

- 1. Productive Landscape Mosaic**
- 2. Islands and Corridors**
- 3. Patterns That Arise**
- 4. Habitat Diversity**
- 5. Site Repair**
- 6. Outdoor Living Rooms**
- 7. Zones and Sectors**
- 8. Zones of Water Use**
- 9. Dynamic Patches**
- 10. Mandalas**
- 11. Temporary Shrublands**
- 12. Minithickets**
- 13. Oldfield Mosaics**
- 14. Woodland Gardens**
- 15. Mature-Forest Forest Gardens**
- 16. Gaps and Clearings**
- 17. Forest Gardens in the Woods**
- 18. Shifting-Mosaic Forest Gardens**
- 19. Copses**
- 20. Forest Edges**
- 21. Microforest Gardens**
- 22. Suburban Landscape Mimic**
- 23. Pits and Mounds**
- 24. Definite Pathways**
- 25. Strategic Materials Depot**
- 26. Paths and Nodes**
- 27. Rootlike Path Geometry**
- 28. Keyhole Beds**
- 29. Pathway Width**
- 30. Patch Disturbance and Regeneration**
- 31. Instant Succession**
- 32. Nuclei That Merge**
- 33. Relay Plantings**
- 34. Disturbance and Maintenance Regimes**
- 35. Diversity of Life Forms**
- 36. Extraordinary Edibles Everywhere**
- 37. Gourmet Decomposers**
- 38. Three-Layer Minimum**
- 39. Lumpy Texture**
- 40. Layers of Harvest**
- 41. Staggered Harvests, Clustered Harvests**
- 42. Nectaries Always Flowering**
- 43. Native Species**
- 44. Polyculture Patches**
- 45. Pockets of Production**
- 46. Flower Petal Beds**
- 47. Cluster Planting**
- 48. Cross-Pollination Cluster**
- 49. Ground-Cover Carpets**
- 50. Drifts, Clumps, and Scatters**
- 51. Functional Plants Throughout**
- 52. Expansive Plant Containers**
- 53. Living Soil**
- 54. Habitat Elements**
- 55. Fruitful Footpaths**
- 56. Mulch**
- 57. Dead Wood**

1. Productive Landscape Mosaic

When sterile, unproductive and monocultural landscapes dominate the built environment, local ecosystems and culture suffer.

Therefore, generate mosaics of productive and beautiful habitat throughout and around cities, towns and suburbs by creating a full range of healthy and useful ecosystems on public and private lands.

2. Islands and Corridors

When forest gardens exist as isolated “biological islands”, especially small ones, they have difficulty maintaining plant, insect, and animal diversity as well as ecosystem health and stability.

Therefore, whenever possible, link your forest garden to other biologically rich habitats by locating your garden near them or by providing corridors that connect to them.

3. Patterns That Arise

Every site expresses unique patterns of soils, microclimates, habitats, and other qualities and forces that we need to understand and work with in a conscious way.

This pattern is a specific process of design, not a particular configuration of physical elements. Design your forest garden in the context of clear self-understanding concerning what you seek to create and design in concert with the landscape patterns that rise to consciousness through holistic understanding of that landscape.

4. Habitat Diversity

Monotonous habitats offer limited opportunities for diverse self-sustaining species assemblies.

Therefore, create diverse habitats in a den around you forest garden by selecting a site with varied topography, wetness, soil types, microclimates, and vegetation structure, or by modifying the site to create such variation.

5. Site Repair

People often build or garden in the most beautiful spot on the land, leaving the rest of the site to its own devices.

Therefore, leave the most beautiful healthy, precious, and comfortable places on your site alone. Build a garden in those places that need the most repair and attention.

6. Outdoor Living Rooms

Those forest gardens that function best are lived in most.

Therefore, design your forest garden so that it looks, acts and feels like an outdoor living room.

7. Zones and Sectors

Plants or animals that require frequent care or yield frequently often don't get the attention they need because they are "out of site, out of mind", far from the eyes and hands of those responsible for them. In addition, we need to deal appropriately with forces and factors that radiate into or out from the site.

Therefore, organize your site and locate your forest garden based on the patterns of circulation, land use intensity, frequency of use and "radial" energies of the land. Use the permaculture "Zones of Use" concept to create a master-pattern for layout of the landscape.

8. Zones of Water Use

Water is frequently the most limiting nutrient in horticulture, and it can be rather expensive.

Therefore, pattern your gardens, plants, and management based on the availability of water.

9. Dynamic Patches

What pattern can give the forest garden some structure and organization, especially if we are not going to use a formal geometry?

Therefore, structure and manage the garden as a set of overlapping, interconnected, and dynamic patches, each with its own influences, conditions, disturbance regime, and successional process. These patches, taken together, create the habitat of the garden.

