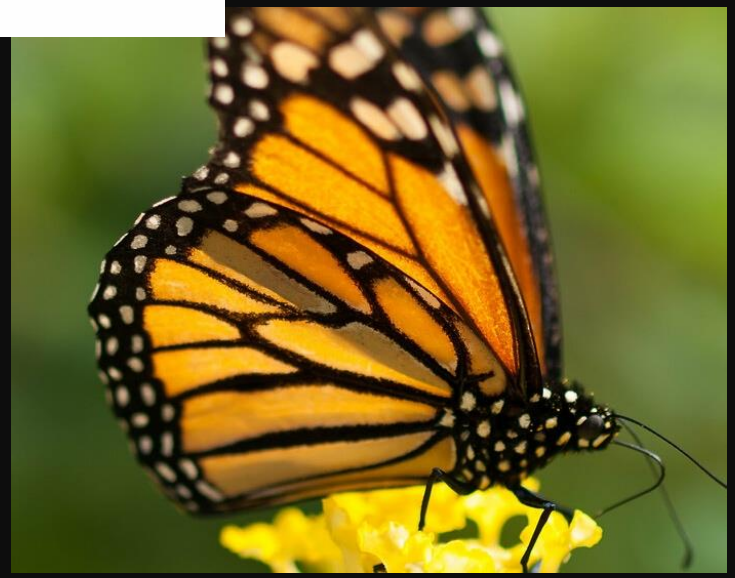
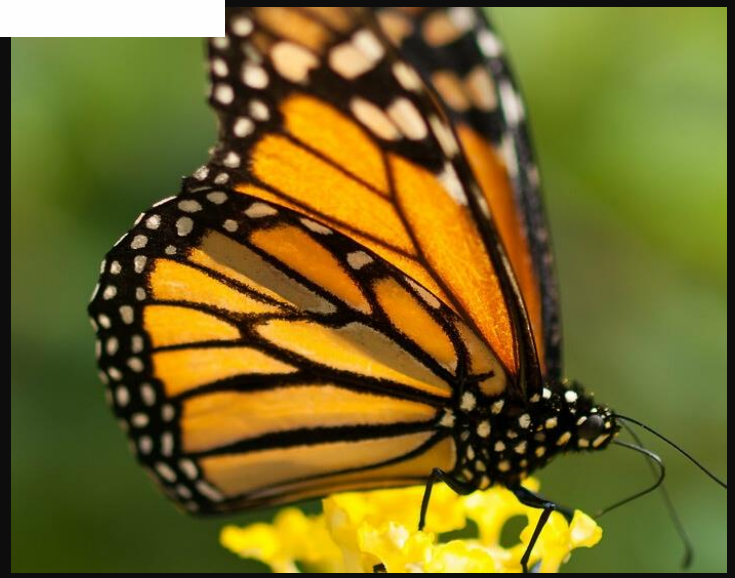
Native Plants

Through the lens of faunal relationships



Martin-Gatton
College of Agriculture,
Food and Environment
Department of Horticulture

Intentional plant selection



- Intentionally choosing Keystone plants
- Intentionally choosing species with unique flower characteristics.
- Intentionally choosing species according to their flowering patterns.

Keystone Plants and faunal relationships

- Native plants are part of the tight relationship with wildlife formed over many thousands of years.
- Native plants provide food, cover and places to raise young.
- Without healthy native plant communities, wildlife cannot survive

Credit: National Wildlife Federation.

Keystone Plants and faunal relationships

- Ecoregion specific keystone plants are critical to the food web.

- Types of keystone plants
  - Plants that feed 90% of butterflies and moths.
  - Plants that feed both specialist and generalist bees.

Keystone Wildflowers

- Goldenrod (*Solidago* spp.)
- Asters (*Symphyotrichum* spp.)
- Sunflowers (*Helianthus* spp.)
- Milkweed (*Asclepias* spp.)
- Coneflowers (*Echinaceae*, *Rudbeckia* spp.)

