Protecting Pollinators
in Landscapes

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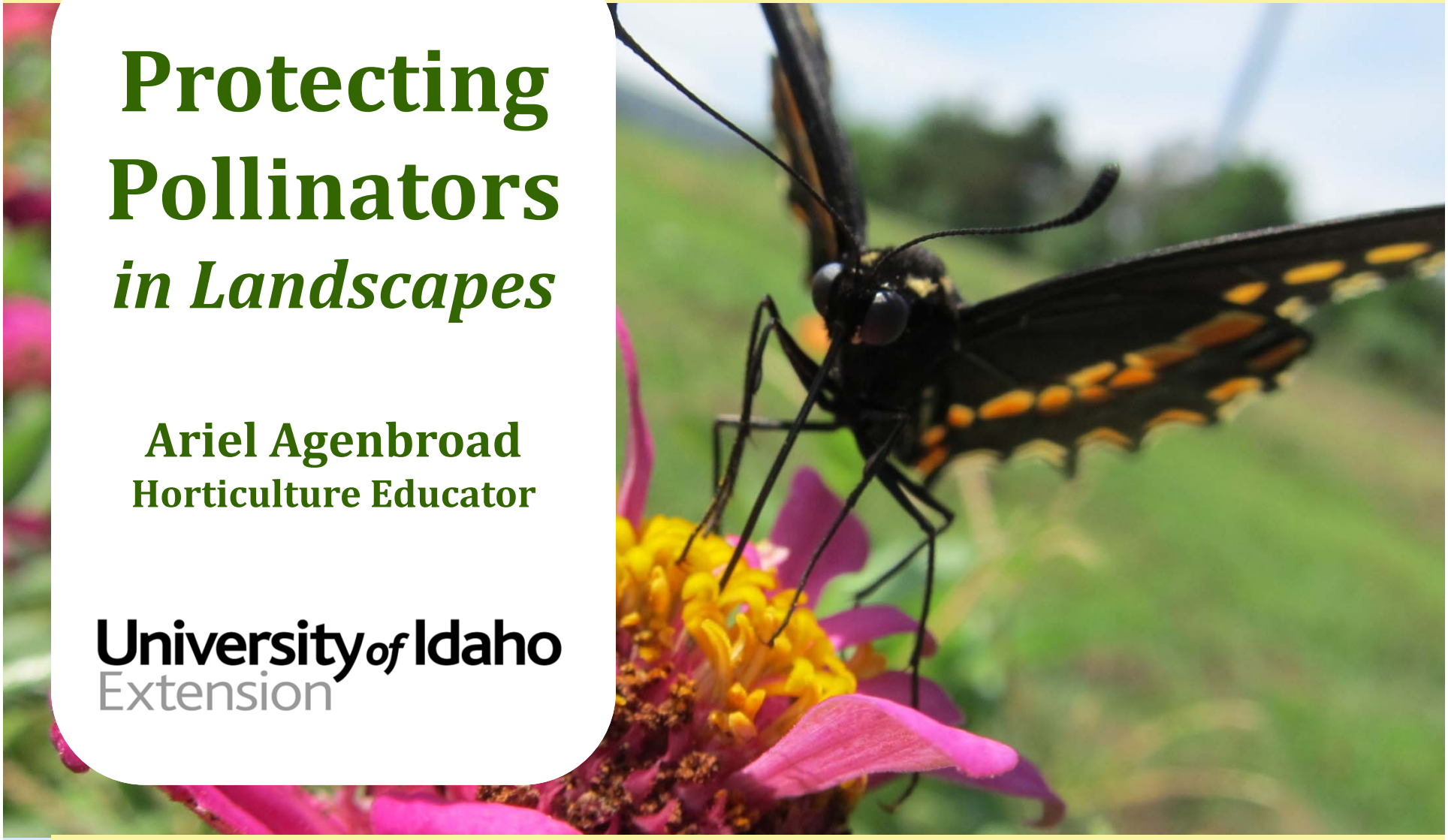


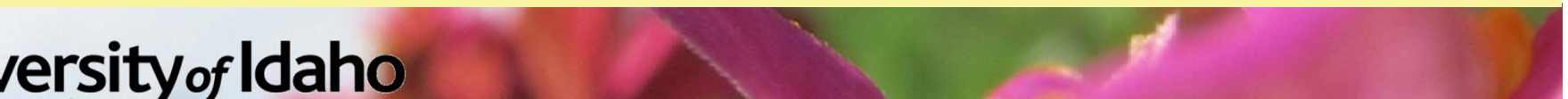
Today's Discussion

Why save pollinators and beneficial insects?

