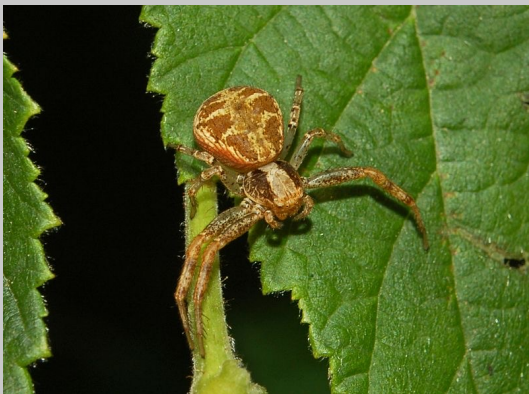




Conservation
Biocontrol
in the Vineyard
Cindy Kron - IPM Advisor





Only 2-5% of
insects are
pest species

Three types of Biocontrol

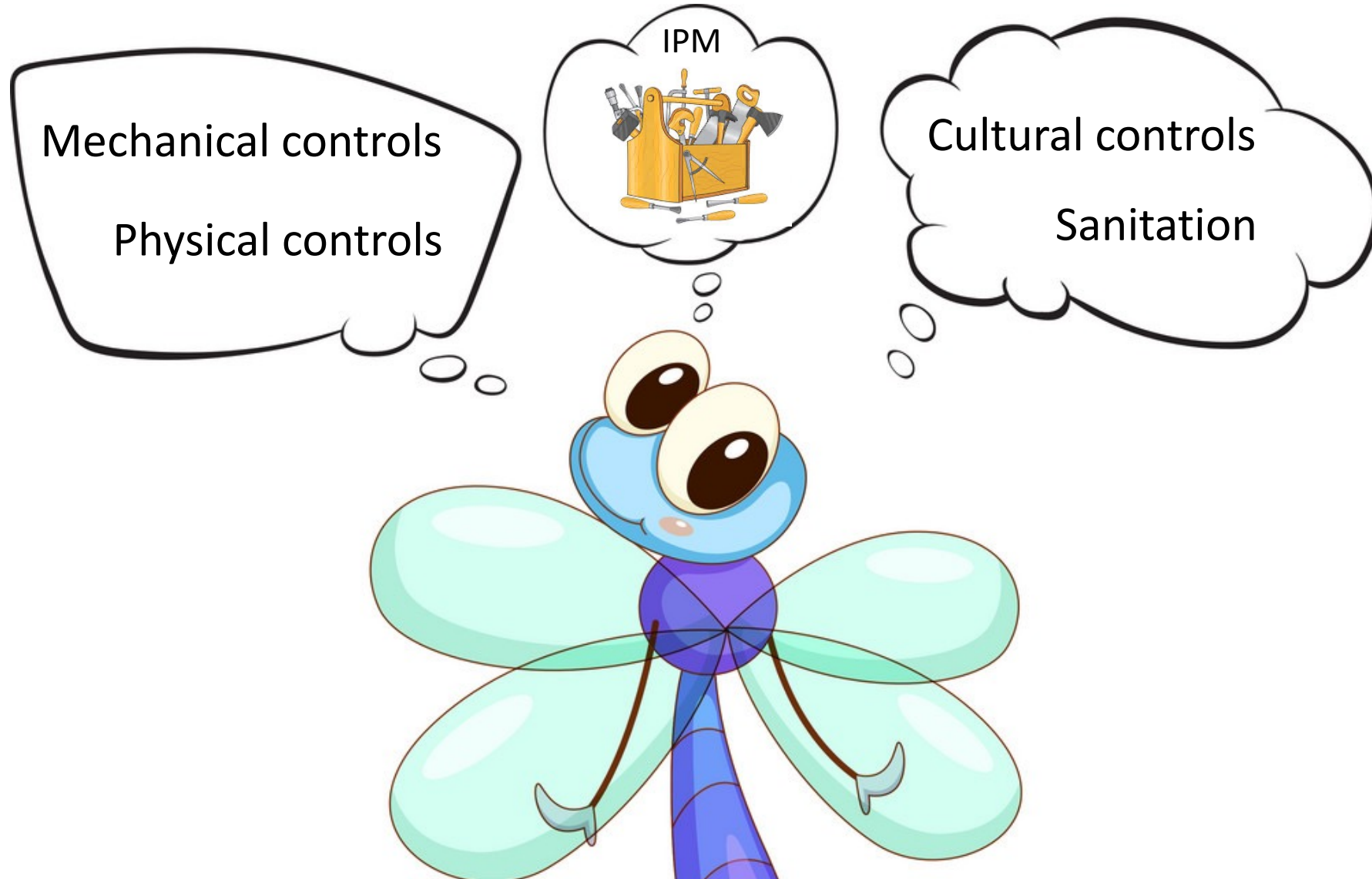
1. Conservation

