxes for planting. The plant material used for this part needs to attract the attention of children. They can be interactive plants. Radish, for example, is a great interactive experience for children at harvest time. Also, Mock strawberry offers a beautiful appearance. More plant information is detailed in the plant list in the appendix to the document.

The leaves and fruits of mock strawberry can be eaten raw in salads. It has foliage and an aggregate accessory fruit similar to that of a true strawberry. It has yellow flowers, unlike the white or slightly pink flowers of true strawberries. It is native to eastern and southern Asia, but has been introduced to many other areas as a medicinal and an ornamental plant. It has been naturalized in many regions, including parts of the United States. (Crawford, 2010).

Cucumber
Common vegetable

Radish
Common vegetable

Mint
Harvest leaves for use at any time in the growing season

Mock strawberry
Harvest the leaves at any time/ Edible fruit in summer

Figure 6.13 Model of The Kid's Area

Figure 6.14 Rendering of The Kid's Area

6.2.6 Gathering Plaza

The function of this plaza is to store, clean, process and share the fruits and vegetables produced in the park. It is located in the core area of the park, includes placement area, cleaning area and processing & sharing area. The facilities are equipped with tables and chairs, water sources pavilions and planting beds. In addition to providing a place of leisure for residents, it can also be used as a city of Moscow's workshop to organize and arrange various activities in the park.

The amphitheater is another part of the gathering plaza. It is a public space for people to gather, relax and do activities.

Figure 6.15 Model of Gathering Plaza—Planting Bed and Pavilion

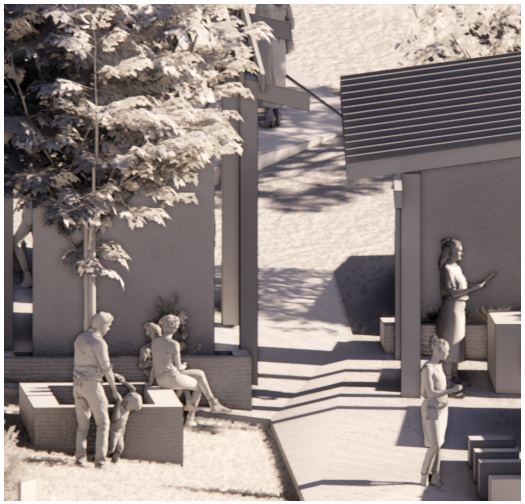
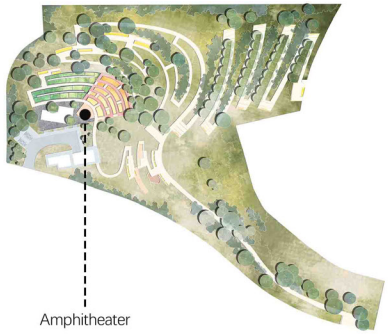


Figure 6.16 Model of Gathering Plaza—Fruit and Vegetable Storage and Cleaning Area

Figure 6.17 Model of Gathering Plaza—Chairs and Long Table

Figure 6.18 Rendering of The Gathering Plaza



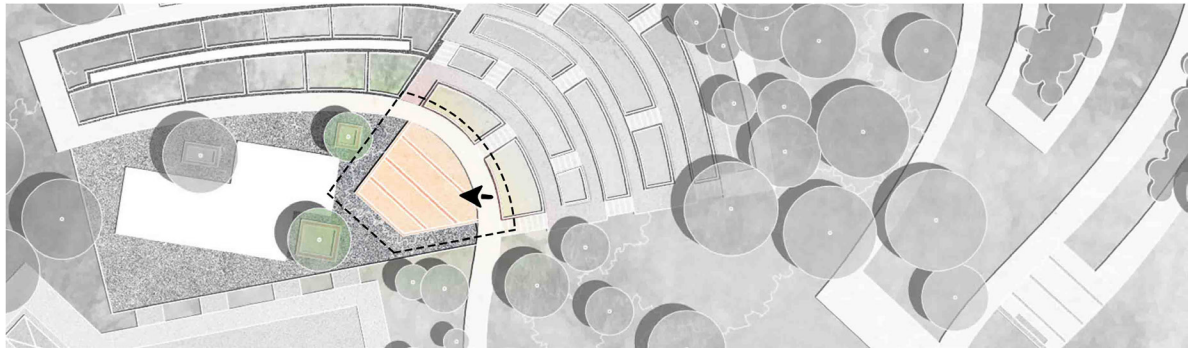


Figure 6.19 Rendering of The Amphitheater

6.3 Limitations

The project was limited by a variety of factors, as follows:
(1) Due to the limitation of time, there are still many details that have not been processed in the final design scheme.

(2) Due to the impact of covid-19, the report to the city of Moscow was suspended, which resulted in the delay in getting the feedback of the final plan.

6.4 Next Steps

The next phase of the project will revolve around the following two aspects:
(1) In terms of plant configuration, long-term observation and research are needed to analyze the existing problems in plant configuration.
Some of the problems may be in the selection of plants, such as plants that do not fit into the local ecosystem. So it needs to be removed from the plant list.
Other problems may be remedied by some measures. For example, if a plant does not get good lighting conditions when it is first planted, changing its planting location can solve this problem.

There are also issues of uncertainty, such as the problems encountered by projects in case studies. If extreme weather conditions occur in a given year, it can be a challenge to maintain the park's vegetation. This requires specific botanical experts to come up with solutions to these problems.
To discover all these problems, long-term observations of the plants in the park are needed.

(2) The operation mode of the park is also an issue to be studied in the future. Compared with ordinary parks, edible parks require more manpower and money to maintain, which requires adjustment in operation mode. Compared with the project in the case study, the city of Moscow has its own unique characteristics and cannot completely adapt the way that the project in the case was operated entirely by volunteers. It's about finding a balance between municipal work and volunteer work. To minimize the cost of operating the park.

2.3.4 Transportation

Figure 2.15 Road Information Diagram

Figure 2.16 Inside Pedestrian Access

2.3.5 Existing Facilities

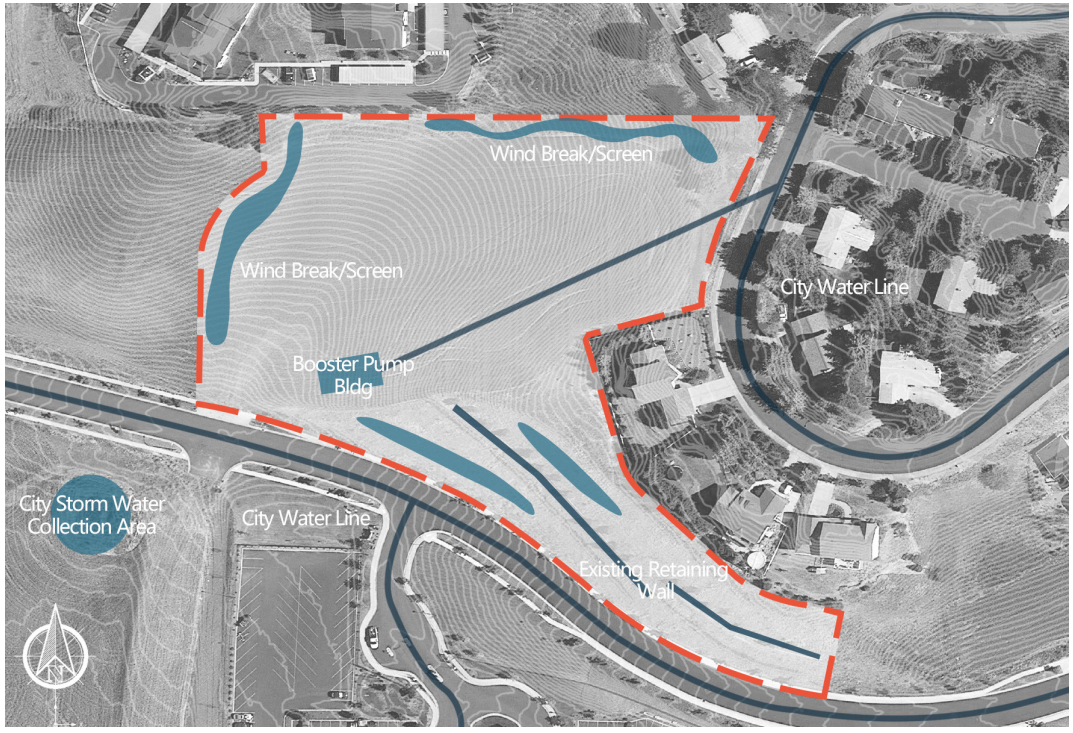
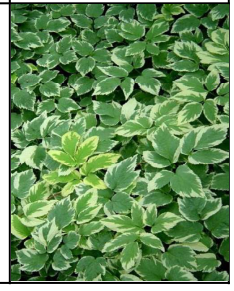


Figure 2.17 Existing Facilities Diagram

Appendix B: Plant List

Native and Others Group

Basic Information	Description&Particularity	Photo
Common Name sticky purple geranium **Scientific Name** Geranium viscosissimum **Use** Medicinal **Season** May to August	Flowers have five petals, are white to pinkish-purple, appearing in open clusters on forked stems about 2-3 inches above the leaves. Leaves are typically basal, palmate with toothed tips, pubescent, and range in size from 1-1 ½ inches. Herbalists have employed many members of the Geranium family to diminish bleeding, and treat ailments such diarrhea, sore eyes, mouth sores, and chapped lips. This species was traditionally used by Native Tribes to treat colds and sore throats.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Springbeauty **Scientific Name** Claytonia lanceolata **Use** Edible **Season** Bloom in late March to late May	Claytonia lanceolata is a species of wildflower in the Montiaceae family, known by the common names lanceleaf springbeauty and western springbeauty. This plant is native to western North America as far south as New Mexico where it grows in foothills up to alpine slopes. It thrives in the rocky soil of alpine climates where the snow never melts. It is a perennial herb growing from a tuber one to three centimeters wide. It produces a short, erect stem reaching a maximum height of 15 centimeters. At its smallest the plant bears only its first two rounded leaves before flowering and dying back.Its thick leaves are helpful for storing water. If it continues to grow it produces thick, lance-shaped leaves further up the stem. The star-shaped flowers come in inflorescences of three to 15 blooms and they are white or pink, often with veiny stripes and yellow blotches near the base of each petal. The fruit is a small capsule containing 2 seeds, which are black and shiny. The Okanogan-Colville, Okanogan, and Thompson Native American peoples used the tuber of this plant for food and for animal fodder. The corms were eaten by native peoples and taste like potatoes.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Nootka rose **Scientific Name** Rosa nutkana **Use** Edible **Season** Bloom in late May to mid-june	Rosa nutkana grows to as much as 3 meters, often in thickets. It has light green paired leaflets with toothed edges and sharp prickles at the base. The prickles are straight and paired and generally appear at nodes. The 2-3 inch pink (5–8 cm) flowers usually occur singly, but may appear in groups of 2 or 3. The flowers, which appear in early summer, can have a pleasantly strong fragrance. The sepals are very long, longer than the petals, and are constricted in the middle. The fruits (hips) of Nootka rose are somewhat bitter but edible. It is reported that bletting will greatly mitigate the bitterness and make the hips much more palatable. Only the rind should be eaten as the seeds are irritating. Hips are hign in vitamin C and can be eaten or cooked, or made into jelly or tea.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Elderberry **Scientific Name** Sambucus racemosa **Use** Edible Medicinal **Season**	Sambucus racemosa is often a treelike shrub growing 2–6 m (7–20 ft) tall. The stems are soft with a pithy center. Each individual leaf is composed of 5 to 7 leaflike leaflets, each of which is up to 16 cm (6 1 ⁄ 4 in) long, lance-shaped to narrowly oval, and irregularly serrated along the edges. The leaflets have a strong disagreeable odor when crushed. The inflorescence is a vaguely cone-shaped panicle of several cymes of flowers blooming from the ends of stem branches. The flower buds are pink when closed, and the open flowers are white, cream, or yellowish. Each flower has small, recurved petals and a star-shaped axis of five white stamens tipped in yellow anthers. The flowers are fragrant and visited by hummingbirds and butterflies. The fruit is a bright red or sometimes purple drupe containing 3 to 5 seeds. It has been used as a traditional medicinal plant by Native Americans. The uses included as an emetic, antidiarrheal, cold and cough remedy, dermatological and gynecological aid, and a hemostat.The fruits are reportedly safe to eat when cooked, but are potentially poisonous when raw. They were cooked in a variety of recipes by Native Americans, including by the Apache, Bella Coola, Gitxsan, Gosiute, Makah, Ojibwa, Quileute, Skokomish, Yurok peoples.	