Review identification of beneficial insects pollinators and predators

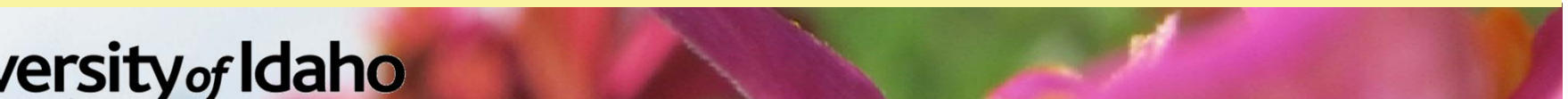
Practices for better preservation

How to attract more beneficials



Value of Pollinated Crops

- Crops pollinated by **honeybees**:
  - –$18 billion per year
  - –½ is in the PNW and CA
- Crops pollinated by **native bees**:
  - –$3 billion or more
  - –Over 1600 species native to region

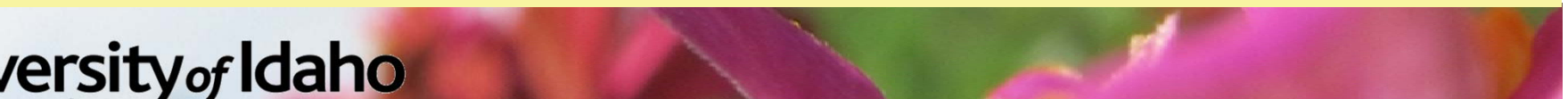


Test your Good Bug IQ

How well do you know the common beneficial pollinator and predatory insects?

Can you recognize all life stages?

Can you spot the signs of activity?



