

# 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: sasbanks.com



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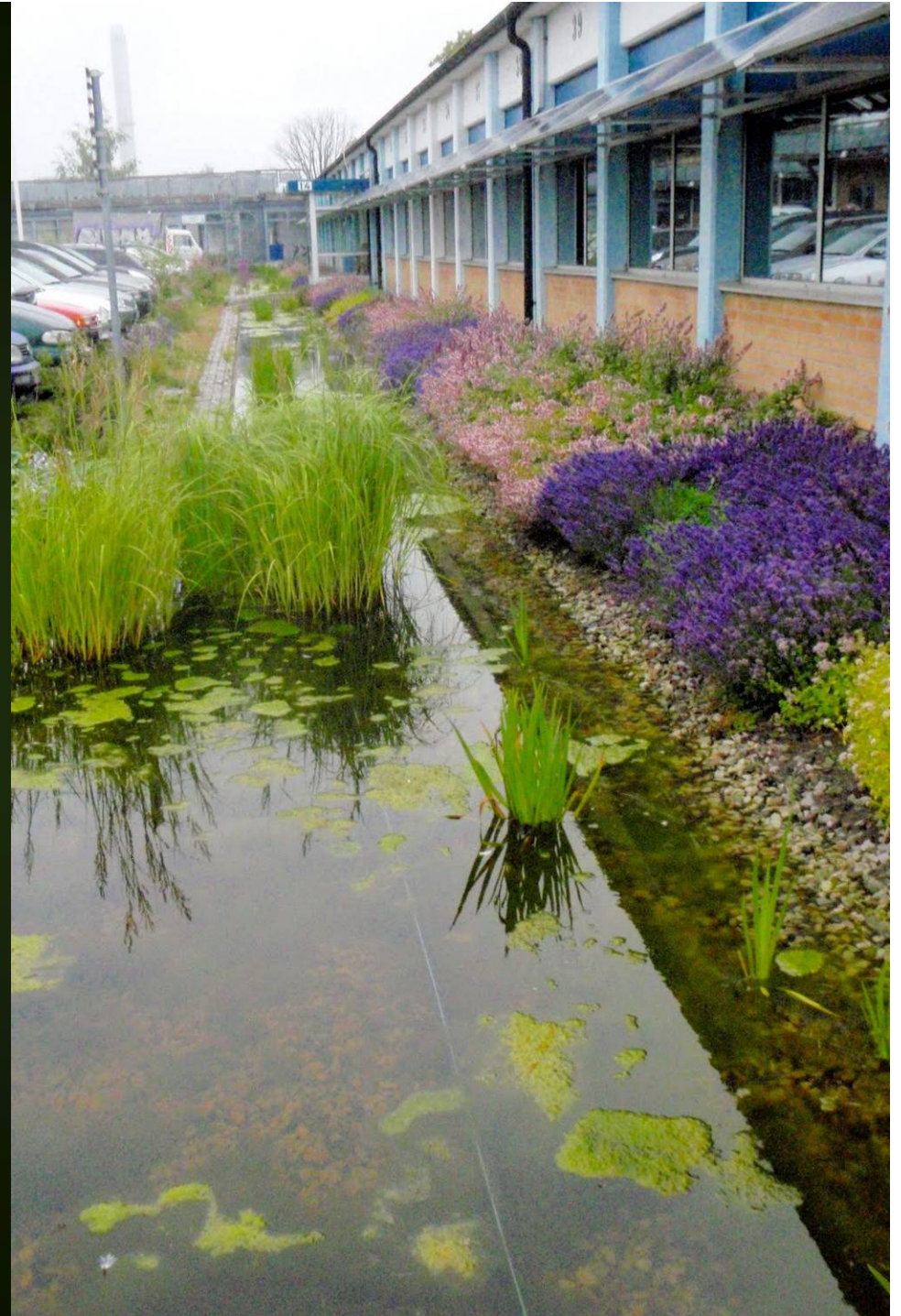