Keystone Wildflowers

- **Understanding common name and the scientific name**

Milkweed is a common name

Asclepias is a Genus

tuberosa is a species

Asclepiadaceae is a family

Keystone Wildflowers

Apply of your understanding of common name, genus and species

Asclepias tuberosa is butterfly milkweed.

Now you can go to BONAP and find out if that cool flower is really ecospecific to Kentucky or your county

https://bonap.net/napa

http://www.bonap.org/MapKey.html

Photo credit: Prairie Moon Nursery

Keystone Wildflowers

Apply your understanding of common name and the scientific name

Asclepias tuberosa, butterfly milkweed, is in the Asclepiadaceae family.

Now you can investigate other cool plants in the family Asclepiadaceae!

Apply your understanding of common name, genus and species

Centaurea cyanus is Bachelor's Button and common in wildflower mixes.

Go to BONAP and find out if this flower is eco-specific to Kentucky or your county

https://bonap.net/napa

http://www.bonap.org/MapKey.html

Flowering phenology and faunal relationships

- Time of bloom- is a survival adaptation of native plants.

- Time of bloom is also a handy, scheduled food source for our specialist pollinators!

Mertensia virginica Virginia Bluebells

Photo credit: Prairie Moon Nursery

Apply Flowering Phenology

Intentional planting plans should include native species that are early blooming, mid-season blooming and late season blooming.

Verbisina alternifolia Yellow wingstem

Photo credit: Prairie Moon Nursery

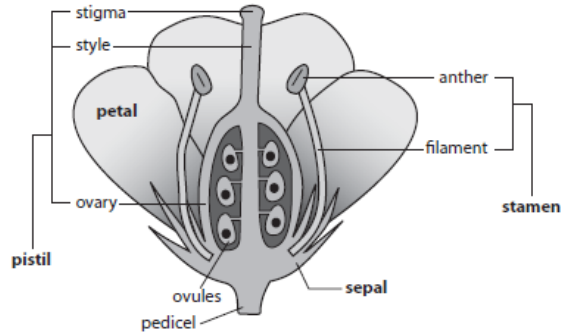


Figure 1.19. Complete flower structure.

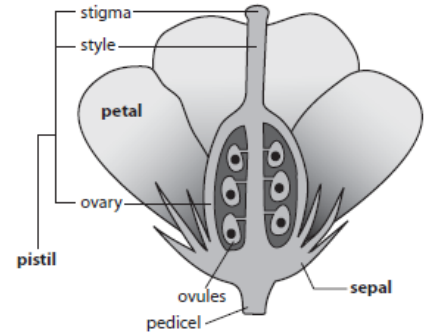


Figure 1.20. Imperfect (pistillate) flower structure.