Pollinators

Social bees

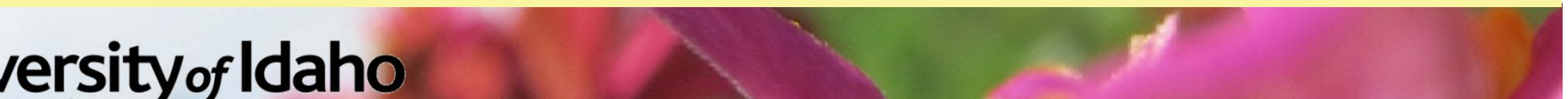
Solitary bees

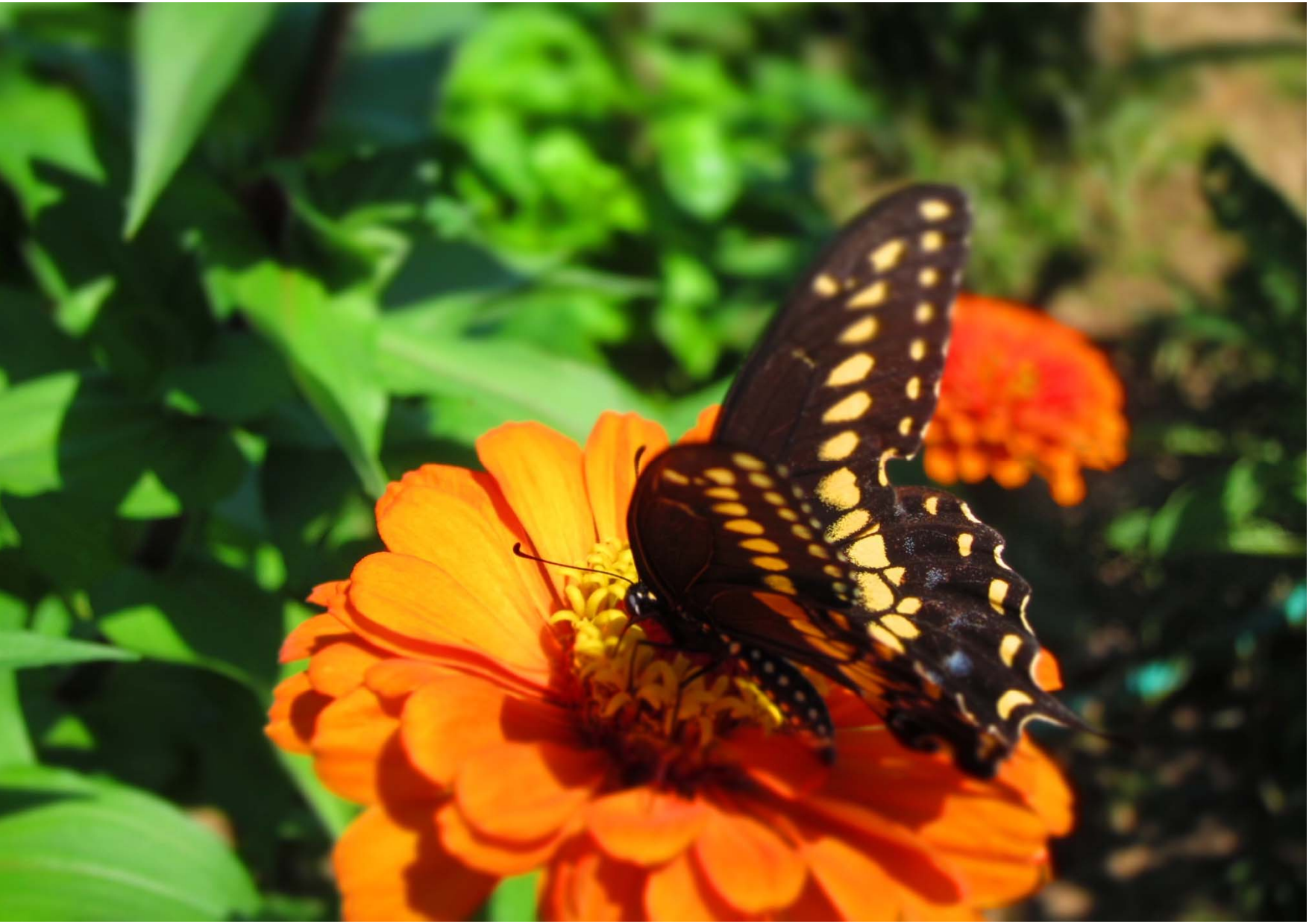
Wasps

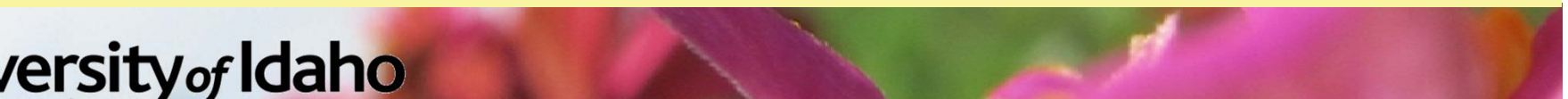
Butterflies and moths

Beetles

Flies



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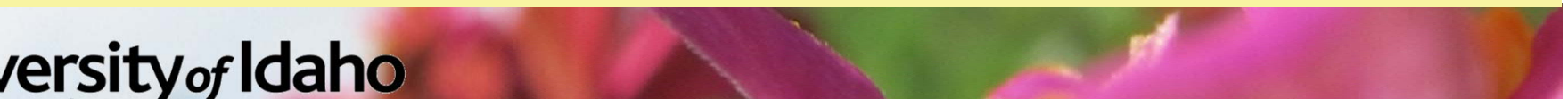
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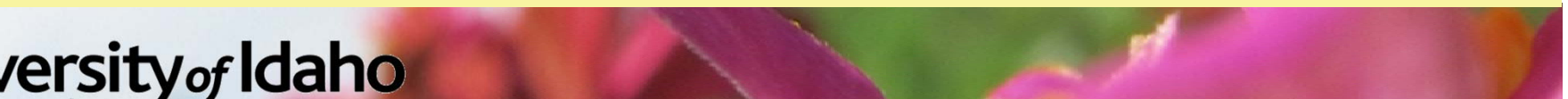