2. Augmentation

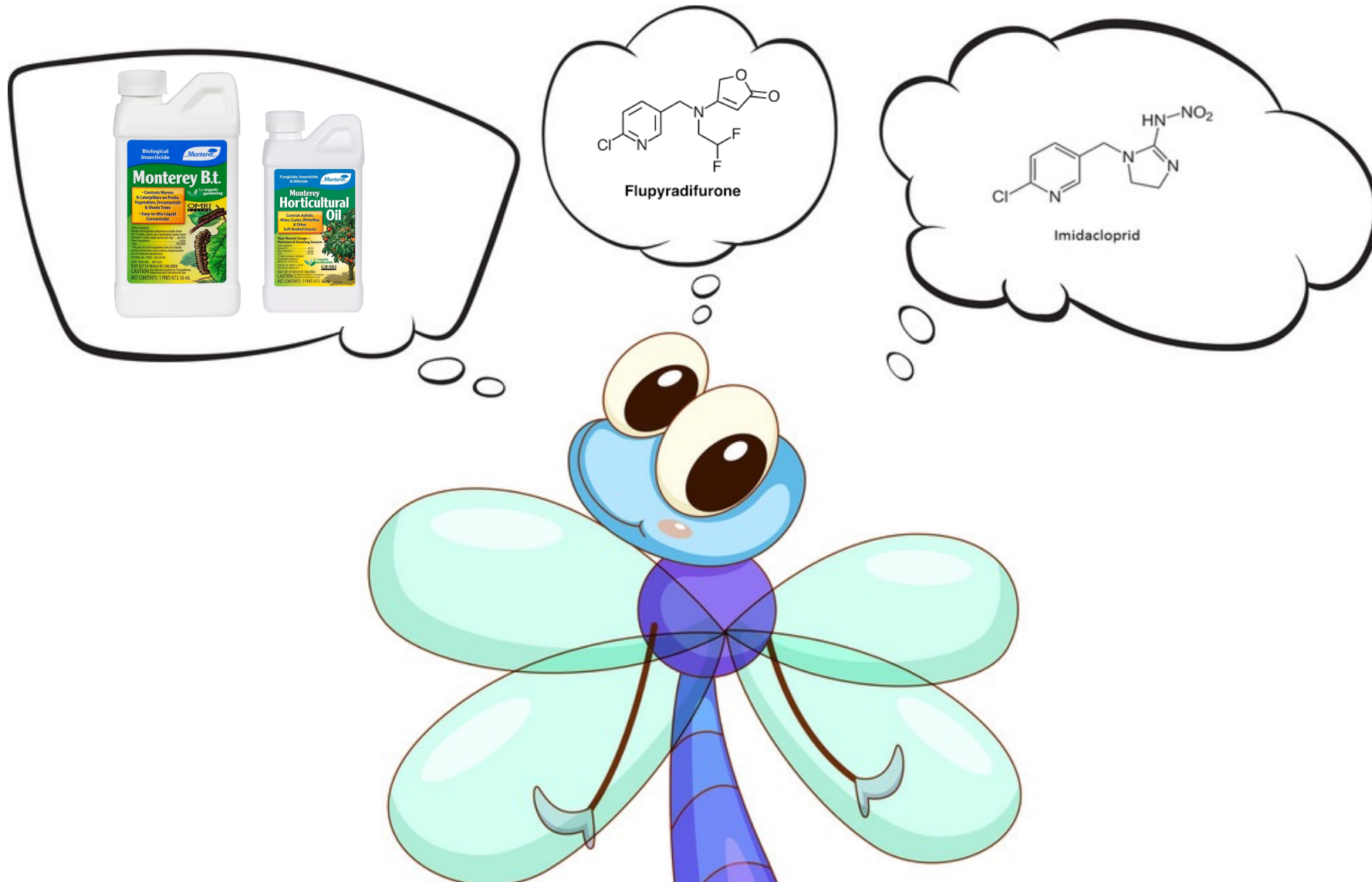
3. Classical



What should be considered in Conservation Biocontrol?



What should be considered in Conservation Biocontrol?



What should be considered in Conservation Biocontrol?