Basic Information	Description&Particularity	Photo
Common Name Creeping dogwood **Scientific Name** Cornus canadensis **Use** Edible **Season** Bloom in June White flowers Harvest fruits in autumn	Cornus canadensis is a slow-growing herbaceous perennial growing 10–20 cm tall, generally forming a carpet-like mat. The above-ground shoots rise from slender creeping rhizomes that are placed 2.5–7.5 cm deep in the soil, and form clonal colonies under trees. The vertically produced above-ground stems are slender and unbranched. The leaves are oppositely arranged on the stem, but are clustered with six leaves that often seem to be in a whorl because the internodes are compressed. The leafy green leaves are produced near the terminal node and consist of two types: 2 larger and 4 smaller leaves. The smaller leaves develop from the axillary buds of the larger leaves. The shiny dark green leaves have 2 to 3 mm long petioles and leaf blades that are obovate. The blades have entire margins and are 3.5 to 4.8 cm long and 1.5 to 2.5 cm wide, with 2 or 3 veins and cuneate shaped bases and abruptly acuminate apexes. In the fall, the leaves have red tinted veins and turn completely red. The drupes are green, globose in shape, turning bright red at maturity in late summer; each fruit is 5 mm in diameter and contains typically one or two ellipsoid-ovoid shaped stones. The fruits, coming into season in late summer, are edible but not appetizing. The large seeds within are somewhat hard and crunchy.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Strawberries **Scientific Name** Fragaria **Use** Edible Fruits are eaten raw. **Season** Bloom in April White flowers	Strawberries are not true berries. The fleshy and edible part of the fruit is a receptacle, and the parts that are sometimes mistakenly called "seeds" are achenes. Although it is commonly thought that strawberries get their name from straw being used as a mulch in cultivating the plants, the etymology of the word is possibly derived from "strewn berry" in reference to the fruit being "strewn" about the base of the plants. Strawberries are low-growing perennials mostly spreading via runners (apart from selectedrunnerless forms) to form a carpet.The species fruits have a more concentrated flavourthan cultivated types but are smaller. Leaves can be used in salads or made into herbteas. Bee plant	
Basic Information	**Description&Particularity**	**Photo**
Common Name American wintergreen **Scientific Name** Gaultheria procumbens **Use** Medicinal **Season** Bloom in July or August White flowers	G. procumbens is a small, low-growing shrub, typically reaching 10–15 cm (4–6 in) tall. The leaves are evergreen, elliptic to ovate, 2–5 cm (3 ⁄ 4–2 in) long and 1–2 cm (1 ⁄ 2–3 ⁄ 4 in) broad, with a distinct oil of wintergreen scent.The flowers are pendulous, with a white, sometimes pink-tinged,[3] bell-shaped corolla with five teeth at the tip 8–10 mm (0.31–0.39 in) long, and above it a white calyx. They are borne in leaf axils, usually one to three per stem. The anthers are forked somewhat like a snake's tongue, with two awns at the tip.The fruit is red and 6–9 mm (0.24–0.35 in) across. It looks like a berry, but is actually a dry capsule surrounded by fleshy calyx.The plant is a calcifuge, favoring acidic soil, in pine or hardwood forests, although it generally produces fruit only in sunnier areas. It often grows as part of the heath complex in an oak–heath forest.G. procumbens spreads by means of long rhizomes, which are within the top 2–3 cm (3 ⁄ 4–1 1 ⁄ 4 in) of soil. Because of the shallow nature of the rhizomes, it does not survive most forest fires, but a brief or mild fire may leave rhizomes intact, from which the plant can regrow even if the above-ground shrub was consumed. The fruits and leaves of wintergreen are strongly aromatic – both reminiscent ofdisinfectant – though the fruit of some of the other species is much nicer. Bee plant	
Basic Information	**Description&Particularity**	**Photo**
Common Name Ground elder **Scientific Name** Aegopodium podagraria **Use** Edible. The leaves can be eaten raw in salads or cooked in soup. **Season** Pale green flowers	A. podagraria is perennial, growing to a height of 100 cm (39 in) with rhizomes. The stems are erect, hollow and grooved. The upper leaves are ternate, broad and toothed. Numerous flowers are grouped together in an umbrella-shaped flowerhead known as a compound umbel. The main umbel is further divided into several secondary umbels known as umbellets or umbellules. Each umbellet has 15 to 20 rays (pedicels) that are each topped with a single, small, five-petaled white flower. The fruits are small and have long curved styles. The flowers are visited by many types of insects, thus being characterised by a generalised pollination system. Invasive habit. Once established, goutweed is difficult to eradicate. The smallest piece of rhizome left in the ground will quickly form a sturdy new plant. All-green goutweed may be more persistent and spread more rapidly than ornamental, variegated goutweed varieties, making the all-green type particularly difficult to control. And all-green, wild type forms are known to reappear from seeds of variegated varieties.	

Basic Information	Description&Particularity	Photo
Common Name Mock strawberry **Scientific Name** Duchesnea indica **Use** Edible. The fruits can be eaten raw **Season** Fruits in summer and autumn.	The leaves are trifoliate, roughly veined beneath, dark green, and often persisting through the winter, arising from short crowns. The plant spreads along creeping stolons, rooting and producing crowns at each node. The yellow flowers are produced in mid spring, then sporadically throughout the growing season. The aggregate accessory fruits are white or red, and entirely covered with red achenes, simple ovaries, each containing a single seed. They are edible, but they have little overall flavor. It has foliage and an aggregate accessory fruit similar to that of a true strawberry. It has yellow flowers, unlike the white or slightly pink flowers of true strawberries. It is native to eastern and southern Asia, but has been introduced to many other areas as a medicinal and an ornamental plant. It has been naturalized in many regions, including parts of the United States. Bee plant	

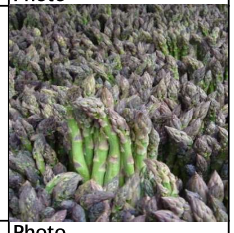
Basic Information	Description&Particularity	Photo
Common Name Fennel **Scientific Name** Foeniculum vulgare **Use** Edible All aerial parts are edible	Fennel, Foeniculum vulgare, is a perennial herb. It is erect, glaucous green, and grows to heights of up to 2.5 metres (8 ft), with hollow stems. The leaves grow up to 40 centimetres (16 in) long; they are finely dissected, with the ultimate segments filiform (threadlike), about 0.5 millimetres (1 / 50 in) wide. (Its leaves are similar to those of dill, but thinner.) The flowers are produced in terminal compound umbels 5–15 centimetres (2–6 in) wide, each umbel section having 20–50 tiny yellow flowers on short pedicels. The fruit is a dry schizocarp from 4–10 millimetres (3 / 16–3 / 8 in) long, half as wide or less, and grooved. Since the seed in the fruit is attached to the pericarp, the whole fruit is often mistakenly called "seed". A well-known anise-flavoured herb, fennel leaves are good in salads or cooked. Theseeds are used in cooked dishes, pickles, chutneys, etc.	

Basic Information	Description&Particularity	Photo
Common Name Ostrich **Scientific Name** Matteuccia struthiopteris **Use** Edible The young fiddleheads are usually eaten cooked.	The fronds are dimorphic, with the deciduous green sterile fronds being almost vertical, 100–170 cm (39–67 in) tall and 20–35 cm (7.9–13.8 in) broad, long-tapering to the base but short-tapering to the tip, so that they resemble ostrich plumes, hence the name. The fertile fronds are shorter, 40–60 cm (16–24 in) long, brown when ripe, with highly modified and constricted leaf tissue curled over the sporangia; they develop in autumn, persist erect over the winter and release the spores in early spring. The young fiddleheads are cooked as a vegetable – they are still harvested commerciallyin the USA. This is one of the few ferns known to be safe to eat.	

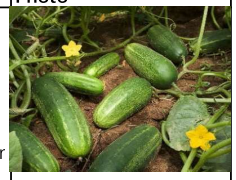
Basic Information	Description&Particularity	Photo
Common Name Mint **Scientific Name** Mentha **Use** Edible The leaves and stems are used for flavouring, herb teas, etc. and can be dried. **Season** Harvest leaves for fresh use at any time in the growing season	Mints are aromatic, almost exclusively perennial herbs. They have wide-spreading underground and overground stolons and erect, square, branched stems. The leaves are arranged in opposite pairs, from oblong to lanceolate, often downy, and with a serrated margin. Leaf colors range from dark green and gray-green to purple, blue, and sometimes pale yellow. The flowers are white to purple and produced in false whorls called verticillasters. The corolla is two-lipped with four subequal lobes, the upper lobe usually the largest. The fruit is a nutlet, containing one to four seeds. The leaf, fresh or dried, is the culinary source of mint. Fresh mint is usually preferred over dried mint when storage of the mint is not a problem. The leaves have a warm, fresh, aromatic, sweet flavor with a cool aftertaste, and are used in teas, beverages, jellies, syrups, candies, and ice creams. In Middle Eastern cuisine, mint is used in lamb dishes, while in British cuisine and American cuisine, mint sauce and mint jelly are used, respectively.	 

Basic Information	Description&Particularity	Photo
Common Name Sweet cicely **Scientific Name** Myrrhis odorata **Use** Edibale Flavoured herb, all parts are edible **Season** Harvest leaves throughout the season, young seeds in summer, and roots in winter	Myrrhis odorata is a tall herbaceous perennial plant growing to 2 m [6 ft 6 in] tall, depending on circumstances. The leaves are fern-like, 2-4-pinnate, finely divided, feathery, up to 50 cm long, with whitish patches near the rachis. The plant is softly hairy and smells strongly of aniseed when crushed. The flowers are creamy-white, about 2–4 mm across, produced in large umbels. The flowering period extends from May to June. The fruits are slender, dark brown, 15–25 mm long and 3–4 mm broad. Use the leaves as a bulk ingredient in salads (or, traditionally, cook them to sweetenacid fruits). The young green seeds are a crunchy snack or can go in salads too. Theroots are delicious raw or cooked (boiled or roasted like other root vegetables).	