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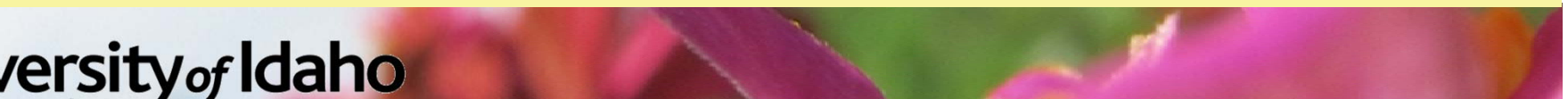
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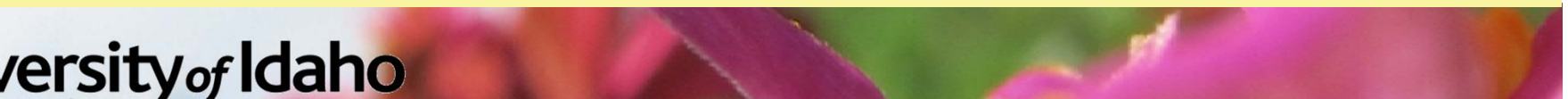
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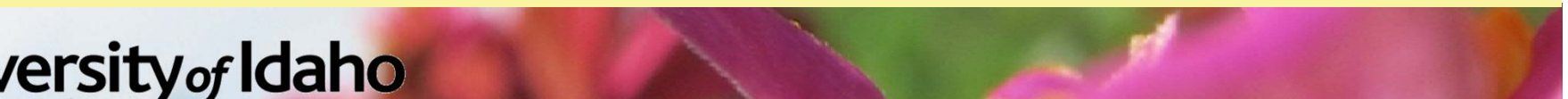
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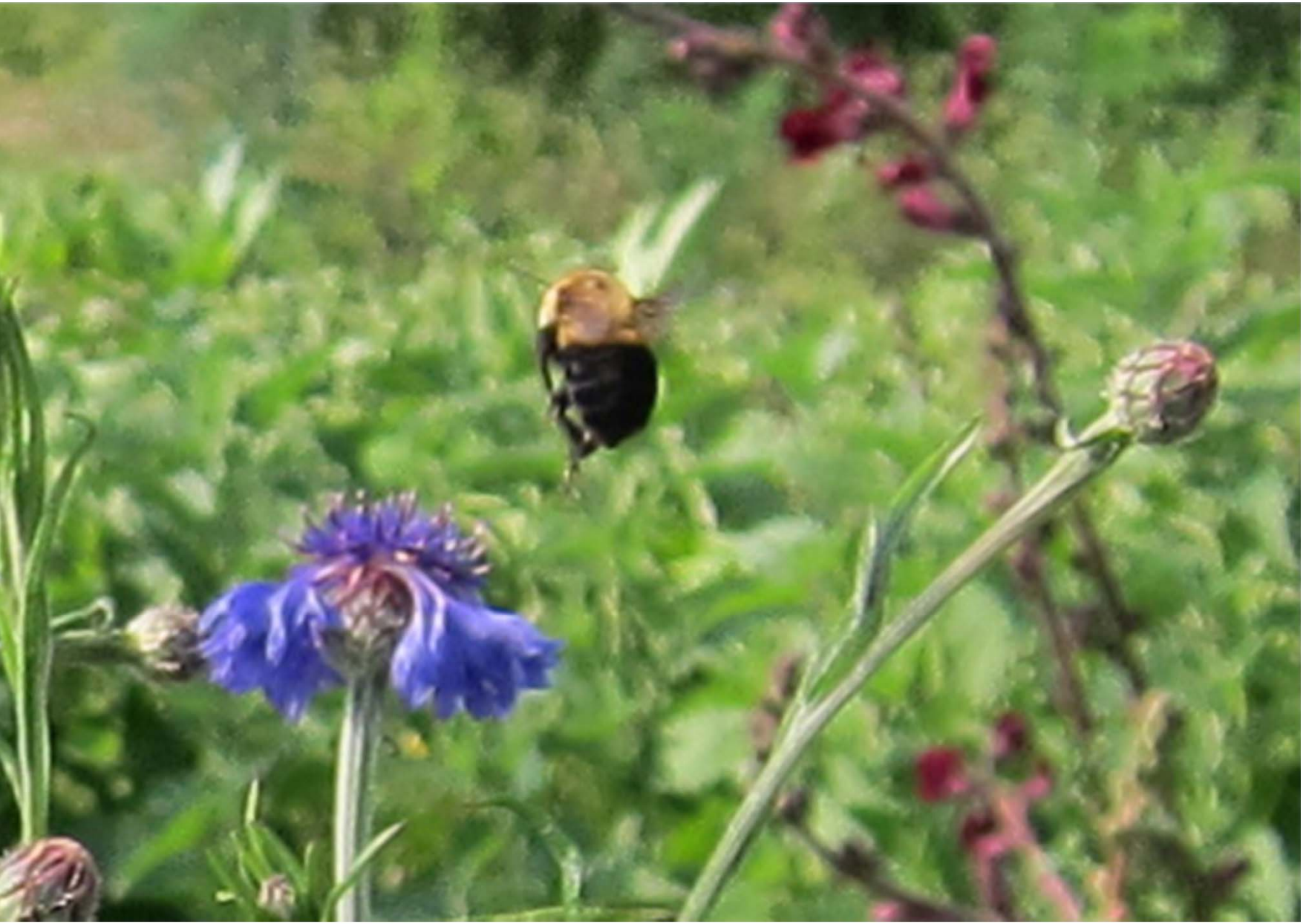

