

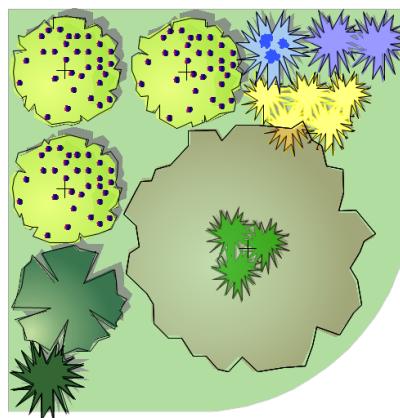
Emulating the patterns of healthy habitats is the key to successfully creating an ecologically balanced, resilient landscape. The outcome is patches of diverse, interrelated plants that are able to maintain themselves without our constant oversight and intervention.

Design Approach

We want to create patches of thriving plants that readily yield food, medicine, beauty, habitat, and fun! Follow these general design principles to achieve these goals.

Minimize Competition

Minimize light, water, and nutrient competition by spacing trees and shrubs so their crowns do not touch at maturity. A patch should have much less than 100% canopy cover so that sunlight reaches lower vegetation layers and maintains the health and productivity of plants near the ground.



Cover the Ground

Establish thick ground covers composed of lush, diverse plants to ensure no one disease or weed can get a foothold. Fill weed niches by planting at least one clumping and one running variety. (See [Ground Cover Tips](#) later in this document.)

Include Support Species

Include plants that perform one or more of the following support functions so that we do not need to perform this work:

- Fix nitrogen to feed other plants (clover, New Jersey tea, huang-qi)
- Dynamically accumulate nutrients (comfrey, yarrow, dandelion)
- Provide nectar and pollen to attract helpful birds and insects (bee balm, anise hyssop)
- Suppress weeds with low-growing ground covers (thyme, oregano, violet, strawberry)

Consider Harvesting Issues

To ease harvesting, place edibles with similar harvesting periods in close proximity. Species with frequent harvests should be placed near frequently visited areas. Provide pathways into beds and allow adequate space around the plants to ease harvesting.

Aesthetics

As a general rule, place shorter plants near the front of the patch and taller plants near the back—in this configuration, the front of the patch would ideally face south to capture as much sunlight as possible. Use a taller plant as a focus element. Group plants in odd numbers to avoid the subconscious tendency to divide even elements into smaller groups.

Establishment Steps

1. Outline beds with flags, hose, or string and cut existing vegetation as close to the soil as possible.
2. Mark locations of all plants using stakes or flags.
3. Plant trees and shrubs: see publication [Hand-Planting Guidelines for Bareroot Trees and Shubs](#). Set plants 1-2 inches higher than normal to allow for mulch.
4. Sheet mulch the entire area: see publication [Create a New Garden Bed](#).
5. Plant herbs by moving back mulch and carefully cutting an "X" into the cardboard or newspaper with a utility knife. Dig into the soil, set the plant, and cover lightly with mulch.
6. For 3-4 months, test soil moisture and water heavily when dry. Water the soil, not plant foliage.
7. Weed and carefully tend the bed as you would a vegetable garden for the first year. As ground covers get established, maintenance should decrease each year.

Complete Edible Landscape Designs

Looking for more ideas? Online access to complete edible landscape designs is available to Backyard Abundance members.

See a sample design and learn more about membership on the [Backyard Abundance website](#).

Polycultures and Garden Guilds

Polycultures are plants of different species grown in the same patch. When these local communities of plants share resources and form mutually-beneficial relationships, they are called garden "guilds." Well-designed garden guilds yield more when planted together than they do when apart.

Guild Benefits

- Increases resilience and lowers maintenance by allowing plants to care for one another.
- Vertical layers increase yields in a smaller area.
- Provides better habitat for birds and insects.

Permaculture

Permaculture (**permanent agriculture**) is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of landscape and people, providing food, energy, shelter, and other material and non-material needs in a sustainable and ethical way.