Common Vegetable Group

Basic Information	Description&Particularity	Photo
Common Name Asparagus **Scientific Name** Asparagus **Use** Edible. Only young asparagus shoots are commonly eaten.	Asparagus is a herbaceous, perennial plant growing to 100–150 cm (39–59 in) tall, with stout stems with much-branched, feathery foliage. The "leaves" are in fact needle-like cladodes (modified stems) in the axils of scale leaves; they are 6–32 mm (0.24–1.26 in) long and 1 mm (0.039 in) broad, and clustered four to 15 together, in a rose-like shape. The root system is adventitious and the root type is fasciculated. The flowers are bell-shaped, greenish-white to yellowish, 4.5–6.5 mm (0.18–0.26 in) long, with six tepals partially fused together at the base; they are produced singly or in clusters of two or three in the junctions of the branchlets. It is usually dioecious, with male and female flowers on separate plants, but sometimes hermaphrodite flowers are found. The fruit is a small red berry 6–10 mm diameter, which is poisonous to humans..	
Basic Information	**Description&Particularity**	**Photo**
Common Name Chickpea **Scientific Name** Cicer arietinum **Use** Edible	The plant grows to 20–50 cm (8–20 in) high and has small, feathery leaves on either side of the stem. Chickpeas are a type of pulse, with one seedpod containing two or three peas. It has white flowers with blue, violet, or pink veins. In some parts of the world, young chickpea leaves are consumed as cooked green vegetables. Especially in malnourished populations, it can supplement important dietary nutrients, because regions where chickpeas are consumed have been sometimes found to have populations lacking micronutrients. Chickpea leaves have a significantly higher mineral content than either cabbage leaves or spinach leaves. In natural settings, environmental factors and nutrient availability could influence mineral concentrations. Nevertheless,	
Basic Information	**Description&Particularity**	**Photo**
Common Name Beets **Scientific Name** Beta vulgaris **Use** Edible	Beta vulgaris is an herbaceous biennial or, rarely, perennial plant up to 120 cm (rarely 200 cm) height; cultivated forms are mostly biennial. The roots of cultivated forms are dark red, white, or yellow and moderately to strongly swollen and fleshy (subsp. vulgaris); or brown, fibrous, sometimes swollen and woody in the wild subspecies. The stems grow erect or, in the wild forms, often procumbent; they are simple or branched in the upper part, and their surface is ribbed and striate. The basal leaves have a long petiole (which may be thickened and red, white, or yellow in some cultivars). The simple leaf blade is oblanceolate to heart-shaped, dark green to dark red, slightly fleshy, usually with a prominent midrib, with entire or undulate margin, 5–20 cm long on wild plants (often much larger in cultivated plants). The upper leaves are smaller, their blades are rhombic to	

Basic Information	Description&Particularity	Photo
Common Name Carrot **Scientific Name** Daucus carota subsp. Sativus **Use** Edible	Daucus carota is a biennial plant. In the first year, its rosette of leaves produces large amounts of sugars, which are stored in the taproot to provide energy for the plant to flower in the second year. Carrots are grown from seed and can take up to four months (120 days) to mature, but most cultivars mature within 70 to 80 days under the right conditions. They grow best in full sun but tolerate some shade. The optimum temperature is 16 to 21 °C (61 to 70 °F). The ideal soil is deep, loose and well-drained, sandy or loamy, with a pH of 6.3 to 6.8. Fertilizer should be applied according to soil type because the crop requires low levels of nitrogen, moderate phosphate and high potash. Rich or rocky soils should be avoided, as these will cause the roots to become hairy and/or misshapen. Irrigation is applied when needed to keep the soil moist. After sprouting, the crop is eventually thinned to a spacing of 8 to 10 cm (3 to 4 in) and weeded to prevent competition beneath the soil.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Celery **Scientific Name** Apium graveolens **Use** Edible	Celery leaves are pinnate to bipinnate with rhombic leaflets 3–6 cm (1.2–2.4 in) long and 2–4 cm (0.79–1.57 in) broad. The flowers are creamy-white, 2–3 mm (0.079–0.118 in) in diameter, and are produced in dense compound umbels. The seeds are broad ovoid to globose, 1.5–2 mm (0.059–0.079 in) long and wide. Modern cultivars have been selected for solid petioles, leaf stalks. A celery stalk readily separates into "strings" which are bundles of angular collenchyma cells exterior to the vascular bundles. The wild form of celery is known as "smallage". It has a furrowed stalk with wedge-shaped leaves, the whole plant having a coarse, earthy taste, and a distinctive smell. The stalks are not usually eaten (except in soups or stews in French cuisine), but the leaves may be used in salads, and its seeds are those sold as a spice. With cultivation and blanching, the stalks lose their acidic qualities and assume the mild, sweetish, aromatic taste particular to celery as a salad plant.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Chives **Scientific Name** Allium schoenoprasum **Use** Edible	Chives are a bulb-forming herbaceous perennial plant, growing to 30–50 cm (12–20 in) tall. The bulbs are slender, conical, 2–3 cm (3 / 4–1 1 / 4 in) long and 1 cm (1 / 2 in) broad, and grow in dense clusters from the roots. The scapes (or stems) are hollow and tubular, up to 50 cm (20 in) long and 2–3 mm (1 / 16–1 / 8 in) across, with a soft texture, although, prior to the emergence of a flower, they may appear stiffer than usual. The grass-like[14] leaves, which are shorter than the scapes, are also hollow and tubular, or terete, (round in cross-section) which distinguishes it at a glance from garlic chives (Allium tuberosum). The flowers are pale purple, and star-shaped with six petals, 1–2 cm (1 / 2–3 / 4 in) wide, and produced in a dense inflorescence of 10-30 together; before opening, the inflorescence is surrounded by a papery bract. The seeds are produced in a small, three-valved capsule, maturing in summer. The herb flowers from April to May in the southern parts of its	
Basic Information	**Description&Particularity**	**Photo**
Common Name Corn **Scientific Name** Zea mays **Use** Edible	The maize plant is often 3 m (10 ft) in height, though some natural strains can grow 13 m (43 ft). The stem is commonly composed of 20 internodes of 18 cm (7.1 in) length. A leaf, which grows from each node, is generally 9 cm (4 in) in width and 120 cm (4 ft) in length. Ears develop above a few of the leaves in the midsection of the plant, between the stem and leaf sheath, elongating by around 3 millimetres (0.12 in) per day, to a length of 18 cm (7 in) with 60 cm (24 in) being the maximum alleged in the subspecies. They are female inflorescences, tightly enveloped by several layers of ear leaves commonly called husks. Certain varieties of maize have been bred to produce many additional developed ears. These are the source of the "baby corn" used as a vegetable in Asian cuisine. The apex of the stem ends in the tassel, an inflorescence of male flowers. When the tassel is mature and conditions are suitably warm and dry, anthers on the tassel dehisce and release pollen. Maize pollen is anemophilous (dispersed by wind), and because of its large settling velocity, most pollen falls within a few	

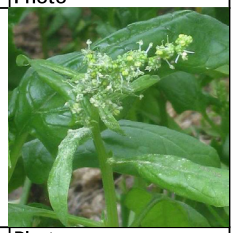
Basic Information	Description&Particularity	Photo
Common Name Cucumber **Scientific Name** Cucumis sativus **Use** Edible	The cucumber is a creeping vine that roots in the ground and grows up trellises or other supporting frames, wrapping around supports with thin, spiraling tendrils. The plant may also root in a soilless medium and will sprawl along the ground if it does not have supports. The vine has large leaves that form a canopy over the fruits. The fruit of typical cultivars of cucumber is roughly cylindrical, but elongated with tapered ends, and may be as large as 62 centimeters (24 in) long and 10 centimeters (3.9 in) in diameter. Botanically speaking, the cucumber is classified as a pepo, a type of botanical berry with a hard outer rind and no internal divisions. However, much like tomatoes and squashes, it is often perceived, prepared and eaten as a vegetable. Cucumber fruits consist of 95% water (see nutrition table).	

Basic Information	Description&Particularity	Photo
Common Name Eggplant **Scientific Name** Solanum melongena **Use** Edible	Eggplant grows 40 to 150 cm (1.3 to 4.9 ft) tall, with large, coarsely lobed leaves that are 10 to 20 cm (3.9 to 7.9 in) long and 5 to 10 cm (2.0 to 3.9 in) broad. Semiwild types can grow much larger, to 225 cm (7.38 ft), with large leaves over 30 cm (12 in) long and 15 cm (5.9 in) broad. On wild plants, the fruit is less than 3 cm (1.2 in) in diameter; in cultivated forms: 30 cm (12 in) or more in length are possible for long, narrow types or the large fat purple ones common to the West. Botanically classified as a berry, the fruit contains numerous small, soft, edible seeds that taste bitter because they contain or are covered in nicotinoid alkaloids, like the related tobacco. Eggplant is used in the cuisines of many countries. Due to its texture and bulk, it is sometimes used as a meat substitute in vegan and vegetarian cuisines. Eggplant flesh is smooth. Its numerous seeds are small, soft and edible, along with the rest of the fruit, and do not have to be removed. Its thin skin is also edible, and so it does not have to be peeled. However, the green part at the top, the calyx, does have to be removed when preparing an eggplant for cooking.	

Basic Information	Description&Particularity	Photo
Common Name Lettuce **Scientific Name** Lactuca sativa **Use** Edible	Lettuce (Lactuca sativa) is an annual plant of the daisy family, Asteraceae. It is most often grown as a leaf vegetable, but sometimes for its stem and seeds. Lettuce is most often used for salads, although it is also seen in other kinds of food, such as soups, sandwiches and wraps; it can also be grilled. One variety, the woju (莴苣), or asparagus lettuce (Celtuce), is grown for its stems, which are eaten either raw or cooked. In addition to its main use as a leafy green, it has also gathered religious and medicinal significance over centuries of human consumption. Europe and North America originally dominated the market for lettuce, but by the late 20th century the consumption of lettuce had spread throughout the world. World production of lettuce and chicory for calendar year 2017 was 27 million tonnes, 56% of which came from China.	

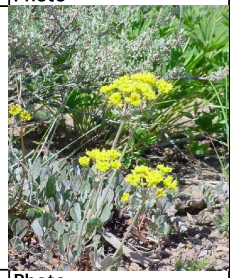
Basic Information	Description&Particularity	Photo
Common Name Pea **Scientific Name** Pisum sativum **Use** Edible	A pea is a most commonly green, occasionally golden yellow, or infrequently purple pod-shaped vegetable, widely grown as a cool season vegetable crop. The seeds may be planted as soon as the soil temperature reaches 10 °C (50 °F), with the plants growing best at temperatures of 13 to 18 °C (55 to 64 °F). They do not thrive in the summer heat of warmer temperate and lowland tropical climates, but do grow well in cooler, high altitude, tropical areas. Many cultivars reach maturity about 60 days after planting.	

Basic Information	Description&Particularity	Photo
Common Name Potato **Scientific Name** Solanum **Use** Edible	After flowering, potato plants produce small green fruits that resemble green cherry tomatoes, each containing about 300 seeds. Like all parts of the plant except the tubers, the fruit contain the toxic alkaloid solanine and are therefore unsuitable for consumption. All new potato varieties are grown from seeds, also called "true potato seed", "TPS" or "botanical seed" to distinguish it from seed tubers. New varieties grown from seed can be propagated vegetatively by planting tubers, pieces of tubers cut to include at least one or two eyes, or cuttings, a practice used in greenhouses for the production of healthy seed tubers. Plants propagated from tubers are clones of the parent, whereas those propagated from seed produce a range of different varieties.	