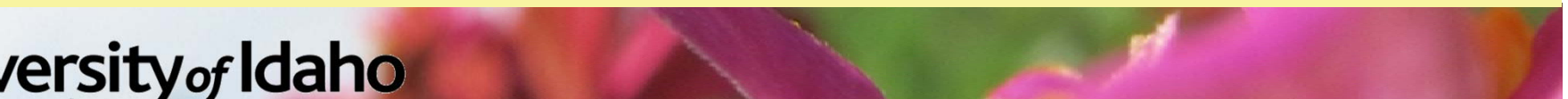
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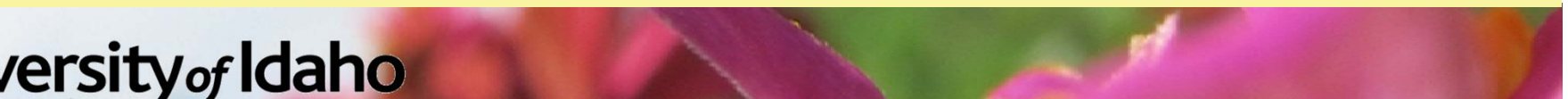
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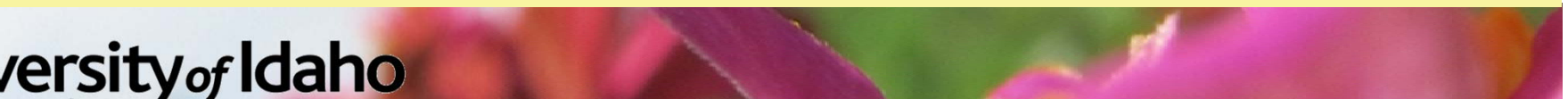
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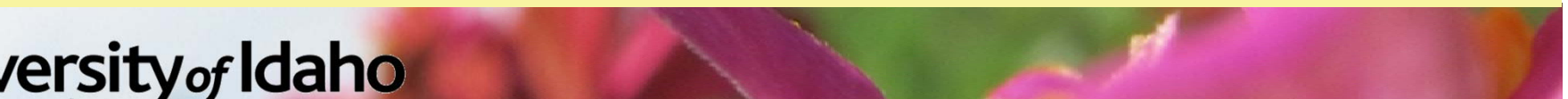
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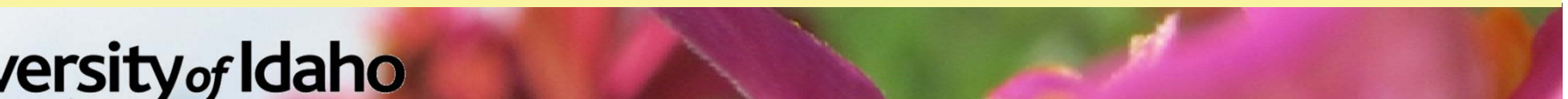
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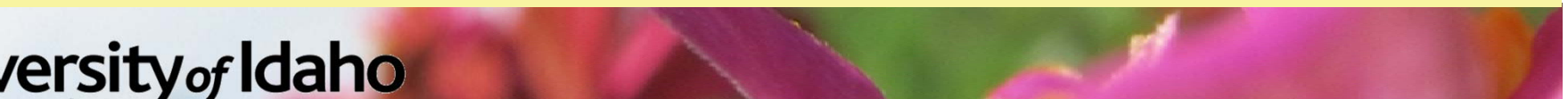
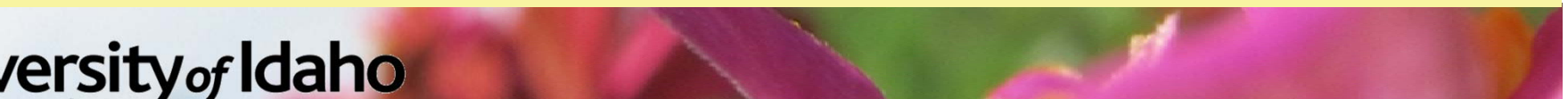
Predators & Parasitoids