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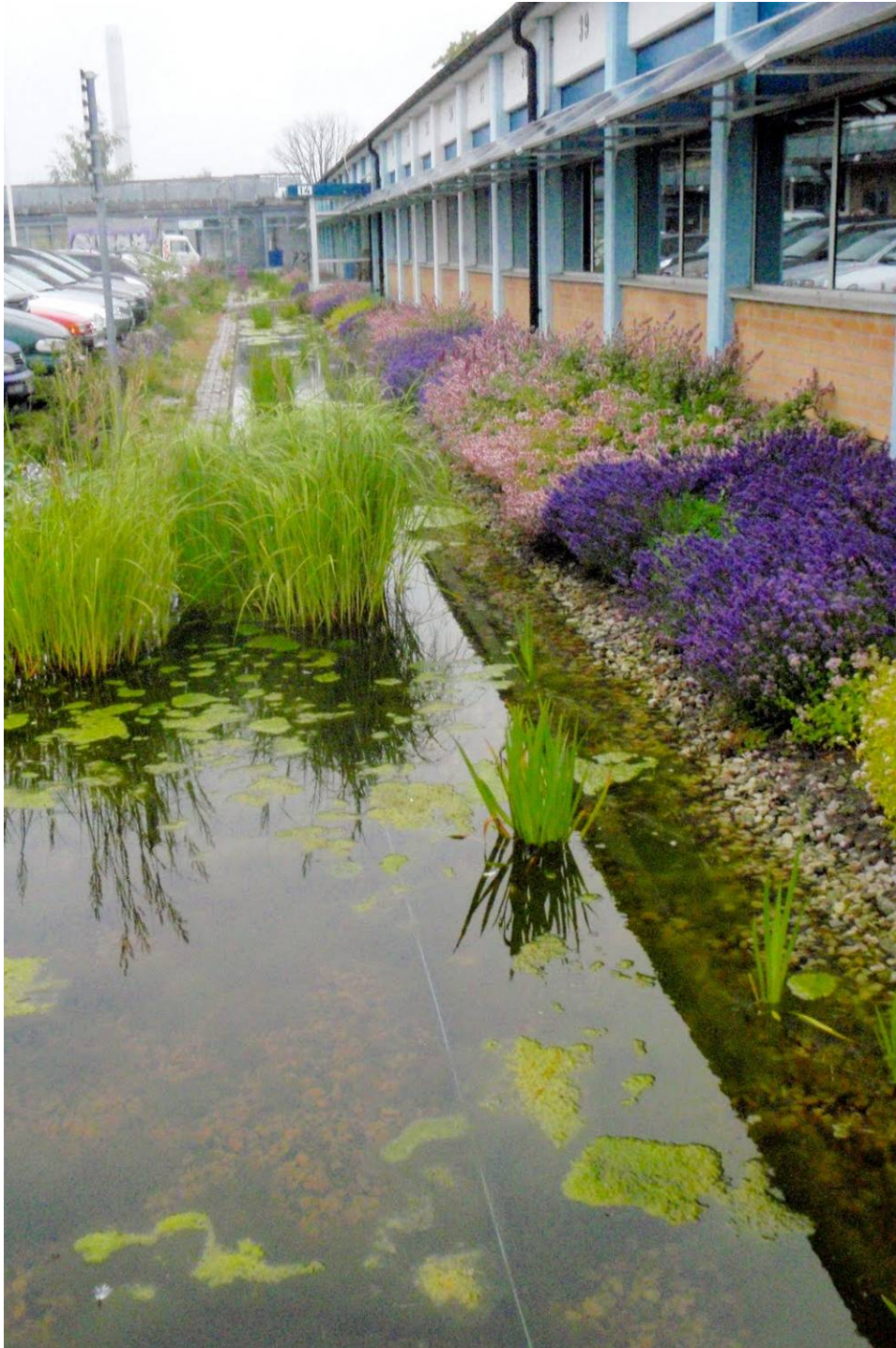
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# To design a garden