- Altering pesticide use
- Providing food for biocontrol, often nectar and pollen
- Providing permanent habitats, shelter and favorable microclimates
- Provide alternate prey or hosts (often present naturally in diverse habitats)





Predators





Parasitoids





Assassin bug
(11-14 mm)



Minute pirate bug
(3-5 mm)



Damsel bug
(4-9 mm)



Predatory stink bug
(13-22 mm)



Bigeyed bug
(3-6 mm)



Soft-winged flower beetle
(4-5 mm)



Soldier beetle
(5-15 mm)



Rove beetles
(2-8 mm)



Checkered beetles
(5-12 mm)



Ground beetles
(2-35 mm)



Ladybird beetles
(1-10 mm)



Syrphid fly



Predaceous midge



Aphid flies





Robber flies



Spider wasp



Velvet ant



Sphecid wasp



Vespid wasp



Snakeflies



Green lacewings



Brown lacewings





Egg case



Praying mantis



Dragonflies



Damselflies



Sixspotted thrips



Black hunter thrips



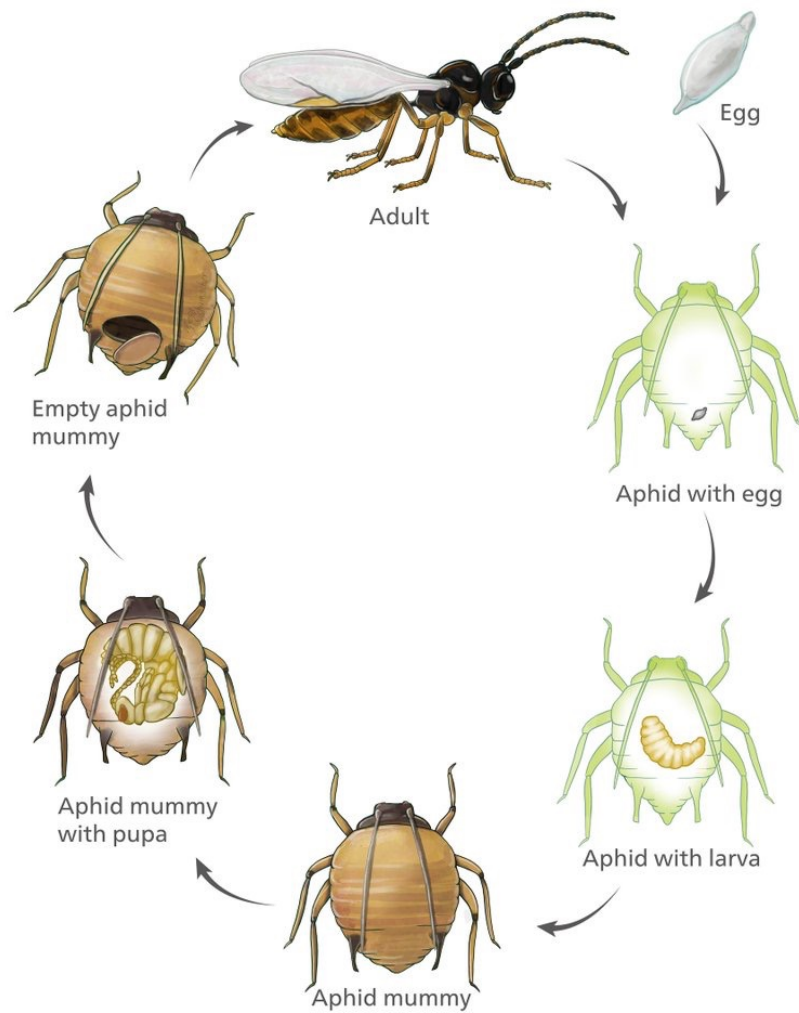
Spiders





Predatory Mites

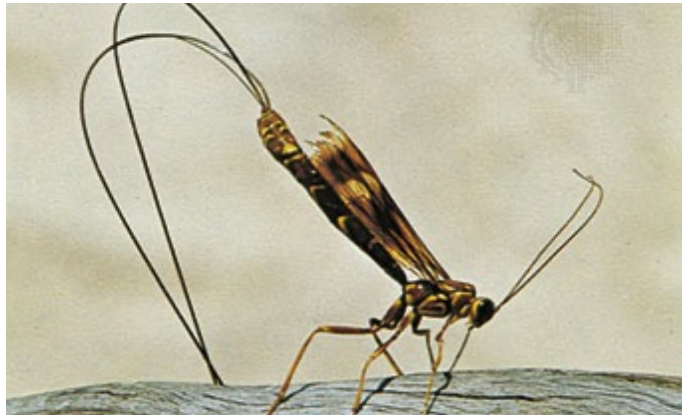


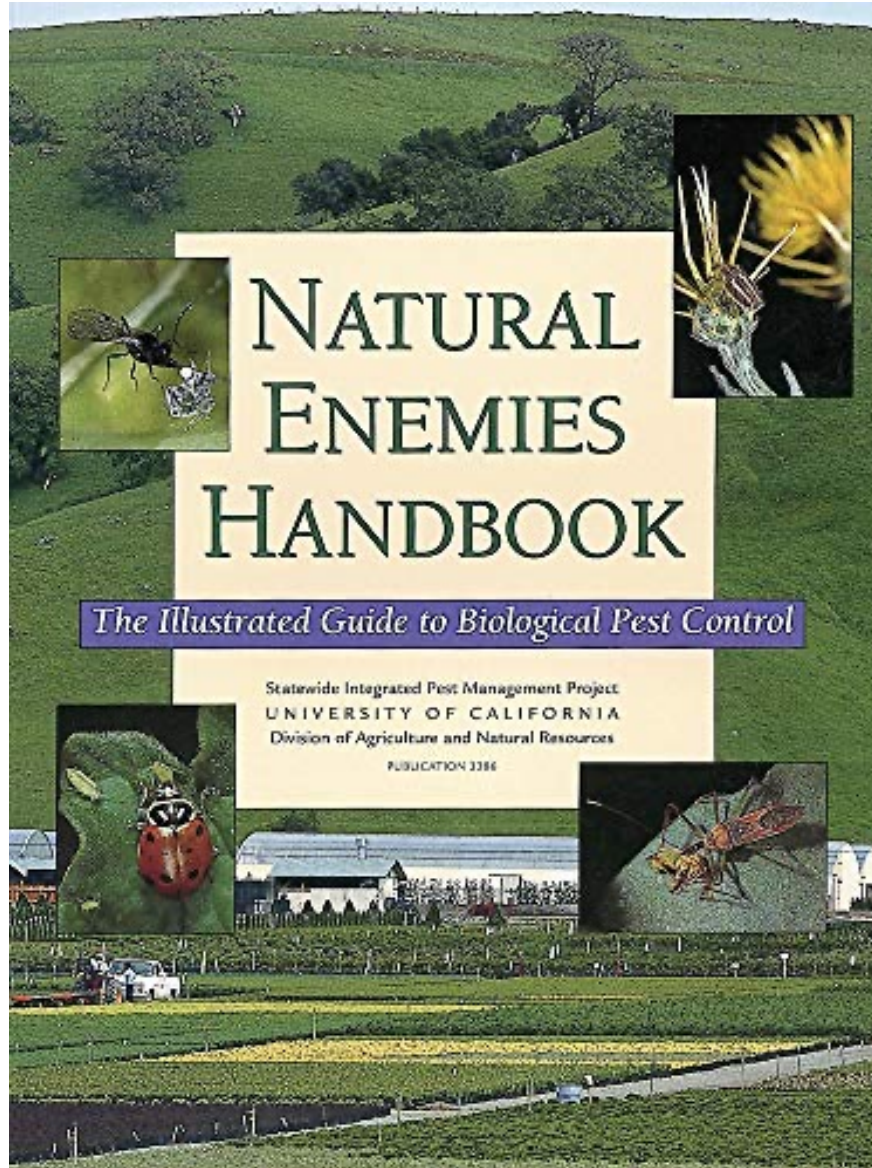


Parasitoid life cycle