- Wasps
- Flies
- Beetles
- Assassin Bugs
- Mantids
- Spiders & Mites

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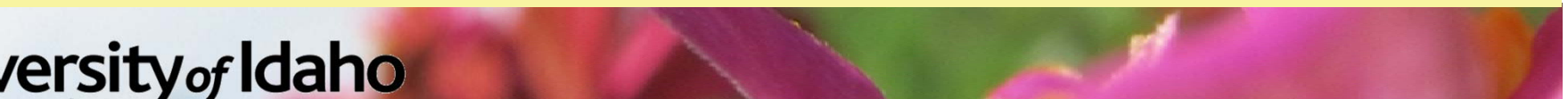
European Paper Wasp
Polistes dominulus
Family Vespidae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Stinging Insects

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Paper-nest Wasp

Yellowjacket

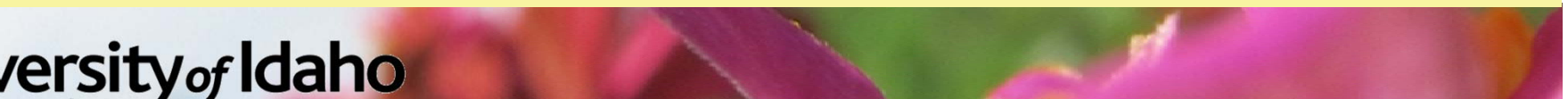
European Hornet

Bumblebee

Carpenter Bee

Honey Bee

ld-faced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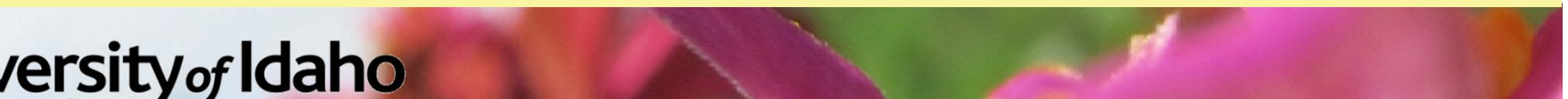
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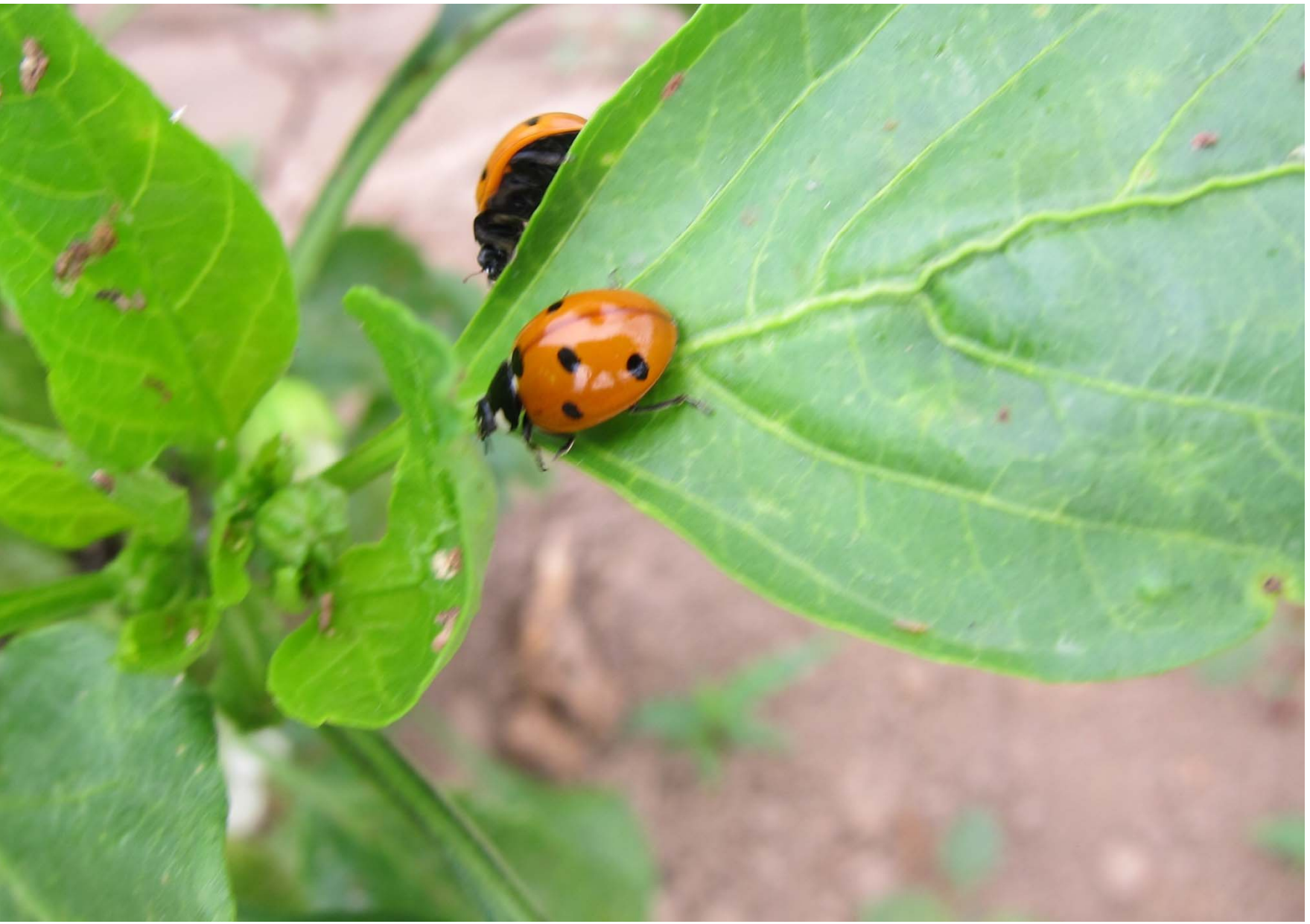

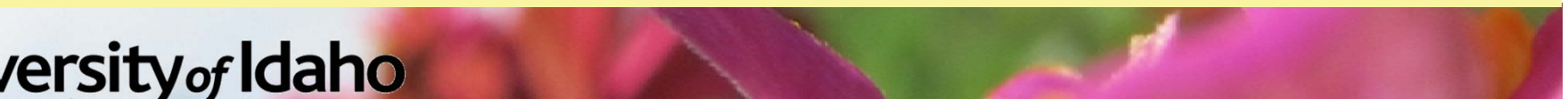
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Protecting Beneficials

Follow label directions

Follow label directions

Follow label directions

Follow label directions

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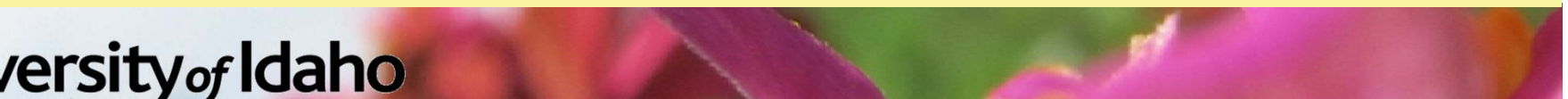
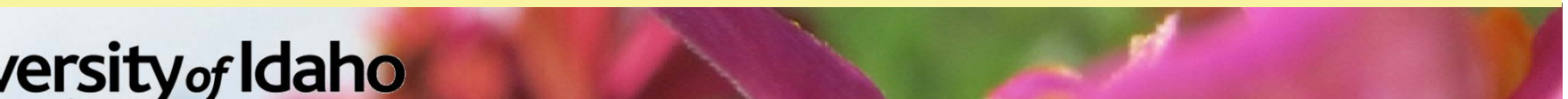


