Thoughtful Garden Design
For Pollinators and Natural Enemies

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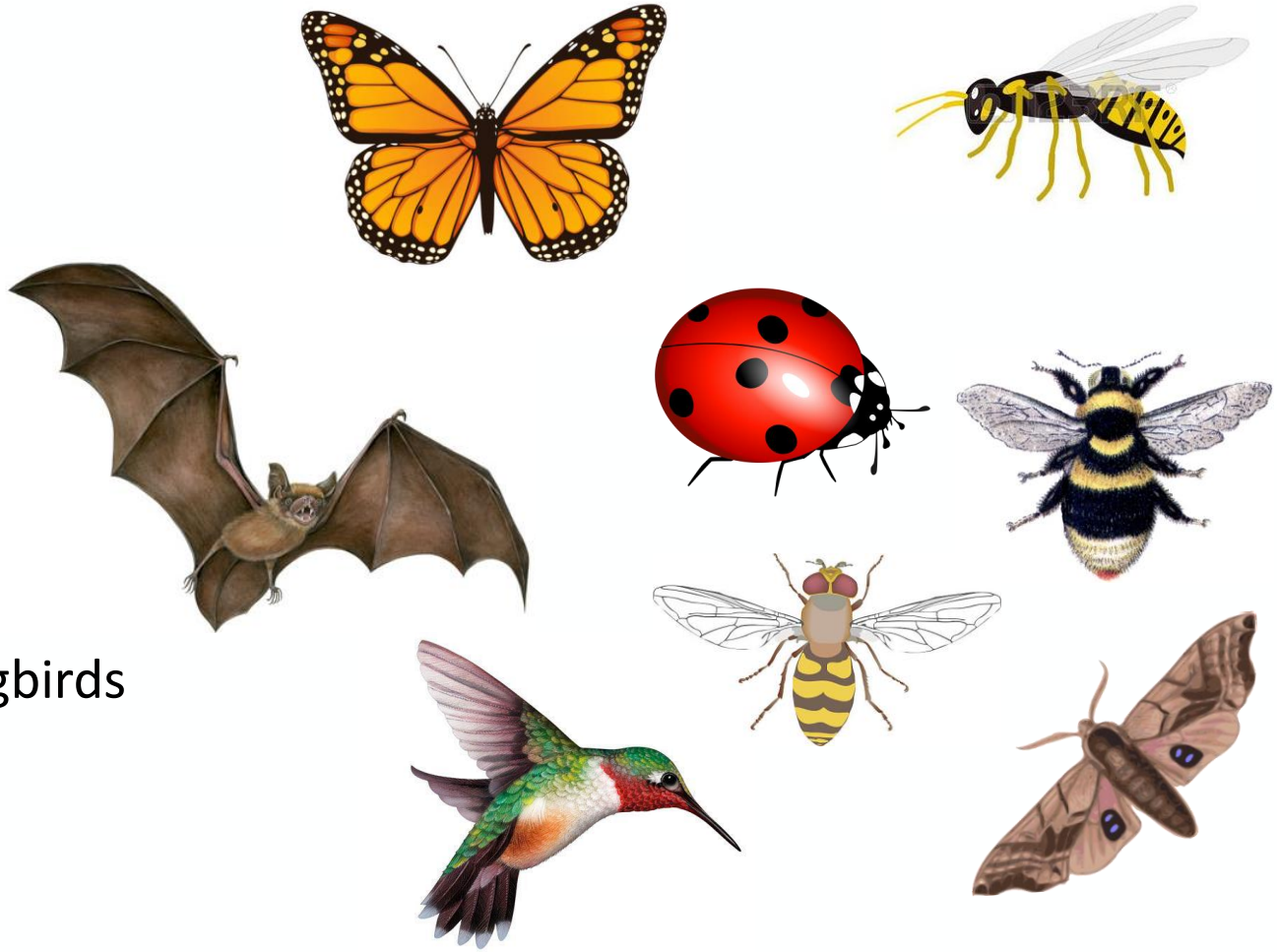
BE BOLD. Shape the Future.

Pollinators:

- Beetles
- Moths
- Butterflies
- Flies
- Wasps
- Beetles
- Bats
- Birds – Hummingbirds
- Bees



