Randall/Edwards Home Site Design 2014

For a Visual Tour Visit

Small Space Permaculture Food Forest Garden on 1/4 Acre Home Lot

http://www.youtube.com/watch?v=BFDuM2P1E-Q&sns=em

History

Nancy Edwards and Bob Randall moved to the site in 1979. We were the third owners. The house had been built about 1951. Its main selling points were a double lot, a quiet street, no neighbor closer than 100 ft, and eastern windows suitable for nature watching. We could also afford it. There were 3 crape myrtles, two Arizona ashes, an old gum, ligustrums and tallows, a young pecan and oak (planted 3 ft. apart) and lawn. A small house on a big lot.

Design Priorities

Experimentation

Nancy taught kitchen gardening in India in 1965-6 before we met in 1968. She did her doctoral research in nutritional anthropology. Bob's Univ. California doctorate is in land and water use for food, so we have been gardening for a long time. Bob spent time in Sub-Saharan Africa and both of us did doctoral research on a small island between Mindanao and Borneo.

Since 1987, Bob has either been employed or been a volunteer in Houston area food, ecology, and organic horticulture. He has been a community gardens advocate, administrator and instructor, and has taught and published widely on various aspects of sustainable land use. He first learned about permaculture in 1978 and has been an advocate ever since. So ***the home site has provided valuable space to test all sorts of products, plant varieties, and growing techniques***. This sometimes gives the place an uncoordinated look.

If we were starting over, some aspects of the landscape would be built by us quite differently, primarily because today we know from our experiments and from those of others better ways to do things. We are both permaculturalists, and know far more about this than we did when we started. For example, the vegetable bed location would be different, and if we were building the house today, the driveway would not be so close to the front door and on the steepest slope and the long side of the house would not face west.

Food

We much prefer eating very fresh organic produce of the highest gourmet quality. For this reason, the land is crammed with fruits, vegetables, and edible herbs in every month of the year. We occasionally buy out-of-season carrots, onions, apples, bananas, a few exotic fruit, mushrooms, and we sometimes dine out due usually to necessity. Otherwise, we grow all our own produce.

To both produce food and experiment, we ***stack*** plants tightly sometimes using trees to trellis vines. There are over 1000 sq. ft. of raised vegetable beds, perhaps 140 varieties of fruits for humans, at least a dozen varieties of fruits for birds, every culinary herb we like to eat, and a range of flowers designed to attract beneficial insects to make sure all pests "have their own pests" to contend with. All of this is on a .28-Acre house lot (roughly 105 ft. square).

If we had more land, it would be less necessary to be so ***involuted*** and to stack tightly. Since we only have a city lot, in some parts of our site, walking can be difficult. This gives the site a "farm like" or even "wild" feeling. For people who prefer well-trimmed, evenly symmetric urban landscapes with expanses of lawn (or even golfscapes), the almost randomness of placement and rustic look can be upsetting. For us, however, it makes us feel like we are in a woods—a very productive and enjoyable woods heavily populated by birds, lizards and butterflies. Also we grew up in wooded areas.

Low Labor

We try to achieve food and research with an absolute minimum of tedious labor. We do not use yard maintenance employees, so the labor (or exercise) is ours. Our best estimate is that we average together over the year no more than 10 hours labor per week on the site. Most of the last 35 years, both of us have worked long hours in non-profits. So we haven't had a consistent labor supply for our garden. Bob's job usually required the most hours of work at precisely those periods of the year that the most work is required in the garden, so minimizing required labor has been essential essential.

Habitat

Below the priorities of experimentation, food, and low labor, ranks wildlife habitat. A sustainable planet, sound agro-ecology, and the effort to put the beauty of movement into the landscape, all require providing features attractive to birds, butterflies, dragonflies, and other creatures. We have learned from our friends Mark Bowen and Martha Henschen and gained from their insights. As well, certain plants help attract creatures that prey on pests or parasitize them, so there are many "pest-of-pest" ***insectiary*** plants.