Bee poisoning occurs when:

Insecticides are applied:

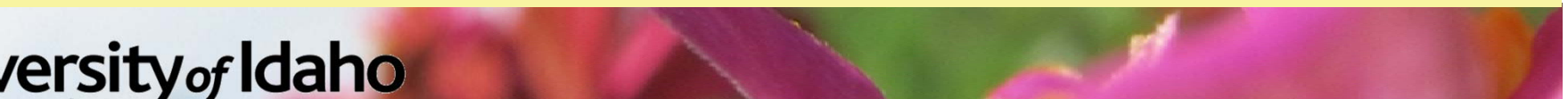
- when bees are foraging
- to bee pollinated crops in bloom
- to blooming weeds adjacent to bee pollinated crops
- and then drift onto blooming crops



And when bees collect:

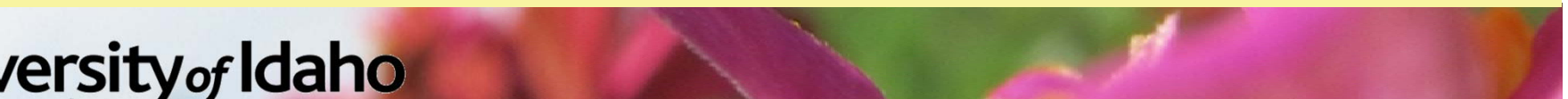
insecticide contaminated pollen or nectar from treated plants that don't require a pollinator but are still a food source (corn)

Pollen from trees or shrubs treated with systemic insecticides



Chemicals responsible for bee poisoning in the PNW

- Organophosphates (acephate, chlorphyrifos, diazinon, malathion)
- N-methyl carbamates (Sevin)
- Neonicotinoids (imidacloprid)
- Pyrethroids (cyfluthrin)



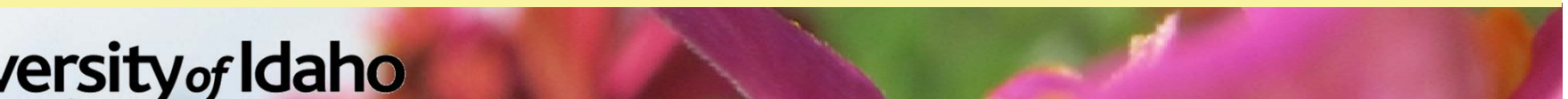
Are organics a safe bet?

Not necessarily

Non-selective organics include:

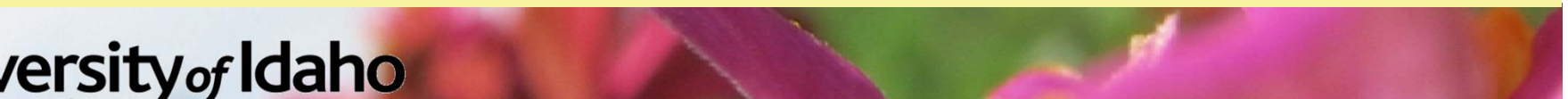
- –permethrins
- –spinosad
- –diatomaceous Earth

Low residual but still TOXIC



What you can do:

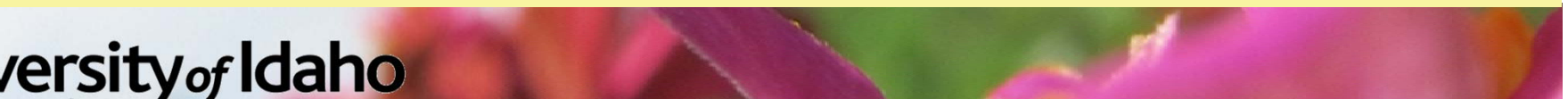
- dentify the pollinators and beneficial nsects in the area to be managed; determine pest thresholds
- Maintain a spray buffer when appropriate and possible
- Select insecticides with the lowest toxicity rating for bees/beneficials



And…

Do not apply insecticides with long residual toxicity to:

- blooming plants, *including weeds*
- plants that bees will likely visit even if they are not currently active
- or when low temperatures or dew are forecast



Extra precautions:

mplement IPM
trategies

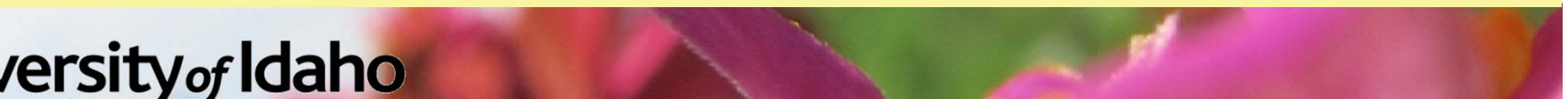
onsider alternatives to
esticides

ommunicate with
eekeepers

hoose products with
hort residual activity

linimize spray drift

- Control weeds before bloom time
- Avoid tank mixing insecticides and fungicides
- Turn off sprayers near water sources
- Avoid spraying products near bees, even if not labeled as cautionary