Pollinators: Bees

Native Bees: Over 1000 species in New Mexico

Generalist and specialist foragers

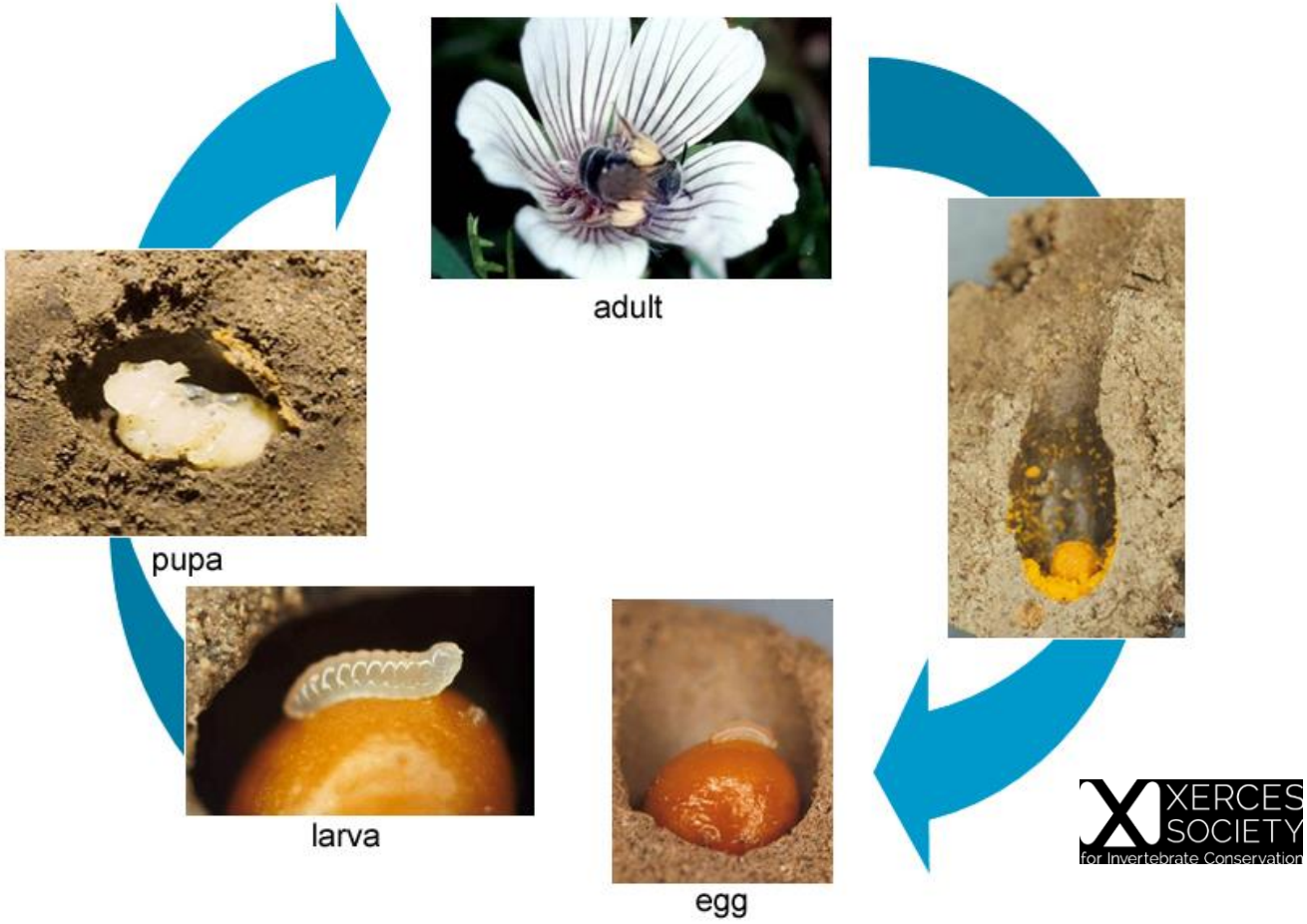
Ground nesting and stem nesting

Honey Bees: Introduced (non-native to US)