Conservation of Resources

We want to do this with the least waste possible; the least expenditure; the least built in design needs, and maximum use of naturally provided energy and materials. These include sunlight, dead plant materials, and rain water. This means that:

1. Down wood often rots discretely under bushes or along paths and that recycled organic matter is on the soil surface all over the yard;
2. That rainwater accumulates in 4750-gallon-capacity cisterns, in "rain gardens" (from the permaculture concept of vernals or seasonal bogs, ponds and puddles), or is stopped by swales (ditches or berms perpendicular to the downhill flow of water used to stop water escape); and
3. That sunlight filtering through trees hits other useful plants instead of baking the earth, gets through to sun-loving vegetables, but is intercepted during hot weather, and prevented as much as possible from heating the house.

Beauty & Ornamental Design

Because of the above priority design criteria, there are few plants grown solely for their beauty or fragrance, and less overall labor on ornamentals than there could be. There are several delightful and hardy English and antique roses, and a number of reliable perennial bulbs, corms, tubers, perennials and flowering shrubs. There is an effort to find beautiful low-labor plants that perform some of the other design criteria explained above. For example, the citrus cultivars attract birds and the giant swallowtail, have fragrant blooms, and are attractive house-wall shading evergreens. The cassia *splendida* fixes nitrogen, is useful in making compost, is a larval plant for sulfur butterflies, and has great beauty.

Site Explanation

Front Yard "Global Warming Garden"

House Zone

Site: This is protected from northern winds by the house, so it is used to grow tender plants like mangos, bananas, semi-tropical citrus, papayas, common guava, lychee, carambola grumichama, dragon fruit. Although getting some sun, the area is highly shielded from north winds by the house, and from radiation frosts by the tall trees on the other sides, as well as excellent drainage because it is the highest elevation. Because this zone faces west and south, it is also necessary to use plants to shelter the house walls from sun and summer storms.

Plantings: There are 5 grapefruits (bloomsweet, Australian, Rio Red, and Mexican), 3 oranges (navel, moro blood, ruby), a Meyer lemon, an Atlas ponkoa, an LSU gold fig, an Osborne prolific fig, and a Seto satsuma mandarin. There are also Lucretia blackberries—the oldest domestic blackberry in the US and two papayas. On the western edge of this zone is a Pakistan mulberry, a Mridula pomegranate, and a longan.

Southern Big Tree Zone

Site: An Arizona ash was planted in the early fifties probably by builders, and somehow is still healthy 65 years later. Until it dies, we have decided to use the shade to grow a number of plants that tolerate shade or tree branch frost protection in their early life. We try to make these forest plants think they are in the woods with leaves and rotting branches. We provide front yard habitat for heat avoiding creatures. The area borders the neighbor's driveway and carport, so has large amounts of rainfall runoff in parts. There are two rain gardens with plantings such as Louisiana iris, halbeard leafed hibiscus, buttonbush, and indigo.

Plantings: The shade zone has a number of fruits preferred by birds: acerola (malpighia,), Turk's cap, Dahun holly, possumhaw, two types of satsuma, a navel orange, Mexican plum, firespike, Saijo persimmon, two experimental citrus, blue mist flower, shell ginger, and giant pipevine.

Southwestern Edge Zone

Site: The boundary areas from the house to the road and along Bassoon Drive are the horticulturally most challenging in the yard. These edges face southwest and west, border roadways, and therefore are subjected to the worst summer heat. They are therefore the least fun to work in. There is also a steep slope to the street, so rainfall and soil runoff must be stopped in order to make the front yard productive. Proximity to automobiles and strangers makes food crop use inappropriate while the "first impression" high visibility makes ornamental values unusually desirable. This is complicated by the preference many neighbors have for evaluating a house based on its look from the street rather than our preference of evaluating the look of the street (preferably none) from the house windows!

We have tried to use moss boulders and concrete Windsor stone to terrace the slope into minimal runoff. The resultant high drainage makes desert plants like the Peruvian cactus *Cereus repandus* fruit plant *pitaya dulce*, Texas Mountain laurel, desert senna, many salvias, and desert willow flourish. There are actually a series of 4 swales between the house and the street, but only the moss stone is visible from the street.