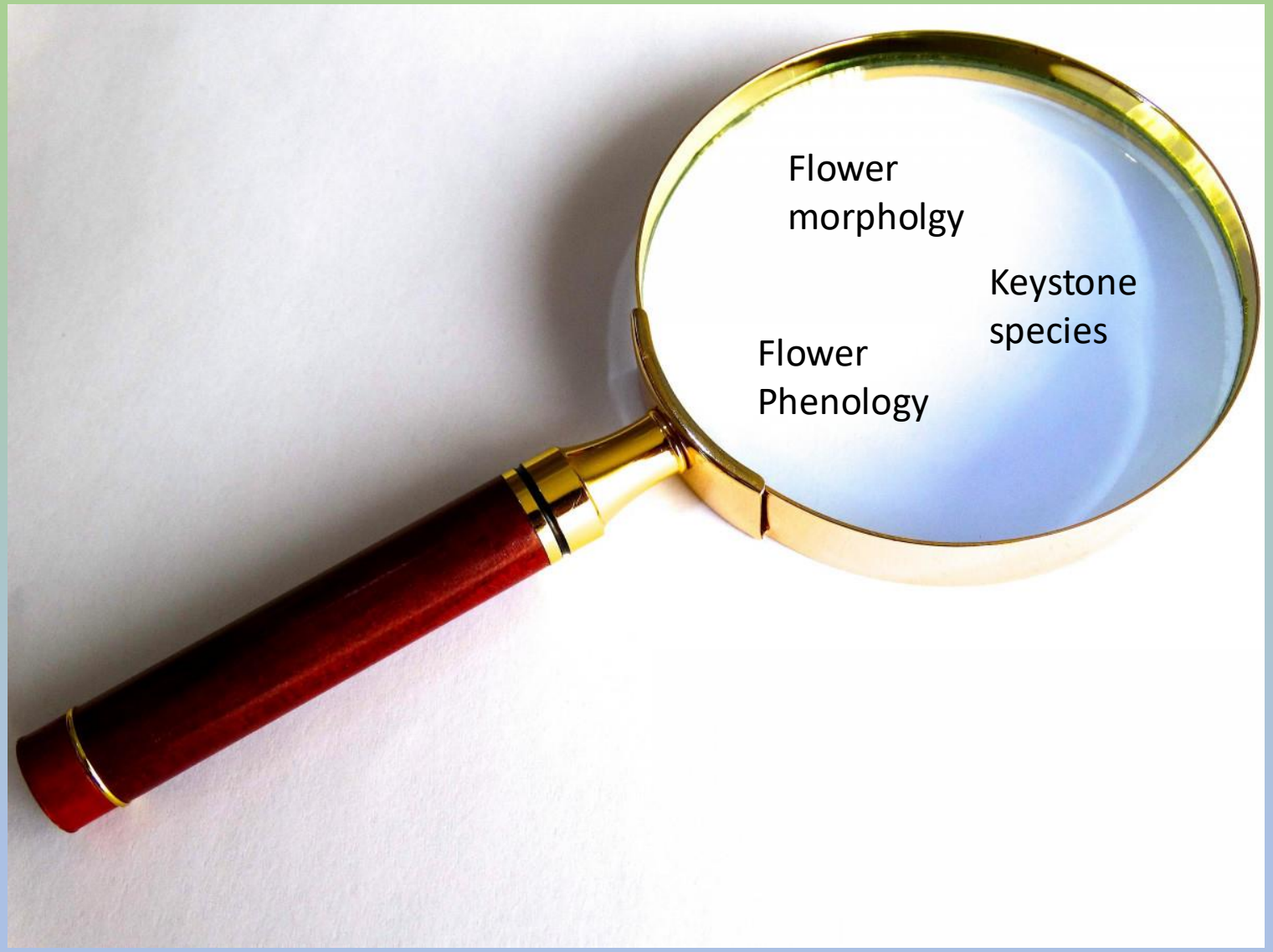
Flower morphology, faunal relationships

AND

The amazing power of composite flowers in the family Asteraceae

Intentional Plant Choices using Flower Morphology, Phenology and Keystone importance.

- Purple coneflower *Echinacea purpurea*
- Smooth aster *Symphyotrichum leave*
- Common Ironweed *Vernonia fasciculata*
- Goldenrod *Solidago species*