Ethics of Permaculture

Care of Earth

Includes all living and non-living things: plants, animals, land, water and air.

Care of People

Promotes self-reliance and community responsibility; access to resources is necessary for existence.

Share the Surplus

Contribution of surplus time, labor, money, information, and energy to achieve the aims of earth and people care.

Adapted From

Edible Forest Gardens, Vol. II

By Dave Jacke

Residential Landscape Architecture

By Norman Booth and James Hiss

Beautiful Medicinal

Create a beautiful medicine chest of plants while building soil and supporting pollinator and bird habitat. The one-foot tall self-heal ground cover suppresses weeds while allowing taller desired medicinal plants to poke up through it.

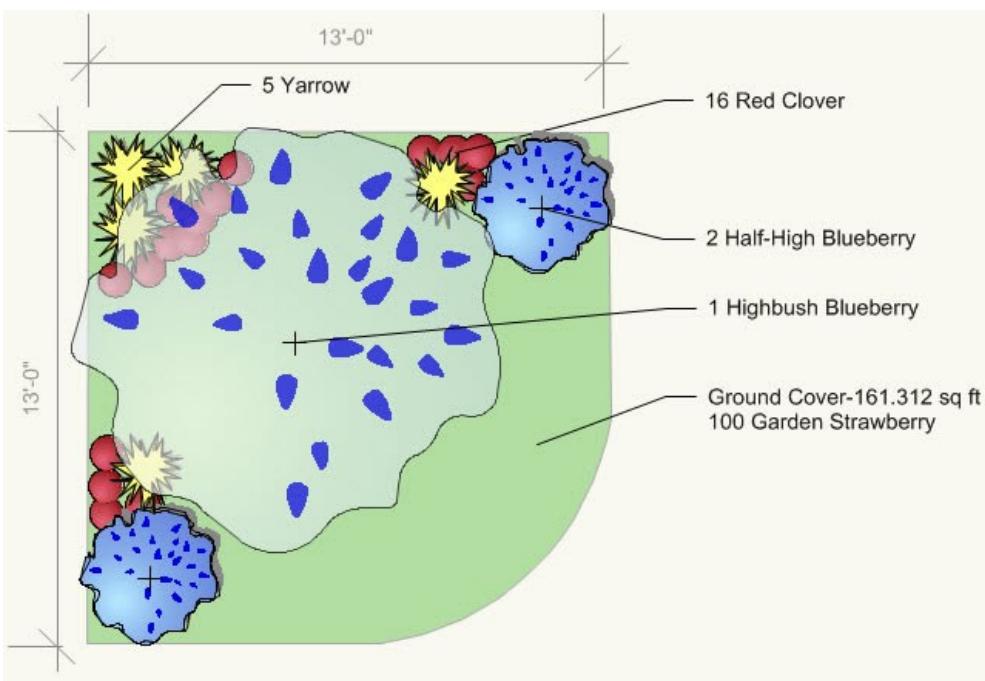


- 1 Angelica
- 1 Anise Hyssop
- 1 Bee Balm
- 1 Broadleaf Sage
- 7 Clover, White - Dutch White
- 1 Comfrey - Russian Bocking 14
- 1 Fennel, Non-bulbing
- 1 Huang-qí
- 1 Purple Coneflower
- 1 Saint Johns Wort
- 4 Self-Heal
- 1 Wood Betony
- 1 Yarrow, White

Berry Blueberry

Place this bed in a sunny corner of your yard and enjoy an abundance of blueberries and strawberries each year. The strawberry ground cover will conserve moisture for the blueberries and suppress weeds. The blueberries are fed nitrogen by the red clover and nutrients by the yarrow.