Plantings: The Bassoon edge is planted mainly with flowering water-hardy and sun-hardy plants. The shrubs/ small trees—*Cassia splendida*, rusty blackhaw viburnum, *Vitex*, Texas green sage, *Hamelia*, and the native flowering perennials —Maxmillian sunflower, goldenrod, ruellia, and various salvias. There are also a variety of thorny plants (coral bean and wild dewberry mainly) that discourage theft of the grapefruit close to the street. There is a banana fig, a white sapote, and a jaboticaba.

The driveway edge has a number of flowering shrubs including eight antique and modern hardy roses, *Cestrum auranticacum* (Guatemalan yellow jasmine), *Hamelia patens, Buddleia alternifolia,* and in the shade of the grapefruit, American Beautyberry. Flowering perennials include in the fall: shrimp plant, goldenrod, Maximillian sunflower; in the spring: daffodils, bearded iris v. *Alverda,* Spuria iris, yarrow, Gerbera, amaryllis, and others.

Lawn: There is a small amount of lawn in the front—in the park lawn along Bassoon, in a patch from the sidewalk that moves east toward the big tree, and also adjacent to the driveway where we get out of the car.

The Southeastern Fruit Patch

Site: The southeastern side of the property houses the plant wall between the front and the backyard vegetable beds. We use the pears, citrus, a cherry, and pomegranates as a sort of hedgerow where wildlife has perennial cover. At the same time, it is both a productive food production system, while screening the vegetable garden from the street. This creates privacy for gardening while reducing the necessity of making the vegetable patch attractive 365 days a year. The border with the neighbor's carport is planted in citrus.

The control apparatus for the T-tape irrigation system is housed here. Also there are two wetlands planted rain gardens and two 1250 gal. cisterns used to absorb torrential runoffs coming off the house roof during storms and economically irrigate plants that can be watered by hose end.

Plantings: Pears include Acres Homes, Meadows, and Southern Queen. There is a Meyer lemon protected in winter by the two cisterns. There is a Chandler pomelo, a low chill cherry, a Valencia orange, a Changsho kumquat, an Atlas Pong Koa, a Honey Mandarin, and over the path on the western boundary of the vegetable garden, a Blanc du Bois bunch grape. Understory are Spuria iris and turmeric.

The Eastern Garden

The Vegetable Patch

There are seven raised beds divided into 8 rotating plots of each approximately 120-140 sq.ft. The raised beds are mainly rectangular with 4x8x16 concrete solid block sides. The north bed is a keyhole design and the northwestern gate bed is a EL shape. There are some borders made from 8" cubes. Beds are used to the max during hot-season cold-season overlaps: April & October. Heavy mulches are used in summer made of biological quality mixed hardwood mulch. There are two green cone garbage composters, six compost bins, and one wood mulch pile.

The Wood Pile

Site: In the early 80's, the area received most of the roof runoff, so water would lie around an inch deep or more for weeks. In 1981, to solve this, and provide nature for our then 6 year old, **t**he pond was built. There was very little publicly known about nature ponds in this area at that time. This pond was unlined and did an excellent job of removing what was once stagnant water. It held fish—even catfish once—, controlled our mosquito problem well, and grew many water-loving ornamentals, but during dry weather used large amounts of costly city water. Reluctantly we realized that although the pond solved several problems, it was unsustainable here. We therefore converted it to a much need place to compost excess wood waste.

The Fenced Edges

Fences are lined with hardier citrus, feijoas, Southern improved muscadines and grapes, blackberries and avocados. The southeastern fence has grapes under-storied by blackberries tied to grape trellis poles. Every summer, this grape blackberry stacking is supplemented with sweet potato spinach underneath and sometimes, squash on the grape trellis.

Back Yard Fruit Features

Site: This is the best area for all but tender fruits. It is away from human theft and somewhat squirrel resistant. Because of the rain gardens, drainage is good. Except for vegetable and sunny flower areas, the backyard has fruit trees spaced nearly throughout.

