

Recognizing Underlying Themes

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Gardeners tend to design with natural themes

- English country
- Japanese tea
- Veggie
- Bee
- Bioswales

Some factors are determined by site

- Climate
- Soil type
- Drainage

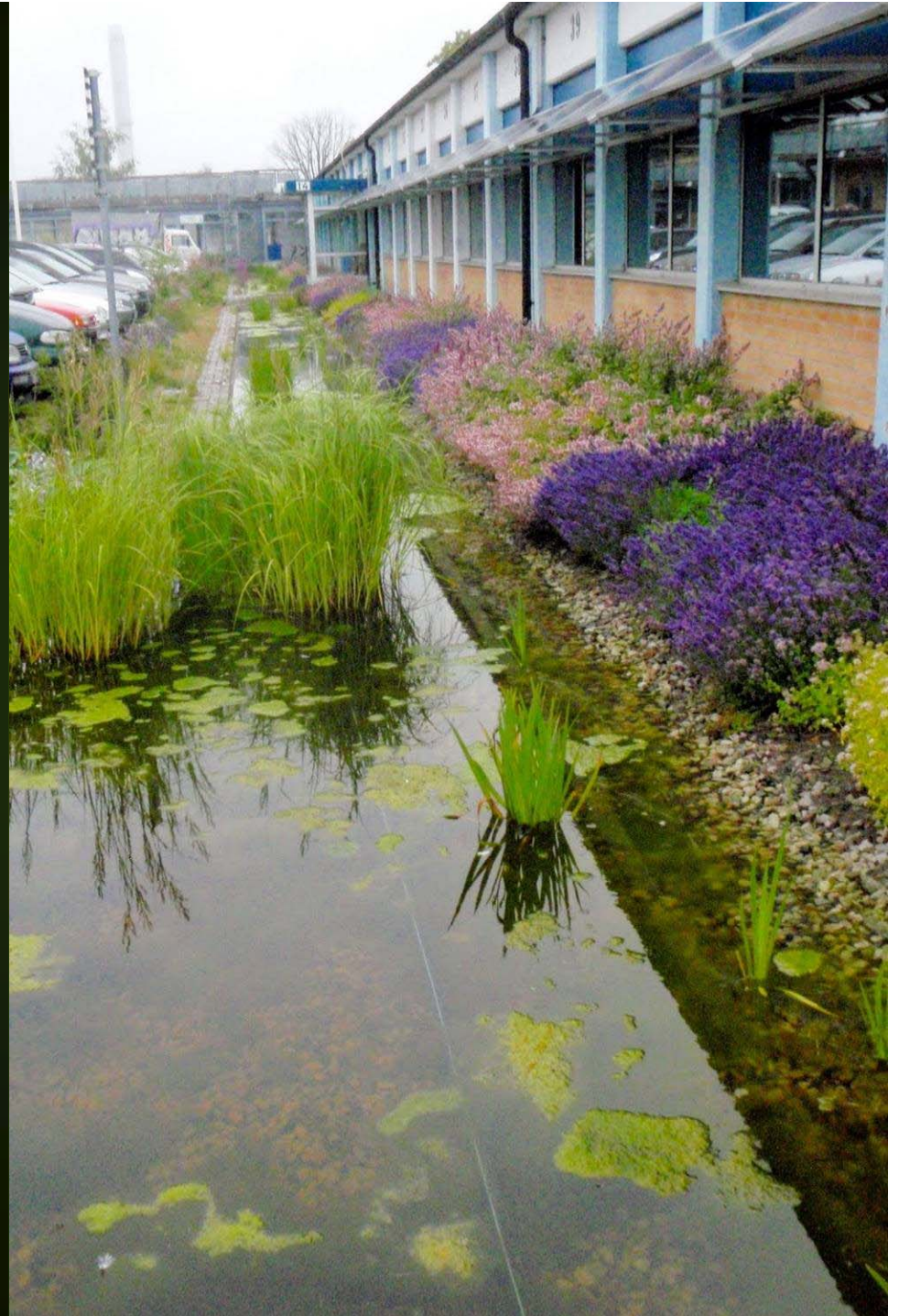




Photo: lisaknowstea.blogspot.com

To design a garden

- Pests are “designed in”
 - Elms = DED
 - Chard = leafminers
 - Pear trees = fireblight
- Well designed gardens have fewer pests
 - You can pick controls too
 - Often we’re called in to clean up the mess
- Maintenance is key
 - As important as design
- Nature has a say