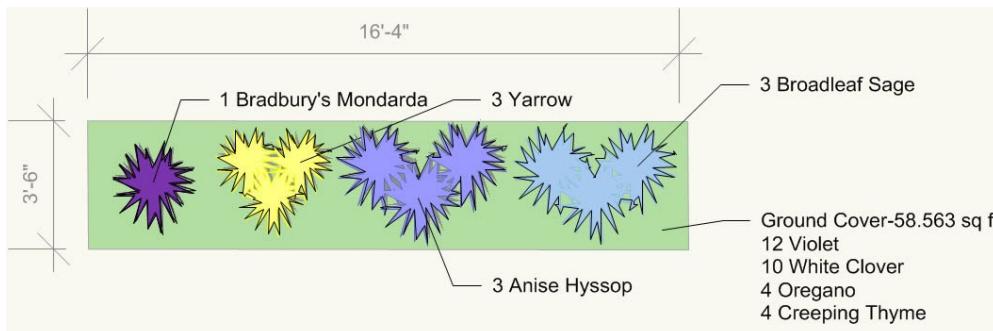
Blueberries require very acidic, well-drained soil so be sure to thoroughly blend 5-10 cubic yards of wet peat moss into the bed before planting.



- 1 Blueberry, Half-High - Northblue
- 1 Blueberry, Half-High - Northcountry
- 1 Blueberry, Highbush - Bluerock
- 16 Clover, Red
- 100 Strawberry, Ever-Bearing
- 5 Yarrow, White

Carefree Herbs

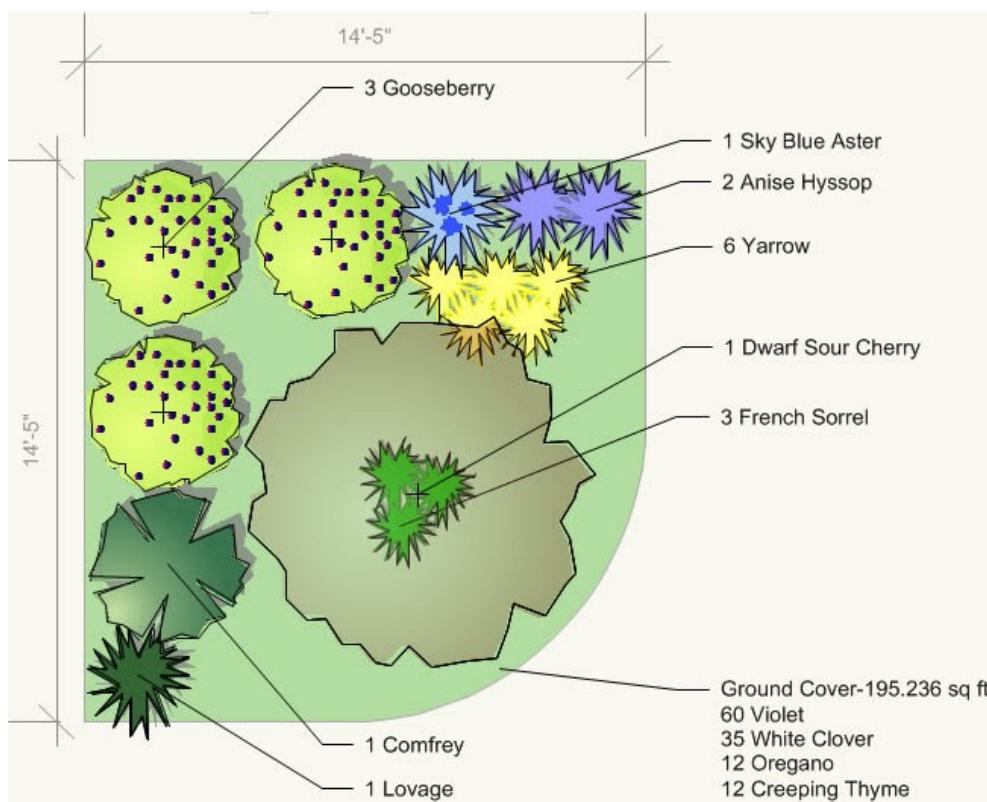
Once established, this bed of tough culinary herbs will be drought-tolerant and maintenance-free. Taller herbs will poke through a weed-suppressing, edible ground cover of thyme, oregano, and beautiful violets. Clover provides nitrogen to all plants and the yarrow will cycle nutrients in the soil. These plants will grow well under the south or west roof overhang of a building.