Basic Information	Description&Particularity	Photo
Common Name Pumpkin **Use** Edible	Spinach is an annual plant (rarely biennial) growing as tall as 30 cm (1 ft). Spinach may overwinter in temperate regions. The leaves are alternate, simple, ovate to triangular, and very variable in size: 2–30 cm (1–12 in) long and 1–15 cm (0.4–5.9 in) broad, with larger leaves at the base of the plant and small leaves higher on the flowering stem. The flowers are inconspicuous, yellow-green, 3–4 mm (0.1–0.2 in) in diameter, and mature into a small, hard, dry, lumpy fruit cluster 5–10 mm (0.2–0.4 in) across containing several seeds. Spinach (Spinacia oleracea) is a leafy green flowering plant native to central and western Asia. It is of the order Caryophyllales, family Amaranthaceae, subfamily Chenopodioideae. Its leaves are a common edible vegetable consumed either fresh, or after storage using preservation techniques by canning, freezing, or dehydration. It may be eaten cooked or raw, and the taste differs considerably; the high oxalate content may be reduced by	
Basic Information	**Description&Particularity**	**Photo**
Common Name Spinach **Scientific Name** Spinacia oleracea **Use** Edible	Spinach is an annual plant (rarely biennial) growing as tall as 30 cm (1 ft). Spinach may overwinter in temperate regions. The leaves are alternate, simple, ovate to triangular, and very variable in size: 2–30 cm (1–12 in) long and 1–15 cm (0.4–5.9 in) broad, with larger leaves at the base of the plant and small leaves higher on the flowering stem. The flowers are inconspicuous, yellow-green, 3–4 mm (0.1–0.2 in) in diameter, and mature into a small, hard, dry, lumpy fruit cluster 5–10 mm (0.2–0.4 in) across containing several seeds. Spinach (Spinacia oleracea) is a leafy green flowering plant native to central and western Asia. It is of the order Caryophyllales, family Amaranthaceae, subfamily Chenopodioideae. Its leaves are a common edible vegetable consumed either fresh, or after storage using preservation techniques by canning, freezing, or dehydration. It may be eaten cooked or raw, and the taste differs considerably; the high oxalate content may be reduced by steaming.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Sunflower **Scientific Name** Helianthus annuus **Use** Edible	Sunflowers are usually tall annual or perennial plants that in some species can grow to a height of 300 cm (120 in) or more. They bear one or more wide, terminal capitula (flower heads), with bright yellow ray florets at the outside and yellow or maroon (also known as a brown/red) disc florets inside. Several ornamental cultivars of H. annuus have red-colored ray florets; all of them stem from a single original mutant. During growth, sunflowers tilt during the day to face the sun but stop once they begin blooming. This tracking of the sun in young sunflower heads is called heliotropism. By the time they are mature, sunflowers generally face east. The rough and hairy stem is branched in the upper part in wild plants but is usually unbranched in domesticated cultivars. The petiolate leaves are dentate and often sticky. The lower leaves are opposite, ovate, or often heart-shaped.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Tomato **Scientific Name** Solanum lycopersicum **Use** Edible	Tomato plants are vines, initially decumbent, typically growing 180 cm (6 ft) or more above the ground if supported, although erect bush varieties have been bred, generally 100 cm (3 ft) tall or shorter. Indeterminate types are "tender" perennials, dying annually in temperate climates (they are originally native to tropical highlands), although they can live up to three years in a greenhouse in some cases. Determinate types are annual in all climates. Tomatoes serve, or are served by, a large variety of companion plants. Among the most famous pairings is the tomato plant and carrots; studies supporting this relationship have produced a popular book about companion planting, Carrots Love Tomatoes.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Radish **Scientific Name** Raphanus raphanistrum subsp. Sativus **Use** Edible	Radishes are annual or biennial brassicaceous crops grown for their swollen tap roots which can be globular, tapering, or cylindrical. The root skin colour ranges from white through pink, red, purple, yellow, and green to black, but the flesh is usually white. The roots obtain their color from anthocyanins. Red varieties use the anthocyanin pelargonidin as a pigment, and purple cultivars obtain their color from cyanidin. Smaller types have a few leaves about 13 cm (5 in) long with round roots up to 2.5 cm (1 in) in diameter or more slender, long roots up to 7 cm (3 in) long. Both of these are normally eaten raw in salads. A longer root form, including oriental radishes, daikon or mooli, and winter radishes, grows up to 60 cm (24 in) long with foliage about 60 cm (24 in) high with a spread of 45 cm (18 in). The flesh of radishes harvested timely is crisp and sweet, but becomes bitter and tough if the vegetable is left in the ground too long. Leaves are arranged in a rosette. They have a lyrate shape, meaning they are divided pinnately with an enlarged terminal lobe and smaller lateral lobes. The white flowers are borne on a racemose inflorescence. The fruits are small pods which can be eaten when young.	

Basic Information	Description&Particularity	Photo
Common Name Soybeans **Scientific Name** Glycine max **Use** Edible	Cultivation is successful in climates with hot summers, with optimum growing conditions in mean temperatures of 20 to 30 °C (68 to 86 °F); temperatures of below 20 °C and over 40 °C (68 °F, 104 °F) stunt growth significantly. They can grow in a wide range of soils, with optimum growth in moist alluvial soils with a good organic content. Soybeans, like most legumes, perform nitrogen fixation by establishing a symbiotic relationship with the bacterium Bradyrhizobium japonicum (syn. Rhizobium japonicum; Jordan 1982). For best results, though, an inoculum of the correct strain of bacteria should be mixed with the soybean (or any legume) seed before planting. Modern crop cultivars generally reach a height of around 1 m (3.3 ft), and take 80–120 days from sowing to harvesting.	

Ethnobotanical Group

Basic Information	Description&Particularity	Photo
Common Name Fernleaf biscuitroot **Scientific Name** Lomatium dissectum **Use** Edible Medicinal **Season** Spring harvest root	Lomatium dissectum is a perennial herb reaching up to 1.4 meters tall, growing from a thick taproot. The leaves are mostly attached near the base of the plant, spreading with petioles up to 30 centimeters long and large blades divided into many small, narrow segments. The inflorescence is an umbel of many small yellow or reddish flowers, each cluster on a ray up to 10 centimeters long. The fruits resemble pumpkin seeds. The mid-Columbia Indigenous peoples dig up sprouts of fern-leaved desert-parsley and eat them as celery in the spring (Hunn 1990, 170), and a special thanksgiving feast is held to celebrate the onset of the harvest (Hunn 1990, 208). The root can be mashed and applied as poultice to draw out infection or applied to saddle sores on horses to improve healing (Hunn 1990, 113). An infusion of the root can also be used to treat symptoms of colds and the flu or applied as a hair rinse for dandruff (Hunn 1990, 113). Indigenous peoples at Warm Springs are reported to use the root in the processing of buckskin (Hunn 1990, 113). The root can also be used as a fish poison (Hunn 1990, 107), which is prepared by mashing a large quantity of the root on streamside rocks and applying it to a quiet stream with still pools (Hunn 1990, 113).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Sulpher flower buckwheat **Scientific Name** Eriogonum umbellatum **Use** Medicinal **Season** May to early July bloom	Tiny flowers are white to bright yellow arranged in dense clusters (umbels). The flowering stems have a whorl of small leaves below the flowering clusters. Basal leaves form large mats up to 3 feet in diameter. Leaves are green on upper surface and pubescent and grayish on Leaf underside. Teas and poultices made from this specie have a variety of medicinal values including eyewash, intestinal problems, hip and back pain, and discomfort during childbirth.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Scarlet gilia **Scientific Name** Ipomopsis **Use** Medicinal **Season** June to Augest bloom	Flowers are scarlet or occasionally whitish with scarlet spots, trumpet shaped and showy ranging from ½-1 ½ inches long and clustered at branch apex. Leaves are mostly basal, but become smaller higher on the stem, approximately 1-4 inches long, pinnate and well dissected. Native Tribes valued this plant's medicinal value. It was employed for multiple medical ailments. Tea was brewed to treat children's colds and for blood troubles. It was also used to make glue and a blue dye from the roots. Interestingly, when crushed, leaves and flowers have a skunk-like odor.	

Basic Information	Description&Particularity	Photo
Common Name Indian ricegrass **Scientific Name** Achnatherum hymenoides **Use** Edible **Season** May to July bloom	Inflorescence is a spreading panicle with single terminal flowers on each hair like branch. Flowers are perfect, producing round, black seeds covered with short, white hairs. Leaves are slender and tightly rolled; growing from clump's base. The seed of Indian ricegrass is very nutritious and was once a staple food of many Native Tribes.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Arrowleaf balsamroot **Scientific Name** Balsamorhiza sagittata **Use** Edible **Season** Spring harvest stalks	This is a taprooted perennial herb growing a hairy, glandular stem 20 to 60 centimeters tall. The branching, barky root may extend over two meters deep into the soil. The basal leaves are generally triangular in shape and are large, approaching 50 centimeters in maximum length. Leaves farther up the stem are linear to narrowly oval in shape and smaller. The leaves have untoothed edges and are coated in fine to rough hairs, especially on the undersides. The inflorescence bears one or more flower heads. Each head has a center of long yellowish tubular disc florets and a fringe of bright yellow ray florets, each up to 4 centimeters long. The fruit is a hairless achene about 8 millimeters long. Grazing animals find the plant palatable, especially the flowers and developing seed heads. This plant is called smukwe'shn by the Schitsu'umsh, and its bloom in the spring is an indication that the root harvesting season has begun (Frey 2001, 27). The stalks of arrowleaf balsamroot are used as celery in the spring by the mid-Columbia Indigenous peoples (Hunn 1990, 170). The Nez Perce are known to use sunflower seeds, which would include [illegible] as a food source (Walker 1998, 431).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Large-fruit desert-parsley **Scientific Name** Lomatium macrocarpum **Use** Edible, Medicinal	It is spreading or erect perennial herb growing up to about half a meter long with hairy, gray-green herbage. The leaves are up to about 24 centimeters long and are intricately divided into many small, narrow segments. The inflorescence bears an umbel of yellowish, purplish, or white flowers. The fruit is a compressed, winged, round or oval disc up to about 2 centimeters long. In 2001, Frey (146) wrote "probably 'Desert Parsley' (Lomatium macrocarpum)" or sp'ekhwench in the Schitsu'umsh language. Sp'ekhwench was used to heal sores before bandaging. It also has edible roots, which can be eaten raw or cooked into cakes (Frey 2001, 146).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Cow parsnip **Scientific Name** Heracleum maximum **Use** Edible **Season** Harvest flower stems in early	Cow parsnip is a tall herbaceous plant reaching heights of over 2 m (7 ft). The genus name Heracleum (from Heracles) refers to the very large size of all parts of these plants. Cow parsnip has the characteristic flower umbels of the carrot family (Apiaceae). The umbels are about 20 centimetres (8 in) across, flat-topped or rounded, and composed of small white flowers. Sometimes the outer flowers of the umbel are much larger than the inner ones. The leaves are very large, up to 40 cm (16 in) across, and divided into lobes. The stems are stout and succulent. The seeds are 8–12 mm (0.3–0.5 in) long and 5–8 mm (0.2–0.3 in) wide. The Schitsu'umsh and mid-Columbia river peoples use the stems of this plant as a food, like celery (Frey 2001, 156, Hunn 1990, 113). The skin of cow-parsnip must be peeled before eating (Kuhnlein and Turner 1986, 309).	

