Symbiosis in EFGing

Symbiosis is an ecological relationship between organisms of different species living in direct contact; these interactions are the basis of EFGing, and connect garden layers and components together to ensure overall wellbeing. A few examples: In mycorrhizal relationships, soil-dwelling fungi grow into cells of roots and use the plant's sugars to bring in nutrients and water. Leguminous plants provide nitrogen surpluses for other plants through associations with soil bacteria that extract nitrogen from the air. Pollination and seed dispersion create links between flora and fauna and lead to co-evolution. Companion plants constantly exchange nutrients, fluids, water, and even hormones with neighbors. Mixed-age stands create more systematic stability, and the different composition of each plant contributes different nutrients to the soil upon decay.

Definition & Description

An Edible Forest Garden (EFG) is "**a perennial polyculture of multipurpose plants**" (Dave Jacke, *Edible Forest Gardens*). Gardens are consciously-designed, self-renewing, diverse ecosystems that follow a woodland-like pattern to provide food, medicine and other useful products. EFGing encompasses an entirely new way of thinking - an ecological worldview. EFGs provide a more resistant, sustainable, diverse, holistic, and energy-efficient form of food production than modern agriculture. A small-scale, locally-cropped system facilitates awareness about, interaction with, and love of whatever patch of earth you are lucky enough to be a part of. EFGing is the intersection of development and preservation, creating productive spaces based around forests to help ensure their survival.

Native plants & EFGs

There are many native Pacific Northwest species that have been identified as well-suited for EFGs, and still more that have yet to be recognized due to lack of modern experimentation. The largest barrier to widespread use of native plants is availability, as species are sold primarily for re-vegetation projects and are difficult to find commercially. Shade tolerance is a key characteristic for growing productively below a canopy, and this region features many such plants. Perennial vegetables and herbs are generally grown in the herbaceous story and rhizosphere, while the shrub and canopy layers provide nuts, berries, and other fruits. 90% of the world's food comes from just 20 species, and EFGing offers the potential to increase this number exponentially by providing diverse habitats that allow many different plants to flourish.

A Brief History

While a relatively "new" concept to modern Western Society, EFGing itself is ancient. "Food forests" that mimic a rainforest ecosystem have been used for thousands of years in tropical regions, and forest village systems remain widespread, notably in India, Thailand, and parts of Africa. In Java, densely populated rural areas remain beautiful and sustainable through careful cultivation. In Kerala, India there are over 3.5 million forest gardens, most of which are family-owned. In the Western world, practices like agroforestry and alley cropping are based around similar concepts of symbiosis. In the 1990s, Robert Hart and his book Forest Gardening sparked public interest in EFGing in temperate climates, and since that point the idea has slowly been taking hold in this region.

Local Resources

Terra Commons
http://www.oly-wa.us/Terra/
Non-profit, creates edible forest gardens

Native Plant Salvage
http://www.nativeplantsalvage.org/
Non-profit, salvages plants for use in restoration

Fungi Perfecti
http://www.fungi.com/
Fungi resource center and mushroom supplier

Washington Native Plant Society
http://www.wnps.org/index.html
Guides and forums on WA's native plants

D.E.A.P. Permaculture Garden
Student group, garden next to EG organic farm

Bibliography

Jacke, Dave and Eric Toensmeier. Edible Forest Gardens. White River Junction: Chelsea Green Publishing Company, 2005

Hart, Robert. Forest Gardening: Cultivating an Edible Landscape. White River Junction: Chelsea Green Publishing Company, 1991.

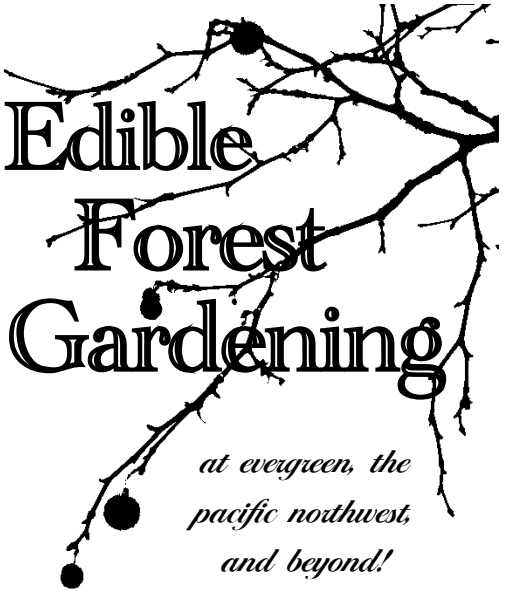
Pojar, Jim and Andy MacKinnon. Plants of the Pacific Northwest Coast. Vancouver: Lone Pine Publishing, 1994.