- 3 Anise Hyssop
- 1 Bee Balm - Bradbury's
- 3 Broadleaf Sage
- 10 Clover, White - Dutch White
- 4 Creeping Thyme
- 4 Oregano - Greek
- 12 Violet - Johnny Jump-Up
- 3 Yarrow, White

Gooseberry Cherry

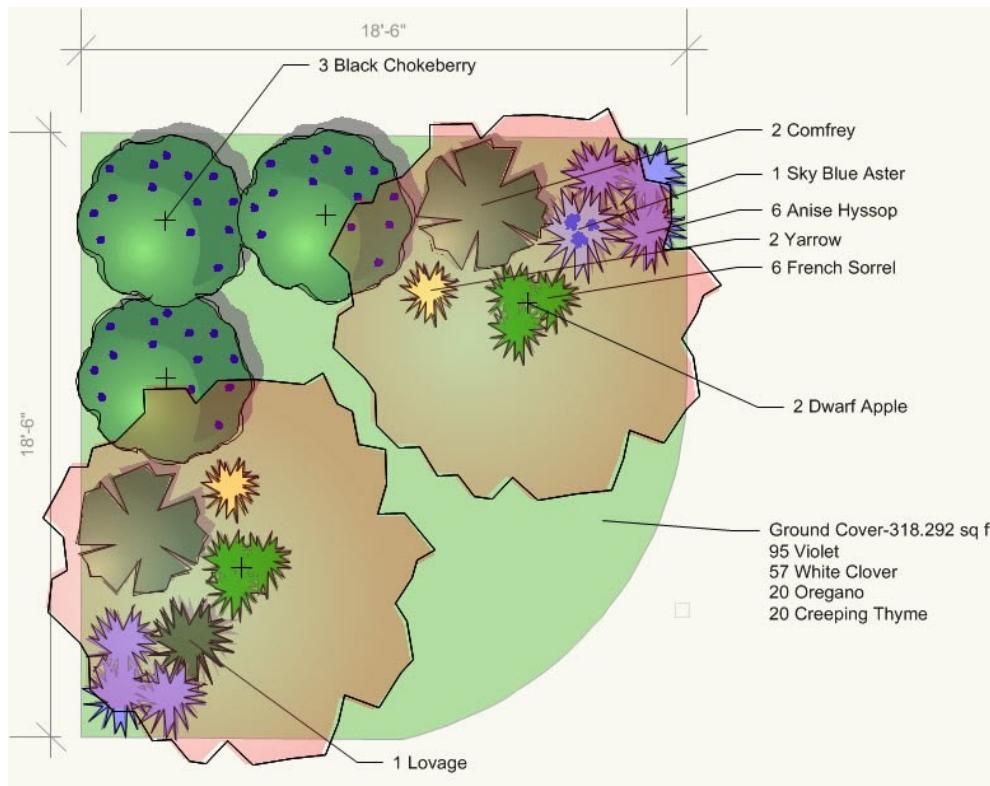
Enjoy pounds of delicious gooseberries and cherries from this low-maintenance bed. Beautiful flowers will bloom all season to support beneficial insects and keep the bed buzzing with life. A weed-suppressing, edible ground cover of thyme, oregano, and beautiful violets will conserve water and support soil life. Clover provides nitrogen to all plants and the yarrow, comfrey, and sorrel cycle nutrients in the soil.