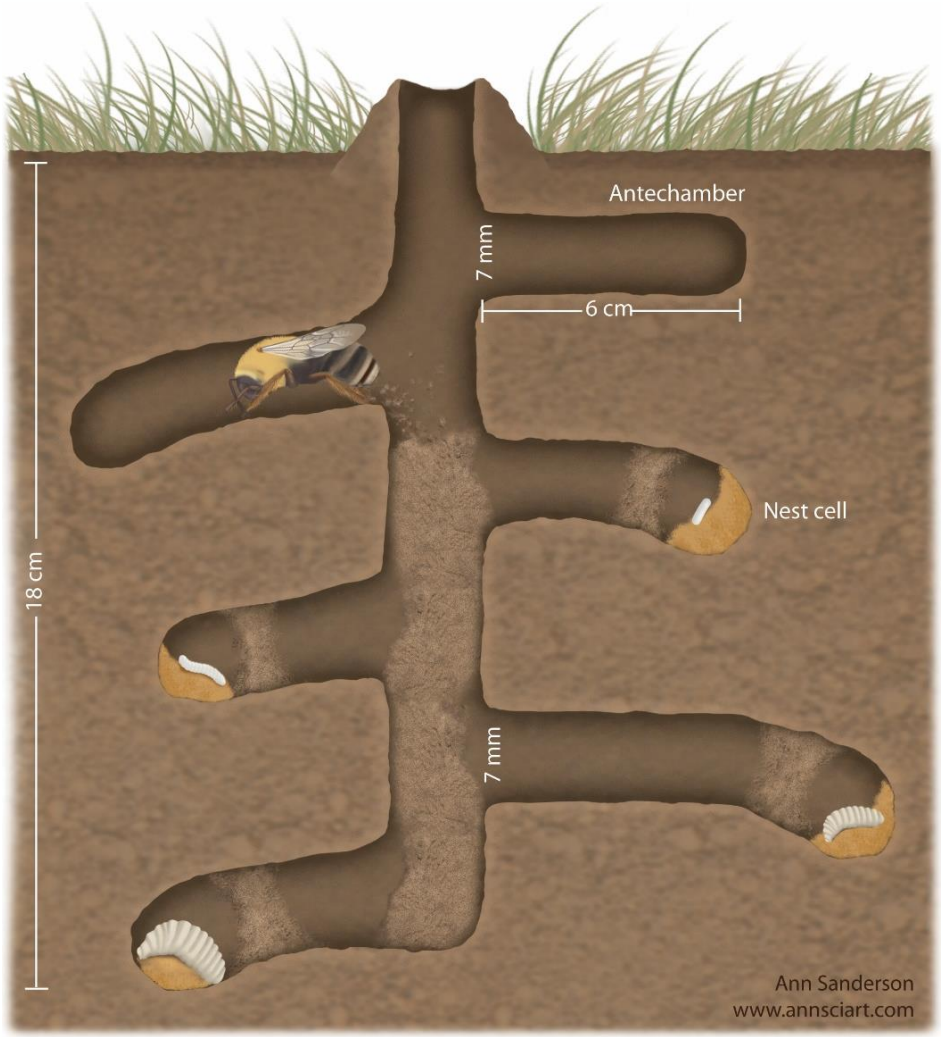
Generalist foragers

Cavity nesting

Life Stage!


adult
pupa
larva
egg
XERCES SOCIETY
for Invertebrate Conservation

Nesting Sites



Pollinators: Butterflies and Moths

- 300+ species
- Major Groups:
  - Butterfly:
    - Swallowtail
    - Brush-footed
    - Skippers
    - Sulphers
    - Snout-nosed
  - Moths
    - Miller
    - Hawk/Sphinx/Hummingbird

SandiaNet.com

Caterpillars

Pupa/Cocoons

Common Beneficial Insect/Natural Enemy Groups








Syrphid Fly

S. Jordan

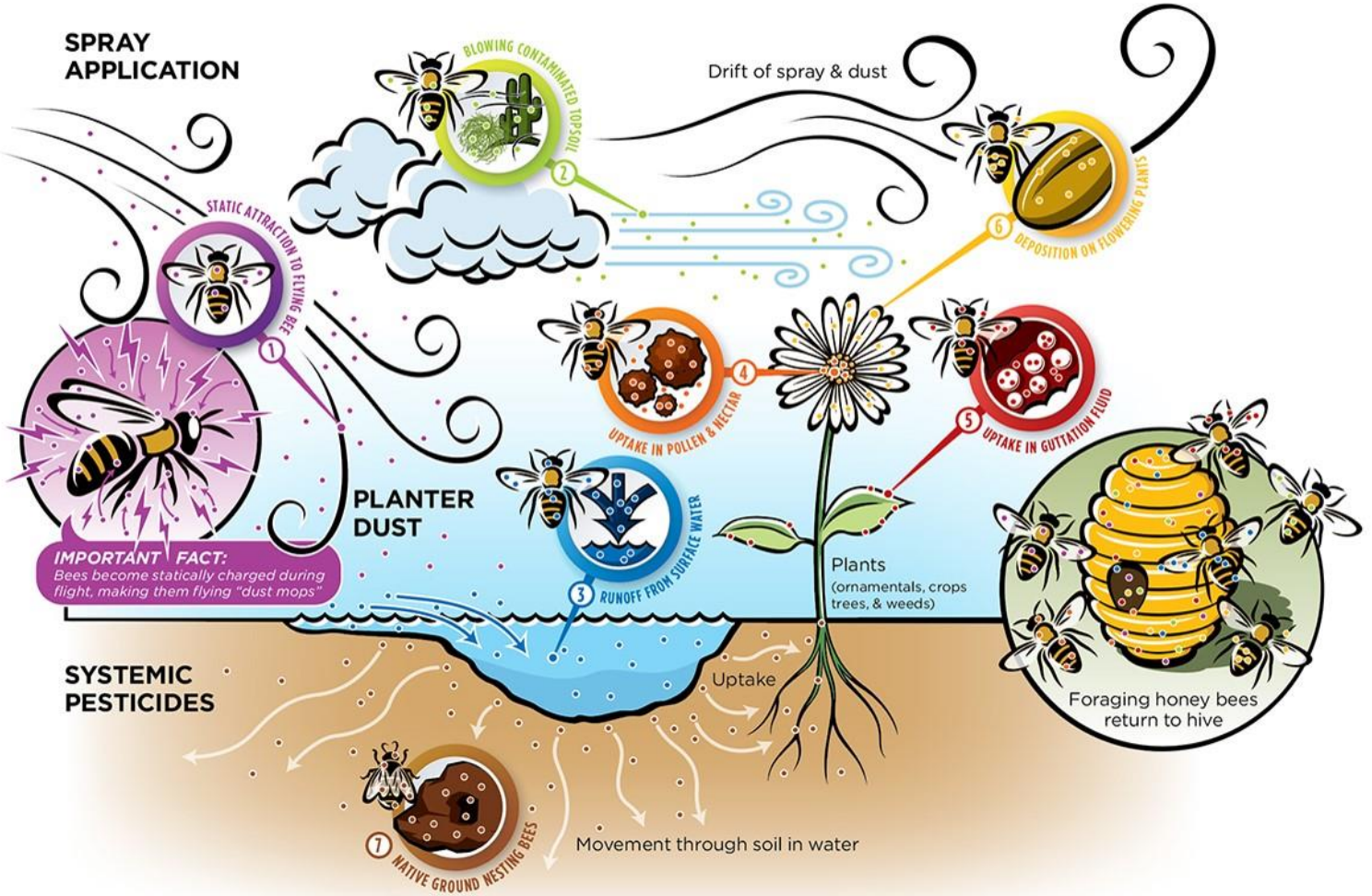
Adult = Pollinator

M. Ambrosino

Larva = Predator

Melissa Tinling

Major Routes of Pesticide Exposure for Foraging Honey Bees and Their Transmission to the Hive



C. Krupke

Provide pollinators with resources!

