

Butterfly Hunt:

The Role of Density Dependence in Batesian and Müllerian Mimicry

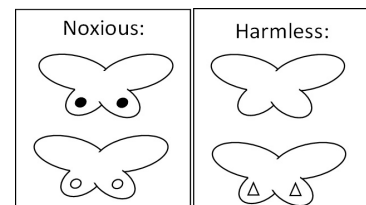
by

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Instructions for the Hunt

1. Form pairs; you will fill in the table on this instruction sheet with your partner.
2. Go to your assigned patch of butterflies (A, B, C or D).
3. When the instructor says “go” and starts the timer, alternate with your partner to pick one butterfly at a time.
4. Check the back of the butterfly that you caught.
5. If it has a circle (open or filled), it is noxious. If it has no symbol or a triangle, it is harmless.
6. Keep the butterflies that you catch with you. *Important! Do not put them back in the patch of butterflies on the floor.*
7. **If you and your partner get more than three noxious butterflies (open or filled circles in the back), you are both out of the game.** So be careful and try to stay alive!
8. If you have not caught more than three noxious butterflies, keep catching as many butterflies as you can until the time is over. However, remember to always catch only one butterfly at a time and check the symbol on the back before hunting another butterfly.
9. When the time is over, count the butterflies that you and your partner caught and fill out the table below according to each type of symbol on the back of the butterfly. Make sure to also write down the patch of butterflies from which you were hunting (A, B, C or D).



Your names: _____		Patch of Butterflies (A, B, C or D): _____	
		Butterfly symbol type (on the back)	Number caught
No symbol: Open symbol: Filled symbol: 	No symbol		
	Open symbol		
	Filled symbol		

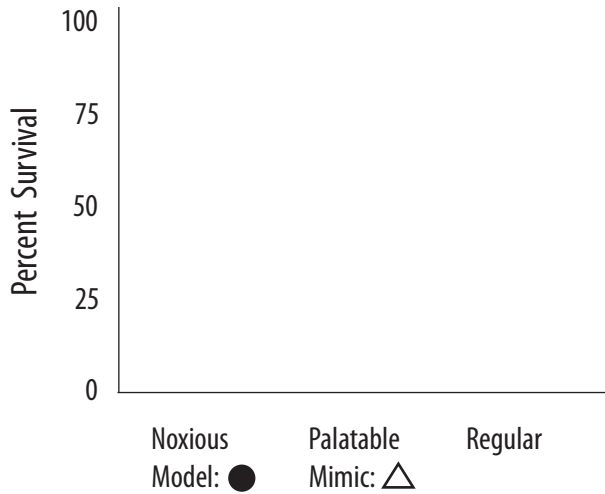
10. Turn in this sheet at the end of class.

Graphs

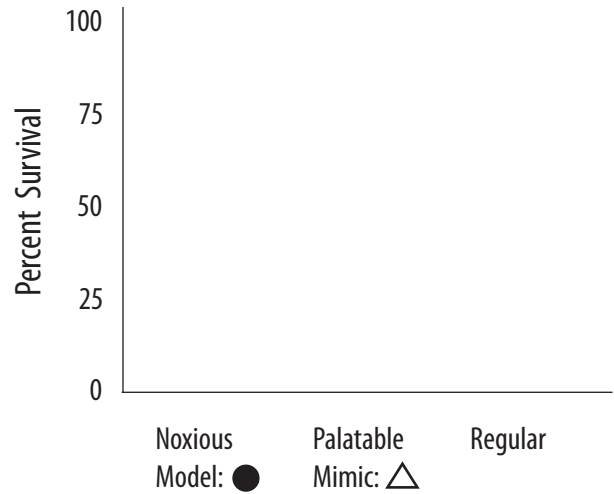
Your Name: _____

Draw a bar graph for the percent survival of each type of butterfly for each patch according to the data collected by your class.

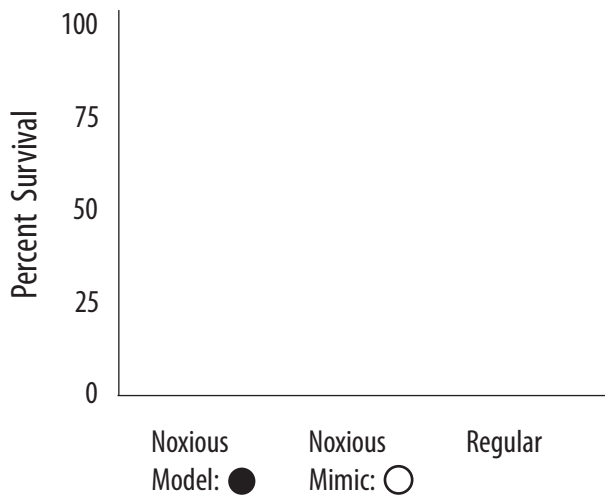
Patch A



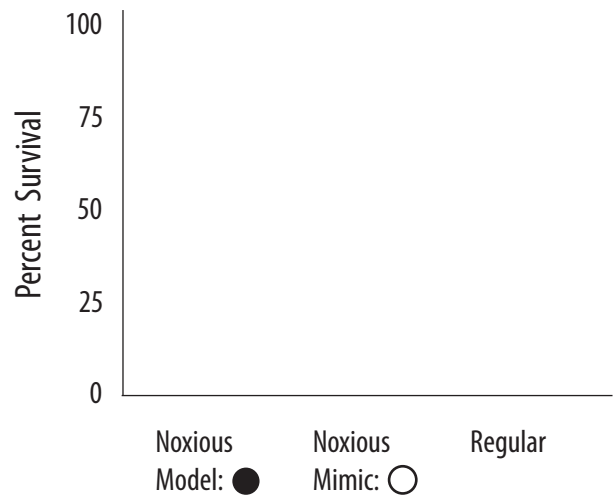
Patch B



Patch C



Patch D



Questions

Your Name: _____

1. Circle the type of mimicry each patch represents (circle one per patch).

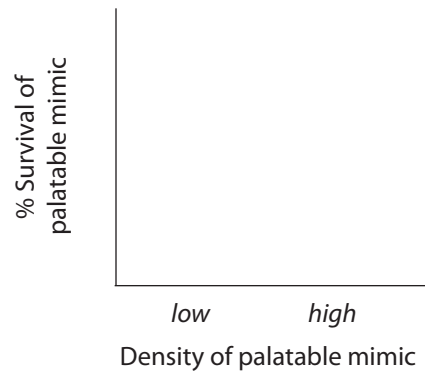
Patch A: Batesian Müllerian

Patch C: Batesian Müllerian

Patch B: Batesian Müllerian

Patch D: Batesian Müllerian

2. Draw the relationship between density of palatable mimics and survival of palatable mimics found in patches A and B:



3. In which patch do both the noxious model and the noxious mimic show a positive density dependent response in relation to their respective population sizes (circle one)?

Patch C

Patch D

4. Why were the percentages of mimics alive at the end of the hunt different for patches A and B?

5. What process leads to similar character features between different non-related species?

6. What type of functional response did you, as a butterfly hunter, exhibit? Mark:

Type 1

Type 2

Type 3

Explain: _____