10. Mandalas

Most geometries used by humans in western culture bear little relation to natural forces and forms, often waste space and express little meaning to most observers. Yet in some settings, wild or patchy gardens may not be socially sustainable or appropriate.

Therefore, create mandalic patterns that express beauty, function, and meaning in small geometric spaces.

11. Temporary Shrublands

Shrublands can be very productive habitats, yet they are unstable unless maintained by frequent disturbances.

Therefore, design shrublands as a temporary stage of succession, and control the direction of that succession by planting the succeeding trees, either with the shrubs or later on.

12. Minithickets

If shrubs grow to completely dominate the canopy they can prevent trees from invading, thereby stopping succession indefinitely. However, we then cannot get access to harvest crops.

Therefore, plant dense masses of shrubs that will crowd out trees and prevent succession, but plant them in star- or flower-shaped clusters that allow reasonable access.

13. Oldfield Mosaics

Early- to mid-succession mosaics of trees, shrubs, and herbs consist of one of the most productive and beautiful habitats to mimic, but a multitude of forces can make this stage of succession difficult for woody plants.

Therefore, plant woody plants into grassy, bacteria-dominated soils in clumps, rather than as isolated individuals, to create a mosaic of annual and perennial herb patches with clumps or masses of shrubs and pioneer trees.

14. Woodland Gardens

Woodlands offer the opportunity for the most varied, interesting, complex, and productive mosaics of trees, shrubs, and herbs.

Therefore, create a woodland garden by designing for overall tree canopy coverage of between 40 and 99 percent.

15. Mature-Forest Forest Gardens

Mature forest, by its definition, creates a dense canopy with shaded layers below it. How can we make best use of such an architecture? What implications does this structure have for forest gardening, particularly at a small scale?

Create a mature-forest forest garden by designing for 100 percent tree-canopy coverage using very productive and useful tree species (fruits and nuts) of different ages.

16. Gaps and Clearings

How can we use created or existing gaps and clearings for forest gardening?

In existing gaps or clearings, adapt your planting schemes to the conditions within the opening, especially light conditions. Create gaps or clearings of desired sizes and shaped in forests or gardens to create habitats for specific useful species.

17. Forest Gardens in the Woods

How can we forest-garden in existing woods without major disturbance to a forest?

Assess the structure of the existing woods to see what community niches may be missing, then fill in with useful plants, preferably native species.

18. Shifting-Mosaic Forest Gardens

How can we integrate all stages of succession into one forest garden such that we allow the process of succession to proceed, yet still gain the benefits of mimicking the true nature of forest ecosystems?

Create a shifting mosaic of productive habitat patches at all successional stages that continually grow to maturity and then cycle back to the beginning of secondary succession.

19. Copses

How can we achieve high sustained yields off fuel, structural material, biomass, and animals, vegetables, and medicinals in a wooded ecosystem?

Grow densely packed, coppicing shrubs or trees that produce biomass and small-diameter wood on long rotations with a useful herbaceous understory beneath.

20. Forest Edges

Most forest edges in cultural landscapes are a sudden shift from woods to fields, with no transitional space to speak of. This limits the potential for beauty and productivity at this useful edge environment.

Therefore, develop a diverse and productive forest-edge community using a mixture of useful trees, shrubs, and herbs.

21. Microforest Gardens

How can we forest garden if we have only the tiniest of spaces in which to do it?

Use the principles of forest gardening in a small planting of trees, shrubs, and herbs that fits into a tight space.

22. Suburban Landscape Mimic

The architecture of typical suburban yards and gardens seems antithetical to the architecture of forest gardens. Or is it? How can we apply the principles of forest gardening to areas where social, legal, and aesthetic codes dominate our landscape design choices?

Pattern the landscape to take forms that look like typical suburban landscape elements, but apply the principles of forest gardening to them to shift or add to their ecological functions.

23. Pits and Mounds

Essentially flat sites, or those with unvarying soils, have few opportunities for habitat diversity, which is the foundation of other kinds of diversity. On extremely wet or dry sites, variation of topography can mean the difference between success and failure with many crops.

Therefore, create pit-and-mound topography to diversify habitats in the herbaceous layer, improve tree and shrub survival and growth, and increase the surface area available for planting.

24. Definite Pathways

Soil compaction is one of the major banes of healthy, living, productive soil.

Therefore, create definite pathways and growing areas, clearly demarcated, that tell human visitors where and where not to walk.

25. Strategic Materials Depot

Moving around large quantities of mulch is one of the more difficult tasks in forest garden establishment and management. Clearly, the location of the mulch piles is a key ingredient in determining how much work and time this will take.

Therefore, early in your design process, decide upon the location of the strategic materials depot where you will gather, store, and dispense your bulk organic materials.