- 1 Cherry Tree, Sour - North Star
- 35 Clover, White - Dutch White
- 1 Comfrey - Russian Bocking 14
- 12 Creeping Thyme
- 3 French Sorrel
- 2 Gooseberry Shrub - Hinnomaki Red
- 1 Gooseberry Shrub - Invicta
- 1 Lovage
- 12 Oregano - Greek
- 1 Sky Blue Aster
- 60 Violet - Johnny Jump-Up
- 6 Yarrow, White

Herbal Apple

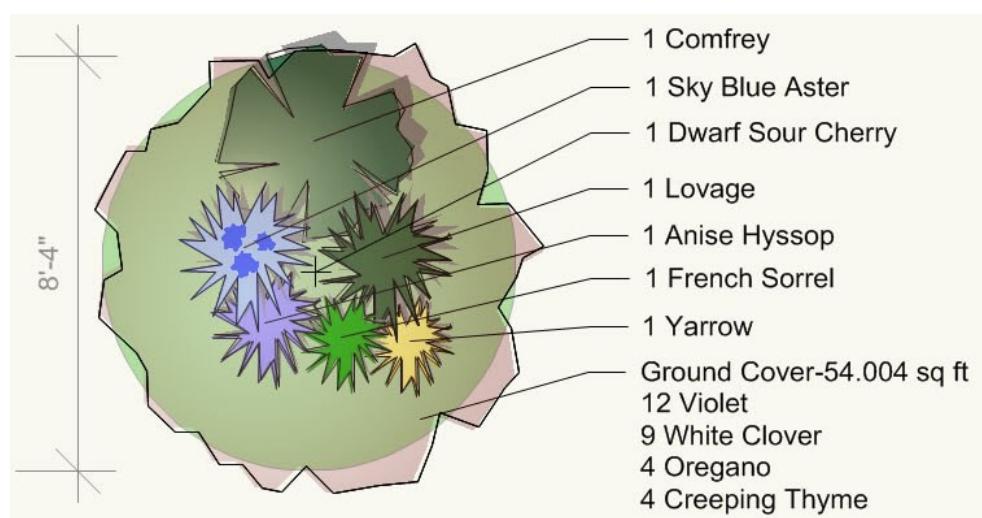
Place this bed of apples, chokeberries, herbs, and flowers in a sunny location and enjoy high yields of food, birds, insects, and beauty all season. You will have plenty to preserve and share with friends. A weed-suppressing, edible ground cover of thyme, oregano, and beautiful violets will conserve water and support soil life. Clover provides nitrogen to all plants and the yarrow, comfrey, and sorrel cycle nutrients in the soil.



- 6 Anise Hyssop
- 1 Apple Tree - Wolf River
- 1 Apple Tree - Liberty
- 3 Black Chokeberry
- 57 Clover, White - Dutch White
- 2 Comfrey - Russian Bocking 14
- 20 Creeping Thyme
- 6 French Sorrel
- 1 Lovage
- 20 Oregano - Greek
- 1 Sky Blue Aster
- 95 Violet - Johnny Jump-Up
- 2 Yarrow, White

Herbal Cherry

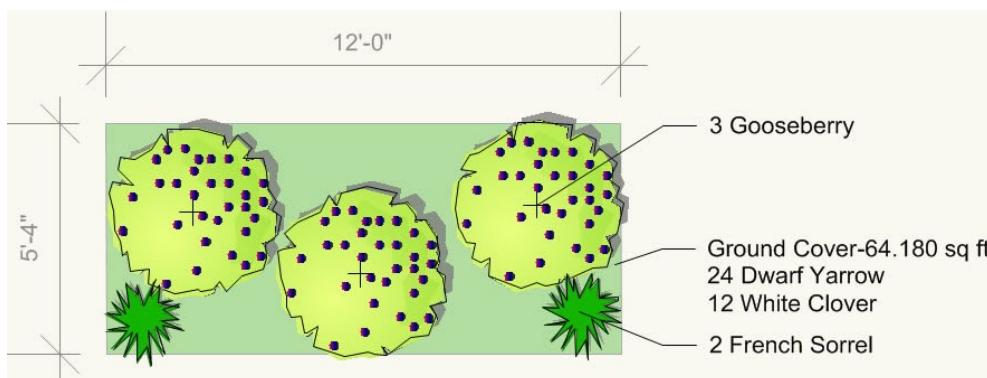
Tuck this bed in a sunny location and enjoy an abundance of cherries and herbs from a very small area. A weed-suppressing, edible ground cover of thyme, oregano, and beautiful violets will conserve water and support soil life. Clover provides nitrogen to all plants and the yarrow, comfrey, and sorrel cycle nutrients in the soil.