All the world's a stage

- The designer sets it
- There's no script
- The living things all make up the cast
- Can you tell a tragedy in the making?
 - Let's look at who shows up, and when

Pests preferring moist sites

- Snails & Slugs
- Phytophthoras
- Dampwood termites
- Fungus gnats
 - & shore fly
 - march & moth flies
- Armillaria
- Neonectria canker
- Earwigs



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Pests preferring dry conditions

- Spider mites
- Drywood termites
- Ambrosia beetles
- Verticillium wilt
- Cypress canker
- Botryosphaeria

Pests thriving on high N sites

- Aphids
- Scales
- Mealybugs
- Leafhoppers, sharpshooters, etc.
- Whiteflies





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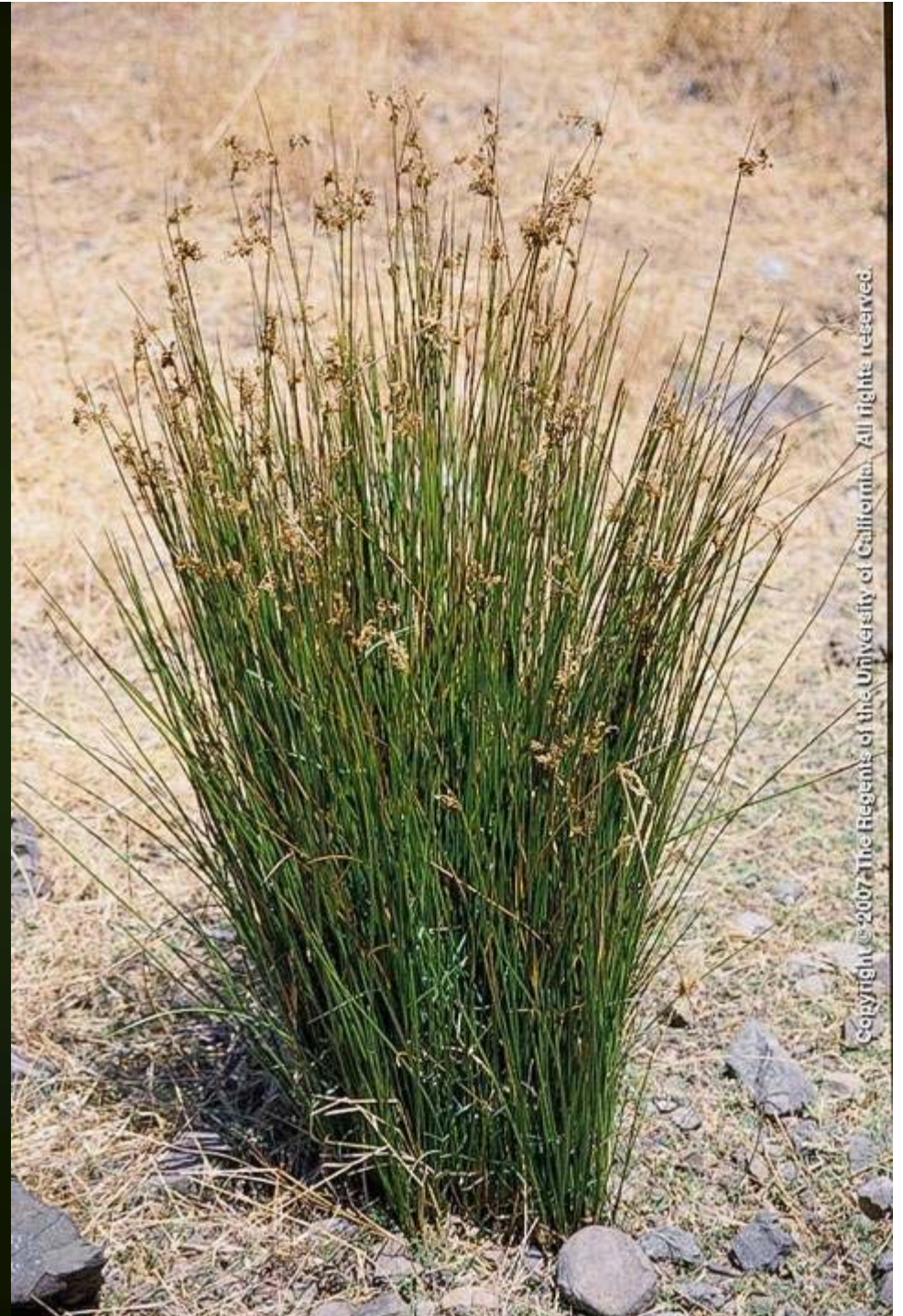
Weeds on drought prone sites

