

# Insect Camouflage, Mimicry, and Defense



Is That Really  
You?

Camouflage,  
Mimicry, and

# Insects Are a Nutritious and Abundant Source of Food

- How do you defend against being eaten?
  - Exoskeleton
  - Flight
  - Large population numbers
  - “Hide”
  - Develop defenses and advertise them

Camouflage,  
Mimicry, and

# Crypsis





# Crypsis can be morphological or behavioral

- Shape
- Color
- Pattern
- Contour
- Olfactory
- Auditory
- Orientation and Attitude

# Camouflage

## Looking like your environment



Camouflage,  
Mimicry, and



# Camouflage

*Moth larvae*



Camouflage,  
Mimicry, and

# Camouflage

## *Katydid*s



Camouflage,  
Mimicry, and



# Camouflage



*“Pebble” grasshopper*



*“Bird dropping  
katydid”*

Camouflage,  
Mimicry, and



# Disruptive patterns

*Lateral  
flaps*



*Reduction of  
shadow*

Camouflage,  
Mimicry, and



# Orientation and Lateral Flaps



Camouflage,  
Mimicry, and



# Orientation



Camouflage,  
Mimicry, and

# Aposematic or Warning Coloration

## “I am Dangerous!”

May incorporate:

- ▣ vivid colors
- ▣ large, colorful aggregations
- ▣ distinctive sounds
- ▣ “flaunting” behavior

Camouflage,  
Mimicry, and



# Warning Coloration red, yellow, pink, black

*Coral snake*



*Poison arrow frog*

Camouflage,  
Mimicry, and



# Monarch Butterfly

*Larvae feed on  
milkweed*



Camouflage,  
Mimicry, and



# Warning Coloration

*Yellowjackets*



*Moth caterpillar*



Camouflage,  
Mimicry, and

# Mimicry

## “I am Someone Else”

- One species (the mimic) resembles another (the model)
- The model is dangerous (usually toxic - unpalatable)  
- the mimic is not dangerous (it is palatable)
- Usually more models than mimics (but not necessarily)
- Species must occur together

Camouflage,  
Mimicry, and



# Batesian Mimicry

## Traditional Model/Mimic Situation

Model is unpalatable or dangerous  
Mimic is palatable or not dangerous

# Monarch and Viceroy



Camouflage,  
Mimicry, and



# Batesian Mimicry

Beetle and Moth



Fly and Bee



Camouflage,  
Mimicry, and



# Batesian Mimicry

*Yellowjacket*



*Moth*



Camouflage,  
Mimicry, and



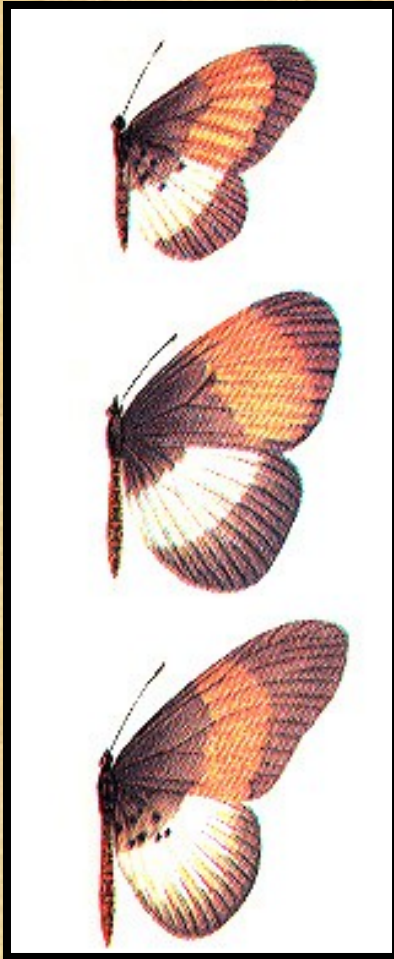
# Mullerian Mimicry

Unpalatable or dangerous  
(unrelated) species evolve to  
look like each other

- Butterfly complexes
- Stinging insects

Camouflage,  
Mimicry, and

# Mullerian Mimicry Butterfly Complexes



Camouflage,  
Mimicry, and



# Passive and Systemic Chemical Defenses

“I am not tasty”

★Remember allomones - benefit the sender!

□Remember how important chemical signals are to insects!