- 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



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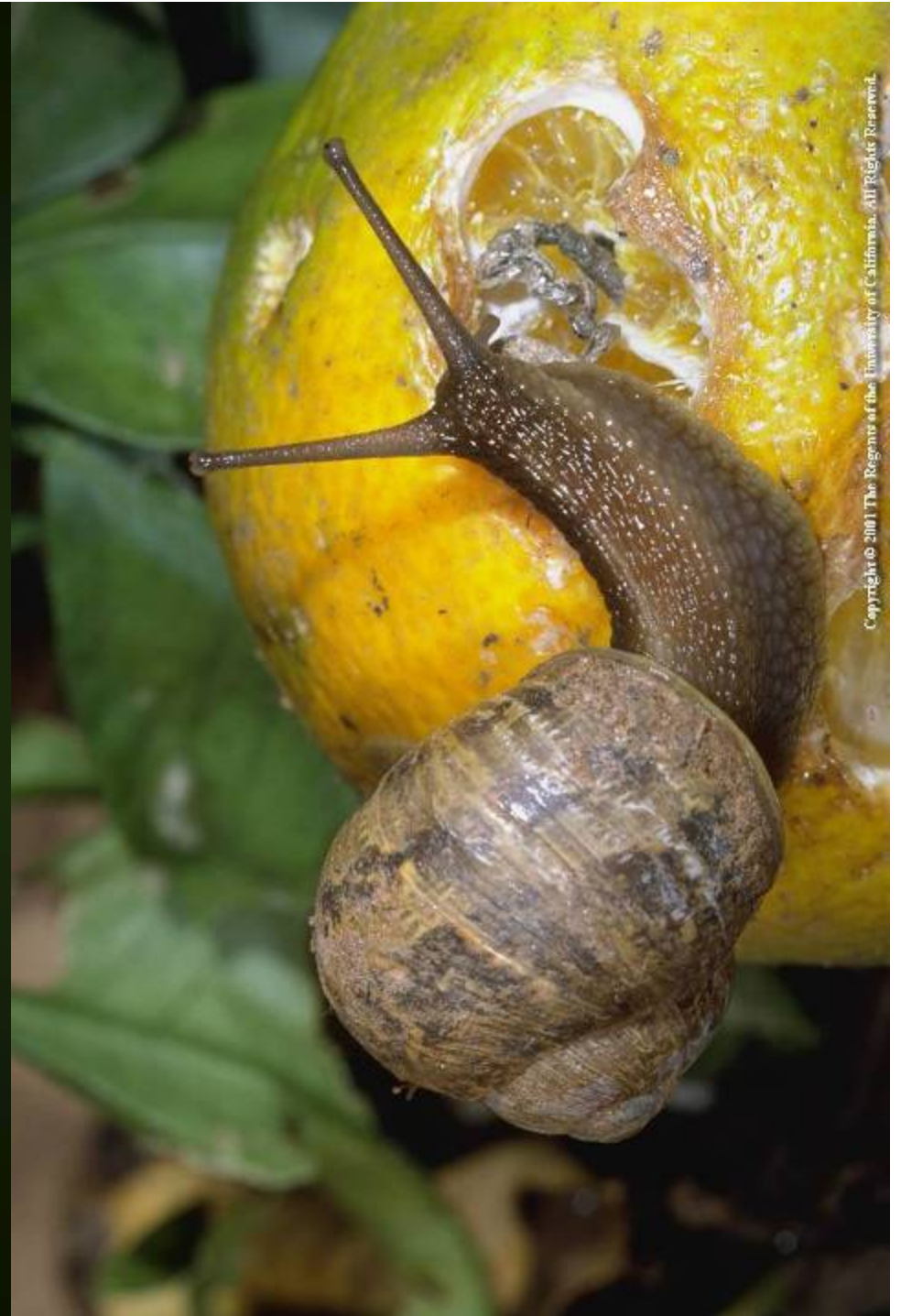