- Prostrate Spurge
- Black Medic
- Yellow Woodsorrel (Oxalis)
- Goosegrass
- Prostrate Knotweed
- Birdsfoot Trefoil

Photo: florafinder.com

Weeds on wet sites

- Plantain
- Green Kylinga
- Annual Bluegrass
- Curly Dock
- Rushes





Weeds on Compacted Soils

- Annual Bluegrass
- Nutsedge
- Broadleaf Plantain
- Prostrate Knotweed
- Prostrate Spurge
- Goosegrass

Weeds and Nitrogen Level

Low Nitrogen

- Birdsfoot Trefoil
- Black Medic
- Common Speedwell
- Clovers

High Nitrogen

- Annual Bluegrass
- Chickweed
- Ryegrass





Example: Birches

- Extensively planted in 1970s and 1980s
- Native to many areas (Midwest, Europe, Asia)
 - Not California
- Riparian species
 - Year-round water
- Attractive tree
 - Even without enough water



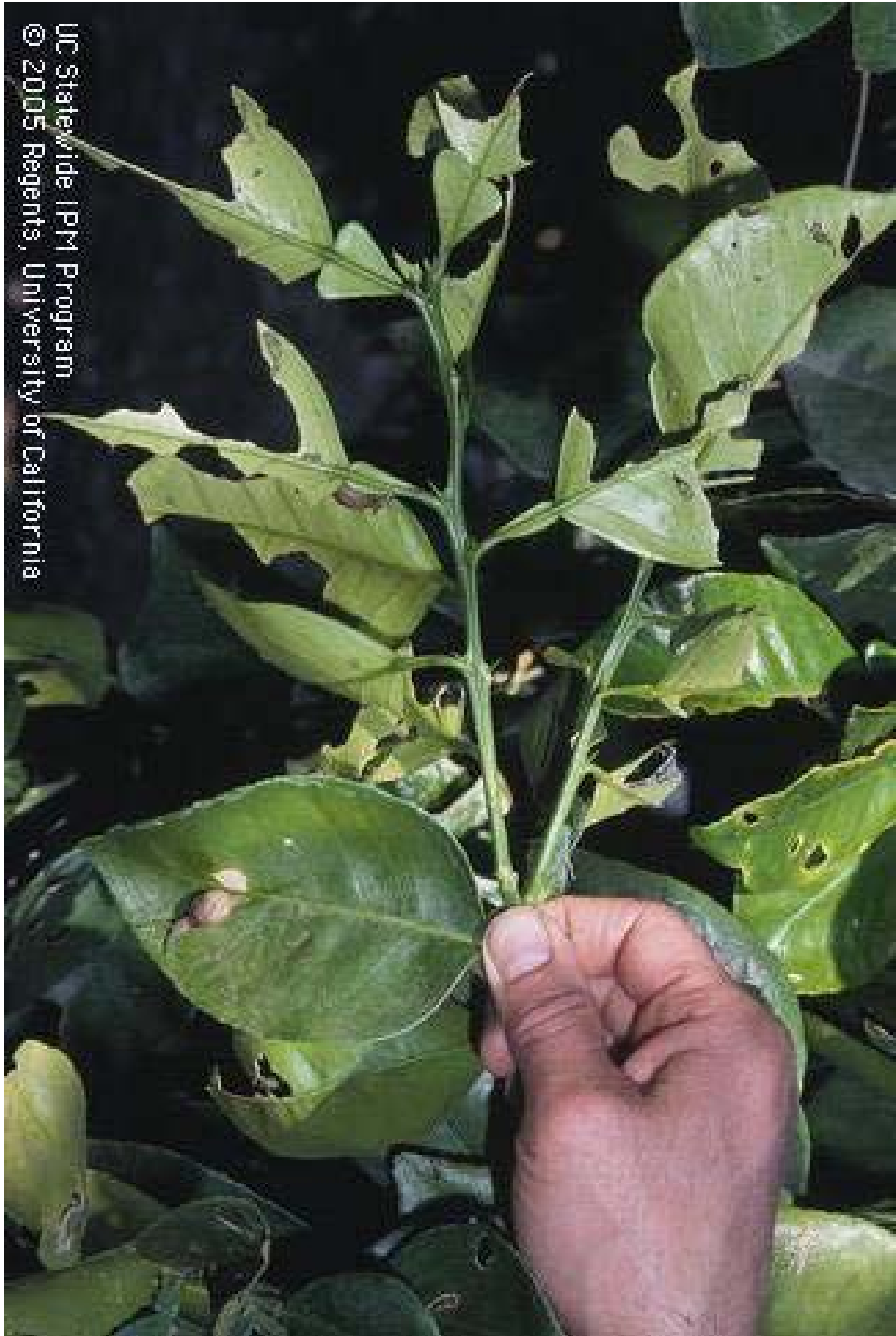
Example: Birches

- Bronze birch borer
 - Arrives Bay Area in 1990s
 - Loves drought stressed birches
- Water rates increasing
- Symptoms
 - Top dieback
 - D shaped exit holes
 - Staining

Example: Birches

- Water helps prevent infestation
 - Can't guarantee recovery
- Neonicotinoids sometimes recommended
 - Still no guarantee
- Best solution:
 - Don't plant birches away from streams





Novato back yard

- July afternoon
- Close to house:
 - Lawn has chronic problems with