- 1 Anise Hyssop
- 1 Cherry Tree, Sour - North Star
- 9 Clover, White - Dutch White
- 1 Comfrey - Russian Bocking 14
- 4 Creeping Thyme
- 1 French Sorrel
- 1 Lovage
- 4 Oregano - Greek
- 1 Sky Blue Aster
- 12 Violet - Johnny Jump-Up
- 1 Yarrow, White

Sweet 'n Sour Gooseberry

High-yielding sweet gooseberries emerge from a sea of weed-suppressing dwarf yarrow plants in this small bed. The yarrow and sorrel cycle nutrients in the soil while the clover provides nitrogen to all plants.



12 Clover, White - Dutch White
 2 French Sorrel
 2 Gooseberry Shrub - Hinnomaki Red
 1 Gooseberry Shrub - Invicta
 24 Yarrow, Dwarf Yellow - Golden Fleece

Plant Species

These plants are used in the example polycultures.

	Plant	Genus / Species	Variety	Size	Nectary	Nitrogen Fixer	Nutrient Accumulator	Ground Cover	Medicinal
Berry Plants	Black Chokeberry	<i>Aronia melanocarpa</i>		5-6' tall and wide					x
	Blueberry, Half-High	<i>Vaccinium corymbosum</i>	Northblue	2' tall and wide					
	Blueberry, Half-High	<i>Vaccinium corymbosum</i>	Northcountry	2' tall and wide					
	Blueberry, Highbush	<i>Vaccinium corymbosum</i>	Blucrop	5' tall and wide					
	Gooseberry Shrub	<i>Ribes uva-crispa</i>	Hinnomaki Red	3-5' tall, 3-6' wide					
	Gooseberry Shrub	<i>Ribes uva-crispa</i>	Invicta	3-5' tall, 3-6' wide					
Flowers	Strawberry, Ever-Bearing	<i>Fragaria ananassa</i>	Ozark Beauty	1' tall				x	
	Clover, Red	<i>Trifolium pratense</i>		6-16" tall and wide	x	x			
	Clover, White	<i>Trifolium repens</i>	Dutch White	10" tall	x	x			x
	Sky Blue Aster	<i>Aster azureus</i>		3' tall and wide	x				
	Violet	<i>Viola tricolor</i>	Johnny Jump-Up	6" tall	x				x
	Yarrow, Dwarf Yellow	<i>Achillea tomentosa</i>	Golden Fleece	6-8" tall	x		x	x	
Fruit Trees	Yarrow, White	<i>Achillea millefolium</i>		1-2' tall and wide	x		x	x	x
	Apple Tree	<i>Malus x</i>	GoldRush	10' tall and wide					
	Apple Tree	<i>Malus x</i>	Liberty	10' tall and wide					
Herbs	Cherry Tree, Sour	<i>Prunus cerasus</i>	North Star	12-15' tall and wide					
	Angelica	<i>Angelica archangelica</i>		6-7' tall, 4' wide				x	
	Anise Hyssop	<i>Agastache foeniculum</i>		3' tall, 2' wide	x			x	
	Bee Balm	<i>Monarda fistulosa</i>		4' tall, 3' wide	x			x	
	Bee Balm	<i>Monarda bradburiana</i>	Bradbury's	2' tall and wide	x			x	
	Broadleaf Sage	<i>Salvia officinalis</i>		1-2' tall	x			x	
	Comfrey	<i>Symphytum x uplandicum</i>	Russian Bocking 14	4' tall and wide	x		x	x	
	Creeping Thyme	<i>Thymus vulgaris</i>		6-12" tall	x			x	
	Fennel, Non-bulbing	<i>Foeniculum vulgare</i>		2-3' tall and wide	x			x	
	French Sorrel	<i>Rumex acetosa</i>		1-3' tall, 1' wide			x	x	
	Huang-qi	<i>Astragalus membranaceus</i>		4' tall, 3' wide	x	x		x	
	Lovage	<i>Levisticum officinale</i>		4-6' tall, 3' wide	x			x	
	Oregano	<i>Origanum heracleoticum</i>	Greek	8-10" tall, 1-4' wide				x	
	Saint Johns Wort	<i>Hypericum perforatum</i>		1-2' tall, 18" wide				x	
	Self-Heal	<i>Prunella vulgaris</i>		8-12" tall	x			x	x
	Wood Betony	<i>Stachys officinalis</i>		18-24" tall	x			x	x