Attracting Beneficials

Increase biodiversity

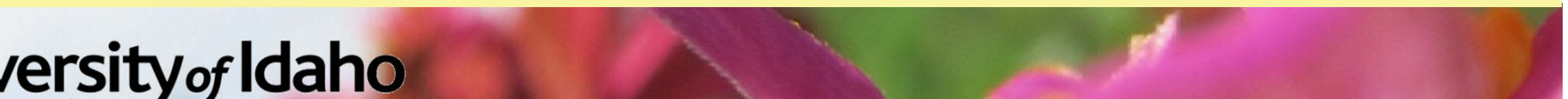
Create more habitat

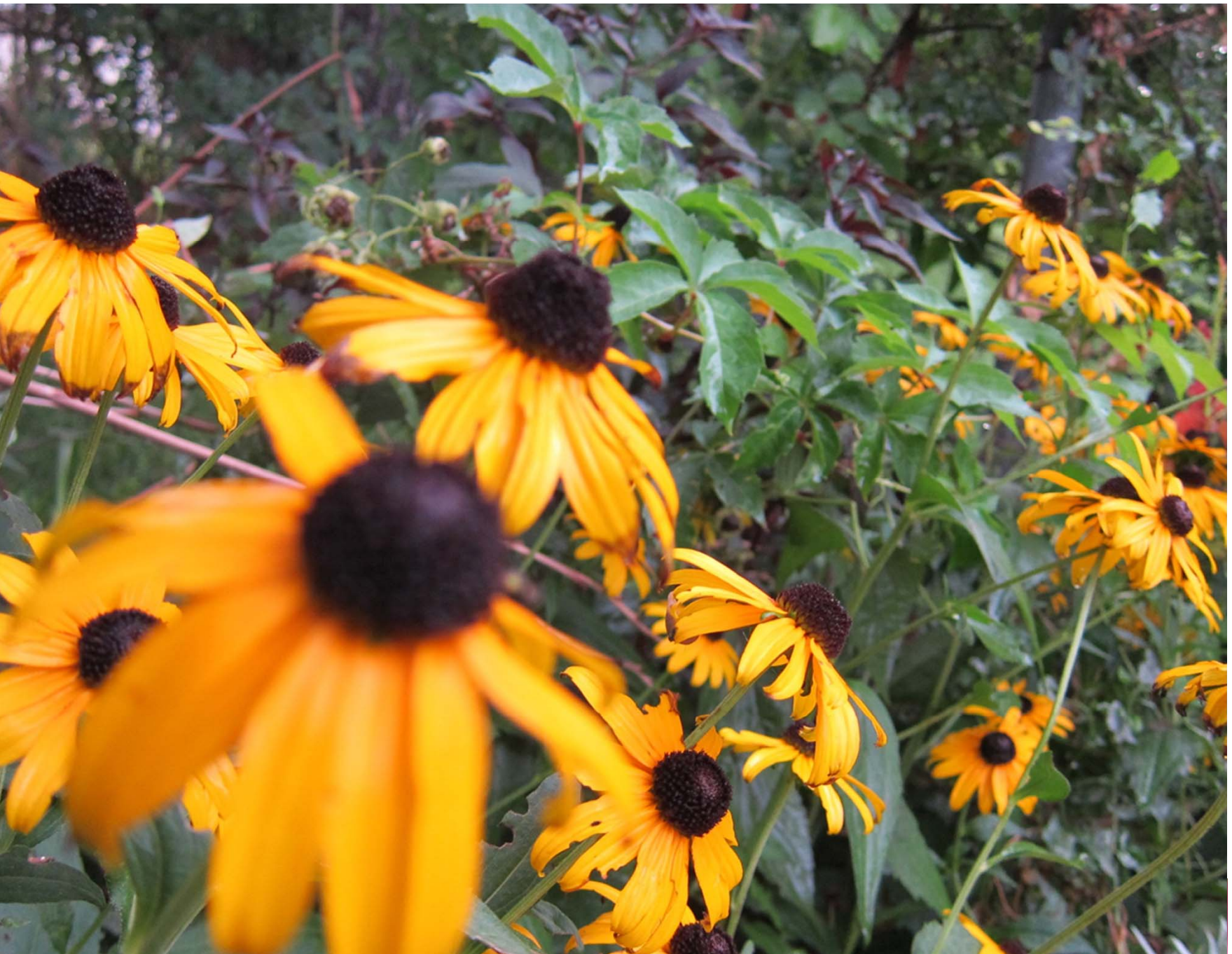
–food sources

–shelter

–water

–nesting sites






Questions?