Common Name	It is a perennial herb growing from a corm. It produces two or three basal leaves up to 70 centimeters long by one wide. The inflorescence arises on a smooth, erect stem up to 75 centimeters tall and bears an umbel-like cluster of many flowers. Each flower is a funnel-shaped bloom borne on a pedicel up to 4 or 5 centimeters long. The flower may be up to 3.5 centimeters long including the tubular throat and six tepals each just over a centimeter long. The inner set of three tepals are somewhat ruffled and broader than the outer tepals. The flower corolla may be deep blue to almost white with a darker blue mid-vein. There are six stamens with purple or yellow anthers. The Lewis and Clark party collected this plant on April 20, 1806 near present-day Horsethief Lake State Park in Washington and Clark wrote in his journal "there is a species of hiasinth in these plains the bulb of which the natives eat either boiled baked or dryed in the sun" (Phillips 2003, 206). Douglas' brodiaea was also documented	
Douglas' Brodiaea		
Scientific Name		
Triteleia grandiflora		
Use		
Edible		
Basic Information	**Description&Particularity**	**Photo**
Common Name	Agastache urticifolia is a species of flowering plant in the mint family known by the common name nettleleaf giant hyssop or horse mint. It is native to western North America from British Columbia to California to Colorado, where it grows in many habitat types. This is an aromatic perennial herb growing an erect stem with widely spaced leaves, each lance-shaped to nearly triangular and toothed. The leaves are up to 8 centimeters long and 7 wide. The inflorescence is a dense spike of many flowers. Each flower has long sepals tipped with bright purple and tubular corollas in shades of pink and purple. The fruit is a light brown, fuzzy nutlet about 2 millimeters long. The plant was used medicinally by several Native American groups, especially the leaves. A closely related species Western horsemint (Agastache occidentalis) was identified by the mid-Columbia River Indigenous peoples as an, "effective love potion, called pɬax̣ẇinš-pamá, 'potion [to get] your man' (Hunn 1990, 198)." It is likely that nettle-leaf horsemint was used in a similar fashion.	
Nettleleaf giant hyssop		
Scientific Name		
Agastache		
Use		
Medicinal		
Basic Information	**Description&Particularity**	**Photo**
Common Name	Fragaria virginiana is also called wild strawberry. It can grow up to 4 inches tall. Its leaf characteristic typically consists of several trifoliate leaves (or has three leaves, as clover) and their leaves are green. Each leaflet is about 3 inches long and 1.5 inches wide. The leaflet is oval shaped and has coarse teeth along the edge except near the bottom. This plant has a five-petaled white flower with numerous yellow-anthered centers. There are ten small green sepals under petals. The seeds of this plant are developed from a pistil in the centre of flower which will become dark-coloured fruit on the strawberry. The fruit of the wild strawberry is smaller than that of the garden strawberry (Fragaria × ananassa). Botanically, the fruit is classified as an aggregate accessory fruit, but it is commonly called a berry. A study showed that F.virginiana can reproduce asexually and sexually. The Okanagan-Colville peoples used a poultice of leaf powder and deer fat for sores. Leaf powder could be applied to open sores, as well as mouth sores (Moerman 1998, 236). Fruits used as food (Moerman 1998, 235).	
Virginia strawberry		
Scientific Name		
Fragaria virginiana		
Use		
Edible		
Basic Information	**Description&Particularity**	**Photo**
Common Name	Allium acuminatum produces bulbs that are spherical, less than 2 cm across and smelling like onions. Scape is up to 40 cm tall, wearing an umbel of as many as 40 flowers. The flowers are pink to purple with yellow anthers. The onions were eaten by first peoples in southern British Columbia. They were harvested in either early spring or late fall and usually cooked in pits. Both the bulb and the flowering stalk are edible; however, in the culinary arts, the stalk possesses a more pleasant flavour.	
Tapertip onion		
Scientific Name		
Allium acuminatum		
Use		
Edible		
Basic Information	**Description&Particularity**	**Photo**
Common Name	It is a perennial herb producing a slender, generally unbranched stem up to 15 centimeters in height. The basal leaf is 10 to 20 centimeters long and does not wither at flowering. The inflorescence bears 1 to 7 erect bell-shaped flowers. Each flower has three sepals and three petals with very hairy inner surfaces and edges. Each petal is greenish white in color with a purple crescent above a hairless patch at the base. The fruit is a winged capsule about 2 centimeters long. The bulb of elegant sego lily was documented as a food of the natives (Phillips 2003, 134, Hunn 1990, 90). Many other species of sego lily were used by Indigenous peoples of North America (Moerman 1998, 132-133).	
Elegant Mariposa lily		
Scientific Name		
Calochortus		
Use		
Edible		

Basic Information	Description&Particularity	Photo
Common Name Common camas **Scientific Name** Camassia quamash **Use** Edibale **Season** Harvest bulbs in autumn	It is a perennial herbaceous monocot with leaves emerging from a persistent bulb in a basal rosette. The stems have a length between 30 and 90 centimetres (12 and 35 in). The leaves are basal and have a grass-like appearance. The pale blue to deep blue flowers appear in late spring to early summer (May to June in their native habitat). They are arranged in a raceme at the end of the stem. Each of the radially symmetrical, star-shaped flowers has six petals. Called sqha'wlutqhwe' in the Schitsu'umsh language and it was normally harvested after bloom (Frey 2001, 6). Before this plant is harvested an offering and prayer must be made to request permission to harvest. If permission is granted the Creator must be thanked for the food as it is considered a gift. Some families of Schitsu'umsh serve common camas during family gatherings, birthdays, Easter, Jump Dance, and Christmas, or when elders simply desire it (Frey 2001, 156). The Sahaptin term for common camas is xm̓aaš or wáƙamu (Hunn 1990, 172). Common camas is a well-known food of the mid-Columbia River Indigenous peoples and many other tribes in the Pacific Northwest. Camas is prepared by the mid-Columbia River Indigenous peoples by baking it in the ground, and it was normally harvested after the bitterroot and lomatium season (Hunn 1990, 176-177). Common camas is known as quem'es in the Nez Perce language and identified as a root staple of the	
Basic Information	**Description&Particularity**	**Photo**
Common Name Yellow avalanche **Scientific Name** Erythronium grandiflorum **Use** Edibale	Erythronium grandiflorum grows from a deep bulb which is 3 to 5 centimeters wide. Its two green leaves are wavy-edged and up to 20 centimeters long. The stalk may reach 30 centimeters tall and bears one to three showy flowers. Each flower has bright lemon yellow petals, white stamens with large white to yellow to red anthers, and a white style. The flower is pollinated by bumblebees and other bees. The bulbs are an important and preferred food of the grizzly bear. Mule deer readily eat the foliage. Documented as root food of the mid-Columbia river peoples and called hwíƙwk in Sahaptin (Hunn 1990, 175).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Yarrow **Scientific Name** Achillea millefolium **Use** Edibale **Season** May to August bloom	Achillea millefolium is an erect, herbaceous, perennial plant that produces one to several stems 0.2–1 m (0.66–3.28 ft) in height, and has a spreading rhizomatous growth form. Leaves are evenly distributed along the stem, with the leaves near the middle and bottom of the stem being the largest. The leaves have varying degrees of hairiness (pubescence). The leaves are 5–20 cm (2.0–7.9 in) long, bipinnate or tripinnate, almost feathery, and arranged spirally on the stems. The leaves are cauline, and more or less clasping. The inflorescence has 4 to 9 phyllaries and contains ray and disk flowers which are white to pink. The generally 3 to 8 ray flowers are ovate to round. Disk flowers range from 15 to 40. The inflorescence is produced in a flat-topped capitulum cluster and the inflorescences are visited by many insects, featuring a generalized pollination system. The small achene-like fruits are called cypsela. The plant has a strong, sweet scent, similar to that of chrysanthemums. In the Middle Ages, yarrow was part of a herbal mixture known as gruit used in the flavoring of beer prior to the use of hops. The flowers and leaves are used in making some liquors and bitters. A. millefolium has seen historical use as in traditional medicine, often because of its astringent effects. The herb is purported to be a diaphoretic, astringent, tonic, stimulant and mild aromatic. It contains isovaleric acid, salicylic acid, asparagine, sterols, and flavonoids. The genus name Achilles is derived from mythical Greek character, Achilles, who reportedly carried it with his army to treat battle wounds. This medicinal use is also reflected in some of the common names mentioned below, such as staunchweed and soldier's woundwort.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Yellowbell **Scientific Name** Fritillaria pudica **Use** Edibale	Fritillaria pudica (yellow fritillary) is a small perennial plant found in the sagebrush country in the western United States (Idaho, Montana, Oregon, Washington, Wyoming, very northern California, Nevada, northwestern Colorado, North Dakota and Utah) and Canada (Alberta and British Columbia). It is a member of the lily family, or Liliaceae. Another (somewhat ambiguous) name is "yellowbells", since it has a bell-shaped yellow flower. It may be found in dryish, loose soil; it is amongst the first plants to flower after the snow melts, but the flower does not last very long; as the petals age, they turn a brick-red colour and begin to curl outward. Whole plant used as food by the mid-Columbia river peoples. Called sikni in in the Sahaptin language (Hunn 1990, 172,173).	

Basic Information	Description&Particularity	Photo
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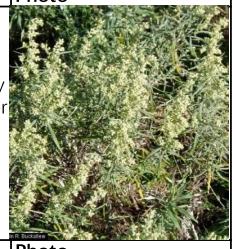
Basic Information	**Description&Particularity**	**Photo**
Common Name White sagebrush **Scientific Name** Artemisia ludoviciana **Use** Be used in ceremonies **Season** July to August	Numerous small flower heads are composed of pale yellow disk flowers. Lower leaves are deeply pinnate with pointed segments. Upper leaves are lanceolate and entire. Foliage is whitened and emits distinct sagebrush odor when crushed. "Ludoviciana" is Latin for Louisiana. The smoke from this plant was used by Native Tribes in ceremonies to purify people or animals, spaces, and inanimate objects. This plant was used medicinally by numerous Native Tribes for ailments ranging from headaches and stomachaches.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Wyeth biscuitroot **Scientific Name** Lomatium ambiguum **Use** Edibale Medicinal	Perideridia gairdneri is a species of flowering plant in the carrot family known by the common names common yampah and Gardner's yampah. It is native to western North America from southwestern Canada to California to New Mexico, where it grows in many types of habitat. It is a perennial herb which may approach 1.5 meters in maximum height, its slender, erect stem growing from cylindrical tubers measuring up to 8 centimeters long. Leaves near the base of the plant have blades up to 35 centimeters long which are divided into many narrow, subdivided lobes. Leaves higher on the plant are smaller and less divided. The inflorescence is a compound umbel of many spherical clusters of small white flowers. The roots of Gairdner's yampah is used as a food by Okanagan-Colville Indigenous peoples (Moerman 1998, 386) and Nez Perce (Nez Perce Historical Park 2017, Walker 1998, 421)	
Basic Information	**Description&Particularity**	**Photo**
Common Name Basin wild rye **Scientific Name** Leymus cinereus **Use** Medicinal	Leymus cinereus is a perennial bunchgrass forming large, tough clumps up to 2 metres (6.6 ft) tall and sometimes exceeding 1 metre (3.3 ft) in diameter. It has a large, fibrous root system and sometimes small rhizomes. The inflorescence is an unbranched, cylindrical spike divided into up to 35 nodes with several flower spikelets per node. The mid-Columbia River Indigenous peoples used the stems from Basin wildrye as a neutral-scented material to separate sections of cut up salmon during the drying process. It was also used as disposable floor coverings and layer material for underground cooking of camas, black tree lichen, or bear meat. Basin wildrye is called švičt in	
Basic Information	**Description&Particularity**	**Photo**
Common Name Mountain sweet cicely **Scientific Name** Osmorhiza berteroi **Use** Edibale **Season** Usually flowers in late Spring	It is an aromatic perennial herb producing a branching stem which may exceed a meter tall. The plentiful green leaves have blades up to 20 centimeters long which are divided into three leaflets (trifoliate), which are toothed or lobed. The blade is borne on a long petiole. The inflorescence is a compound umbel of many tiny white flowers at the tip of a stemlike peduncle. There are 4–10 florets on each umbellule with the central florets only possessing anthers. The narrow, elongated fruit is ribbed and bristly, measuring up to 2.5 centimeters long. The thick roots of mountain sweet-root are eaten by Okanagan Indigenous people (Moerman 1998, 173).	