 - Plantain
 - Annual bluegrass
 - Large camphor tree on lawn edge appears drought stressed
 - Leaf holes and slime trails on lemon with thin canopy
 - Small black gnats

Novato back yard

- Far from house:
 - Lawn browning in sunny areas
 - Goose grass invading shady areas
 - Tangerine looks okay, but has stippling on leaves



Tiburon landscape

- September morning
- Lawn lush and green
 - Coarse ryegrass invading
 - Weed & feed not working
- Appears well-maintained
- Whitefly problem
 - Sheltered areas
- Aphids





Image: geograph.org.uk

Sebastopol small orchard

- June morning
- Declining apples
 - Peeling bark
 - Codling moth
- Declining pears
 - Fireblight
- Reasonably well maintained
 - Considering the weather
 - But the neighbor ...

Side yard in Fairfax

- October mid-day
- Azaleas declining
- Soil level at yellow line beyond fence
- Clay soils
- Stream close by
- Dampwood termites in old stump





Novato back yard

- Water distribution
 - Close to house
 - Water loving weeds
 - Camphor decline
 - Phytophthora?
 - Lemon leaves holed
 - Snails
 - Small black gnats
 - March flies
 - Far from house:
 - Lawn browning
 - Goose grass invading shady areas
 - Tangerine with mites
- Broken line?
- Failure to hydrozone?