Landscape Design For
Pollinators & Beneficial Insects

Insect mouthparts

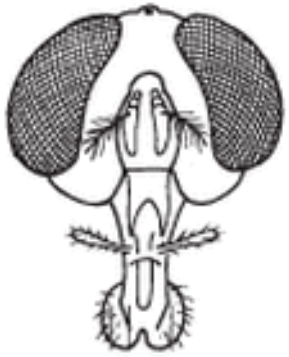
sucking

butterfly
(side view)

cicada
(front view)

lapping

bee
(front view)



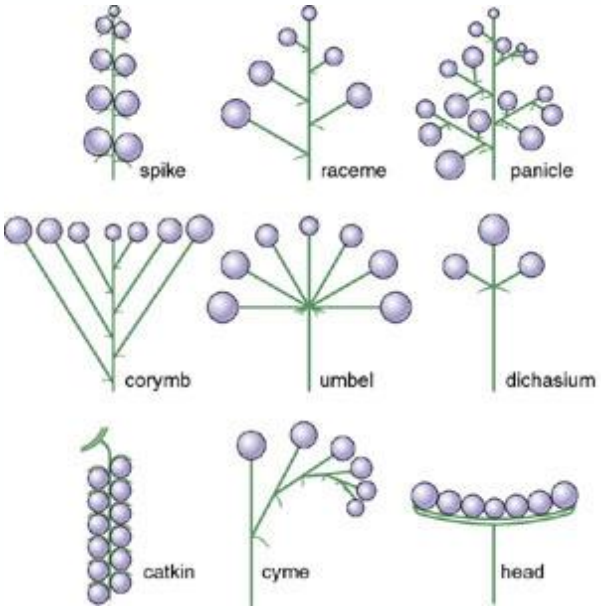
housefly
(front view)

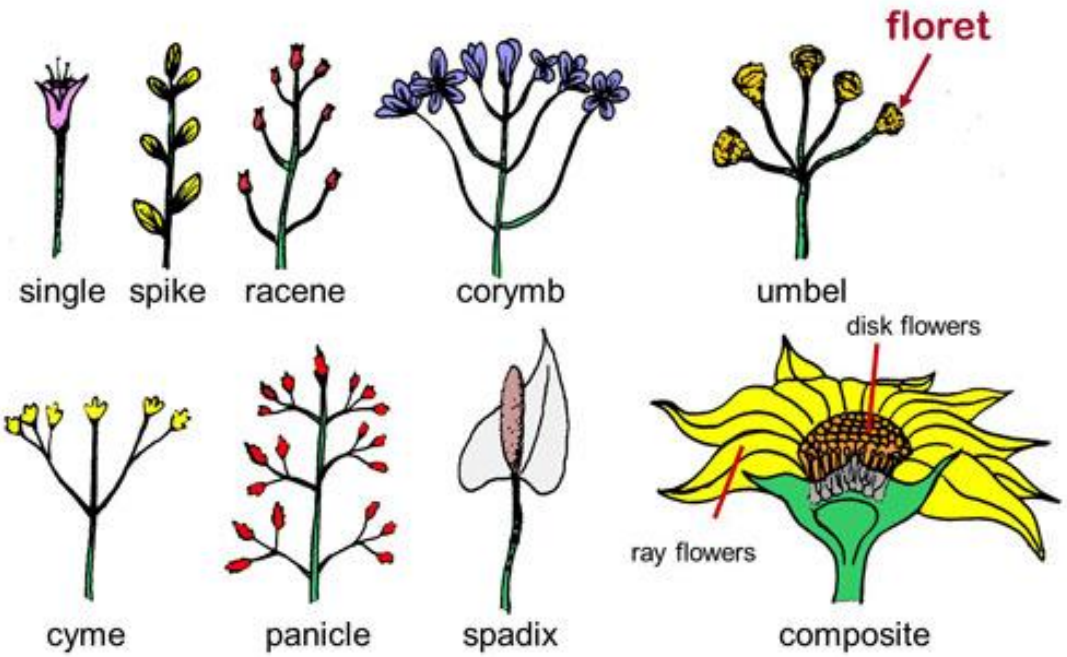
chewing

beetle
(front view)

grasshopper
(side view)

Types of Inflorescences





Inflorescence:

- Arrangement of flowers into a group or cluster; Flower head
- Can be solitary or clustered

Flower Shape -Open Disk or Bowl

Asters: Sunflower, Mexican Hat, Zinnia

Mexican Hat

New Mexican Sunflower

Bowl: Poppy, cherry, rose

Poppy

Rose

Open Shapes *are 'open access' flowers used by all sorts of insects. They are especially used by honeybees, bumblebees and certain solitary bees; also beetles and flies*