Basic Information	Description&Particularity	Photo
Common Name Red raspberry **Scientific Name** Rubus idaeus **Use** Edibale Medicinal **Season** Bloom in spring White flowers	Plants of Rubus idaeus are generally perennials which bear biennial stems ("canes") from a perennial root system. In its first year, a new, unbranched stem ("primocane") grows vigorously to its full height of 1.5–2.5 m (5.0–8.3 feet), bearing large pinnately compound leaves with five or seven leaflets, but usually no flowers. In its second year (as a "floricane"), a stem does not grow taller, but produces several side shoots, which bear smaller leaves with three or five leaflets. The flowers are produced in late spring on short racemes on the tips of these side shoots, each flower about 1 cm (0.4 inches) diameter with five white petals. The fruit is red, edible, and sweet but tart-flavoured, produced in summer or early autumn; in botanical terminology, it is not a berry at all, but an aggregate fruit of numerous drupelets around a central core. In raspberries (various species of Rubus subgenus Idaeobatus), the drupelets separate from the core when picked, leaving a hollow fruit, whereas in blackberries and most other species of Rubus, the drupelets stay attached to the core. A decoction of red raspberry is used by the Okanagan-Colville Indigenous peoples for diarrhea and other gastrointestinal problems (Moerman 1998, 489). The decoction of the branches can also be used to relieve catharsis (Moerman 1998, 489). Berries used as food, eaten fresh or dried for future use (Moerman 1998, 489). Identified as food of the Nez Perce (Walker 1998, 421).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Spreading dogbane **Scientific Name** Apocynum androsaemifolium **Use** Manufacturing	Apocynum androsaemifolium has branching stems, hairs on the underside of the leaves, and no hair on the stems. Milky sap appears on broken stems. Leaf margin is entire and leaf venation is alternate. Its leaves appear as pointed ovals, while its flowers appear terminally on a stalk. The plant is poisonous, due to the cardiac glycosides it contains. The Schitsu'umsh made fishing lines from Indian hemp (Apocynum cannabinum) (Frey 2001, 29). However, Indian hemp is a larger species and the use of spreading dogbane was likely not preferred or used at all. In any case, Indian hemp was typically gathered in the summer and softened by burying it in moist soil (Hunn 1990, 189). Standing plants were harvested by October and must be dried sufficiently for processing (Hunn 1990, 189). The process began by crushing stalks to loosen the paper-tin bast fibers from the stem (Hunn 1990, 189). The bast is then shredded into separate fibers and during winters Indigenous women twined literally miles of hemp (Hunn 1990, 189). The twine was used for knotting nets and binding the hoop to the dip net shaft (Hunn 1990, 189). It can also be used to make bags for gathering roots (Hunn 1990, 189). Indian hemp is called qéemu in the	
Basic Information	**Description&Particularity**	**Photo**
Common Name Chokecherry **Scientific Name** Prunus virginiana **Use** Edibale **Season** Harvest berries from June to August	Chokecherry is a suckering shrub or small tree growing to 1–6 m (3 ft 3 in–19 ft 8 in) tall, rarely to 10 m (32 ft 10 in). The leaves are oval, 2.5–9 cm (1–3 1 / 2 in) long and 1.2–5 cm (1 / 2–2 in) wide, with a serrated margin. The flowers are produced in racemes 4–11 cm (1 1 / 2–4 1 / 4 in) long in late spring (well after leaf emergence). They are 1 / 3–1 / 2 in (8–13 mm) across. They produce a strong heady aroma which some people find to be unpleasantly smelly, while others perceive them to have an aphrodisiac-like effect. The fruits are about 6–14 mm (1 / 4–9 / 16 in) in diameter, range in color from bright red to black, and possess a very astringent taste, being both somewhat sour and somewhat bitter. When very ripe, the "berries" (actually drupes) are dark in color and less astringent and sweeter than when red and unripe. Identified as one of the plant gifts used as foods by the Schitsu'umsh (Frey 2001, 155-156). According to the Schitsu'umsh, an appropriate harvest ceremony must take place prior to harvesting and consuming any edible berries (Frey 2001, 34). The mid-Columbia river tribes harvested common chokecherry in lowlands and foothills late June through mid-August (Hunn 1990, 178). Common chokecherry is called tmiš in Sahaptin (Hunn 1990, 128) and ti'ms in the Nez Perce language (Nez Perce Historical Park 2017).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Wood's rose/ Wild rose **Scientific Name** Rosa woodsii/ Rosa sp.[native] **Use** Be used in ceremonies	Rosa woodsii is a bushy shrub which grows up to three meters tall. The shrubs can form large, dense thickets. The plant reproduces sexually by seed and vegetatively by sprouting from the root crown, layering, and by producing root suckers. The stems are studded with prickles. The deciduous leaves are each made up of several widely spaced sharp-toothed leaflets up to 5 centimeters long. The inflorescence is a cyme of up to a few fragrant flowers with five petals in any shade of pink and measuring up to 2.5 centimeters in length. The fruit is a red rose hip which may be over a centimeter long. The wild rose is used by the mid-Columbia River Indigenous peoples as a defense against spiritual sickness that results from hauntings by the supernatural (Hunn 1990, 198). Thus, wild rose is considered a healing gift and can be used for spiritual cleansing and protection (Hunn 1990, 161, 209)	

Basic Information	Description&Particularity	Photo
Common Name Creeping Oregon grape **Scientific Name** Mahonia repens **Use** Edibale Medicinal **Season** Evergreen plants bloom in spring and summer	Mahonia repens is a typical mahonia with conspicuous matte blue berries. It grows as a subshrub. The yellow flowers appear in the middle of spring, and the blue berries in early summer. Although it is evergreen, in fall the leaves turn bronze. The plant is found at elevations from 300 metres (980 ft) to 2,200 metres (7,200 ft). Berries used as food and considered a gift from the Creator by the Schitsu'umsh (Frey 2001, 156). Creeping oregongrape is called q'iq'étq'iq'et in the Nez Perce language (Sonneck and Sobotta 2002, 14).	

Basic Information	Description&Particularity	Photo
Common Name Western juneberry **Scientific Name** Amelanchier alnifolia **Use** Edibale **Season** Harvest berries in summer	It is a deciduous shrub or small tree that most often grows to 1–8 m (3–26 ft), rarely to 10 m or 33 ft, in height. Its growth form spans from suckering and forming colonies to clumped. The fruit is a small purple pome 5–15 mm (3 / 16–19 / 32 in) in diameter, ripening in early summer in the coastal areas and late summer further inland. They are eaten by wildlife including birds, squirrels and bears. It is also a larval host to the pale tiger swallowtail, two-tailed swallowtail, and the western tiger swallowtail. Food and part of the Schitsu'umsh legend of Coyote and the Rock Monster. In this legend, Rock Monster goes crazy and tears up the land and destroys trees resulting in the creation of the Palouse prairie. Coyote defeats Rock Monster by leading him into a lake. The lake turns blue from all the huckleberries and serviceberries that Rock Monster rolled over while chasing Coyote (Frey 2001, 131-134). Western serviceberry was harvested in the lowlands and foothills between late June and mid-August by the mid-Columbia river peoples. It is called ččaa in Sahaptin (Hunn 1990, 178). The dried fruits of Western serviceberry were also used as food by the Nez Perce (Walker 1998, 421) and called kel (Nez Perce Historical Park 2017). Also, see comment on common chokecherry.	

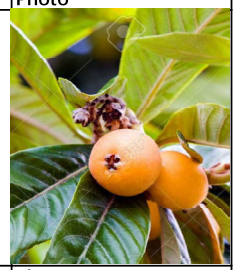
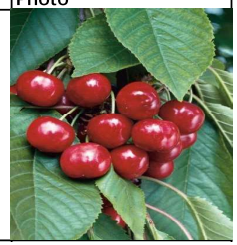
Basic Information	Description&Particularity	Photo
Common Name black hawthorn **Scientific Name** Crataegus douglasii **Use** Edibale	Crataegus douglasii is a compact erect bushy shrub covered in fan-shaped green leaves with teeth along the distal margin. Thorns along the branches are one to two centimeters long.White flowers with greenish centers grow in bunches at the ends of each thin branch. The fruit is a very dark purple pome up to about a centimeter across. The fruits were a good food source for Native American peoples such as the Cheyenne and Nlaka'pamux. Food, Medicine (Moerman 1998, 183-184, Walker 1998, 421)	

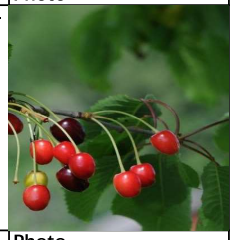
Basic Information	Description&Particularity	Photo
Common Name Wax currant **Scientific Name** Ribes cereum **Use** Edibale **Season** Harvest berries in summer	Ribes cereum grows in several types of habitat, including mountain forests in alpine climates, sagebrush, and woodlands. It can grow in many types of soils, including sandy soils and soil made of clay substrates, serpentine soils, and lava beds. This is a spreading or erect shrub growing 20 centimeters (8 inches) to 2 meters (80 inches) tall. It is aromatic, with a "spicy" scent. Although probably not preferred, the berries of wax current may have been collected for food, when golden current (Ribes aureum; xa̓n) and gooseberry (Ribes lacustre; pínuš) could not be found (Hunn 1990, 128). Golden current and gooseberry were harvested in the summer and ritually welcomed by the mid-Columbia River Indigenous peoples during the general harvest (Hunn 1990, 128). Currants were also identified as a traditional food of the Nez Perce (Walker 1998, 421).	

Basic Information	Description&Particularity	Photo
Common Name Bitter cherry **Scientific Name** Prunus emarginata **Use** Medicinal	Prunus emarginata is a deciduous shrub or small tree growing to 1–15 metres (3.3–49.2 ft) tall with a slender oval trunk with smooth gray to reddish-brown bark with horizontal lenticels. The leaves are 2–8 centimetres (0.79–3.15 in) long, thin, egg-shaped, and yellowish-green with unevenly sized teeth on either side. The flowers are small, 10–15 millimetres (0.39–0.59 in) diameter, with five white petals and numerous hairlike stamens; they are almond-scented, and produced in clusters in spring, and are pollinated by insects. The fruit is a juicy red or purple cherry 7–14 millimetres (0.28–0.55 in) diameter, which, as the plant's English name suggests, are bitter. The bark of bittercherry and leaves of beargrass (Xerophyllum tenax) were imbricated into woven baskets of cedar root to make rigid berry collecting containers (Hunn 1990, 131-132). Bittercherry was also used as a remedy to prevent a developing fetus from growing too large (Hunn 1990, 198).	
Basic Information	**Description&Particularity**	**Photo**
Common Name Northern redcurrant **Scientific Name** Ribes triste **Use** Edibale **Season** Bloom in mid-spring Greenish-yellow flowers	Ribes triste grows in wet rocky woods, swamps, and cliffs. It grows to 50 cm (20 in) tall, with a lax, often creeping branches. The leaves are alternate, palmately lobed with five lobes, 6–10 cm (2 1 / 4–4 in) in diameter. The flowers are in pendulous racemes, 4–7 cm (1 1 / 2–2 3 / 4 in) long. The axis of the raceme is glandular. Each raceme bears 6-13 small, purplish flowers that appear in June and July. The fruit is a bright red berry, without the hairs that some currants have. The fruit is edible but rather sour. Alaska Natives use the fruit as food, eating it raw, and making the berries into jam and jellies. Eskimos eat the berries and the Inupiat eat them raw or cooked, mix them with other berries which are used to make a traditional dessert. They also mix the berries with rosehips and highbush cranberries and boil them into a syrup. The Iroquois mash the fruit, make them into small cakes, and store them for future use. They later soak the fruit cakes in warm water and cooked them a sauce or mixed them with corn bread. They also sun dry or fire dry the raw or cooked fruit for future use and take the dried fruit with them as a hunting food. The Ojibwe eat the berries raw, and also preserve them by cooking them, spreading them on birch bark into little cakes, which are dried and stored for winter use. In the winter, they often eat the berries with cooked with sweet corn. They also use the berries to make jams and preserves. The Upper Tanana eat the berries as food.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Common juniper **Scientific Name** Juniperus **Use** Usually used cooked as a flavouring or to **Season** Bloom in summer Yellow flowers	uniperus communis is a small coniferous evergreen tree or shrub, very variable in form, ranging from 10 m (33 ft)—rarely 16 m (52 ft)—tall to a low, often prostrate spreading shrub in exposed locations. It has needle-like leaves in whorls of three; the leaves are green, with a single white stomatal band on the inner surface. It never attains adult foliage. It is dioecious, with male and female cones, which are wind pollinated, on separate plants. The fruit are berry-like cones, initially green, ripening in 18 months to purple-black with a blue waxy coating; they are spherical, 4–12 mm (0.16–0.47 in) diameter, and usually have three (occasionally six) fleshy fused scales, each scale with a single seed. The seeds are dispersed when birds eat the cones, digesting the fleshy scales and passing the hard, unwinged seeds in their droppings. The male cones are yellow, 2–3 mm (0.079–0.118 in) long, and fall soon after shedding their pollen in March–April. Juniper berries have long been used as medicine by many cultures including the Navajo people. Western American tribes combined the berries of Juniperus communis with Berberis root bark in a herbal tea. Native Americans also used juniper berries as a female contraceptive.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Huckleberry **Scientific Name** Vaccinium membranaceum **Use** Edibale **Season** Harvest fruit in late summer and early fall	Vaccinium membranaceum is an erect shrub growing up to 1.5 metres (4.9 ft) in maximum height. The new twigs are yellow-green and somewhat angled. The deciduous leaves are alternately arranged. The very thin to membranous, oval leaf blades are up to 5 centimeters (2 inches) long. The edges are serrated, with each tiny tooth tipped with a glandular hair. Solitary flowers occur in the leaf axils. Each is around 6 millimeters (1/4 inch) long, urn-shaped to cylindrical, and pale pink to waxy bronze in color. Food and called st'shastq by the Schitsu'umsh (Frey 2001, 6). A huckleberry feast is celebrated in mid-August by Plateau Indigenous peoples (Hunn 1990, 129). Big huckleberry is called wíwnu in the Sahaptin language (Hunn 1990, 129). Hunn (1990, 178) wrote "[s]ahaptin speakers agree with their Interior Salish colleagues that the most important fruit of all is the black mountain huckleberry." Dried fruits of big huckleberry are one of the most favorite winter foods of the Nez Perce and called cemi'tk (Nez Perce Historical Park 2017).	