Ground Cover Tips

Ground covers cycle nutrients, reduce mulching, watering, and weeding chores, and provide habitat for beneficial insects and soil organisms.

Ground covers should be polycultures of 2-4 species:

- **Clumping species** grow to only a specific width and spread slowly. Clumpers should be taller than runners.
- **Running species** spread indefinitely, weaving among other plants filling in soil and sunlight gaps.

After 1-3 years, the clumpers will appear to be islands in a sea of runners. Because the ground is completely covered with plants, the need for mulching is eliminated and it is difficult for weeds to gain a foothold.

Preparation

Sheet mulch beds in summer or fall to enrich the soil and eliminate weeds. Plant ground covers in springtime to give them a competitive advantage over weeds. (Do not wait more than one year to plant ground covers as weeds will begin to gain a foothold as mulch deteriorates.)

Plant Counts and Distances

Plant clumpers slightly greater than their recommended planting distance; e.g., 1.2 to 2 times greater depending upon the vigor of the runner—clumpers can be planted at greater distances when interplanted with fast-growing runners.

Interplant runners between the clumpers.

Be sure to plant enough ground covers so that they will grow together by the time the mulch deteriorates. Generally, this means one plant in every square foot of space.

Plant in a staggered, diagonal pattern rather than linear, square pattern. A few more plants are required, but better coverage is achieved.

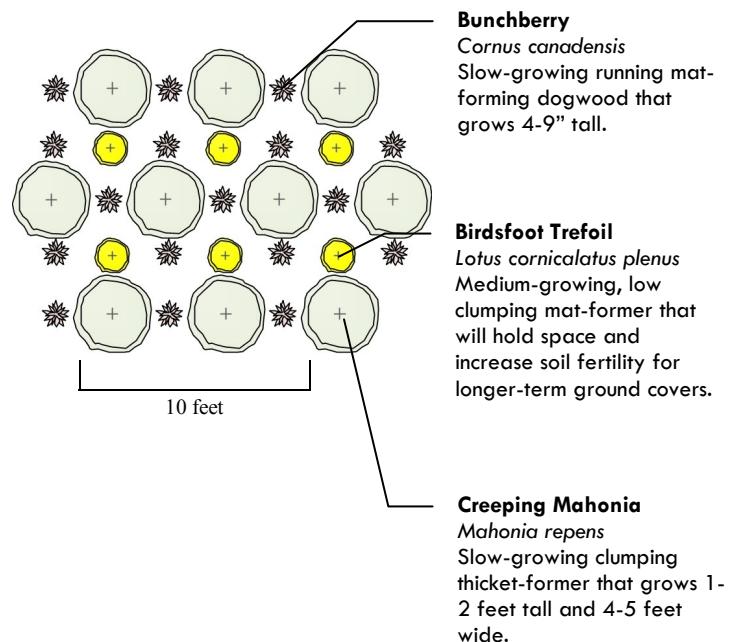
Planting

It is typically best to plant all ground covers at the same time. If the clumper is roughly the same height as the runner or the runner is very vigorous, consider planting the clumper a year before to ensure it is not overrun by the runner (this approach may require some weeding and mulching the first year).