Flower Shape - Tubular

Gentian, bellflower, mints, salvia

Monkshood

Snap Dragon

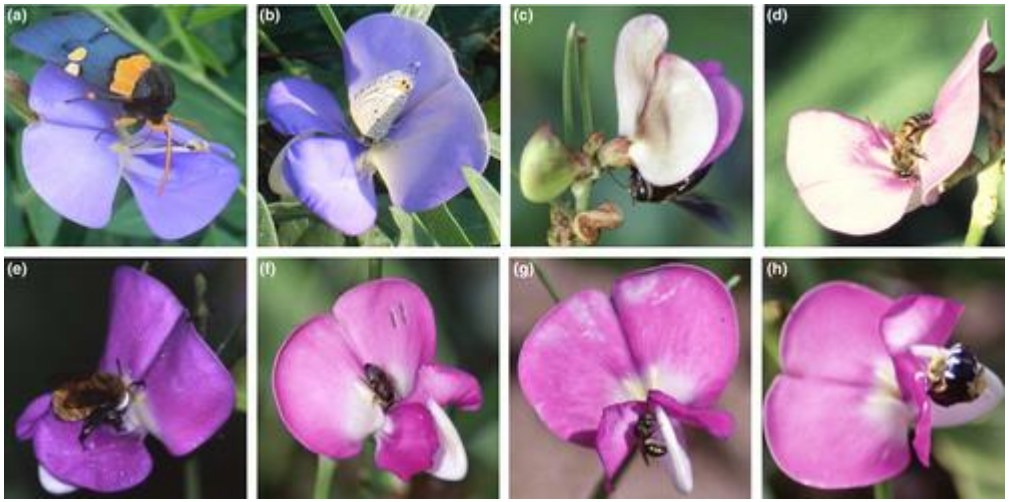
Angle's Trumpet

Mint

Hayden's Gilia

Tubular shapes *seem to have specifically co-evolved with long-tongued Bumblebees, butterflies, moths (as well as some flies and beetles)*

Flower Shape – Lipped



Cowpea

Lavender

Lipped flowers *- are specialized flowers that in many cases have a close relationship with bumblebees or solitary bees.*

Wind Pollinated

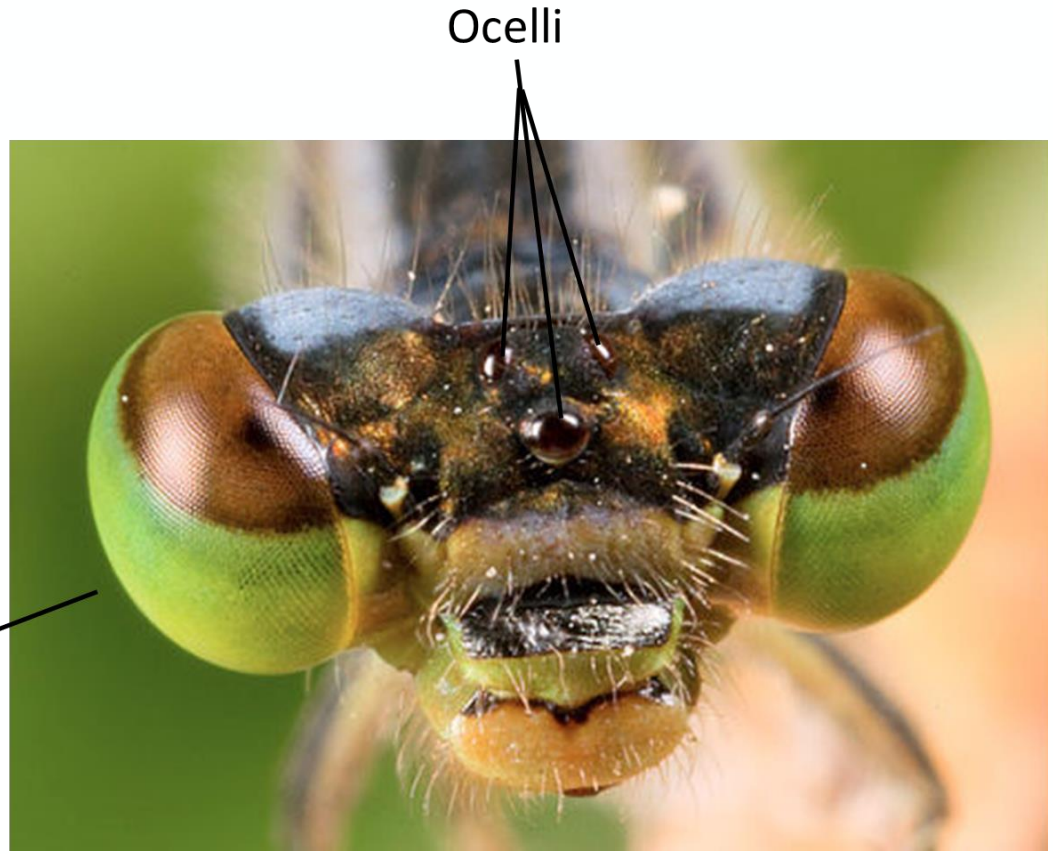
Wind-pollinated *species are usually green, small, may have small or no petals, and produce large amounts of pollen*

