



Your neighborhood solar-powered gardener.

Demonstration garden

PURPOSE

To provide an example of edible and forest gardening, sustainable practices and beauty in an urban setting.

GOALS

1. Expand the use of environmentally healthy practices in the residential setting.
2. Test ecological gardening practices to find the ones with the least impact on the environment.
3. Provide as much food as possible for the residents and neighbors.
4. Eliminate all water run off from property into storm drains.
5. Zero use of city water for exterior landscape.
6. Provide retreat space for residents that is calming and restorative.

SITE CHALLENGES

1. **Poor Drainage:** flooding by sidewalk entrance and in rear garden
2. **Perennial Weeds:** Bermuda and Kikuyu grass in rear garden
3. **Burrowing Pests:** gophers in rear garden
4. **Shading of property:** house and arbor to South, neighboring trees and large Liquidambar trees
5. **Northern view:** trucks, waste, recycling bins and house

SUSTAINABLE PRACTICES AND THEIR MULTIPLE FUNCTIONS

1. **Water catchment:** solved drainage problem and collects water for dry season using both gravity fed system for front garden (440 gallons) and solar powered watering for rear garden vegetable crops (495 gallons). Recycled Maraschino Cherry syrup drums (55 gal each) are used
2. **Dry creek bed/ infiltration swales:** solved flooding of front entryway near garage and in rear garden, provides path to North side of house and central path in rear garden, provided optimum drainage and growing conditions (raised beds) for plants. Develops lens of water for trees and shrubs to reduce water usage during dry months, avoids over taxing our storm drainage system, and reduces pollution of the Monterey Bay. Water is piped from downspouts into dry creek bed.
6. **Sheet mulching:** cardboard and woodchips have been used to conserve water and for weed control. Straw is used to keep the raised planters from drying out and to conserve water.

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7. **Roof gardening:** the Kiwi vine is being trained on the roof to maximize production due to limited space and sun. Plans are to install more container plants on the roof to grow vegetables.
8. **Solarization:** the Bermuda grass and Kikuyu grass were eliminated by using black plastic over a 4 month period to fry the roots.
9. **Design considerations (efficient use of space):** the hot tub was placed in the shadiest and most private part of the garden, an area where it would be difficult to grow anything. Most of the fruit trees and fruiting vines are espaliered against south and west facing walls and fences (except for passion vine) and the rear garden has the tall trees around the edges forming a "U" with an opening facing south (other functions of this are more privacy and improving the views). In the opening, annual vegetable crops are grown. Under the trees, root crops are being grown, the beginning of the forest garden: roots, herbs, edible ground covers, shrubs, small trees, and large trees. This is also called "stacking functions."
10. **Using recycled materials and resource conservation:** The extension of the rear patio and new spa patio are both made from broken concrete that I removed from a job about 2 blocks away. Between the broken concrete I installed tumbled recycled glass that came from Red Shovel Glass Company in San Francisco (my wife picked it up on her way home from a monthly meeting in San Rafael that she is required to attend). All the cardboard for the sheet mulching came from the Bicycle Trip and boxes that we used for moving here or that packaged products we received via UPS. The patio containers are made from recycled decking. The Advanced Drainage System (ADS) piping used to run the roof water from the downspouts to the dry creek bed and drainage trench was scrap from a landscape job. Used heater filter fabric (1" thick) was stuffed in the end of the ADS pipe to keep the pipe from getting full of soil. We avoid using wood around the edges of the raised beds to conserve resources and reduce the number of hiding places for snails and slugs.
11. **Organic gardening:** There are no pesticides used on this property. For slugs and snails we remove them late at night or leave out black plastic containers that they go to for refuge. Kindly, we move them to Lighthouse Field instead of squashing them. Unkindly, we also use Sluggo in some cases, but have found the populations to be quite diminished, we think, because of the sharp wood chips spread around the garden. Also, we use diatomaceous earth around plants to protect them. We put gopher wire under all the rear garden paths, raised beds and spa patio. The plants in the front garden have gopher baskets. If there is aphid or scale infestation, I blast them off with water. I think too, that the diversity of plants, use of organic composts and beneficials keep the populations under control. Urine is used to fertilize all the trees and non-edible plants (see book "Liquid Gold").
12. **Reseeding:** We allow many annuals to reseed again and again to save time planting and the cost of seeds. Note Arugula is doing this now in the rear garden.
13. **Nurturing Bioactivity:** I spray composting tea on plants for plant diseases (tomato blight and mildew) and to increase micro-organisms in the soil. We also have a worm bin that recycles our kitchen scraps in to wonderful vermicompost that I use on indoor plants and outdoor container plants.
14. **Heap Composting:** I have two piles of organic materials that I rotate using one as a receiver of new materials and the other as a carbon bank that I draw from to cover the kitchen scraps.

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15. **Drought tolerant plants:** whenever possible we select plants that require little, if any, watering once established. The exception to this is the fruiting and annual crops that we use water catchment, Greywater and filtered water (to remove chlorine). We eat many of the flowering plants, all of the herbs and vegetables and plan to make tinctures of the medicinal plants. Growing local saves transportation and manufacture costs (fossil fuels). 3. Greywater: Golden showers every morning in the meadow area adjacent to the hot tub. This waters the Festuca rubra 'Molate Blue'. Since the house is vegan, dishwater from the kitchen is saved in tubs to water trees and shrubs. Water to wash and reuse plastic bags is also used for large plants. Plans are to install a constructed wetland to store and filter Greywater for all trees and shrubs on the property.
4. **Use of on-site materials:** the dry creek bed rocks came from the existing landscape that was all rock over plastic in the front garden, the soil from the raised beds came from the trenches dug in the front and rear (some as deep as 3.5 feet), wood chips for garden and rear path came from Liquidambar trees that were removed and from Nature First Tree Company that did tree work in the neighborhood. The existing Avocado tree has been pruned and nourished with compost from the kitchen and organic matter from the dying plants on-site.
5. **Use of beneficial insects:** Chrysoperia rufilabris or Green Lacewings are used to control all soft-bodied insects, aphids, scale crawlers, white flies, thrips, mites, insect eggs and small caterpillars. Trichogramma spp. (wasps) lay eggs in the eggs of moths to prevent caterpillar damage. Lobularia maritime or Sweet Alyssum, Achillea or Yarrow and other flowering plants provide nectar for these and other beneficial insects.

Thank you for your interest in
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