26. Paths and Nodes

At the most practical level, the paths in a garden must conveniently connect related points of activity. They should also provide easy access to and from growing beds for people, carts, tools, and materials such as mulch and produce. We should use these two basic, practical functions of garden paths to define the framework of a garden path system in a way that makes working the garden a joy, not a difficulty.

Therefore, consciously design the pattern of nodes and paths in the your garden for practical and aesthetic reasons.

27. Rootlike Path Geometry

Pathways are like plant roots. Different path geometries work best in different situations, just as different plant root patterns work better in different environments. What factors tell us which path geometries work best in what situations?

Mimic appropriate plant root patterns in your forest garden path layout.

28. Keyhole Beds

Assuming we have **Definite Pathways (#24)** in our garden, how do we maximize access to growing beds with minimal infrastructure in the smallest space? What natural patterns solve similar problems?

Lay out your garden beds as keyholes, and zone the plantings in the beds based on frequency of access or use.

29. Pathway Width

Poorly sized pathways impede enjoyable and safe working and playing conditions in the forest garden. We need to balance this concern with a desire to maximize growing space.

Therefore, define pathway width by the intensity of use the path will receive and the kinds of tools or equipment that will need to move through.

30. Patch Disturbance and Regeneration

What is the best way to redirect succession or change the structure or composition of a vegetated area with minimal soil nutrient losses due to disturbance?

Establish consciously defined patches, and direct the following succession within them, using designed disturbances and immediate regeneration or establishment of desired vegetation.

31. Instant Succession

Natural successions may take decades to develop to anything like a climax or steady state, and the route the system takes to get there varies depending on many factors. How can we guide successional change to arrive where we want sooner, through a more defined or designed pathway, and with the least work in management?

Beginning with the end in mind, design a disturbance or series of disturbances to change the existing flora, and then densely plant patches or whole areas at one time with plants from every stage of your proposed or intended succession.

32. Nuclei That Merge

How can we establish forest gardens when we don't have money, time, or energy for extensive broadscale plantings over large areas?

Plant perennial polyculture nuclei that expand and reproduce until they fill the available space.

33. Relay Plantings

All plants have their environmental preferences. Some desired species will not grow or will not grow well in certain environments until successional modifications or improvements take place.

Therefore, if your site approximates primary succession conditions and needs major environmental modification, plan your succession as a series of steps with specific soil and environmental modification goals that, once achieved, will allow more useful or desirable plants to grow there.

34. Disturbance and Maintenance Regimes

The patterns of human and natural disturbance over time determine, to a large extent, the character and composition of plant communities within a patch or habitat, and their successional trajectory.

Therefore, in a general way, sketch out the disturbance regimes for each garden patch, and the garden as a whole, as you design it.

35. Diversity of Life Forms

What kinds of beings, living together, form the foundations of community health & stability? Species diversity is good, but it's just the beginning.

Therefore, create habitats for every kind of good organism you can think of in your forest garden, and bring them there if they aren't there already. Also, plant diverse varieties of any crops you grow to better protect yourself from diseases and pest calamities.

36. Extraordinary Edibles Everywhere

Healthy, delicious, and enjoyable food is a primary, primal, and practical motivation for creating and maintaining a forest garden. To maximize our benefit from the effort, food production should be able to occur in every niche of the forest garden. However, our developed crops and tastes can't yet fill every niche.

Therefore, focus your forest gardening on foods you enjoy, and find and grow a range of new and different food crops in all areas and niches of your forest garden.

37. Gourmet Decomposers

The vast majority of net primary plant production in forests passes through decomposers. How can we tap into this energy flow to feed ourselves?

Integrate food fungus production into your forest garden using logs, stumps, wood chips, straw mulch, manure piles, and enriched soils.

38. Three-Layer Minimum

How many layers does it take to make a forest garden, or to make it ecologically healthy and stable?

Design your forest garden with at least three layers of vegetation.

39. Lumpy Texture

Many forest gardens we have seen have a smooth, thick texture because the gardeners have tried to use all the layers, all the time. This creates numerous problems in the forest garden and does not truly mimic the structure of natural forests.

Therefore, design planting density and layering patterns to create lumpy texture.

40. Layers of Harvest

It can get very challenging to harvest various products (berries, leaves, nuts, flowers) from plants in a dense polyculture when all the plants are the same height.

Therefore, segregate your harvestable products by layer, or by height within a layer, when growing plants in dense polycultures.

41. Staggered Harvests, Clustered Harvests

Sometimes during harvest time we can get totally overwhelmed by the quantity of food we have to pick, eat, process, and store. Then again, work can be inefficient when we have to go out and pick a crop many times over days or weeks of ripening, rather than being able to harvest all at once.

Therefore, plan the timing and quantity of your harvests to even out supply or improve work efficiency.

42. Nectaries Always Flowering

Beneficial predatory insects and pollinators require year-long energy sources if they are to stick around and do their job.