Propagate to Save Money

Rather than planting an entire area at one time, consider allowing the plants to establish over 1-2 years in a small bed and then propagating them. Once plants are well-established, expand the bed by sheet mulching around it. In springtime, divide existing ground covers and propagate them to the new area. (See [Bed Expansion Tips](#) on the next page.)

Conifer Woodland Ground Cover Example



Bed Expansion Tips

Rather than sheet mulching and planting an entire area at one time, consider starting with a small area and then expanding it. This technique takes additional time, but the workload is distributed and it puts more labor onto nature's broad shoulders.

1. Sheet mulch an area in summer or fall.
2. In spring, plant desired trees, shrubs, herbs, and ground covers.
3. Within 2 months after planting, sheet mulch the area around the original bed.
4. As ground covers become established, they will spread into the mulched area either underground or on top of the mulch.
5. The next spring, plant additional desired species and propagate existing ground covers into the expanded area.
6. Repeat the expansion process until the desired area is completed.

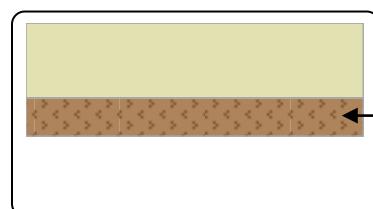
This technique can be applied in a couple ways:

- **Strips:** A long bed is sheet mulched and established. The bed can then be expanded on one or both sides. This application is useful for establishing a frequently-used area and then expanding outward.
- **Nuclei that Merge:** Small islands (nuclei) of polycultures are established in a large landscape. As the islands are expanded, they will eventually merge. This application is useful for establishing two or more desired trees that are a great distance apart or grow very slowly; for example, when the canopy of orchard trees will not fill in for many years.

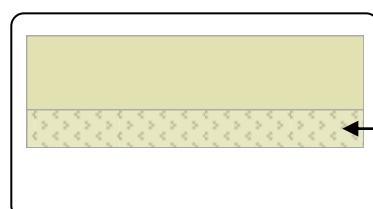
Strip Expansion



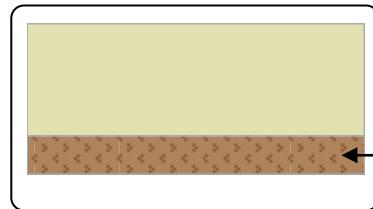
A patch is sheet mulched and planted.



An area adjacent to the planted patch is sheet mulched.



The new area is planted.



An area adjacent to the planted patch is sheet mulched.

Backyard Abundance is a nonprofit that helps build vibrant communities by creating beautiful, resilient landscapes that provide healthy food and habitat.

We envision the growth of ecologically resilient communities that meet everyone's basic needs of survival today and in the future. Yards and public areas grow healthy food and natural materials to nourish our bodies and support our local economy. The land supports healthy ecosystems by providing habitat, supporting healthy water quality, and emulating nature's resiliency. This community focus creates a healthy social fabric, ecological integrity, and a spirit of abundance for all.

How You Can Help

1. **Observe and learn.** Carefully observe what is happening in your landscape to better understand how you can work with nature to improve it.
2. **Improve the environmental health of a landscape.** Knowledgeable friends and online resources can provide ideas for projects of any size and skill level.
3. **Share what you have done.** Alternatives to conventional landscapes must be seen and experienced for the movement to take root. Use Facebook to learn from others and share your pictures and stories.

We Can Help You...

- Lower the maintenance, increase the beauty, and enhance the ecological health of your landscape.
- Connect and collaborate with others in your community.
- Find elegant solutions to environmental issues.

Yard Tours

We host free yard tours feature landscapes designed to benefit our environment. Local experts are available to describe the ecological benefits provided by each yard and explain how residents can implement similar features. Refreshments are provided at each event.

Design and Education

We provide onsite consultations and group-based workshops to help you create a beautiful landscape that saves you time, energy and money while improving the health of our environment. A wide variety of activities create a fun and engaging learning experience for gardeners of any experience level.



More Information

Visit our website to learn about upcoming events, find information, and see pictures of abundant landscapes.

www.BackyardAbundance.org

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