Plantings:

The back yard has 3 types of apple (Dorsett, Anna, Carnivale); 2 types of Jujube (Sherwood and Sugar Cane on one tree); 4 kinds of orange (ujukitsu heirloom Japanese, navel, Tarocco blood, ruby; an edible clumping bamboo *Phylostachys*; a mid-pride peach and Arctic Star nectarine; 6 kinds of pomegranate (Cloud, Eve, Mae, Bala mi'ursal, Asperonsky Krasnia, and Mridula); citrus (a nuclem tangerine, an experimental pummelo and a Hirado pummelo, 2 changsha mandarins, 2 10-degree tangerines, and two kat manadarins CCTC and luang huangkat), Meiwa kumquat, and a Roundleaf. The central area has 4 pears (Tenn., southern Bartlett, Tenusui, and Orient), 5 figs (LSU Purple, Celeste, Nagel Mysteak, Malta, and Alma), 1 persimmon (Suruga*)*, 1 peach (Tropic Snow), 2 feijoas (Mammoth, Nazametz), 1 Mortensen bunch grape and 5 kinds of sweet muscadines grapes, a bed of Kiowa blackberries and several other blackberry kins; hardy avocados Wilma and Opal, Ann yellow raspberries; Buro and Blue Java bananas. There are two experimental cherries and kiwis, with pawpaws, wampee, guabiyu, and Phalsa in pots.

The Habitat Garden

Habitat requires substantial pieces of land that are contiguous. For the last few years, we have been creating pieces of habitat encouraging beds that are connected north to south and east to west providing uninterrupted range for small creatures from the southwest corner of the property in the front to the northeast corner in the back. Basically, the habitat areas zigzag on both sides of the property and connect with a band going across the front of the house.

The Back Flower Bed

This bed borders the back patio and is in view from the living room. We aim at making it interesting in morning, ever-changing, and attractive to a wide range of species. There are several hummingbird plants including hamelia, coral honeysuckle, scarlet salvia, Turk's cap; many seed-bearing, fruit-bearing & nectar-bearing perennials & self-seeding annuals especially for butterflies. In summer and fall, this becomes very dense, & functions as a shade-humidity refuge for toads & other creatures. In winter, we mulch the stems and enjoy flowering bulbs. The bed is connected to the side shade garden, so it is possible creatures to move under cover from one corner of the lot to the other without becoming visible to overhead vision.

The Woodfin St Woodland Habitat Garden

Most of the streets in our sub-division begin with the prefix *wood.* Yet there are no woods nearby. Perhaps there once was. Over the years, our concept of what to do with this area has been changing. Our first effort in the early eighties was to establish a windbreak and privacy screen. We planted Christmas trees for several years and they became tall pines and then were destroyed when the city redid the roads and sidewalks. As we came to learn more about native ecology, we planted laurel cherries. To help deter fruit theft, we planted as well bad tasting attractive citrus near the street. In recent years, we have been adding under-story habitat plants.

The northwest side of the house today features many native and fruiting plants including 3 pomegranates—the delicious Desternyi, Parfianka, and Sin Pepe; three plums including Chickasaw, Gulf Coast Beauty, and Beauty; a Cherry of the Rio Grande and there is also a true bay laurel and an olive. There are a host of native plants including Inland Sea Oats, Red Buckeye, Wax Myrtle, Drummond Red Maple, Laurel Cherry, Coral Berry, Beauty Berry, Malpighia, and Flame Sumac. Between sidewalk and street are two Bald Cyprus trees, a Dahun Holly, and a lot of native butterfly attracting blue mistflower.

Other Features

There are several birdbaths. Most are used to provide water year round for birds and wasps. There is an orchard beehive and area for purchased native mulch to be off loaded. What we call "the screen porch" is used for raising seedlings and storing garden equipment.

Permaculture Design

Much of the site is heavily designed with Permacultural design principles. No serious explanation of this can be made here. However know that a conscious effort has been made to get multiple uses out of whatever is deployed in the landscape. This includes getting multiple uses out of space, out of connections, out of edges, and out of whatever arrives free such as animal or plant remains, sunlight, precipitation, wind, etc.