# All the world's a stage

- 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



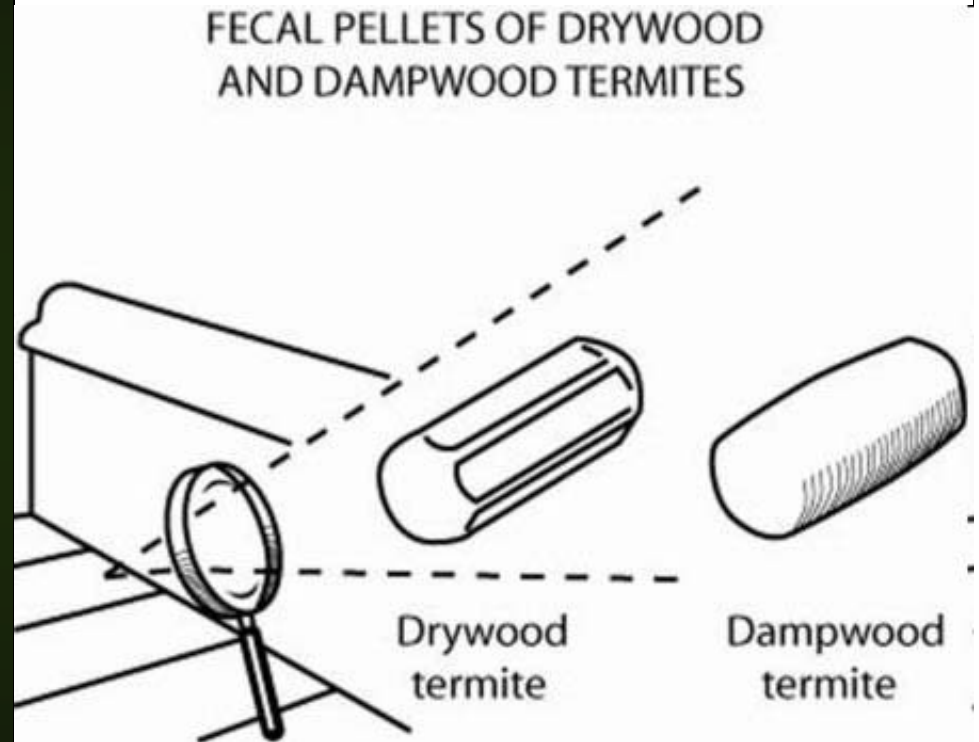
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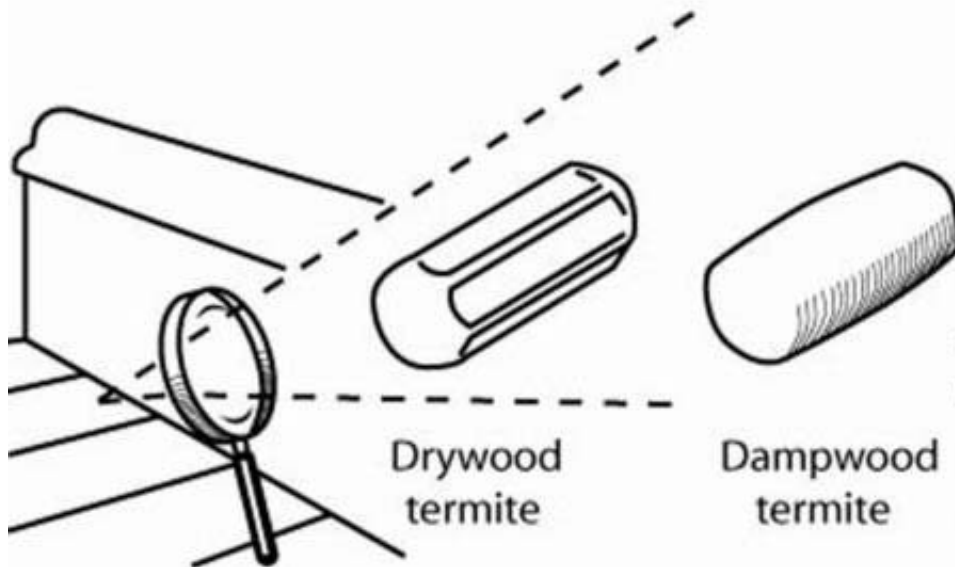


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## Pests preferring dry conditions

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

FECAL PELLETS OF DRYWOOD  
AND DAMPWOOD TERMITES



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- Scales
- Mealybugs
- Leafhoppers,  
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- Black Medic
- Yellow Woodsorrel (Oxalis)
- Goosegrass
- Prostrate Knotweed
- Birdsfoot Trefoil



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Photo: [florafinder.com](http://florafinder.com)