Therefore, select a suite of nectary plants such that several species are flowering at all times during the growing season.

43. Native Species

We feel concerned about the loss of native species and the explosion of opportunist exotics, but many of our most desired and useful plants are not native. What should we do?

Look to native plants to perform your desired garden functions first, before looking to not-natives.

44. Polyculture Patches

Patches of various sizes are the fundamental architectural units of forests and other ecosystems, yet many forest gardens we have seen so far consist of random, evenly mixed polycultures throughout the whole forest garden without consciously designed patches within them. This pattern, or lack of pattern, result in overly complex arrangements that seem hard to understand, manage, and benefit from.

Therefore, plan and plant most of your forest garden patches as polycultures containing between 2 and 7 plant species.

45. Pockets of Production

Polycultures can offer numerous benefits to agriculture, yet they represent a new strategy for most gardeners and for virtually all common crops. How can we be sure to get decent production if we want the benefits but we don't want to play with polycultures for a certain crop?

Plant pockets of monoculture crop production in the midst of diverse plantings to produce crops in quantity yet maintain a diverse habitat mosaic within the garden.

46. Flower Petal Beds

Many of a tree's inherent needs and preferences conflict with what makes out management tasks easier.

Therefore, design the planting beds under and around each tree in the form of flower petals with a ring path around the tree's crown and radial pathways into and away from the center of the tree.

47. Cluster Planting

Plants generally prefer to grow in association with other compatible plants and their microbial friends. When we plant our green allies into hostile or stressful environments as scattered, isolated individuals, they suffer. They are also harder to care for easily and effectively.

Therefore, when planting into an environment different from that which a plant prefers, plant in clusters.

48. Cross-Pollination Cluster

Many fruit and nut trees cannot pollinate themselves and need one or more different varieties of the same species nearby to produce. Yet we want to mix up our crops so they don't grow in blocks that offer pests and diseases concentrated habitat in which to thrive.

Therefore, create a polyculture consisting of interwoven, over-lapping clusters of cross-pollinating plants.

49. Ground-Cover Carpets

How can we manage weeds when we don't continually disturb the soil to prevent their germination and spread? Can we do so in a way that gains us other benefits as well as reducing our workload?

Plant dense carpets of ground-cover plants that fill the available niches for unwanted plants in the forest garden, suppressing weed germination and growth, attracting beneficial insects, improving the soil, producing food, or increasing populations of native plant species.

50. Drifts, Clumps, and Scatters

Regular or geometric patterns aren't the only patterns in which we can place plants in the garden. What natural patterns of plant distribution can we mimic in our forest garden polycultures?

Distribute plants, and allow them to distribute themselves, in patterns true to their means of dispersal for maximum effectiveness and beauty.

51. Functional Plants Throughout

Every place in the forest garden needs the functions of fertility plants and beneficial-insect attractors.

Therefore, scatter mulch plants, nitrogen fixers, insectary plants, and dynamic accumulators throughout the forest garden, not just in a few pockets here and there.

52. Expansive Plant Containers

Some extremely useful plants, such as some bamboos, spread vigorously by underground rhizomes or suckers and outcompete other desirable plants. How can we contain them? To hold back an unwanted rhizomatous species, sometimes we don't need a strong container, just a significant barrier. What kind of barrier might we use?

Prevent the spread of expansive plants by surrounding them with inhospitable habitat, with physical barriers, or with barriers made of other plants.

53. Living Soil

Living Soil is the fundamental resource of the forest garden. Natural forests build living soils over many decades of successional development. How can we build and maintain living soils without waiting decades?

Build living soil quickly and for the long term by working with the inherent tendencies of three key elements: soil structure, soil organisms, and plants.

54. Habitat Elements

If our gardens don't meet the habitat requirements of beneficial wildlife, then the beneficials won't come to dwell in them. If our gardens are not home for these beneficials, then we will have to do their work, or the system will suffer.

Therefore, provide all the food, shelter, water, and other elements that beneficial wildlife need to dwell in your forest garden.

55. Fruitful Footpaths

The footpaths in the garden don't have to be barren of useful plants or devoted to only one purpose or function.

Therefore, design at least some paths to function for food production, beneficial-insect attraction, or soil-improvement, not just as access ways.

56. Mulch

"Bare soil is damaged soil." Dead organic matter on the soil surface performs a wide range of important ecosystem functions that no other single garden element can perform.

Mulch, mulch, mulch!

57. Dead Wood

Standing or lying dead wood adds structural diversity to the ecosystem, provides critical habitat for decomposers, insects, and animals, becomes a biological island of healthy soil organisms, and helps store water in your forest garden.

Therefore, leave standing dead trees, fallen logs, branches, and brush piles scattered throughout the forest garden.