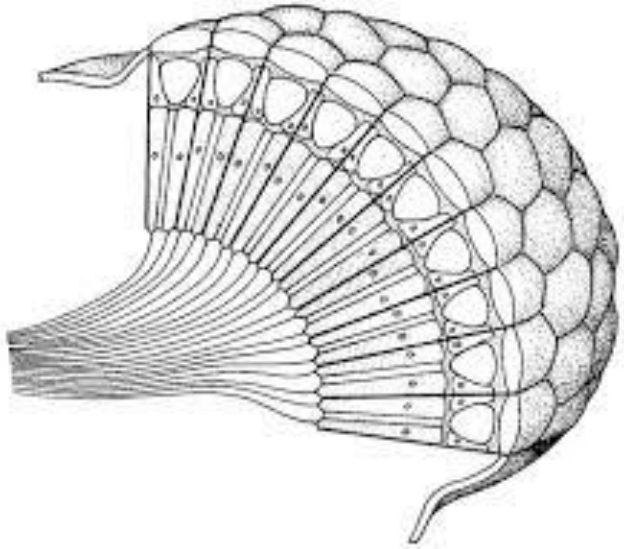
grasses, trees, flowers

Fendler's Meadow Rue

Corn

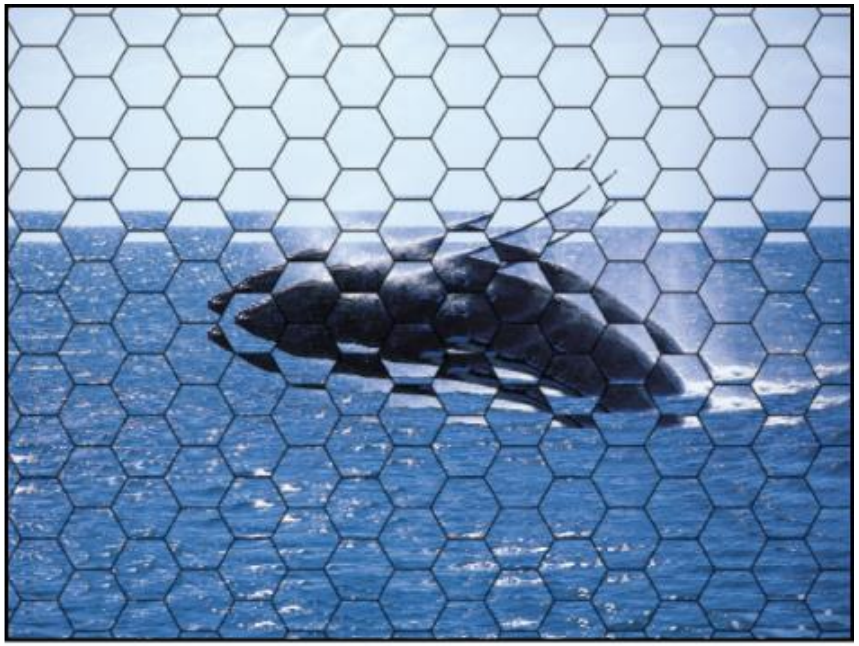
Vision






FALSE

Original image



Insect Eye filter applied


10 9 8 7 6 5 4 3 2 1

Site Inventory

Site Inventory

Site Inventory: Gathering facts and information about the site
Goal: Determine problems and potential solutions

Examples include:

- Location of plant material, walkways, existing patio, fences, utilities
- Condition of existing plant material
- Soil type
- Slopes / down spouts / drainage
- Wind direction
- Sun and shade patterns
- Important views
- Noise pollution
- Style of house
- High traffic areas, play areas, other rooms

Site Analysis

Site Analysis: Determines how the design solution can address site conditions

Examples of how the design can address:

- Existing patio space or walkways
- Block a bad view
- Create shade
- Existing plant material: should it stay or go….

Site Inventory *vs* Site Analysis

Site Inventory

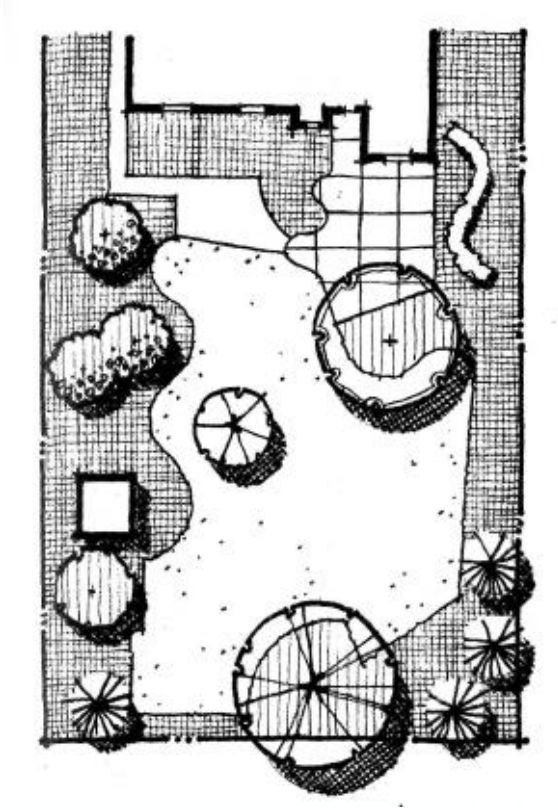
1. 3’ walkway
2. View to wooded area
3. Existing patio 100 Sq Ft
4. Large Sycamore
5. Back of house hot in afternoon