EFGing in this Region

Temperate forests are some of the most productive ecosystems, second only to tropical rainforests. Native peoples of North America traditionally practiced extensive agroforesty, typically using fire management to create habitat patches and encourage a diversity of useful species while still maintaining forest as the dominant habitat. Despite this strong historical and ecological foundation, most EFG literature is written for other regions. The biggest current limitation is lack of field trials. Starting in the '90s, the practice has gained more widespread attention. Terra Commons, a local non-profit, currently works with Olympia community members to them help establish edible forest gardens on public and private property.

Garden Structure

Forest gardens come in a gigantic range of forms, sizes, and ecological contexts, but the principals remain constant. A garden is "more than the sum of its parts" (Jacke). Organisms are mutually beneficial, and all are integral to the health of the self-sustaining system. Instead of separating the ecosystem by species, the yield of the whole system is taken into account. The 5 main components of any garden are: vegetation layers, soil horizons, vegetation density, patterning, and diversity. Species niches are commonly divided into 4-7 vertical layers, but these layers overlap without specific distinctions, and are not necessarily present in all gardens. These layers encompass a diversity of species and vary in density accordingly. The structure of a garden both affects and is affected by the larger governing ecological patterns and soil.



Ethnobotany

Bioregions are areas with a clearly recognizable identity in terms of geological structure, soil, climate, history, culture, and energy. The patterns found in the way things grow and interact reflect a bioregion's character, and this context helps to shape many aspects of human societies. A diet that is based around native species positively affects human and environmental health, the two of which are inextricably linked. Eating locally, which requires less net energy, is a key step towards climate stability. Minerals and nutrients are obtained from diverse sources, and, in addition to being a source of food, regional plants also provide medicine, fuel, fiber, and fodder for livestock. Traditions and customs of native peoples are a wealth of ethnobotanical wisdom gained through millennia of living with the land, and are vital for guiding EFGs.

Contents

one paper,

two sides

Evergreen's EFG

As one of Evergreen's teaching gardens, this site (located next to the HCC) is meant to provide an opportunity for learning more about EFGs and the overall ecology of this region. In addition to serving an educational role, the garden is designed to produce food for community members. It contains edible and medicinal plants and species with a huge variety of other uses. The space itself can be a place of meditation, celebration, collaboration, appreciation, reflection, rest; a place to come together with nature and oneself and others. The responsibility of caring for this garden is shared, and the campus must work together to repay the bounty this site provides through continuing the garden creation process. It is our hope that this EFG will soon be just one of many on campus, as others are inspired to take an active role in embracing an ecologically-harmonious way of life.

This is an image of the site before the garden was established. Many students, when asked about what they thought of the area, reported having no opinion or never really noticing it.

"The earth is what we all have in common."

-Wendell Barry

Garden Layers

The canopy/overstory
(Taller trees) Affects garden's habitat patches, uses most nutrients and water, undergoes most photosynthesis

Vertical layer
(Climbing vines) Develops on all layers, adaptable to goals of garden but can be parasitic

Understory
(Low and young trees and large shrubs) Provides key food for wildlife, some trees will join overstory upon maturity

Shrubs
(Shade-tolerant species) Can form thickets, important habitat for wildlife

Ground layer
(Herbaceous species) Cycle through key nutrients, contributes to diversity, supports insect populations

Soil Surface
(Creeping herbs) Help preserve topsoil

Soil Horizons
Includes 6 horizons: organic matter and assimilation layer make up topsoil (incorporates nutrients), eluviation and banking horizons form subsoil (receives and stores nutrients), and substratum and bedrock provide parent material (accumulates nutrients for long-term fertility)

Rhizosphere
(Plant roots, tuberous vegetables) Important for nutrient and water exchange, ties ecosystem together

A Sampling of the Native Plants in Evergreen's EFG

Licorice fern
Polypodium glycyrrhiza
Found on tree trunks
Helps soothe throat

Beaked Hazelnut
Corylus cornuta
Large shrub with edible nut
Eaten alone and as flavoring

Red-flowering Currant
Ribes sanguineum
Beautiful, beloved shrub
Bright, fragrant flowers

Serviceberry
Amelanchier alnifolia
Delicious berries traditionally
an important food source

Wild Ginger
Asarum caudatum
Excellent groundcover
Root used as spice

Stinging Nettle
Urtica dioica
Stings bare skin upon contact
Root is a known dieuretic

Devil's Club
Oplopanax horridus
Covered in brittle spines
Helps treat diabetes

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