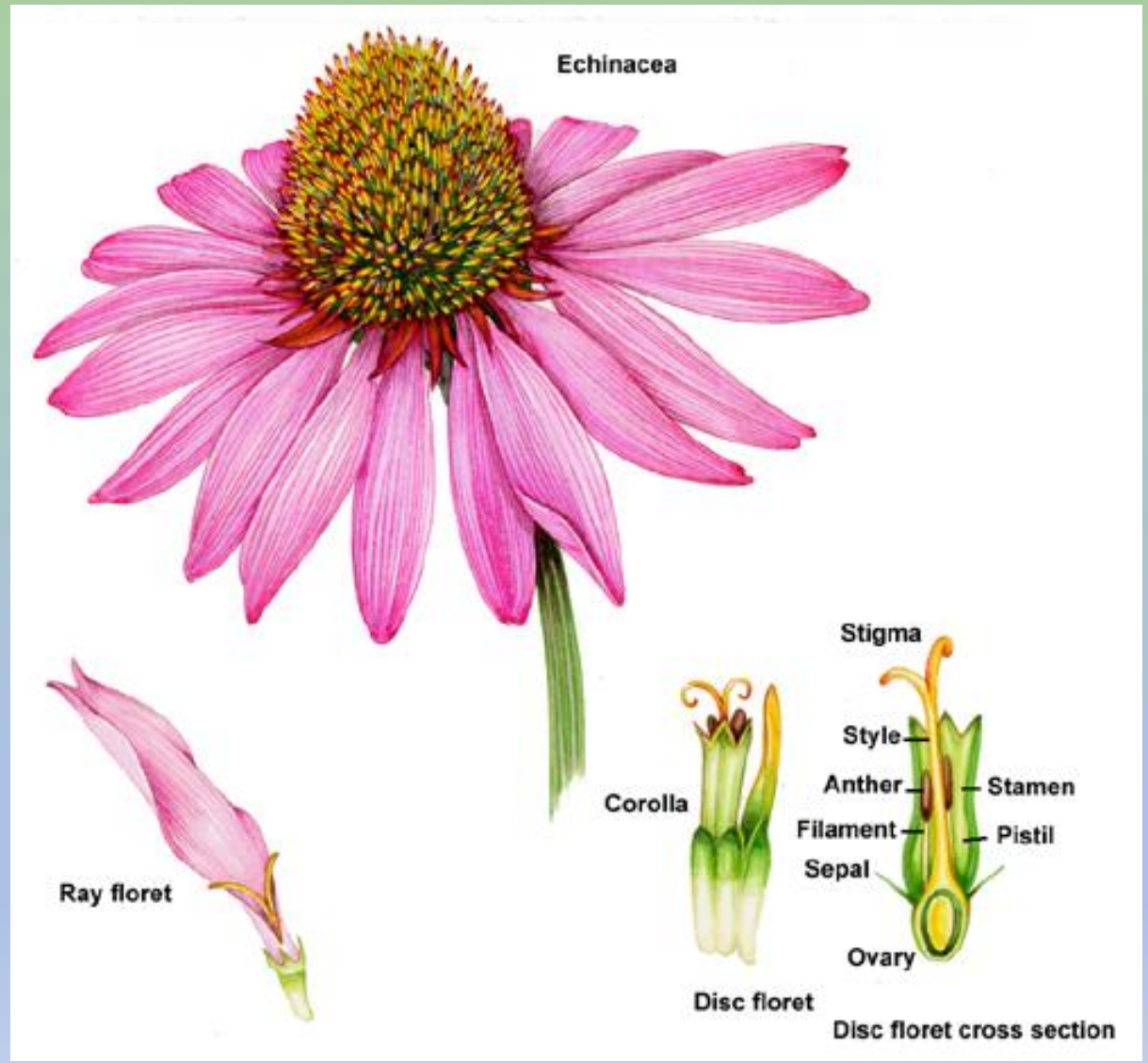


Intentional Choices

Purple coneflower *Echinaceae purpurea*

Asteraceae

- Keystone importance: Flowers feed 6 specialist bee species, host plant for many butterfly species
- Flower Phenology: Mid-summer blooming
- Flower morphology, composite



Intentional Choices

Echinacea purpurea ‘Marmalade’

- Flower Phenology: Mid-summer blooming

- Flower morphology: Genetic mutations have selected for increased petals replacing other important floral parts.
- Selective breeding for double blooms reduces or eliminates its keystone worth..

https://issuu.com/mtcuba/docs/20033-echinacea_report-interactive?fr=sNTE0YTI0NjAxNDg