Tiburon landscape

- Excess fertilizer (N)
 - Lawn lush and green
 - Coarse ryegrass
 - Weed & feed not working
 - Whitefly problem
 - Aphids



Photo: news.cnet.com



Image: geograph.org.uk

Sebastopol small orchard

- Disease sources
 - Neighbor
 - Neonectria
 - Codling moth
 - Fireblight
 - All difficult to control
- Weather contribution

Side yard in Fairfax

- What do azaleas need?
 - Dappled shade
 - Acid soils
 - Water
 - Drainage
- What do they have?
 - Phytophthora





Themes

- Tons of potential themes
- Sometimes predicted by just looking at the stage
 - No drainage
 - Abandoned orchard
- Confirmed by looking at the players
 - Water distribution
 - Excess fertilizer
- If you treat the “players”, you miss the main issue
- Doomed to repeat



Solve your pest problems with UC's best science

Announcements

- o [UC IPM Web site begins makeover](#)
- o [New! Vineyard Pest Identification and Monitoring Cards](#)

What's New

- o [Green Bulletin November 2011 issue](#)
- o [New Year-Round IPM Programs: Asparagus, Corn, Cucurbits, Peppers](#)
- o [Revised Pest Notes: House Mouse, Rats, Lawn Diseases, Bee and Wasp Stings](#)
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- Themes mentioned in management section
- Many other treatment options too
- Cultural and design options a good starting point
 - Especially if you can cure more than one problem

Biological Control

Natural enemies can be very important in the control of aphids, especially in gardens (pyrethroids) that kill natural enemy species as well as pests. Usually natural enemy pe

Among the most important natural enemies are various species of parasitic wasps the golden brown, a form called a mummy. The generation time of most parasites is quite the aphid population is likely to be reduced substantially within a week or two.

Many predators also feed on aphids. The most well known are lady beetle, lacewing, a situation. Commercially available lady beetles may give some temporary control when few days. (See: Lady Beetle Releases for Aphid Control: How to Help Them Work )

Aphids are very susceptible to fungal diseases when it is humid. Whole colonies of aphid that have turned reddish or brown; they have a fuzzy, shriveled texture unlike the shi

Weather can also impact aphids. Populations of many species are reduced by summer the coldest part of the year. However, some aphids may be active year round, especi

Cultural Control

Before planting vegetables, check surrounding areas for sources of aphids and remove crop seedlings after they emerge. Check transplants for aphids and remove them bef

Where aphid populations are localized on a few curled leaves or new shoots, the best aphids thrive in the dense inner canopy; pruning these areas out can make the habita

In some situations ants tend aphids and feed on the honeydew aphids excrete. At the up aphid-infested trees or woody plants, put a band of sticky material (Tanglefoot, et slippery for ants to climb up, have also been used. (Note: Do not apply sticky materia severely pruned; the material may have phytotoxic effects. Wrap the trunk with fabric stakes or baits may be used on the ground to control the ants without affecting the buildings, the ground, or other trees.

High levels of nitrogen fertilizer favor aphid reproduction. Never use more nitrogen than throughout the season rather than all at once. Or better yet, use a urea-based, time-products as compared to synthetically manufactured fertilizers).

Because many vegetables are primarily susceptible to serious aphid damage during the in the garden, in a greenhouse, or inside and then transplanting them when they are transmission of aphid-borne viruses.

Aluminum foil mulches have been successfully used to reduce transmission of aphid-bc repel invading aphid populations, reducing numbers on seedlings and small plants. An increased by the greater amount of solar energy reflecting on leaves.

To put an aluminum mulch in your garden, remove all weeds and cover beds with alum Company. Bury the edges of the paper with soil to hold them down. After the mulch is transplants in each one. You may furrow irrigate or sprinkle your beds; the mulch is st some other insects, the mulch will enhance crop growth and control weeds. When sur plants. An alternative to aluminum-coated construction paper is to spray clear plastic stores.

Another way to reduce aphid populations on sturdy plants is to knock them off with a and their honeydew will be washed off as well. Using water sprays early in the day all

Cultural problem?

- What players are present?
 - Aphids don't ALWAYS mean excess N
 - Sometimes they mean ants
 - Sometimes a good cigar is just a good cigar
- So what to do now?



Thanks!

- UC IPM: <http://www.ipm.ucdavis.edu/>
- Presentation on-line at: <http://ucanr.org/sjipm>
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