Site Analysis

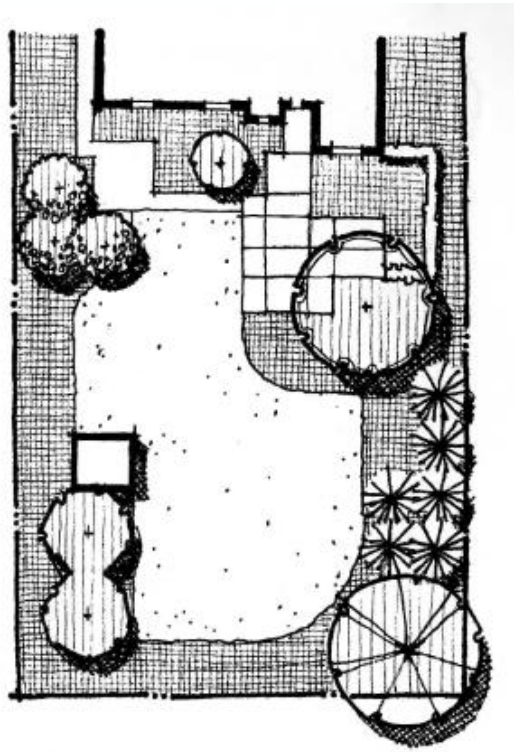
1. Too narrow; widen to 5’
2. Maintain and frame view
3. Enlarge to 200 Sq Ft
4. Preserve; secondary sitting area
5. Plant trees to shade house / patio

Design Principles - Order

- Lacks order and visual theme



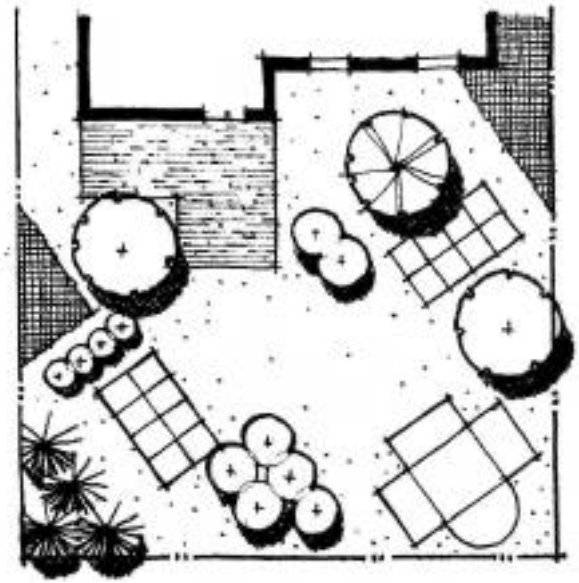
- Order and visual theme



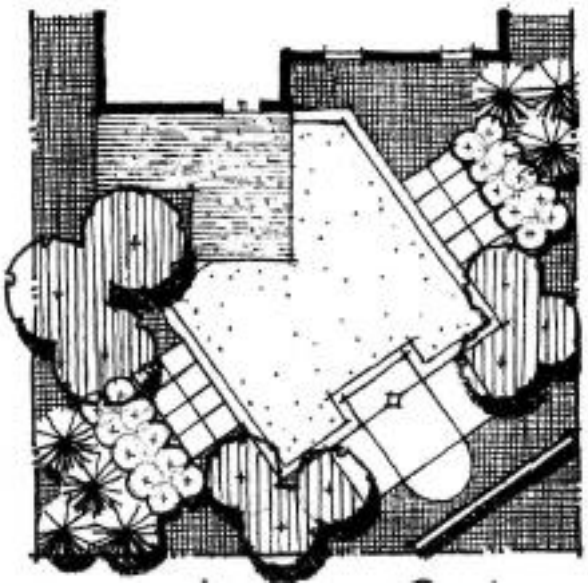
Design Principles - Unity

Interconnection

- Created by physically linking or tying together design elements
- Helps eye move smoothly from 1 element to anther
- Fragments or isolated elements reduce unity

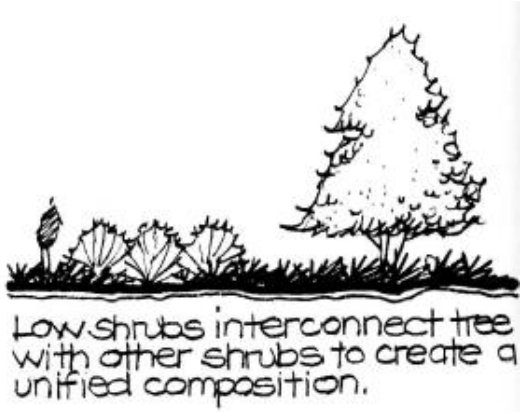


- Fragmented so lacks unity



- Better connection of elements

Design Principles - Unity



- Shrubs create interconnection

- Fence creates interconnection

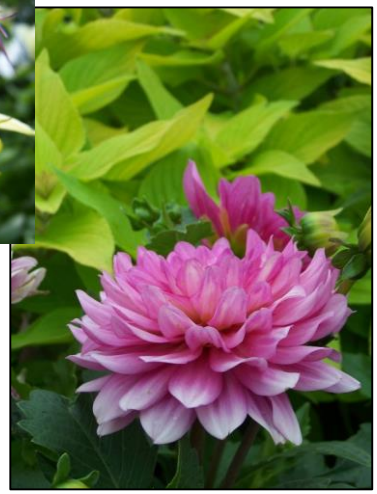
Design Principles - Rhythm

Colors: Contrasting & Complementary

Color:

- Contrasting
- Complementary
- Cool Colors – Small spaces look bigger

Lurie Garden, Chicago, IL



Design Principles - Rhythm

Texture:

- Contrasting
- Coarse and Fine
- Gives interest

Coarse Texture

Fine Texture

Texture from fruit and seeds

Use Design Principles to Scale Down

Focus on 1 bed:

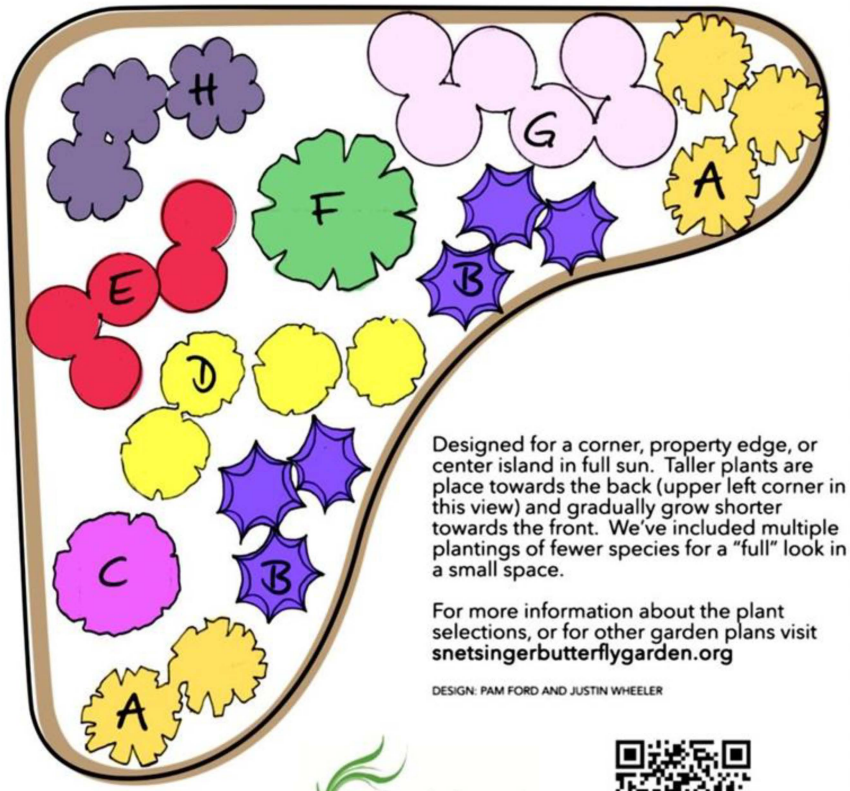
- Site inventory: Shade, soil, slope
- Bed design
  - Use your design principles
- Pick your plants: Use native
- Site prep
- Planting
- Here come the bees!!

For the pollinators:

- Flower shape
- Bloom time
- Color
- Reward: pollen & nectar

Pollinator Pocket Garden

Size: 8' x 8'



Designed for a corner, property edge, or center island in full sun. Taller plants are place towards the back (upper left corner in this view) and gradually grow shorter towards the front. We've included multiple plantings of fewer species for a "full" look in a small space.

For more information about the plant selections, or for other garden plans visit **snetsingerbutterflygarden.org**

DESIGN: PAM FORD AND JUSTIN WHEELER

Tinker's Creek WATERSHED PARTNERS
Rediscover • Respect • Revitalize
www.tinkerscreekwatershed.org

	Common Name (color) *Botanical name*	Bloom time
A	Butterfly Milkweed (orange) *Asclepias tuberosa*	Jun - Aug
B	Anise Hyssop (purple) *Agastache foeniculum - or -*	Jun - Aug
	Prairie Spiderwort (blue-purple) *Tradescantia occidentalis*	Jun - Jul
C	New England Aster (blue-purple) *Symphyotrichum novae-angliae - or -*	Aug - Oct
	Blazingstar (purple) *Liatris spp.*	Jul - Sep
D	False Sunflower (yellow) *Heliopsis helianthoides - or -*	Jul - Sep
	Stiff Goldenrod (yellow) *Solidago rigida*	Aug - Oct
E	Wild Bergamot (purple) *Monarda fistulosa*	May - Sep
F	White False Indigo (white) *Baptisia lactea*	Jun - Jul
G	Purple Coneflower (pink-purple) *Echinacea purpurea*	Jun - Aug
H	Joe Pye Weed (pink) *Eutrochium purpureum - or -*	Jul- Sep
	Swamp Milkweed (pink) *Asclepias incarnata*	Jul- Sep