Name: Quang Huynh Estimating Population Size **Answer Sheet**

<http://www.classzone.com/books/hs/ca/sc/bio_07/virtual_labs/virtualLabs.html>

Click on Estimating Population Size

Questions:

1. *Predict how many grasshoppers could be within the one-acre flags marked in the meadow?*

I will predict that about 1,250 grasshoppers could be within the one-acre flags in the meadow.

2. *Can you tell by looking at the meadow how many grasshoppers live in it?*

No, I cannot tell how many grasshoppers live in the meadow by looking at it.

3. *List the difficulties you might encounter if you tried to determine the population of grasshoppers by simply examining the meadow.*

One difficulty by just simply examining the meadow is that, some grasshoppers might escape the one-acre area.

4. *What are some steps you can take to make a more accurate estimate in population size?*

A step that could make a more accurate estimate in the population size is making a wall around the one-acre area.

Table 1:

|  |  |  |
| --- | --- | --- |
|  | First Capture  Date July 19 | Second Capture  Date July 26 |
| # of grasshoppers in first capture and marked (M) | 130 grasshoppers | X |
| Total # of grasshoppers in 2nd capture including both marked and unmarked (n) | X | 131 grasshoppers |
| # of marked grasshoppers in second capture (R) | X | 2 marked grasshoppers |

5. *Calculation of estimated population size (P): Show your work*

P = M(n)/R

P=130(129)/2

Estimated Population Size = 8385 grasshoppers per acre

**Analysis Questions:**

1. *What is the estimated population size of the grasshoppers living in the meadow?*

The estimated population size of the grasshoppers living in the meadows for me is 8385 grasshoppers living in the meadow.

2. *Based on the estimated population you determined, explain whether or not the grasshoppers pose a threat to nearby crops?*

Based on the estimated population I determined, I think the grasshoppers could pose a threat to the nearby crops. This is due to the number of grasshoppers. If there are just an estimated 8385 grasshoppers in an acre, that means farmland would have a number of grasshoppers similar to that number.

4. *What are some factors that might cause changes in the population of grasshoppers?*

Some factors that might cause changes in the population of grasshoppers are natural disasters, a loss of a species, the weather, the climate, the amount of predators, and the amount of food for the grasshoppers.

5. *What are some factors that might affect the accuracy of your estimate?*

Some factors that might affect the accuracy of my estimate would be the amount of times I sweep the meadows in a capture, the season, and the time of day.

6. *What are the advantages and disadvantages of the capture-mark-recapture method?*

An advantage of the capture-mark-recapture method is that it is the easiest method to conduct this experiment. It does not require any special equipment or tools. Meanwhile, a disadvantage would be it may not be as accurate due to the fact that some grasshoppers could escape from the one-acre land.