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- Curly Dock
- Rushes



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# Weeds and Nitrogen Level

## Low Nitrogen

- Birdsfoot Trefoil
- Black Medic
- Common Speedwell
- Clovers

## High Nitrogen

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- Chickweed
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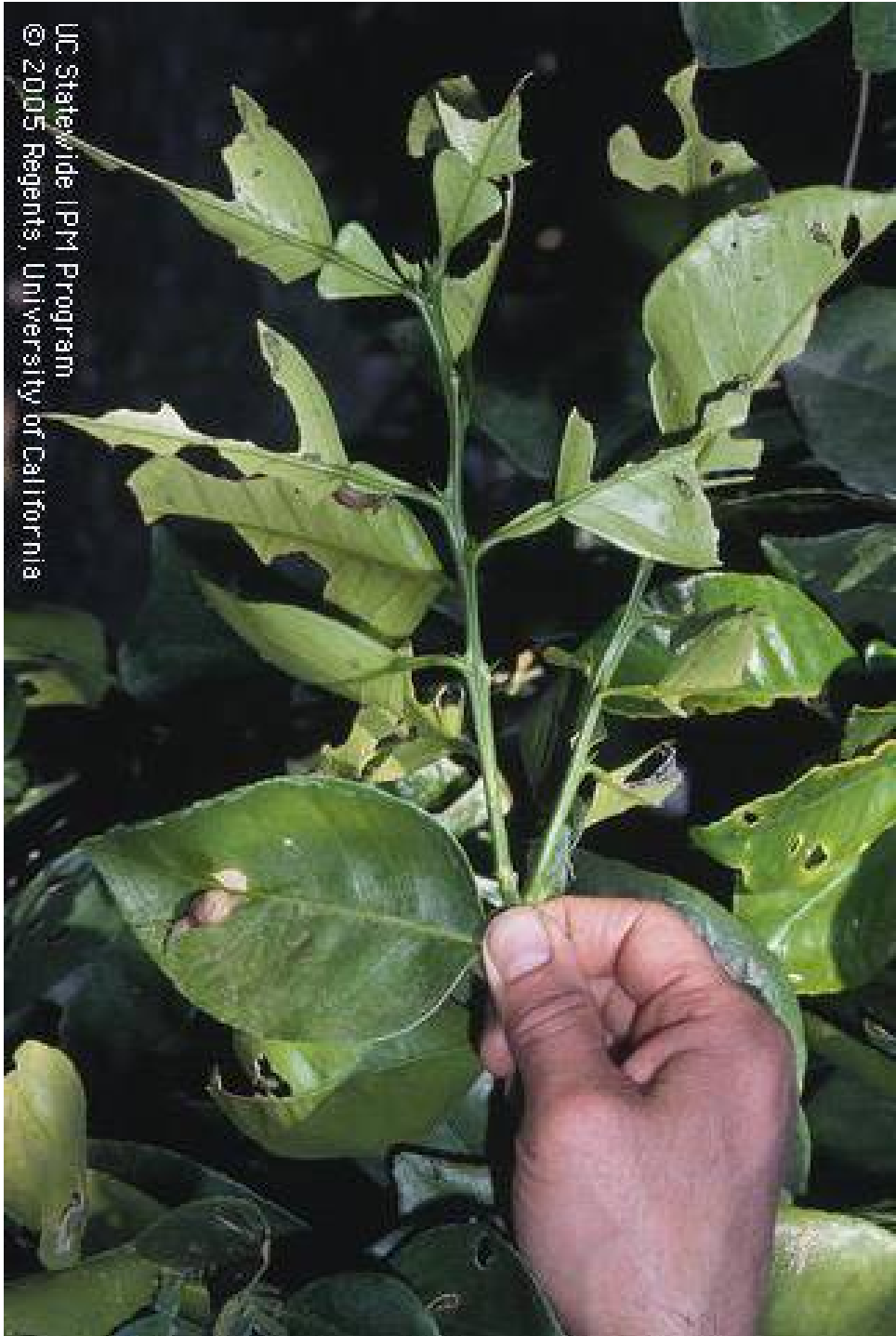
# Novato back yard

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



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# Tiburon landscape

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



Photo: news.cnet.com

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# Sebastopol small orchard

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



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# 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:
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# Tiburon landscape

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



Photo: news.cnet.com



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



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# 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



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- [New Year-Round IPM Programs: Asparagus, Corn, Cucurbits, Peppers](#)
- [Revised Pest Notes: House Mouse, Rats, Lawn Diseases, Bee and Wasp Stings](#)
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# UC IPM

- 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




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## Biological Control

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

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 short so 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, and aphidius. Commercially available lady beetles may give some temporary control when released in large numbers. (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 aphids that have turned reddish or brown; they have a fuzzy, shriveled texture unlike the shiny

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

## Cultural Control

Before planting vegetables, check surrounding areas for sources of aphids and remove them. Check transplants for aphids and remove them before planting.

Where aphid populations are localized on a few curled leaves or new shoots, the best way to control them is to remove these areas. Aphids thrive in the dense inner canopy; pruning these areas out can make the habitat

In some situations ants tend aphids and feed on the honeydew aphids excrete. At the top of aphid-infested trees or woody plants, put a band of sticky material (Tanglefoot, et al.) that is slippery for ants to climb up, have also been used. (Note: Do not apply sticky material to plants; 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 plants. Buildings, the ground, or other trees.

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

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

Aluminum foil mulches have been successfully used to reduce transmission of aphid-borne viruses and to repel invading aphid populations, reducing numbers on seedlings and small plants. An increase in aphid damage is 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 aluminum mulch. Bury the edges of the paper with soil to hold them down. After the mulch is in place, transplant in each one. You may furrow irrigate or sprinkle your beds; the mulch is still effective. In addition to some other insects, the mulch will enhance crop growth and control weeds. When sun is shining on plants. An alternative to aluminum-coated construction paper is to spray clear plastic mulch.

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



Thanks!

- UC IPM: <http://www.ipm.ucdavis.edu/>
- Presentations on-line (as of Monday) at:
  - [http://ucanr.org/PMTM\\$](http://ucanr.org/PMTM$)
- Steven Swain: [svswain@ucdavis.edu](mailto:svswain@ucdavis.edu)  
415 499 4204