Photo credit Burpee seeds

Intentional Choices

Goldenrod *Solidago* species

Asteraceae

- Keystone importance: 104 caterpillar species use Solidago as their host plant. 42 specialist bee species feed off the pollen.
- Flower Phenology: Goldenrods provide food at a critical time.
- Flower morphology: Composite flowers

Intentional Choices

Smooth aster *Symphyotrichum laeve*

Asteraceae

- Keystone importance: Flowers feed 33 bee species including specialist bees. Host plant for 100 butterfly species.
- Flower phenology: Late flowering providing valuable nectar and pollen.
- Flower morphology: Composite flower. Bees are attracted to blue flowers.

Photo credit Prairie Moon Nursery

Intentional Choices

Common Ironweed *Vernonia fasiculata*

Asteraceae

- Keystone importance: Flowers feed 12 specialist bee species. Larval host and nectar source for many butterfly species like the American lady.
- Flower phenology: Late summer blooming
- Flower morphology: Composite flower

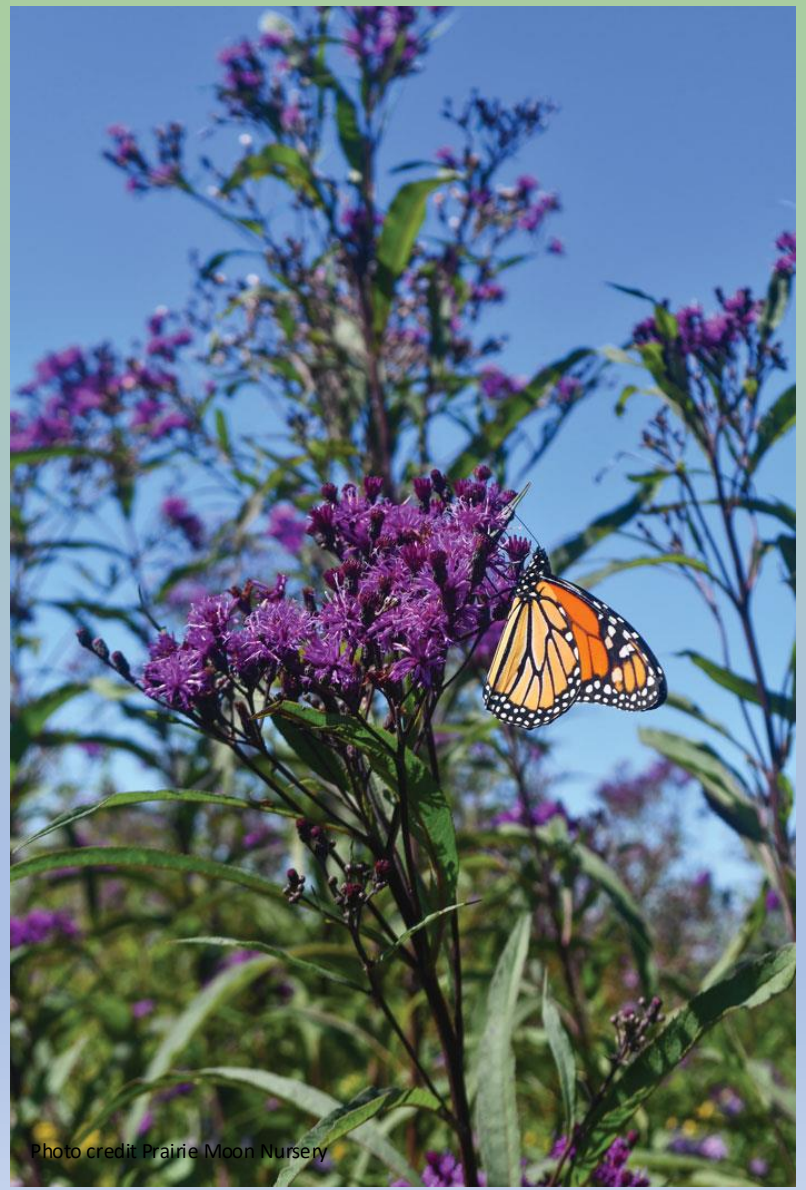
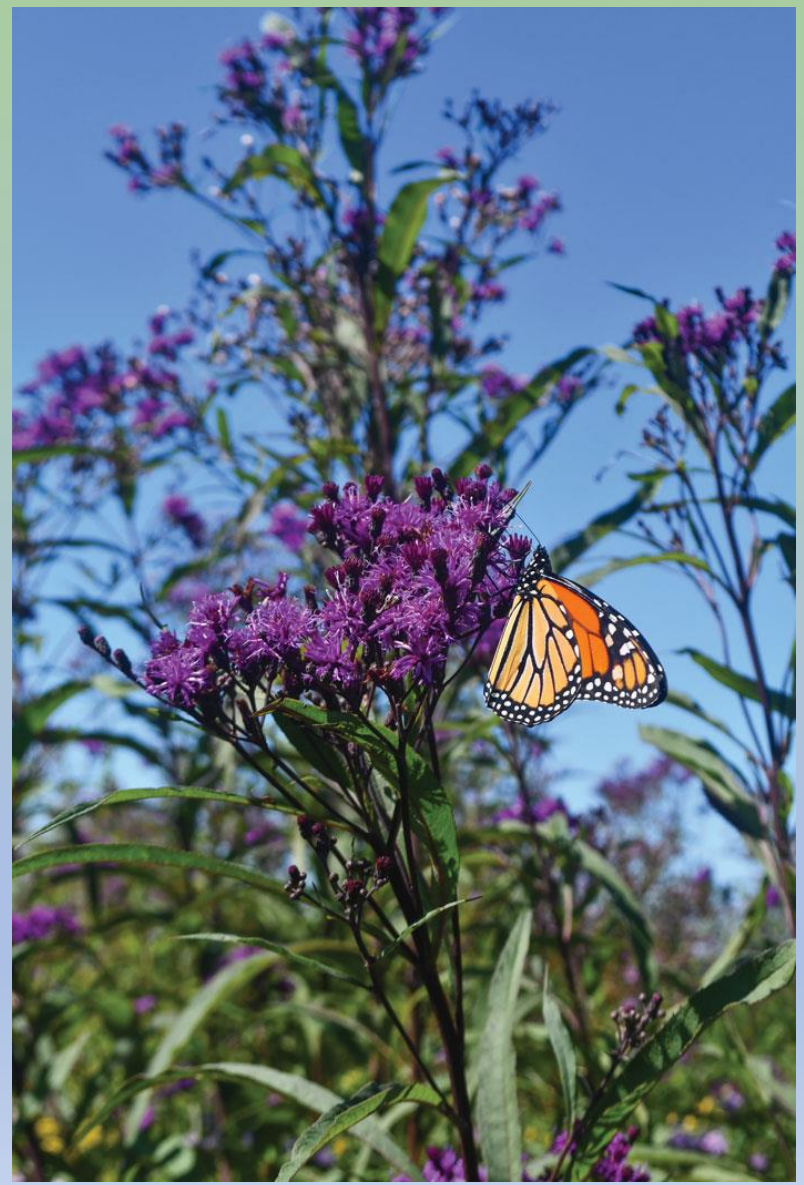


Photo credit Prairie Moon Nursery

Intentional Choices

Additional Ironweed species found in Kentucky (Source BONAP)

- *Vernonia gigantea* Tall ironweed
- *Vernonia noveboracensis* New York Ironweed
- *Vernonia missurica* Missouri ironweed



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Appreciating faunal relationship outcomes:

For the home gardener:

- provides a tool for intentional garden design.

For the grower:

- Provides a decision-making framework to aid in crop selection

Photo credit: Prairie Moon Nursery