Camouflage,  
Mimicry, and

# Monarch Butterfly

*Larvae feed on  
milkweed*



Camouflage,  
Mimicry, and



# Spines on caterpillars



Camouflage,  
Mimicry, and





# Urticating Hairs



Severe Reaction

Camouflage,  
Mimicry, and



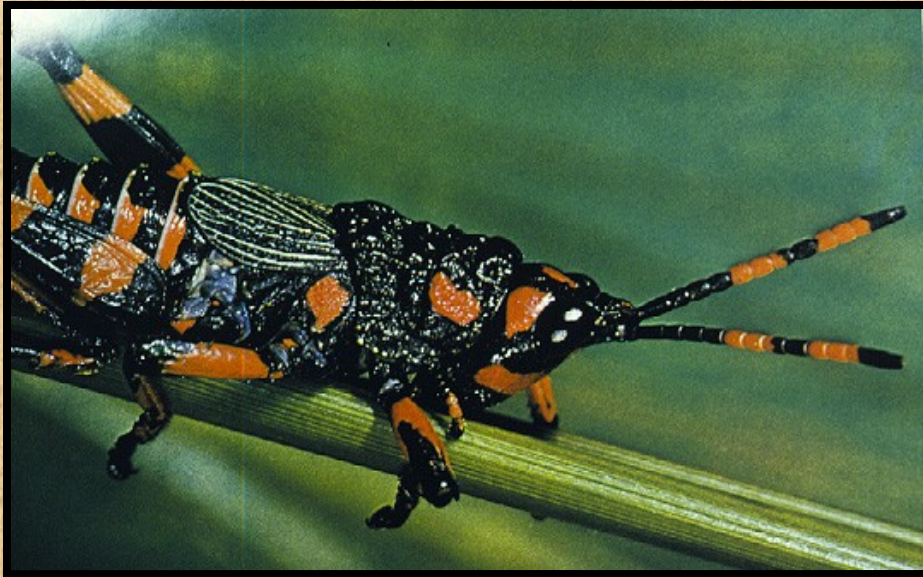
# Reflex Bleeding



Camouflage,  
Mimicry, and



# Enteric Discharge



Camouflage,  
Mimicry, and



# Turning the Tables - Attack!



Osmetaria



Camouflage,  
Mimicry, and



# Startle Behavior - I may not be what I want you to “think”



Eye spots



Camouflage,  
Mimicry, and



# Startle behavior - Flash Coloration



Often accompanied  
by sound



Camouflage,  
Mimicry, and

# Alligator-head Insect



Camouflage,  
Mimicry, and



# Attack!

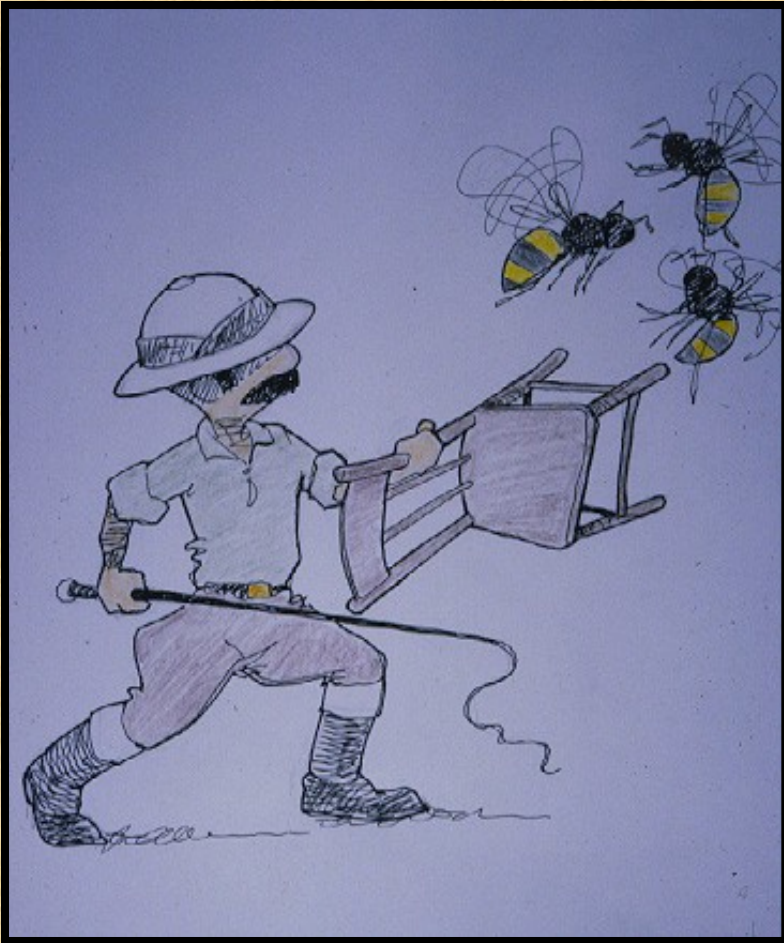
## Bombardier Beetle



Camouflage,  
Mimicry, and



# Yellowjackets



Camouflage,  
Mimicry, and



# Group Defense



*And warning  
coloration*

Camouflage,  
Mimicry, and