Signs of parasitism





<https://anrcatalog.ucanr.edu>

UC IPM

Statewide Integrated Pest Management Program

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- Agricultural pests
- Natural environment pests
- Exotic & invasive pests
- Weed gallery
- Natural enemies gallery
- Weather, models, & degree-days
- Pesticide information

What's New

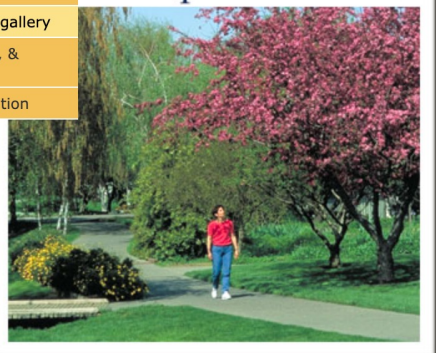
- Pest Notes: [Wood Mistletoes revised](#), [Turkeys and Pokeweed added](#)
- Ag Pest Management: [Cole Crops and Floriculture and Ornamental Nurseries revised](#)
- Agriculture: [2022 Fungicides, Bactericides, Biocontrols, and Natural Products for Deciduous Tree Fruit and Nut, Citrus, Strawberry, and Vine Crops in California \(PDF\)](#)
- Three new videos about the invasive shothole borers' [biology, trapping, and management](#) were published
- Green Bulletin: [Winter 2022](#)
- [More...](#)

QUICK LINKS

- Newsletters
- Recursos en español
- Online training
- Weather, models, & degree-days

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