Common Fruiting Shrubs/Trees Group

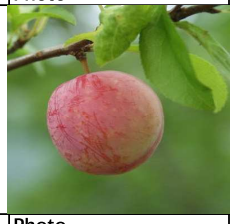
Basic Information	Description&Particularity	Photo
Common Name Worcesterberry **Scientific Name** Ribes divaricatum **Use** Edible **Season** Bloom in spring. Greenish-purple flowers	Ribes divaricatum is a shrub sometimes reaching 3 meters in height with woody branches with one to three thick brown thorns at leaf nodes. The leaves are generally palmate in shape and edged with teeth. The blades are up to 6 centimeters long and borne on petioles. The inflorescence is a small cluster of hanging flowers, each with reflexed purple-tinted green sepals and smaller, lighter petals encircling long, protruding stamens. The fruit is a sweet-tasting berry up to a centimeter wide which is black when ripe. It is similar to Ribes lacustre and Ribes lobbii, but the former has smaller, reddish to maroon flowers and the latter has reddish flowers that resemble those of fuchsias and sticky leaves. With its large thorns, this is a useful bush in hedges and other places to deter animalsand humans! Worcester-berry has fruits like small gooseberries and makes a single-trunkedmultistemmed shrub.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Blackcurrant **Scientific Name** Ribes nigrum **Use** Edible Fresh fruit, jams, fruit leathers, sauces **Season** Bloom in mid-	Ribes nigrum, the blackcurrant, is a medium-sized shrub, growing to 1.5 by 1.5 metres (4.9 by 4.9 ft). The leaves are alternate, simple, 3 to 5 cm (1.2 to 2.0 in) broad and long with five palmate lobes and a serrated margin. All parts of the plant are strongly aromatic. The flowers are produced in racemes known as "strigs" up to 8 cm (3 in) long containing ten to twenty flowers, each about 8 mm (0.3 in) in diameter. Each flower has a hairy calyx with yellow glands, the five lobes of which are longer than the inconspicuous petals. There are five stamens surrounding the stigma and style and two fused carpels. The flowers open in succession from the base of the strig and are mostly insect pollinated, but some pollen is distributed by the wind. A pollen grain landing on a stigma will germinate and send a slender pollen tube down the style to the ovule. In warm weather this takes about 48 hours but in cold weather it may take a week, and by that time, the ovule may have passed the stage where it is receptive. If fewer than about 35 ovules are fertilised, the fruit may not be able to develop and will fall prematurely.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Northern **Scientific Name** Vaccinium corymbosum **Use** Edible Fresh fruit, jams,	Vaccinium corymbosum is a deciduous shrub growing to 6–12 feet (1.8–3.7 m) tall and wide. It is often found in dense thickets. The dark glossy green leaves are elliptical and up to 2 inches (5 cm) long. In autumn, the leaves turn to a brilliant red, orange, yellow, and/or purple. The flowers are long bell- or urn-shaped white to very light pink, 1 / 3 of an inch (8.5 mm) long. The fruit is a 1 / 4-to-1 / 2-inch (6.4 to 12.7 mm) diameter blue-black berry.[4] This plant is found in wooded or open areas with moist acidic soils. The species is tetraploid and does not self-pollinate. Most cultivars have a chilling requirement greater than 800 hours. In natural habitats, the berries are a food source for native and migrating birds, bears, and small mammals. The foliage is browsed by deer and rabbits.The berries were collected and used in Native American cuisine in areas where Vaccinium corymbosum grew as a native plant.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Red chokeberry **Scientific Name** Aronia arbutifolia **Use** Edible **Season** Bloom in late spring	Aronia arbutifolia, called the red chokeberry, is a North American species of shrubs in the rose family. It is native to eastern Canada and to the eastern and central United States, from eastern Texas to Nova Scotia inland to Ontario, Ohio, Kentucky, and Oklahoma. Aronia arbutifolia is a branching shrub forming clumps by means of stems forming from the roots. Flowers are white or pink, producing black or bright red fruits. Many people consider the fruits to be foul-tasting. The fruits are very high in nutritional compounds and the juice isoften added to fruit juice mixes.	

Basic Information	Description&Particularity	Photo
Common Name Honeyberry **Scientific Name** Lonicera caerulea **Use** Edible **Season** Bloom in spring Pale yellow flowers	Honeyberry is a deciduous shrub growing to 1.5–2 m tall. The leaves are opposite, oval, 3–8 cm long and 1–3 cm broad, greyish green, with a slightly waxy texture. The flowers are yellowish-white, 12–16 mm long, with five equal lobes; they are produced in pairs on the shoots. The fruit is an edible, blue berry, somewhat rectangular in shape weighing 1.3 to 2.2 grams, and about 1 cm in diameter. The species is circumpolar, primarily found in or near wetlands of boreal forests in heavy peat soils. However, it also can be found in high-calcium soils, in mountains, and along the coasts of northeastern Asia and northwestern North America. The plant is winter-hardy and can tolerate temperatures below minus 47 degrees Celsius.	
Basic Information	**Description&Particularity**	
Common Name Apple **Scientific Name** Malus domestica **Use** Edible **Season** Bloom in spring White, pink flowers	The apple is a deciduous tree, generally standing 6 to 15 ft (1.8 to 4.6 m) tall in cultivation and up to 30 ft (9.1 m) in the wild. When cultivated, the size, shape and branch density are determined by rootstock selection and trimming method. The leaves are alternately arranged dark green-colored simple ovals with serrated margins and slightly downy undersides. With most varieties, pruning is normally undertaken every year(or at least every 2-3 years) to maintain a supply of new wood and thus fruiting. Tip bearers (which bear their fruit at the tips of branches rather than on short spurs along recent growth) do not require annual pruning but will often yield less. Apples are heavy-cropping trees and require feeding to sustain cropping. Pay attention to nitrogen and potassium in particular and try to grow nitrogen fixers and potassium accumulators.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Common medlar **Scientific Name** Mespilus germanica **Use** Edible **Season** Bloom in summer White flowers Harvest fruit in summer	Mespilus germanica requires warm summers and mild winters and prefers sunny, dry locations and slightly acidic soil. Under ideal circumstances, the deciduous plant grows up to 8 metres (26 ft) tall. Generally, it is shorter and more shrub-like than tree-like. With a lifespan of 30–50 years, the medlar tree is rather short-lived. Its bark is greyish brown with deep vertical cracks forming rectangular plates that tend to lift off. The leaves are dark green and elliptic, 8–15 centimetres (3.1–5.9 in) long and 3–5 centimetres (1.2–2.0 in) wide. The leaves are densely hairy (pubescent) below, and turn red in autumn before falling. Very little maintenance to do. Does not need regular pruning. No pests or diseases,	
Basic Information	**Description&Particularity**	**Photo**
Common Name Armenian plum **Scientific Name** Prunus armeniaca **Use** Edible. The fruits can be eaten raw **Season** Bloom in spring	Prunus armeniaca is a small tree, 8–12 m (26–39 ft) tall, with a trunk up to 40 cm (16 in) in diameter and a dense, spreading canopy. The leaves are ovate, 5–9 cm (2.0–3.5 in) long and 4–8 cm (1.6–3.1 in) wide, with a rounded base, a pointed tip and a finely serrated margin. The flowers are 2–4.5 cm (0.8–1.8 in) in diameter, with five white to pinkish petals; they are produced singly or in pairs in early spring before the leaves. The fruit is a drupe similar to a small peach, 1.5–2.5 cm (0.6–1.0 in) diameter (larger in some modern cultivars), from yellow to orange, often tinged red on the side most exposed to the sun; its surface can be smooth (botanically described as: glabrous) or velvety with very short hairs (botanically: pubescent). The flesh is usually firm and not very juicy. Its taste can range from sweet to tart. The single seed is enclosed in a hard, stony shell, often called a "stone", with a grainy, smooth texture except for three ridges running down one side.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Sweet cherry **Scientific Name** Prunus avium **Use** Edible **Season** Bloom in spring White flowers	Prunus avium is a deciduous tree growing to 15–32 m (49–105 ft) tall, with a trunk up to 1.5 m (4.9 ft) in diameter. Young trees show strong apical dominance with a straight trunk and symmetrical conical crown, becoming rounded to irregular on old trees. Does not require regular pruning. Cut out any diseased or dying wood between May and September to reduce the risk of introducting disease.	

Basic Information	Description&Particularity	Photo
Common Name Sour cherry **Scientific Name** Prunus cerasus **Use** Edible **Season** Bloom in spring White flowers	The tree is smaller than the sweet cherry (growing to a height of 4–10 m), has twiggy branches, and its crimson-to-near-black cherries are borne upon shorter stalks.[citation needed] There are two main varieties (groups of cultivars) of the sour cherry: the dark-red morello cherry and the lighter-red amarelle cherry. Does not require regular pruning. Cut out any diseased or dying wood between May and September to reduce the risk of introducting disease.	

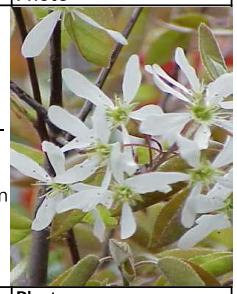
Basic Information	Description&Particularity	Photo
Common Name Plums **Scientific Name** Prunus domestica **Use** Edible **Season** Bloom in spring White flowers	Plums are a diverse group of species. The commercially important plum trees are medium-sized, usually pruned to 5–6 metres height. The tree is of medium hardiness. Without pruning, the trees can reach 12 metres in height and spread across 10 metres. They blossom in different months in different parts of the world. Fruits are usually of medium size, between 2 and 7 centimetres in diameter, globose to oval. The flesh is firm and juicy. The fruit's peel is smooth, with a natural waxy surface that adheres to the flesh. The plum is a drupe, meaning its fleshy fruit surrounds a single hard seed. Plums are tip bearers, bearing their fruit at the tips of branches, and as such donot require annual pruning to sustain cropping. Of course, dead or diseased branchesshould be cut out. Any pruning should be undertaken between May and October to minimisethe risk of silverleaf infection.	

Basic Information	Description&Particularity	Photo
Common Name Peach **Scientific Name** Prunus persica **Use** Edible **Season** Bloom in spring Pink flowers	Prunus persica grows up to 7 m (23 ft) tall and wide. However, when pruned properly, trees are usually 3–4 m (10–13 ft) tall and wide. The leaves are lanceolate, 7–16 cm (2.8–6.3 in) long, 2–3 cm (0.79–1.18 in) broad, pinnately veined. The flowers are produced in early spring before the leaves; they are solitary or paired, 2.5–3 cm diameter, pink, with five petals. The fruit has yellow or whitish flesh, a delicate aroma, and a skin that is either velvety (peaches) or smooth (nectarines) in different cultivars. The flesh is very delicate and easily bruised in some cultivars, but is fairly firm in some commercial varieties, especially when green. The single, large seed is red-brown, oval shaped, approximately 1.3–2 cm long, and is surrounded by a wood-like husk. Peaches, along with cherries, plums and apricots, are stone fruits (drupes). There are various heirloom varieties, including the Indian Peach, or Indian Blood Peach, which arrives in the latter part of the summer, and can have color ranging from red and white, to purple.	

Basic Information	Description&Particularity	Photo
Common Name Japanese plum **Scientific Name** Prunus salicina **Use** Edible **Season** Bloom in spring White flowers	Prunus salicina grows up to 10 metres (33 ft) tall, and has reddish-brown shoots. The leaves are 6-12 cm long and 2.5-5 cm broad, with a serrated margin. The flowers are produced in early spring, 2 cm diameter with five white petals. The fruit is a drupe 4-7 cm in diameter with yellow-pink flesh; it can be harvested in the summer. When fully ripe it can be eaten raw. Diseased or dying wood should be cut out in summer.	

Basic Information	Description&Particularity	Photo
Common Name Pear **Scientific Name** Pyrus communis **Use** Edible **Season** Bloom in spring White flowers	With most varieties, pruning is normally undertaken every year (or at least every2-3 years) to maintain a supply of new wood and thus fruiting. Pears are not as heavy cropping as apples and plums; nevertheless if they are cropping well they will require feeding to sustain cropping. Pay attention to nitrogen and potassium in particular and try to grow nitrogen-fixers and potassium accumulators nearby.	

Less Common Fruiting Shrubs/Trees Group

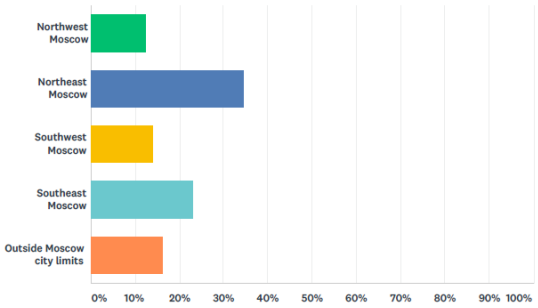
Basic Information	Description&Particularity	Photo
Common Name Juneberry **Scientific Name** Amelanchier **Use** Edible **Season** Bloom in spring White flowers	The various species of Amelanchier grow to 0.2–20 m tall; some are small trees, some are multistemmed, clump-forming shrubs, and yet others form extensive low shrubby patches (clones). The bark is gray or less often brown, and in tree species smooth or fissuring when older. The leaves are deciduous, cauline, alternate, simple, lanceolate to elliptic to orbiculate, 0.5–10 x 0.5–5.5 cm, thin to coriaceous, with surfaces above glabrous or densely tomentose at flowering, and glabrous or more or less hairy beneath at maturity. The inflorescences are terminal, with 1–20 flowers, erect or drooping, either in clusters of one to four flowers, or in racemes with 4–20 flowers. The flowers have five white (rarely somewhat pink, yellow, or streaked with red), linear to orbiculate petals, 2.6–25 mm long, with the petals in one species (A. nantucketensis) often andropetalous (bearing apical microsporangia adaxially). The flowers appear in early spring, "when the shad run" according to North-American tradition (leading to names such as "shadbush"). The fruit is a berry-like pome, red to purple to nearly black at maturity, 5–15 mm diameter, insipid to delectably sweet, maturing in summer. flowers are ornamental in spring. Good in hedges.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Pawpaw **Scientific Name** Asimina triloba **Use** Medicinal Edible Fruits are usually eaten raw **Season** May or june Bloom Maroon flowers	Asimina triloba is a large shrub or small tree growing to a height of 35 feet (11 m), rarely as tall as 45 feet (14 m), with trunks 8–12 inches (20–30 cm) or more in diameter. The large leaves of pawpaw trees are clustered symmetrically at the ends of the branches, giving a distinctive imbricated appearance to the tree's foliage. The leaves of the species are simple, alternate and spirally arranged, entire, deciduous, obovate-lanceolate, 10–12 inches (25–30 cm) long, 4–5 inches (10–13 cm) broad, and wedge-shaped at the base, with an acute apex and an entire margin, with the midrib and primary veins prominent. The petioles are short and stout, with a prominent adaxial groove. Stipules are lacking. The expanding leaves are conduplicate, green, covered with rusty tomentum beneath, and hairy above; when fully grown they are smooth, dark green above, and paler beneath. When bruised, the leaves have a disagreeable odor similar to a green bell pepper. In autumn the leaves are a rusty yellow, allowing pawpaw groves to be spotted from a long distance.Pawpaw flowers are perfect, about 1–2 inches (3–5 cm) across, rich red-purple or maroon when mature, with three sepals and six petals. They are borne singly on stout, hairy, axillary peduncles. The flowers are produced in early spring at the same time as or slightly before the new leaves appear, and have a faint fetid or yeasty smell. leaves and bark are insecticidal and their extracts are being investigatedas anti-cancer medicines.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Hawthorn **Scientific Name** Crataegus **Use** Edible **Season** Bloom in spring White flowers	Crataegus species are shrubs or small trees, mostly growing to 5–15 m (16–49 ft) tall, with small pome fruit and (usually) thorny branches. The most common type of bark is smooth grey in young individuals, developing shallow longitudinal fissures with narrow ridges in older trees. The thorns are small sharp-tipped branches that arise either from other branches or from the trunk, and are typically 1–3 cm long (recorded as up to 11.5 cm (4.5 in) in one case). The leaves grow spirally arranged on long shoots, and in clusters on spur shoots on the branches or twigs. The leaves of most species have lobed or serrated margins and are somewhat variable in shape. The fruit, sometimes known as a "haw", is berry-like but structurally a pome containing from one to five pyrenes that resemble the "stones" of plums, peaches, etc., which are drupaceous fruit in the same subfamily.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Cherry plum **Scientific Name** Prunus cerasifera **Use** Edible **Season** Bloom in early spring White	Wild types are large shrubs or small trees reaching 8–12 m (25–40 feet) tall, sometimes spiny, with glabrous, ovate deciduous leaves 3–7 cm (1.5–2.5 inches) long.[3]:196 It is one of the first European trees to flower in spring, often starting in mid-February before the leaves have opened. The flowers are white or pale pink and about 2 cm (0.8 inches) across, with five petals and many stamens. The fruit is an edible drupe, 2–3 cm in diameter, ripening to yellow or red from early July to mid-September. They are self-fertile but can also be pollinated by other Prunus varieties such as the Victoria plum. The plant propagates by seed or by suckering, and is often used as the rootstock for other Prunus species and cultivars.	

Basic Information	Description&Particularity	Photo
Common Name Blackthorn **Scientific Name** Prunus spinosa **Use** Edible **Season** Bloom in early spring White	Prunus spinosa is a large deciduous shrub or small tree growing to 5 metres (16 ft) tall, with blackish bark and dense, stiff, spiny branches. The leaves are oval, 2–4.5 centimetres (0.79–1.77 in) long and 1.2–2 centimetres (0.47–0.79 in) broad, with a serrated margin. The flowers are about 1.5 centimetres (1 / 2 in) in diameter, with five creamy-white petals; they are produced shortly before the leaves in early spring, and are hermaphroditic and insect-pollinated. The fruit, called a "sloe", is a drupe 10–12 millimetres (3 / 8–1 / 2 in) in diameter, black with a purple-blue waxy bloom, ripening in autumn and harvested – traditionally, at least in the UK – in October or November after the first frosts. Sloes are thin-fleshed, with a very strongly astringent flavour when fresh. Blackthorn usually grows as a bush but can grow to become a tree to a height of 6 m. Its branches usually grow forming a tangle.	
Basic Information	**Description&Particularity**	**Photo**
Common Name Black elder **Scientific Name** Sambucus nigra **Use** Edible **Season** Bloom in spring White flowers	Elderberry is a deciduous shrub or small tree growing to 6 m (20 ft) tall and wide, rarely reaching 10 m (33 ft) tall). The bark, light grey when young, changes to a coarse grey outer bark with lengthwise furrowing, lenticels prominent. The leaves are arranged in opposite pairs, 10–30 cm long, pinnate with five to seven (rarely nine) leaflets, the leaflets 5–12 cm long and 3–5 cm broad, with a serrated margin. The young stems are hollow. The hermaphroditic flowers have five stamens, which are borne in large, flat corymbs 10–25 cm diameter in late spring to mid-summer, the individual flowers are ivory white, 5–6 mm diameter, with five petals; they are pollinated by flies. The fruit is a glossy, dark purple to black berry 3–5 mm diameter, produced in drooping clusters in late autumn; they are an important food for many fruit-eating birds, notably blackcaps. In subtropical areas of North America, fruit may be borne in July as well	

Appendix C: City of Moscow Survey Results for Harvest Park

Q1 Where do you reside? Please select one:

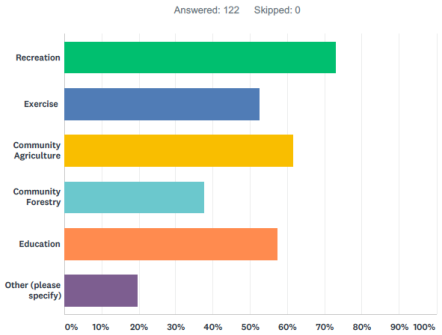
Answered: 122 Skipped: 0



ANSWER CHOICES	RESPONSES	
Northwest Moscow	12.30%	15
Northeast Moscow	34.43%	42
Southwest Moscow	13.93%	17
Southeast Moscow	22.95%	28
Outside Moscow city limits	16.39%	20
TOTAL		122

Q2 How do you and your family foresee using this park? Check all that apply:

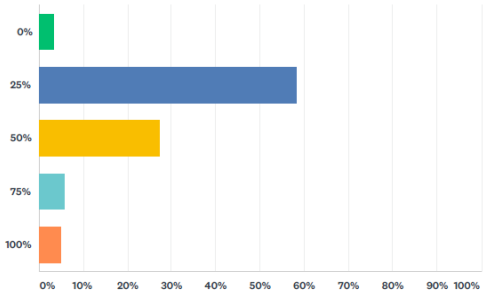
Answered: 122 Skipped: 0



ANSWER CHOICES	RESPONSES	
Recreation	72.95%	89
Exercise	52.46%	64
Community Agriculture	61.48%	75
Community Forestry	37.70%	46
Education	57.38%	70
Other (please specify)	19.67%	24
Total Respondents: 122		

Q3 What percentage of the park do you envision as open space? Select one:

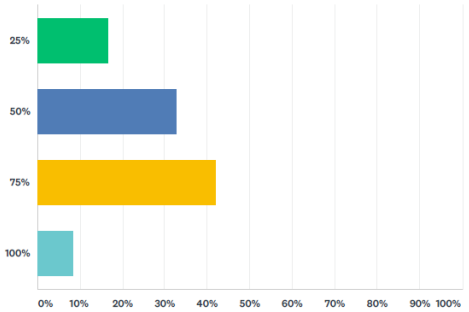
Answered: 120 Skipped: 2



ANSWER CHOICES	RESPONSES	
0%	3.33%	4
25%	58.33%	70
50%	27.50%	33
75%	5.83%	7
100%	5.00%	6
TOTAL		120

Q4 What percentage of the park do you envision as food production-oriented? Select one:

Answered: 119 Skipped: 3



ANSWER CHOICES	RESPONSES	
25%	16.81%	20
50%	32.77%	39
75%	42.02%	50
100%	8.40%	10
TOTAL		119

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82. Yellowbell: https://plants.usda.gov/java/largeImage?imageID=frpu2_003_avp.tif